

# BOLINAS COMMUNITY PUBLIC UTILITY DISTRICT

BCPUD

BOX 390 270 ELM ROAD BOLINAS CALIFORNIA 94924

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## MEMORANDUM

TO: Board of Directors

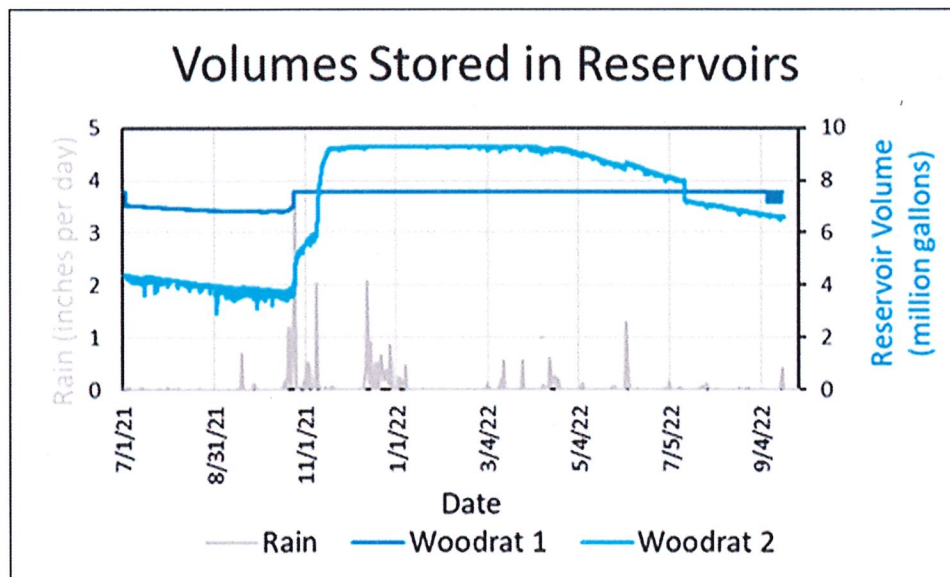
FROM: Jennifer Blackman *JWB*

RE: Update on Water Supply

DATE: September 21, 2022

This memorandum provides a summary of the status of the District's water supply and related data and projections since the last memorandum to the Board dated August 16, 2022.

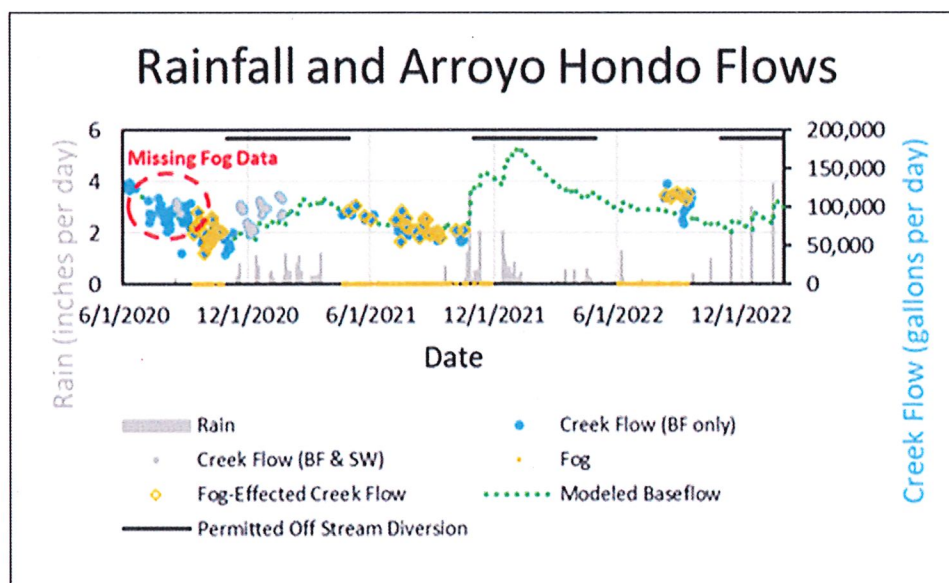
1. Rainfall: Thus far in the 2022-23 rain year, the district has received 1.38 inches rain; 0.7 inches of rain were received in July, 0.23 inches of rain were received in August, and 0.45 inches of rain have been received thus far in September.
2. Water Production and Consumption: From August 17, 2022 – September 20, 2022, water *production* in the district averaged 78,143 gallons per day (GPD), which is a small decline in production as compared to the last reporting period, when production averaged 79,650 GPD. Note that the water treatment plant was off for two days during this reporting period for operational reasons. Water *consumption* during this same timeframe averaged 74,912 GPD (approximately 128 GPD per connection), and is a decline of approximately 9% as compared to the last reporting period, when consumption averaged 82,762 GPD, or approximately 141 GPD per connection. Note that during the extreme heat wave earlier this month, the district did experience several days where consumption approached or exceeded 90,000 GPD.
3. Water in Storage:



The updated graph on the prior page depicts the volumes of water stored in each of the district's reservoirs (Woodrat 1 and Woodrat 2) from July 1, 2021 through mid-September 2022, with the rain events also shown. Our stored usable water supply in the two reservoirs as of September 20, 2022 (combined), plus the amount of treated water in storage, is estimated to be approximately 13.75 million gallons. The Woodrat 1 Reservoir is essentially full (7.6 million gallons, 6.9 million of which are usable) and the Woodrat 2 Reservoir is approximately 71% full (6.6 million gallons, 5.9 million of which are usable). As noted in previous updates, losses from evaporation and seepage are evident in the Woodrat 2 Reservoir, which is more exposed to wind and has a larger surface area than the Woodrat 1 Reservoir; that said, the rate of decline in stored water has slowed since the last report due to the presence of fog, some rain and a shortening of the length of day. Some loss also occurred at the Woodrat 1 Reservoir<sup>1</sup>, but more favorable conditions (this reservoir is more protected from the wind) result in smaller losses which are not evident as a result of ongoing operations (i.e., water from filter backwashing is returned to reservoir).

4. Updated Base Flow Recession Model:

The graph below is the district's base flow (BF) recession model for the Arroyo Hondo Creek, updated to depict predictions about creek flows for the remainder of the calendar year. The district moved from its upper diversion point on the Arroyo Hondo Creek to the lower diversion point last month and staff has been able to obtain periodic creek flow estimates. For example, between September 9 and September 17, average daily creek flows were estimated at approximately 110,000 GPD.<sup>2</sup> The base flow recession model conservatively under-predicted the estimated flow as depicted by the dotted green line below the blue dots representing actual creek flow measurements during this current reporting period.



<sup>1</sup> As depicted in the graph on the prior page, there was some variability in the water level in the Woodrat 1 Reservoir, per the data logger there, which may be due to wind effects.

<sup>2</sup> In late August, staff measured a rate of flow past/around the gate of 12 GPM and efforts are underway to reduce this flow rate. Last year, staff was able to achieve a reduction in the rate of flow past/around the gate to approximately 5 GPM. The recoverable creek flow, therefore, is less than the 110,000 GPD described above at present due to this seepage.

5. Scenario Summaries:

The graph below is an updated Scenario Summary reflecting the actual data recorded as of September 20, 2022 (the three black diamonds in the upper left corner) and the “fork” of projections as to how much stored water the district will have available through January 2023 and beyond based on differing rates of overall community water consumption and based on an assumed (but hypothetical) receipt of 9.9 inches of rain during October 2022 through January 2023, as well as assumptions about evaporative loss in the reservoirs (400,000 gallons per month) and predictions of available creek flows. The most recent seven-day running average community consumption is approximately 70,500 GPD placing the district just above the light blue line. This graph indicates that if consumption stays close to current levels *and* the 9.9 inches of hypothetical rainfall occurs by January 31, 2023 (a relatively conservative assumption), the district will have over 13 million gallons of water in storage (approximately the same amount as we have today) through January 2023. Results would be less favorable if less/no rain occurs since creek flows would continue to drop and no reservoir inflows from runoff would occur.

