
**Honolulu Board of Water Supply**

**Stakeholder Advisory Group** Meeting 42

Thursday, April 21, 2021, 4:00 – 6:00 pm

Virtual Meeting

Meeting Notes

## PURPOSE AND ORGANIZATION OF MEETING NOTES

The purpose of these notes is to provide an overview of the Board of Water Supply (BWS) Stakeholder Advisory Group meeting. They are not intended as a transcript or as minutes. Major points of the presentations are summarized herein, primarily for context. Copies of presentation materials were provided to all participants and are available on the BWS website. Participants made many comments and asked many questions during the meeting. These are paraphrased to be more concise.

## ATTENDEES

This was a virtual meeting in which 14 stakeholders participated on-line and/or by phone, in addition to BWS staff, consultants and members of the public. The stakeholders represent diverse interests and communities island wide.

The following Stakeholders Advisory Group members participated:

| | |
|---|---|
| Mark Fox | Environmental |
| Will Kane | Mililani Town Association |
| Markus Krebs | Outrigger Reef Hotel |
| Bob Leinau | Resident of Council District 2 |
| Dean Okimoto | Nalo Farms, Inc. |
| Christine Olah | AARP Hawaii |
| Dick Poirier | Resident of Council District 9 |
| Helen Nakano | Resident of Council District 5 |
| Robbie Nicholas | Resident of Council District 3 |
| Elizabeth Reilly | Resident of Council District 4 |
| Cynthia Rezentes | Resident of Council District 1 |
| Alison Richardson | Coca-Cola Co. |
| Chace Shigemasa | Resident of Council District 7 |
| Cruz Vina Jr. | Resident of Council District 8 |

## WELCOME

Facilitator Dave Ebersold welcomed everyone to the 42nd meeting of the BWS Stakeholder Advisory Group.

Meeting objectives were identified as:

- Discussion on Albezia Removal and Watershed Protection
- BWS Strategic Plan Update
- Accept notes from meeting #41
- Red Hill Update and Impacts to Water System

**PUBLIC COMMENTS:** None.

**KO`OLAU MOUNTAINS WATERSHED PARTNERSHIP ALBIZIA REMOVAL & WATERSHED PROTECTION**
Dave introduced Barry Usagawa, BWS Program Administrator for Water Resources, to provide an overview of the BWS's watershed protection management program.

Barry explained that the BWS's Watershed Program begin in the early 2000's when the BWS, the Department of Land and Natural Resources (DLNR), and other government and private landowners signed a Memorandum of Understanding (MOU) that officially formed the Ko`olau Mountains Watershed Partnership (KMWP). Since then, the BWS has expanded its watershed management efforts across the island of O`ahu, developing the following goals and objectives to ensure a healthy watershed:

1. Implement research/field efforts to restore and protect priority watersheds on O`ahu.
2. Serve as BWS Representative for watershed conservation issues.
3. Oversee watershed funding for management of Priority watersheds via Memoranda of Agreement, per BWS Directive No. 9.060, Watershed Program Funding.
4. Engage in targeted community outreach and education, including volunteer field work coordination on selected projects.
5. Collaborate with selected agencies and organizations working on similar watershed conservation endeavors.

Barry also explained that, under the guidance of BWS Manager and Chief Engineer Ernest Lau, the BWS created a funding mechanism that provides direct, yearly contributions to the watershed partnership programs. In 2021, BWS contributed $800,000 to these partnership programs and allocated $3 million of its budget toward funding watershed activities and preserving priority watershed areas.

Barry introduced JC Watson, KMWP Manager, to provide the Stakeholder Advisory Group with information on upcoming Albizia tree removal and other watershed protection efforts planned in the Ko`olau Mountains area.

The Albizia tree is native to Papua New Guinea, Indonesia, & Solomon Islands and was intentionally introduced to Hawai`i in 1917. Albizia are one of the fastest growing trees in the world, growing approximately 15 feet per year and over 100 feet tall, while producing large amounts of seeds that travel long distances by wind. Additionally, its large size is prone to sudden limb shear, a phenomenon where branches collapse suddenly and without warning, posing danger to community infrastructure.

Approximately 20,000 acres are heavily infested with Albizia on the Island of O`ahu, most concentrated in low elevation forests and agricultural areas, as well as incipient populations in the upper watershed areas of the Ko`olau Mountains.

The KMWP's goals for Albizia removal focus on holistically reducing
Albizia impacts at a landscape scale by protecting priority watersheds; empowering and educating communities; and working with partners. They accomplish this by:

- Using a combination of aerial imagery and drones to detect and locate Albizia populations
- Using appropriate treatment methods to eradicate the trees
- Implementing targeted landscape scale control efforts that manage and contain Albizia spread
- Seeking community involvement and assistance through education and knowledge share
- Partnering with other organizations to leverage work efforts

Through these efforts, the KMWP hopes to continue and expand its watershed and targeted Albizia control efforts into the future.

This concluded JC's presentation on the KWMP and watershed protection. Dave opened the floor for questions and further discussion.

Q: Do you need a permit to access and cut down trees of a certain size in conservation lands?

A: JC responded that, to his knowledge, you do not need a permit to remove a tree. However, the KWMP has rights-of-entry agreements in all areas they manage.

Q: Do albizia trees resprout again after cutting them down with chainsaws?

A: JC explained that the KMWP does not fully remove trees with chainsaws. They use targeted and effective removal methods such as Ring-Barking and Incision Point Application that require less manual labor.

Q: Are there any byproducts, such as biochar, that provide direct benefit to residents?

A: JC commented that Albizia wood can be as strong and durable as Douglas fir wood. There is an ongoing project looking into the viability of Albizia wood as a resource for mass timber projects, which creates a cyclical economy that could back fund restoration efforts.

Q: The Albizia is a nitrogen-fixing tree. Do these nitrates go into the groundwater?

A: JC commented that nitrogen inputs are largely undocumented, especially regarding nitrogen inputs into streams and nearshore environment.

Q: Why is it not easier to simply chop down the trees?

A: JC shared that chainsaw cutting a large tree requires specialized training and competency. Ring barking is just as effective while requiring less manual labor. Additionally, felling large trees could damage nearby telecommunications lines in these areas.

Q: Do Albizia tree stumps regrow?

A: JC explained that if you cut a tree down and do not apply herbicide to the stump, it will resprout.

Q: Why was the Albizia introduced to Hawaii in the first place?

A: JC described how the Albizia was introduced to Hawaii in the early 1900's. At that time, there was concern over eroding watersheds and diminishing aquifer levels due to land uses such as cattle ranching and logging. Foresters at the time scoured the world for the fast-growing trees tropical trees and planted Albizia across the state.

Q: Is the Maunalua / East Honolulu Watershed Management Plan completed?

B: Barry commented that work on this plan is ongoing.

COMMENT: Member Alison Richardson commented that, as part of their overall watershed protection and sustainability goals, Coca-Cola donated funding for fencing watershed areas. She will share information from this presentation with leadership to consider ways they could help the KMWP.

RESPONSE: JC commented that this contribution helped fund ongoing construction of a fence to protect the 1400-acre Waiawa watershed preserve. The Department of Land and Natural Resources Division of Forestry and Wildlife, the BWS, and other environmental foundations also contributed to funding to this project.

Q: Have there been any close calls where the team felt at risk to Albizia limbs falling suddenly and how do you manage this risk?

A: JC stated that there haven't been any close calls. Additionally, workers wear hard hats to mitigate risk when under the Albizia canopy, especially during windy days.

Q: Are there any aerial treatment methods available now or on the horizon?

A: JC mentioned that they investigated use of Herbicide Ballistic Technology (herbicide-filled projectiles), which has been effective for miconia eradication. However, because Albizia canopies are so expansive, it would be challenging to get a lot of coverage. HBT is more effective on medium-sized canopies. Helicopter spray operations were also considered, but this application could harm other plants beneath the Albizia canopy.

COMMENT: Member Helen Nakano commended JC for his excellent work on Albiza removal efforts in the Manoa community. She also commended the BWS and any other agencies who are supporting his work.

JC thanked the Group for the opportunity to speak with them and provided his contact information for any questions or future partnerships.

## STRATEGIC PLAN UPDATE

Dave introduced Ellen Kitamura, BWS Deputy Manager and Chief Engineer, who provided the Group with an update on a draft working plan of proposed updates to the BWS Strategic Plan.

Ellen shared the schedule of previous and upcoming strategic plan workshops scheduled from March – May 2022. Workshop participants include the BWS leadership team (Manager, Deputy Manager, Division Heads, Staff Officers, and their assistants) as wells as a BWS Board of Directors Permitted Interaction Group comprised of Board Chair Bryan Andaya and Board Members Ray Soon and Na`alehu Anthony.

Ernest and Ellen have worked on 2 previous Strategic Plans as BWS Manager and Deputy Manager. The Fiscal Year 2023-2027 Strategic Plan will build upon the goals and objectives set in the previous plans.

Proposed changes to overarching sustainability goals include:

- Resource: The term "water supply" was changed to "water resources and watersheds" to define water supplies more clearly.
- Operational: "Build" was changed to "Manage and continuously refine" to demonstrate forward movement. The group also wanted to recognize both human and physical resources that adapt and evolve with the changing environment.
- Financial: This was tweaked to show direct support of the BWS's mission.

## SUSTAINABILITY GOALS

| | 2014 – 2017 | 2018 – 2022 | 2023-2027 (DRAFT) |
|---|---|---|---|
| **Resource** | Protect and manage our groundwater supplies and watersheds through adaptive and integrated strategies. | Protect, conserve and manage Oahu's water supplies now and into the future through adaptive and integrated strategies. | Protect and manage Oahu's water resources and watersheds now and into the future through adaptive and integrated strategies. |
| **Operational** | Foster a resilient and collaborative organization utilizing effective and proactive operational practices consistent with current industry standards. | Build an effective organization to continuously improve dependable service. | Manage and continuously refine an effective organization that can evolve and adapt its human and physical resources to provide dependable service. |
| **Financial** | Implement sound fiscal strategies to finance our operating and capital needs to provide dependable and affordable water service. | Implement sound fiscal strategies to provide safe, dependable and affordable water service. | Implement sound fiscal strategies to support our mission. |

Proposed changes to strategic objectives tied to each resource sustainability goal include:

- Creating a new strategic objective "Resource Sustainability" that emphasizes the importance of implementing solutions for climate change and watershed protection.
- Water Quality: Provided additional language for protecting the safety and quality of water extending for "at least seven generations". This concept derived from kanaka maoli, to plan ahead to ensure your efforts extend into the future. Seven generations is roughly 140 to 210 years.
- Creating a new strategic objective "Resource Advocacy" that emphasizes the importance of developing partnerships to help the community learn about importance of water and why we need to work together to take care of it.

## STRATEGIC OBJECTIVES – RESOURCE

| 2014-2017 | | 2018-2022 | | 2023-2027 (DRAFT) | |
|---|---|---|---|---|---|
| **Category** | **Strategic Objective** | **Category** | **Strategic Objective** | **Category** | **Strategic Objective** |
| **Climate Change** | We will adapt to climate change to manage Oahu's water resources and protect the limited water supply. | **Climate Change** | We will increase our understanding and adapt to climate change to manage Oahu's water resources and protect the limited water supply. | **Resource Sustainability** | We will continuously adapt and implement resilient and sustainable solutions to mitigate climate and environmental changes to protect and manage Oahu's water resources and watersheds. |
| **Water Quality** | We will renew and improve the water system to ensure water system adequacy, dependable service, and operational efficiency. | **Water Quality** | We will protect, preserve and collaborate to ensure the safety and quality of Oahu's freshwater resource. | **Water Quality** | We will protect, preserve, and ensure the safety and quality of Oahu's water resources extending for at least seven generations. |
| **Communication** | We will communicate the value of water to engage the community in a shared stewardship of Oahu's water resources. | **Water Conservation** | We will conserve supply and system capacity by reducing per capita demand and increasing water efficiency. | **Water Conservation** | We will conserve Oahu's water resources, supply and system capacity by reducing per capita demand and increasing water use efficiency. |
| | | **Watershed Management** | We will ensure healthy forests, recognizing the essential role of watersheds for a sustainable water supply (capture and recharge). | **Resource Advocacy** | Lead, promote and sustain partnerships with stakeholders to advocate and support community-driven initiatives to protect Oahu's water resources and watersheds. |

Proposed changes to strategic objectives tied to operational goals include:

- Renamed the "Organization" strategic objective to "Organizational Resiliency"
- Infrastructure: Provided additional language to proactively assess and address water system risks and vulnerabilities
- Creating a new strategic objective "Strengthen Operational Partnership" that emphasizes the importance of developing mutually beneficial partnerships with external partners to look for areas where BWS operations can be improved.

## STRATEGIC OBJECTIVES – OPERATIONAL

| 2014-2017 | | 2018-2022 | | 2023-2027 (DRAFT) | |
|---|---|---|---|---|---|
| **Category** | **Strategic Objective** | **Category** | **Strategic Objective** | **Category** | **Strategic Objective** |
| **Organization** | We will ensure the necessary workforce and competencies to support the BWS needs. | **Organization** | We will ensure the necessary workforce, competencies, tools and resources to support current and future needs. | **Organizational Resiliency** | We will ensure the necessary workforce, competencies, tools and resources to support current and future needs. |
| **Infrastructure** | We will protect, preserve and collaborate to ensure the safety and quality of Oahu's freshwater resource. | **Infrastructure** | We will renew and improve the water system to ensure water system adequacy, dependable service, and operational efficiency. | **Infrastructure** | We will proactively assess and address water system risks and vulnerabilities to ensure water system adequacy, dependable service and operational efficiency. |
| **Customer Service** | We will proactively and consistently provide a quality experience in every customer interaction. | **Customer Service** | We will proactively and consistently provide a quality experience in every customer interaction. | **Customer Service** | We will consistently provide dependable service and a quality experience in every customer interaction. |
| **Technology** | We will ensure that our technology systems are current and leverage opportunities in technology to effectively support current and future BWS needs. | **Technology** | We will ensure that our technology systems are current and leverage opportunities in technology to effectively support current and future BWS needs. | **Technology** | We will ensure that our technology is current, secure, and leveraged to effectively support current and future BWS needs. |
| | | | | **Strengthen Operational Partnership** | We will proactively collaborate with external government and community decision-makers and stakeholders to ensure that there is a holistic approach to critical environmental and social issues; and in so doing, reinforce the utility as a valued and trustworthy partner. |

Proposed changes to strategic objectives tied to financial goals include:

- Financial Opportunities: Provided additional language to strategically pursue and leverage

financial opportunities.

- Financial Planning: Added language for mid-term financial policies and plans.
- Creating a new strategic objective "Financial Accountability" that emphasizes the importance of being transparent on how rate-payer funds are spent.

## STRATEGIC OBJECTIVES – FINANCIAL

| 2014-2017 | | 2018-2022 | | 2023-2027 (DRAFT) | |
|---|---|---|---|---|---|
| **Category** | **Strategic Objective** | **Category** | **Strategic Objective** | **Category** | **Strategic Objective** |
| **Financial Management** | We will pursue and leverage financial opportunities and implement strategies to affordably meet our financial and regulatory requirements. | **Financial Opportunities** | We will pursue and leverage financial opportunities. | **Financial Opportunities** | We will strategically pursue and leverage financial opportunities. |
| | | **Financial Planning** | We will develop and implement short- and long-term financial plans and policies. | **Financial Planning** | We will determine and implement short-, mid- and long-term financial policies and plans. |
| | | | | **Financial Accountability** | We will be accountable and transparent to our stakeholders through responsible and effective financial management. |

Upcoming workshops will focus on developing action plans and performance metrics for the strategic plan objectives. These proposed revisions will be presented to the BWS Board of Directors in July 2022 and recommended for adoption in August 2022.

This concluded Ellen's update on the BWS Strategic Plan. Dave opened the floor for questions and further discussion.

COMMENT: Member Dean Okimoto commented that safe and available water is a key element in food sustainability. In many areas, there isn't adequate infrastructure in place to provide water for crop growing. If food sustainability is an important goal for our island, small farmers should not have to shoulder the full financial burden of getting potable water into agriculture lands. We need to figure out how to get potable water to farms and not just residential areas.

Q: Does this plan consider best-case, middle-case, and worst-case scenarios? If natural disasters or other events occur, is there a plan to ensure vital water service for the community.

A: The BWS does have an Emergency Response Plan and holds regular meetings to plan for these scenarios.

BWS Information Officer Kathleen Elliott-Pahinui commented that the BWS has Emergency Action Plans for many scenarios, and they are updated frequently.

### IMPACT OF RED HILL SHAFT FUEL CONTAMINATION ON BOARD OF WATER SUPPLY

Kathleen began the presentation to provide the group with an update on the Red Hill Bulk Fuel Storage Facility.

Kathleen shared a memo issued in March 2022 by the Secretary of Defense regarding the permanent closure of the Red Hill Bulk Fuel Storage Facility. She also commended Hawaii's congressional

delegation for securing funding to defuel the Red Hill facility.

Kathleen showed a map depicting Oahu's aquifer sectors and their sustainable yields. She reminded the group that the Red Hill Fuel Facility sits on the boundary of two of the largest aquifer sectors – Honolulu and Pearl Harbor – which is why this remains an important water resource issue.

Kathleen reminded the group that the 5 BWS wells nearest to the Red Hill Bulk Fuel Storage Facility are being tested weekly to ensure public health and safety, and that there have been no fuel detections at BWS sources. The BWS shut down its Halawa Shaft, Halawa Wells, and Aiea Wells in response to the Navy announcement of petroleum contamination event in November 2021. There are no immediate plans to reopen these sources.

Kathleen asked Erwin Kawata, BWS Program Administrator for Water Quality, to provide insight on the direction of groundwater flow in the Red Hill area. Erwin explained that conventional understanding is that groundwater flows from mountain to the ocean. However, studies have found that groundwater flow can change based on pumping rates of existing water wells. This illustrates that water can move across the valley and potentially contaminating BWS sources in the area.

Erwin showed a particle track map, developed by the Navy, that depicts groundwater flow patterns from the Red Hill Fuel Facility. The map shows that, based on various pumping scenarios, the contamination could travel to the BWS's Halawa Shaft, Halawa Wells, Aiea Wells, as well as the Sumida Watercress farm.

As part of the Administrative Order of Consent, the Navy produced risk assessment studies to evaluate the likelihood of the release of fuel into the environment. The most notable finding is there is a greater-than 27% probability of a sudden release of between 1,000 and 30,000 gallons of fuel per year, as well as the presence of chronic and low-level releases that occur from the facility. In this scenario, any release would impact our drinking water supply, so these probability values are unacceptably high and pose a significant risk to the water resource.

Kathleen mentioned that the closure of BWS wells due to potential fuel contamination has significantly impacted the BWS's ability to balance water demand and supply. BWS's Halawa Shaft supplies 20% of the water for metropolitan Honolulu (Halawa to Makapuu). Halawa Wells and Aiea Wells supply 50% of the water for the BWS's Aiea-Halawa 277' system (Waimalu to the Halawa Industrial area). Kathleen asked Barry Usagawa to share water use data in these areas.

Barry explained that his staff have been tracking current water pumping amounts and comparing that to historical numbers. During the summer, water demand often exceeds the maximum amount of water pumps can produce in a day. BWS anticipates that there will be challenges meeting water demands this summer, which is why the BWS asked its customers to voluntarily reduce their water use by 10%. This preserves the storage in these wells in anticipation of high water demand in the summer. Pumping data is being posted to the BWS website weekly so customers can track our progress.

Barry showed a graph depicting pumpage and chloride levels at the Beretania Pump Station. With the closure of Halawa Shaft, the BWS increased pumpage at this station, which resulted in higher chloride levels in both low and high service areas. BWS is redistributing pumpage to other sources and is actively monitoring chloride levels.

The BWS has various ongoing projects in response to the most recent leak at the Red Hill Fuel Facility, such as:

- Constructing 5-6 exploratory wells in the Waimalu & possibly Moanalua areas
- Installing 4 sentinel monitoring wells in Halawa Valley
- Interconnecting the Pearl City water system with the Metropolitan and Aiea-Halawa systems
- Testing closed pump stations in various areas to see if chloride levels have stabilized and the wells can be regenerated.
- Well construction projects in various stages of development at Ewa Shaft Well Field, Kunia Wells, Waikele Gulch Wells, Waialae Nui Valley Well, & Waialae Well.
- Developing the Kalaeloa Seawater Desalination plant
- Completing repairs of Kalihi Pump Station and Kalauao Wells

Barry reminded the group that the process to plan and site a new exploratory well takes 5-7 years before the pump station is online and ready for use.

Erwin showed a map of proposed BWS exploratory well locations in the Waimalu & Moanalua areas. These wells help to look for new water supplies to replace the capacity loss by the 3 BWS pumping stations closed due to potential fuel contamination. Each of the locations are existing BWS reservoir sites.

Erwin then showed a map of existing and proposed BWS & Navy Monitoring Wells in the vicinity of the Red Hill Fuel Facility. These are test wells designed to collect information about the groundwater aquifer and detect any contamination.

The shutdown of 3 BWS pumping stations due to potential fuel contamination created a water shortage condition. In response, the BWS asked customers from Aiea to Honolulu to voluntarily cut their water use by 10%. However, BWS Rules and Regulations allow the authority to further restrict the use of water by any means or method of control.

Recently, the BWS developed a Water Shortage Plan that provides strategic and tactical steps to assess, declare, and control water demand. The plan details processes for a formal declaration of water shortage conditions, implementing mandatory conservation and development moratoriums, and more. The water shortage conditions are triggered by pump run time – the ability for available pumps in our water system to meet maximum day demands. Based on these criteria, the Honolulu system would be in an Alert water shortage condition, while the Aiea-Halawa system would be in a Critical water shortage condition.

Barry noted that, to avoid detrimentally impacting water service and fire protection needs of existing customers in a critical water shortage condition, the BWS has the authority to curtail approvals of new development. These 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)

These limitations are being evaluated and proposed to the BWS Board of Directors.

Ernest Lau joined the meeting and reiterated the importance of defueling the tanks at the Red Hill Fuel Facility as soon as possible and the critical importance of conserving water island wide. These water shortage conditions will likely persist for multiple years, so each summer for the foreseeable future will be a challenge.

This concluded the presentation on the impact of Red Hill Shaft Fuel Contamination on the BWS. Dave opened the floor for questions and further discussion.

Q: Considering there are multiple water systems and certain systems may be more stressed than others, would potential water restrictions be focused on the individual water systems or be implemented island wide?

A: Ernie explained that the water shortage conditions and triggers will be focused on individual water systems.

Q: Is there a plan to build/construct/dig a new shaft that can handle a capacity of 10-16mgd provided we can't get Halawa Shaft back online? Also, what factor would determine if a shaft rather that a pump would be built? What's the ideal timeline from exploratory well to construction for completion?

A: Barry commented that shafts are difficult to build now due to confined space. Wells are faster to construct taking 5-7 years. Shafts would take significantly longer.

Q: What federal funding can be sought due to this issue being caused by a federal facility?

A: Ernie confirmed that the BWS is pursuing federal funding to help cover the cost of the BWS's capital program, where possible.

Q: Agricultural customers are likely to use more water during the drier times of the year. Does BWS make a dispensation for customers who may use more water for agricultural purposes during a water shortage condition?

A: Barry noted that there aren't many agricultural farms in the affected systems. The current voluntary water restrictions focus on non-essential, recreational use of water.

## NEXT STEPS

Dave reminded the group of the dates for upcoming stakeholder advisory group meetings: Thursday, July 21st, and Thursday, October 20th.

Dave thanked the attendees for their attention and participation and concluded the meeting.