BOLINAS COMMUNITY PUBLIC UTILITY DISTRICT

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M E M O R A N D U M

TO: Board of Directors

FROM: Jennifer Blackman

RE: Update on Water Supply

DATE: March 16, 2021

This memorandum provides a summary of the status of the District's water supply and current consumption data as of today's date.

1. Water Supply: From February 24 – March 15, 2021 our diversions from the Arroyo Hondo Creek averaged 56,054; no water was diverted from Woodrat 1 reservoir during this time, demonstrating the beneficial impact of the community's conservation efforts and the rain received thus far this rain year.

2. Rainfall: Rainfall received in January 2021 was 4.5 inches, in February 2021 was 3.5 inches, and in March 2021 (thus far) is 1.25 inches; annual total rainfall (since July 1, 2020) of 14.95 inches. As a reminder, we received a total of 22.7 inches of rain last year. Average annual rainfall received in Bolinas is 32.5 inches.

3. Woodrat 1 and Woodrat 2 : Our stored usable water supply in the Woodrat reservoirs as of March 15, 2021 (combined) is 9,341,931[1], an increase of 499,133 gallons in reservoir storage when compared to the 8,842,818 gallons in storage on February 22, 2021 and an increase of 2,520,547 gallons in storage when compared to the 6,821,384 gallons in storage on December 31, 2021. Again, this reflects the beneficial impact of the community's water conservation efforts (since we have not needed to use reservoir water to meet demand in January, February or thus far in March) as well as the rain received to date, and diversions to storage directly from the Arroyo Hondo Creek (which have been possible due to low consumption and better creek flows).

4. Water Consumption. From February 24 – March 15, 2021 water *production* averaged 55,080 GPD or 93 GPD per connection. Water *consumption* during this same timeframe averaged 54,482 GPD, or 92 GPD per connection (averaged across the entire district).

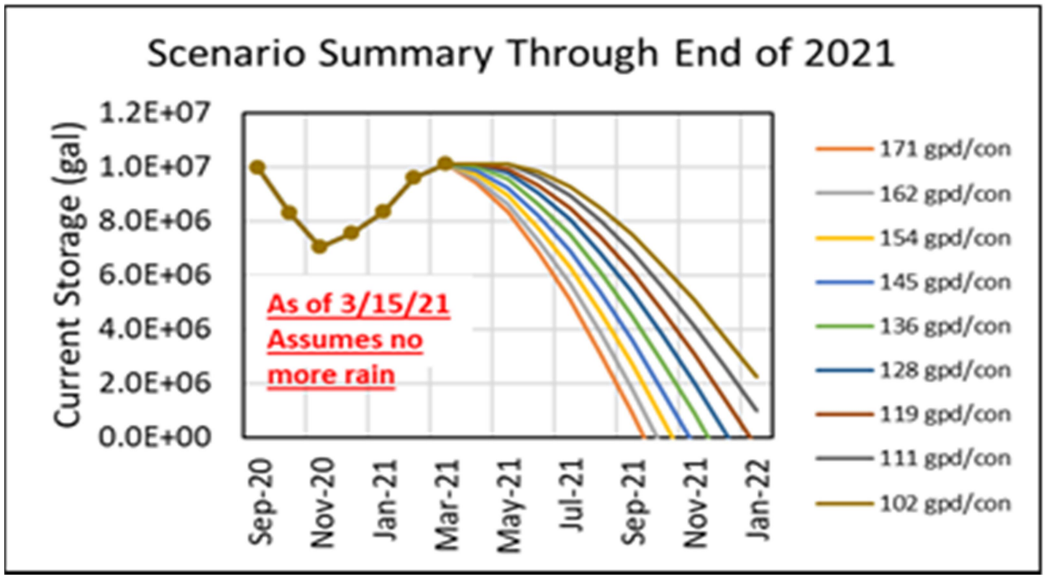
Individual water consumption remains uneven; we continue to measure a wide range of use across the district. For example, in February 2021, the highest 11 water users logged an average consumption of 308 to 1403 gallons of water per day, and 23 customers (including the 11 just referenced) used an average of more than 200 gallons of water per day. Overall, in February, 46 customers used more than the requested 150 GPD and 96 customers used more than the anticipated ration amount of 125 GPD. (In contrast, in January, 69 customers used more than the requested 150 GPD and 122 customers used

[1] We also had 780,540 gallons of treated water in storage in our East and West tanks (combined) as of March 14, 2021, for a total water storage (treated + raw) of 10,122,471 gallons.

more than the anticipated ration amount of 125 GPD.) Water use at the laundromat downtown remains far above average (historically around 800 GPD) at 1,403 GPD in February.

5. Updated Models:

The first graph below is an updated Scenario Summary reflecting the actual data recorded as of March 15, 2021 (brown line in upper left area of graph with the seven dots) and the "fork" of projections as to how much stored water the district will have available through 2021 and beyond based on differing rates of consumption. Current consumption (including unaccounted water loss) places us to the right of the brown line (102 GPD), which shows that if consumption stays at or below current levels, we will have water available in storage into January 2022.



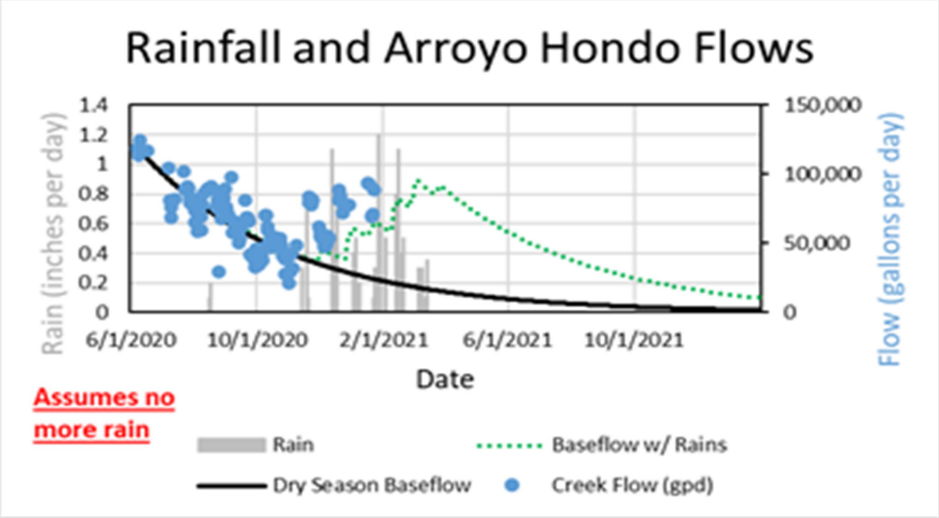
Note that if consumption climbs up to the 125 GPD ration amount, stored water supplies are projected to be depleted by December *assuming no more rain after March 15, 2021*.

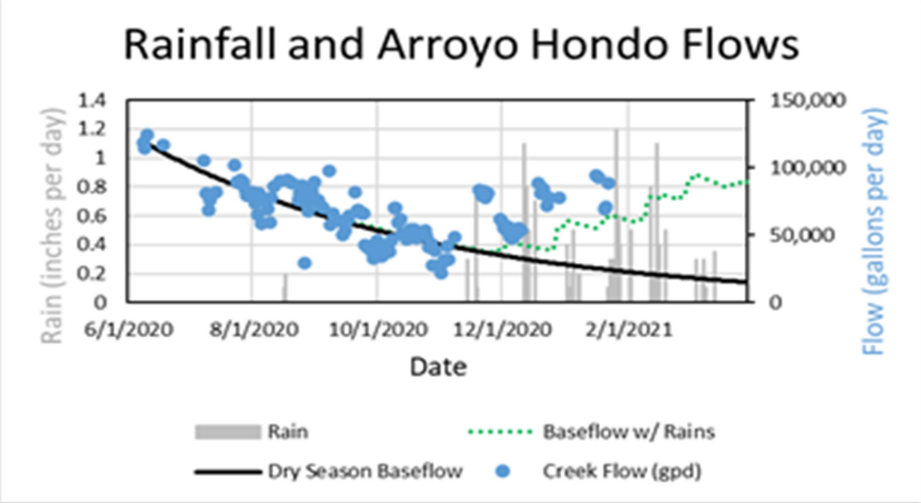
Note also that the slope of the recorded storage (brown line with dots) has inclined upward since the low point in November 2020, but has flattened somewhat between the February and March measurements, reflecting the relatively minimal amount of rain (1.25 inches) received during that time as compared to January (4.5 inches) and February (3.5 inches).

Finally, note that when conditions allow, staff has been diverting water from the Arroyo Hondo Creek directly to storage in Woodrat 2, which has helped bolster water storage.

While the district's stored water supply position has improved, reservoir levels remain well-below full, which is highly unusual for this time of year.

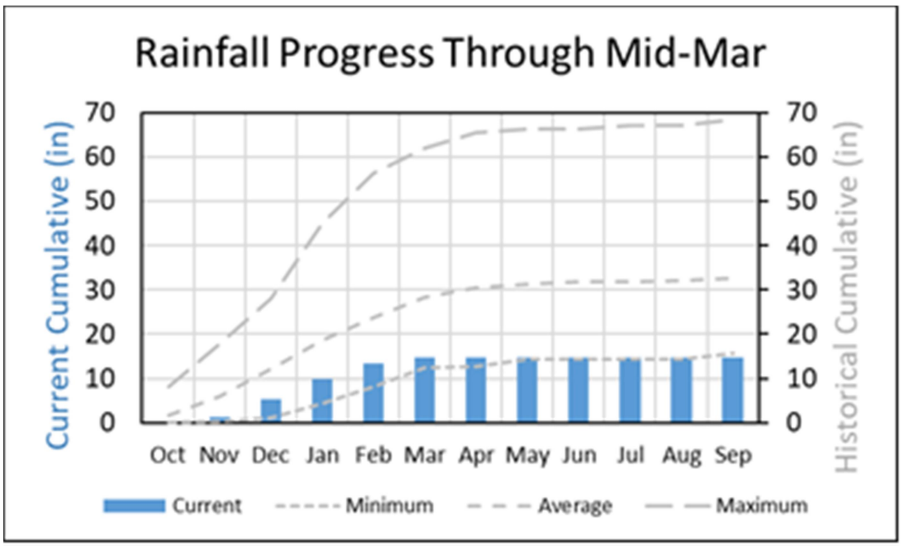
The second graph below is the baseflow recession model[2] for the Arroyo Hondo creek, updated with data through March 15 2021 to reflect the beneficial effect of rain on creek flows. The model currently assumes a 15-day lag between rainfall in the watershed and baseflow response at the creek. Although creek flows have increased as a result of the rain, this model (created and updated by the district's consulting hydrogeologist, Rob Gailey), projects that the beneficial impact of the rainfall on creek flows will quickly dissipate without more rain.

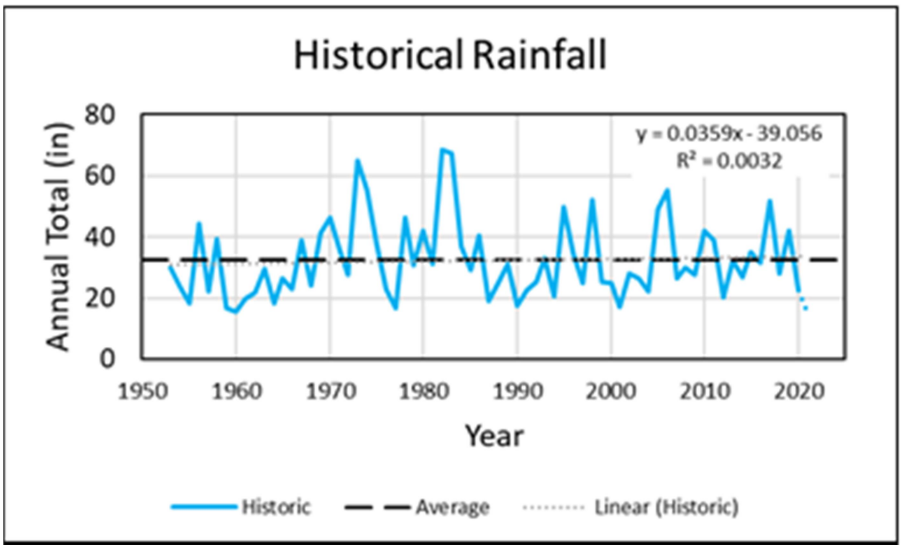




[2] The term baseflow recession curve is typically used to describe such a model because the flow decreases, or recedes, with time since the last rainfall event. The effects of recent rains as well as surface flows to the creek (which are not modeled) are indicated.

The next two graphs depict rainfall received in Bolinas as of March 15, 2021 (14.65 inches from October 1, 2020 – March 15, 2021)[3] relative to historic minimum, average and maximum rainfall (68 years of BCPUD rainfall data); as these graphs show, while the district is above the minimum recorded rainfall for this time of year, it remains well below average.





[3] Note: the BCPUD measures rainfall as of July 1 for each rain year; the models in this memorandum utilize the October 1 start date for the rainy season. The difference is a negligible 0.3 inches as the district received 0.3 inches of rain in August 2020.

The next graph correlates the rainfall progress as of March 15th with total annual rainfall for the available historical record (preceding 68 years). During that time, the district has experienced only 6 other years where the rainfall received was 14.65 inches or less as of March 15th (partial month) – the specific rain years are indicated in the graph below. Those rain years generally turned out to be *much* drier than normal years with a minimum total rainfall received of 15.6 inches, a maximum of 18.4 inches, an average of 17.2 inches and a line of best fit projection of 18 inches. These statistics suggest there is an increasingly high potential for the 2020-21 year to be a well-below average rainfall year.

Important Note: if rainfall in fact totals only 18 inches for the 2020-21 rain year, it is likely the mandatory daily per connection ration amount enacted via BCPUD Resolution 682 will need to be adaptively managed (lowered) as it was formulated on the basis of an assumed projected rainfall of 20.7 inches.