

# 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 *JB*

RE: Update on Water Supply

DATE: September 14, 2021

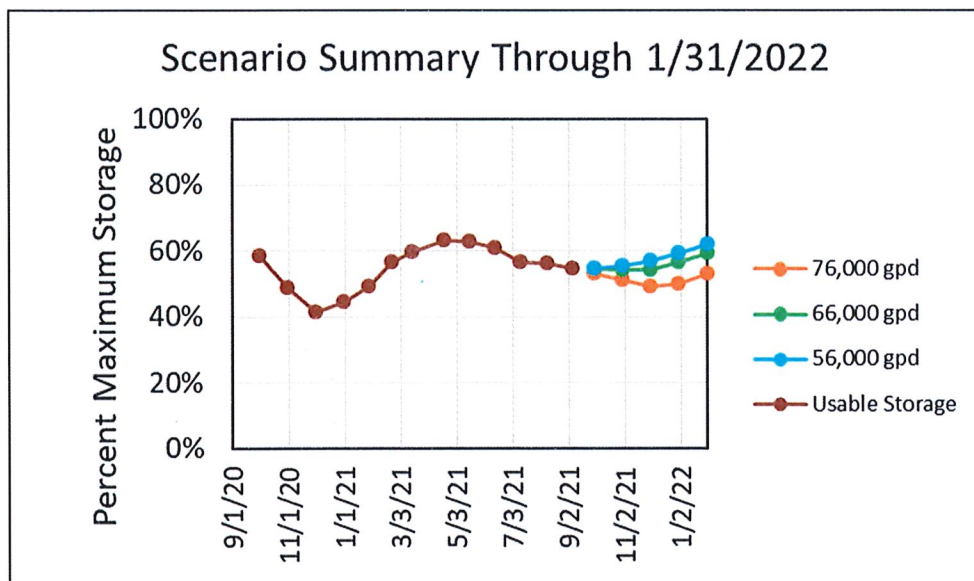
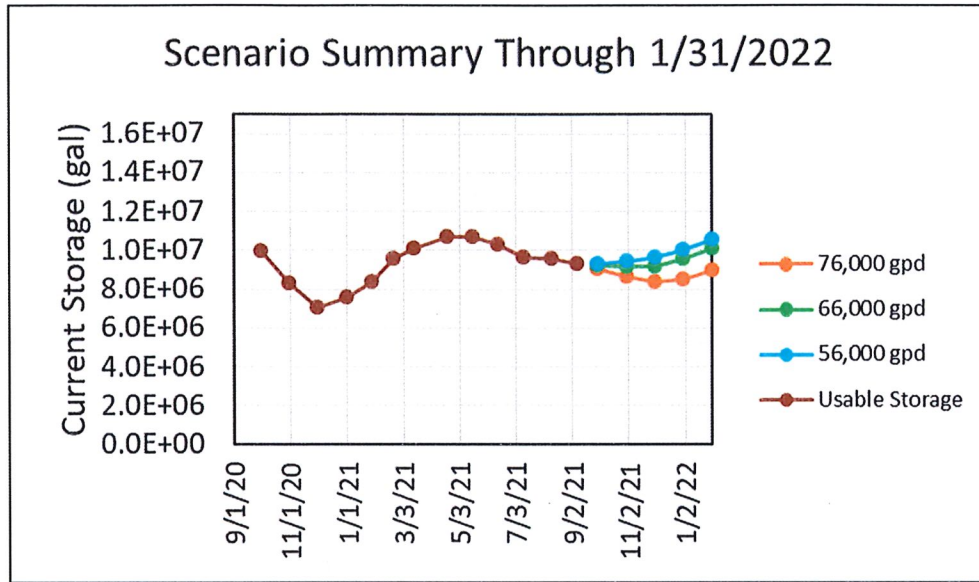
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This memorandum provides a summary of the status of the District's water supply and current consumption data since the last memorandum to the Board dated August 18, 2021.

- Water Supply:** From August 18, 2021 – September 13, 2021, diversions from the Arroyo Hondo Creek to the Woodrat Water Treatment Plant averaged 65,965 gallons per day (GPD), which was higher than the average diversions to the plant the prior month (61,950 GPD) due to the large water main break on August 18, 2021 during which the district lost approximately 130,000 gallons of water and therefore needed to increase diversions to produce more water. No water was diverted from the Woodrat reservoirs to meet demand during this time.
- Rainfall:** The district's rainfall thus far for the 2021-22 rain year (July 1, 2021 – June 30, 2022), through September 14, 2021, is 0.54 inches. The persistent marine layer since early July has resulted in highly beneficial impacts of the fog/marine layer on both Arroyo Hondo Creek flow and evaporation/seepage from storage as discussed below.
- Water in Storage:** Our stored usable water supply in the Woodrat reservoirs as of September 6, 2021 (combined), plus the amount of treated water in storage, is estimated to be 9,282,504 gallons, a decline of 281,862 gallons in storage as compared to the 9,564,366 gallons of water in storage on August 10, 2021 due to evaporation and seepage.
- Water Consumption.** From August 18, 2021 – September 13, 2021 water *production* averaged 60,363 GPD or approximately 103 GPD per connection. Water *consumption* during this same timeframe averaged 54,932 GPD, or 94 GPD per connection. The differential between production and consumption this period is largely attributable to the August 18<sup>th</sup> water main break (and the need to ramp up production to offset the water loss in storage).
- Updated Models:** *Note: The models in this memo assume the Hypothetical Minimum Rainfall Scenario i.e., that the district will receive rainfall approximately equivalent to the 2020-21 rain year, or 9.9 inches of rainfall, between October 2021 and January 2022.*

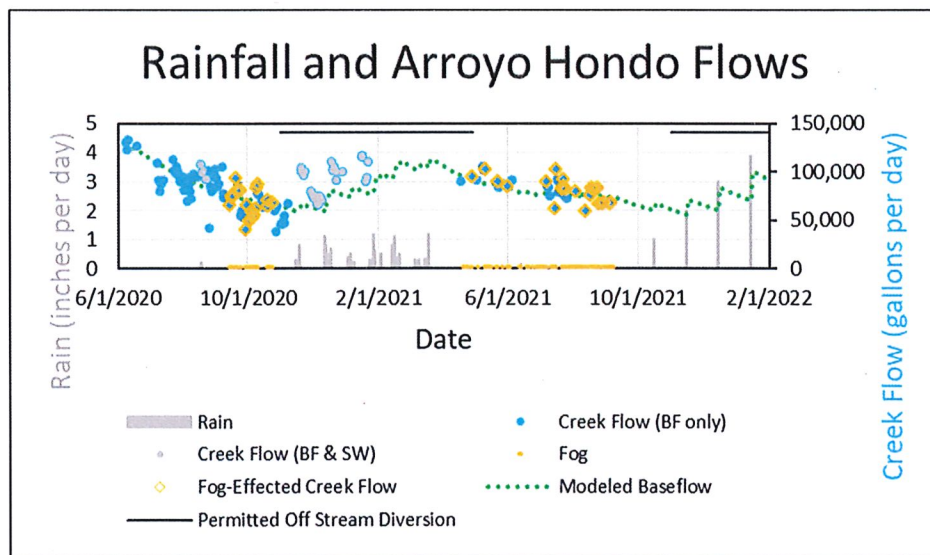
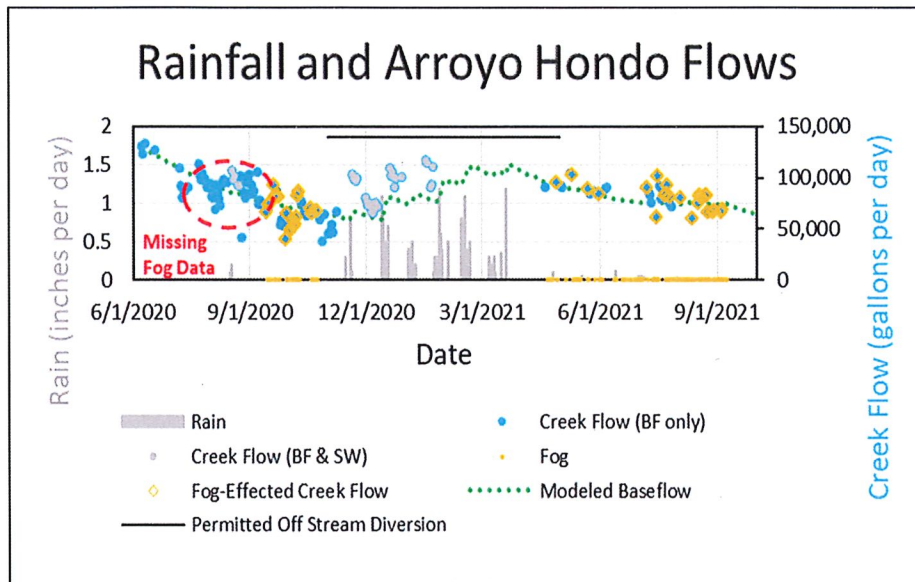
The graphs below are updated Scenario Summaries reflecting the actual water storage data recorded as of September 6, 2021 (brown line with the thirteen dots) and the “fork” of projections as to how much stored water the district will have available through January 31, 2022 based on differing rates of overall community water consumption and (1) assumed (but hypothetical) receipt of 9.9 inches of rain during October 2021 through January 2022 and (2) updated projections to the Arroyo Hondo Creek base flow recession model, discussed below, including the beneficial impact of fog.

The most recent seven-day running average community consumption is approximately 57,500 GPD, placing the district slightly below the blue line. This graph now projects that if (1) consumption stays between current levels and below the ration trigger of 66,000 GPD, (2) the 9.9 inches of hypothetical rainfall occurs by January 31, 2022, and (3) the fog gives way to the more typical warm and sunny Fall weather, the district will have between 10 and 10.5 million gallons of water in storage through January 2022 (green and blue dots on right side of graph box, respectively), or approximately 60-62 percent of capacity.





The next two graphs are updated versions of the district’s base flow (BF) recession model for the Arroyo Hondo creek, which has been updated to reflect the effect of data collected by the district re: the fog/marine layer<sup>1</sup> (in addition to updates discussed in previous memoranda to the Board).<sup>2</sup> The first graph shows conditions through September 6, 2021, and the second projects creek flows through February 1, 2022, assuming the fog will give way to the more typically sunny and warm Fall weather the district generally experiences. The total creek flow is less than it was at this time last year, but more stable over time (i.e., not as steep of a decline over time), which likely is the result of (1) the groundwater system starting less full and draining at a lower rate and (2) more fog (as best we can tell with spotty data). And, of course, the daily demand is far lower than it was this time last year, and generally less than the current creek flow, as a result of conservation measures. The model currently projects about 59,600 GPD of creek flow by October 15, 2021.



<sup>1</sup> Please note the area of “missing fog data” in red on the top graph. District staff only began specifically tracking fog in September 2020 and is endeavoring to obtain that data for June – September 2020.

<sup>2</sup> This updated base flow recession model reflects total creek flow. The seepage past the gate based on repeated flow measurements in August and September was follows: 2.5 gpm (Aug. 25<sup>th</sup>); 3 gpm (Aug. 31<sup>st</sup>); 3 gpm (Sept. 8<sup>th</sup>); and 2.8 gpm (Sept. 14<sup>th</sup>). Given the relatively de minimis amount of seepage, recoverable base flow is not separately depicted.

The next two graphs depict rainfall received in Bolinas between October 1, 2020 and early September, 2021: 16.65 inches relative to historic minimum, average and maximum rainfall (69 years of BCPUD rainfall data); as these graphs show, the district has received slightly more than the minimum recorded rainfall for this time of year. As portrayed in the bottom graph, if September concludes without appreciable rain (a reasonable expectation), there will only have been two water years on record that have been drier.

