

**SPECIAL MEETING REGARDING  
WATER SUPPLY AND IMPLEMENTATION OF  
MANDATORY CONSERVATION MEASURES**

**BOLINAS COMMUNITY PUBLIC UTILITY  
DISTRICT**



February 3, 2021



# MEETING OUTLINE

- Purposes of Meeting
- Takeaway Points
- Background on Water Supply
- Current Water Supply Conditions
- Planned Course of Action: **Mandatory Rationing**
- Closing Points
- Discussion



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# PURPOSES OF MEETING

- Update the BCPUD Board of Directors and the Bolinas community on the current status of the town's water supply
  - Tonight's meeting is *informational*
  - As will be explained, the BCPUD Board will hold an additional special meeting on February 24, 2021 and is expected to take action on mandatory rationing on March 1, 2021



# PURPOSES OF MEETING

- Acknowledge the community's conservation efforts and explain why it is critical that the community's water use does not increase, as it typically would beginning at about this time of year
- Explain why BCPUD staff has determined it is necessary for the BCPUD Board to enact mandatory water rationing effective March 1, 2021
- **Please hold questions until the presentation is complete**



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# TAKEAWAY POINTS

- This is a very, very dry year: Bolinas has received only **10.2 inches of rain** so far this rain year (as of January 31, 2021)
- Last year was also very dry: Bolinas received **only 22.7 inches of rain** during the entire rain year (July 1, 2019 – June 30, 2019)
- Average annual rain fall in Bolinas is **32.5 inches**.



# TAKEAWAY POINTS

- The current challenge facing Bolinas at this time is a water supply problem (due to insufficient/below average rain in recent years), *not a water use problem*
- Water use in town is very low by historical standards and has declined commendably since June 2020 in response to the BCPUD's heightened water conservation alerts – **thank you!**





# TAKEAWAY POINTS

- Therefore, no specific “type” of customer is to “blame” for the town’s current water supply shortage
- We are all in this together in a beautiful town with a very limited water supply



# TAKEAWAY POINTS

- Overall, BCPUD staff believes that voluntary conservation efforts are at a peak right now, prior to warming weather and the commencement of gardening
- It is critical that the community's overall water use does not increase above current levels



# TAKEAWAY POINTS

- Mandatory rationing of water is necessary to ensure historical “seasonal demand increases” in water use (such as new planting, significant garden-watering, and uses associated with summer activities) do not occur
- BCPUD staff therefore recommends that the Board approve the implementation of a mandatory water rationing resolution **by no later than March 1, 2021**



# TAKEAWAY POINTS

- BCPUD staff recommends a **per connection per day mandatory rationing approach**, with limited specific exceptions to be considered and decided by the BCPUD Board of Directors at a special meeting on February 24, 2021
- Due to considerable uncertainties at this time about the extent of the exception requests to be approved by the BCPUD Board, BCPUD staff cannot provide the exact per day per connection mandatory ration amount tonight



# TAKEAWAY POINTS

- Instead, the precise per day per connection ration amount of water will be determined by BCPUD staff *after* exception requests are considered and determined by the BCPUD Board
- The per day per connection ration amount and all exceptions will be expressly detailed in a BCPUD resolution to implement mandatory rationing effective March 1, 2021
- As will be explained tonight, the ration amount will be **no more than 100** gallons of water per day per connection



# TAKEAWAY POINTS

- The per day per connection ration amount will be re-assessed by the BCPUD throughout 2021 depending on rainfall and other water supply considerations
- BCPUD staff will be distributing “water audit” guides and other information to help customers manage their water use
- BCPUD staff is actively investigating supplemental water supplies (i.e., possible supplemental groundwater sources)



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# BACKGROUND ON WATER SUPPLY

- The primary water source for the BCPUD water system is the **Arroyo Hondo Creek** located in the southern portion of Point Reyes National Seashore
- This small perennial creek has supplied the district since the 1920s





# BACKGROUND ON WATER SUPPLY

- The limited flow from the Arroyo Hondo Creek is one of the reasons for BCPUD's water shortage emergency declarations in the 1970s, culminating in BCPUD Resolution 173, enacted in 1977, known as “the moratorium resolution”
- In the 1980s, the BCPUD constructed two water storage reservoirs, Woodrat 1 and Woodrat 2, as emergency, back-up water supply sources



# BACKGROUND ON WATER SUPPLY

- The Arroyo Hondo Creek and the Woodrat 1 and 2 reservoirs are **surface water sources**
- The Woodrat 1 and 2 reservoirs are supplied by **intermittent** creeks that flow during the rainy season
- When the rains cease and the dry season begins, Woodrat 1 and 2 reservoirs are at their maximum storage for the year



# BACKGROUND ON WATER SUPPLY

- The Arroyo Hondo Creek is a **perennial** creek
- When the rains cease and the dry season begins, the Arroyo Hondo Creek is supplied by groundwater seepage, which decreases slowly over time (until the rains resume)
- To meet demand when the Arroyo Hondo Creek flows decline, the BCPUD supplements with stored water diverted from the Woodrat 1 and 2 reservoirs



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# CURRENT WATER SUPPLY CONDITIONS

- Arroyo Hondo Creek flow in January 2021
  - 78,610 gallons per day on average (approx.)
- The Arroyo Hondo Creek currently is meeting demand
- Average daily current community water use (January 2021) was 62,000 gallons per day or 102 gallons per day per connection (approx.)



# CURRENT WATER SUPPLY CONDITIONS

- BCPUD is not diverting water from storage right now (i.e., the Woodrat 1 and 2 reservoirs) to meet demand
- This is very good news and a result of successful community conservation efforts – **thank you!!!**
- Available stored water as of 1/28/21 was approx. 9.1 million gallons
  - Water storage tanks: 750,750 gallons
  - Woodrat 1 and 2 reservoirs: 8,346,470 gallons



# CURRENT WATER SUPPLY CONDITIONS

- The last two years have been very dry
  - **22.7 inches of rain** was received during the 2019-20 rain year (July 1, 2019 – June 30, 2020)
  - This was well below the district's average rainfall of **32.5 inches**
  - Thus far in the 2020-21 rain year (July 1, 2020 – June 30, 2020), the district has received only **10.2 inches of rain**



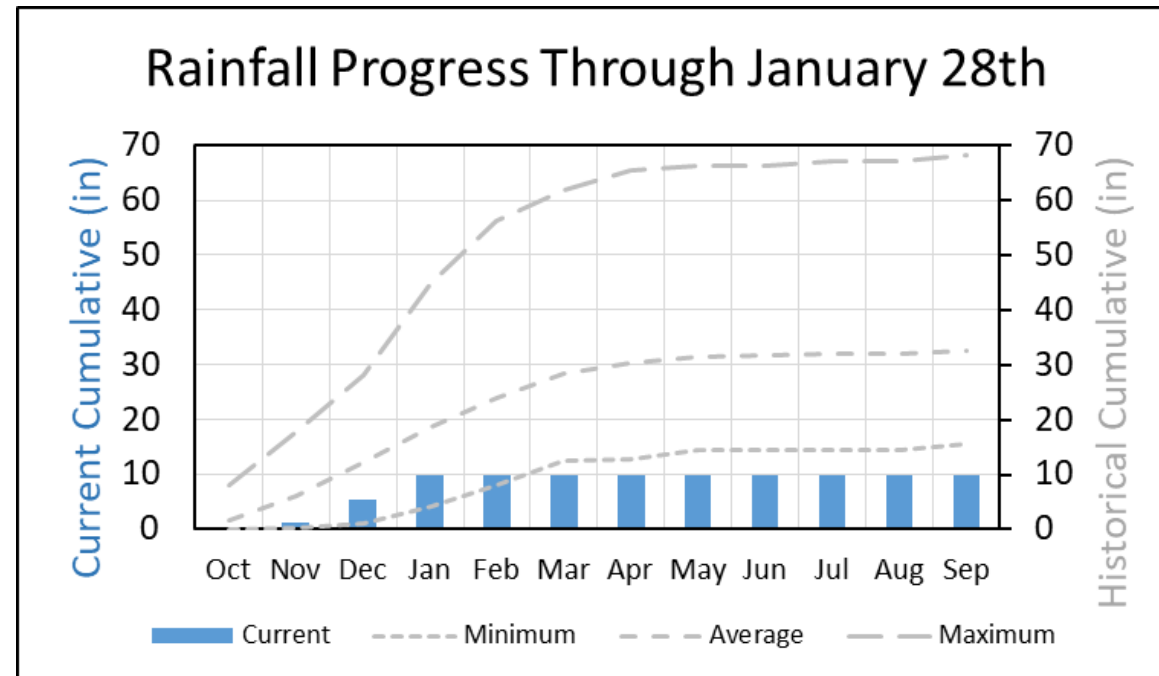
# CURRENT WATER SUPPLY CONDITIONS

- Based on an analysis of nearly 70 years of recorded rainfall data in Bolinas, the following two slides show that, while we have received above the minimal rainfall ever recorded for this time of year, we remain well below average



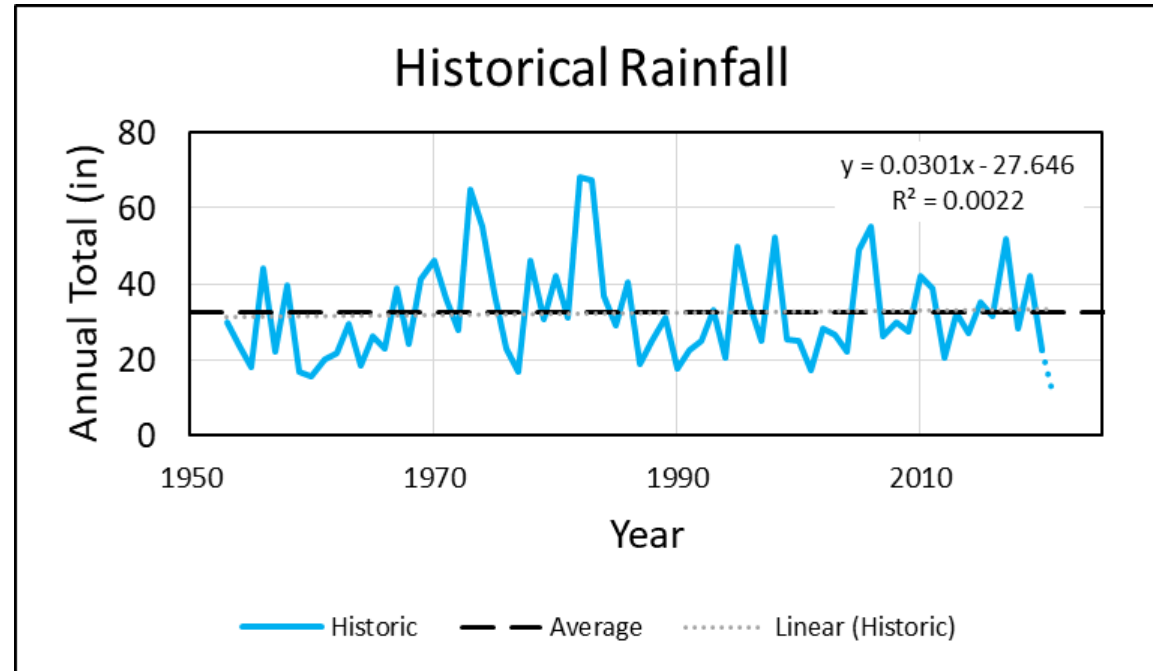


# CURRENT WATER SUPPLY CONDITIONS





# CURRENT WATER SUPPLY CONDITIONS



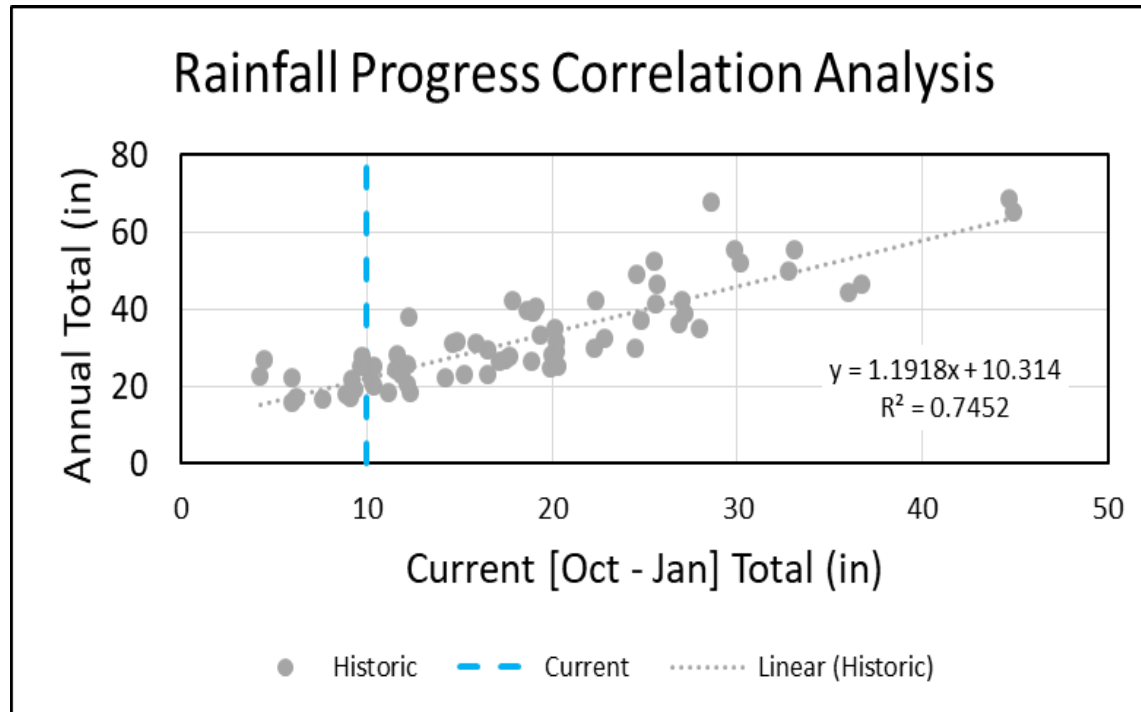


# CURRENT WATER SUPPLY CONDITIONS

- Again based on analysis of nearly 70 years of recorded rainfall in Bolinas, the following slide shows that in past years when we received 10 inches or rain (or less) as of January, the district ultimately received:
  - a *minimum* of 15.6 total inches of rain,
  - a *maximum* of 27.6 total inches of rain, and
  - an *average* of 20.7 total inches of rain



# CURRENT WATER SUPPLY CONDITIONS



Current	10.00
	10.00
# Records	12
Min	15.6
Max	27.6
Avg	20.7



# CURRENT WATER SUPPLY CONDITIONS

- BCPUD staff therefore believes the remainder of this year is likely to be very dry
- While it is possible we will not receive *any* more rain this rain year, BCPUD staff believes it is more likely that we will receive approximately 11 more inches of rainfall (i.e., the dry-year average total of 20.7 inches of rainfall for similar years)



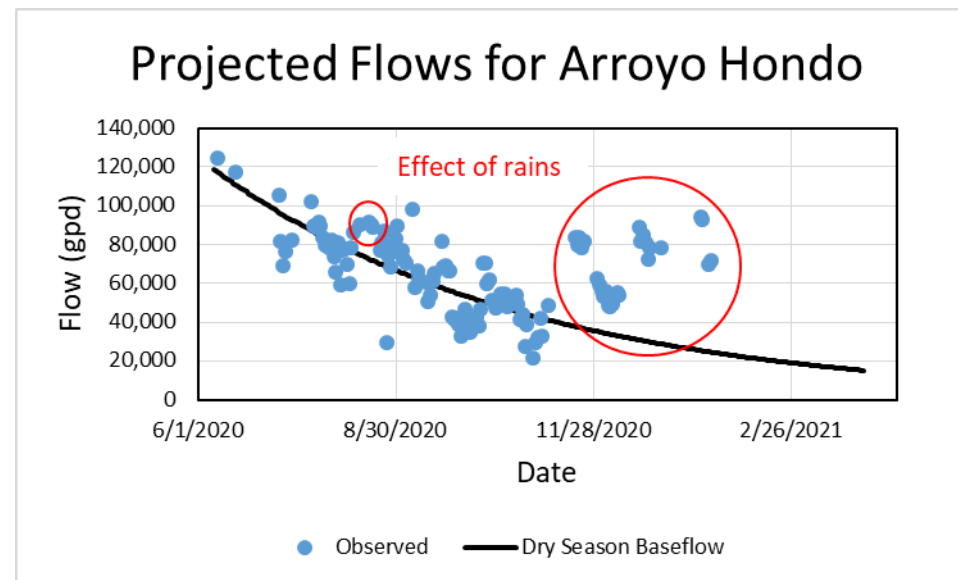
# CURRENT WATER SUPPLY CONDITIONS

- This assumption (21 inches of total rainfall this year) is underlying BCPUD staff's planning for rationing
- BCPUD staff will adapt its planning strategy as the next few months unfold and we see how much rain we receive and/or whether supplemental sources are available
- However, if we do not implement a plan NOW for a dry remainder of the year, we could run out of water by the end of the summer



# CURRENT WATER SUPPLY CONDITIONS

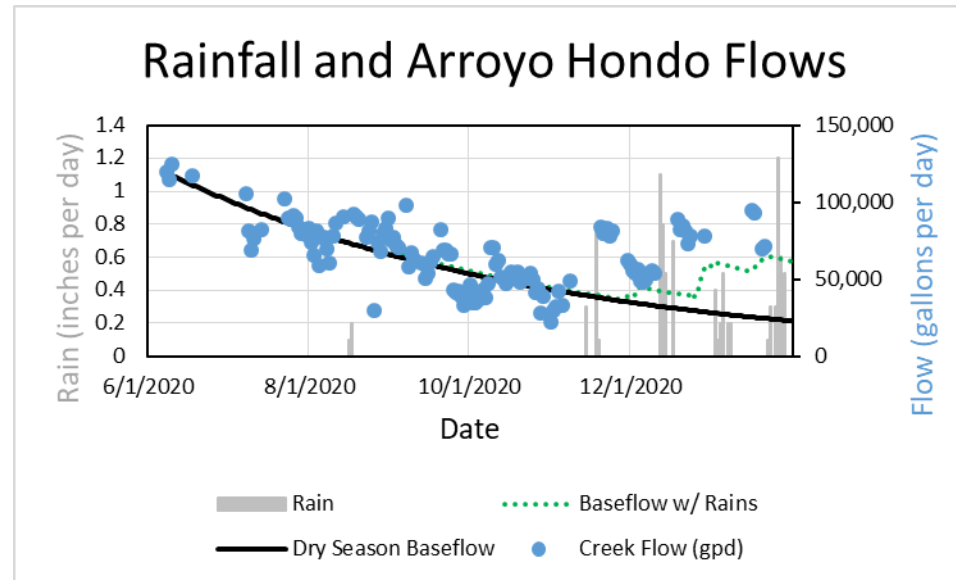
- BCPUD staff previously developed a dry season “baseflow recession model” of the Arroyo Hondo Creek (black line), shown below along with the *actual* creek flows through January 2021 (blue dots)





# CURRENT WATER SUPPLY CONDITIONS

- BCPUD staff has updated the analysis of the creek flows to include the rainfall received thus far (**dotted green line**)

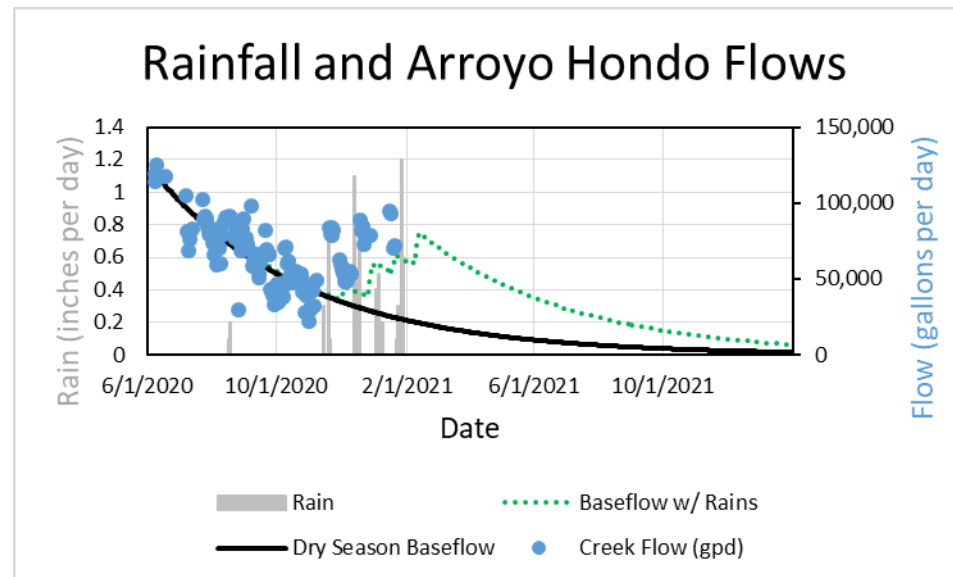






# CURRENT WATER SUPPLY CONDITIONS

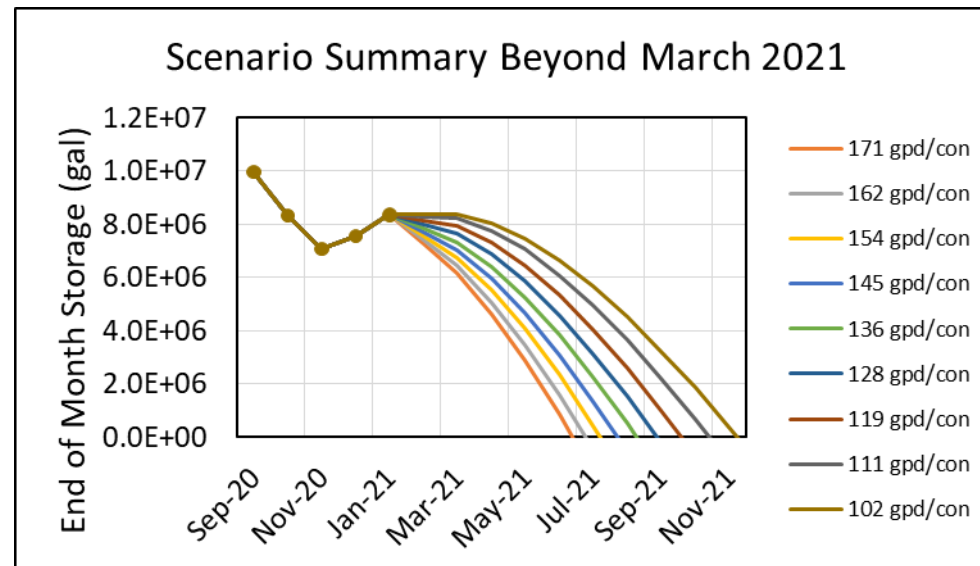
- The updated baseflow recession model for the Arroyo Hondo Creek below (**dotted green line**) reflects the beneficial impact of the rainfall to-date, which will quickly dissipate without more rain





# CURRENT WATER SUPPLY CONDITIONS

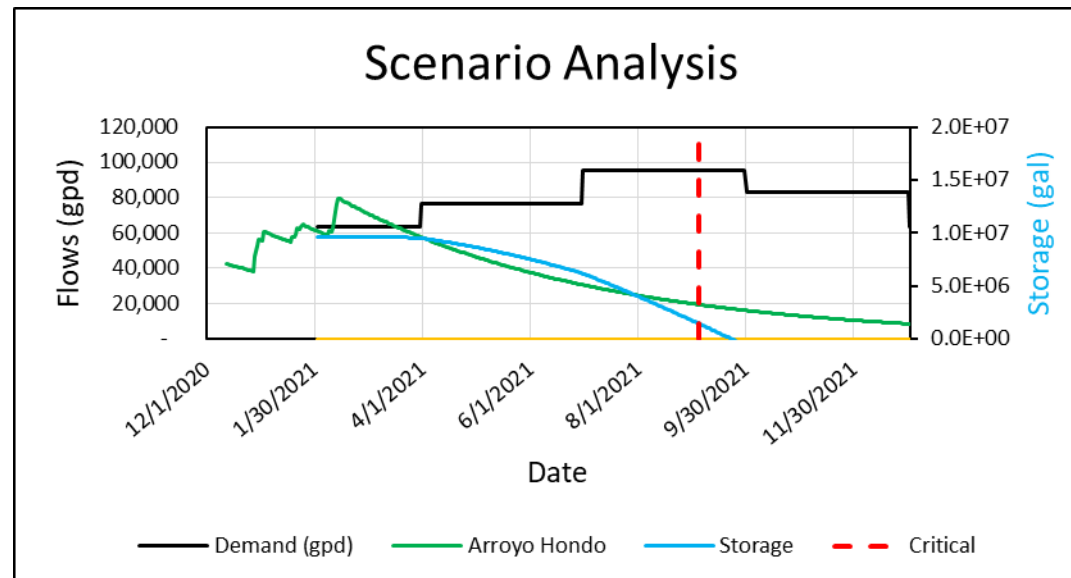
- This graph shows actual (brown dots/line) and anticipated (colored lines) impacts on water storage from the rain received thus far and the community's conservation efforts: stored water supplies will run out by November *if* we receive no more rain *and* water use remains at current levels (and MUCH earlier if water use increases)





# CURRENT WATER SUPPLY CONDITIONS

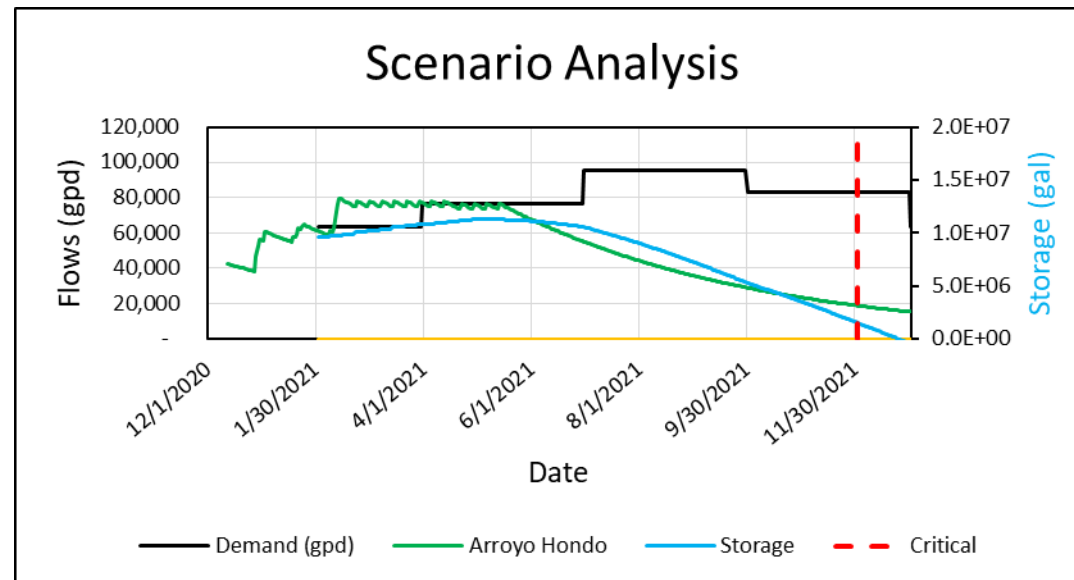
- If there is no more rain this year *and* water use in town increases on a seasonal basis over the rest of the year beginning in April, BCPUD staff projects that the town will be critically low on water and water quality will be exceedingly poor by Summer, and the town will be out of water entirely by early September





# CURRENT WATER SUPPLY CONDITIONS

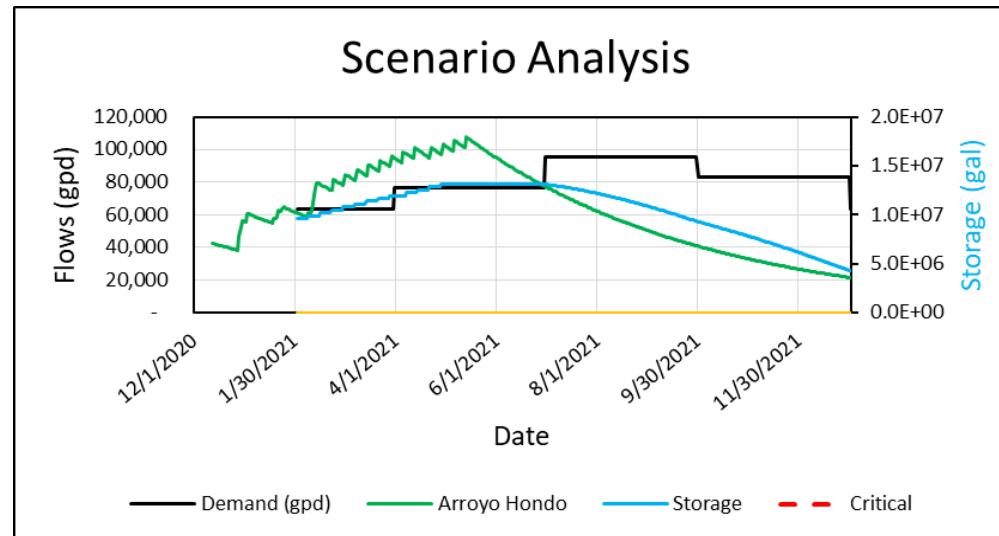
- *If the district receives 15.6 total inches of rain through April 2021 (the historic low) and water use in town increases on a seasonal basis over the rest of the year beginning in April, BCPUD staff projects that the town will be out of water by the end of November (and water quality will be exceedingly poor by mid-summer)*





# CURRENT WATER SUPPLY CONDITIONS

- *If the district receives 20.7 total inches of rain through April 2021 (the historic average) and water use in town increases on a seasonal basis over the rest of the year beginning in April, BCPUD staff projects that creek flows and storage will be critically low and water quality will be exceedingly poor by early Fall (fire season)*





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# PLANNED COURSE OF ACTION

- It is critical that overall community water use does **not** increase above current levels or the district will run critically low on water and experience very poor water quality by early Fall (fire season), or run out of water entirely if rainfall is less than projected
- What does this mean?
- Mandatory water rationing is necessary



# PLANNED COURSE OF ACTION

- BCPUD staff believes that community water use has declined to current levels (as compared to water use in June) largely – but not entirely -- due to the end of summer activities and garden-watering during the final three months of 2020 (in addition to continued conservation efforts)
- BCPUD staff believes that without mandatory rationing, community water use will increase, consistent with historic seasonal demand, beginning as early as March 2021





# PLANNED COURSE OF ACTION

- Average community water use currently is approximately 62,000 gallons per day (which is half of the June 2020 community water use of approximately 120,000 gallons per day)
- This current average community use translates to an average per connection daily use of 102 gallons, *but usage is widely divergent across the customer base*



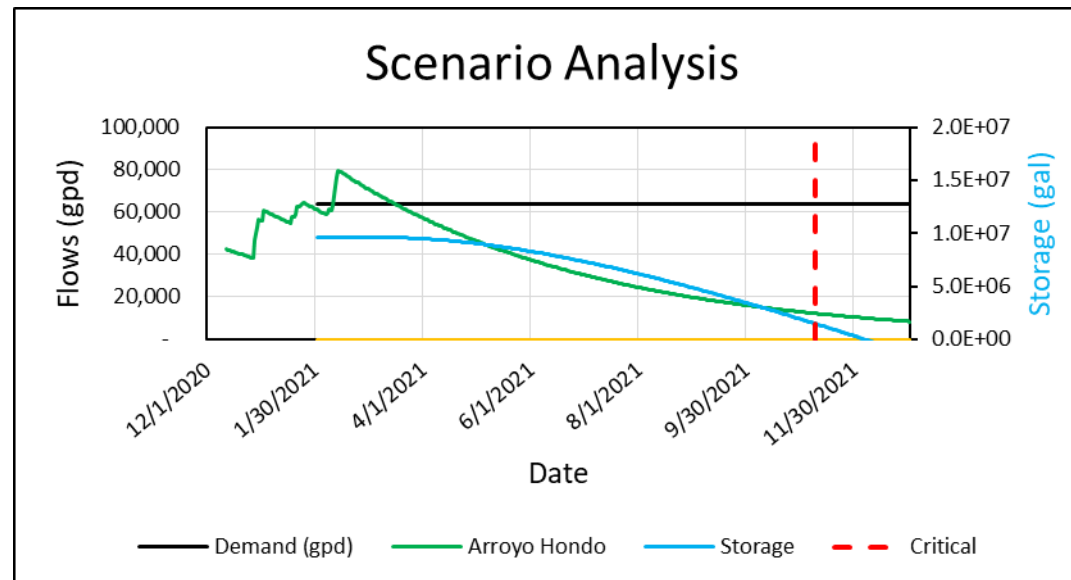
# PLANNED COURSE OF ACTION

- This usage data is the basis for BCPUD staff's projection that the per day per connection ration amount will be a maximum of 100 gallons
- In other words, a majority of us will need to use less water to help those who need to use more (such as our restaurants and community-serving entities)



# PLANNED COURSE OF ACTION

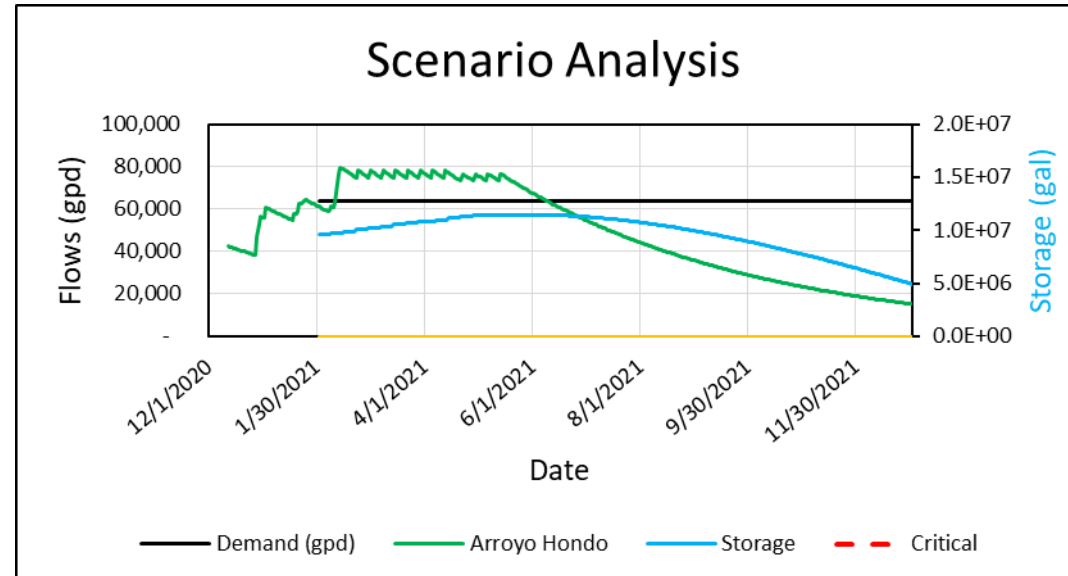
- *If the district receives no more rain this year and community water use stays at the current level via mandatory rationing, BCPUD staff projects that the date the town runs out of water will be deferred from early September until early November, but creek flows and storage will be critically low and water quality will be exceedingly poor by Summer (fire season)*





# PLANNED COURSE OF ACTION

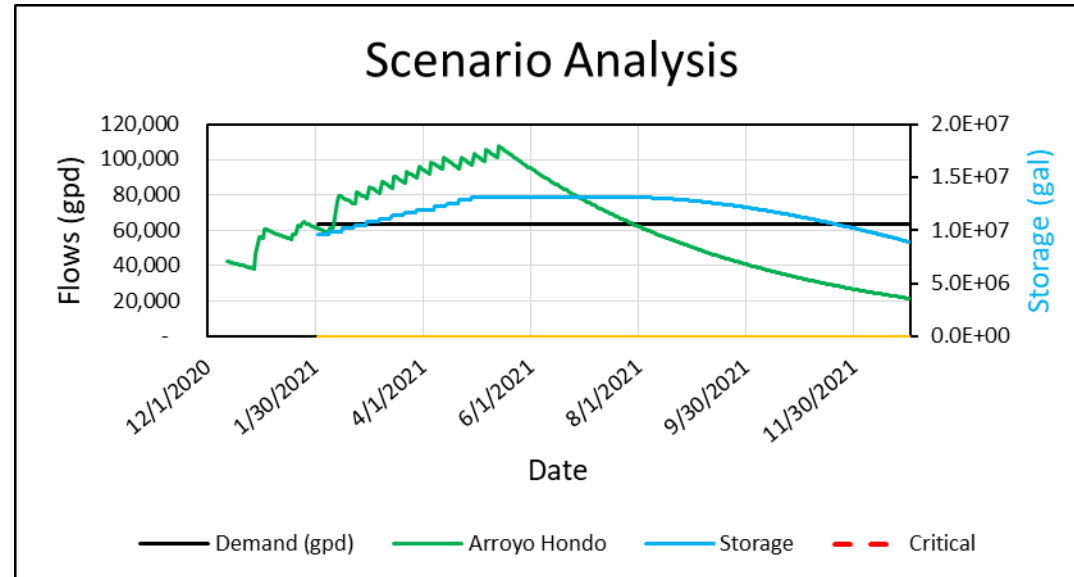
- *If the district receives 15.6 total inches of rain (the historic low) and community water use stays at the current level via mandatory rationing, BCPUD staff projects that the date the town runs out of water is deferred until early 2022, but creek flows and storage will drop throughout Summer and Fall, with corresponding declines in water quality.*





# PLANNED COURSE OF ACTION

- *If the district receives 20.7 total inches of rain (the historic average) and community water use stays at the current level via mandatory rationing, BCPUD staff projects that the town will not run out of water in 2021 and will be in a more resilient position in terms of stored water at the end of 2021 as creek flows drop if rains do not resume before year-end*





# PLANNED COURSE OF ACTION

- How will the district ensure that overall community daily water use does not increase?
- By mandatorily rationing the water use of every water connection in the system, with certain specific exceptions to be determined by the BCPUD Board



# PLANNED COURSE OF ACTION

- Who will receive exceptions?
  - BCPUD staff recommends the Board grant exceptions to specific **businesses, public-serving entities and multi-use customers** – *fewer than 20 customers*
  - BCPUD staff recommends the Board require that any such customer seeking an exception submit a written explanation of the amount of water requested by February 17, 2021



# PLANNED COURSE OF ACTION

- What about other customers who believe they should be granted exceptions?
  - BCPUD staff recommends the Board also require any such other customer seeking an exception to submit a written explanation of the amount of water requested by February 17, 2021
  - In general, single family residences should not expect to receive exceptions from the ration amount





# PLANNED COURSE OF ACTION

- BCPUD staff recommends the BCPUD Board consider all exception requests at a special meeting on February 24, 2021
- After exceptions have been considered/decided by the BCPUD Board, BCPUD staff will finalize the per connection mandatory ration amount (including a list of all exceptions) and present a resolution for the Board to approve to enact mandatory rationing of water on or before March 1, 2021



# PLANNED COURSE OF ACTION

- How will the mandatory ration amount be enforced?
- BCPUD staff recommends that violations be determined on a weekly averaged basis.
- As such, customers will have some flexibility in how they plan their water use during any given week



# PLANNED COURSE OF ACTION

- What are the consequences for violating the mandatory ration amount (for any given week)?
  - Written warning(s)
  - **Termination of water service (i.e., shutting off your water)**



# PLANNED COURSE OF ACTION

- Please note: the per day per connection ration amount will supersede any other amount separately approved by the BCPUD Board via the “limited water use permit (LWUP)” process
- In other words, if you have an LWUP with a maximum permitted quarterly water usage of 2700 cubic feet (for example), which is equivalent to 224 gallons of water per day, that limit will be superseded by the ration amount while the rationing resolution is in effect




# PLANNED COURSE OF ACTION

- BCPUD will conduct extensive community outreach this month about the implementation of mandatory rationing on March 1, 2021
  - Letters will be mailed and hand-delivered to every customer
  - Flyers will be posted town-wide
  - Updates will be posted on Nextdoor and in the Hearsay News
  - Meeting materials will be posted on the BCPUD website
  - Signage will be placed at strategic locations in town (see next slide)



# PLANNED COURSE OF ACTION

**MANDATORY  
WATER  
RATIONING  
IN  
EFFECT**



**BOLINAS COMMUNITY PUBLIC UTILITY DISTRICT**



# PLANNED COURSE OF ACTION

- BCPUD also will offer tours of the district's primary water supply source, the Arroyo Hondo Creek
- BCPUD Chief Operator Bill Pierce will conduct the tours
- Tours will be announced on Nextdoor and the Hearsay News
- Be prepared for walking on a muddy road for approximately two miles



# PLANNED COURSE OF ACTION

- What can **YOU** do?
  - Learn to read your water meter and track your usage (instructions on BCPUD's website at [www.bcpud.org](http://www.bcpud.org) or call and ask the BCPUD for help)
  - Or, call (415-868-1224) or email ([bcpud@bcpud.org](mailto:bcpud@bcpud.org)) the BCPUD office and find out how much water you are using





# PLANNED COURSE OF ACTION

- What can **YOU** do? (cont'd)
  - Conduct a “**water audit**” to learn how much water you are using for specific activities
  - A water audit form will be posted on the BCPUD’s website soon with instructions and a worksheet to help you with this process



# PLANNED COURSE OF ACTION

- What can **YOU** do? (cont'd)
  - Some tips to reduce your water use:
    - Make sure all of your appliances are low flow/water efficient
    - Set a timer for 3 – 5 minutes for showers
    - Keep a bucket in the shower to catch water as it warms up or runs
    - Re-use shower or bath water to flush toilets or water plants
    - Turn off water when brushing teeth or shaving
    - Limit laundry and dishwasher use to full loads only



# PLANNED COURSE OF ACTION

- What can **YOU** do? (cont'd)
  - Consult the BCPUD website ([bcpud@bcpud.org](mailto:bcpud@bcpud.org)) and other sources for water conservation tips
  - Our staff is available for advice and consultation weekdays between 9 am and 3 pm
  - Working together, we can do this!



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# CLOSING POINTS

- BCPUD water supplies are very stressed by the lack of rainfall
- To have sufficient water to reliably and safely serve the community through 2021, mandatory rationing of water on a per connection basis (subject to limited exceptions determined by the BCPUD Board) is required now



# CLOSING POINTS

- BCPUD staff will regularly reassess the district's water supply status and projections and update the BCPUD Board and community
- The BCPUD Board will hold special meetings as necessary to consider recommended revisions by staff regarding mandatory rationing



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