

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843
www.boardofwatersupply.com



March 22, 2022

RICK BLANGIARDI, MAYOR

BRYAN P. ANDAYA, Chair
KAPUA SPROAT, Vice Chair
RAY C. SOON
MAX J. SWORD
NA'ALEHU ANTHONY

JADE T. BUTAY, Ex-Officio
DAWN B. SZEWCZYK, P.E., Ex-Officio

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

ELLEN E. KITAMURA, P.E.
Deputy Manager and Chief Engineer

NOTICE

The Board of Water Supply, City and County of Honolulu, will hold a Regular Meeting on Monday, March 28, 2022, at 2:00 p.m. in the Boardroom, Public Service Building, 630 South Beretania Street, Honolulu, Hawaii.

The public may also attend the meeting from the lobby of the Board of Water Supply, Public Service Building, 630 S. Beretania St. Honolulu, HI 96843, via interactive conference technology.

TESTIMONY

Testimony can be submitted as follows:

- Written testimony may be emailed to board@hbws.org or faxed to (808) 748-5079. Testimony is requested by Monday, March 28, 2022, at noon. Written testimonies should include the submitter's address, email address, and phone number. Written testimony will be posted to the BWS website at boardofwatersupply.com.
- Mail written testimony to Board of Water Supply, 630 S. Beretania St., Honolulu, HI 96843. Testimony is requested by Monday, March 28, 2022, at noon.
- On-line testimony will be accepted at boardofwatersupply.com/testimony Fill out the testimony form. It is requested by Monday, March 28, 2022, at noon.
- Telephone testimony will be accepted during the meeting at (808) 748-6040. Callers will be placed in a queue and brought up to testify one at a time.
- In-person testimony will be accepted during the meeting from the lobby of the Board of Water Supply, Public Service Building, 630 S. Beretania St. Honolulu, HI 96843 via interactive conference technology.

Testimony is limited to two (2) minutes and shall be presented by the registered speaker only.

MATERIALS AVAILABLE FOR INSPECTION

Meeting materials ("board packet" under HRS Section 92-7.5) are accessible at www.boardofwatersupply.com/boardmeetings.

VIEWING THE MEETING

The meeting will be viewable via live streaming on:

- (1) the BWS website: www.boardofwatersupply.com/live. Video will appear on screen. You may have to click the arrow on video to start it. You may have to unmute audio as muted audio tends to be the default setting.

SPECIAL REQUESTS AND ACCOMMODATIONS

If you require special assistance, an auxiliary aid or service, and/or an accommodation due to a disability to participate in this meeting (i.e., sign language interpreter; interpreter for language other than English, or wheelchair accessibility), please call (808) 748-5172 or email your request to board@hbws.org **at least three business days prior to the meeting date.**

The agenda for the March 28, 2022, Regular Meeting of the Board of Water Supply is as follows:

ITEMS REQUIRING BOARD ACTION

1. Approval of the Minutes of the Regular Meeting Held on February 28, 2022
2. Adoption of Resolution No. 938, 2022, Acceptance of Gift to the Board of Water Supply from Gerald Santos and Sound Recordings For "E Malama I Ka Wai" Composed by Gerald Santos and Performed By Olomana for the Board of Water Supply

ITEMS FOR INFORMATION

1. Update on the Impacts of the Navy's Red Hill Fuel Contamination Issue on the Board of Water Supply
2. Results of the Sale of Board of Water Supply Water System Revenue Bonds, Series 2022A and Series 2022B
3. Status Update of Groundwater Levels at All Index Stations
4. Water Main Repair Report for February 2022

EXECUTIVE SESSION

1. Approval of the Minutes of the Executive Session Held on February 28, 2022
2. To Consult with the Board's Attorney on Questions and Issues Pertaining to the Board's Powers, Duties, Privileges, Immunities, and Liabilities Pertaining to Matters Concerning the AOA O Terrazza/Corte Bella/Las Brisas/Tiburon's Water Use and Delinquent Water and Sewer Service Charges [HRS §92-5(a)(4)]
3. To Consult with the Board's Attorney on Questions and Issues Pertaining to the Board's Powers, Duties, Privileges, Immunities, and Liabilities Pertaining to Matters Concerning the Red Hill Bulk Fuel Storage Facility [HRS §92-5(a)(4)]

MINUTES

THE REGULAR MEETING OF THE BOARD OF WATER SUPPLY

March 28, 2022

At 2:01 PM on March 28, 2022, in the Board Room of the Public Service Building at 630 South Beretania Street, Honolulu, Hawaii, Board Chair Andaya called to order the Regular Meeting.

Present: Bryan P. Andaya, Chair
Kapua Sproat, Vice Chair via WebEx
Max J. Sword, Board Member via WebEx
Na'alehu Anthony, Board Member via WebEx
Jade T. Butay, Board Member, Ex-Officio via WebEx
Dawn B. Szewczyk., Board Member,
Ex- Officio via WebEx

Also Present: Ernest Lau, Manager and Chief Engineer
Ellen Kitamura, Deputy Manager and Chief Engineer
via WebEx
Jason Takaki, Program Administrator,
Capital Projects Division via Vimeo
Jennifer Elflein, Program Administrator,
Customer Care Division via Vimeo
Kathleen Elliott-Pahinui, Information Officer,
Communications Office via WebEx
Raelynn Nakabayashi, Executive Assistant I,
Executive Support Office via Vimeo
Jason Nikaido, Program Administrator,
Field Operations Division via WebEx
Joseph Cooper, Waterworks Controller,
Finance Division via WebEx
Michele Thomas, Executive Assistant I,
Human Resources Office via Vimeo
Henderson Nuuhiwa, Program Administrator,
Information Technology Division
via Vimeo
Michael Matsuo, Land Administrator, Land Division
via Vimeo
Erwin Kawata, Program Administrator,
Water Quality Division via WebEx
Barry Usagawa, Program Administrator,
Water Resources Division via WebEx
Kevin Ihu, Program Administrator,
Water System Operations Division
via Vimeo
Kathy Mitchell, Administrative Services Officer
via Vimeo
Deanna Thyssen, Manager's Secretary via WebEx
Joy Cruz-Achiu, Board Secretary

Steven Norstrom, Information Specialist II,
Communications Office via WebEx
Stella Bernardo, Information Specialist II,
Communications Office via WebEx
Michele Harman, Community Relations Specialist I,
Communications Office via WebEx

Others Present: Jeff Lau, Deputy Corporation Counsel
via WebEx
Jessica Wong, Deputy Corporation Counsel
via WebEx

Absent: Ray C. Soon, Board Member

REGULAR MEETING

Chair Bryan Andaya welcomed everyone to the March 28, 2022, Regular Meeting of the Board of Water Supply (BWS). Before beginning the meeting, Chair Andaya announced a few meeting regulations required by law. Board Members attending the Board Meeting remotely must be visible to the public to be considered present and meet quorum guidelines. He also stated that during roll call Board Members participating remotely must disclose their location and anyone that may be present at their location.

Chair Andaya stated that as of March 25, 2022, at 11:59 PM the Governor's Emergency Order Proclamation ended. He announced that the public would be allowed to attend Board Meetings at the BWS, Public Service Building, 630 S. Beretania Street, Honolulu, HI 96843, via interactive conference technology.

Chair Andaya requested a roll call for the Regular Meeting and asked those participating remotely to keep their cameras on during the meeting to comply and meet quorum guidelines. Chair Andaya asked each Board Member to respond verbally and state who is present in the room if participating via WebEx when their names were called. Vice Chair Kapua Sproat, aye and alone at her current location; Board Member Max Sword, aye and alone at his current location; Board Member Na'alehu Anthony, aye and alone at his current location; Board Member Jade Butay, aye and alone at his current location; Board Member Dawn Szewczyk, aye and alone at her current location. Chair Andaya was present in the Boardroom.

Chair Andaya asked all attendees calling in or video conferencing to please mute their microphones when not speaking to the audience. When intending to speak, unmute their microphone and identify themselves before speaking.

Chair Andaya introduced those present in the Boardroom, Manager Ernest Lau, and Board Secretary Joy Cruz-Achui. Joining via WebEx to monitor public testimony is Steven Norstrom, Information Specialist II, Communications Office. Joining from the City and County Corporation Counsel were Deputy Jeff Lau and Deputy Jessica Wong via WebEx.

The following procedures are in effect for the meeting:

Chair Andaya shared the various ways to submit testimony: Written testimony may be submitted by email to board@hbws.org, by fax to (808) 748-5079; mailed to Board of Water Supply, 630 S. Beretania St., Honolulu, HI 96843; or online at the boardofwatersupply.com/testimony, which were all due on Monday, March 28, 2022, at noon. However, late testimony will be accepted by email, fax, or mail during the Board meeting. Telephone testimony is accepted by calling (808)748-6040, where you will be put in the queue and allowed to testify one at a time. In-person testimony is being accepted during the meeting via interactive conference technology from the lobby of the Board of Water Supply, Public Service Building located at 630 S. Beretania St. Honolulu, HI 96843. Pursuant to HRS Section 92-7.5, Board Meeting materials are available to view on our website at www.boardofwatersupply.com/boardmeeting.

Chair Andaya also announced that the Board Meeting is broadcasted live on the BWS website at www.boardofwatersupply.com/live.

APPROVAL OF
MEETING

Approval of the Minutes of the Regular Meeting Held on February 28,
2022.

**MOTION
TO APPROVE**

Na'alehu Anthony and Dawn Szewczyk motioned and seconded, respectively, to approve the Minutes of the Regular Meeting of February 28, 2022.

In lieu of a roll call vote, Chair Andaya requested a voice vote on the motion and requested that Board Members in favor of the motion say "Aye." The Board members present responded with a verbal "Aye." Chair Andaya then inquired if any Board Members would like to object or vote "Nay" on the motion. There were no objections or "Nay" votes. Chair Andaya announced that the motion was unanimously carried.

THE MINUTES OF THE REGULAR MEETING HELD ON FEBRUARY 28, 2022 WERE APPROVED AT THE MARCH 28, 2022 BOARD MEETING			
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT	X		
RAY C. SOON			ABSENT
MAX J. SWORD	X		
NA'ALEHU ANTHONY	X		
JADE T. BUTAY	X		
DAWN B. SZEWCZYK.	X		

"March 28, 2022

ADOPTION OF
RESOLUTION
NO. 938, 2022,
ACCEPTANCE OF
GIFT TO THE
BOARD OF WATER
SUPPLY FROM
GERALD SANTOS
SOUND
RECORDING FOR
"E MALAMA I KA
WAI" COMPOSED
BY GERALD
SANTOS AND
PERFORMED BY
OLOMANA
THE BOARD
SUPPLY

Chair and Members
Board of Water Supply
City and County of Honolulu
Honolulu, Hawaii 96843

Chair and Members:

Subject: Adoption of Resolution No. 938, 2022, Acceptance of AND Gift to the Board of Water Supply from Gerald Santos and Sound Recordings For "E Malama I Ka Wai" Composed by Gerald Santos and Performed By Olomana for the Board of Water Supply

We recommend acceptance of the proposed gift to the Board of Water Supply (BWS), City and County of Honolulu, for the three-year use of the sound recordings of "E Malama I Ka Wai," a song composed FOR by Gerald "Jerry" Santos for the Board of Water Supply and OF WATER performed by Olomana.

The gift is of an estimated value of \$4,950.00 and will support the BWS's water conservation and xeriscape principles and urges listeners to cherish the water. It will also benefit all Oahu water users without additional expense to BWS ratepayers

We greatly appreciate the support of this Board for our public education and outreach programs in which we try to encourage all Oahu water users to embrace their roles as responsible stewards of our precious water resource.

Respectfully Submitted,

/s/ ERNEST Y. W. LAU, P.E
Manager and Chief Engineer

Attachment"

DISCUSSION: Kathleen Elliott-Pahinui, Information Officer, Communications Office, gave the report.

A short clip of the song "E Malama I Ka Wai" was played at the meeting.

Chair Andaya stated that a full version of the "E Malama I Ka Wai" is available on various social media platforms.

Vice Chair Kapua Sproat expressed her gratitude for the significant gift from Mr. Santos and Olomana.

Board Member Na'alehu Anthony shared that Mr. Santos and Aunty Haunani Apoliona they expressed their support and appreciation for the work that BWS is doing. Board Member Anthony hopes that the use of "E

Malama I Ka Wai” would be included in all conservation efforts and bring back memories of earlier times.

Manager Lau thanked Board Member Anthony for sharing his encounter with Mr. Santos and “Aunty Haunani”. He shared that as the clip of “E Malama I Ka Wai” played he had a “chicken skin” moment and could feel it in his heart. Manager Lau stated that the words of “E Malama I Ka Wai” couldn’t be more suiting than now during this time for the community.

Chair Andaya also expressed his appreciation for the donated use of ‘E Malama I Ka Wai” from Gerald Santos, Sound Recordings, and Olomana. He stated that the feelings and emotions “E Malama I Ka Wai” evokes are far greater than the dollar value.

**MOTION
TO APPROVE**

Kapua Sproat and Jade Butay motioned and seconded, respectively, to approve the Adoption of Resolution 938, 2022, Acceptance of Gift to the Board of Water Supply from Gerald Santos and Sound Recordings For “E Malama I Ka Wai” Composed by Gerald Santos and Performed By Olomana for the Board of Water Supply.

Chair Andaya requested Board Secretary, Ms. Joy Cruz-Achiu conduct the roll call vote.

Ms. Cruz-Achiu conducted a roll call vote: Vice Chair Kapua Sproat, aye; Board Member Max Sword, aye; Board Member Na’alehu Anthony, aye; Board Member Jade Butay, aye; Board Member Dawn Szewczyk, aye; and Chair Bryan Andaya, aye.

Ms. Cruz-Achiu announced that the motion passed with six ayes.

ADOPTION OF RESOLUTION NO. 938, 2022, ACCEPTANCE OF GIFT TO THE BOARD OF WATER SUPPLY FROM GERALD SANTOS AND PERFORMED BY OLOMANA FOR THE BOARD OF WATER SUPPLY, WAS ADOPTED ON MARCH 28, 2022			
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT	X		
RAY C. SOON			ABSENT
MAX J. SWORD	X		
NA’ALEHU ANTHONY	X		
JADE T. BUTAY	X		
DAWN B. SZEWCZYK	X		

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

RESOLUTION NO. 938, 2022

ACCEPTANCE OF DONATION TO THE BOARD OF WATER SUPPLY
FROM GERALD SANTOS FOR THE USE OF SONG PROMOTING
WATER CONSERVATION

WHEREAS, the Board of Water Supply (BWS) works diligently to raise awareness among Oahu residents about the importance of using our island's precious resource wisely to further its mission of providing safe, dependable, and affordable water now and for future generations; and

WHEREAS, to efficiently reach all Oahu residents with this messaging, the BWS incorporates mass communications, including television, radio, and social media, to encourage responsible stewardship of our water supply; and

WHEREAS, in support of the BWS's mass communications outreach efforts, composer and musician Gerald "Jerry" Santos is offering to donate to the BWS for three calendar years the use of his "E Malama I Ka Wai" song, which was composed by Mr. Santos, especially for the BWS in 1991, featured in its television and radio commercials for more than a decade, and performed by Mr. Santos and the music group Olomana; and

WHEREAS, with this gift, the BWS can use the music and message of this song for water conservation and education purposes, without needing to use BWS ratepayer's funds; and

WHEREAS, the description and monetary value of this donation are set forth in the correspondence from the BWS Manager and Chief Engineer (attached); now, therefore,

BE IT RESOLVED that the Board of Water Supply hereby accepts the donation valued at \$4,950.00 and directs the Manager and Chief Engineer, or his delegate, to accept and thank Gerald Santos for this gift.

ADOPTED:



BRYAN P. ANDAYA
Chair

Honolulu, Hawaii
March 28, 2022

RESOLUTION NO. 938, 2022, ACCEPTANCE OF GIFT TO THE BOARD OF WATER SUPPLY FROM GERALD SANTOS AND PERFORMED BY OLOMANA FOR THE BOARD OF WATER SUPPLY, ADOPTED MARCH 28, 2022			
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT	X		
RAY C. SOON			ABSENT
MAX J. SWORD	X		
NA'ALEHU ANTHONY	X		
JADE T. BUTAY	X		
DAWN B. SZEWCZYK	X		

ITEM FOR INFORMATION NO. 1

"March 28, 2022

UPDATE ON THE
IMPACTS OF THE
NAVY'S RED
HILL FUEL
CONTAMINATION
ISSUE ON THE
BOARD OF
WATER SUPPLY

Chair and Members
Board of Water Supply
City and County of Honolulu
Honolulu, Hawaii 96843
Chair and Members:

Subject: Update on the Impacts of the Navy's Red Hill Fuel
Contamination Issue on the Board of Water Supply

Ernest Lau, Manager & Chief Engineer; Erwin Kawata, Program Administrator, Water Quality Division; Barry Usagawa, Program Administrator, Water Resources Division; and Kathleen Elliott-Pahinui, Information Officer, Communications Office, will give an Update on the Impacts of the Navy's Red Hill Fuel Contamination Issue on the Board of Water Supply.

Respectfully Submitted,

/s/ ERNEST Y. W. LAU, P.E
Manager and Chief Engineer

Attachment"

The foregoing was for information only.

DISCUSSION:

Ernest Lau, Manager and Chief Engineer; Erwin Kawata, Program Administrator, Water Quality Division; Barry Usagawa, Program Administrator, Water Resources Division; and Kathleen Elliott-Pahinui, Information Officer, Communications Office, gave the report.

Board Member Max Sword inquired if the BWS has had a discussion with the Hawaii Restaurant Association (HRA) about providing water for dine-in customers since asking the public to conserve.

Ms. Kathleen Elliott-Pahinui replied that the BWS will be meeting with the HRA after the Hawaii Hotel and Restaurant Show at the end of the month.

Vice Chair Sproat thanked everyone that contributed to this presentation to keep everyone informed on Red Hill and the impact that the community is facing. She asked in regards to the letter received from the Legislature, how is the BWS responding to their requests.

Manager Lau responded that the BWS has already started working on the Legislature's request. He stated that the BWS has begun requesting display fountains to be turned off. Manager Lau asked Barry to also respond.

Mr. Usagawa added that the Legislature's letter identified equity issues among low and elderly customers and that affordable homes be prioritized. He explained that the BWS will need to consider which customers would be affected by the water restriction mandate when the time comes. He stated that there are customers that will be able to reduce water consumption or water use and some that will not. The approval for new developments, and new water meters for affordable homes will need to be addressed.

Manager Lau stated that a water moratorium will be approved by the Board. This decision will be a public process and will probably need a public hearing. The BWS could also issue mandatory water restrictions and will come back to the Board before entering this stage. The BWS will ensure that the Board is fully informed of the situation with periodic updates.

Vice Chair Sproat inquired how the BWS, and the Commission on Water Resource Management (CWRM) are working together to abide by Hawaii's Water Code.

Mr. Usagawa replied that the BWS the same presentation was given to the CWRM in early March to help explain water monitoring, water levels, and total water pumpage relating to the BWS's permitted use by aquifer. He shared that new monitor wells surrounding the Red Hill crisis would be prioritized by CRWM.

Manager Lau mentioned that the BWS with Mayor Blangiardi's support submitted a request for an emergency proclamation to Governor David Ige to expedite the process to develop new water sources and replace the water sources that were lost from the Red Hill contamination.

Manager Lau also expressed his appreciation to Board Member Dawn Szewczyk and the Department of Facility Maintenance support for the BWS request for water conservation.

Board Member Anthony noticed that in previous months chlorides increased. He asked at what chloride level would the BWS stop pumping water from each well to avoid any risk.

Mr. Usagawa responded that there is no primary standard for chloride. He stated that the secondary standard for chloride is 250 milligrams (mg) per liter (L). Mr. Usagawa stated that the ideal chloride level is below 160 parts per million (ppm). He explained that chloride levels begin to rise when trying to meet water demands.

WATER SHORTAGE CONDITION TRIGGERS (DRAFT)

Water Shortage Condition	Source Capacity Demand Trigger	Chloride Content Trigger*
No Water Shortage	Available pumping units meet max day demand in 16 hours w/ standby not included.	Stable Chloride and Head Level Trends
Alert	Available pumping units meet Q_{max} max day demand in 20 hours, standby pumps not included *	Chloride content rises between 12 ppm and 16 ppm over three consecutive months at sufficient sources to hamper operations.
Critical	Available pumping units cannot meet Q_{max} max day demand in 22 hours, standby pumps not included *	Chloride content rises over 16 ppm over three consecutive months at sufficient sources to hamper operations.

*Assumes 5-10% Water Conservation Reductions to flatten max day demand peaks

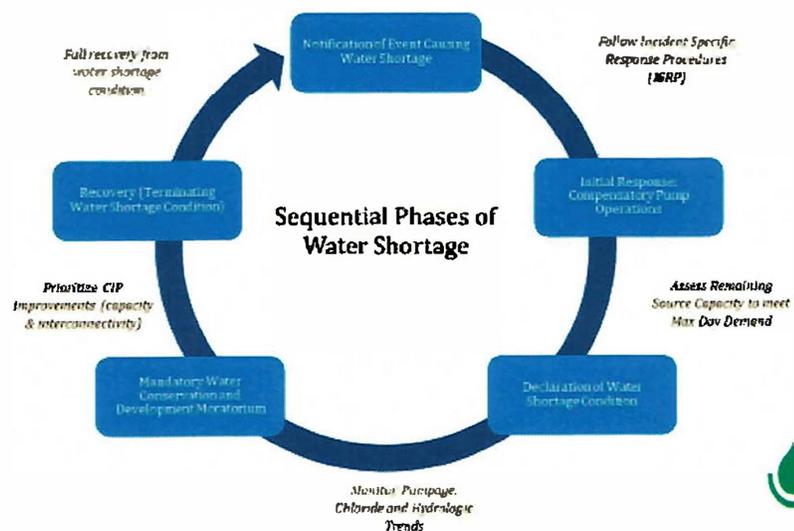
Board Member Anthony applauded the BWS and the Communications Office for the conservation outreach efforts. He inquired if there have been any conversations with the military to conserve water.

Manager Lau replied that the BWS has shared its water shortage plan with the CWRM. He stated that the Marines Corps Base Hawaii (MCBH) is on the BWS water system and is one of the largest water users across the island, thus discussions continue with MCBH to reduce water usage.

Mr. Usagawa shared that the MCBH uses almost three million gallons per day (mgd) of water. The marine base's recycled water system used for the golf course irrigation is offline until necessary maintenance improvements are completed.

Chair Andaya referred to the Water Shortage Plan. He asked in what phase is the BWS in.

WATER SHORTAGE PLAN PROVIDES STRATEGIC AND TACTICAL STEPS TO ASSESS, DECLARE AND CONTROL WATER DEMAND



Mr. Usagawa responded that the BWS is in the assessment stage and is evaluating the Water Shortage Declaration. The summer is nearing, therefore, the BWS is monitoring pumpage and demand closely and anticipating to be in water shortage conditions. Staff anticipates that the Honolulu water system will be in Alert water shortage where pumping will meet demand in 20 hours/day. However, the Aiea-Halawa water system, where 50% of pumps were taken off-line, will be in a Critical Water Shortage Condition where pumping will exceed 22 hours per day to meet max day demand.

Chair Andaya inquired if there was a timeline when Kalihi and Kaluaao water pump stations are expected to be ready for use.

Manager Lau replied that the BWS is aiming to have three of the low-service pumps at the Kalihi Pump Station ready before the summer. However, the high-service system will need to be postponed to the winter, which would require the Kalihi Pump Station to be offline and go through the drinking water source recertification process with the Department of Health (DOH). The Kaluaao Wells has three pumps out of service, of which the BWS is working to have two new pumps operating and will require DOH certification. He mentioned that all pumps utilize mechanical and electrical equipment, therefore, constant monitoring, and regular maintenance and repairs are essential to satisfy and meet the water demands. Manager Lau also stated that the process to develop a new water source could take a minimum of five to seven years.

Chair Andaya asked what the emergency proclamation sent to the Governor will do to help the BWS.

Manager Lau responded that the emergency proclamation would allow new well development to be expedited. He explained that existing wells that have been offline must go through the DOH approval process of flushing and testing.

Chair Andaya inquired if any restrictive orders would be put in place if the water shortage becomes critical.

Mr. Usagawa replied that there is not enough reduction of water usage in the voluntary conservation request, water shortage conditions are upgraded to mandatory conservation. Critical water shortage conditions are declared because water pumps are running for more than 22 hours per day. He stated that the BWS has an established water conservation response which could consist of the following steps: required targeted water use reduction; water allotments, flow restrictors, rate surcharges; and moratorium if improvements extend more than two years.

**Progressively Restrictive Water Conservation Responses by
Water Shortage Condition (DRAFT)**

Water Shortage Condition	Source Capacity/Demand Trigger	Conservation Response
No Water Shortage	Available pumping units meet max day demand in 16 hours, standby pumps not included	Voluntary – General Seasonal Messaging
Alert	Available pumping units meet $Q_{0.95}$ max day demand in 20 hours, standby pumps not included.	Voluntary – Targeted Seasonal Messaging Requesting 10%+ Water Use Reductions
Critical	Available pumping units cannot meet $Q_{0.95}$ max day demand in 22 hours, standby pumps not included	Mandatory in Progressively Restrictive Order 1) Require Targeted Water Use Reductions 2) Water Allocations, Flow Restrictors, Rate Surcharges 3) Moratorium if improvements extend more than 2 years

Manager Lau stated that the BWS rules state that water for new development or new water meters is only made available when it is not detrimental to existing customers. The BWS is currently evaluating all projects within the next three to five years with consideration of the impacts of Red Hill. The three water sources Halawa Shaft, Aiea Well, and Halawa well will remain shut down indefinitely. Manager Lau shared that new wells are in the process of being developed and existing wells are being repaired. He asked the public to report any water waste.

Ms. Kathleen Elliott-Pahinui shared the water waste contact number is 808-748-5041 and reported that complaints quadrupled since Manager Lau requested voluntary conservation. She now has five team members working on responding to the complaints.

Manager Lau expressed his appreciation for Ms. Elliott-Pahinui’s efforts in responding and following up with customers and meeting with various groups. He shared that the BWS has been invited to be a speaker on a panel at an upcoming developer’s meeting. Manager Lau stated that these meetings allow the BWS to share knowledge and educate the public. He declared that by working together, everyone will get through this ordeal.

Chair Andaya reiterated his understanding of the water shortage plan that if water system improvements cannot be made within the next 2-years with the request for a 10% voluntary conservation a moratorium will be implemented.

Manager Lau confirmed Chair Andaya’s understanding. He explained that the request for the 10% voluntary conservation request is due to the dry weather conditions and below-normal rainfall since January, the need to reduce pumping at the Beretania pump station, and the impacts of the Red Hill contamination issue.

Mr. Usagawa added that in the future the BWS would present an update on the recommended declaration.

Manager Lau stated that the next step in the framework of the water shortage plan is to assess each phase to determine what would be appropriate.

Chair Andaya appreciates that the BWS has a plan in place.

Manager Lau commented that if any Board Members had any ideas, suggestions, or questions please contact him.

Mr. Usagawa mentioned that tourism is increasing post-pandemic and therefore, BWS is working with the Hawaii Community Foundation on a water conservation campaign focused on visitors and residents.

Board Member Butay inquired if the BWS had a timeline of when the Halawa Shaft, Aiea Well, and Halawa Well would reopen.

Manager Lau responded that there is no current timeline of when Halawa Shaft, Aiea Well, or Halawa Well would reopen. He stated that it would depend on how much information from the Red Hill contamination investigation is shared with the BWS. To date, the BWS is aware that the aquifer is contaminated up to a half-mile away from the Red Hill Shaft. There are still a lot of unanswered questions, therefore, there is no timeline of when the BWS water source will reopen. He stated that the BWS will continue to support and encourage the water contamination investigation. However, the BWS will also continue its efforts to move forward with finding new water sources and water wells.

Board Member Butay asked if the cause for the request for the 10% voluntary conservation is due to the shutdown of the three wells or the reduced rainfall.

Manager Lau replied that it's a combination of both. He explained that the shutdown was exacerbated by dry weather conditions that drive higher water use.

Board Member Butay commented that one of the top priorities for the State Legislators and C&C is affordable housing, but questions if everyone understands how crucial the times are with water shortage and funding.

Manager Lau responded that the BWS is reaching out to all levels of the State and C&C to inform them of the situation and keep everyone updated. He stated that the BWS depends on customers making bill payments to operate the water system and fund the capital improvement program (CIP). Therefore, due to the impacts of Red Hill, the BWS will have to make decisions on what projects can be postponed to accommodate the need to find new water sources. The BWS is tracking all expenses related to the Red Hill contamination and will seek reimbursement from the U.S. Navy. The BWS is trying to acquire funding from the American Rescue Plan Act (ARPA) and any type of funding available to assist.

Vice Chair Sproat inquired what the BWS requested in the emergency proclamation that was sent to Governor Ige.

Manager Lau replied that the BWS has requested that all Hawaii Revised Statutes (HRS) be waived.

Vice Chair Sproat expressed her concern about the request to waive Chapter 174C.

Vice Chair Sproat asked if the BWS had any information on Ewa Shaft.

Mr. Usagawa responded that the BWS is recommending FY2023 funding for five exploratory wells. The design contract is ongoing.

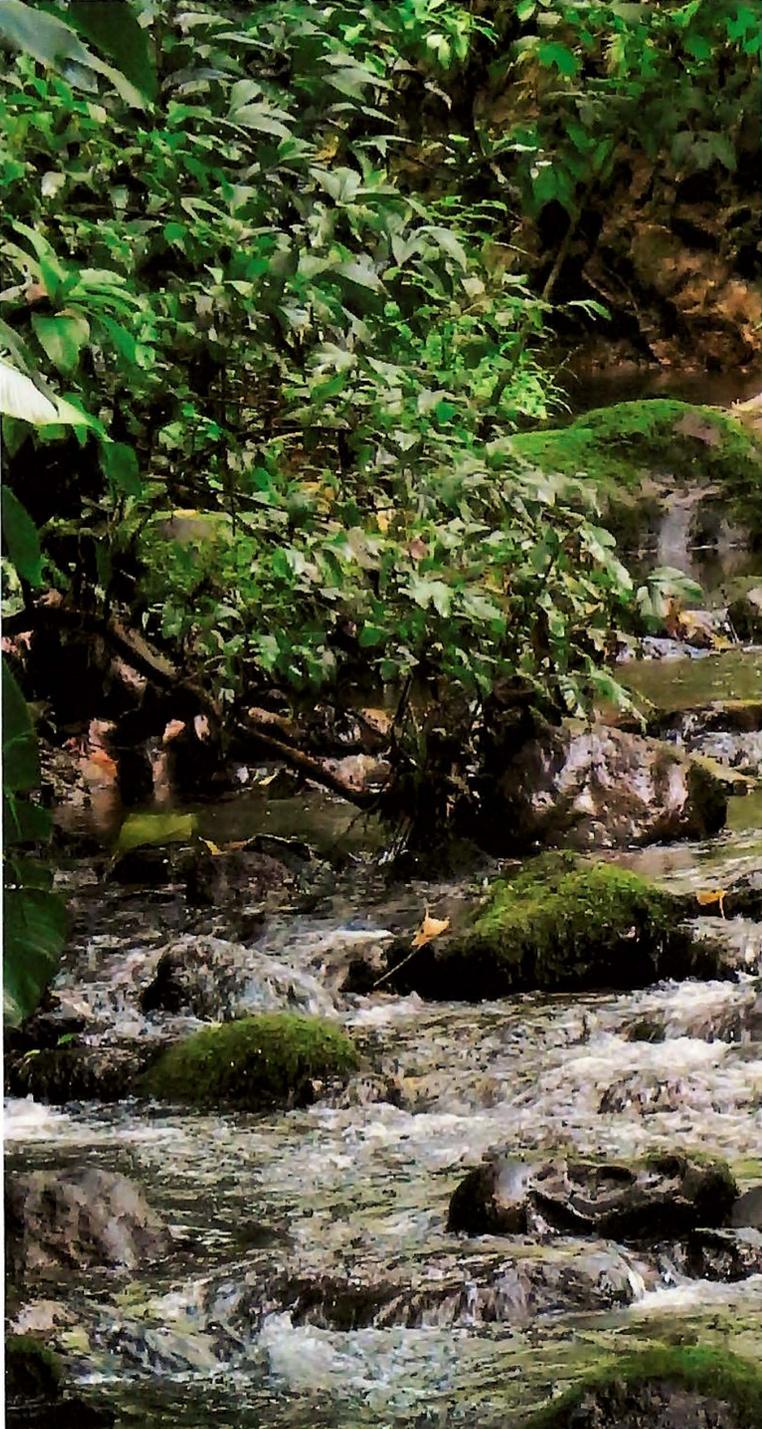
Vice Chair Sproat inquired if the BWS factored tourism into the water demands now that COVID restrictions have been lifted.

Mr. Usagawa replied that UHERO is expecting the Asian tourism market to open at pre-pandemic highs. The BWS has pre-pandemic water demand data to compare with the expected influx of tourism. The BWS is focusing on a new conservation campaign for tourists.

Board Member Butay shared that the airlines are expecting summer travel to soar as there is a lot of pent-up demand. The Japanese tourist is anxious to return to Hawaii.

Chair Andaya suggested displaying conservation messages at the airport.

Chair Andaya asked if there were any further questions or discussion. Hearing none, he thanked Manager Lau, Mr. Kawata, Mr. Usagawa, and Ms. Elliott-Pahinui for the presentation.



Update on the Impacts of the Navy's Fuel Contamination Issues on BWS

March 28, 2022

www.boardofwatersupply.com



SECRETARY OF DEFENSE MEMO



SECRETARY OF DEFENSE
1000 DEFENSE PENTAGON
WASHINGTON, DC 20301-1000

MAR 07 2022

MEMORANDUM FOR SENIOR PENTAGON LEADERSHIP
COMMANDERS OF THE COMBATANT COMMANDS
DEFENSE AGENCY AND DOD FIELD ACTIVITY DIRECTORS

SUBJECT: Immediate Actions to Permanently Close the Red Hill Bulk Fuel Storage Facility at Joint Base Pearl Harbor-Hickam and to Redistribute Fuel in Accordance with INDOPACOM Plans for Strategic Fuel Storage in the Pacific Region

In recent months, leaders across the Department of Defense have worked to address the November release and contamination at the Red Hill Bulk Fuel Storage Facility (RHBFSF) in Hawaii. Our approach has been guided by a commitment to protect the population, the environment, and the security of the nation. We believe these goals are mutually reinforcing and we have taken broad actions to remedy environmental impacts, restore safe drinking water, and care for affected military families and the people of Hawaii.

We also launched a thorough review of the facility's long-term future, to include the option of defueling and permanently closing RHBFSF. Since late January 2022, we have been on an aggressive schedule to analyze and determine the distribution of fuel reserves for our operations in the Pacific theater. This work has been evidence-based and fully aligns with our focus on the population, the environment, and national security.

As an outcome of this review, today I am directing the Secretary of the Navy, in coordination with the Commander of the United States Indo-Pacific Command, to take all steps necessary to defuel and permanently close the Red Hill Bulk Fuel Storage Facility.

To carry out this direction, the Secretary of the Navy, in cooperation with the Director, Defense Logistics Agency (DLA), will defuel the facility in compliance with environmental safeguards and best practices. By no later than May 31, 2022, the Secretary of the Navy and Director, DLA will provide me with a plan of action with milestones to defuel the facility. The plan of action shall require that defueling operations commence as soon as practicable after the facility is deemed safe for defueling and target the completion of that defueling within 12 months. The Secretary of the Navy will also work with the U.S. Environmental Protection Agency and with the State of Hawaii Department of Health to plan for and implement the permanent closure of the RHBFSF in a manner that complies with all applicable laws. In connection with the permanent closure of the RHBFSF, the Secretary of the Navy shall plan and budget for all necessary corrective action for any prior releases from the facility. As we move forward in closing Red Hill, we will continue to involve our federal, congressional, state, and community stakeholders.

Redistributing our fuel reserve across the Indo-Pacific will better position the United States to meet future challenges in the region. Our approach will fully comply with best practices and environmental regulations for fuel storage on land and afloat.

In parallel with our work to defuel and permanently close RHBFSF, the Department of Defense remains committed to mitigating the impacts of the November incident. We will complete environmental mitigation efforts at the Red Hill drinking water well and any other impacted areas. We will restore safe drinking water to all affected residents and provide best-in-class sampling and testing to ensure the continued safety of drinking water. And we will care for our military families by addressing any health impacts from this incident and by using available authorities to provide assistance to address displacement from homes or damage to household goods.

Today's decision will better support our operations in the Pacific theater, while caring for the health and safety of the people of Hawaii and our military families. We will continue to do everything we can to safeguard the population, the environment, and the security of the nation.

CONGRESSIONAL FUNDING

02.07.2022

Schatz Secures \$100 Million To Defuel Red Hill

Schatz's Red Hill Funding Provision Included In Must-Pass Appropriations Bill; Schatz Working To Secure Additional Funding For Defueling

WASHINGTON – U.S. Senator Brian Schatz (D-Hawaii), a member of the Senate Appropriations Committee, secured \$100 million in new federal funding to cover the cost of defueling the Red Hill Bulk Fuel Storage Facility and direct the Department of Defense to comply with the State of Hawaii's emergency public health order. Schatz worked closely with bipartisan leaders of the Senate Appropriations Committee to include the funding provision in a critical three-week spending bill required to pass Congress to avoid a government shutdown.

"This bill funds defuel order immediately," as we water and get this

The new federal money with senior leaders in the president's administration next month.

The full bill text of Sch.

In addition to amounts of additional amount for the Operation and Maintenance for the Secretary of Defense EA-02, signed December Storage Facility; Provide available to the Department transfer, obligation, or of Representatives and Senators integrity of the Red Hill, the Pacific theater, as well further. That not less than the congressional defense date of enactment of the year 2022, the Secretary and Senate, setting forth subsection.

February 17, 2022

Senator Hirono Applauds Senate Passage \$350 Million for Red Hill Included in the Continuing Resolution to Keep the Government Funded

WASHINGTON, D.C. – Today, Senator Mazie Hirono (D-HI) issued a statement on Senate passage of the continuing resolution-government funded—which includes \$350 million to address legislation, which now heads to the President's desk to be signed. The bill includes \$250 million in funding for the Navy, Marine Corps, Army, and Air Force to cover expenses incurred related to drinking water contamination at the Department of Defense to comply with the State of Hawaii's defuel the Red Hill tanks. Senator Hirono will continue to fight to defuel safely and for the DoD to develop and implement a plan to meet the strategic fueling needs of the Indo Pacific region.

"The Department of Defense must fully comply with the State Order to defuel the tanks at Red Hill and this funding is needed that happens. This crisis has caused significant financial hardship for families and businesses in Oahu, including those who are still displaced. I'm pleased we were also able to secure funding to cover emergencies and extraordinary expenses for businesses who have been impacted. The Navy must do everything it can to support families and businesses while they work to defuel this crisis as quickly as possible."

March 08, 2022

Hirono Applauds \$686 million in Funding to Address the Red Hill Water Contamination Crisis, Close the Facility

WASHINGTON, D.C. – Today, U.S. Senator Mazie K. Hirono applauded the \$686,429,000 in funding for the Red Hill Bulk Fuel Storage Facility water contamination crisis included in the fiscal year 2022 omnibus spending bill, which was unveiled this morning. In February, Senator Hirono helped secure \$100 million in the must-pass continuing resolution spending bill to defuel the facility. Today's announced appropriations bill includes additional funding specifically dedicated to defueling the facility. This funding comes only days after the Department of Defense committed to permanently closing down Red Hill, a decision Senator Hirono

03.08.2022

Schatz Secures Additional \$150 Million in New Federal Funding To Defuel, Permanently Close Red Hill, Clean Up Water

New Funding Follows \$100 Million Schatz Secured Last Month To Defuel Red Hill

WASHINGTON – U.S. Senator Brian Schatz (D-Hawaii), a member of the Senate Appropriations Committee, secured an additional \$150 million in new federal funding to cover the cost to defuel, permanently close the Red Hill Bulk Fuel Storage Facility, and clean up contaminated water in the affected areas. Schatz worked closely with top leaders in the Biden Administration and the Senate Appropriations Committee to include his funding provision in the new appropriations bill.

"This is new federal money to defuel and permanently shut down Red Hill," said Senator Schatz. "We still have more work to do to make sure Red Hill is closed safely, but we now have significant resources to drain the tanks and get this right."

The new funding follows the \$100 million Schatz secured last month for defueling Red Hill and an announcement yesterday that the Department of Defense will permanently close down the facility, after calls from Schatz to do so.

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HAWAII STATE LEGISLATURE

STATE CAPITOL
415 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813

March 21, 2022

Ernest Lau
Manager and Chief Engineer
Honolulu Board of Water Supply
630 S Beretania Street
Honolulu, HI 96843

Dear Mr. Lau:

Thank you for your courageous leadership on the Red Hill crisis. Because of your persistent calls for transparency and accountability from the Navy, the Secretary of Defense has finally heeded community calls to defuel and shut down the Red Hill Bulk Fuel Storage Facility. That action could not have happened without you.

Unfortunately, their action comes after contamination from the November 20, 2021 Red Hill spill initiated a water crisis that now threatens our aquifer and the Honolulu Board of Water Supply's ("BWS") capacity and distribution capability. We understand that BWS faces significant challenges to providing continued service to water users due to constrained supply. This was highlighted by your March 9, 2021 request for a 10% reduction in water usage in the urban Honolulu and Aiea-Halawa areas.

During these difficult and uncertain times ahead, we ask that you and the board consider principles of equity should continued—or more drastic—water conservation measures need to be taken. While across the board reductions in water use may seem the most fair and straightforward means to address our supply constraints on O'ahu, they will not be felt equally by all in our community. Rationing a resource as necessary as water will hurt the poor and disadvantaged disproportionately and inequitably.

For example, a 10% reduction in water use for a hotel or vacation home may be achieved by simply adjusting the interval on water sprinkler use. However, the same reduction for a family or retired couple living in an apartment with no nonessential consumption might require significant disruptions to their way of life. If voluntary calls for conservation become mandatory, would they be expected to buy bottled water instead of using it from the tap? Or reduce the number of showers they take?

As a result, we respectfully request that you consider deprioritizing the use of luxury and recreational uses of water (e.g. swimming pools and fountains). We would also ask that should more draconian steps become necessary, affordable housing development be prioritized in the issuance of water meters.

We understand that your job is difficult. These may not be popular measures to consider with many of your users. But access to water for fundamental needs like sustenance and as a basis for housing should take priority to secondary uses when considering the integrity of our overall supply. We kindly ask that you take these requests into account should you need to contemplate future voluntary or mandatory water conservation directives.

Mahalo,

Sponsoring Senator Jarrett Keohokalole

Senator Laura Acasio

Senator Kurt Fevella

Senator Lorraine Induye

Senator Donna Mercado Kim

Senator Bennette Misalucha

Senator Joy San Buenaventura

Senator Glenn Wakai

STATE HOUSE REPRESENTATIVES

Representative Cedric Gates

Representative Daniel Holt

Representative Matthew LoPresti

Representative Lisu Marten

Representative Takashi Ohno

Representative Amy Perruso

Representative Roy Takumi

Representative Tina Wildberger

Senator Stanley Chang

Senator Mike Gabbard

Senator Gilbert Keith-Asarun

Senator Chris Lee

Senator Clarence Nishihara

Senator Maile Shimabukuro

Representative Mark Hashem

Representative Linda Ichiyama

Representative Nicole Lowen

Representative Scot Matayoshi

Representative Val Okimoto

Representative Gregg Takayama

Representative Adrian Tam

Representative Ryan Yamane

WAIVER OF FEES FOR AFFORDABLE, HOMELESS AND FIRE SPRINKLER RETROFIT PROJECTS UPDATE SUMMARY

Fiscal Year	# Affordable Dwelling Units	# Homeless Dwelling Units	# Total Qualified Units	\$ Waived WFSC	\$ Waived Meter Costs	\$ Waived Fire Sprinkler Meter	\$ Annual Fees Waived
FY 2018 – 2019	76	102	178	\$103,432.03	\$10,332.00		\$113,764.03
FY 2019 – 2020	302	0	302	\$489,770.41	\$14,608.00		\$504,378.41
FY 2020 – 2021	578	0	578	\$789,665.47	\$10,675.00		\$800,340.47
FY 2021 – 2022	445	0	445	\$557,338.35	\$3,024.00		\$560,272.35
FY 2022 – 2023							
TOTALS to date	1,401	102	1,503	\$1,940,206.26	\$38,639.00		\$1,978,845.26



BWS WATER SHORTAGE PLAN (DRAFT)

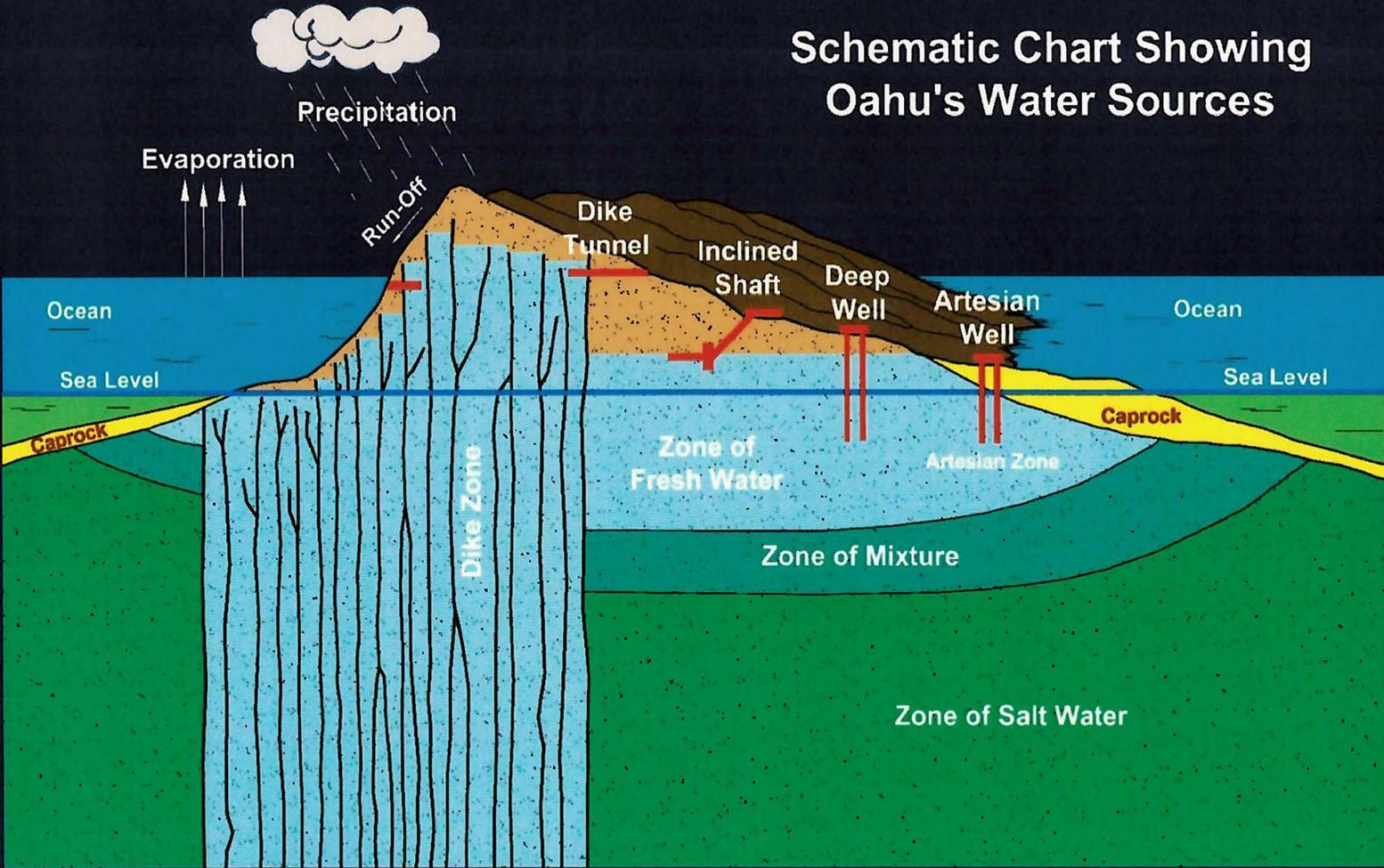
- Red Hill Water Shortage Situation
- Water Shortage Declaration
- BWS Water Shortage Condition Triggers (draft)
- BWS Response Objectives, Strategies, and Tactics
- Water Shortage Response Procedures
- Recovery Phase



Red Hill Water Shortage Situation



Schematic Chart Showing Oahu's Water Sources



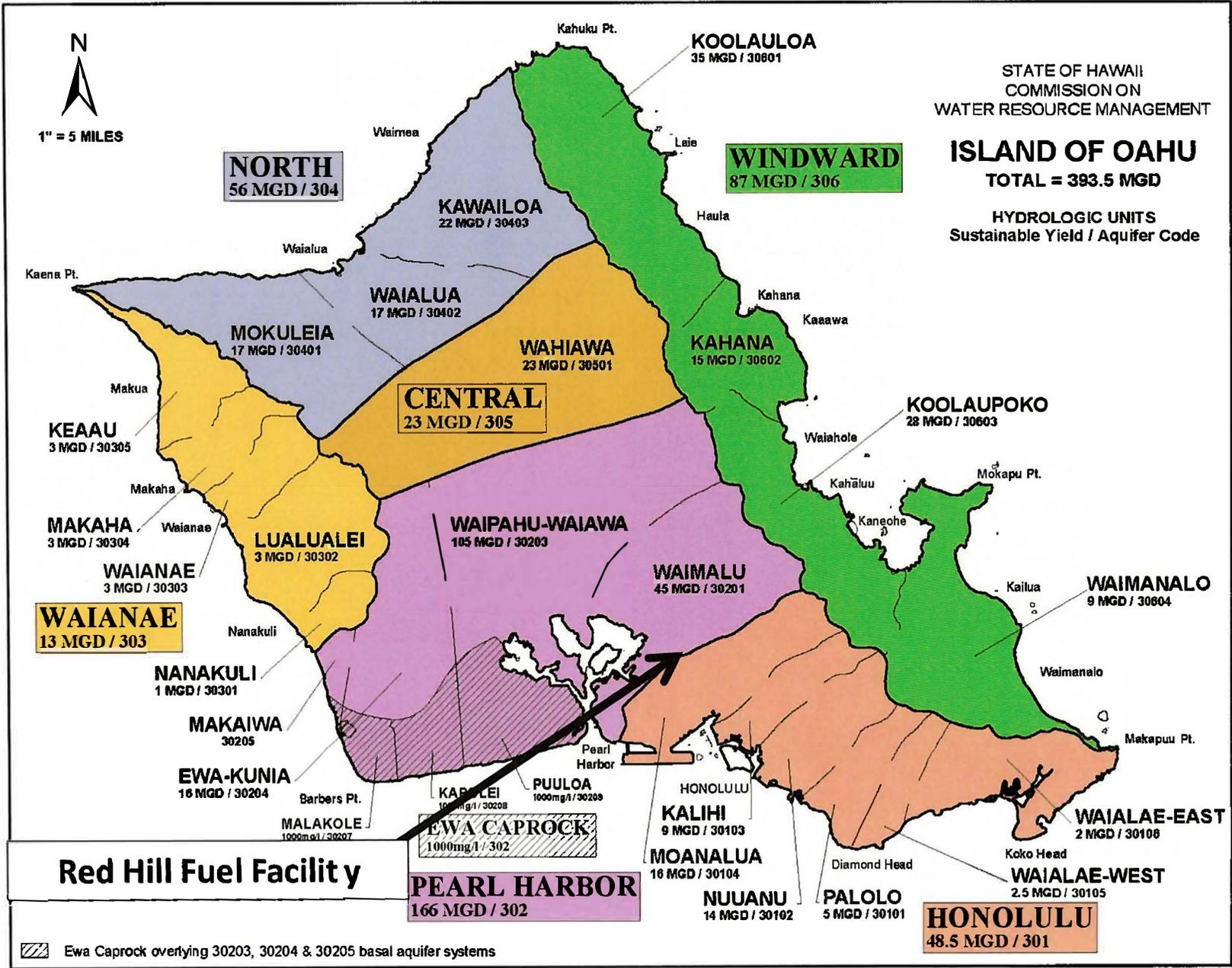
Oahu's Groundwater Bodies and Caprock

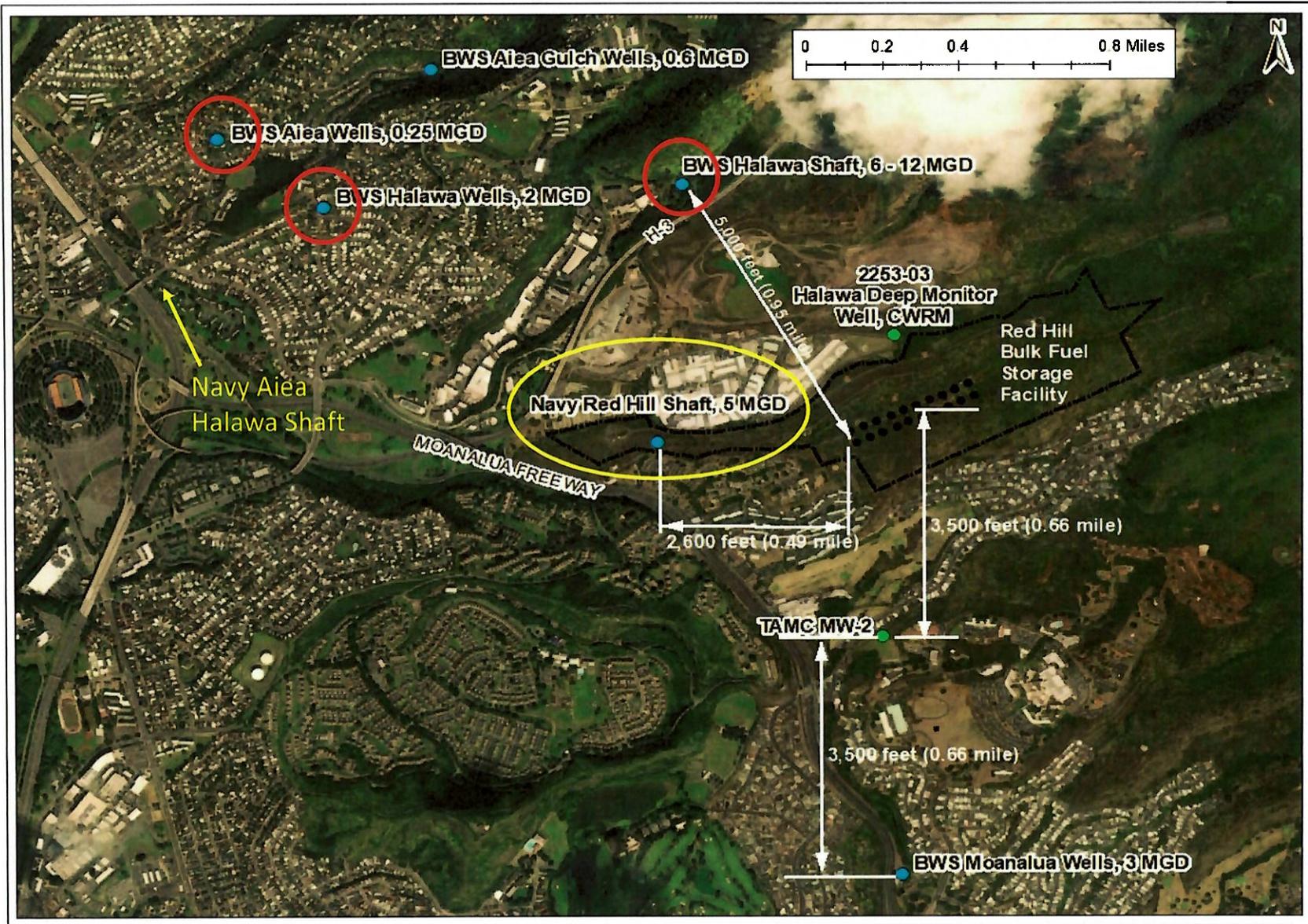
Oahu is 598 square miles
About 461 square miles of
Oahu (77% of the island)
are inland of the caprock
About 137 square miles
(23% of the island) are
covered by caprock



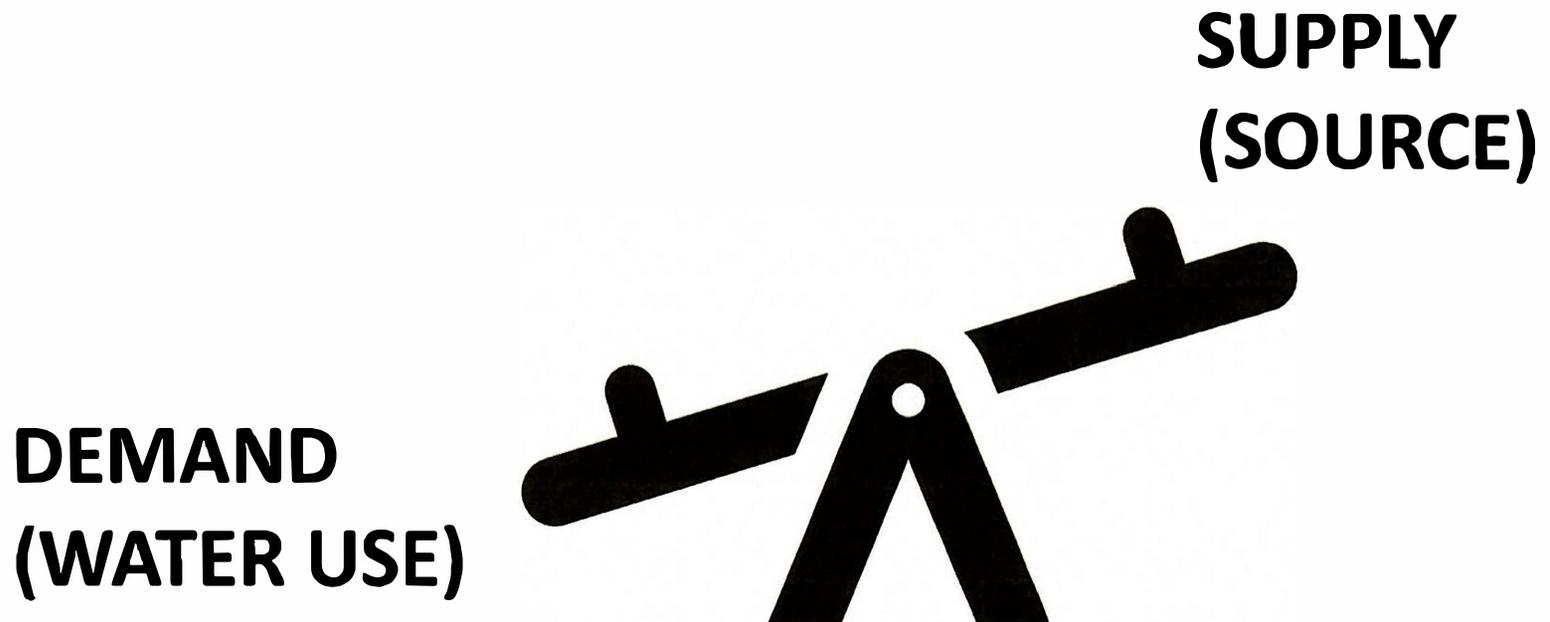
Ref. Izuka, Engott, Rotzoll, Bassiouni, Johnson, Miller and Mair, Volcanic aquifers of Hawai'i—Hydrogeology, water budgets, and conceptual models, Scientific Investigations Report 2015-5164, United States Geological Survey, 2015







A BALANCING ACT...



Halawa Shaft (**20%** of supply for the metropolitan Honolulu)

Halawa Wells and Aiea Wells (**50%** of the supply for the Aiea-Halawa 277' System)



**SIGNS OF STRAIN ON BERETANIA WELLS PROMPTS CALL
FOR ALL OAHU WATER USERS TO VOLUNTARILY REDUCE USE BY 10%**

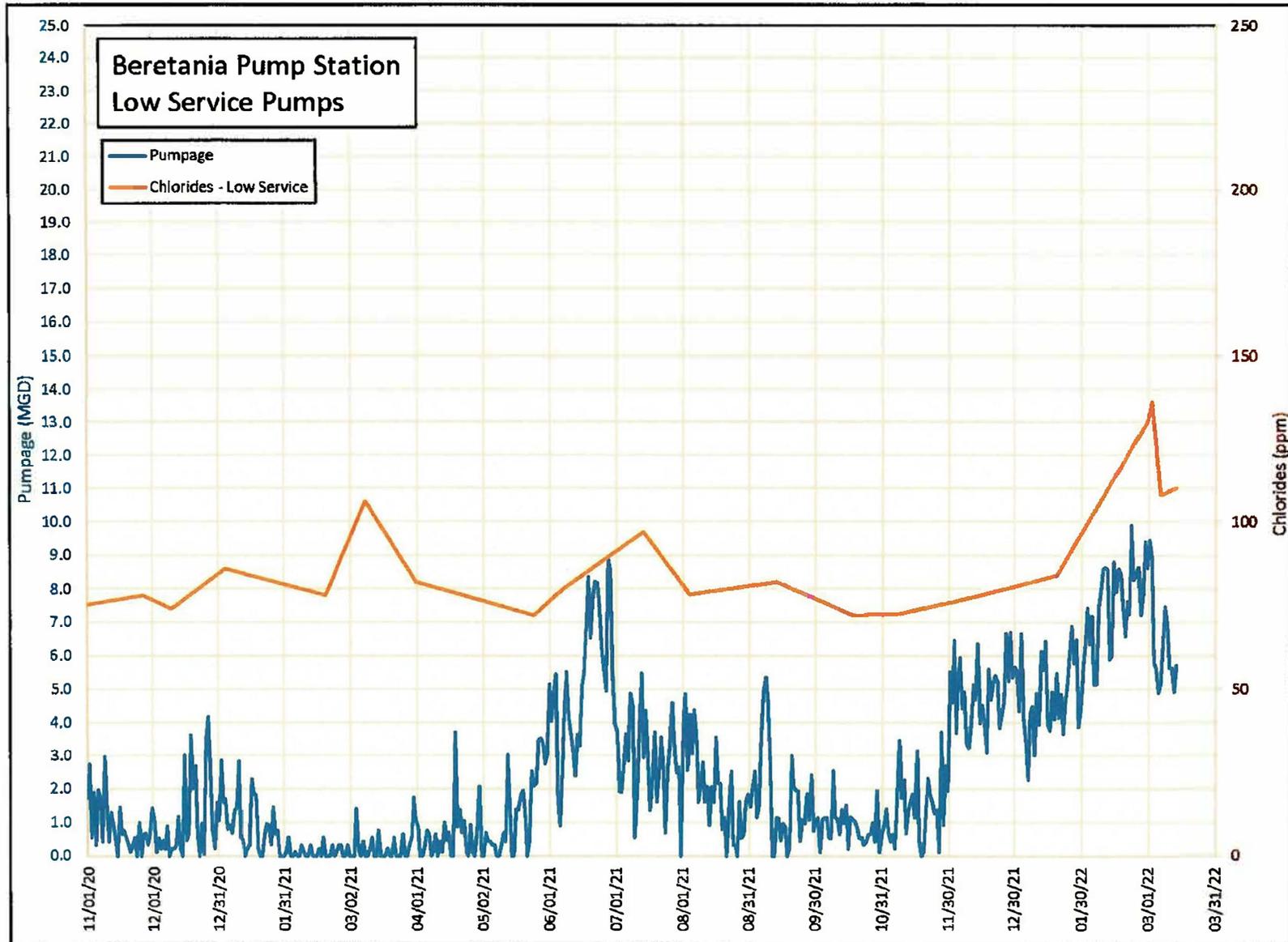
Wells are used to make up for Halawa Shaft supply deficit.

BWS News Release 3/10/2022

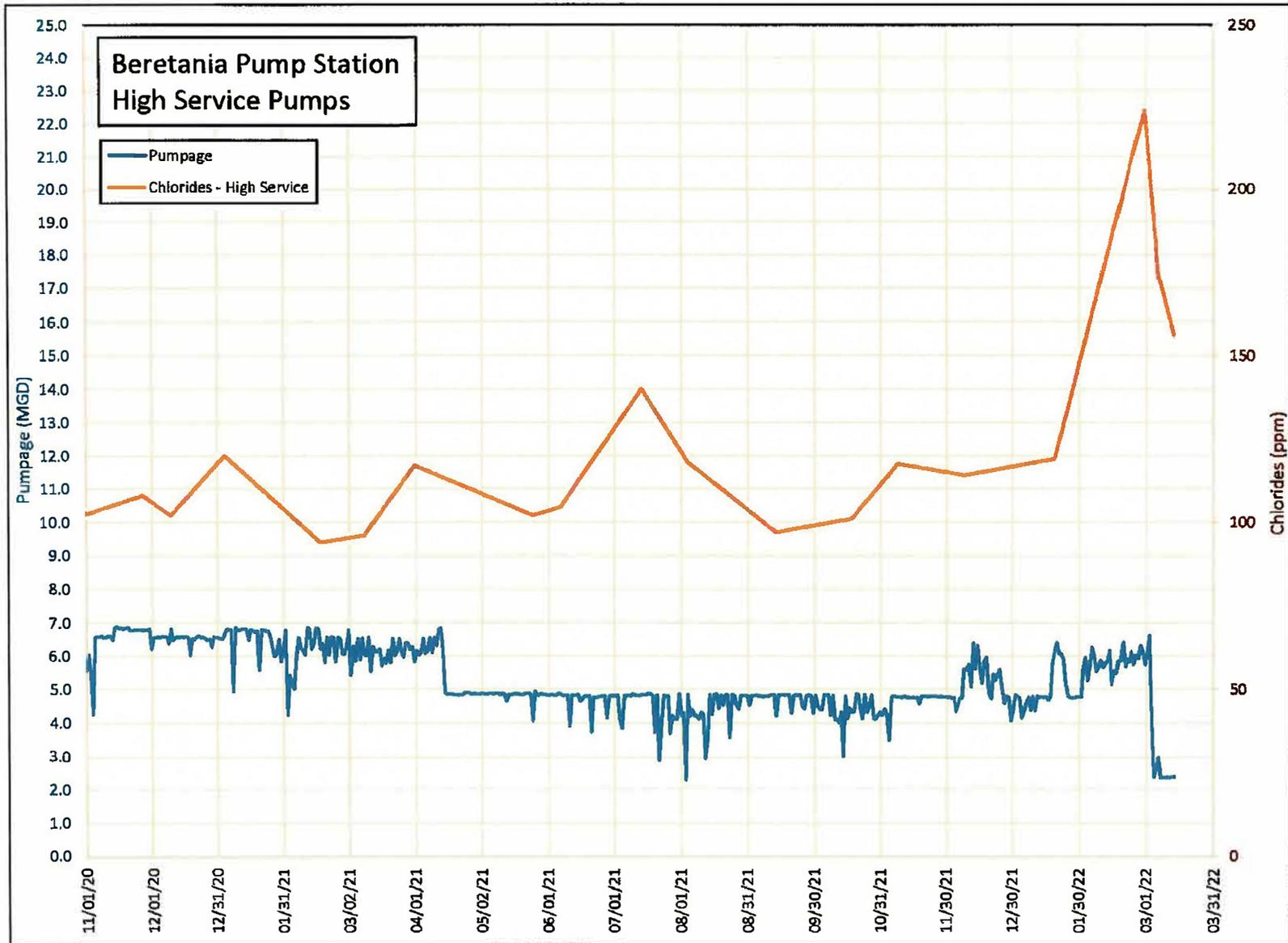
Rising levels of chloride in Board of Water Supply (BWS) Beretania Wells resulting from additional pumping to help make up the loss of supply from Halawa Shaft, which was shut down last year in response to fuel contamination of the Navy's Red Hill source -- coupled with less than normal rainfall – has led the BWS to ask island residents and businesses to voluntarily reduce their water use by 10 percent now to prepare for the summer season.



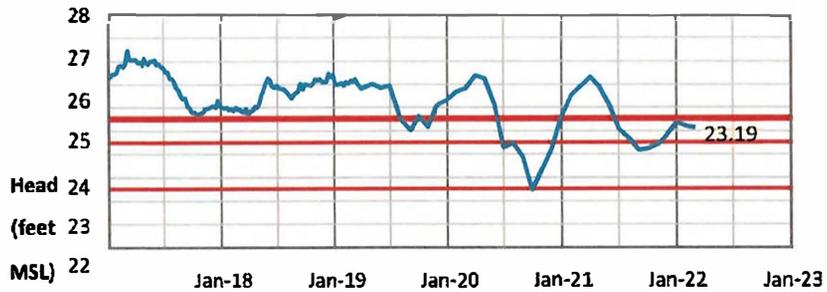
Beretania Low Service Pumpage and Chloride 3/14/2022



Beretania High Service Pumpage and Chloride 3/14/2022

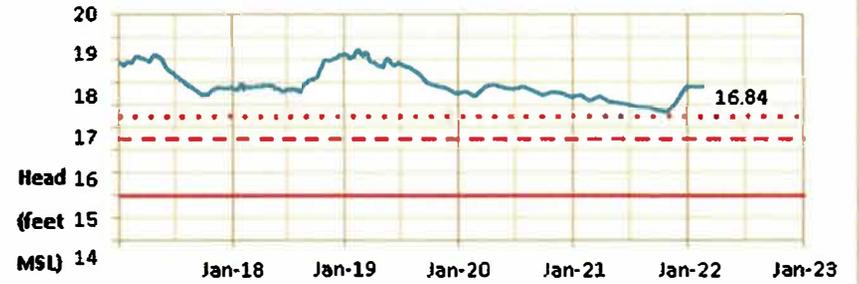


Kaimuki 03/01/22



— head level caution - - - alert — critical

Halawa 03/06/22



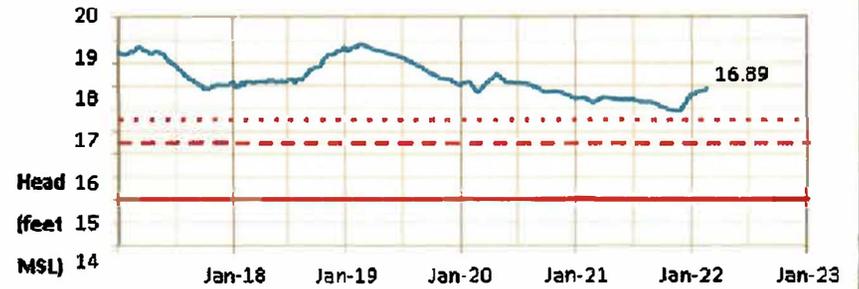
— head level caution - - - alert — critical

Beretania 02/28/22



— head level caution - - - alert — critical

Kalaupao 03/03/22



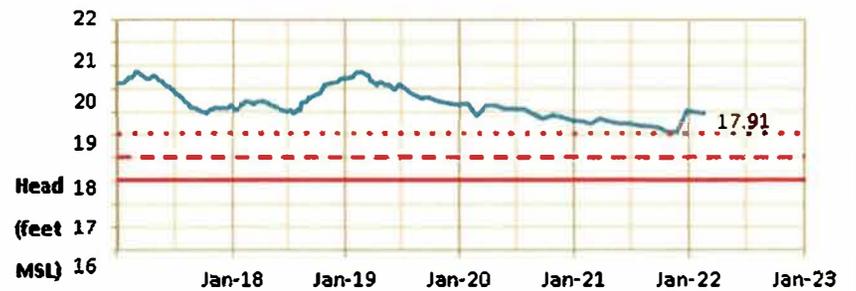
— head level caution - - - alert — critical

Kalihi 02/28/22



— head level caution - - - alert — critical

Waipahu 03/01/22



— head level caution - - - alert — critical

HAWAII DROUGHT MONITOR

Hawaii



Map released: Thurs. March 10, 2022

Data valid: March 8, 2022 at 7 a.m. EST

Intensity



Authors

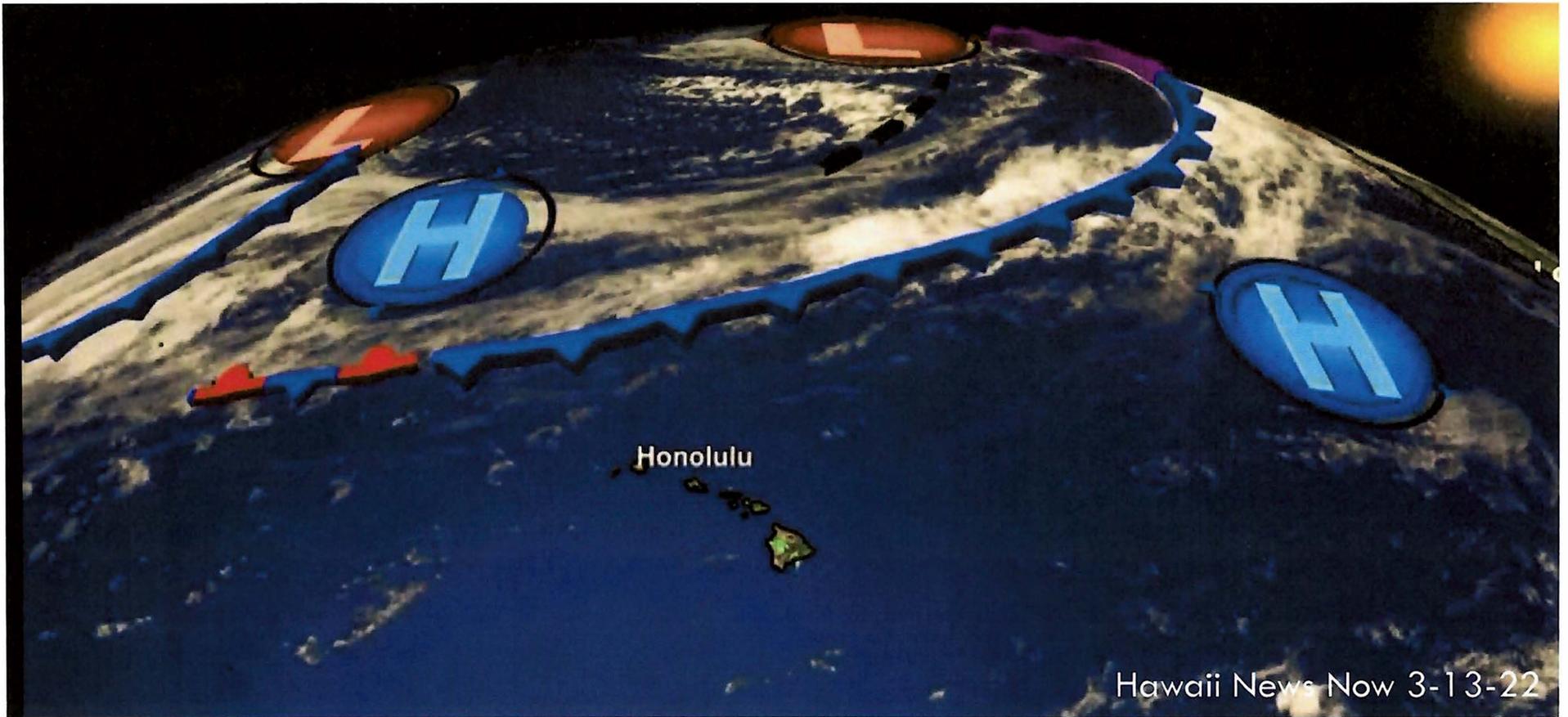
United States and Puerto Rico Author(s):

Brian Fuchs, National Drought Mitigation Center

Pacific Islands and Virgin Islands Author(s):

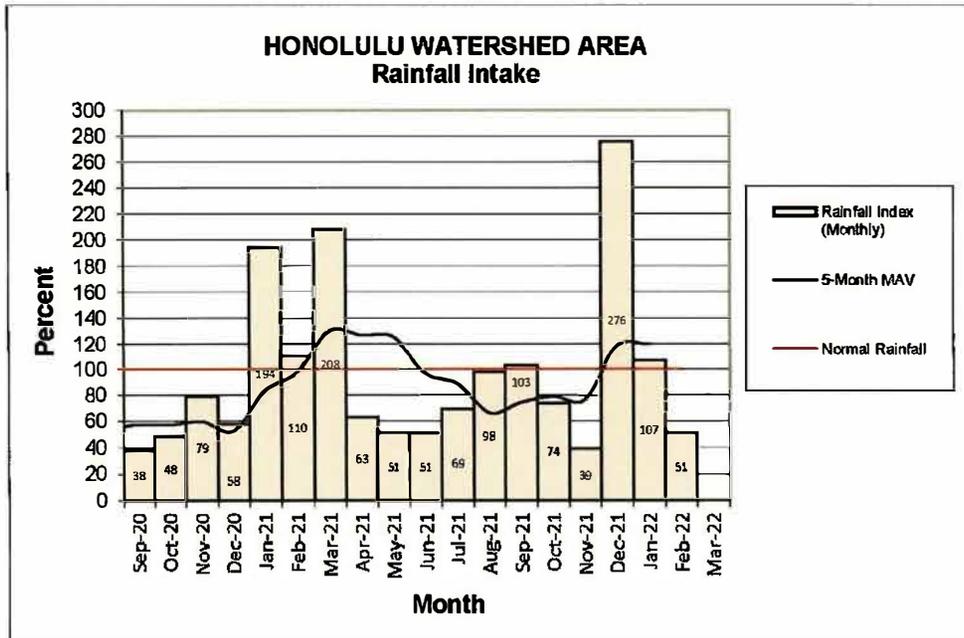
Denise Gutzmer, National Drought Mitigation Center

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

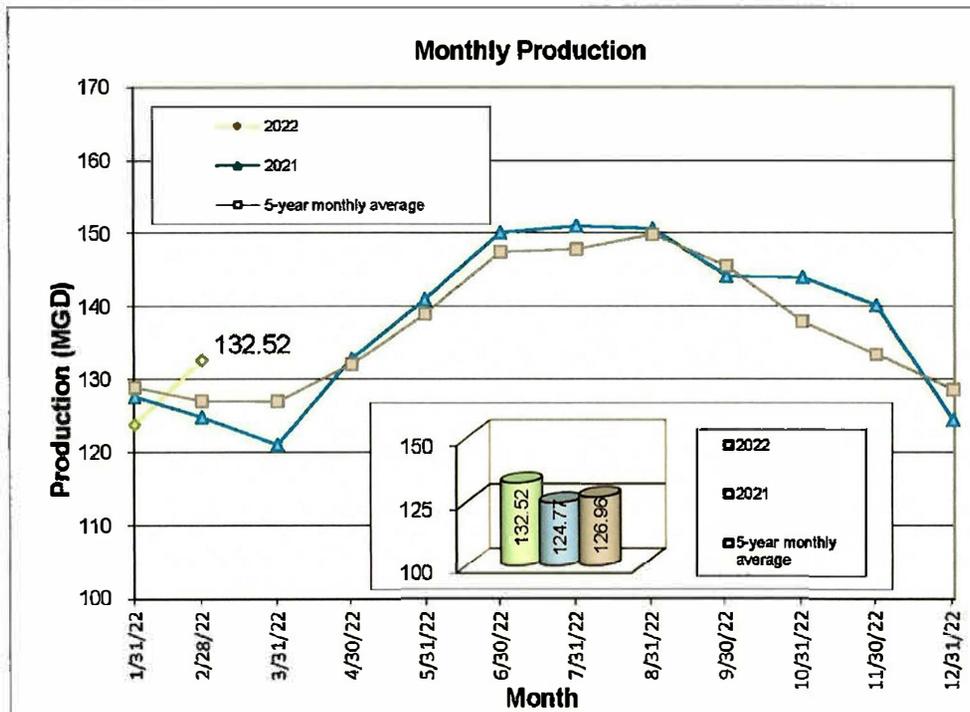


- La Nina rains in Dec 2021 wasn't a transition to the wet season. It was a sudden swing, all in one month. Been stuck in this Jet Stream pattern since Jan. 3.
- 4-6 weeks out, looks dry even though NOAA forecast is 50% chance of above normal rains.
- March usually highest flash flood month. If don't get rains in the next 4-6 weeks, it will probably be dry for the year. (in consultation with NWS)
- NWS Summer/Fall seasonal and hurricane forecast due end of May





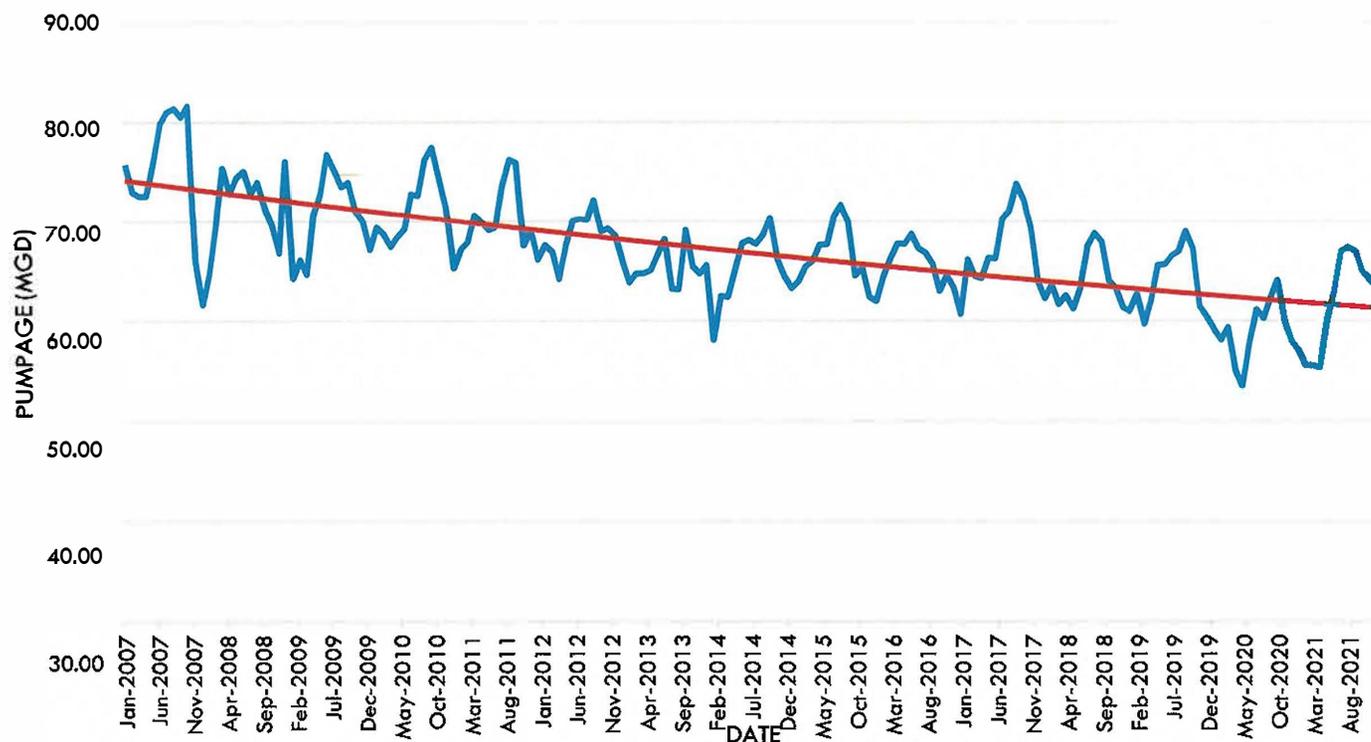
- Strong correlation between rainfall and source production.
- Dec 2021 at 276% of normal rainfall. More runoff than recharge
- Feb 2022 at 51% of normal rainfall
- Feb 2022 production (BWS islandwide system) was 132.5 mgd, about 5 mgd over 5-year monthly average



- Main difference between winter and summer demand (+20 mgd) is outdoor water use
- Honolulu Avg Day = 65 mgd, Max Day = 74 mgd
- Aiea Halawa Avg Day = 3.5 mgd, Max Day = 4 mgd
- The Perfect Drought Scenario



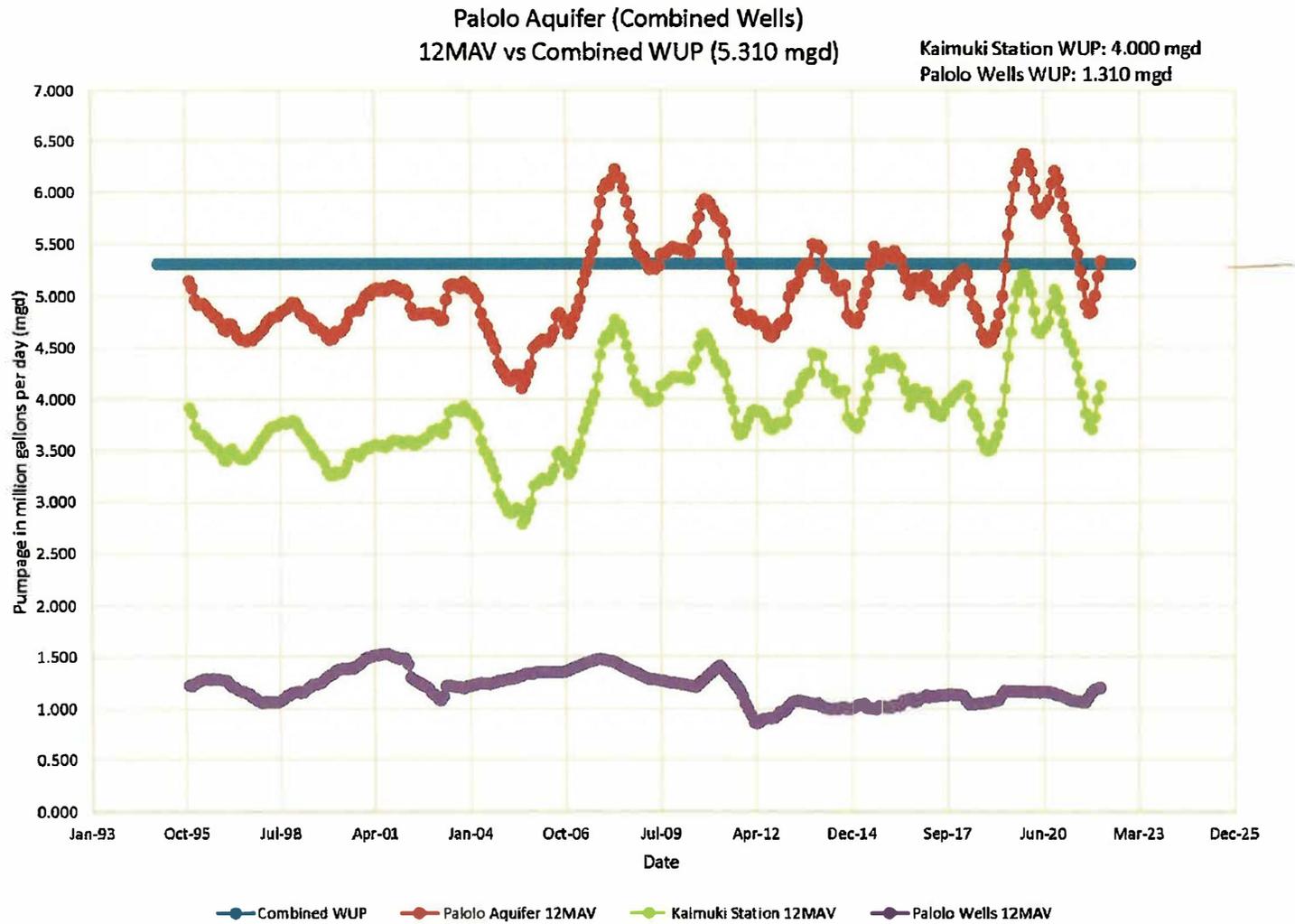
METRO LOW/HIGH MONTHLY AVG PUMPAGE (MGD)



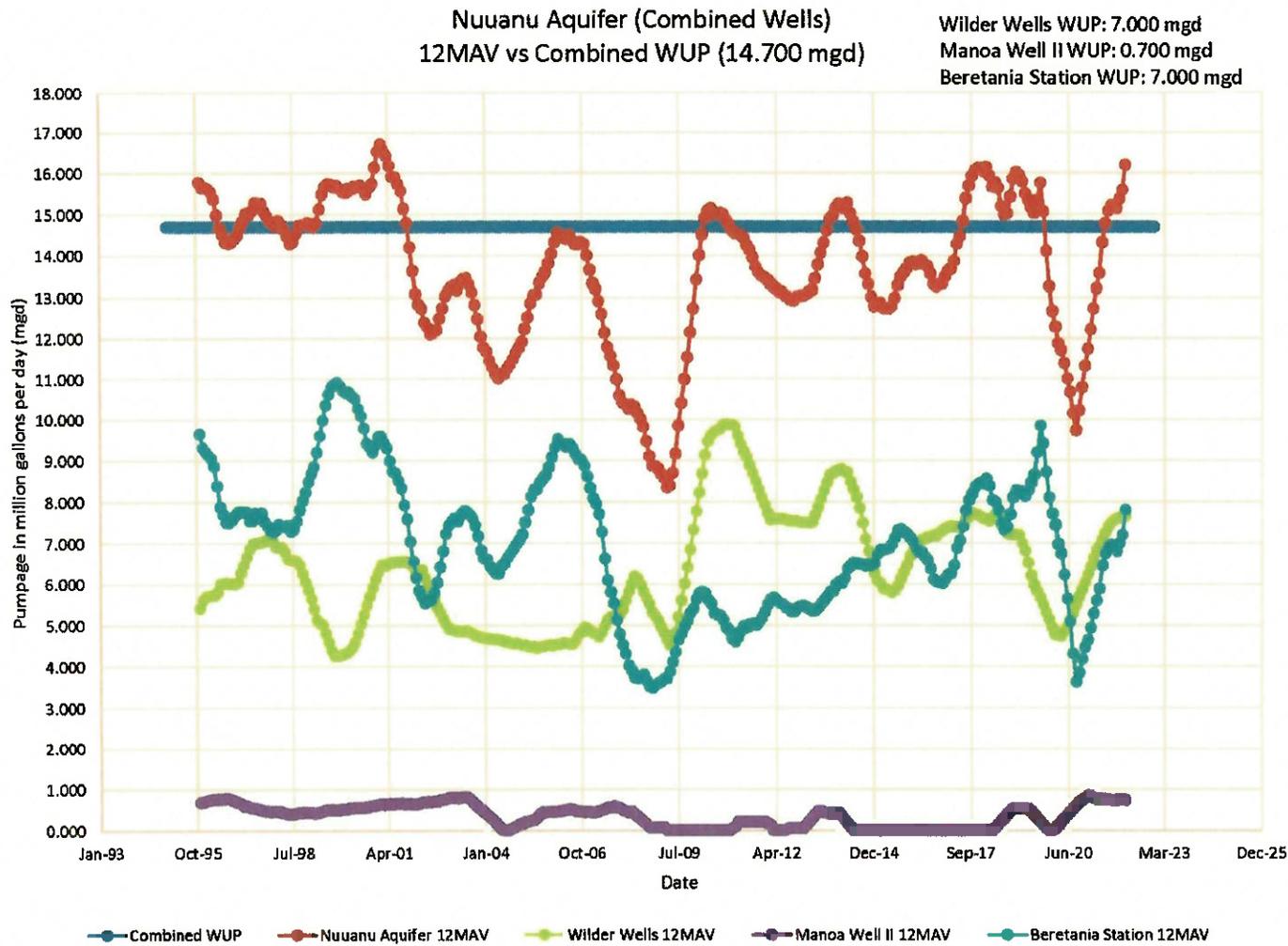
- Conservation plays a significant role in a decreasing trend in Metro (Salt Lake to Hawaii Kai) monthly source production from 2007-2021.
- Reduced aquifer withdrawals and reduced max day demand
- The polynomial trendline shows a slight flattening of the rate of decrease, which will plateau in the future as conservation saturation is reached.
- The trendline is expected to then increase with the rate of growth.



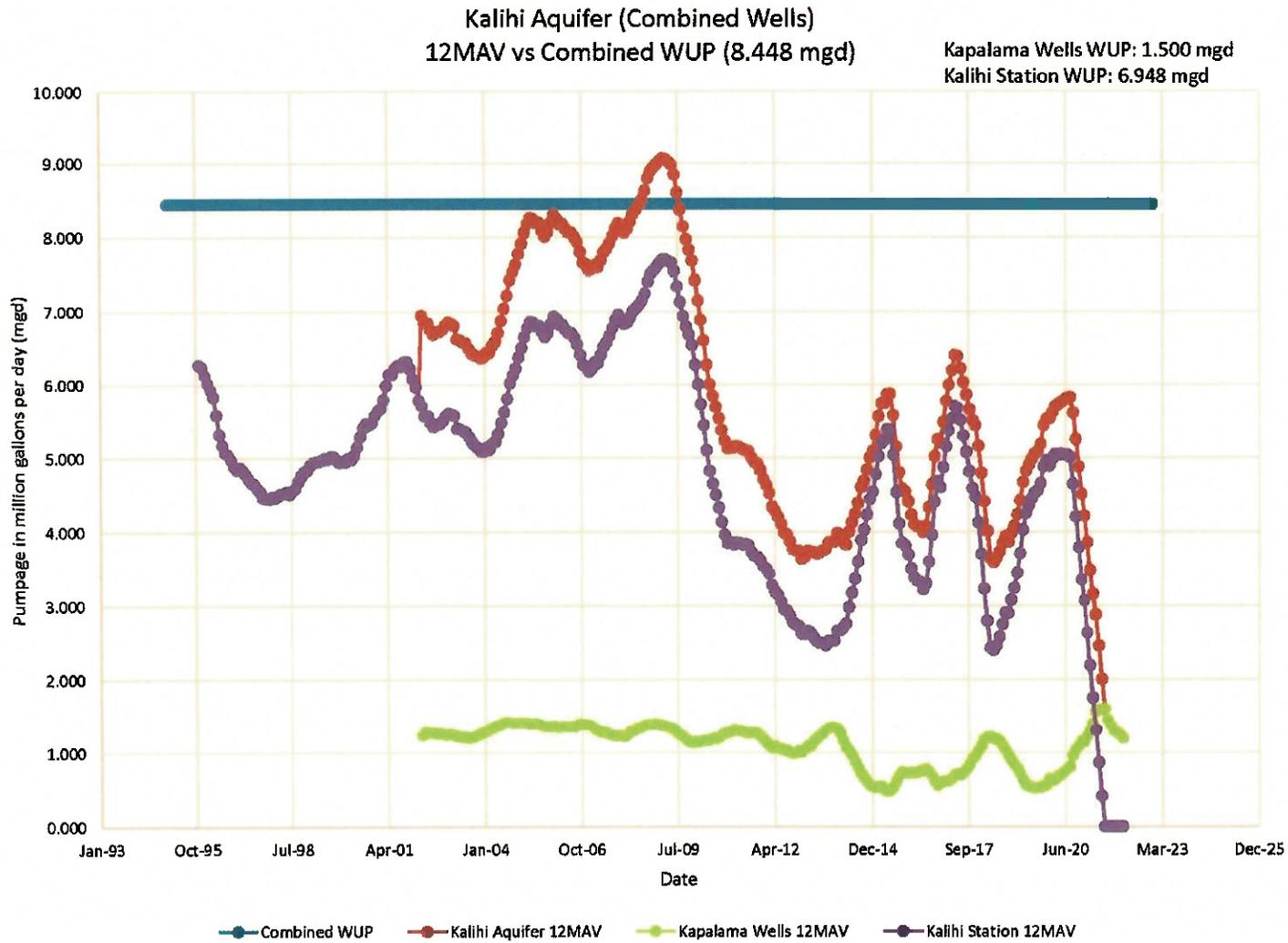
BWS 12-MO MOVING AVERAGES FEBRUARY 2022 HONOLULU



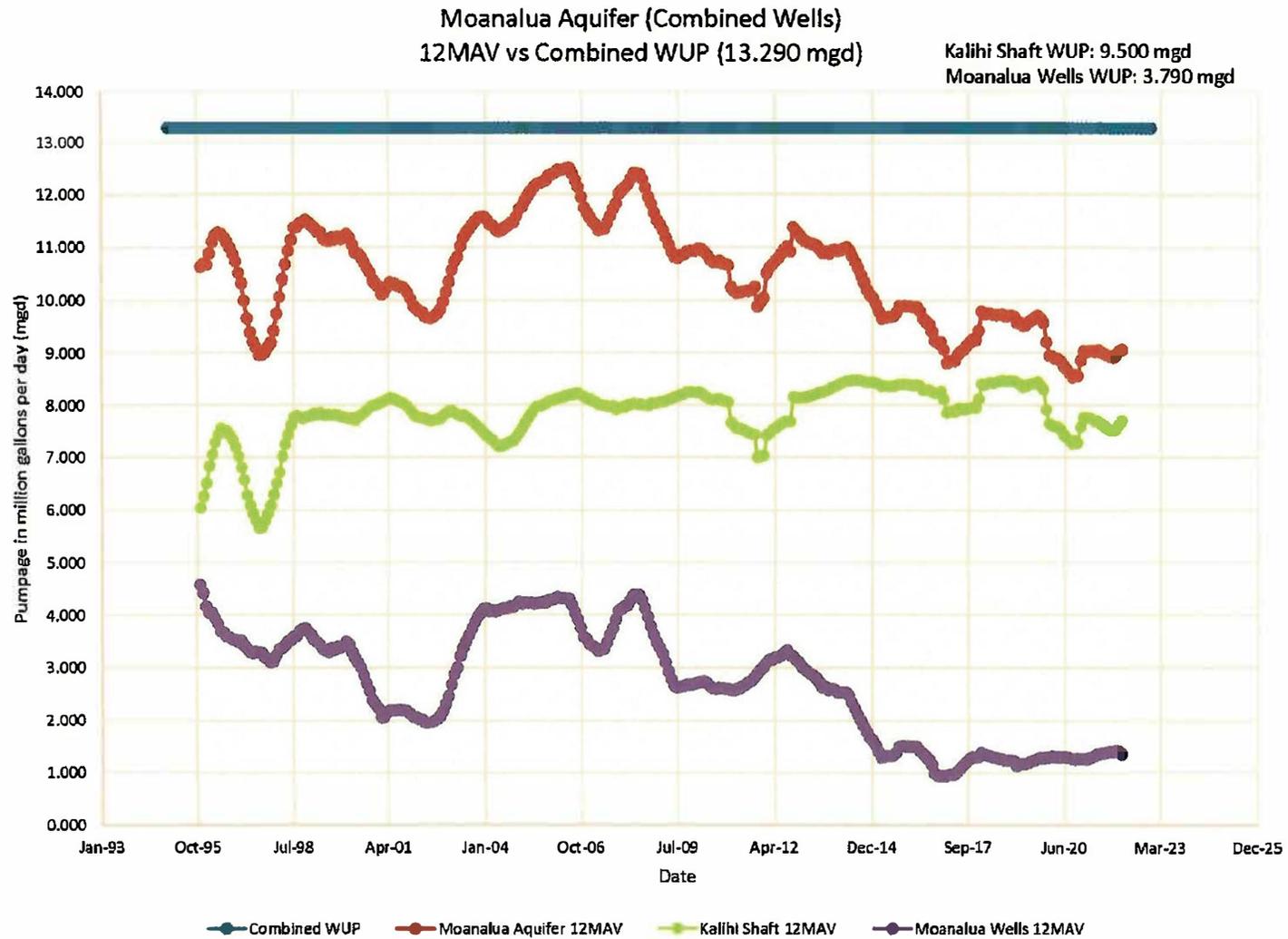
BWS 12-MO MOVING AVERAGES FEBRUARY 2022 HONOLULU



BWS 12-MO MOVING AVERAGES FEBRUARY 2022 HONOLULU

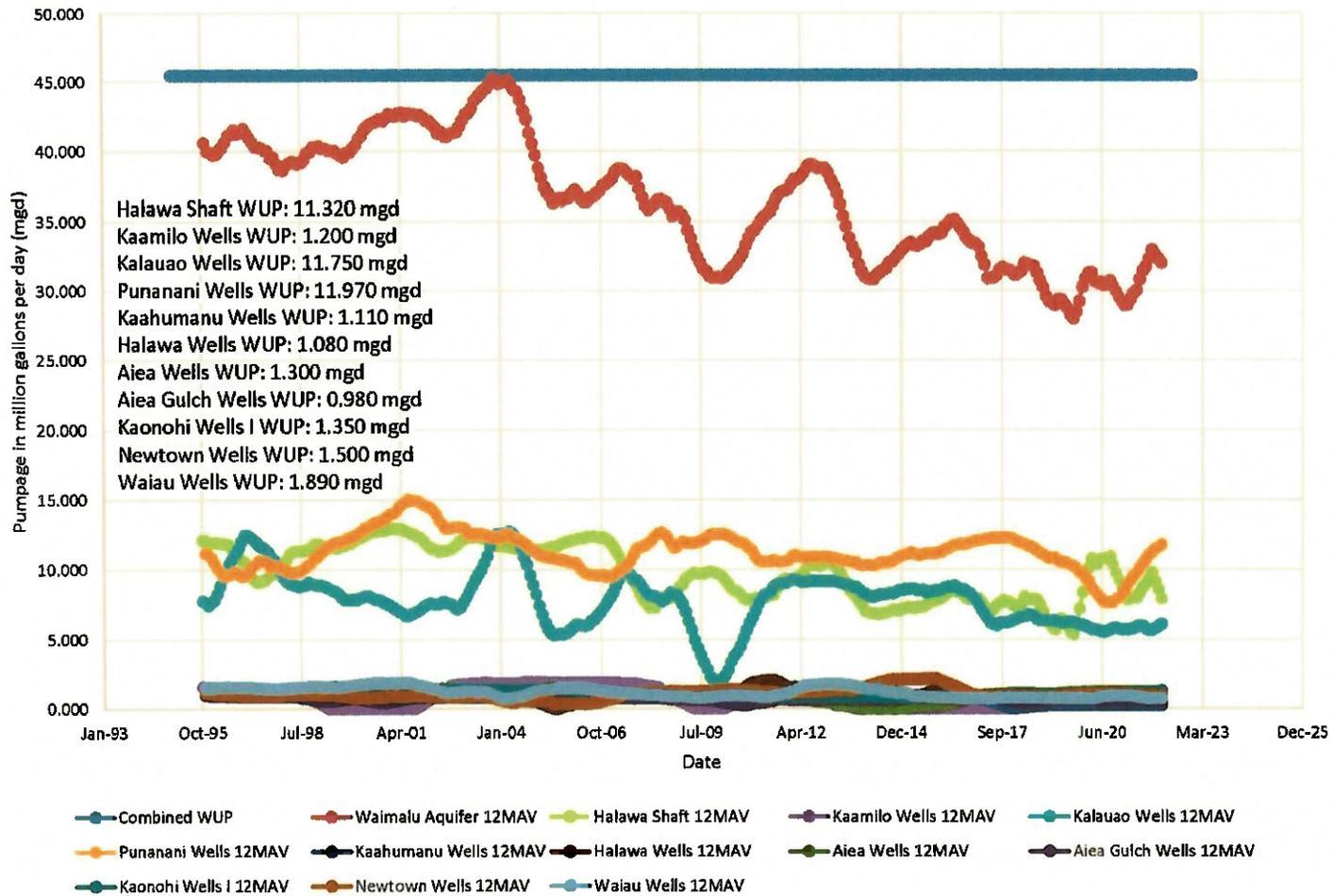


BWS 12-MO MOVING AVERAGES FEBRUARY 2022 HONOLULU



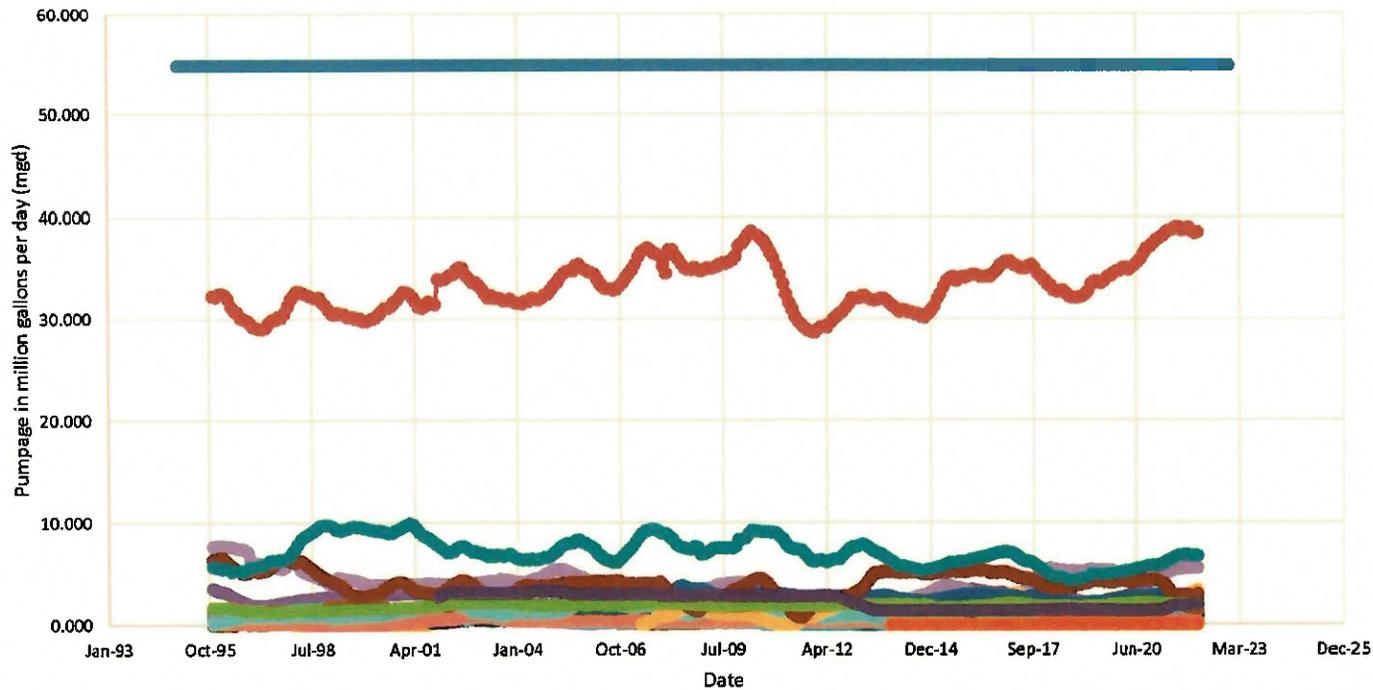
BWS 12-MO MOVING AVERAGES FEBRUARY 2022 PEARL HARBOR

Waimalu Aquifer (Combined Wells)
12MAV vs Combined WUP (45.450 mgd)



BWS 12-MO MOVING AVERAGES FEBRUARY 2022 PEARL HARBOR

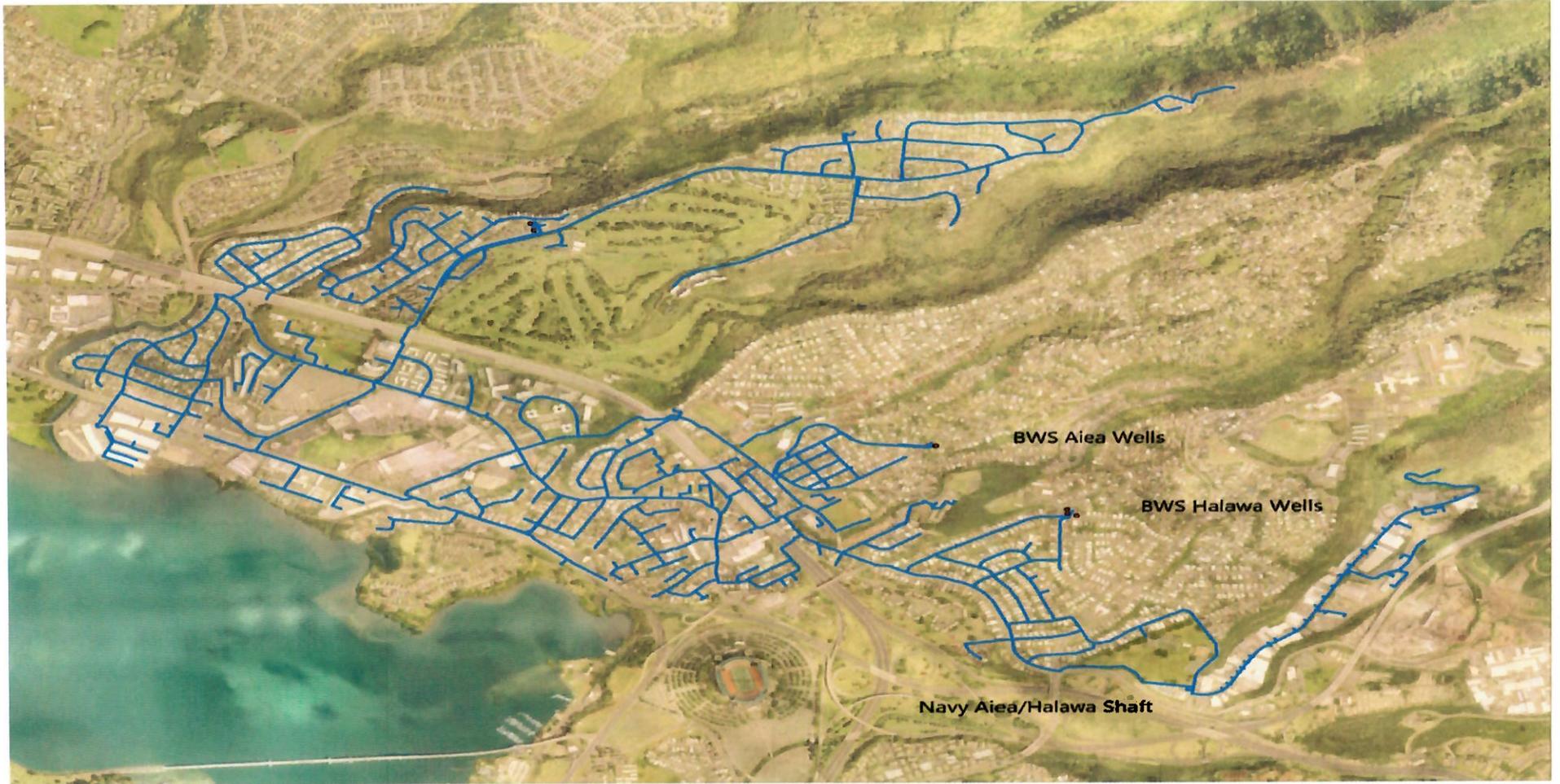
Waipahu-Waiawa Aquifer (Combined Wells)
12MAV vs Combined WUP (54.792 mgd)



- | | | | |
|-----------------------------|---------------------------------|-------------------------------|----------------------------|
| ● Combined WUP | ● Waipahu- Waiawa Aquifer 12MAV | ● Manana 12MAV | ● Millilani Wells I 12MAV |
| ● Millilani Wells II 12MAV | ● Millilani Wells III 12MAV | ● Millilani Wells IV 12MAV | ● Pearl City Wells I 12MAV |
| ● Pearl City Wells II 12MAV | ● Pearl City Well III 12MAV | ● Pearl City Shaft 12MAV | ● Waipio Hts. Wells 12MAV |
| ● Waipio Hts. Wells I 12MAV | ● Waipio Hts. Wells II 12MAV | ● Waipio Hts. Wells III 12MAV | ● Waipahu Wells 12MAV |
| ● Waipahu Wells II 12MAV | ● Waipahu Wells III 12MAV | ● Waipahu Wells IV 12MAV | ● Kunia Wells I 12MAV |
| ● Kunia Wells II 12MAV | ● Kunia Wells III 12MAV | ● Hoaeae Wells 12MAV | ● Ewa Shaft 12MAV |



AIEA HALAWA WATER SYSTEM



HONOLULU WATER SYSTEM



RED HILL WATER SHORTAGE CAPITAL RESPONSE PROJECTS

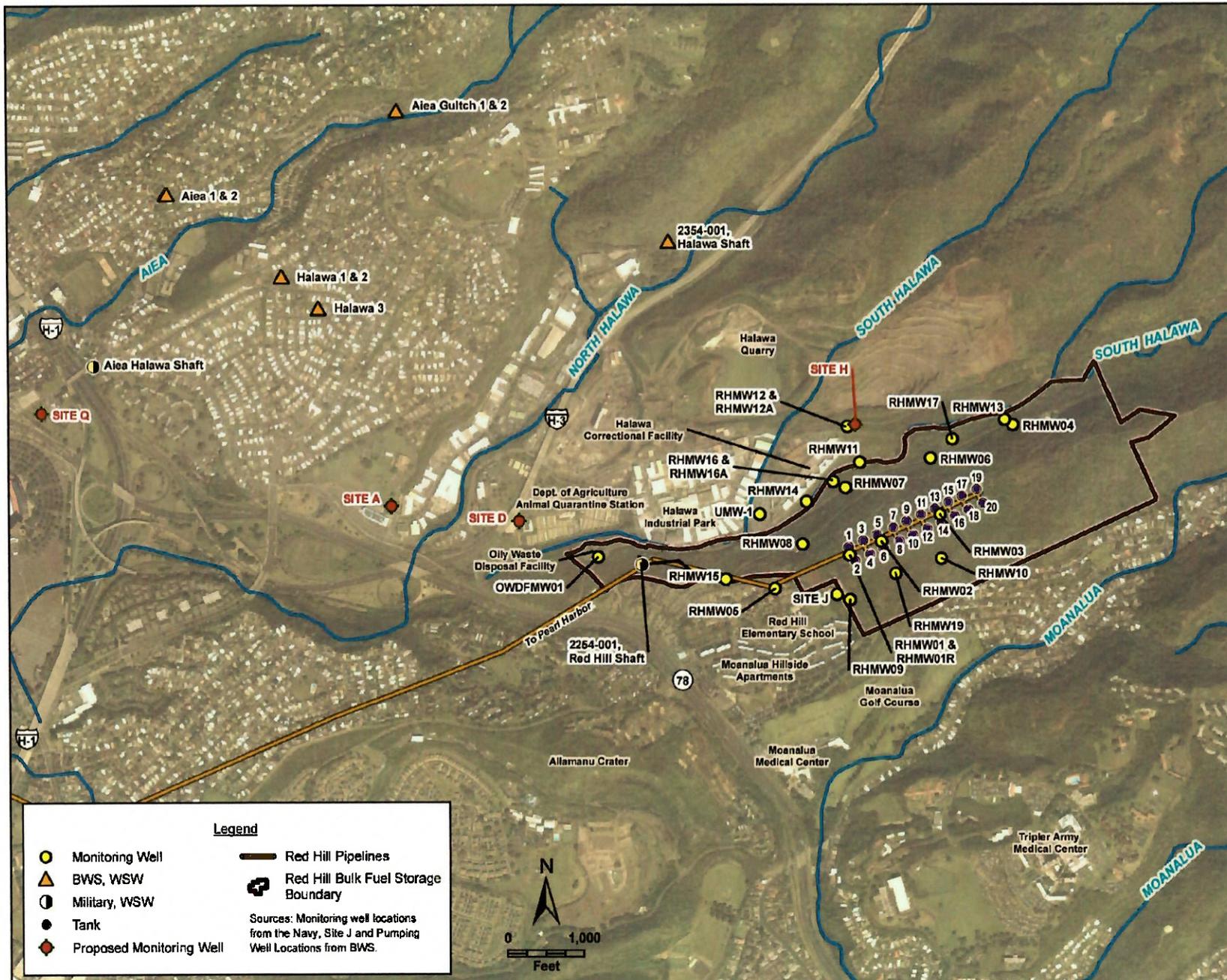
Proposed FY 2023 CIP Projects, possibly with SRF & ARPA Funding

- Construct 5-6 exploratory wells in Waimalu & possibly Moanalua to replace 3 pump stations shut down due to Red Hill contamination
- Install 4 sentinel monitoring wells in Halawa Valley
- Interconnect Pearl City 285' water system with Metro 180' and Aiea-Halawa 277' water systems
- Test pump Waimalu II, Kaonohi II and Kaamilo pump 2 for yield & chloride recovery
- Ewa Shaft Well Field
- Kunia Wells IV
- Waikele Gulch Wells
- Waialae Nui Valley Well
- Wailele Well
- Kalaeloa Seawater Desalination DBOM

Complete repairs of Kalihi Pump Station and Kalauao Wells



BWS & Navy Monitoring Wells – Existing & Proposed

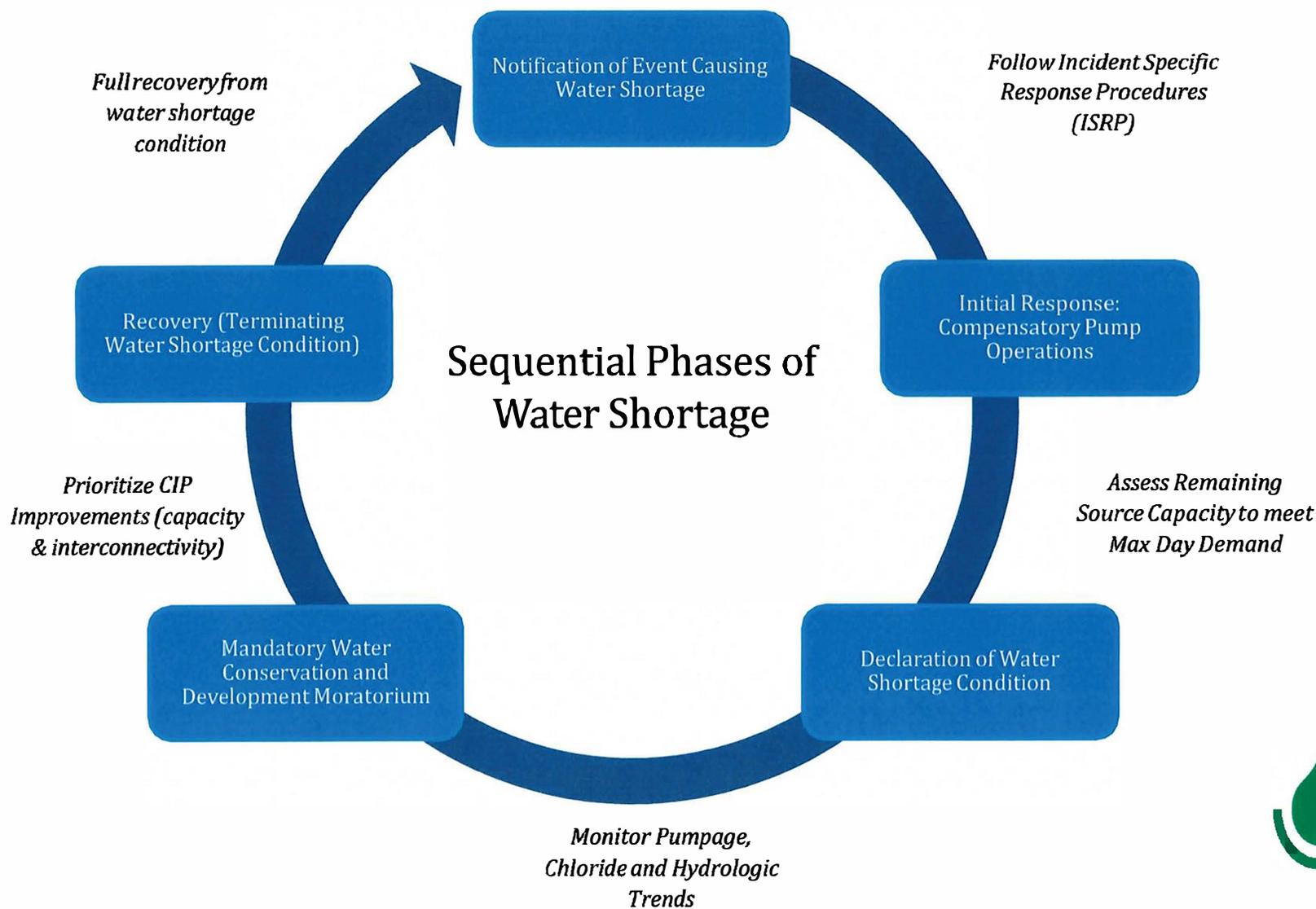


BWS WATER SHORTAGE PLAN (DRAFT)

Water Shortage Declaration



WATER SHORTAGE PLAN PROVIDES STRATEGIC AND TACTICAL STEPS TO ASSESS, DECLARE AND CONTROL WATER DEMAND



BWS WATER SHORTAGE DEFINITIONS

A water shortage condition exists when water supply is not available to meet existing and/or future water demands due to degradation of water quality or extended disruptions to water system delivery infrastructure.

A low groundwater condition exists when 3 or more index well levels fall below levels designated (caution, alert, critical), and chloride levels rise for 3 consecutive months at sufficient sources to hamper operations. Sec 3-318 to 322 BWS Rules & Regulations



BWS RULES AND REGULATIONS

CHAPTER II: WATER SERVICE TO CONSUMERS

Sec. 2-209: Conservation Measures and Interruption of Water Supply

1. The Department will exercise reasonable diligence to deliver water to the consumer and avoid shortages or interruptions in service, but will not be liable for any interruption, shortage, insufficiency of supply, or any loss or damage occasioned thereby.
2. Whenever, in the Department's opinion, special conservation measures are advisable in order to forestall water shortages, the Department may restrict the use of water by any means or method of control.



BWS may at any time during the period in which a water shortage condition exists:

- **Declare that a water shortage condition exists. A water shortage condition shall continue to exist, once it is declared, until such time as BWS declares that the condition is terminated.**
- **Implement mandatory restrictions within the scope of BWS Rules and Regulations.**
- **Punish offenders within the scope of BWS Rules and Regulations.**

The Manager shall, at each regular Board meeting while a declared water shortage condition is in effect, report to the Board the status of the water system capacity; the weekly average of daily pumpage and demands; the effectiveness of the restrictions and allotments in force; recommendations to increase or reduce restrictions and allotments; and such other information.

BWS may terminate the declared water shortage condition when the event causing degradation of water quality or disruptions to water system delivery infrastructure has been resolved.

In a Critical Water Shortage Condition where Mandatory Conservation is required because of insufficient response to voluntary conservation, the Board may declare a Building Moratorium.



Water Shortage Condition Triggers



WATER SHORTAGE CONDITION TRIGGERS (DRAFT)

Water Shortage Condition	Source Capacity Demand Trigger	Chloride Content Trigger*
No Water Shortage	Available pumping units meet max day demand in 16 hours w/ standby not included.	Stable Chloride and Head Level Trends
Alert	Available pumping units meet Q ₉₅ max day demand in 20 hours, standby pumps not included.*	Chloride content rises between 12 ppm and 16 ppm over three consecutive months at sufficient sources to hamper operations.
Critical	Available pumping units cannot meet Q ₉₅ max day demand in 22 hours, standby pumps not included*	Chloride content rises over 16 ppm over three consecutive months at sufficient sources to hamper operations.

*Assumes 5-10% Water Conservation Reductions to flatten max day demand peaks

Requirement for Monitoring chloride trends and index well head levels more frequently (from monthly to weekly). Available remaining pumping stations may have to be pumped harder to meet Q₉₅ max day demand and with drought, may increase chloride levels and decrease head levels into Alert or Critical low groundwater levels.



Response Objectives, Strategies, and Tactics



Water Shortage Objectives and Strategies shape the compensatory water system operations, water conservation, outreach and development control tactics



Water Shortage Response Procedures



Progressively Restrictive Water Conservation Responses by Water Shortage Condition (DRAFT)

Water Shortage Condition	Source Capacity/Demand Trigger	Conservation Response
No Water Shortage	Available pumping units meet max day demand in 16 hours, standby pumps not included	Voluntary – General Seasonal Messaging
Alert	Available pumping units meet Q_{95} max day demand in 20 hours, standby pumps not included.	Voluntary – Targeted Seasonal Messaging Requesting 10%+ Water Use Reductions
Critical	Available pumping units cannot meet Q_{95} max day demand in 22 hours, standby pumps not included	Mandatory in Progressively Restrictive Order 1) Require Targeted Water Use Reductions 2) Water Allotments, Flow Restrictors, Rate Surcharges 3) Moratorium if improvements extend more than 2 years



VOLUNTARY CONSERVATION MEASURES FOR ALERT **WATER SHORTAGE CONDITIONS** (not limited to...)

Request military, commercial, industrial, and agricultural users and government agencies reduce their usage by 10%

• Include simple water conservation strategies and current usage, WaterSmart

Request the following of all customers:

- Use automatic shut-off nozzles on all hoses.
- Only wash cars, boats, trailers, or other vehicles with automatic shut-off nozzle hoses and buckets
- Do not hose or wash sidewalks, driveways, parking lots, or other hard surfaces
- Make a reasonable effort to repair water leaks in toilets, plumbing fixtures, and customer-side water lines within 24 hours

Adjust Irrigation Schedules to achieve overall reduction in irrigation

- Parks, highways, cemeteries, schools
 - Between the hours of 7 AM and 9 AM
 - Irrigation days for odd digit address: Tuesday, Thursday and Saturday
 - Irrigation days for even digit address: Wednesday, Friday, Sunday
- Domestic: Between the hours of 5 PM and 7 PM
- Military and golf courses: Between the hours of 12 AM and 5 AM
- Incentives for turf replacement & xeriscape and weather-based irrigation controllers



MANDATORY CONSERVATION MEASURES FOR CRITICAL WATER SHORTAGE CONDITIONS (not limited to...)

Require the following of appropriate customers:

- Do not fill swimming pools and other types of pools and ponds. Close public pools
- Serve water in restaurants only when requested by the customer, provide a notice of water shortage on each table (BWS Rules & Regs Sec. 2-209)
- Post a notice of water shortage and tips for water conservation in each hotel room, linen change outs
- Use re-circulating water only in ornamental fountains and post signage nearby that states that re-circulated water is being used
- Limit use of potable water for recreational purposes
- Coordinate with commercial water recreational facilities (such as water parks) on restrictions to minimize impact to businesses

Implement mandatory restrictions for City agencies:

- Restrict turf watering/landscaping irrigation at City facilities other than parks and right-of-way
- Inspect automatic sprinkler and irrigation systems for leak and waste
- Partner with HFD to reduce non-essential fire suppression training and hydrant flushing
- Increase use of recycled water for irrigation, construction activities, fire-fighting storage, agriculture, or other non-potable uses
- Implement mandatory BWS construction restrictions:
 - Halt all approvals of:
 - temporary water meters
 - new permanent water meters
 - pipeline chlorination or disinfection using potable water



WATER ALLOTMENTS FOR CRITICAL MANDATORY WATER SHORTAGE CONDITIONS - draft

Establish water allotments: For commercial, residential, industrial, military, governmental, and agricultural consumers

- At no less than 90% of user's previous 12-month average billed consumption
- At no less than 350 gals/day for SFD and duplex residences
- At no less than 270 gals/day/unit for Multi Family low rise
- At no less than 180 gals/day/unit for High Rise Apartments

Progressively Restrictive Allotments to achieve the reduction requirements:

- Establish water allotments: For commercial, residential, industrial, military, governmental, and agricultural consumers:
- At no less than 70% of user's previous 12-month average billed consumption
- At no less than 300 gallons/day for SFD and duplex residences
- At no less than 210 gals/day/unit for Multi Family low rise
- At no less than 140 gals/day/unit for High Rise Apartments
- At different times and different levels for the various classes of consumers to distribute demand over a day



PENALTIES FOR EXCEEDANCE OF WATER ALLOTMENTS

BWS can implement penalties for customers whose monthly consumption is in excess of their water allotment, in accordance with the following:

- Maximum allowable exceedance of water allotments:
- Residential (single family and duplex): 5,000 gallons per monthly billing period
- Resort, commercial, multi-family, industrial, agricultural, military, and government: Difference between allotment and previous 12-month monthly average

First two offenses if the excessive use exceeds the maximum allowable as specified above and in Section 3-321 of the BWS Rules and Regulations.

- A warning letter will be issued after the first offense
- A flow restrictor may be installed after the second offense
- Surcharges for the first two offenses exceeding water allotments per the surcharge schedule

Gallons in Excess of Allotment for Meter Sizes 2" and Larger*	Gallons in excess of Allotment for Meter Sizes 5/8" to 1-1/2" (Monthly Billing)	Gallons in excess of Allotment for Meter Sizes 5/8" to 1-1/2" (Bi-Monthly Billing)	Surcharge
25% or less	3,000 or less	6,000 or less	2 Times Existing Water Rate
26% - 50%	3,001 – 6,000	6,001 - 12,000	3 Times Existing Water Rate
51% - 75%	6,001 – 9,000	12,001 - 18,000	4 Times Existing Water Rate
76% - 100%	9,001 – 12,000	18,001 - 24,000	12 Times Existing Water Rate
Over 100%	Over 12,000	Over 24,000	20 Times Existing Water Rate



SECTION 1-101 AVAILABILITY OF WATER

Availability of Water for Proposed Developments. The Department may issue water commitments to proposed developments as follows:

- **Category 1: Areas with Adequate Water Supply.** *The Department may issue advance water commitments to proposed developments in areas where the water system has adequate supplies to assume new or additional services.*
- **Category 2: Areas with Limited Additional Water Supply.** *The Department may restrict the issuance of advance water commitments to proposed developments in areas where the water system has limited additional supplies to assume new or additional services.*
- **Category 3: Areas with No Additional Water Supply.** *The Department shall not issue water commitments to proposed developments in areas where the water system has no additional supplies to assume new or additional services. The only exception shall be the issuance of a single 3/4-inch meter to proposed developments on existing single vacant lots.*

BWS typically operates under Category 2 water availability, where **water commitments are confirmed when residential subdivision construction plans are approved or when building permits are approved for all other developments.** In a Critical Water Shortage Condition with Mandatory Conservation, BWS will operate under Category 3, for water systems with no additional water supply until the water system improvements to increase capacity are completed.



BUILDING MORATORIUM CONTROLS (DRAFT)

In a Critical Water Shortage Condition, if mandatory conservation measures and available pumping units are insufficient to accommodate existing and/or future growth, BWS may implement building development conditions to control the rate of water demand growth and the risk of water shortage. Limitations could include:

- Limit approvals to a single minimum size water meter for existing vacant lots.
- For redeveloped parcels, limit water demands to existing water meter sizes, previous water allocations and/or existing use prior to redevelopment.
- Require alternative onsite water supplies such as grey water reuse, stormwater catchments, A/C condensate recovery and high efficiency plumbing fixtures. Refer to the National Blue Ribbon Committee Distributed Nonpotable Water Manual.
- If additional water supply is still needed for a development, the developer could consider funding conservation measures in other existing buildings within the same water system where the actual water savings equates to the additional supply needed. (No Net Gain in Water Use)



Recovery



RECOVERY PHASE

Ensure sufficient source and aquifer recovery post incident by reducing pumping when the next wet seasons reduce water demands.

- Identify pumping stations that have been pumped harder to meet max day demand and affected by drought, where chloride levels increased and head levels decreased into Alert or Critical low groundwater levels.
- Continue to monitor chloride trends and index well head levels.
- Step down water conservation measures accordingly
- Continue “Last On – First Off” pump operations until full recovery is achieved



WATER CONSERVATION IS CRITICALLY IMPORTANT!

7 Easy Tips



TIP #1 - WATER LAWNS JUST 1-2 TIMES A WEEK



TIP #2 - DON'T WATER LAWNS BETWEEN 9 AM AND 5 PM



TIP #3 - CHECK FOR PLUMBING LEAKS



TIP #4 - INSTALL WATER-EFFICIENT FIXTURES



TIP #5 - TAKE SHORTER SHOWERS



TIP #6 - PUT A NOZZLE ON YOUR GARDEN HOSE



TIP #7 - DON'T LET THE FAUCET RUN AND RUN

www.boardofwatersupply.com



WaterSmart provides participating customers with detailed information on their water use and personalized recommendations for using water more efficiently.

This information is available online or by mobile.

Overtime, customers who access the WaterSmart platform are more likely to use water efficiently.



Create your WaterSmart account today!

JUMP TO: [Contact Us](#) | [FAQs](#) | [Getting Started Video](#) | [Log into WaterSmart Portal](#) | [Leak Detection Tips](#)

About the WaterSmart® Program

The Board of Water Supply (BWS) mission is to provide safe, dependable and affordable water now and into the future. Ka Wai Ola—Water for Life. WaterSmart® is an initiative that would help to ensure a sustainable water supply by promoting water conservation, a key objective in the BWS Water Master Plan.



[Log into the WaterSmart Portal](#)

BWS first introduced WaterSmart® to roughly 38,000 customers in 2017, giving them the chance to learn how their water use compares with similar neighboring households and to have free and convenient access to tools that help them have a better understand their water use. The project was co-funded by Energy Excelerator, a Hawaii-based accelerator program for energy and water startups.

Quick Links

[Frequently Asked Questions](#)

[Contact Us Form](#)

[WaterSmart® Portal Login](#)

[BWS Conservation Program](#)



WATER SENSIBLE PROGRAM

Go to: [Commercial Rebates](#) | [Food Service](#) | [Residential Rebates](#) | [WaterWisdom](#) | [Program FAQs](#) |

WaterSensible

[#WaterSensible](#) [#WaterForLife](#) [#KaWaiOia](#) [#BoardOfWaterSupply](#) [#WaterConservation](#)

The Honolulu Board of Water Supply (BWS) is working hard to preserve and protect our most essential resource – water. Through the Water Sensible program, Oahu residents and businesses will have the opportunity to save water and money. Water Sensible launched with a residential water conservation rebate program and has expanded its offerings to include the commercial sector. It has also recently launched a WaterWisdom program to help condominiums and townhome complexes improve their water conservation efforts.



For More Information:

Call (808) 237-6877

Email watersensible@honeywell.com.

[#WaterSensible](#) [#WaterForLife](#) [#KaWaiOia](#) [#BoardOfWaterSupply](#) [#WaterConservation](#)

Updated: 02/11/22



CONSERVATION OUTREACH

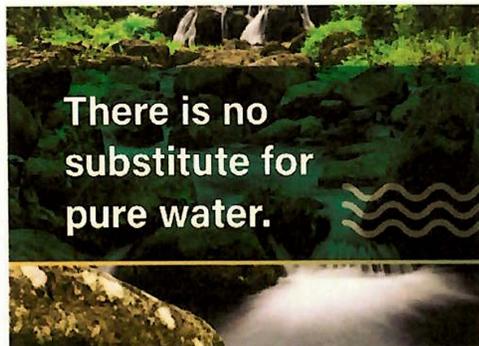
- Hawaii Tourism Authority
- Hawaii Lodging & Tourism Assn
- Hawaii Acute Care Assn
- NAIOP
- General Contractors Assn
- Developers
- Hospitals
- Shopping Centers
- State Agencies
- City Agencies
- University of Hawaii
- Large Condominiums
- Golf Courses
- Neighborhood Boards
- Community Groups
- Letters to top 600 water users in affected areas
- Pilot hotel program
- Events



CONSERVATION OUTREACH

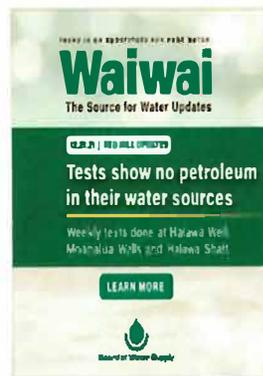


CONSERVATION OUTREACH



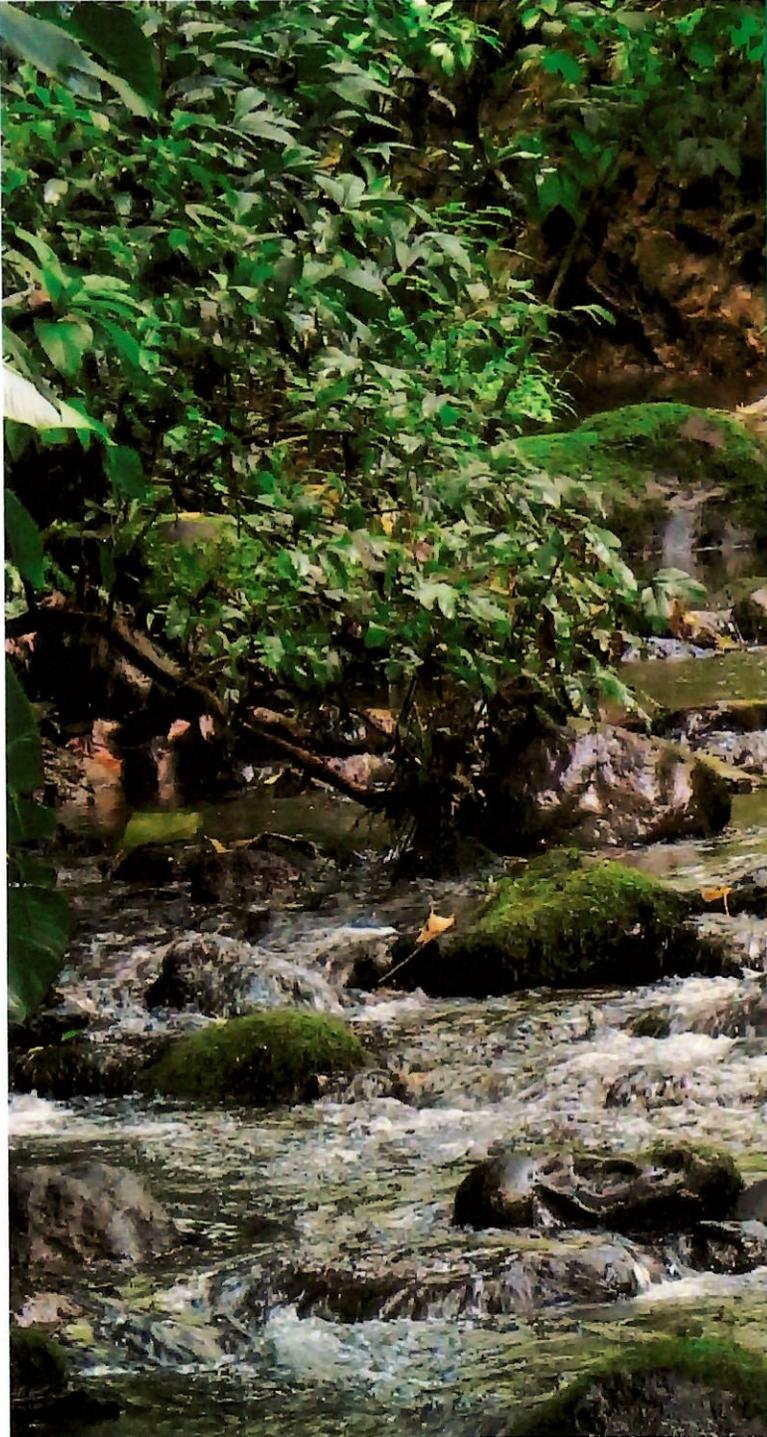
Clean water is a precious gift. We must all do our part to protect our water supply and use water wisely. Sign up for **Waiwai**, the Board of Water Supply's e-newsletter for updates on Red Hill, water conservation tips and more at:

ProtectOahuWater.org



Questions?





Mahalo!

Water Shortage Plan

Board of Water Supply

ITEM FOR INFORMATION NO. 2

“March 28, 2022

RESULTS OF THE
SALE OF BOARD
OF WATER
SUPPLY WATER
SYSTEM
REVENUE BONDS,
SERIES
2022A AND
SERIES 2022B

Chair and Members
Board of Water Supply
City and County of Honolulu
Honolulu, Hawaii 96843
Chair and Members:

Subject: Results of the Sale of Board of Water Supply Water System
Revenue Bonds, Series 2022A and Series 2022B

Pursuant to Board of Water Supply Resolution No. 936, 2022, authorizing the issuance of water system revenue bonds, the Board issued a total of \$135,260,000 principal amount of Board of Water Supply Water System Revenue Bonds, Series 2022A and Series 2022B dated March 23, 2022. The Board and our customers will realize approximately \$246,820 annually in debt service savings. In addition, the refund of the past bonds will provide a combined net present value saving of \$2,715,019 will be realized with the refunding.

The proceeds of the Series 2022A and Series 2022B bonds will be used: (1) to pay the cost of improvements authorized in the capital budget of the Board; (2) to pay the costs of issuance of the Series 2022A and Series 2022B bonds; and (3) to fund a trust fund to provide for the refunding and redemption of all or a portion of the Board's Water System Revenue Bonds, Series 2014A and Series 2014B.

The bonds were assigned underlying ratings of AAA, stable outlook, from S & P Global Ratings and AA+, positive outlook, from Fitch Ratings. The Series 2022A and Series 2022B bonds were sold on March 8, 2022 at a true interest cost of 2.98 percent. The bonds were issued at a total premium of \$11,081,886.

Net proceeds for the new bonds (Series 2022A) of \$93,350,000 was deposited into the BWS Improvement Fund and \$55,547,696 from the Series 2022B was deposited into escrow funds to defease the refunded bonds. The refunding bond issue is structured so as to match the terms of the refunded bonds. The cost to issue both series is \$693,222.

Bank of America Securities, Inc. served as lead underwriter, Raymond James & Associates as co-manager, and Orrick, Herrington & Sutcliffe LLP served as bond counsel to the Board.

Respectfully Submitted,

/s/ ERNEST Y. W. LAU, P.E
Manager and Chief Engineer

Attachment”

The foregoing was for information only.

DISCUSSION: Joseph Cooper, Waterworks Controller, Finance Division, gave the report.

Board Member Butay inquired when does the BWS know that it was the right time to sell the bond.

Mr. Joseph Cooper replied that the BWS has been fortunate with the timing of the bond issuance since the bonds market is volatile.

Board Member Butay congratulated Mr. Joseph Cooper on a successful bond sale.

Manager Lau expressed his gratitude to Mr. Cooper for leading the BWS into another successful bond sale. He also thanked the Finance Division and other BWS team members that helped to prepare for the bond sale. Manager Lau commented that the BWS made the bond sale at the right time and acquired great results.

Mr. Cooper commented that the bond sale was a team effort, it took the entire BWS to make it a success.

Chair Andaya echoed Manager Lau’s comments and thanked Mr. Cooper for leading another successful bond sale. He commented that although the bond market is unpredictable, it also takes a lot of preparation and making educated choices.

Honolulu Board of Water Supply

\$135,260,000 Series 2022 Water System Revenue Bonds

Purpose	<ul style="list-style-type: none"> ✓ The Series 2022A tax-exempt bond proceeds will be used for new projects, repair and maintenance of the water system. ✓ The Series 2022B taxable bond proceeds will be used to refund the Series 2014A and 2014B Bonds.
Credit Ratings Strategy	<ul style="list-style-type: none"> ✓ BofA Securities assisted in drafting a credit presentation and helped the team prepare for the rating agency meetings. ✓ The Board met with S&P in Honolulu and Fitch over video conference. ✓ The 2022 Bonds were reaffirmed at “AAA” by S&P (Stable) and “AA+” by Fitch (Positive).
Structure and Tax Analysis	<ul style="list-style-type: none"> ✓ The tax-exempt new money series was structured with 30-year level debt service along with a 10-year par call. ✓ The taxable refunding series was structured with uniform savings with a 10-year par call and with a make-whole call for maturities amortizing within 10-years. ✓ The refunding bonds were sold on a taxable basis to advance refund Series 2014A tax-exempt and 2014B taxable bonds. ✓ A majority of bondholders have now consented to the amendments that were included in the legal documents.
Retail Marketing	<ul style="list-style-type: none"> ✓ Print and digital advertisements appeared in the Honolulu Star Advertiser, Hilo Hawaii Tribune Herald, West Hawaii Today, Lihue Garden Island, Maui News and the Pacific Business News. ✓ While the market remained volatile due to the on-going conflict between Russia and Ukraine, the retail order period concluded successfully with orders for more than 80% of the transaction from investors including Hawaii residents.
Institutional Marketing	<ul style="list-style-type: none"> ✓ A Voluntary Notice of Sale was posted to the Board’s investor relations website and EMMA. ✓ A pre-recorded investor presentation was disseminated in conjunction with the POS. ✓ The City held one-on-one Zoom calls with First Hawaiian Bank and Bank of Hawaii.
Pricing Results	<ul style="list-style-type: none"> ✓ The finance team decided to accelerate the transaction due to the strong results of the retail order period. ✓ The overall transaction received more than \$220 million of orders leaving the transaction 1.6x over subscribed. ✓ During the institutional order period, the Board received orders from 27 unique institutional accounts.
Refunding Results	<ul style="list-style-type: none"> ✓ Despite market volatility in the weeks leading up to and during pricing, BWS was able to lock-in an all-in true interest cost of only 3.03% for 30-year tax-exempt new money debt. ✓ In addition, BWS will realize \$2.7 million of present value savings (5.19% of refunded par) through the refunding.



ITEM FOR INFORMATION NO. 3

“March 28, 2022

STATUS
UPDATE OF
GROUNDWATER
LEVELS AT
ALL INDEX
STATIONS

Chair and Members
Board of Water Supply
City and County of Honolulu
Honolulu, Hawaii 96843

Chair and Members:

Subject: Status Update of Groundwater Levels at All Index Stations

There were four aquifer index stations in low groundwater condition for the production month of February 2022. Kaimuki, Beretania, Punaluu, and Waialua are in Caution Status. The monthly production average for February 2022 was 132.52 million gallons per day.

The Board of Water Supply rainfall index for the month of February 2022 was 51 percent of normal, with a 5-month moving average of 109 percent. As of March 1, 2022, the Hawaii Drought Monitor shows moderate drought conditions across Oahu. The National Weather Service is forecasting enhanced probabilities for above-normal precipitation between March and June 2022.

Most monitoring wells exhibited slightly decreasing head levels for the month, likely due to the relatively lower rainfall during February. Average monthly Production for February 2022 was higher than the previous year and the 5-year monthly average.

Respectfully Submitted,

/s/ ERNEST Y. W. LAU, P.E
Manager and Chief Engineer

Attachment”

The foregoing was for information only.

DISCUSSION: Barry Usagawa, Program Administrator, Water Resources Division, gave the report.

Chair Andaya asked if there were any comments or questions. Hearing none he thanked Mr. Usagawa for his presentation.

**PRODUCTION, HEAD AND RAINFALL REPORT
MONTH OF FEBRUARY 2022**

POTABLE

STATION	MGD
HONOLULU (1)	
KULIOUOU	0.00
WAILUPE	0.14
AINA KOA	0.03
AINA KOA II	0.69
MANOA II	0.45
PALOLO	1.12
KAIMUKI HIGH	1.18
KAIMUKI LOW	2.77
WILDER	7.30
BERETANIA HIGH	5.83
BERETANIA LOW	7.61
KALIHI HIGH	0.00
KALIHI LOW	0.00
KAPALAMA	1.00
KALIHI SHAFT	8.63
MOANALUA	0.87
HALAWA SHAFT	0.03
KAAMILO	0.87
KALAUAO	6.79
PUNANANI	12.37
KAAHUMANU	0.25
HECO WAIU	2.62
MANANA	0.29
WELLS SUBTOTAL:	60.83
MANOA TUNNEL	0.17
PALOLO TUNNEL	0.00
GRAVITY SUBTOTAL:	0.17
HONO. SUBTOTAL:	61.00

STATION	MGD
WINDWARD (2)	
WAIMANALO II	0.00
WAIMANALO III	0.00
KUOU I	1.00
KUOU II	0.01
KUOU III	0.77
LULUKU	0.90
HAIKU	0.30
IOLEKAA	0.00
KAHALUU	0.69
KAHANA	0.00
PUNALUU I	0.00
PUNALUU II	1.93
PUNALUU III	1.04
KALUANUI	1.30
MAAKUA	0.30
HAUULA	0.26
WELLS SUBTOTAL:	8.51
WAIM. TUNNELS I & II	0.00
WAIM. TUNNELS III&IV	0.19
WAIHEE INCL. WELLS	0.38
WAIHEE TUNNEL	4.48
LULUKU TUNNEL	0.31
HAIKU TUNNEL	0.00
KAHALUU TUNNEL	1.66
GRAVITY SUBTOTAL:	7.03
WIND. SUBTOTAL:	15.54

STATION	MGD
NORTH SHORE (3)	
KAHLUKU	0.33
OPANA	0.88
WAIALEE I	0.02
WAIALEE II	0.17
HALEIWA	0.00
WAIALUA	1.93
N.SHORE SUBTOTAL:	3.33

STATION	MGD
MILILANI (4)	
MILILANI I	1.44
MILILANI II	0.00
MILILANI III	0.67
MILILANI IV	2.19
MILILANI SUBTOTAL:	4.30

STATION	MGD
WAHIAWA (5)	
WAHIAWA	0.00
WAHIAWA II	3.11
WAHIAWA SUBTOTAL:	3.11

STATION	MGD
PEARL CITY-HALAWA (6)	
HALAWA 277	0.00
HALAWA 550	0.00
AIEA	0.00
AIEA GULCH 497	1.00
AIEA GULCH 550	0.67
KAONOHI I	1.68
WAIMALU I	0.00
NEWTOWN	0.98
WAIU	0.86
PEARL CITY I	0.84
PEARL CITY II	1.13
PEARL CITY III	0.23
PEARL CITY SHAFT	0.77
PEARL CITY-HALAWA SUBTOTAL:	8.16

STATION	MGD
WAIPAHU-EWA (7)	
WAIPIO HTS.	0.44
WAIPIO HTS. I	0.00
WAIPIO HTS. II	0.38
WAIPIO HTS. III	1.21
WAIPAHU	5.69
WAIPAHU II	2.00
WAIPAHU III	3.57
WAIPAHU IV	2.14
KUNIA I	4.45
KUNIA II	1.92
KUNIA III	1.48
HOAEAE	5.06
HONOULIULI I	0.00
HONOULIULI II	4.50
MAKAKILO	0.15
WAIPAHU-EWA SUBTOTAL:	32.98

STATION	MGD
WAIANAE (8)	
MAKAHA I	0.58
MAKAHA II	0.00
MAKAHA III	0.19
MAKAHA V	0.04
MAKAHA VI	0.00
MAKAHA SHAFT	0.00
KAMAILE	0.00
WAIANAE I	0.31
WAIANAE II	0.74
WAIANAE III	0.63
WELLS SUBTOTAL:	2.48
WAI. C&C TUNNEL	1.40
WAI. PLANT. TUNNELS	0.21
GRAVITY SUBTOTAL:	1.61
WAIANAE SUBTOTAL:	4.09

NONPOTABLE

NONPOTABLE	MGD
KALAUAO SPRINGS	0.31
BARBERS POINT WELL	1.09
GLOVER TUNNEL NP	0.28
NONPOTABLE TOTAL:	1.69

RECYCLED WATER (JANUARY 2021)

RECYCLED WATER	MGD
HONOULIULI WRF R-1	3.97
HONOULIULI WRF RO	1.42
RECYCLED WATER TOTAL:	5.39

**PRODUCTION, HEAD AND RAINFALL REPORT
MONTH OF FEBRUARY 2022**

PRODUCTION SUMMARIES

TOTAL WATER	MGD
PUMPAGE	123.71
GRAVITY	8.80
POTABLE TOTAL:	132.52
NONPOTABLE	1.69
RECYCLED WATER	5.39
TOTAL WATER:	139.59

CWRM PERMITTED USE AND BWS ASSESSED YIELDS FOR BWS POTABLE SOURCES				
WATER USE DISTRICTS		A	B	C
		PERMITTED USE/ BWS YLDS	FEB 2022	DIFF. A-B
1	HONOLULU	82.93	60.83	22.10
2	WINDWARD	25.02	10.67	14.35
3	NORTH SHORE	4.70	3.33	1.36
4	MILILANI	7.53	4.30	3.23
5	WAHIAWA	4.27	3.11	1.16
6	PEARL CITY-HALAWA	12.25	8.16	4.09
7	WAIPAHU-EWA	50.63	32.98	17.65
8	WAIANAE	4.34	2.48	1.86
TOTAL:		191.67	125.87	65.79

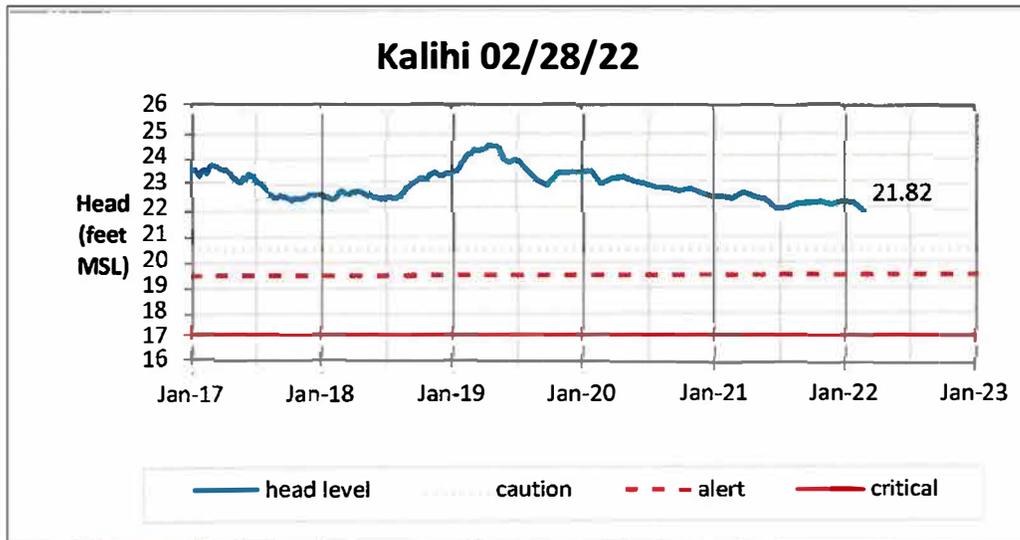
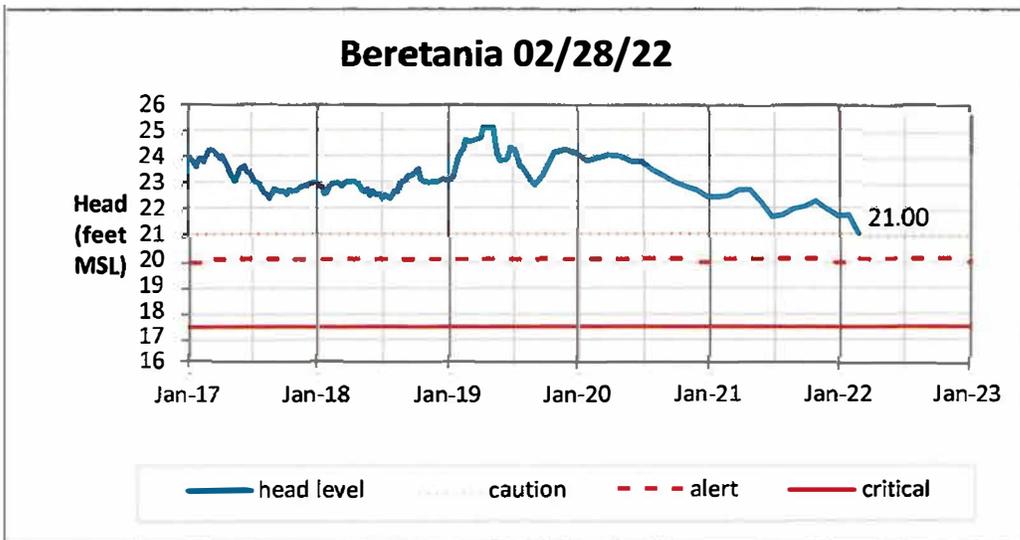
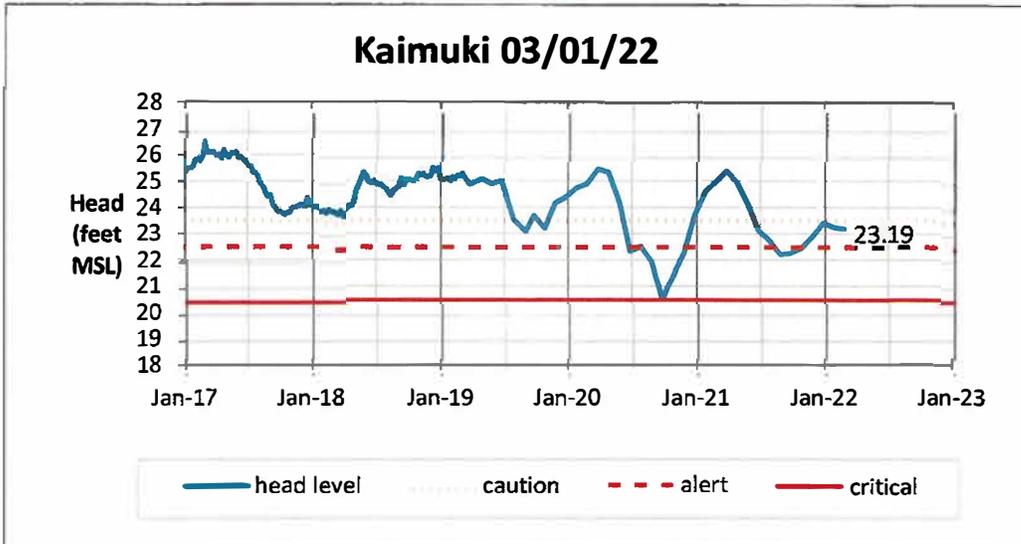
CWRM PERMITTED USE FOR BWS NONPOTABLE SOURCES				
WATER USE DISTRICTS		A	B	C
		PERMITTED USE	FEB 2022	DIFF. A-B
7	WAIPAHU-EWA (BARBERS POINT WELL)	1.00	1.09	-0.09
TOTAL:		1.00	1.09	-0.09

EFFECTIVE WATER DEMAND PER DISTRICT

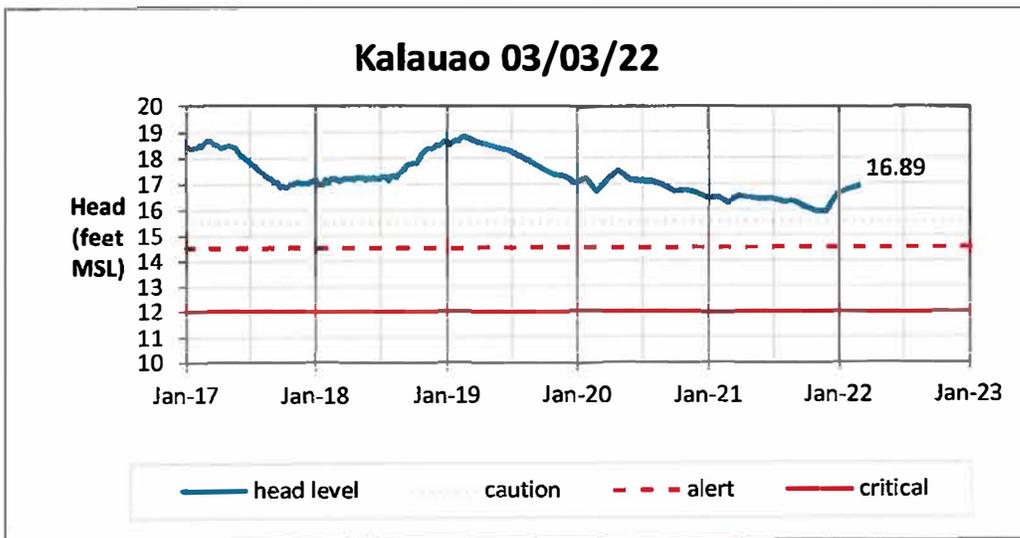
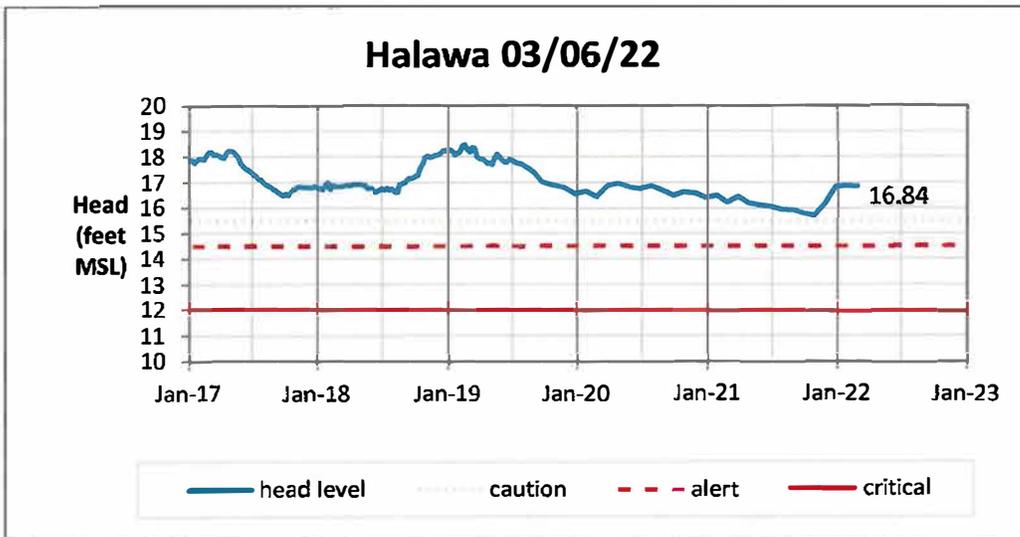
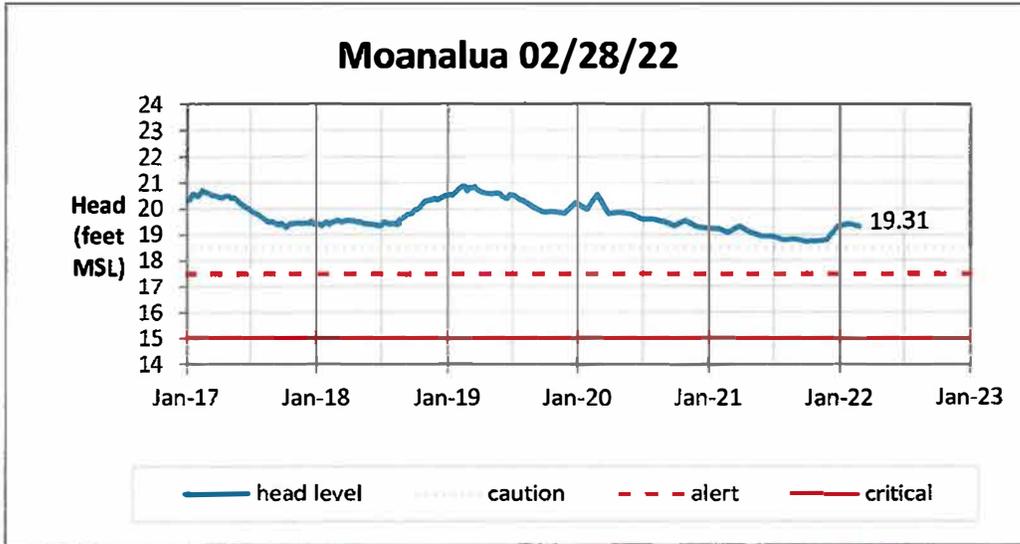
IMPORT/EXPORT BETWEEN WATER USE DISTRICTS			
FROM	TO		MGD
2	1	WINDWARD EXPORT	0.02
7	8	BARBERS PT LB	5.37

WATER USE DISTRICTS		SUBTOTAL	IMPORT	EXPORT	EFFECTIVE WATER DEMAND
1	HONOLULU	61.00	0.02	-	61.02
2	WINDWARD	15.54	-	0.02	15.52
3	NORTH SHORE	3.33	-	-	3.33
4	MILILANI	4.30	-	-	4.30
5	WAHIAWA	3.11	-	-	3.11
6	PEARL CITY-HALAWA	8.16	-	-	8.16
7	WAIPAHU-EWA	32.98	-	5.37	27.62
8	WAIANAE	4.09	5.37	-	9.46
TOTAL:		132.52	5.39	5.39	132.52

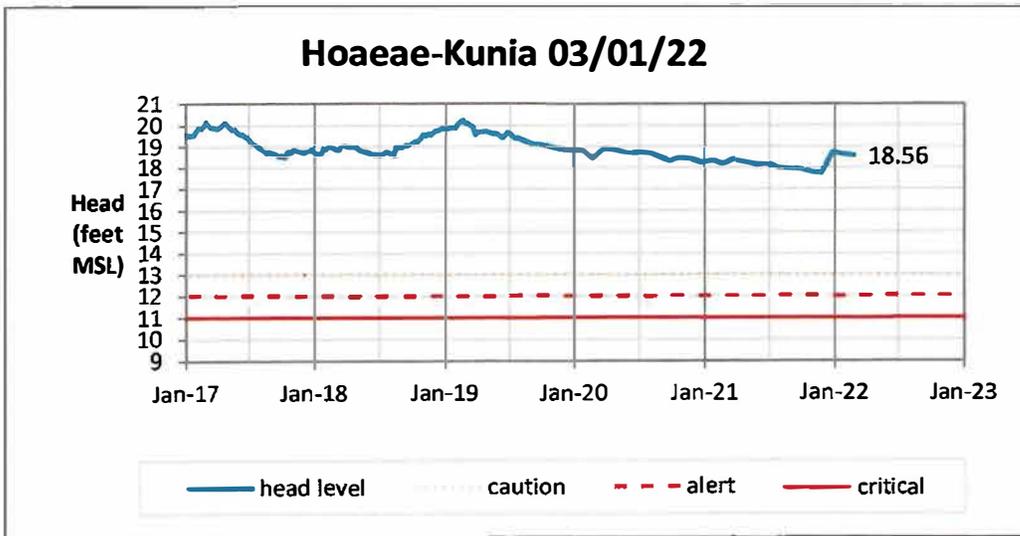
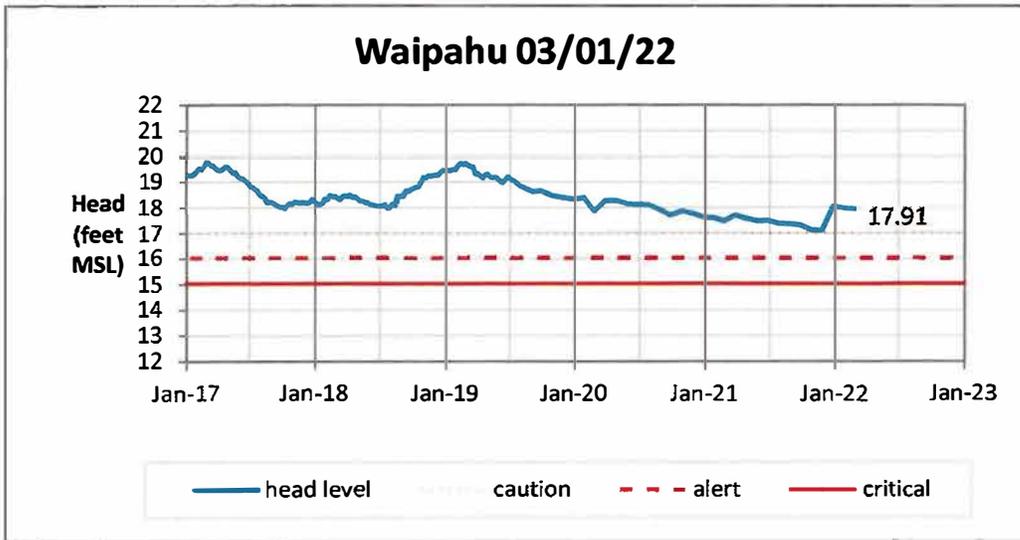
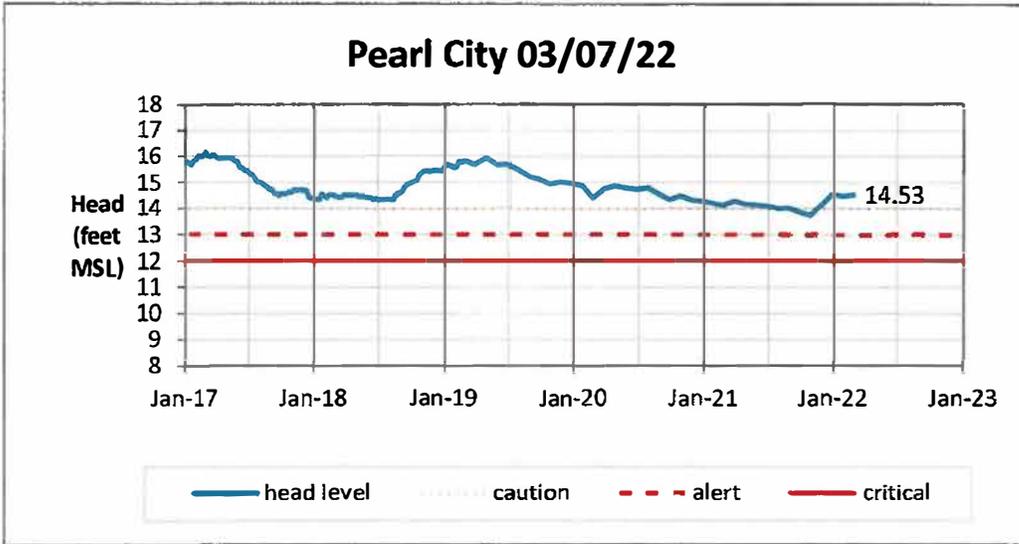
Head Report



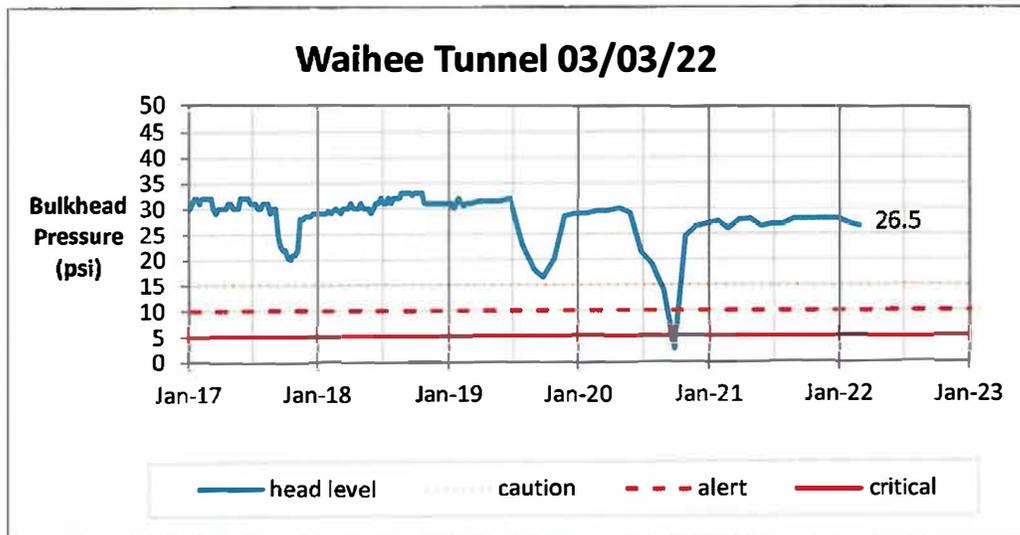
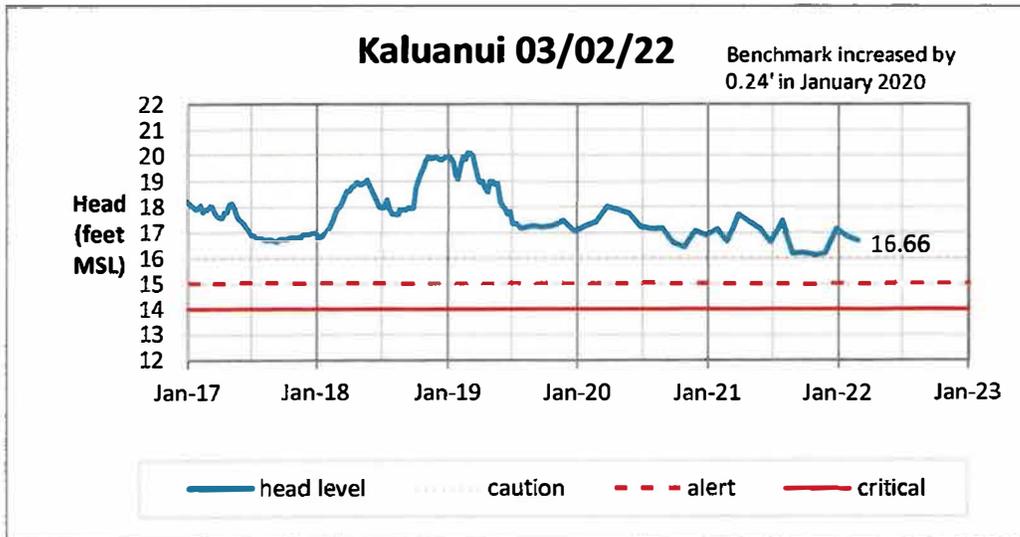
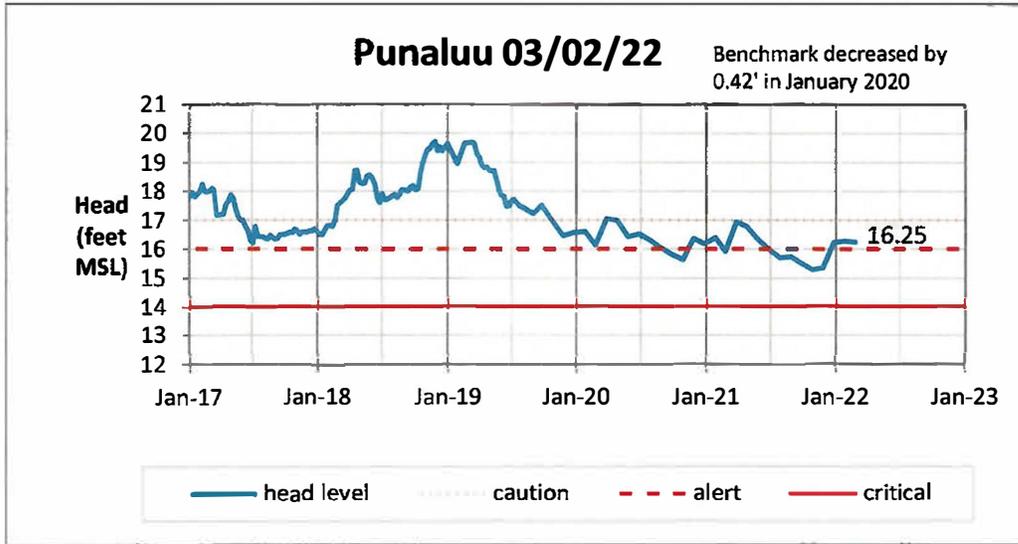
Head Report



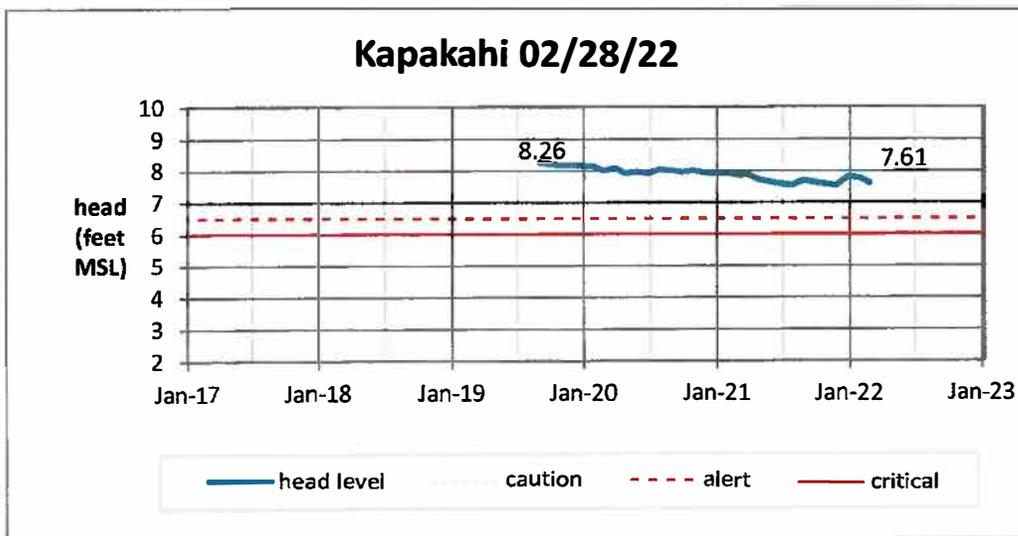
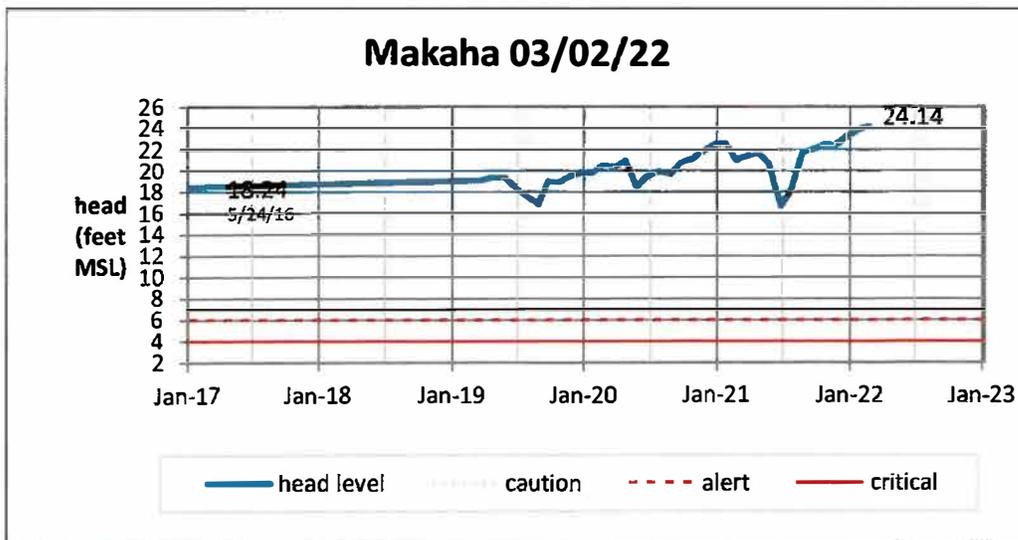
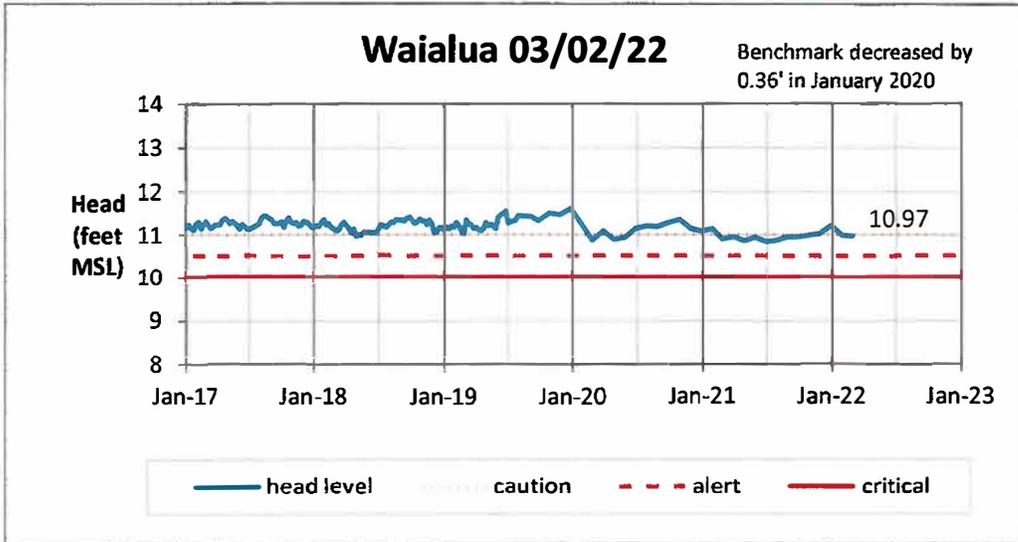
Head Report

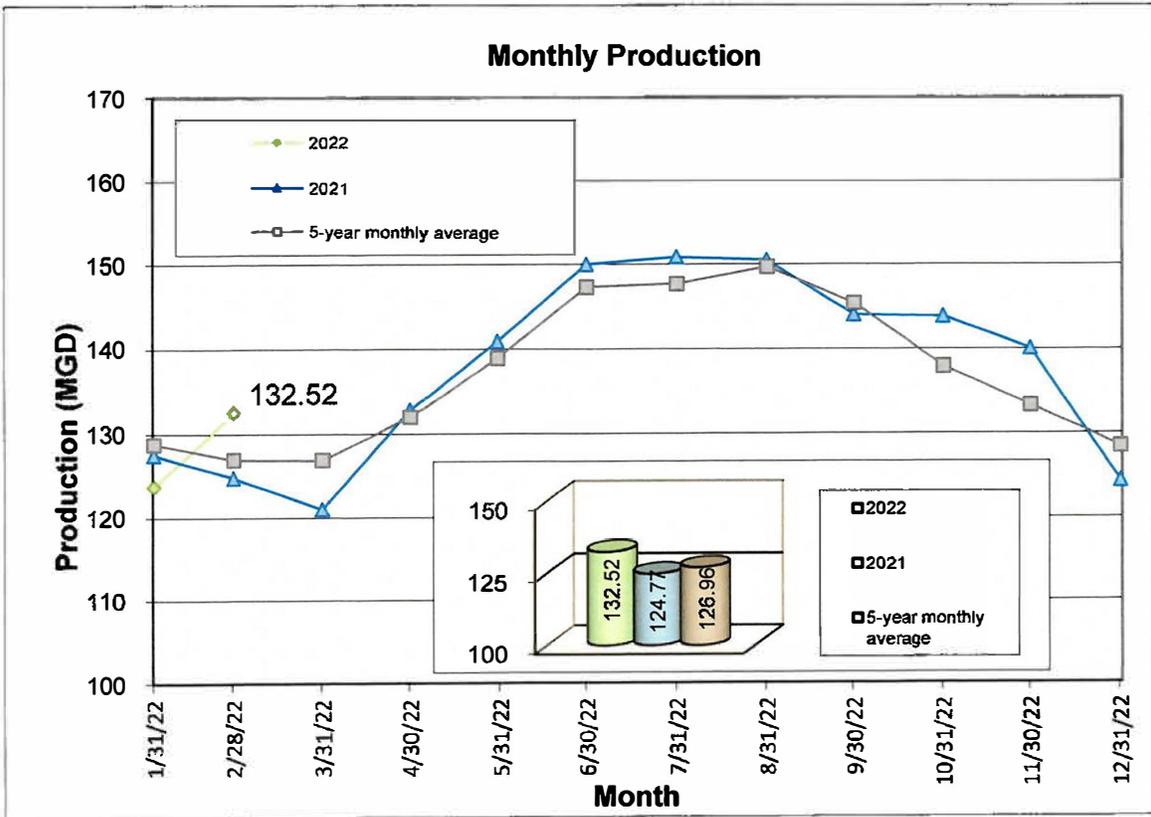
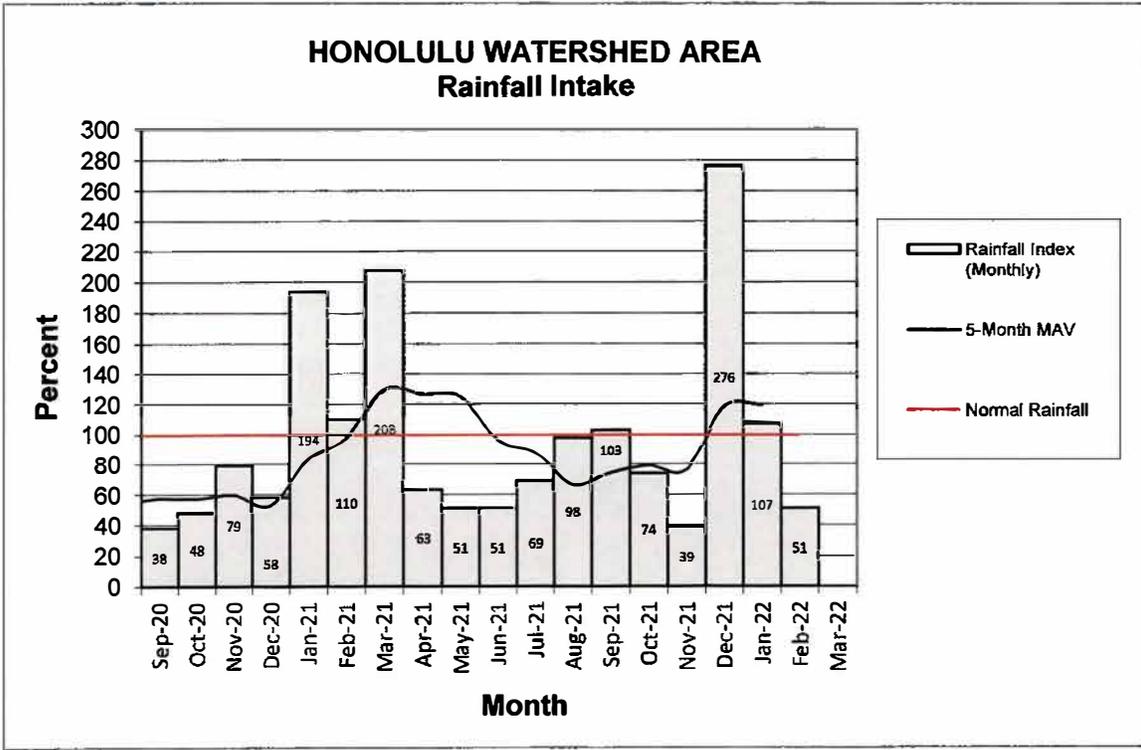


Head Report



Head Report





ITEM FOR INFORMATION NO. 4

"March 28, 2022

WATER MAIN
REPAIR
REPORT FOR
FEBRUARY 2022

Chair and Members
Board of Water Supply
City and County of Honolulu
Honolulu, Hawaii 96843

Chair and Members:

Subject: Water Main Repair Report for February 2022

Jason Nikaido, Program Administrator, Field Operations Division, will report on water main repair work for the month of February 2022.

Respectfully submitted,

/s/ ERNEST Y. W. LAU, P.E
Manager and Chief Engineer

Attachment"

The foregoing was for information only.

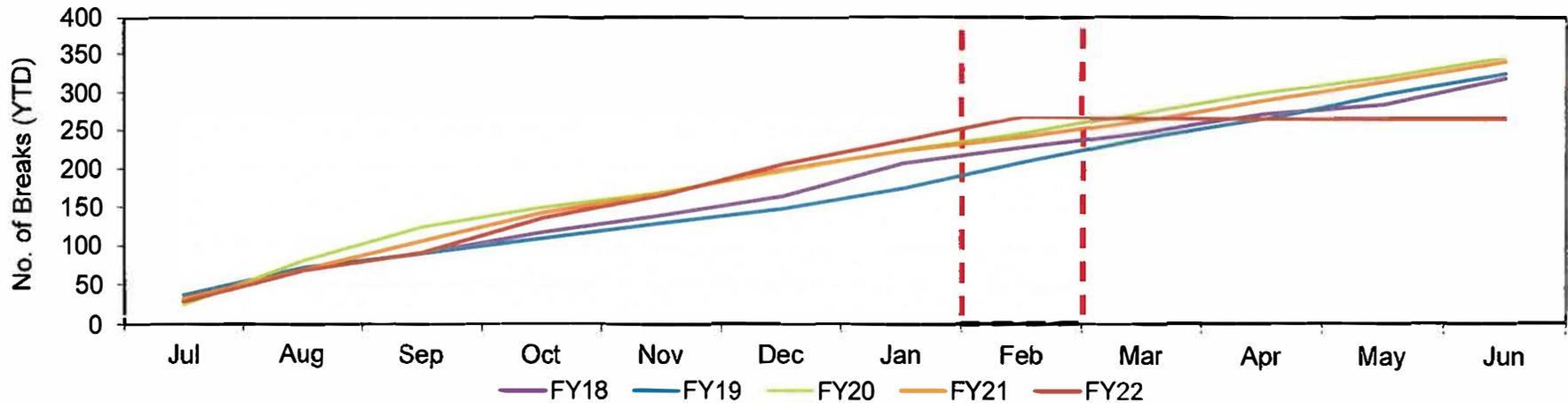
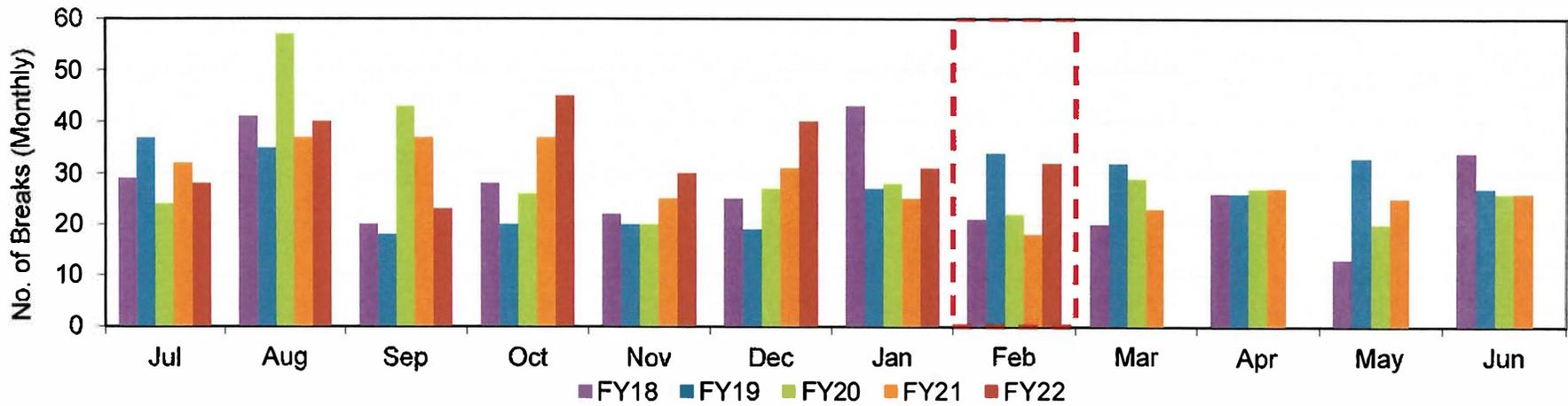
DISCUSSION: Jason Nikaido, Program Administrator, Field Operations Division, gave the report.

Chair Andaya asked if there were any comments or questions. Hearing none he thanked Mr. Nikaido for his presentation.

**WATER MAIN REPAIR REPORT
for February 2022**

Monthly Main Breaks

FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
2022	28	40	23	45	30	40	31	32					269
2021	32	37	37	37	25	31	25	18	23	27	25	26	343
2020	24	57	43	26	20	27	28	22	29	27	20	26	349
2019	37	35	18	20	20	19	27	34	32	26	33	27	328
2018	29	41	20	28	22	25	43	21	20	26	13	34	322

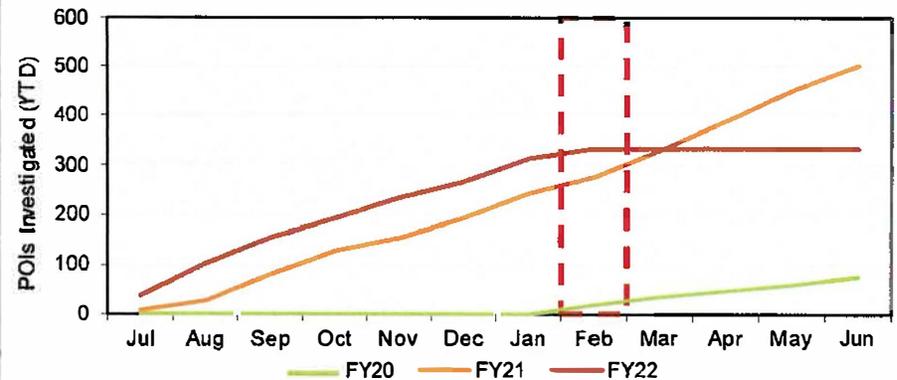
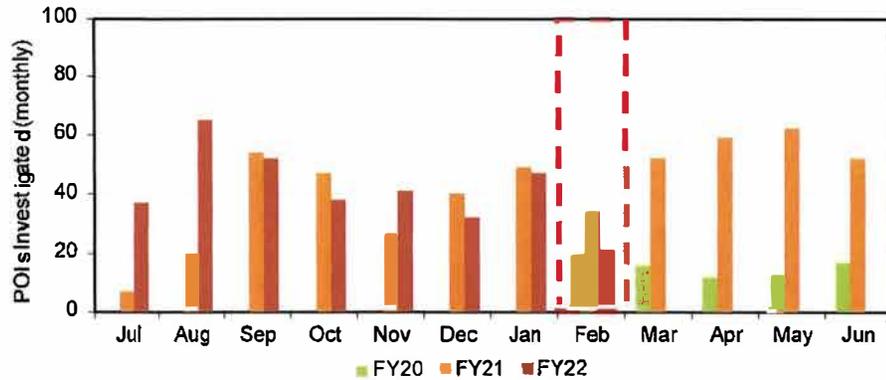


Date	Address	Size (in)	Pipe Type	Date	Address	Size (In)	Pipe Type
2/1/2022	2270 Amokemoke St, Pearl City	8	CI	2/25/2022	640 Hookanike St, Pearl City	8	PVC
2/1/2022	2273 Makanani Dr, Honolulu	6	CI	2/27/2022	94-159 Waikele Rd, Waipahu	8	CI
2/1/2022	2426 Holomua Pl, Honolulu	4	CI				
2/2/2022	2165 10th Ave, Honolulu	8	DI				
2/3/2022	1127 Gulick Ave, Honolulu	6	CI				
2/3/2022	1858 Hoomalolo St, Pearl City	8	CI				
2/4/2022	3174 Alike Ave, Honolulu	8	PVC				
2/4/2022	89-563 Ulei Loop, Waianae	8	DI				
2/5/2022	818 Ainapo St, Honolulu	12	PVC				
2/6/2022	98-1214 Alolua St, Aiea	8	PVC				
2/7/2022	3410 Leahi Ave, Honolulu	8	CI				
2/8/2022	2377 Anini Pl, Pearl City	4	CI				
2/8/2022	107 S Kamehameha Hwy, Wahiawa	6	CI				
2/11/2022	94-1161 Waipahu St, Waipahu	12	CI				
2/15/2022	95-216 Waimakua Dr, Mililani	8	CI				
2/16/2022	94-1111 Awalai St, Waipahu	8	CI				
2/16/2022	2836 Lawa Pl, Honolulu	4	CI				
2/16/2022	2106 Kanealii Ave, Honolulu	8	CI				
2/17/2022	2106 Kanealii Ave, Honolulu	8	CI				
2/17/2022	46-004 Kamehameha Hwy, Kaneohe	8	CI				
2/18/2022	99-603 Huakanu Pl, Aiea	4	CI				
2/19/2022	2920 Winam Ave, Honolulu	6	CI				
2/20/2022	203 Dowsett Ave, Honolulu	6	CI				
2/21/2022	91-1078 Kaileolea Dr, Ewa Beach	8	PVC				
2/21/2022	355 Hookela Pl, Honolulu	12	PVC				
2/22/2022	3804 Waialae Ave, Honolulu	8	CI				
2/23/2022	1707 Kumakani Loop, Honolulu	8	CI				
2/23/2022	612 University Ave, Honolulu	8	CI				
2/24/2022	99-670 Hulumanu St, Aiea	8	CI				
2/24/2022	94-619 Kipou St, Waipahu	8	CI				

**LEAK DETECTION
for February 2022**

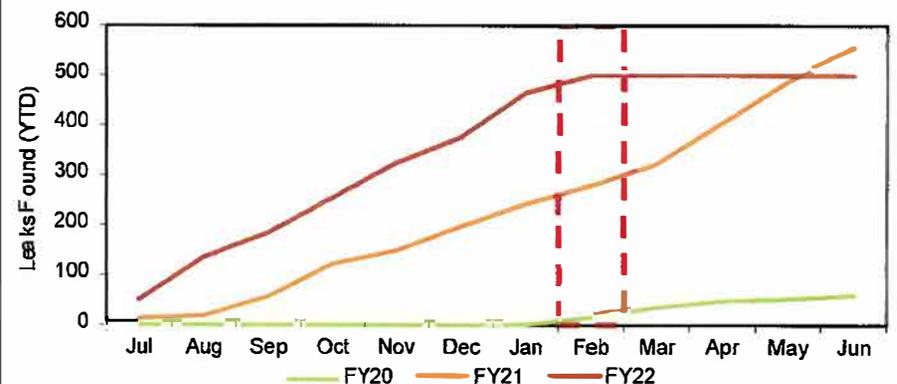
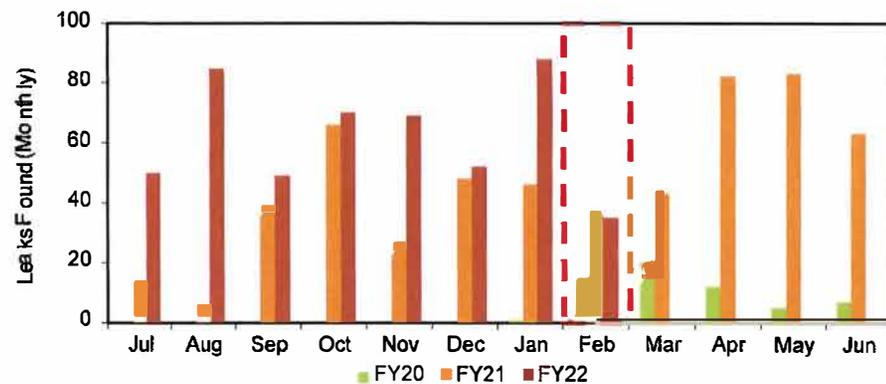
POIs Investigated

FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
2022	37	65	52	38	41	32	47	20					332
2021	7	19	54	47	26	40	49	33	52	59	62	52	500
2020							0	19	16	12	12	17	76



Leaks Found

FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
2022	50	85	49	70	69	52	88	35					498
2021	13	5	38	66	26	48	46	36	43	82	83	63	549
2020							1	14	20	12	5	7	59



**MOTION TO
RECESS INTO
EXECUTIVE
SESSION**

There being no further business Chair Andaya at 4:04 PM called for a motion to adjourn the Open Session. Max Sword so moved; seconded by Jade Butay and unanimously carried.

Upon unanimous approved motion, the Board recessed into Executive Session Pursuant to [HRS § 92-5 (a)(4)] at 4:05 PM to Consider Issues Pertaining to Matters Posted for Discussion at an Executive Session.

**OPEN
SESSION**

The Board reconvened in Open Session at 4:52 PM.

Chair Andaya requested for a roll call upon reconvening in Regular Session and asked for attendees to disclose their location and/or others that may be present if any has changed. Vice Chair Kapua Sproat, aye; Board Member Max Sword, aye; Board Member Na'alehu Anthony, aye; and Board Member Jade Butay, aye.

At 4:54 PM Chair Andaya recognized Board Member Dawn Szewczyk for joining the meeting.

**MOTION TO
ADJOURN**

There being no further business Chair Andaya at 4:55 PM called for a motion to adjourn the Regular Session. Na'alehu Anthony so moved; seconded by Max Sword and unanimously carried.

The minutes of the Regular Meeting held on March 28, 2022 are respectfully submitted,


JOY CRUZ-ACHUI

APPROVED:


BRYAN P. ANDAYA
Chair of the Board

APR 25 2022

Date

THE MINUTES OF THE REGULAR SESSION BOARD MEETING ON MARCH 28, 2022 WERE APPROVED AT THE APRIL 25, 2022 BOARD MEETING			
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT	X		
RAY C. SOON	X		
MAX J. SWORD	X		
NA'ALEHU ANTHONY	X		
JADE T. BUTAY	X		
DAWN B. SZEWCZYK	X		