

BOLINAS COMMUNITY PUBLIC UTILITY DISTRICT

BCPUD BOX 390 270 ELM ROAD BOLINAS CALIFORNIA 94924 415 868 1224



MEMORANDUM

TO: Board of Directors

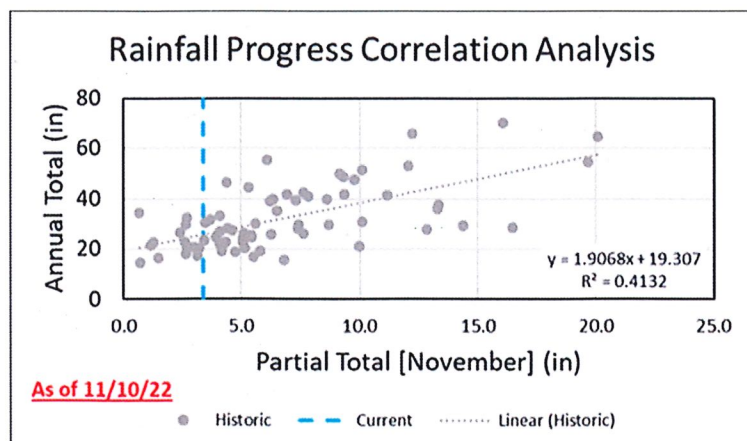
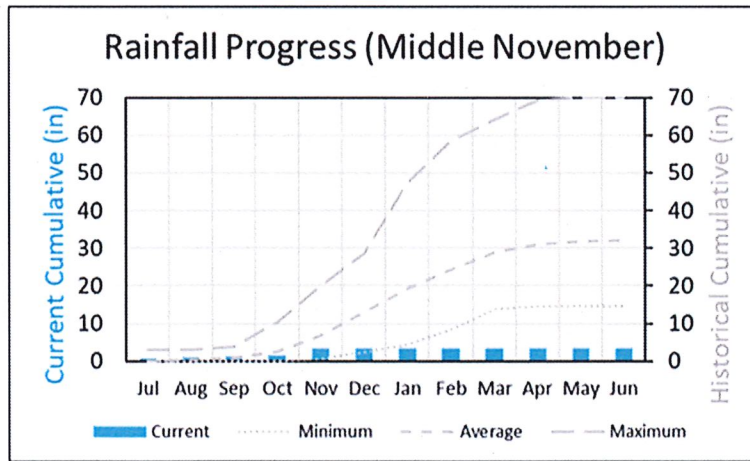
FROM: Jennifer Blackman *JNB*

RE: Update on Water Supply

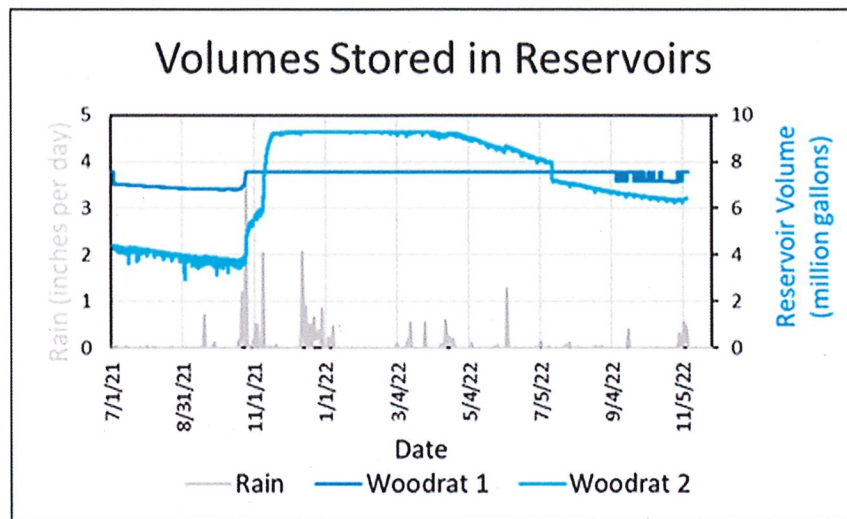
DATE: November 15, 2022

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 September 21, 2022.

- Rainfall:** Thus far in the 2022-23 rain year, the district has received 3.38 inches rain; 0.7 inches of rain were received in July, 0.23 inches in August, 0.45 inches in September, 0.03 inches in October, and 1.97 inches thus far in November. At the present time, the district has received less than the average rainfall for this time of year (see Rainfall Progress graph). A rainfall progress correlation analysis (see second graph below) indicates that there are 14 years in the BCPUD's rain records when we've received 3.38 inches or less of rain through the end of mid-November; during those 14 years, the district subsequently received a minimum annual rainfall of 14.49 inches, a maximum annual rainfall of 34.49 inches, and an average annual rainfall of 22.70 inches.



2. Water Production and Consumption: From September 21, 2022 – November 14, 2022, water *production* in the district averaged 66,311 gallons per day (GPD), which is a significant decline in production as compared to the last reporting period, when production averaged 78,143 GPD. Note that the water treatment plant was off for three and one-half days during this reporting period for operational reasons. Water *consumption* during this same timeframe averaged 67,123 GPD (approximately 114 GPD per connection), and is a decline of approximately 10% as compared to the last reporting period, when consumption averaged 74,912 GPD, or approximately 128 GPD per connection.
3. Water in Storage:

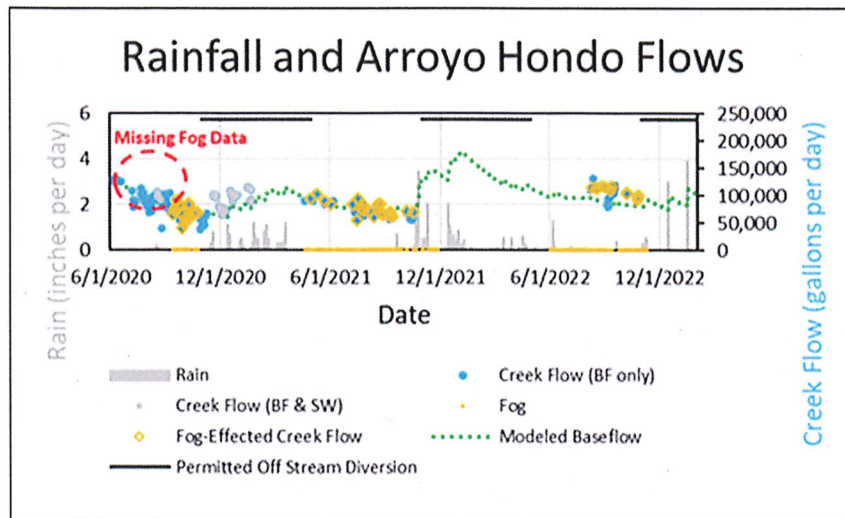


The graph above depicts the volumes of water stored in each of the district’s reservoirs (Woodrat 1 and Woodrat 2) from July 1, 2021 through early-November 2022, with the rain events also shown. The district’s stored usable water supply in the two reservoirs as of November 9, 2022 (combined), plus the amount of treated water in storage, is estimated to be approximately 13.5 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 70% full (6.5 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.

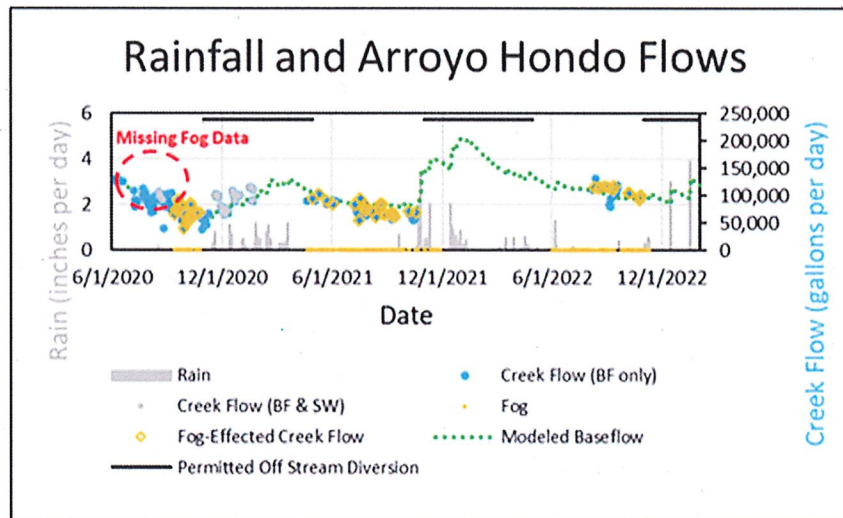
4. Updated and Recalibrated Base Flow Recession Model:

The two graphs on the following page are the district’s base flow (BF) recession model for the Arroyo Hondo Creek, updated to depict predictions of creek flows for the remainder of the calendar year. The model was recalibrated so that the model predictions (green dashed line) better match the data (blue dots) by increasing the amount of flow into the creek from the groundwater system as a result of rain events (model parameter value increased from 7,901 to 9,500 GPD/inch of rainfall). The first graph depicts the BF recession model *before* recalibration, and the second graph depicts the BF recession model *after* recalibration. As noted in previous updates, the BF recession model had been conservatively under-predicting the estimated creek flow, so the model has been updated as described; creek flows are approximately 100,000 GPD at the present time.

Before recalibration



After recalibration



5. Scenario Summaries:

The graph below is an updated Scenario Summary reflecting the actual data recorded as of November 9, 2022 (the four 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 3 inches of rainfall in December and 3.9 inches of rainfall in January (for a total assumed rainfall of 6.9 inches in December 2022 and January 2023) and predictions of available creek flows. The most recent seven-day running average community consumption is approximately 60,170 GPD placing the district above the light blue line. (Note: the 68,000 GPD scenario plots on top of the 54,000 GPD scenario in this graph.) The graph indicates that if consumption stays close to current levels *and* the additional 6.9 inches of hypothetical rainfall

occurs by January 31, 2023 (a relatively conservative assumption), the district will have over 14 million gallons of water in storage 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.

