EXHIBIT 1

RICHARD T. BISSEN, JR.
Mayor

JOSIAH K. NISHITA
Managing Director

JOHN STUFFLEBEAN, P.E.
Director

JAMES A. LANDGRAF
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAI'I 96793
http://www.mauicounty.gov/water

April 10, 2025

VIA EMAIL
dlnr.cwrm@hawaii.gov

Dawn N. S. Chang, Chair
State of Hawaii, Department of Land and Natural Resources
Commission on Water Resource Management
1151 Punchbowl Street, Board Room 132
Honolulu, Hawaii 96809

SUBJECT: Request for Declaratory Ruling to permit the use of Kahana Well (Well #6-5738-002), located in the Honolua Groundwater Management Area, Lahaina, Maui

Dear Chair Chang,

SUMMARY OF REQUEST

The County of Maui Department of Water Supply (MDWS) is respectfully requesting the Commission on Water Resource Management (CWRM) to issue a declaratory ruling determining that a water use permit (WUP) for the Kahana Well is not required under Hawai'i Revised Statutes (HRS) Section 174C-48 (a), or, in the alternative, determine that the water to be used from the Kahana Well as a redundancy for the MDWS Lahaina water system is an existing use for the purposes of HRS Section 174C-48(a). The Hawaii Administrative Rules (HAR) section 13-167-81 provides for the CWRM's authority to issue declaratory rulings on petition of an interested person regarding the applicability of any statutory provision of the state water code.

BACKGROUND

Insufficient water supply forced MDWS to declare a Stage 1 water shortage for the entire West Maui water system on June 30, 2022, restricting water for essential uses only. Restrictions apply to all MDWS customers, including residential, commercial, resort, government and industrial uses. Interim Instream Flow Standards (IIFS) were established for the streams feeding the MDWS two water treatment plants, reducing the amount of water that can be diverted. The June 14, 2022, decision to designate all West Maui as a groundwater and surface water management area had an impact on the timing and feasibility of adding new water supply to the MDWS system. After designation, MDWS prepared to declare a moratorium on new or additional water service for West Maui. At the time the moratorium was being contemplated, the reliable capacity of the West Maui water system was 4.67 million gallons per day (mgd), seasonal demand was 5.65 mgd, resulting in a 0.98 mgd reliable capacity deficiency.

The Kahana Well in Honolua aquifer and the Mahinahina Well in Honokowai aquifer were budgeted, designed and permitted for construction prior to the groundwater management area (GWMA) designation. The wells were intended to provide critical redundancy to the Lahaina water system. A pump installation permit for the Kahana Well was approved in August 2022 for a 1,000 gallons per minute (GPM) rated capacity pump. The contract for construction was awarded in December 2022. A WUP application was submitted in May 2024 requesting an allocation of 964,800 gallons per day (gpd), which is the 16-hour/day operational capacity per system standards. A WUP application for the Mahinahina Well was submitted in March 2025. The Kahana well is anticipated to be operational in June 2025. The Mahinahina well is anticipated be operational in 2026 at the earliest.

After the August 2023, wildfire, demand has been temporarily reduced, However, water use is increasing as burnt homes are reconstructed and MDWS is ultimately responsible for providing water to the pre-fire demand at adequate reliable capacity. Bringing the Kahana Well online is critical to alleviate the deficiency in reliable capacity on the MDWS west side system. The WUP application clarifies that the well will NOT serve new demand on the MDWS water system but is only intended to ensure adequate reliable capacity to meet the water needs of existing customers without further water restrictions. Existing customers include services as of the date of GWMA designation, restoration of water meters for burnt structures, and temporary housing units.

WUP applications for existing uses had to be submitted to CWRM by August 7, 2023. It is MDWS' understanding that in December 2023, the CWRM staff began processing WUP applications for existing and new uses in the Honokowai hydrologic unit only, but that the processing approach for existing and new uses in all other hydrologic units has not been determined.[1]

Approval of a new WUP is subject to the availability of groundwater as determined by public trust uses of water, existing WUPs and the sustainable yield. No existing use WUPs have been issued for any hydrologic unit to date. The sustainable yield of the Honolua aquifer is 8 mgd. Reported withdrawals as of January 2025 total approximately 2.3 mgd, or 29% of sustainable yield. The total requested amount of groundwater by all existing use applicants is 2.7 mgd and as of July 2024, CWRM had received new WUP applications totaling1.4 mgd.[2] It appears that existing and new use WUP applications total approximately 4.1mgd, or 51% of the Honolua aquifer sustainable yield.

CURRENT WATER SYSTEM STATUS

The Napili sub-system serves the area from Napili to Honokowai. The current infrastructure allows the sources in the Napili sub-system to serve the Lahaina sub-system to a limited extent. A transmission pipe and booster pumps allow flow north to south to Lahaina Town. The Lahaina sub-system cannot provide backup flow south to north for the Napili area. Figure 1 shows the approximate pressure zones and service areas of the north Napili subsystem and the south Lahaina subsystem.

[1] Staff Submittal Commission on Water Resource Management, July 23, 2024, Declaratory Ruling No. DEC-MA24-G7
[2] Ibid.

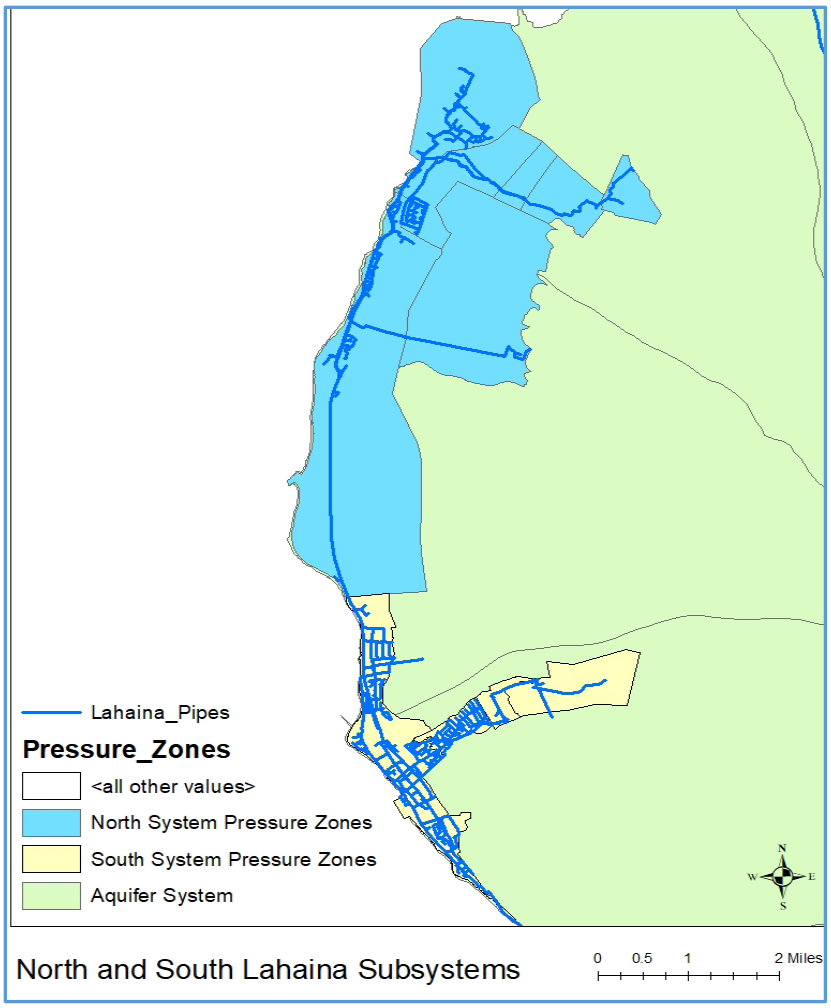

Figure 1. North and South Lahaina Subsystems

The Napili sub-system is served by the Napili well field, which consists of four wells in the Honolua aquifer: Napili Well A, B and C and the Honokahua Well B. Surface water from Honokohau Ditch is treated at the Mahinahina water treatment plant (MWTP).

From February 11 to March 6, 2025, the inflow to the MWTP has been zero due to insufficient flow in the Honokohau Ditch. The ditch is supplied by Honokohau Stream in the Honokohau hydrologic unit. Stream flow below normal has persisted over the wet season. During the same time frame, flow in Honokohau Stream measured around 9 ft3/s, whereas the mean flow is 39 ft3/s.

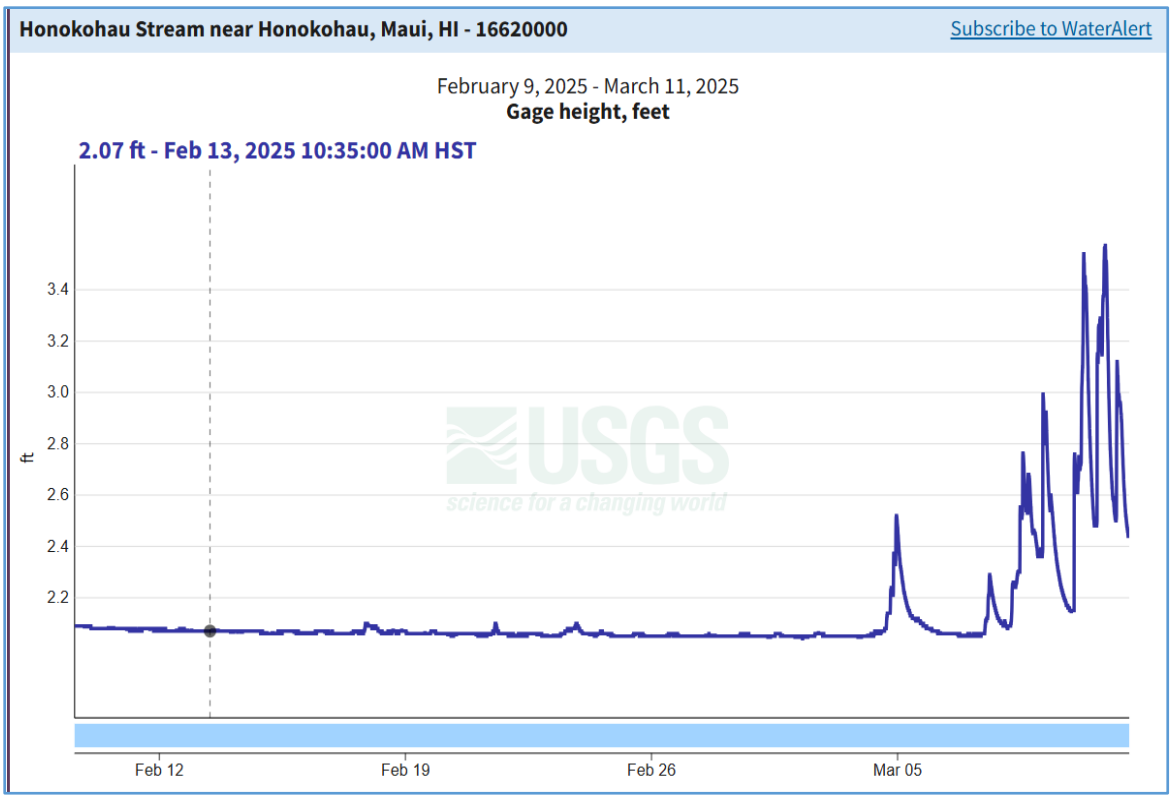

Figure 2. USGS Gage Station 16620000 at Honokohau Stream

Higher pumping at the Napili well field is necessary to sustain customer demand. In February 2025, chloride levels in the Napili C well reached a ten-year peak of 250 mg/l.

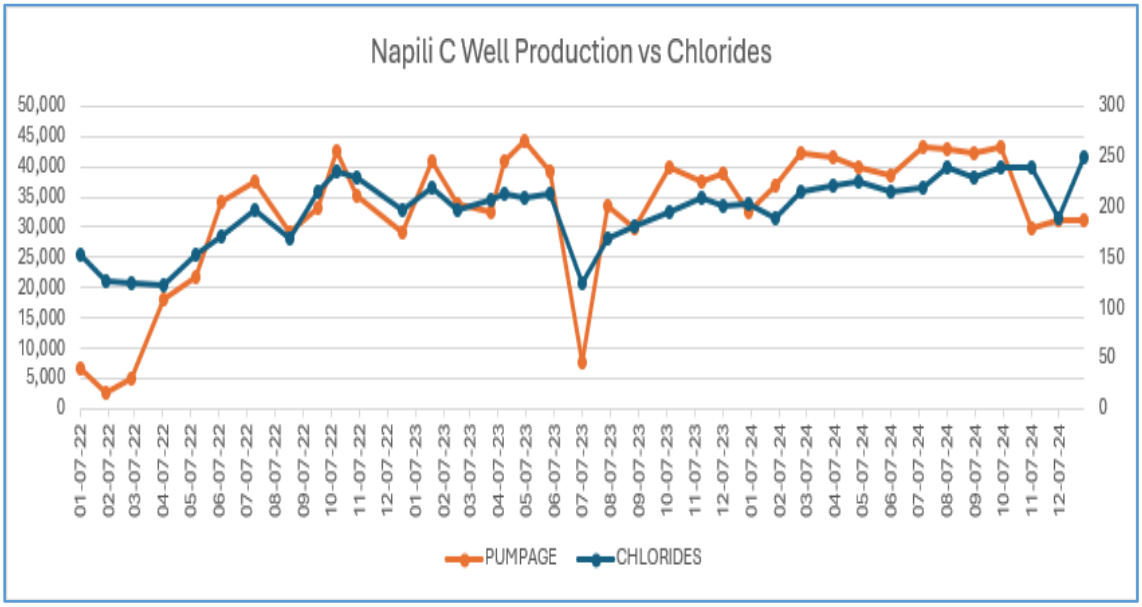

Figure 3. Napili Well C Monthly Production (1,000 gallons) and Chlorides (mg/l)

Leeward West Maui experienced D-1 moderate drought throughout most of the wet season, as reported by the U.S. Drought Monitor [3]. All of West Maui is currently in D-2, severe drought.

The 2024 MDWS Water Shortage and Conservation Plan sets water shortage triggers for each water system. A Stage 1 water shortage trigger is met when the combined flow from the MWTP and the Lahaina water treatment plant (LWTP) is projected to be below 70% of the mean over the next ten days. A Stage 2 shortage trigger is met when the combined flow is projected to be below 40% of the mean over the next ten days. Although inflow to the LWTP has remained steady, the Lahaina sub-system cannot backup the Napili sub-system. Because inflow dropped to zero over more than ten consecutive days, MDWS prepared to declare a Stage 2 water shortage on March 5, 2025. During a Stage 2 shortage, irrigation is limited to one day per week. Stream and ditch flow improved on March10, but high turbidity precluded inflow to the plant until March 14. MDWS is carefully tracking supply, rainfall forecasts, chloride levels and demand to determine if a Stage 2 water shortage declaration will be necessary.

No water services for new projects are accepted on the MDWS Lahaina water system. Water services are limited to temporary housing projects, consistent with CWRM's position that temporary housing projects served by MDWS would be permitted as an existing use. Temporary housing projects include the Kilohana project, Kala`iola project and a potential Napili project site. New water services were also installed in Central Maui for temporary housing to house displaced Lahaina residents. As burnt structures in Lahaina are re-built and occupied, water use for temporary housing will be phased out.

ALTERNATIVE SUPPLY TO MEET DEMAND

Current production on the West Maui water system is 3.67 mgd. The pre-fire demand was 5.65 mgd. Residential uses represent 63% of water consumption. Hotels represent about 15% of total water use. New water supply is needed primarily to meet housing needs. While Kahana Well will not serve to meet new demand, planned new water supply include a diversified portfolio to improve our resilience in the face of climate change and extended droughts:

- Well development that distributes pumpage throughout Launiupoko and Honolua aquifers. Wells are needed to mitigate

[3] Maui County Conditions | Drought.gov

low stream flows and reduced production at surface water treatment plants.

- Exploration of new and refurbished raw water reservoirs to capture high stream and stormwater flows.
- Regulatory measures to reduce irrigation needs and resort water use. A bill for an ordinance will be introduced shortly to reduce overall outdoor irrigation, transition to climate appropriate landscaping and require water efficiency at hotels and resorts.
- MDWS is collaborating with the Department of Environmental Management (DEM) to expand recycled water distribution to Honokowai. DEM has long term plans to extend transmission south from higher elevation reservoirs to Wahikuli reservoir. Recycled water offsets the need for potable water.
- A feasibility study of desalinating seawater and brackish water is completed and will be presented for public consideration beginning in May.
- MDWS dedicates 4% of the annual operations budget to fund watershed protection and restoration. Restoring and protecting native forests can increase rainfall capture and reduce erosion from mauka to makai.

CONSISTENCY WITH LONG TERM PLANS

New well development in the Honolua aquifer is a key strategy in the Maui Island Water Use and Development Plan (WUDP).[4] The plan was unanimously adopted by Maui County Council in February 2022, prior to the designation of West Maui as a groundwater and surface water management area. The December 2024 Lahaina Long Term Recovery Plan calls for source development in Honolua aquifer to expand water availability to serve the needs of the community and increase resilience.[5] Although the Kahana Well is not explicitly identified in either plan, timely access to this well is clearly in the interest of the Lahaina community and the reconstruction of Lahaina Town.

MDWS believes that the CWRM's authority to issue a declaratory ruling should be exercised judiciously and under unique circumstances and we respectfully petition for such action considering the urgency to bring Kahana Well online before the onset of the dry season. In summary, the following circumstances apply:

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[4] Ordinance 5335 Maui Island WUDP_20230428145430 2026.pdf
[5] Lahaina_LTRP_Report_20241221.pdf - Google Drive

1. The Kahana Well was constructed prior to designation of the GWMA and received a pump installation permit in August 2022.
2. The Kahana Well will cure the deficiency in reliable capacity of the MDWS system. It will NOT serve to issue new water services for new projects, beyond temporary housing for displaced Lahaina residents and restoring water meters for burnt structures.
3. The well is needed to offset long periods of zero inflow to the MWTP.
4. The well is critical to alleviate demand and rising chlorides in the Napili wells that currently are the only sources supplementing the MWTP.
5. Existing and new use WUP applications total about 4.1mgd, or approximately half of the Honolua aquifer sustainable yield.
6. Current water restrictions limiting irrigation to not more than two days/week are imposed on all MDWS Lahaina water system customers, including commercial and resort uses. Prohibiting all irrigation could exacerbate the risk of wildfire during the dry season.

We thank you for your consideration of this request.

Sincerely,

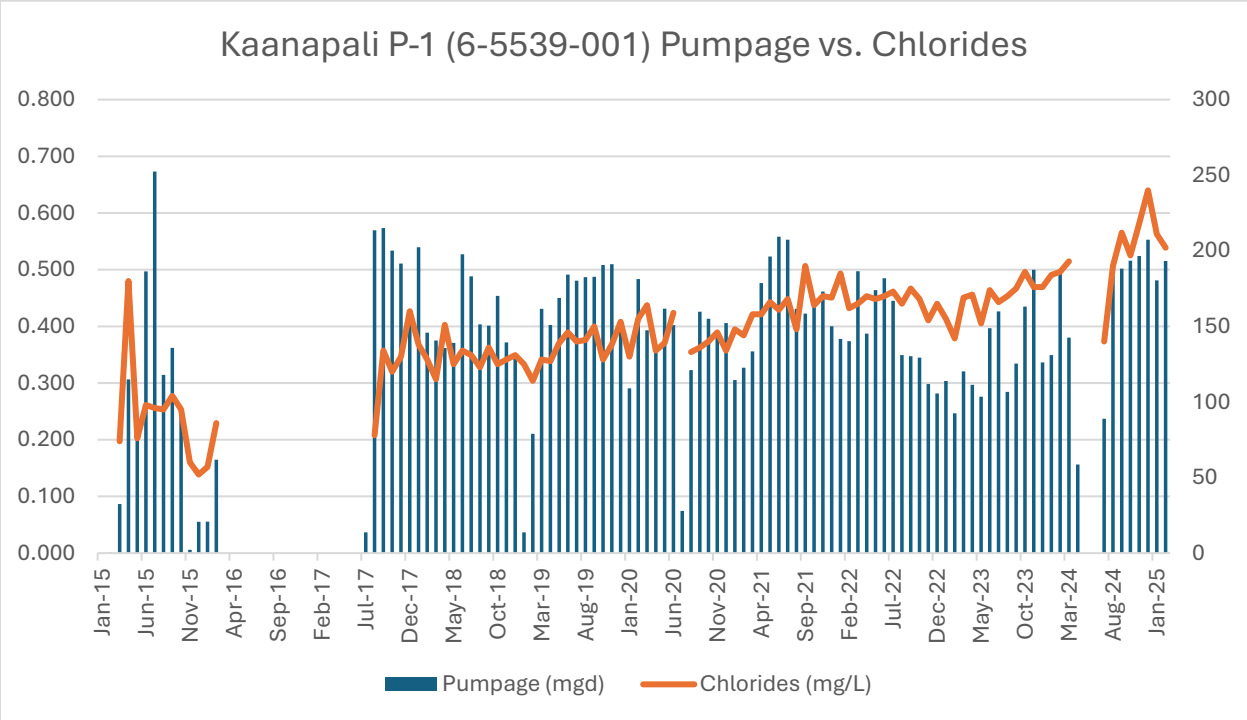
John Stufflebean, P.E.

Digitally signed by John Stufflebean, P.E.
Date: 2025.04.11 08:44:35 -10'00'

JOHN STUFFLEBEAN, P.E.
Director of Water Supply

EXHIBIT 2

Kā‘anapali Wells
Honokōwai Aquifer System (60203)



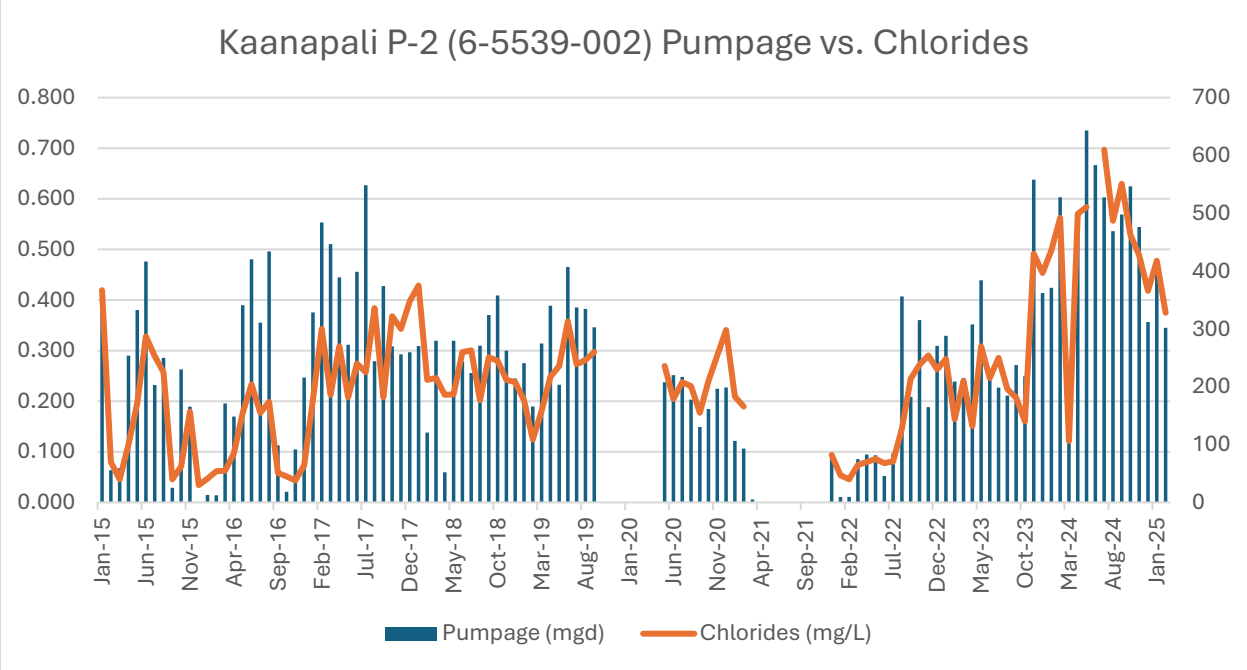
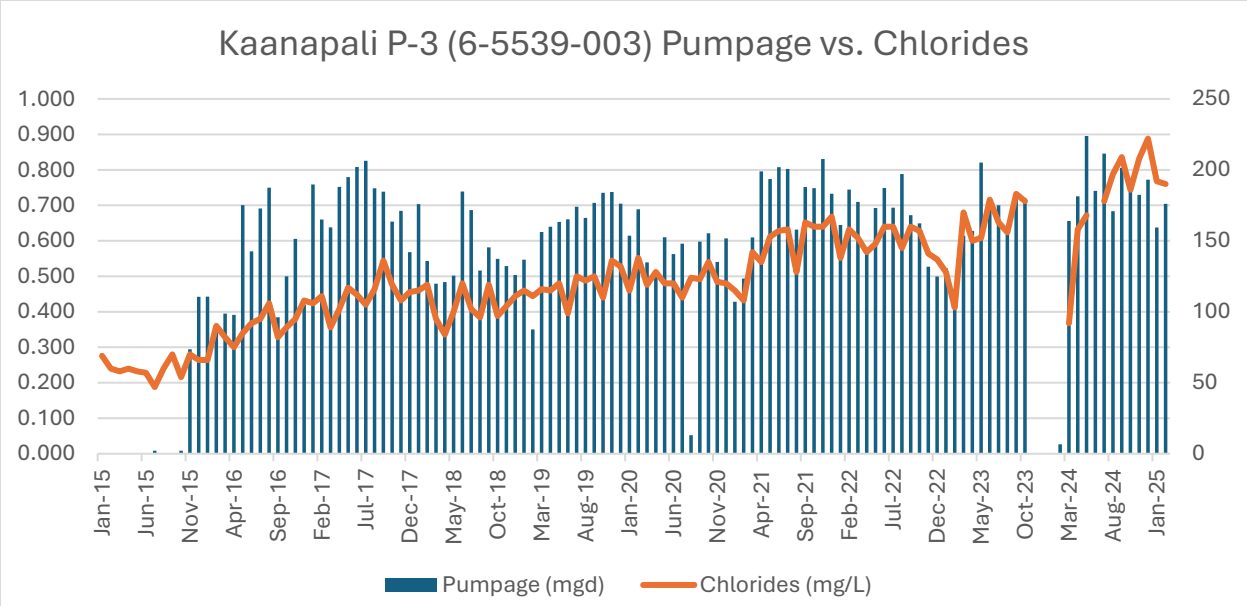


EXHIBIT 2


Kaanapali P-3 (6-5539-003) Pumpage vs. Chlorides
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
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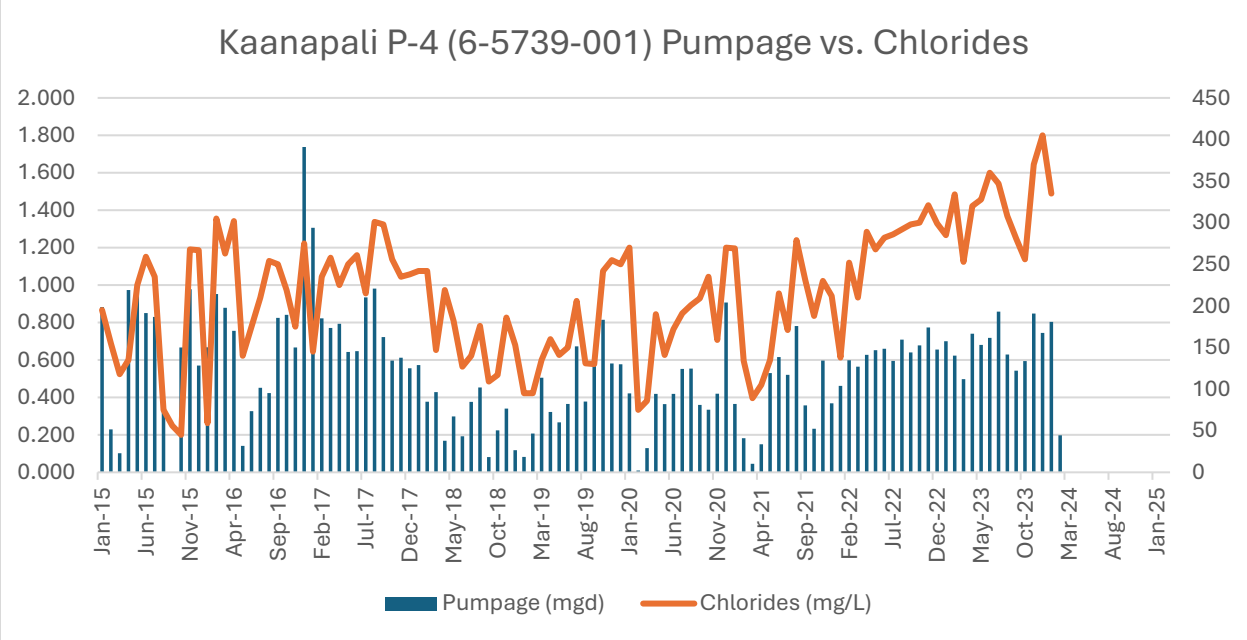
Jan-25
Pumpage (mgd)
Chlorides (mg/L)


Kaanapali P-4 (6-5739-001) Pumpage vs. Chlorides
2.000
1.800
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
450
400
350
300
250
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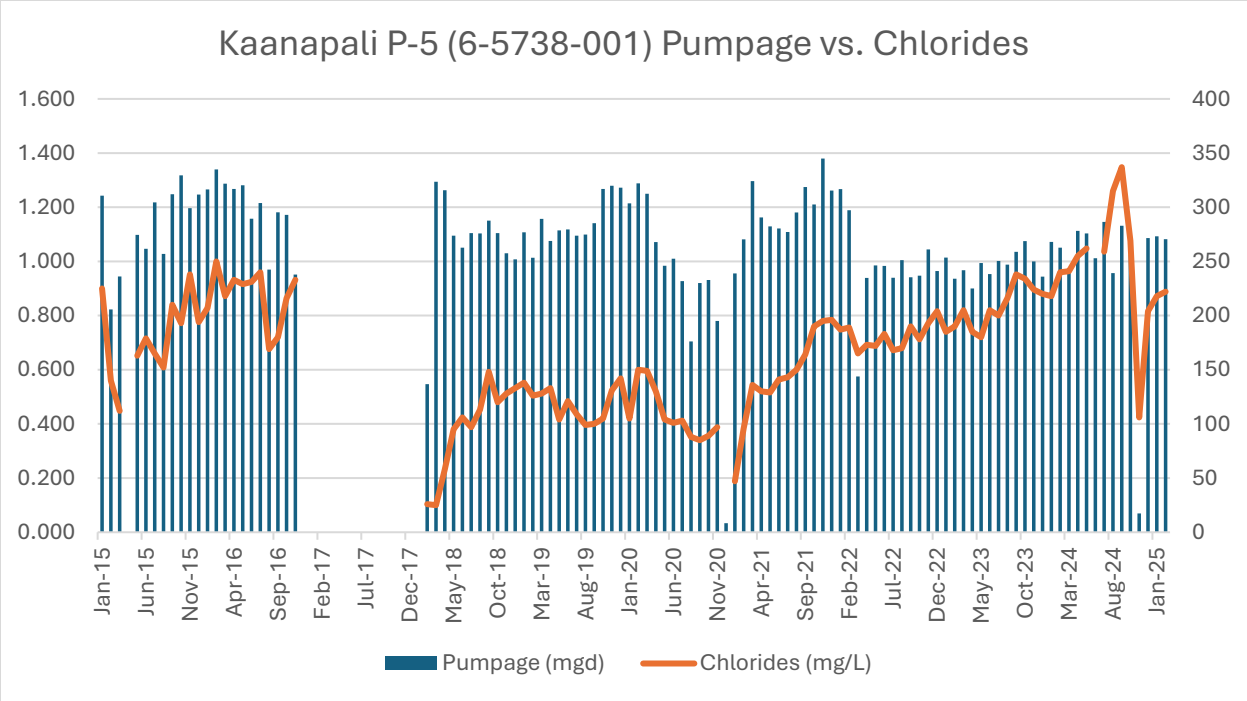
Pumpage (mgd)
Chlorides (mg/L)


Kaanapali P-5 (6-5738-001) Pumpage vs. Chlorides
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
400
350
300
250
200
150
100
50
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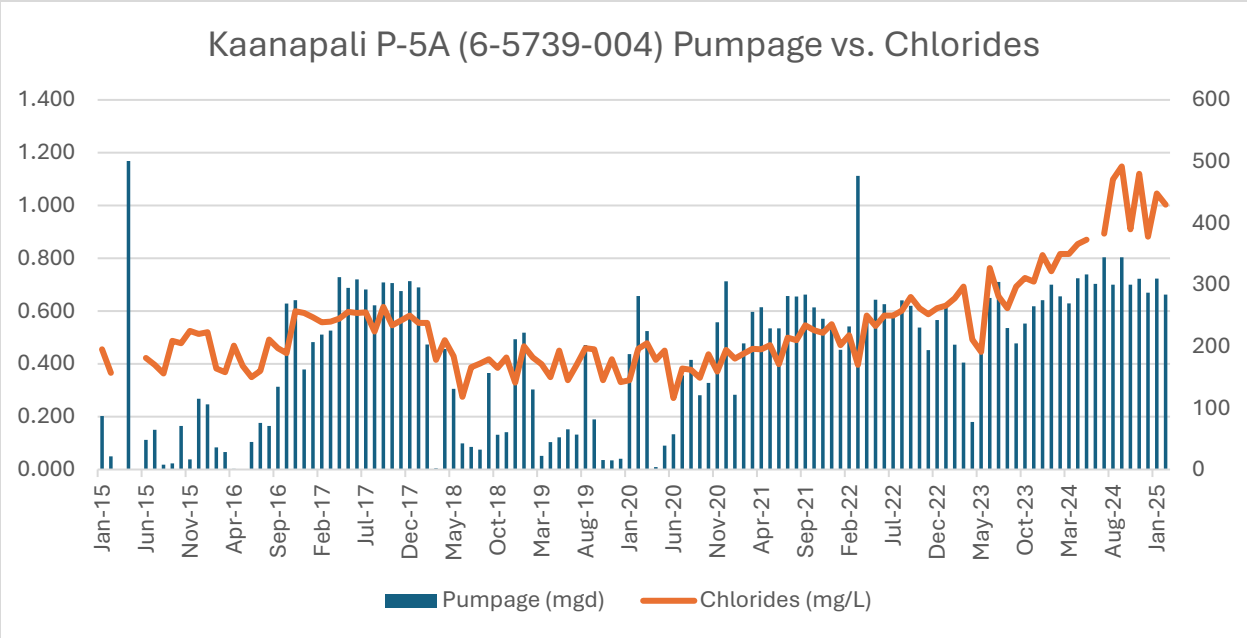
Jan-25
Pumpage (mgd)
Chlorides (mg/L)


Kaanapali P-5A (6-5739-004) Pumpage vs. Chlorides
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1.200
1.000
0.800
0.600
0.400
0.200
0.000
600
500
400
300
200
100
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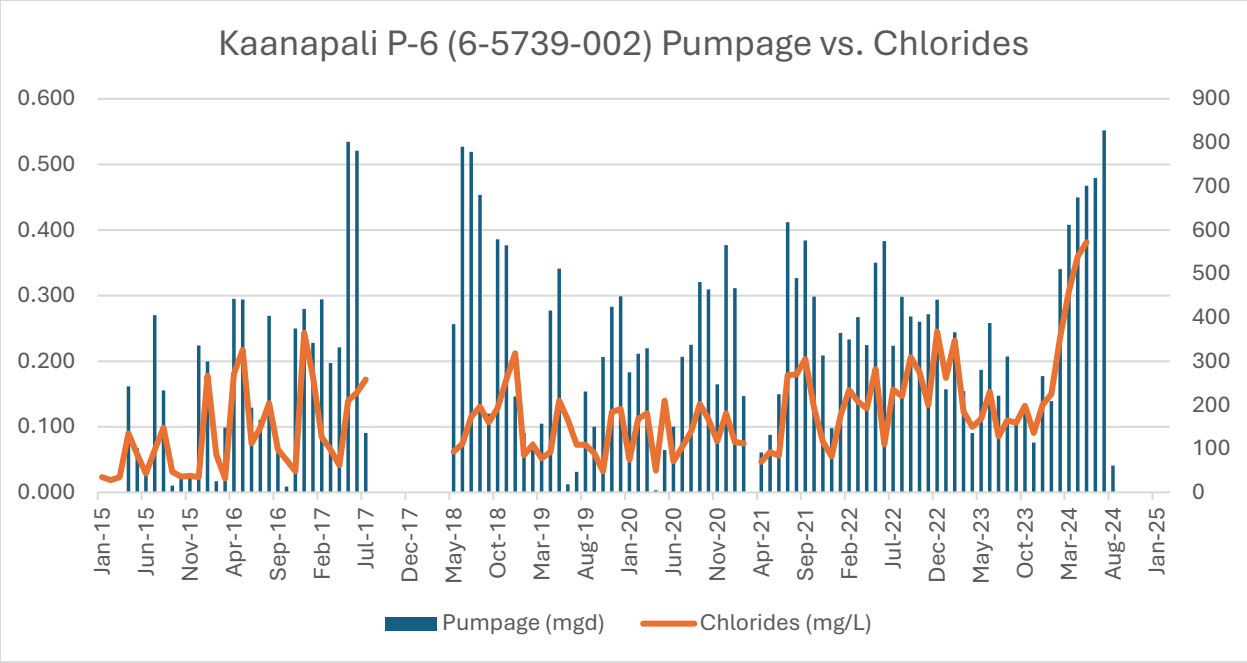
Jan-25
Pumpage (mgd)
Chlorides (mg/L)


Kaanapali P-6 (6-5739-002) Pumpage vs. Chlorides
0.600
0.500
0.400
0.300
0.200
0.100
0.000
900
800
700
600
500
400
300
200
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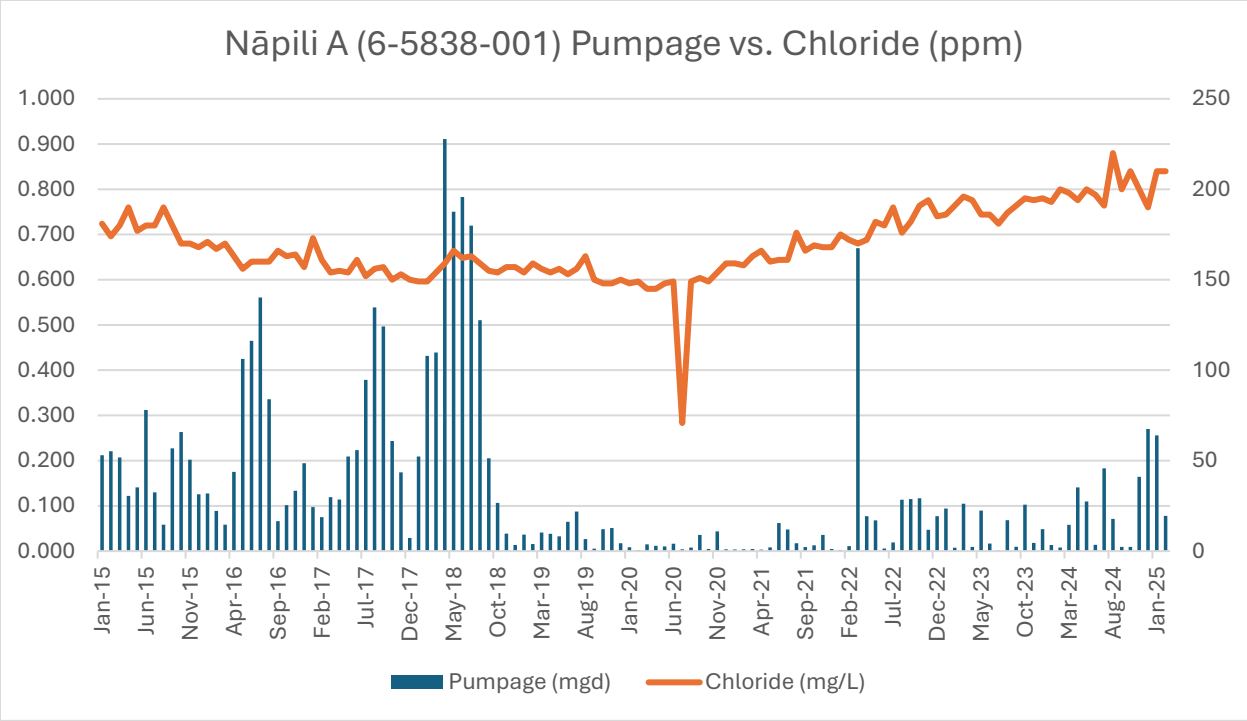
Oct-23
Mar-24
Aug-24
Jan-25
Pumpage (mgd)
Chlorides (mg/L)

EXHIBIT 3

Nāpili Wells, Honokahua B Well, and Kapalua 1 & 2 Wells

Honolua Aquifer System (60202)



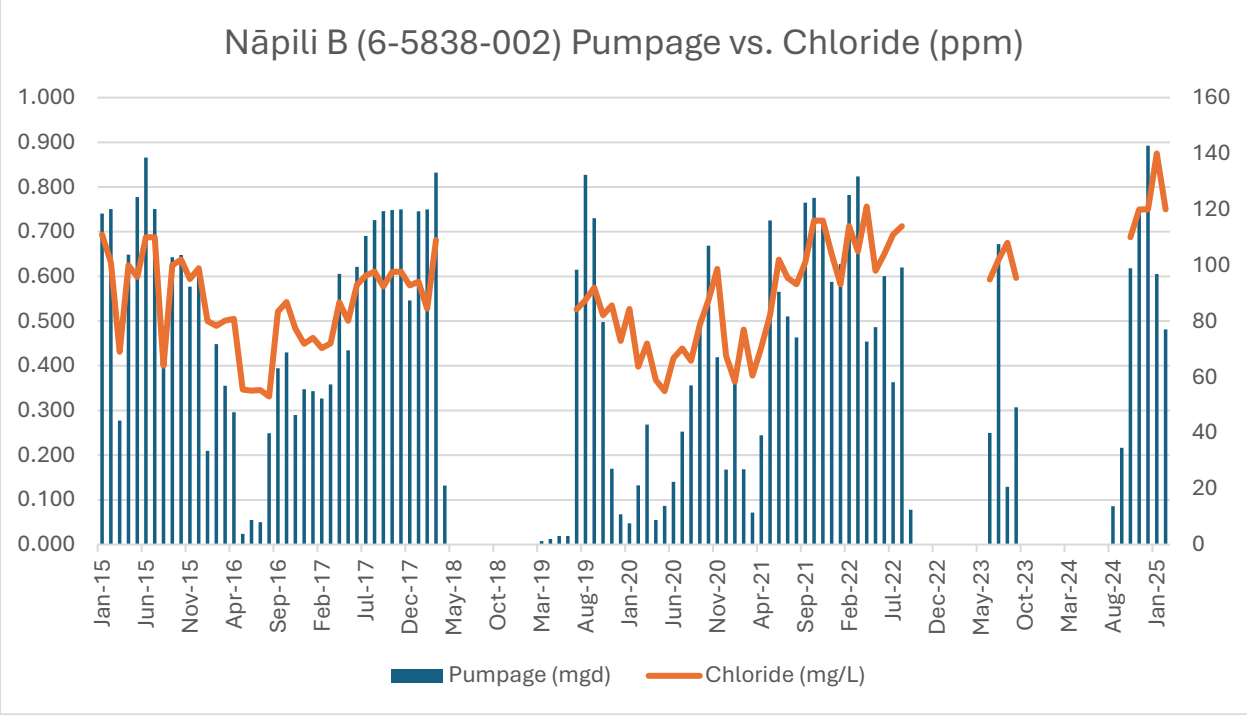
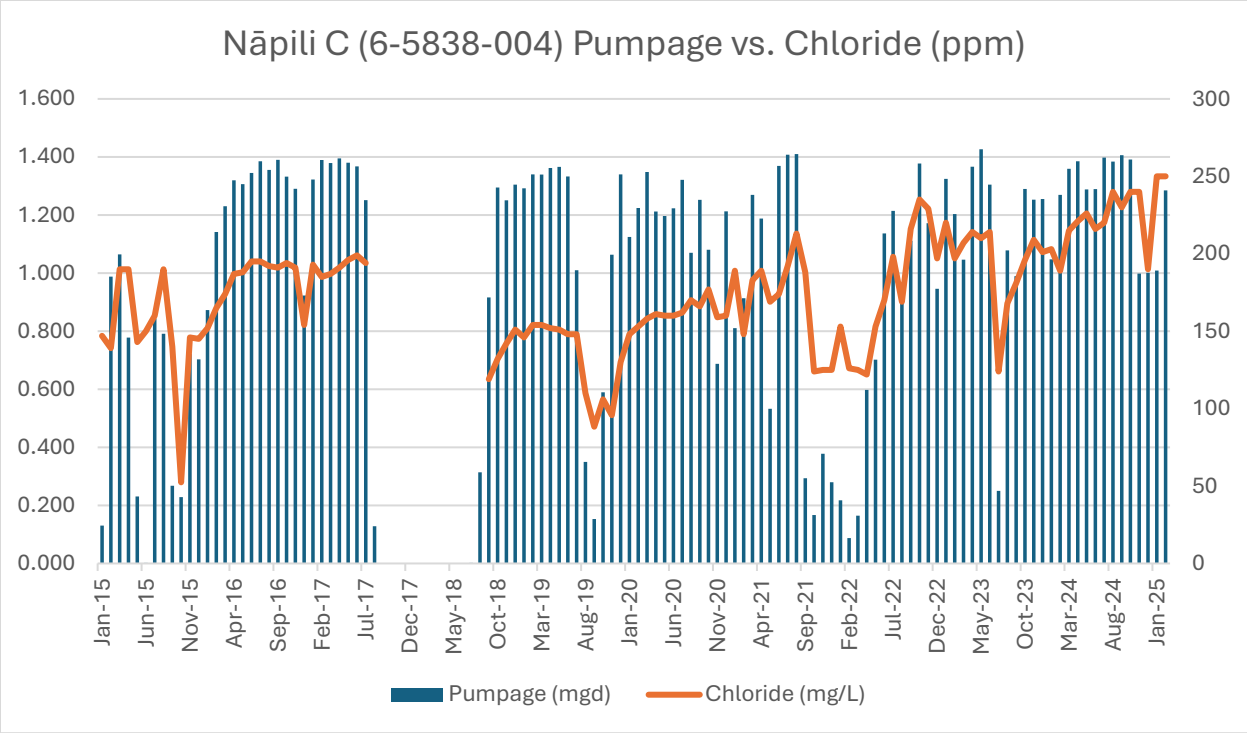


EXHIBIT 3


Nāpili C (6-5838-004) Pumpage vs. Chloride (ppm)
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
300
250
200
150
100
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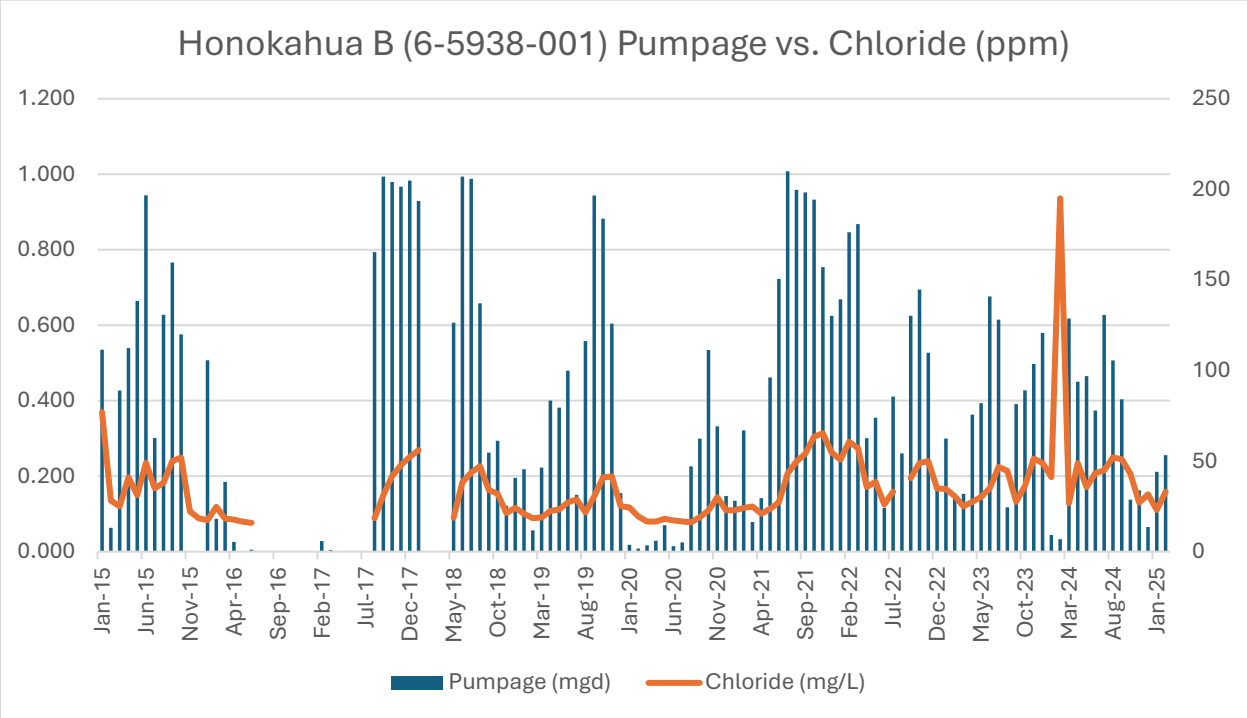
Pumpage (mgd)
Chloride (mg/L)


Honokahua B (6-5938-001) Pumpage vs. Chloride (ppm)
1.200
1.000
0.800
0.600
0.400
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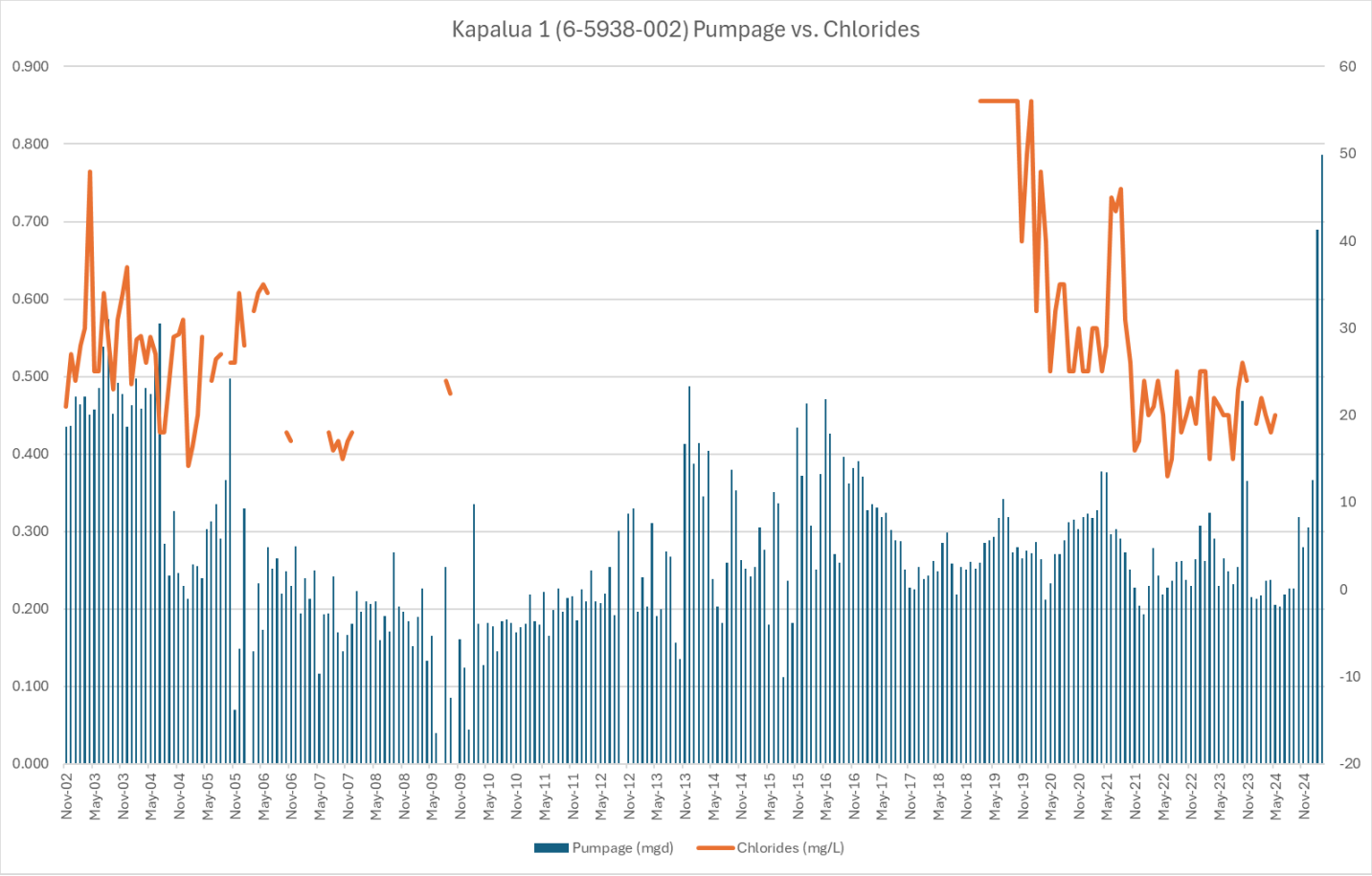
Pumpage (mgd)
Chloride (mg/L)


Kapalua 1 (6-5938-002) Pumpage vs. Chlorides
0.900
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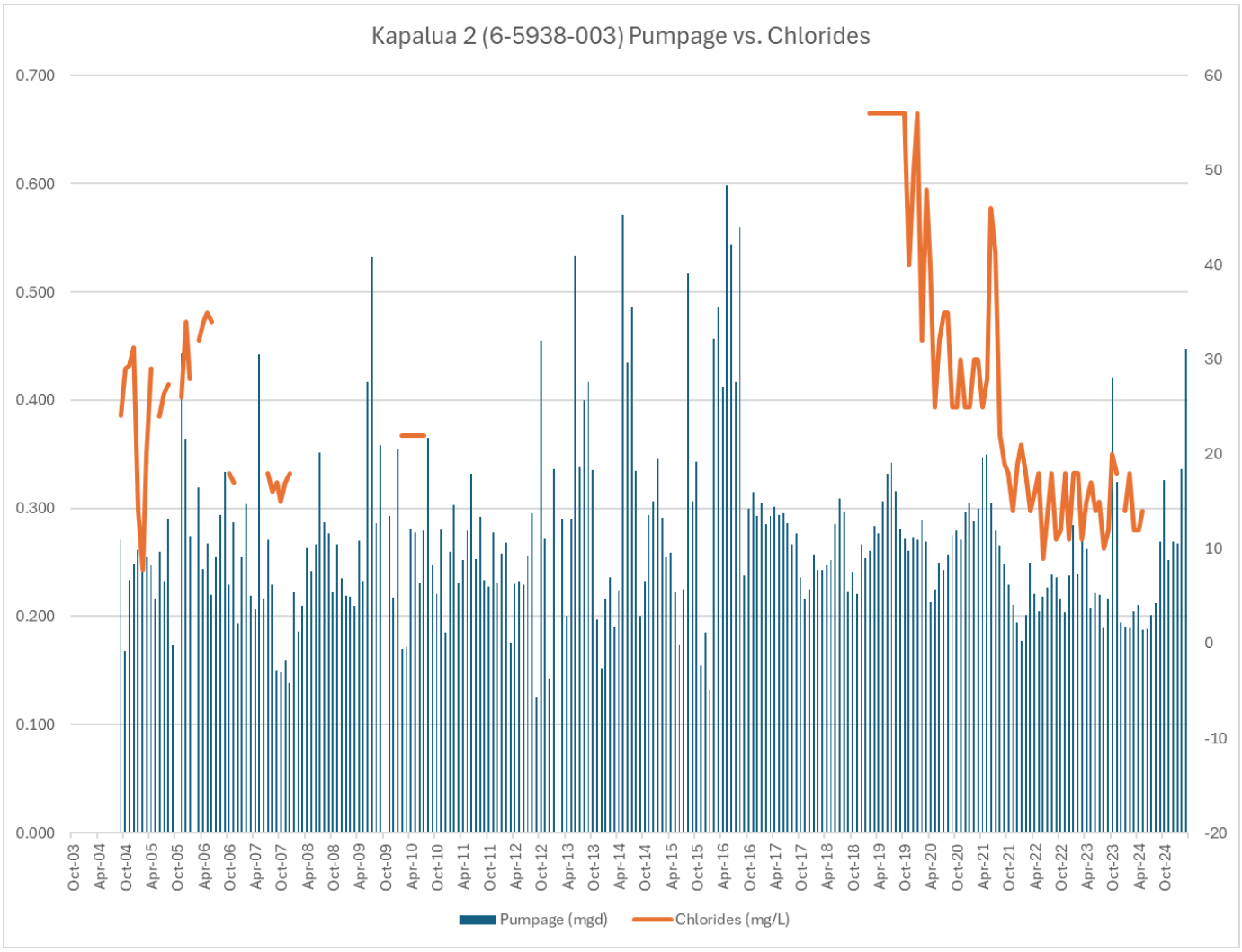
Pumpage (mgd)
Chlorides (mg/L)


Kapalua 2 (6-5938-003) Pumpage vs. Chlorides
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0.600
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0.400
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0.000
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40
30
20
10
0
-10
-20
Oct-03
Apr-04
Oct-04
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Oct-05
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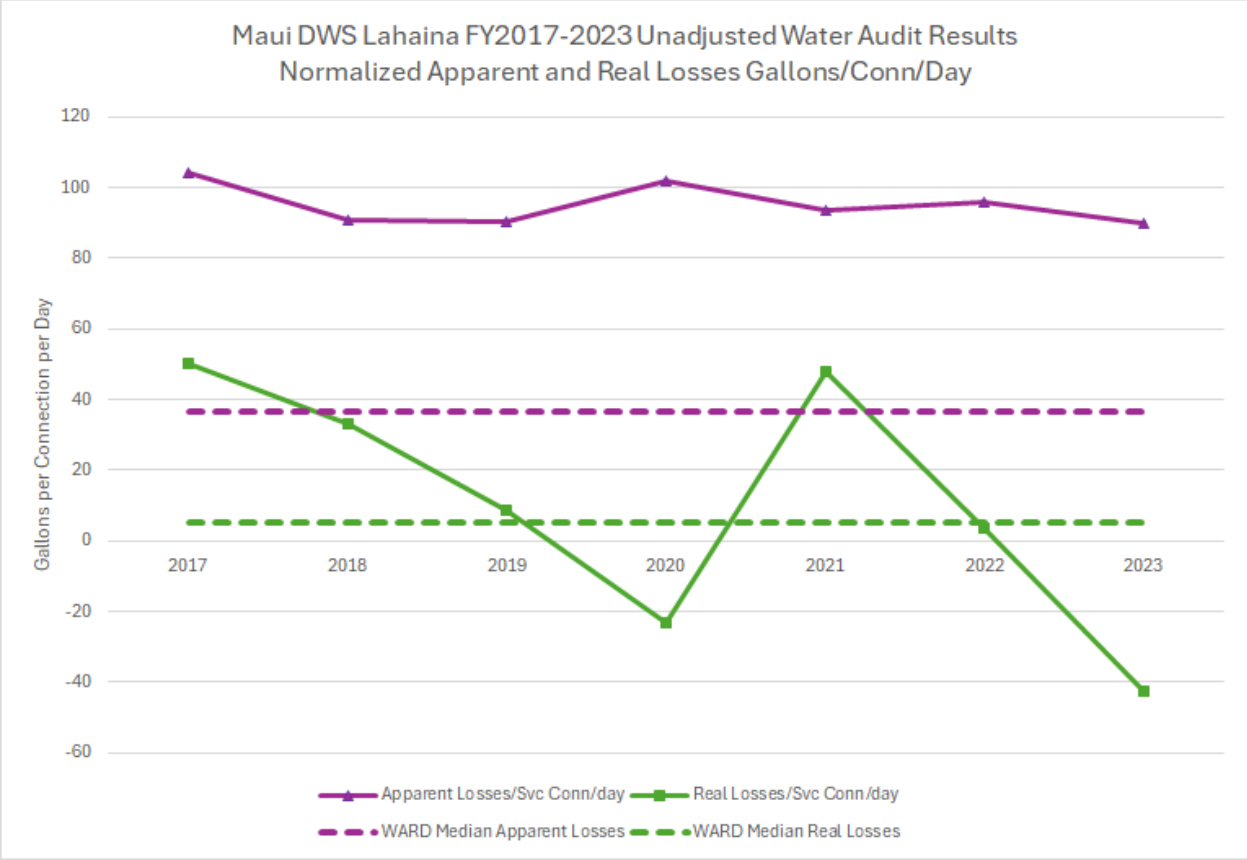
Pumpage (mgd)
Chlorides (mg/L)

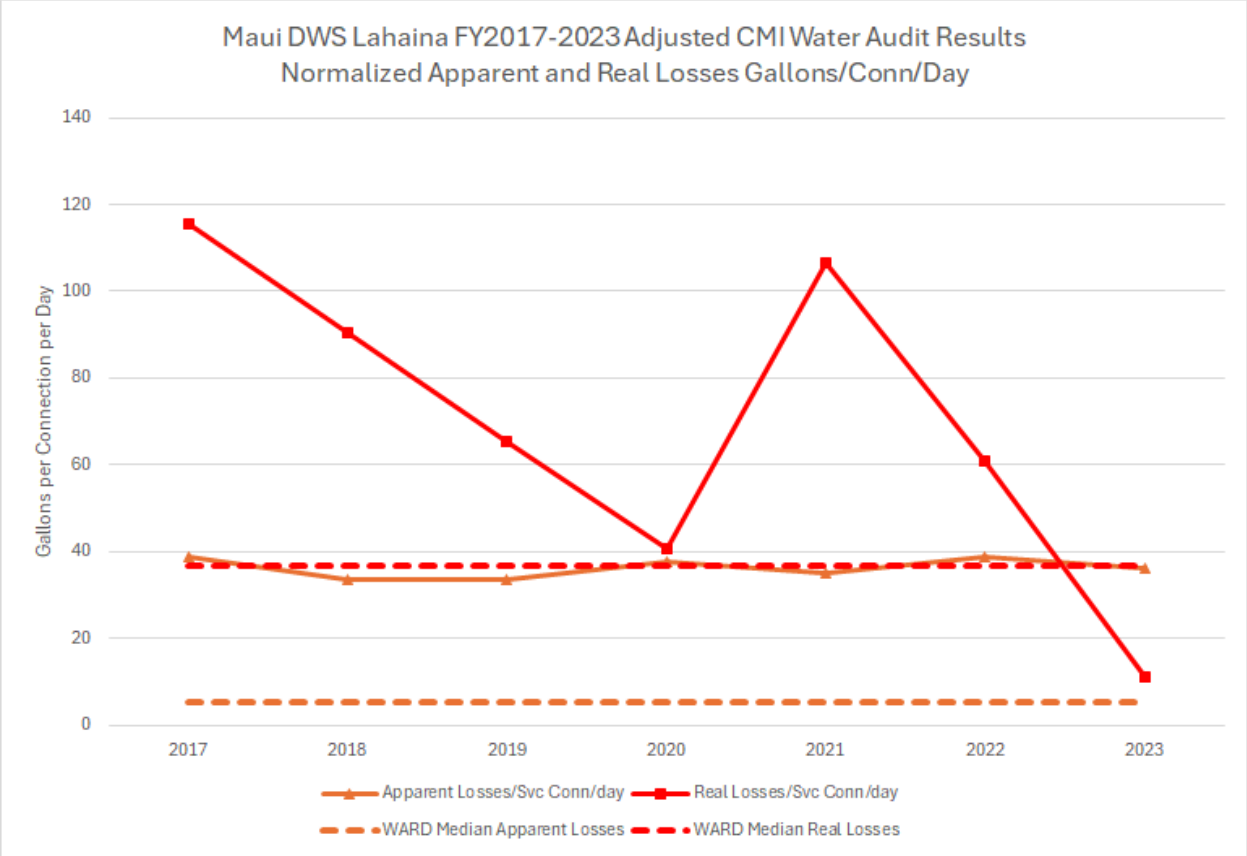
EXHIBIT 4

Maui Department of Water Supply
Fiscal Year 2017-2023 Water Audit Results



Apparent Losses and Real Losses by number of service connections in gallons per connection per day based on original MDWS water audit submissions. Customer Metering Inaccuracies (CMI) = 5.5% or 6% under-registration. The WARD median refers to statistics from the American Water Works Association Water Audit Reference Database. Note that the Apparent Losses exceed Real Losses, with some negative Real Loss values.

EXHIBIT 4



Apparent Losses and Real Losses by number of service connections in gallons per connection per day based on adjusted MDWS water audit submissions. CMI = 2% under-registration. Note that the Apparent Losses are less than Real Losses except for fiscal year 2023, which is unexpected, with high year-to-year variability in Real Losses.

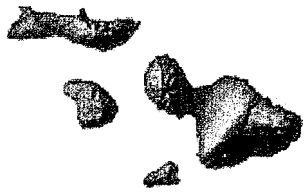
EXHIBIT 5

RICHARD T. BISSEN, JR.
Mayor

JOSIAH K. NISHITA
Managing Director

JOHN STUFFLEBEAN, P.E.
Director

JAMES A. LANDGRAF
Deputy Director



BOARD OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAI'I 96793
http://www.mauicounty.gov/water

January 22, 2025

Dawn Chang, Chair
Commission on Water Resource Management
1151 Punchbowl Street, #227
Honolulu, Hawaii 96813

Dear Chair Chang and Commission Members:

Subject: Lahaina Aquifer Sector Area (LASEA) Water Resources

We are writing in support of the County of Maui Department of Water Supply (MDWS) to ask that you speedily disposition the County's applications for existing water use and consider what is below. As you know, the circumstances evolving from the Lahaina fire have complicated the provisioning of residential, and ultimately, commercial water. Consequently, we believe that there is a need for a 1) short-term and 2) long-term plan and a corresponding revision to the Water Use and Development Plan (WUDP).

Short-Term Plan The short-term plan should focus on temporarily housing the greatest number of Lahaina residents in Lahaina until they can rebuild. This is the current MDWS strategy being executed, and we support the use of existing water for temporary housing (i.e. five-year). Since temporary housing will overlap the re-occupation of Lahaina and the re-allocation of potable water, the total water demand may be higher than the current DWS systems can provide for some indefinite transition period which will require close attention. The existing groundwater wells are already, at times, producing salty water and there are no other sources of increased supply. The Commission can, and should, consider such actions as part of its review of the MDWS existing use, permit applications.

Long-Term Plan The LASEA is poorly understood with respect to groundwater sustainable yield (SY). The current values are *guess-timates* based on what is known about Oahu, without any data from Maui. There is only one Deep Monitor Well (DMW) and it is in the Honokowai aquifer. In that aquifer, just since 2021,

EXHIBIT 5

there have been dramatic changes in the depth to freshwater, the thickness of the brackish-water transition zone and the depth to seawater. We have no idea what is going on in the other five aquifer system designations that make up the LASEA. Recent studies released by the United States Geological Survey (USGS) emphasize the uncertainties in the water supply in the LASEA and throughout Hawaii [1]. A previous USGS study specifically identified the need for additional, long-term monitoring of water supply and associated resource requirements [2]. The current problems have been looming for decades; at least.

We urge the Commission to initiate efforts to improve our understanding of Maui's water resources in the LASEA through a collaboration with the County of Maui Board of Water Supply and the USGS. The focus of the effort should be to develop the funding and management of a long-term monitoring program to provide decision-support to the County and the State in the permitting of water users. We believe such an effort would serve as a pathfinder for the rest of the State.

Moratorium on Permanent, New Construction Until Safe, Reliable Supply Available There is no water identifiable for permanent, new construction at this time and it would be irresponsible to issue new permits for water that is already over-subscribed and over-pumped. Any additional permits for new uses, requiring new wells or surface water diversions, especially for permanent new housing and resorts, should be deferred until the short-term needs (described above) are accommodated and there is a new, long-term plan, including a revision to the Water Use and Development Plan (WUDP). We have seen the consequences of over-pumping in I'ao aquifer and others. Those mistakes should not be repeated on the Westside.

The Maui Department of Water Supply is studying the feasibility of desalination as a means of augmenting existing supplies. There is also new technology being deployed in other places to reuse wastewater for potable supply and this should also be investigated. Such solutions should be a pre-requisite for new developments to ensure a permanent water supply. We hope the Commission will bear it in mind during its review.

We encourage the County, State, Federal agencies, and private water purveyors, to engage in integrated management of LASEA water resources and to act to provide the leadership necessary to achieve this.

Sincerely,

Donna S. Sterling

Donna Sterling, Chair
Board of Water Supply

"Ulu I Ka Wai, With Water We Thrive"

References

[1] Heidi L. Kane, Alan Mair, Adam G. Johnson, Kolja Rotzoll, James Mifflin, and Delwyn S. Oki. Estimated Groundwater Recharge for Mid-Century and End-Of-Century Climate Projections, Kaua'i, O'ahu, Moloka'i, Lana'i, Maui, and The Island Of Hawai'i. Report https://pubs.usgs.gov/publication/sir20235130, United States Geological Survey, Reston, VA, 2024.

[2] Chui Ling Cheng, Scot K. Izuka, Joseph Kennedy, Abby G. Frazier, and Thomas W. Giambelluca. Water-Resource Management Monitoring Needs, State of Hawai'i. Report https://pubs.usgs.gov/publication/sir20205115, United States Geological Survey, Reston, VA, 2021.

cc: Richard T. Bissen, Jr., Mayor
John Stufflebean, Director, Department of Water Supply
Yukari Murakami, Deputy Corporation Counsel

EXHIBIT 6

Ka Pa‘akai Analysis for the Planned Maui County Wells in the Honolua Aquifer System, Lahaina Aquifer Sector

Ahupua‘a of Mailepai and Kahana, Kā‘anapali Moku, Island of Maui

APRIL 2024

PREPARED FOR

County of Maui, Department of Water Supply

PREPARED BY

SWCA Environmental Consultants

EXHIBIT 6

KA PAʻAKAI ANALYSIS FOR PLANNED MAUI COUNTY WELLS IN THE HONOLUA AQUIFER SYSTEM, LAHAINA AQUIFER SECTOR

AHUPUAʻA OF MAILEPAI AND KAHANA, KĀʻANAPALI MOKU, ISLAND OF MAUI

Prepared for

County of Maui, Department of Water Supply
200 South High Street
Wailuku, Hawaiʻi 96793-2155
Attn: Eva Blumenstein

Prepared by

Tamara Luthy, Ph.D., and Wainani Traub, M.S.

Principal Investigator

Rowland Reeve, M.A.

SWCA Environmental Consultants
1200 Ala Moana Boulevard, Suite 380
Honolulu, Hawaiʻi 96814
(808) 548-7922
www.swca.com

SWCA Project No. 00078517

SWCA Cultural Resources Report

April 2024

EXECUTIVE SUMMARY

On behalf of the County of Maui, Department of Water Supply (MDWS), SWCA Environmental Consultants (SWCA) conducted a Ka Paʻakai Analysis in support of the water use permit application for the planned Honolua 1 (H1), Honolua 2 (H2), and Kahana #5738-002 wells in the *ahupuaʻa* (traditional land divisions) of Mailepai and Kahana, located within the Honolua Aquifer System, in the larger Lahaina Aquifer Sector.

In 2022, the State of Hawaiʻi, Department of Land and Natural Resources (DLNR), Commission on Water Resource Management (CWRM) designated the Lahaina Aquifer Sector as a Surface and Ground Water Management Area. This decision was made in accordance with Hawaiʻi Revised Statutes (HRS) Chapter 174C, the State Water Code, and Hawaiʻi Administrative Rules (HAR) Title 13, Water Resources, Chapter 171, Designation and Regulation of Water Management Areas. As a result of this designation, the MDWS is required to submit water use permit applications to the CWRM for all of its existing and proposed water sources within the Lahaina Aquifer Sector.

As water use within the Lahaina Aquifer Sector has the potential to affect traditional and customary Native Hawaiian rights and practices, a required part of the CWRM water use permit application for each water use is the preparation of a Ka Paʻakai Analysis. These analyses follow the guidelines established by the 2000 Hawaiʻi Supreme Court decision in Ka Paʻakai O Ka ʻAina *v*. Land Use Commission. The following document serves as the Ka Paʻakai Analysis for the three planned wells within the Honolua Aquifer System. The MDWS has four existing wells within the Honolua Aquifer System that were addressed in a previous Ka Paʻakai Analysis (Luthy et al. 2023). These are the Honokahua B and the Nāpili A, B, and C wells located within the ahupuaʻa of Honokahua, Nāpili 2–3, and Nāpili 4–5.

Beginning on August 8, 2023, a series of wildfires engulfed parts of the island of Maui. The worst of the devastation fell on the historic town of Lahaina. Thousands of structures were destroyed, and many lives were lost. As of the latest reports, 115 fatalities have been confirmed, making it one of the deadliest fires in modern U.S. history. Considering the devasting impact of this wildfire on the Lahaina community, it was particularly challenging to engage in meaningful and culturally sensitive community consultation for this Ka Paʻakai Analysis, given the community's preoccupation with addressing immediate needs. For this reason, this Ka Paʻakai Analysis relies heavily upon previous, publicly available studies that involved consultation with members of the Lahaina community regarding water issues.

Using a combination of archival research, existing oral history interviews, public testimony from CWRM meetings, and the Instream Flow Standard Assessment Report (IFSAR) meetings, the following Ka Paʻakai Analysis report identifies and discusses the traditional and customary practices undertaken within the Lahaina Aquifer Sector, and more specifically within the Honolua Aquifer System, that are related to water use and could potentially be impacted by water use related to the planned County wells. These traditional and customary practices include the cultivation of wetland *kalo* (taro; *Colocasia esculenta*), near-shore fishing, and the gathering of *limu* (marine and freshwater algae) and other plants.

Archival research indicates that traditional and customary practices such as gathering *lāʻau lapaʻau* (medicinal plants), *loʻi kalo* (irrigated taro) cultivation, and collecting riparian species such as *ʻoʻopu* (goby fish), *ʻōpae* (endemic shrimp), the shellfish *hīhīwai* (*Neritina granosa*), limu, and the shellfish *hapawai* (*Theodoxus vespertinus*) have all declined dramatically in the area due to decades of commercial pineapple and sugar cultivation. In existing oral history interviews, several informants also noted a decline in key, culturally important natural resources such as ʻoʻopu, ʻōpae, hīhīwai, hapawai, limu, and nearshore fish since the 1970s. The surfacewater diversions from the Honolua and Honokōhau Streams, mixed with the ecological disturbances from legacy sugar cane and pineapple fields, led to cascading effects on the natural environment. These effects includ a decline in water to irrigate loʻi kalo; damage to

the reefs due to silt, pesticide, and fertilizer runoff; a lack of *mauka* (inland) to *makai* (coastal) stream water connectivity to support the life cycle of ʻoʻopu, hīhīwai, and ʻōpae; and an influx of invasive plant and animal species in the mauka areas contributing to reduced aquifer replenishment. In spite of these changes, cultural practitioners continue to fish and gather in the areas makai of the wells.

This Ka Paʻakai Analysis found that additional removal of freshwater from the Honolua aquifer could potentially impact the vitality of ongoing traditional and customary practices. However, spreading withdrawals rather than concentrated pumpage at the Napili/Honokohau well field may have a positive or neutral impact on freshwater discharge to the coast and streams Given the potential for additional water withdrawal from the Honolua aquifer, the MDWS has agreed to undertake a number of feasible actions to maintain and potentially increase supplies of freshwater for traditional and customary practices. These include employing a mauka to makai approach to water conservation; supporting community-based efforts to restore watersheds; maintaining and monitoring water quality; developing alternative water source strategies; requiring archaeological and cultural monitoring during new well construction; and soliciting ongoing feedback from community members.

Many words in Hawaiian, ʻŌlelo Hawaiʻi, are used throughout this report. In adddition to being defined the first time that they are used in the report, all Hawaiian words are defined in the glossary (see Section 8, Glossary of Hawaiian Words Used in the Text).

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1 INTRODUCTION

On behalf of the County of Maui, Department of Water Supply (MDWS), SWCA Environmental Consultants (SWCA) has conducted this Ka Paʻakai Analysis in support of the water use permit application for the planned Honolua 1 (H1), Honolua 2 (H2), and Kahana #5738-002 wells located within the Honolua Aquifer System in the Lahaina Aquifer Sector.

1.1 Lahaina Water Management Area

In 2022, the State of Hawaiʻi, Department of Land and Natural Resources (DLNR), Commission on Water Resources Management (CWRM) designated the Lahaina Aquifer Sector as a Surface and Ground Water Management Area. This decision was made in accordance with Hawaiʻi Revised Statutes (HRS) Chapter 174C, the State Water Code, and Hawaiʻi Administrative Rules (HAR) Title 13, Water Resources, Chapter 171, Designation and Regulation of Water Management Areas. As a result of this designation, the MDWS is required to submit water use permit applications to the CWRM for all of its existing and proposed water sources within the Lahaina Aquifer Sector.

The Lahaina Aquifer Sector includes the *moku* (districts) of Lahaina and Kāʻanapali, both within Maui Komohana (West Maui). The Lahaina Aquifer Management Area includes the Honokōhau, Honolua, Honokahua, Kahana, Honokōwai, Wahikuli, Kahoma, Kauaʻula, Launiupoko, Olowalu, and Ukumehame Surface Water Hydrologic Units and the Honokōhau, Honolua, Honokōwai, Launiupoko, Olowalu, and Ukumehame Groundwater Hydrologic Units. The Honolua, Honokōhau, Kahana, Honokōwai, and Wahikuli Hydrologic Units are in the Kāʻanapali Aquifer System, whereas the Launiupoko, Ukumehame, Olowalu, and Kauaʻula Hydrologic Units are within the Lahaina Aquifer System (Figure 1). This report focuses on the Honolua Aquifer System. The Honolua Aquifer System, on the northern flank of Puʻu Kukui, encompasses the watersheds of Honolua, Nāpili 2–3, Nāpili 4–5, and Honokahua in the Kāʻanapali Moku. The *ahupuaʻa* (traditional land divisions) of Mailepai, Kahana, Nāpili 2–3, Nāpili 4–5, Honolua, Kahana, and Honokahua are within the Honolua Aquifer System (DLNR CWRM 2019b).

In coming to its decision, the CWRM noted several concerns regarding the surface water and groundwater resources in the Lahaina Aquifer Sector:

- These resources could be threatened by existing or proposed withdrawals or diversions of water.
- There is the potential for harm to groundwater quantity and quality by saltwater intrusion.
- There are serious historic and ongoing disputes over current and planned uses of water.
- There is climate uncertainty and potential drought and decline in rainfall and recharge.
- There is surface and groundwater interaction and connection that should be managed in an integrated manner.

The MDWS currently operates two surface water treatment plants and eight well pumps within the Lahaina Aquifer Sector. These existing sources withdraw groundwater from the Honolua Aquifer System and the Launiupoko Aquifer System, and surface water from Honokōhau and Kanahā Streams.

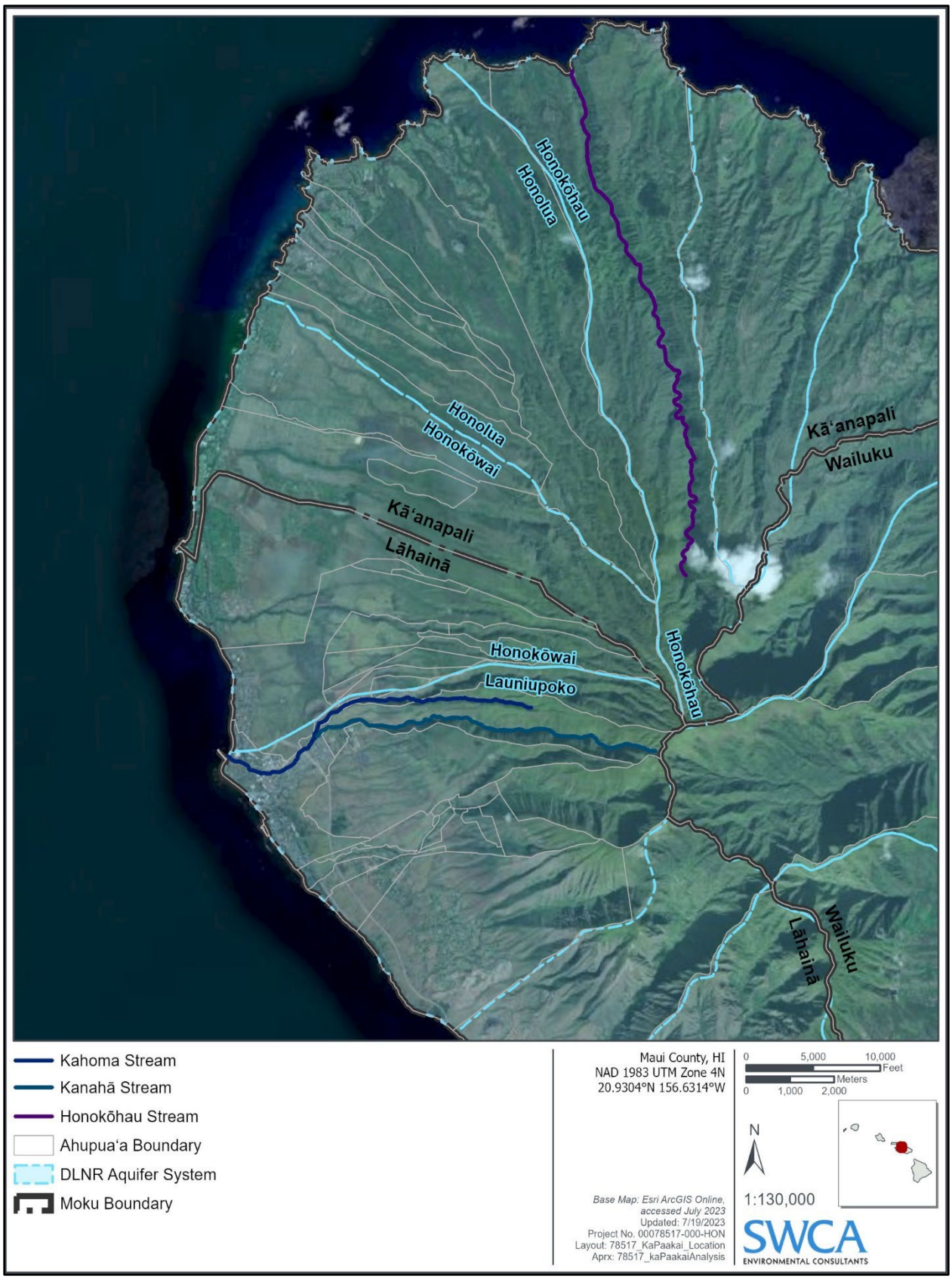

Figure 1. Map of aquifer systems within the Lahaina Aquifer Sector.

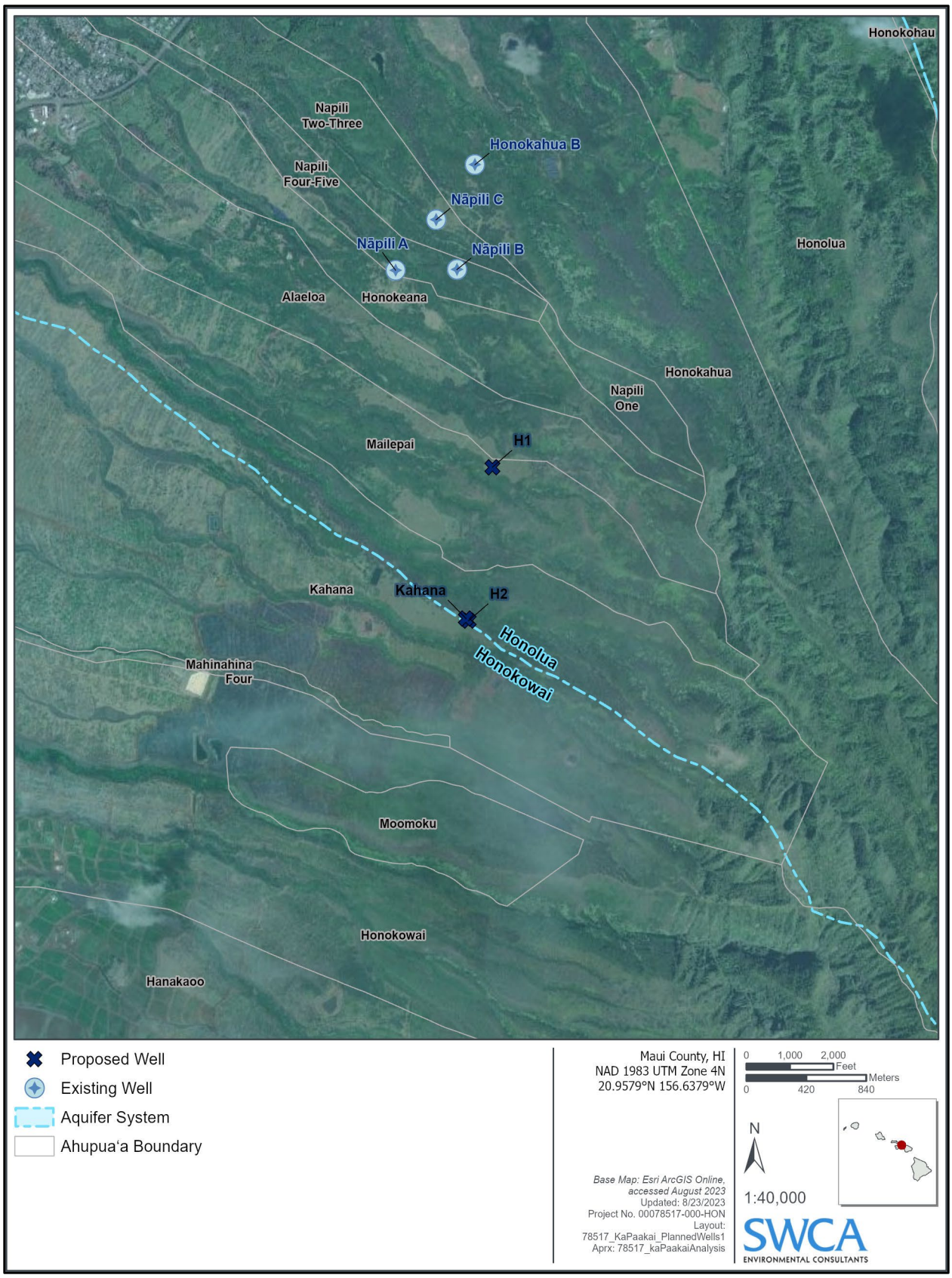

Figure 2. Location of the planned H1, H2, and Kahana #5738-002 wells.

1.2 Honolua Aquifer System

The Honolua Aquifer System encompasses the ahupuaʻa of Honolua, Nāpili 2–3, Nāpili 4–5, Honokahua, and Kahana, as well as several other ahupuaʻa. County water sources within the Honolua Aquifer System include the existing wells of Nāpili A, B, and C, and Honokahua B (Figure 2). These sources provide water to the residential and resort communities in the Kāʻanapali area. The Honolua and Honokahua streams and Pāpua Gulch are the surfacewater features within the Honolua Hydrologic Unit. The existing MDWS wells of Nāpili A, B, and C, and Honokahua B are located in the ahupuaʻa of Nāpili 2–3, Nāpili 4–5, and Honokahua. The proposed location for the planned H1 well is within Mailepai Ahupuaʻa, and the proposed location for the planned H2 well is within Kahana Ahupuaʻa. The planned Kahana well is also located in Kahana Ahupuaʻa and was drilled in 2017 but it is not yet in operation (Figure 2). The H1 and H2 wells are currently in the conceptual design phase.

1.3 Water Issues

The Maui Water Use and Development Plan (2022) acknowledges that West Maui's water resources are constrained by climate change issues such as rising temperatures, increasingly erratic and decreasing rainfall, and other changes in weather patterns. In addition, anthropogenic factors such as increasing population, urban growth, complicated legal processes, lack of capital to improve aging infrastructure, and tensions between the needs of various water users must all be considered by the County when determining water allocations. Existing plantation irrigation systems from Maui Land and Pineapple Company, Inc., and Pioneer Mill Irrigation Systems in West Maui, for example, continue to deteriorate since the state transitioned away from pineapple and sugar cane, even though *kalo* (taro; *Colocasia esculenta*) farmers continue to rely on these systems (MDWS 2019:73). Many of these environmental and anthropogenic factors impact the health and vitality of traditional and customary practices taking place within the Lahaina Aquifer Sector.

1.4 Ka Paʻakai Framework

As water use within the Lahaina Aquifer Sector has the potential to affect traditional and customary Native Hawaiian rights and practices, a required part of the CWRM water use permit application for each water use is the preparation of a Ka Paʻakai Analysis. These analyses will follow the guidelines established by the 2000 Hawaiʻi Supreme Court decision in Ka Paʻakai O Ka ʻAina *v.* Land Use Commission. The Ka Paʻakai Analysis and consultation process is designed to identify Native Hawaiian cultural, historical, and natural resources and propose feasible actions to protect against potential impacts to Native Hawaiian customary and traditional rights.

The Hawaiʻi State Constitution was amended in 1978 to specifically recognize traditional and customary Hawaiian practices. Article XII Section 7 of the Constitution states, "The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupuaʻa tenants who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights."

Cultural practices are broadly defined as traditions, beliefs, practices, life ways, and the societal history of a community and its traditions, arts, crafts, music, medicine, religion, and related institutions. Hawaiʻi State agencies have the responsibility to assess the potential impacts of proposed actions on environmental resources in the public trust in order to preserve and protect customary and traditional Native Hawaiian rights to the extent feasible.

The Hawai‘i Supreme Court in Ka Pa‘akai O Ka ‘Aina *v.* Land Use Commission (2000) reaffirmed that “the State and its agencies are obligated to protect the reasonable exercise of customarily and traditionally exercised rights of Hawaiians to the extent feasible.” The Court provided an analytical framework “to effectuate the State’s obligation to protect Native Hawaiian customary and traditional practices while reasonably accommodating competing private [property] interests.” Under this framework, state and county agencies must independently assess the following when considering proposed actions, such as reviewing land use applications or, as in this case, water use permit applications:

- The identity and scope of “valued cultural and historical or natural resources” in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area;
- The extent to which those resources—including traditional and customary Native Hawaiian rights—will be affected or impaired by the proposed action; and
- The feasible action, if any, to be taken by the LUC [Land Use Commission, or any state agency] to reasonably protect native Hawaiian rights if they are found to exist (Ka Pa‘akai O Ka ‘Aina v. Land Use Commission 94 Haw 31, Haw. 2000:25–26).

The Ka Pa‘akai Analysis and consultation process is intended to address each of these three elements.

1.4.1 Ka Pa‘akai Analysis

As part of the MDWS’s water use permit application for its existing and proposed water uses within the Lahaina Aquifer Management Area, a Ka Pa‘akai Analysis is required for each application. This analysis is designed to identify the cultural, historical, natural resources, and traditional and customary Native Hawaiian practices that may be affected by the permit action and to develop mitigation measures to protect these resources and rights.

The Ka Pa‘akai Analysis for the planned Maui County wells located within the Honolua Aquifer System follows the guidelines established by the 2000 Hawai‘i Supreme Court decision and involves:

- The identification of cultural, historical, and natural resources of value to Native Hawaiians located within the water use permit area, and the extent to which traditional and customary Native Hawaiian rights are exercised in the area;
- The determination of the extent to which those resources, including traditional and customary Native Hawaiian rights, will be affected or impaired by actions associated with the existing water use; and
- If impacts are found to exist, the identification of actions that could be taken, as needed, to reasonably protect traditional and customary Hawaiian rights and practices within the permit areas.

1.4.1.1 NATURAL RESOURCES AS CULTURAL RESOURCES WITHIN THE KA PA‘AKAI FRAMEWORK

The Ka Pa‘akai framework takes seriously the need to identify “valued cultural and historical or natural resources.” The State and its agencies’ obligation to protect natural resources for the exercise of traditional and customary practices was affirmed by the case Ka Pa‘akai O Ka ‘Aina *v.* Land Use Commission. This case specifically called out the rights of Native Hawaiians to access areas for “hiking, fishing, food gathering, camping, and other recreation” (Ka Pa‘akai O Ka ‘Aina *v.* Land Use Commission 94 Haw. 31, Haw. 2000:6). These areas were deemed essential for the exercise of traditional and customary practices related to subsistence and religious purposes, such as fishing, hunting for marine

snails and other marine wildlife, gathering *limu* (marine and freshwater algae), and salt collection (Ka Pa‘akai O Ka ‘Aina *v.* Land Use Commission 94 Haw. 31, Haw. 2000:6, 14).

According to Dr. Davianna McGregor, Professor Emeritus in the Department of Ethnic Studies at the University of Hawai‘i at Mānoa, the presence of natural resources should be taken as an indicator of ongoing cultural practices. Dr. McGregor further contends that natural resources, especially those used for subsistence practices, should be considered cultural resources as well because they are deeply intertwined with the traditional knowledge and cultural practices of an area and shape the identity and way of life for the local community. Some of the natural resources that are also considered cultural resources from a Kānaka Maoli worldview include native plants and their habitat, native fauna and their habitat, native marine species, native aquatic species, spawning areas, fish spotting areas, hunting areas, reefs, fishing areas, gathering areas, fishponds, and many others (McGregor 2024).

2 CULTURAL AND HISTORIC BACKGROUND

This section presents the past and present historical and cultural significance of the permit area with a focus on water sources. This cultural and historic background also provides context to some of the historic and ongoing disputes over water use in the Lahaina Aquifer Sector Area. These disputes were among the concerns raised by the CWRM when the area was designated as a Surface and Ground Water Management Area. The following research is intended to help identify cultural, historical, and natural resources of value to Native Hawaiians located within the water use permit area and to assess potential impacts to traditional and customary Hawaiian rights and practices pertaining to water in the permit area to the extent appropriate for this Ka Pa‘akai Analysis.

2.1 A Brief Historic Context for Traditional Hawaiian Cultural Knowledge

In any sensitive discussion of Native Hawaiian culture, one must understand the role of colonization in eroding traditional cultural knowledge systems. Native Hawaiian culture—past and present—exists in close partnership with its natural environment. Changes in the traditional land tenure system and the adoption of Western concepts of land ownership in the nineteenth century had significant direct and indirect impacts on traditional and customary Hawaiian rights and practices tied to *‘āina* (land). The privatization of land resulted in the loss and destruction of many significant cultural resources and denied Native Hawaiian cultural practitioners access to lands previously used for traditional cultural purposes.

The loss of traditional Hawaiian cultural knowledge during the nineteenth and early twentieth centuries was further compounded by the devastating decline in the native population resulting from the introduction of foreign diseases to which the Hawaiian people had no developed immunity. Changes in traditional life ways resulting from the migration of younger people from the country districts to growing economic centers such as the port of Honolulu, as well as the shift from subsistence agriculture to the commercial cultivation of crops such as pineapple and sugar, contributed to a loss of cultural memory. With the passing of the last custodians of specialized cultural knowledge, that knowledge was lost forever.

Informants interviewed for this study have identified the effects of pineapple and sugar cane plantations, as well as the growth of tourism and luxury housing developments, as primary factors that have profoundly changed the environment of West Maui. The cumulative impacts of these industries on the environment have posed significant challenges for Native Hawaiians, hindering their ability to maintain certain traditional and customary practices reliant upon the health of the ‘āina.

Not until 1978 was the Hawai‘i constitution amended to protect and preserve the traditional customary rights of Native Hawaiians, and not until 1995 did the Hawai‘i Supreme Court confirm Native Hawaiian rights to access undeveloped and under-developed private lands (State of Hawaii Environmental Council 1997:1). These actions came much too late to prevent irretrievable loss of traditional cultural knowledge. With this in mind, it is important to note that an absence of evidence is not evidence of absence. The authors of this Ka Pa‘akai Analysis recognize that the loss of Hawaiian traditional cultural knowledge likely applies to the current study area. It is probable that there are place names whose meaning has been lost or which themselves have been forgotten, and traditions no longer passed on. We also recognize that, while we have made a good faith effort to identify traditional and customary Hawaiian rights and practices associated with the permit area, it is possible that there may be place names missed, traditional history misinterpreted, or *kūpuna* (elder) voices not heard.

As this Ka Pa‘akai Analysis shows, however, despite the enduring legacies of colonialism, there are many individuals who possess cultural knowledge, and efforts to revitalize traditional and customary Hawaiian rights and practices have been growing for some time now. For these cultural revitalization efforts to succeed, it is crucial to support the health of the environments that sustain Native Hawaiian cultural traditions and customs. At the core of ensuring the possibility of these cultural revitalization efforts lies the availability of clean water, which forms the foundation of healthy environments.

2.1.1 The Significance of Water in Hawaiian Culture

In *Native Planters in Old Hawaii*, E. S. Craighill Handy, Elizabeth Green Handy, and Mary Kawena Pukui explain that the significance of water in Hawaiian culture is reflected in the Hawaiian words for wealth and law.

> Water, which gave life to food plants as well as to all vegetation, symbolized bounty for the Hawaiian gardener for it irrigated his staff of life—taro. Therefore, the word for water reduplicated meant wealth in general, for a land or a people that had abundant water was wealthy.
>
> The word waiwai means wealth, prosperity, ownership, possession. Literally it is “water-water.” A Hawaiian farmer who had all the water he needed for growing taro was indeed a prosperous man . . . .
>
> The word kānāwai, or law, also tied back to water. Ka-na-wai is literally “belonging-to-the-waters.” With farms along the water system upon which all depended, a farmer took as much as he required and then closed the inlet so that the next farmer could get his share of water—and so it went until all had the water they needed. This became a fixed thing, the taking of one’s share and looking after his neighbor’s rights as well, without greed or selfishness.
>
> So a person’s right to enjoy his privileges, and conceding the same right to his fellow man, gave the Hawaiians their word for law, kānāwai, or the equal sharing of water. (Handy et al. 1972:57–58)

The authors further explained how alien the Western conception of water as a commodity seemed to Native Hawaiians:

> Inalienable title to water rights in relation to land use is a conception that had no place in the Hawaiian way of thinking . . . . Water, whether for irrigation, for drinking, or other domestic purposes, was something that “belonged” to Kane-i-ka-wai-ola (Procreator-in-the-water-of-life), and came through the meteorological agency of Lono-makua the Rain-provider . . . . The paramount chief, born on the soil and hence born of the *maka‘ainana* of a *moku* (island or district), was a medium in whom was vested divine power and authority . . . . But this investment . . . was instrumental in providing only a channeling of power and authority, not a vested right . . . . But this was not equivalent to our European concept of “divine right.” The *ali‘i nui*, in old Hawaiian thinking and practice, did not exercise personal dominion, but channeled dominion. In other words, he was a trustee. The instances in which an *ali‘i nui* was rejected and even killed because of abuse of his role are sufficient proof that it was not personal authority by trusteeship that established right (*pono*). (Handy et al. 1972:65, cited in Scheuer and Isaki 2021:78–79)

Emma Nakuina, writing in the late 1800s, described how *‘auwai* (irrigation ditches) were traditionally managed so that there was always sufficient freshwater flow to *all* individuals living downstream.

> No auwai was permitted to take more water than continued to flow in the stream below the dam. It was generally less, for there were those who were living makai or below the same stream, and drawing water from it, whose rights had to be regarded. Any dams made regardless of this well-recognized rule were leveled to bedrock by the water rights holder below, and at any rebuilding,

> delegates from each dam below were required to be present to see that a due propertion of water was left in the stream. (Nakuina 1893, cited in Scheuer and Isaki 2021:82)

2.1.2 Shoreline Traditional Hawaiian Practices in West Maui

Native Hawaiians were keen observers of native ecosystems. The ahupua‘a system was premised upon the interconnetions between *mauka* (inland) and *makai* (coastal) ecosystems, and between *wai* (freshwater) and *kai* (ocean water or saltwater). Native Hawaiians understood that the health of important marine resources required freshwater discharge from mauka areas (Winter et al. 2018). Many prized species of fish rely upon *limu* (algae) for their food; many species of nearshore limu thrive best in areas where both freshwater and ocean mix together (Abbott 1992). These ancient realizations about the parallels between healthy freshwater and ocean ecosystems were also clearly articulated by kūpuna during ethnographic interviews, community testimony, and existing oral history interviews cited in this report.

West Maui was known for its abundant marine resources. Inhabitants of West Maui relied heavily on fishing in the pre-Contact and early post-Contact periods. According to E. S. Craighill Handy:

> On the south side of western Maui the flat coastal plain all the way from Kihei and Maalaea to Honokahua, in old Hawaiian times, must have supported many fishing settlements and isolated fisherman’s houses, where sweet potatoes were grown in the sandy soil or red *lepo* near the shore. For fishing, this coast is the most favorable on Maui, and, although a considerable amount of taro was grown, I think it is reasonable to suppose that the large fishing population which presumably inhabited this leeward coast ate more sweet potatoes than taro with their fish. (Handy 1940:159–160)

A. D. Kahaulelio discussed fishing lore in the area around the turn of the last century, including *‘ō‘io* (ladyfish/bonefish; *Albula vulpes*) fishing.

> The other division is the division called Mamali oio and is done just beyond the reef and places close to shore, from the steamer landing of Maalaea to the cape of Kunounou at Honokapohau, district of Lahaina. These are the places in which fishing is done by those of Olowalu, Lahaina, Kaanapali, Honolua, and Honokohau. (Kahaulelio 1902e, cited in Sterling 1998:17)

Kahaulelio noted that the ocean around Kā‘anapali had *‘ōpelu* (Mackerel scad; *Decapterus* sp.), *omalemale* (young *uhu*, or parrotfishes, including *Scarus perspicillatus*), *pānuhunuhu* (stareye parrot fish; *Calotomus sandvicensis*), *māi‘i‘i* (surgeonfish; *Acanthurus nigrofuscus*), and other fish species (Kahaulelio 1902d).

Kahaulelio also mentioned that the area makai of Honolua Ranch was known for *akule* (big-eyed or goggle-eyed scad fish; *Trachurops crumenophthalmus*):

> Akule Fishing.— It is for this kind of fishing that the saying came to be used, “The akule fish seek the deep.” Sometimes though, they come close inshore. This fish is a globetrotter and stop whenever they find a place that they like, they stay there. When you see them from the shore, you will see the redness of the water. Only when caught that those who were not skilled in fishing lore know that they are present. They remain several days or weeks at a place. The places in which they are caught are Unahi and Olowalu in Lahaina, Pahee at Launiupoko, Keawaiki at Lahaina, Kapua at Kaanapali and at Honolua Ranch. (Kahaulelio 1902c, cited in Maly and Maly 2003a:141)

2.2 Kaʻānapali Moku

2.2.1 I Ka Wa Kahiko: Pre-Contact Kāʻanapali Moku

Kāʻanapali Moku was a district known for its marine resources and valleys suitable for cultivating important food crops, especially kalo and *ʻuala* (sweet potato; *Ipomoea batatas*). The large plateau overlooking the Honolua Bay was known as Kulaokaʻeʻa, meaning "dusty plain." Honolua Bay is one of six bays in Kāʻanapali Moku, known collectively as "Hono-a-Piʻilani," meaning "the bays of Piʻilani." Piʻilani was a renowned sixteenth-century Maui chief (Kamakau 1961:22). Honolua itself means "two bays," which refers to its bifurcated shape. These bays were all important to Native Hawaiians for fishing and gathering of marine resources (Planning Consultants Hawaiʻi, LLC 2018).

Important cultural sites in Honolua include *heiau* (temples) such as Honuaʻula Heiau in Honolua and Maiu Heiau in Honokōhau Valley (Ashdwon 1978; Walker 1931). Kāʻanapali District was also known for an *ala loa* (long trail) constructed in the 1500s during the reigns of Piʻilani and Kiha-a-Piʻilani (Walker 1931). The strategic importance of Kāʻanapali Moku led to battles at Nāpili and Honokahua (Kamakau 1961:74). The ahupuaʻa of Honolua and Honokahua were later granted to King Kamehameha II by his father, King Kamehameha I (Ashdown 1978, cited in Planning Consultants Hawaiʻi, LLC 2018). D.T. Fleming offers a description of Kāʻanapali that indicates the abundance and prosperity of the valleys under kalo cultivation.

> In all three valleys which you mention—Honokowai, Honokahua and Honolua, as well as Kahana, there was considerable taro raised in olden times; as a matter of fact, a great deal was raised in Honokowai, where there must have been 30 or 40 acres under cultivation at one time. (Handy 1940:106)

Handy, Handy, and Pukui (1972:492) also mentioned extensive loʻi kalo in Honokōwai, Kahana, Honokahua, and Honolua:

> The first four [Honokawai, Kahana, Honokahua, Honolua] all had extensive loʻi lands in their valley bottoms, where terraces rose tier on tier in symmetrical stone-faced loʻi. On this part of the coast there is no sloping *kula* [plain or open country] land seaward of the valleys as there is back of Lahaina and southeastward.

Handy (1940:160) offers additional details about ʻuala cultivation in these areas:

> I am told that in ancient times there were numerous settlements on western Maui, between Honokohau and Kahakuloa, and also several between Kahakuloa and Waihee. Settlements in these localities imply planting of sweet potatoes on the lower *kula* . . . . From [Olowalu] along the leeward coast, through Kaanapali, the *kula* lands now used for sugar cane and pineapple would have been ideal for sweet potato culture. Some accounts indicate, however, that potato planting was practiced only as an adjunct to the taro culture in and below the great valleys.

2.2.2 Kahana Ahupuaʻa

The origin of the place name Kahana is undetermined. There is no specific tradition that has been handed down about the origins of this name. Literal translations can provide some insight into its potential meaning when there is no documented interpretive tradition associated with the name. One literal definition for Kahana is "cutting" (Pata 2022:132; Pukui et al. 1974:63).

2.2.3 Mailepai Ahupuaʻa

The origin of the place name Mailepai is undetermined. There is no specific tradition that has been handed down about the origins of this name. Literal translations can provide some insight into its potential meaning when there is no documented interpretive tradition associated with the name. Kumu hula Cody Kapueolaʻākeanui Pata provides the following potential meanings for the name Mailepai: "perhaps: maile pai—*maile* vines used to make the *pai* shrimp trap, or, raised *maile* stick (used in birdcatching); or, maile paʻi—stripped *maile* vine/plant (Pata 2022:180)."

2.2.4 Honolua

2.2.4.1 ʻŌLELO NOEAU PERTAINING TO HONOLUA

The area of Honolua was known for its importance for fishing and nearshore gathering. The importance of these resources for subsistence is captured by the following *ʻōlelo noʻeau* (descriptive proverb) recorded by Mary Kawena Pukui:

> *Honolua kōhi lae*.
>
> Honolua of the weighted brow.
>
> Said of the fisherman of Honolua, Maui, who never raised their heads lest they be expected to share their catch of fish (Pukui 1983:243).

2.2.4.2 LOʻI KALO

E.S.C. Handy's (1892–1980) ethnographic observations provide invaluable insight into Native Hawaiian agricultural techniques in Honokohau in the early 1900s. He described Honokōhau as having the most loʻi kalo on Maui except for Kahakuloa. His observations also indicate that many people were transitioning away from wetland kalo cultivation due to issues with root rot as early as the 1930s.

> This valley—watered by a large rivulet the flow of which never ceases, even today when much of its water is piped off in the upper valley—was, and still is, an area of intensive cultivation of wet taro in flooded terraces. In 1931 a larger proportion of the patches were under taro cultivation in Honokohau than anywhere else on Maui with the exception of Kahakuloa. In 1934 I observed that one or two considerable areas had been abandoned and that a number of patches had been planted to rice instead of taro, because of root rot affecting the taro. Only one old Hawaiian *kamaaina*, David Kapaku, still cultivates his own wet taro. The rest of the planting is done commercially by several small proprietors, Hawaiian and Chinese, and by laborers employed by D. T. Fleming, to whose enterprise largely is due the continued utilization of so many old terraces. (Handy 1940:106)

2.2.4.3 BURIALS AT WAIULI

Kamakau (1961) described a deep pit known as Waiuli in Honokōhau Ahupuaʻa, where the bodies of the *makaʻāinana* (farmers/commoners) from Lahaina to Kahakuloa were interred. He describes Waiuli as directly mauka of Honokōhau, Honolua, and Honokahua. Waiuli is described as "possibly miles deep, with freshwater at the bottom." At the time of interment, a *kahuna* (priest/specialist) would make an appeal for the deceased individual to be welcomed by their ancestors and *ʻaumākua* (deified ancestors/familial protective deities) (Kamakau 1961:39–40). This unique burial practice may indicate the possibility of fewer burials around historic house plots than might be encountered in other parts of the islands.

2.2.4.4 ALTARS TO PEHU AND MOANALIHA, MAN-EATING SHARK SPIRITS OF MAUI AND HAWAIʻI

Kamakau (1961) also describes altars to the "itchy-mouthed *ʻuhinipili*" (deified spirits) of two man-eating sharks, Pehu and Moanaliha, at Honokōhau and Lahaina. These sharks were so fearsome that they would even devour humans in the presence of Kamehameha. The presence of these altars is indicative of the prevalence of sharks in the areas and their importance in traditional Hawaiian culture (Kamakau 1961:76–79).

2.2.5 Fishponds

Kim Hee Wong and Tanya Lee-Greig noted the presence of several fishponds in the Kāʻanapali area.

> At Kahana, the records of the Mahele contains a reference to the fishpond of Apolo, while Inez Ashdown (in Orr 2005:46) records the presence of a fishpond at the mouth of Honokowai Valley near the boundary of Mahinahina. Integral to maintaining the health and productivity of the fishpond was the supply of nutrients that would be brought in with the stream flow. (Wong and Lee-Greig 2021:68)

2.2.6 Kāʻanapali Ranching and Plantation History

In 1836, the missionary, Dr. Dwight Baldwin arrived and settled on Maui. After 17 years of missionary service Baldwin was awarded a land grant in Māhinahina and Kahana Ahupuaʻa for farming and grazing. With this land, his son, Henry Perrine Baldwin, established Honolua Ranch in 1890. The ranch's size reached 24,000 acres in 1902, and it expanded further by an additional 9,000 acres during the 1930s. The ranch encompassed the ahupuaʻa of Honolua and extended to Honokōhau Bay. The Honolua Ranch incorporated pineapple cultivation beginning in 1912. In 1920 Honolua Ranch was renamed to Baldwin Packers, Ltd. (Clark 1989, cited in Planning Consultants Hawaiʻi, LLC 2018; Fleming Arboretum n.d.). By 1963, Baldwin Packers merged with Maui Pineapple Company, which was a subsidiary of Maui Land and Pineapple Company, Inc. (Munekiyo and Hiraga, Inc., 2008:19). The plantation settlements of Honokahua and Nāpili emerged as the pineapple industry grew (Dagher and Dega 2020).

In the 1840s, sugar cane production came to the Kāʻanapali area, and by 1852, the first contract laborers from China arrived to work on the sugar cane plantations. Pioneer Mill Company was established in 1865 and continued to expand and buy up adjacent properties. Eventually Pioneer Mill's fields spread from Launiupoko all the way to Kāʻanapali (Munekiyo and Hiraga, Inc., 2008:19).

Pioneer Mill closed in 1999, in part because of the rise of tourism in West Maui. Kāʻanapali relies heavily on the tourism industry today, with several major resorts and hotels on the coast. Now that the plantations are no longer the major economic driver, memories of life during the plantation days evoke strong nostalgia amongst some West Maui residents. The plantation culture is held in the collective memory of older generations and preserved in plantation museums, memorials, reunions, and celebrations. Still others recall companies like Pioneer Mill from the lens of settler-colonial Native Hawaiian erasure and exploitative labor practices (Isaki 2016).

2.3 The Contemporary Environment of the Honolua Hydrologic Unit

The Honolua Hydrologic Unit is situated on the northern flank of the Puʻu Kukui Mountain. The Honolua Hydrologic Unit includes the Honolua Stream and Pāpua Gulch (DLNR CWRM 2019b).

2.3.1 Honolua Stream

Honolua Stream faces a number of threats to its native riparian species. One of these threats is sedimentation. The U.S. Army Corps of Engineers (USACE) estimates that 40 percent of streams in West Maui score high in sedimentation. This sedimentation is partly due invasive animal species, like axis deer and pigs, which facilitate erosion within the former agricultural fields (USACE 2021:45, Group 70 2016: ES-2; see also DLNR CWRM 2019b:50). Dirt bike riding in the area also disturb soils, resulting in sedimentation in streams (Group 70 2016: ES-2). These ecosystems impacts were exacerbated by the conversion of loʻi kalo in the middle and lower watersheds to different land uses during the plantation era (USACE 2021:45).

The Honolua aquifer system is also at risk of wildfires. The stream ceases to flow during periods of low rainfall, causing increasingly drier conditions in the area. Although the area is not considered vulnerable to drought, there is a risk of wildfire (DLNR CWRM 2019b). Unfortunately, the risk of fire in Maui Komohana was proven to be very real in August of 2023, as discussed above. Before the plantation era, the Honolua Stream supported mauka to makai flow between 80 to 95 percent of the time. Between 1903–2004, Maui Land and Pineapple Company, Inc., operated an intake structure in the Honolua Stream that diverted approximately 3 million gallons of water a day into the Honokōhau Ditch. Maui Land and Pineapple closed this intake in 2004 (Scheuer and Isaki 2021:115) The proliferation of invasive grasses and weeds in former agricultural areas also pose a wildfire risk (Group 70 2016: ES-2).

The cumultive impacts of these threats, coupled with the effects of diverting 300 million gallons a day for close to a century, resulted in dramatic declines in native riparian species within Honolua Stream. The 1990 Hawaiʻi Stream Assessment (HSA) found no ʻoʻopu or ʻōpae within Honolua Stream, despite their abundance in pre-Contact times (DLNR CWRM 2019b:50). According to community testimony for the Honolua and Honokōhau Aquifer Systems IFSAR, the Honolua Stream native stream species such as ʻoʻopu and ʻōpae have returned to Honolua Stream, although they continue to be endangered by the threats discussed above (DLNR CWRM 2019a). Hawaiʻi's native stream ʻoʻopu are amphidromous, meaning that they live in both streams and ocean environments at different life stages. These species hatch in freshwater, then develop at sea during their larval period before returning to freshwater to spawn. Because of their unique life stages, major threats to their populations include loss of mauka to makai migratory corridors, invasive species, and habitat degradation (Walter et al. 2012).

2.3.2 Terrestrial Resources in the Honolua Hydrologic Unit

The lower sections of the Honolua Aquifer System are composed of a mixture of alien forest, grassland, and shrubland, whereas the upper slopes contain some native dry cliff vegetation, shrubland, and *ʻōhiʻa lehua* forests (*Meterosideros* sp.). The lower areas closer to urban and industrial developments are dominated by alien grasses and crop species (DLNR CWRM 2019b).

The areas mauka of the planned Maui County wells are home to a number of important native plants species. Today, the mauka section of the Honolua stream is fenced and managed by the Puʻu Kukui Watershed Preserve (DLNR CWRM 2019b:50).Tetra Tech and LeGrande Biological Surveys Inc. identified 18 native plant species in the Kahana area: *ʻakoko* (*Euphorbia celastroides* var. *lorifoli*), *ʻākia* (*Wikstroemia oahuensis* var. *oahuensis*), *ʻēkaha* (*Asplenium nidus*), *alaheʻe* (*Psydrax odorata*), *ʻaʻaliʻi*

(*Dodonaea viscosa*), *huehue* (*Cocculus orbiculatus*), *ʻiliahialoʻe* (*Santalum ellipticum*), *kīlau* (*Pteridium aquilinum* ssp. *Decompositum*), *kāʻapeʻape* (*Cyrtomium caryotideum*), *kolokolo* (*Adenophorus tenellus*), ʻōhiʻa lehua (in this case, *Meterosideros polymorpha* var. *glaberrima*), *koali ʻawahia* and *koali ʻawa* (*Ipomoea indica*), *moa* (*Psilotum nudum*), *palaʻā* (*Sphenomeris chinensis*), *palapalai* (*Microlepia strigosa* var. *strigose*), *pūkiawe* (*Leptecophylla tameiameiae*), *ʻuhaloa* (*Waltheria indica*), and *ʻūlei* (*Osteomeles anthyllidifolia*) (Tetra Tech 2021, cited in Wong and Lee-Greig 2021:67).

Maui Land and Pineapple Company, Inc., conducts revegetation efforts in Honolua Wao Kele for the purpose of watershed protection and Native Hawaiian cultural education. The company designated a 9,881-acre section of native forest in Honolua Wao Kele as the Puʻu Kukui Watershed Preserve in 1994. Prior to being designated as a watershed management area, Maui Land and Pineapple Company used this area for pineapple cultivation. Honolua Gulch is south of the Puʻu Kukui Watershed Preserve. Within this preserve are 40 rare plant species and six endemic land snails (PBR Hawaiʻi and Associates 2007:5–6).

2.3.3 Ocean Resources Makai of the Honolua Hydrologic Unit

The areas makai of the planned Maui County wells are home to important reefs and fisheries. The waters near the Honolua-Mokulēʻia Marine Life Conservation District (MLCD) are important fishing and gathering locations for Native Hawaiians in the area (DLNR 2020). The 2021 Draft West Maui Watershed Management Plan states that the Honolua area is endangered by a number of threats, including the expanding tourism industry, increasing sedimentation, invasive species, vulnerability to wildfire, and other ongoing environmental disturbances from the pineapple industry (USACE 2021:43). The report also notes that the nearshore environments are largely protected through the Humpback Whale National Marine Sanctuary, as well as two state-designated reef conservation areas, the Honolua-Mokulēʻia MLCD in the Honolua Watershed, and the Kahekili Herbivore Fisheries Management Area in the Honokōwai Watershed (USACE 2021:47).

The abundant marine life of Honolua Bay requires sufficient freshwater discharge. The Honolua-Mokulēʻia MLCD normally receives continuous freshwater discharge from Honolua Stream and from Pāpua Gulch. Although fishing is prohibited from within the Honolua-Mokulēʻia MLCD, the bays in the area protect culturally important species that are gathered or fished outside of the MLCD, such as at Līpoa Point (DLNR Division of Aquatic Resources 2020). Līpoa Point, for example, receives its name from the *limu līpoa* (*Dictyopteris plagiogramma* and *D. australis*) that was traditionally gathered from the area (Planning Consultants Hawaiʻi, LLC 2018).

Nearshore and marine environments makai of the wells are also home to many culturally important species that are still fished and gathered by *kuaʻāina* (people of the land/from local area). Kim Hee Wong and Tanya Lee-Greig interviewed kūpuna for the Kahana Solar Project, in the Kahana and Māhinahina 1-2 Ahupuaʻa. The kūpuna interviewed spoke about past and ongoing cultural practices conducted in the area off of Kahana and Māhinahina. These cultural practices included several kinds of fishing, limu harvesting, and *honu* (turtle) harvesting. They also identified testimony from the Māhele ʻĀina and Land Commission Awards that identified the coastal regions of Kahana and Mahinahina as *ʻāina paʻakai* (salt lands) used for gathering salt. They also noted the presence of other culturally important marine fauna such as *heʻe* (octopus; *Octopus cyanea, O. ornatus*), *moi* (*Polydactylus sexfilis*), *nehu* (anchovies; *Encrasicholina purpurea*), ʻōpae (*Halocaridina rubra*), and oʻopu (*Awaous guamensis*) (Wong and Lee-Greig 2021:68).

2.3.4 MWDS 1979 Environmental Impact Statement for the Nāpili and Honokōhau Wells

The MDWS's 1979 Environmental Impact Statement for the Nāpili and Honokōhau wells concluded that the construction impacts from the Nāpili A, B, and C and Honokōhau B wells would be negligible, "because the work is located in or adjacent to pineapple fields, away from residential areas and endemic biota (MDWS 1979:12)." They further argued that even though the project would withdraw double the amount of water from the basal water lens in Alaeloa, the lens was a renewable resource and therefore the effects would not be significant. At that time, invasive plants species such as guava, haole koa, Christmas berry, and eucalyptus dominated the areas adjacent to the pineapple fields. Other species found included "ricebirds, cardinals, white-eyes, linnets, barred doves, lace-necked doves, and the native birds the migratory plover and turnstone" (MDWS 1979:4). The report did not discuss any significant, ongoing cultural practices within the project area.

3 COMMUNITY CONSULTATION

3.1 Community Consultation Methodology

SWCA identified and consulted with individuals familiar with past and present cultural activities conducted in the permit area, particularly those related to water. To initiate this process, SWCA compiled a list of cultural consultation contacts that included government agencies, Native Hawaiian Organizations (NHOs), community groups, and individuals identified as having a potential interest in water use activities in the Lahaina Aquifer Sector.

In compiling this list, SWCA included all NHOs listed on the U.S. Department of Interior's *Native Hawaiian Organization Notification List* whose geographical purview is Maui Island and whose stated mission relates to environment and/or culture. The list also included select NHOs with a statewide purview whose stated mission relates to environment and/or culture. SWCA prepared a request for consultation letter, a copy of which was sent out to each of the contacts on the cultural consultation contact list. The request for consultation letter delineated the area of the Lahaina Aquifer Sector, described the Ka Pa‘akai Analysis component of the water use permit application, and requested assistance in:

- Identifying *kama‘āina* (long-term residents), kūpuna, and other individuals who might be willing to share their cultural knowledge of the permit area and their cultural resources;
- Information on present and past water use in the permit area;
- Information on place names and cultural traditions associated with the permit area;
- Information on cultural resources that may be impacted by water use activities by the MDWS;
- Knowledge of traditional gathering practices within the permit area, both past and ongoing;
- Information on any current cultural practices being carried out within the permit area; and
- Any other concerns the community might have related to cultural practices within or in the vicinity of the permit area.

The text of the request for consultation letter is provided in Appendix A of this report.

To supplement the current community consultation efforts undertaken as part of this Ka Pa‘akai Analysis, SWCA reviewed previous, publicly available studies involving West Maui community input on water issues, extracting pertinent data from community members and cultural practitioners. The results of individual interviews, both previous and current, are presented under the names of the individuals interviewed.

To solicit additional feedback from the community, SWCA published notices in the October 2023 issues of *Ka Wai Ola* and *The Maui News*. SWCA also sat in on the September 19, 2023, and October 17, 2023, meetings of the CWRM, both of which facilitated hours of public testimony from the community about the impacts of the August 2023 fires on the Lahaina Aquifer Sector.

3.2 September 19 and October 24, 2023 Commission on Water Resource Management Public Meetings Oral and Written Testimony

On August 8, 2023, Lieutenant Governor Sylvia Luke signed the first emergency proclamation in response to the Lahaina wildfires, the "Proclamation Relating to Wildfires" (Office of the Governor 2023a). Later, on August 13, 2023, Governor Josh Green signed the Fifth Emergency Proclamation, which suspended Chapter 174C, HRS, the State Water Code, along with Chapter 6E, HRS, historic preservation (Office of the Governor 2023b). The suspension of the State Water Code, along with the reassignment of CWRM's Deputy Director Kaleo Manuel, aroused anger on the part of many people in Maui Komohana (West Maui) (Tummons 2023). Soon thereafter, the governor signed the "Seventh Proclamation Related to Wildfires," which reinstated the State Water Code and most historic preservation measures, effective October 8, 2023 (Office of the Governor 2023c). During this turbulent period, the community was left confused and uncertain about the fate of the Lahaina Water Management Area designation, with doubts about whether it would be retained. DLNR Director Dawn Chang clarified during the CRWM September and October meetings that the Governor reinstated the water code and the Water Management Area designation for the Lahaina Aquifer Sector would remain in place.

On September 19 and October 24, 2023 the CWRM held public meetings and provided an update on water resources in the Lahaina Aquifer Sector Area post-fires. The issues discussed during these two public meetings included wells in the fire-impacted area, Interim Instream Flow Standards, Water Use Permit applications, and water-resource alternatives. They also solicited public testimony on these non-action items.

These two meetings were the first CWRM meetings following the wildfires that devastated parts of Maui in early August. These meetings drew in hundreds of individuals, including several members of the West Maui community, eager to voice their opinions on the matters at hand through written and oral testimony. The testifiers were nearly unanimous on the following points:

1. The Water Commission should uphold the State Water Code to ensure public trust water resources are shared equally, especially for Native Hawaiian water rights.
2. The Water Commission should verify that West Maui Land Company is complying with instream flow standards and hold corporate interests accountable.
3. The Water Commission should re-center Maui kama'āina in the decisions about their future.

During these meetings, the community members argued in favor of expanded allocation of water to the MDWS for domestic use. Many community members indicated that they felt that domestic use for local people should take precedence over usage by private water purveyors.

3.2.1 Uphold the Water Code, Water Management Area Designation, and Instream Flow Standards

Immediately following the fire, the State Water Code was suspended, leaving the community in a state of confusion and worry over the status of the Water Management Area designation. They feared that the decades spent advocating for the designation would be in vain. Although the water code was reinstated and the designation of Maui Komohana as a Water Management Area remains intact, many community members felt that CWRM should go further. Many community members referenced the need for more monitoring and enforcement of instream flow standards to ensure mauka to makai flow. Others urged CWRM to increase the instream flow standards.

For example, Karen Kanekoa stated that the stream had been diverted to feed the pockets of capitalist entrepreneurs for 150 years. She said that CWRM took a huge step forward in June 2022, when CWRM unanimously designated Maui Komohana as a groundwater and surface water management unit. Her *'ohana* has been working for the last year in hopes that their water rights will be protected, putting in their own water use applications a day before the fire. Then, the governor suspended the water code, which she believes gave greedy developers a chance to steal water while leaving their streams dry.

Archie Kalepa stated that one of the most important things that needs to be done is to maintain the instream flow standards in perpetuity. He said that he personally witnessed the transformation of Kahoma Stream when the water returned and restored mauka to makai connectivity. He recalls watching the riparian species becoming more abundant after more water went into Kahoma Stream.

Tiare Lawrence said now that the lifeblood of Maui Komohana is left flowing again, the people will return to cultivate the taro. She said that kalo farmers have diligently gone through the water permit application process, and that it would be heartbreaking for this process to go to waste considering that they are still reeling from tragedy.

3.2.2 Prioritize Community Water Needs Over Private Purveyors

Community members agreed that the tourism industry and luxury housing developments consume most of the water in West Maui, leaving little for kalo farmers and other cultural practitioners. Several argued that water is held for public trust to support domestic use of water, and kalo cultivation. Some pointed to the fact that several small-scale kalo farmers had been denied their water use permits. They wanted to see the permits of all kalo farmers granted.

Kekai Keahi reiterated that private purveyors control about 75 percent of the water in West Maui, none of whose systems are connected to MDWS. He questioned why local people were subject to drought restrictions and could receive fines for washing their cars or watering their lawns, meanwhile at the resorts pools were full and the landscaping green. He asked, "Why is it that if water is a public trust, we have to pay one hundred dollar fine if we use too much water, while the resorts and wealthy gentleman estates have plentiful water."

Nameaaea Hoshino also stated that their people have been fighting big corporations for access to water for over a century. He particularly called out West Maui Land and Launiupoko Irrigation. He says that their water usage puts a strain on his family, who produce kalo. They had to move because there was not enough water to grow kalo. He said that privileging private water purveyors is disastrous for generational kalo farmers.

Haele Kiapono wanted to see water access for working class citizens to be prioritized. He asserted that only 23 percent of the water used in West Maui goes to the County. He wanted to see an immediate moratorium on new water use permits for luxury applicants. He also wanted to see more enforcement of Instream Flow Standards and ecological restoration for forests and streams.

Another kalo farmer testified that traditionally, according to the kānāwai, you must put all the water that you used back into the stream in the same condition. He argued that the private water purveyors were not doing so.

Sesame Shim pointed to the infinity pools and well-irrigated gentleman's farms using large amounts of water. She recalled that Lahaina used to be a lush, shaded area full of 'ulu and kalo.

3.2.3 Restore Mokuhinia and Mokuʻula, the Piko of Maui Komohana

Keʻeaumoku Kapu reiterated the need to restore Mokuʻula and Mokuhinia. K. Kapu stated: "Words cannot express how important this *wahi pana* [storied place] is....Maui's highest ranking *aliʻi* [chief] were laid to rest and still are there today. Like many sacred places, it was drained by Pioneer Mill...Today Mokuhinia and Mokuʻula are entombed in sediment."

Uʻilani Kapu also articulated that Mokuʻula is one of the most sacred places on the island. She said that Mokuʻula had been a hub for traditional cultural practices. It is also the site where Kihawahine, the daughter of Piʻilani, was made an ʻaumakua. She has served as a protective gaurdian of the people of Lahaina since that time, up through today. She said of Mokuʻula: "Mokuʻula is everything. It is our wai, it is our protector. We need to establish our *piko*. This is why everything is going crazy . . . . Our ʻāina is crying for help."

A number of other community members discussed Kihawahine, the *moʻo* (water deity) of Mokuhinia. For example, Kaleo Kauhane of Lahaina said that his grandmother told stories of their ʻaumakua, Kihawahine. She said that the moʻo would come over the people at night time in the form of a cloud to protect the people. As the sun came up the cloud dissapeared, and at night it rained. The land was fertile enough to support an ʻulu band at that time. He said that it is nuts that today Kauaʻula is dry.

Uʻilani Tevana also referred Kihawahine, who carried the people of Lahaina and inhabited its sacred places. She urged the CWRM to think more from the feminine principles of life-giving and healing, rather than following the masculine, colonized, acquisitive spirit which always seeks more. She wants to see the waters flowing again from Kauaʻula Stream into Mokuhinia, the piko of Maui Komohana.

Finally, Candace Fujikane, a professor at the University of Hawaiʻi at Mānoa, testified that restoring Mokuʻula is also an important step towards restoring the native ecosystem, which would also reduce the likelihood of human-induced wildfires in the area.

3.2.4 Explore Water Use Alternatives Such as R-1 for Agricultural Purposes

Mahesh Cleveland, an attorney with Earth Justice, testified regarding the Lahaina Wastewater Reclamation Facility. According to Cleveland, this facility produces 3 to 5 million gallons of R-1 water (filtered and disinfected recycled water) every day, which is supplied to resort properties in Kāʻanapali. He also stated that there is an additional 5 million gallons of water at the top of the County's Honokōhau tract. He believes that this is a viable source of water that the County already has access to. He asserts that currently this water is dumped into injections wells and flows into the ocean and kills the reef. He argued that the County should reutilize 100 percent of its R-1 water for agricultural purposes, since the nitrogen that kills the reef is good for land plants.

At the October 24, 2023 CWRM meeting, Kekai Keahi encouraged the CWRM to explore infrastructure investments, suggesting the implementation of a dual-system water line. One line would supply R-1 water, while the other would be exclusively for drinking water.

3.2.5 Include Community Members in Decision Making

Community members unanimously agreed that inclusion and transparency in decision making are essential to restore the community's trust in government agencies. Professor Ty Kawika Tengan demanded that the CWRM acknowledge the leadership and wisdom of the local community, emphasizing

the importance of listening to their concerns regarding the impacts to their moʻo (descendants). John Cardi urged policymakers to prioritize Native Hawaiian wisdom and traditional ecological knowledge in their decision making.

3.2.6 Protect Streamflow for Native Riparian Species

Several community members emphasized the importance of maintaining Instream Flow Standards to protect native riparian species such as ʻoʻopu, hīhīwai, and ʻopae.

Lauren Palakiko said that Lahaina was once a wetland, yet today, due to mismanagement, it is dry. She stated that Launiupoko Irrigation Company cut their water, causing their loʻi kalo to run dry and their kalo to rot. They saw their *muliwai* (river mouth) run bone dry, creating an "oʻopu graveyard." She pointed to the potential for continued natural disasters with water mismanagement.

Kekai Keahi reminded the CWRM that Honokōhau is home to hīhīwai and ʻopae found nowhere else in West Maui today. These species all depend on the water. He further stated in the fight for water, if the muliwai has water, if instream flow standards are met, then the kalo famers also have enough water. Traditionally, kalo farmers always get the water last, not first. The stream life comes first. As long as they get enough water, kalo farmers also get enough water. Not only for the sake of the kalo farmers, but for the hihiwai and the ʻopae, it is imperative that the instream flow standards be maintained.

Archie Kalepa also pointed to the importance of freshwater stream flow for the coral reefs. He said that he has personally witnessed the change in the Kahoma Stream as the mauka to makai flow has been restored. He said we must fight for the ʻoʻopu, the ʻopae, and the hīhīwai, which do not have a voice. He said we must fight for them because they are part of the life of the island.

Mia Lisa Otis also argued that protecting water protects the wildlife, the riparian species, and the entire ecosystem.

3.3 Public Comments for the Instream Flow Standards Assessment Reports

In 2017 and 2019, the State of Hawaiʻi, DLNR, and CWRM held consultation meetings to gather public comments for the Instream Flow Standard Assessment Report (IFSAR) for the Lahaina Aquifer Sector. The public comments given during the meeting for Honolua and Honokōhau are applicable to the current Ka Paʻakai Analysis and are presented here to enhance and supplement the community consultation effort for this Ka Paʻakai Analysis.

Note that this testimony was years before the August 2023 fires that devastated Lahaina. However, many of the same issues mentioned in the September 2023 CWRM meeting were echoed previously for the IFSAR testimony.

3.3.1 Public Comments for the Honolua and Honokōhau Instream Flow Standard Assessment Report

The Maui Water Use Draft Plan references a meeting conducted on March 8, 2017, during which community members submitted testimony that the DLNR should "...refrain from issuing any more water permits before Native Hawaiian water rights are restored to practice traditional and cultural uses" (MDWS 2019:20). These concerns were evident during two separate consultation meetings held while the IFSAR for the Lahaina Aquifer Sector was being developed. The CWRM held a consultation meeting for

the Hydrologic Unit of Honolua and Honokōhau on September 9, 2019. As part of this study, the comments from the community were reviewed to determine what sorts of traditional and customary practices were carried out in the area, and what sorts of potential mitigation measures were recommended by these community members. A total of 17 people testified in person during the meeting for Honolua and Honokōhau. The following section discusses the most relevant comments for the purpose of this report.

The public comments for Honolua and Honokōhau revealed community concerns pertaining to sufficient water to irrigate existing and future loʻi, the need for land stewards to maintain ditches to ensure continuous water flow, the enforcement of existing water allocations, and the need to protect and monitor populations of native stream species. The most relevant comments for this analysis have been organized by theme.

3.3.1.1 AGING AND BROKEN INFRASTRUCTURE

Tamara Paltin of the Community Plan Advisory Committee wanted to see the Honokōhau Stream diversion removed as the Honolua diversion was. She also wanted to see repairs made to existing infrastructure and greater reliance on R-1 water:

> [W]e need to have a big framework for growth for more loʻi in Honokōhau . . . . For Honolua, when we were talking about the diversion there, they're saying that all this water goes into a diversion and it comes out a small little pipe and they're claiming that the entire amount of the water gets back into the stream and so I would say just remove the diversions. Remove the diversions that are broken, remove the diversions that are just taking the water and supposedly putting 100-percent back, because what's really the point of that if we're talking about a framework of growth and groundwater aquifer recharge is really important . . . . If we're going to pump out more and more water, we need to recharge the aquifers and sounds like that's a good way to do it. I'm for more restoration of all the streams and more reuse of the R-1 water. And if folks are going to be major diverters of water, then like the previous guy said, they need to also put back in. They cannot just take, take, take. They gotta maintain the systems, you know, not just leave it, oh, this is broken, oh, this is not working. If you want to take it, you gotta take care of it. (DLNR CWRM 2019a:6)

3.3.1.2 INSUFFICIENT MONITORING AND ENFORCEMENT OF CURRENT WATER SUPPLIES

Jon Kindred of the Plantation Estates Lot Owners Association testified in relation to the Honokōhau Ditch. He wanted to see regular monitoring of stream flows and necessary infrastructure improvements.

> We're aware that water in the ditch comes from diversions on the Honokōhau Stream as well as other sources [i.e., Honolua Stream] . . . . [The application of new Interim Instream Flow Standards] should be incremental, beginning with immediate return of some waters to the Honokōhau Stream, while providing some level of assurance to existing, legal offstream users as reliable data is monitored regularly and necessary infrastructure improvements are made. (DLNR CWRM 2019a:2)

Wili Wood expressed grief over the multiple patches of kalo lost to irregular water flow. He stated that many *kānaka maoli* (Native Hawaiians) would return to loʻi kalo farming if there was sufficient water.

> We've been restoring and planting loʻi since 2005, with the help of volunteer groups, schools such as Pūnana Leo, Ke Kula Kaiapuni, and Kahana Canoe Club, for example . . . . [T]here's been many occasions where we've lost entire patches, entire loʻis, due to

> insufficient and inconsistent water flow . . . . And as we're pulling out these big kalo, you can stick your finger right through it. And that's the stuff we've been dealing with for years. After Tropical Storm Olivia, there was no one running the ditch system . . . . There's a lot of people that would love [to] get back on their land, but the water is just not there. And when it is there, sometimes it's too high. And then it's too low the next day. So, we really need you guys to get together and help us, especially with the irrigator. The irrigator is a big concern of the taro farmers in the valley. And so, please, that's what we're asking you guys to decide on, the most water possible to the stream. Hundred percent if can . . . . (DLNR CWRM 2019a:9)

Kekai Keahi, in addition to recommending R-1 water, argued that West Maui Land Company, Maui Land and Pineapple Company, and Kaanapali Land Management Corp. need to be held accountable for water usage:

> I know a person that works for West Maui Land Company. He's been telling me that Dave Minami, and Peter, and all of them, been telling them to put water back in the stream at night and in early morning reopen the water. Charlie caught the guy at the siphon, where supposed to have 700,000 at the siphon, he caught the guy turning the water back on at the siphon, saw the meter, and it was at 300,000 gallons. They've been taking this water, so no more enforcement. In my opinion, I don't think a private company should be in charge of our assets. I get one problem with Maui Land and Pine, even Ka'anapali Land, handling our assets. Already, Aqua Engineers, they supposed to be managing, but they saying, oh no, Maui Land and Pine never pay us, so until we get the money we ain't going manage the system. That is screwed up, 'cause get people in the valley that stay hurtin' . . . . They thinking, even with Ka'anapali Land, when the guy came up here, they looking at all this water going be taken away, and then they starting to feel the pressure. They starting to feel maybe what we've been feeling forever. Yeah? It happened when we testified with Kaua'ula, where I got one letter from one of the persons at Launiupoko saying that Peter Martin telling everybody that, of, the Hawaiians going take all your water, you not going get nothing, turning us into the bad guy. And so we went to the meeting, there's people from Launiupoko, saying eh, you guys gotta be able for share, 'cause we worked so hard, we've been doing this, been doing that . . . . You never did share with us. One hundred years that water been gone. We was lucky, from our family, we grew up inside Kahoma and Kanahā, we got to raise taro when we was small kids. And so we got to see what was like and how it was before. And what was good was when we stopped doing that, the yearning for go back never did go away. Was painful that we couldn't go back and farm our lands again. And so, we started going in different places. We go help Wili out, we go Charlie's place. Everywhere we can go, we went try open up taro again, like we did when we was young, but then we run into these companies, who really no give a shit about us, basically. And so I no really give a shit about what they think if they going lose water too . . . . By the way, when I was looking at the Hawaiian Homes map, Ka'anapali Land, their coffee, part of 'em stay on top Hawaiian Homes, yeah? What the hell they doing? You gotta get the thing off. Charge 'em or something... He caught the guy right there turning on the valve with the meter open and saw how much gallons was coming out of the siphon . . . . Also, that R-1 water that Hawaiian Homes was talking about, as far as Lahaina goes and the use of that R-1 water, I think that's one win-win situation as far as using that water for farm on Hawaiian Homes ag lands. That's a win-win situation 'cause that's water that we know don't gotta take out of any stream or any well . . . . Maybe we can some water for dilute that water, but it's almost four million gallons a day that we could use for farming, which is awesome. I don't think Ka'anapali Land and Maui Land and Pine are really looking at R-

> 1 ʻcause they may be ag companies now, so-called, but I pretty sure they like change the zoning and turn ʻem rural so they can make the big money . . . . (DLNR CWRM 2019a:14–15)

3.3.1.3 NEED TO MANAGE WATER USING AN AHUPUAʻA-BASED APPROACH

Frank Caprioni wants to see more monitoring of water samples in the mountains, since what happens to water mauka affects the makai resources:

> I think . . . [t]he CMMA, the Community Management Makai Area that I think Ekolu Lindsey guys created down in Lahaina with using community members who are there every day . . . [are] taking water samples. I think we need to do the same thing up in the mountains too. And as we know now, I know it's kind of cliché sometimes to say, but mauka to makai. What happens up top effects down below, you know what I mean. So I think, everything that going on the reefs has to do with up in the mountains. Marine biologists, people, will all . . . they'll tell you this stuff too, you know. (DLNR CWRM 2019a:7–8)

3.3.1.3.1 Stream restoration as a means of supporting loʻi kalo farming

Kaniloa Kamaunu of Waiheʻe Valley expressed that cultivation of kalo was the foundation of traditional and customary practice under kānāwai.

> I always live by the kānāwai . . . . It's our birthright. It was given to us. It's for every kanaka. When I see the kanakas come up here and beg for use for taro . . . taro was the law . . . . You know, your Article 12, Section 7, talks about traditional customary practice. The ʻAha Moku that was established, 212 talks about customary generational, customary practices, traditional. Traditional is kalo is law. You no get land without kalo. You were rich if you had kalo. The more kalo you had, that means you were prosperous, so they give you more land, more kuleana. You get more water. Because that was the law. Kalo is relatives. It's not a thing where you just eat. It's not your food, but it is our relative. ʻĀina, same thing. (DLNR CWRM 2019a:11)

3.3.1.3.2 Need for monitoring culturally important stream species

Kaneolani Steward, an assistant marine coordinator with the Nature Conservancy on Maui in cooperation with the DLNR Division of Aquatic Resources, mentioned that Honolua is home to a variety of ʻoʻopu (refers to species of fish in the families Eleotridae, Gobiidae, and Blennidae) and ʻōpae. He specifically mentions that Honolua stream is home to *ʻoʻopu nākea* (*Awaous guamensis*), *ʻopu ʻalamoʻo* (*Lentipes concolor*), *ʻōpae kuahiwi/kalaʻole* (*Atyoida bisulcate*) and *ʻoʻopu nōpili* (*Sicyopterus stimpsoni*). He also argued for regular stream surveys for both Honolua and Honokōwai to monitor populations of riparian species. Kaneolani also recommends that educators should train community members and children how to do stream surveys. The need for more R-1 water was also mentioned:

> So for the Honokōhau report, under the point-quadrat survey area, you guys indicate nākea, ʻalamoʻo, and nōpili, but you guys fail to mention that ʻōpae kuahiwi was also sighted, but ʻōpae kuahiwi was however noted in the table . . . . But in the table, you guys left out ʻoʻopu nōpili . . . . And then for the Honolua report, there's absolutely no recent data from surveys done from the past year, or even mention that anything was done. You guys only talk about the surveys that were done in 1961, which definitely doesn't reflect the fish population today. And the same goes for Honokōwai, granted, because there's not enough water in the stream system, but just something to put up there . . . . [W]e partnered with Puʻu Kukui Watershed. I like this *kumu kākoʻo* [assistant teacher] for this *papa hoʻokele waʻa* [canoe voyaging class]. So we go up into Honolua Stream to incorporate that in our program, and so if training the community and other

> people, and giving them . . . empowering them to be able to collect this data, and to hand it over to you guys, because you guys definitely don't have the capacity to monitor all year round. And so, definitely finding not just people from the community, but even the educational programs helps get the teachers involved to teach it to the kids, 'cause we do go up there to Honolua to do surveys and everything, and so we also have knowledge of what types of fish are in the stream. But definitely to try to be more creative in accounting for all of our native stream organisms, because it is definitely protect as one of the instream uses. (DLNR CWRM 2019a:12–13)

3.4 Existing Oral History Interviews

3.4.1 Existing Oral History Interview with Wes Nohara

Aside from the cultivation of kalo, we found evidence that extensive commercial cultivation of pineapple and sugar cane displaced terrestrial traditional and customary practices like gathering and hunting for many decades. A 2008 interview with Wes Nohara by Kyle Ginoza provides insight into the areas directly around Nāpili Well A. Wes Nohara was born at the Pioneer Mill Hospital in Lahaina. His family had worked with Maui Land and Pineapple Company since the 1920s. A long-time resident of West Maui, he was raised in Honolua Village until it was condemned due to inadequate sewer infrastructure. He worked for Maui Land and Pineapple Company for 38 years. At the time of the interview, he was the General Manager of Kapalua Farms, a subsidiary of Maui Land and Pineapple Company. He was also on the board of the West Maui Soil and Water Conservation District and the Tri-Isle Resource Conservation Development Council. Pineapple cultivation increased in the area during about the 1950s. The fields around the Nāpili well were no longer under pineapple cultivation at the time of the interview. Instead, the land was used by Kapalua Farms for organic farming (Munekiyo & Hiraga, Inc. 2008:1).

Most notably for the current report, Mr. Nohara was not aware of any cultural practices that occurred on or near the Nāpili "A" site, since the area had been under pineapple cultivation for decades. He said no water flowed in the gulch nearest to the project site, although he said that two valleys over there was evidence of loʻi kalo terraces. He felt that the Nāpili Well "A" storage tank would have a positive impact on water access in the area, since the only other major source of water came from the Honolua Ditch, which supplied surface water to the area (Munekiyo & Hiraga, Inc. 2008:2).

3.4.2 Existing Oral History Interview with Unnamed Māhinahina and Kahana Iki Community Members

Interviews conducted by Maria Orr in 2017 provide evidence of ongoing traditional and customary practices in the areas makai of the existing wells. Orr conducted interviews to assess the cultural impacts of the proposed Pulelehua Community. Two unnamed community members discussed with Orr how fishing and gathering of other marine resources would be directly affected by the proposed project in the Māhinahina and Kahana Iki areas. These unnamed community members expressed concern about depleted and threatened fisheries. They were also concerned about impacts to the aquifer and marine resources from runoff of silt, pesticides, and fertilizer (Orr 2017:8). According to the narrators interviewed by Orr, the areas around the Māhinahina and Kahana drainages experience heavy rainfall that carries silt into the ocean, adversely affecting marine resources. Fish populations also faced threats from uncontrolled use of pesticides and fertilizers from yards in large developments like Pulelehua (Orr 2017:8).

3.4.3 Existing Oral History Interview with Elia Kuʻualoha Kāwika Kapahulehua

Kepā and Onaona Maly interviewed a number of kūpuna about their knowledge and practices pertaining to fishing in the early 2000s. In 2002, Kepā and Isaac Harp interviewed Elia Kuʻualoha Kāwika Kapahulehua, who was also known as Uncle Kāwika. Uncle Kāwika was born in 1930 and spent most of his life on Niʻihau. He was taught navigation and fishing from his parents and *kūpuna* on Niʻihau. During his interview he repeated the phrase: "*Inā mālama ʻoe i ke kai, mālama no ke kai iā ʻoe. Inā mālama ʻoe i ka ʻāina, mālama no ka ʻāina iā ʻoe*" (If you care for the ocean, the ocean will care for you. If you care for the land, the land will care for you).

Uncle Kāwika's interview pointed to the importance of Honolua Bay for navigation. He recounted the story of Laʻa-mai Kahiki setting sail from Honolua Bay. He was guided from Honolua Bay to the navigational route known as Ke Ala i-Kahiki by bonfires lit on Molokaʻi. The route known as Ke Ala i-Kahiki, which begins on the western shores of Kahoʻolawe, was used by Hawaiians for centuries to navigate to Kahiki (Tahiti):

> So this is the story of Laʻa-mai-Kahiki. He went back to Kahoʻolawe, picked up his family and the rest of his gear to continue on to Tahiti. He made it past South Point before the wind shifted north east. And everybody wanted to know why didn't anybody else know this story of Ke Ala i Kahiki . . . . Then they wanted to know how did I know that the shadow of Mauna Kea and Mauna Loa and Haleakalā would cast over six hundred miles out. I said you try to stand by on the side of a building and say where the wind is going to blow. Around the building, not through the building. So they cannot go over the mountain. The canoe will not make it over the mountain, neither will the wind. And once they get up they stay up. Nobody going to say, "What about us down here? We need you too . . . ." But there's so many people that ask that story, "*Ke Ala i Kahiki, no keʻaha, aʻole lākou hele i Kahiki*?" Then somebody tried to tell the story, "On Molokaʻi there's a big *kukui* grove, *nui keia kukui ke ulu nei*. They start a bonfire and down on the water they start another bonfire. The canoes waiting from Honolua Bay, Maui, they sail out line up with the two fire one on the top one on the bottom. And kept sailing straight out. The two light the two lights will guide them pass Ke Ala i Kahiki on the west end of Kahoʻolawe. But nobody knows what happened after that. Where they going to go? So they tried to ask me, "Where do the sailors go from there?" I said, "Well, figuring over six hundred miles maybe some little islands over there. If you go over there you find a bunch of the canoes, boats, people, canoes paddles all over there. On the side of the rocks 'cause the current is going to take them all the way there. They cannot go past. . . . ." I think Moʻikeha and all the other people that traveled to Tahiti they used that part. They used to have close to a hundred people on the boat. One big sail the rest paddling. That's a lot of work . . . . I forgot to tell you one thing. All of this learning process, training, sailing on a canoe, on a catamaran, it has been taught by my ancestors, or our ancestors, the Polynesian ancestors. How to do it, what to do and so on. The history will go on that the Polynesians are still the best sailors of the Pacific. They can pinpoint and find a small little island in the middle of the ocean 2,400 miles away, and turn around, come back and find the other one still in the middle of the ocean. They found New Zealand, Aotearoa. They found Raiatea, they found Hawaiʻi. They haven't lost it. (Kapahulehua 2002, cited in Maly and Maly 2003b:1154)

3.4.4 Honokōwai in the Early 20th Century as Recounted by Kamaʻāina Eddie Kahaʻi

Ka Leo Hawaiʻi was a Hawaiian language radio program broadcast from 1972 through 1988 hosted by Larry Kimura. The broadcasts featured interviews with kūpuna conversing with Larry Kimura in the Hawaiian language. Though the broadcast program was principally intended to serve as a Hawaiian

language learning resource, the interviews also contain valuable ethnographic information as the kūpuna interviewed often would describe cultural practices and historic landscapes.

The October 9, 1977, Ka Leo Hawaiʻi broadcast featured Honokōwai native Eddie Kahaʻi. Kahaʻi was born in 1903 and lived at Honokōwai until age 16 before moving to Honolulu. Kahaʻi describes Honokōwai as a *malo'o* (dry) place with excellent fishing. Kahaʻi explained that during his childhood many Hawaiian families lived by the ocean and these families typically dug springs in their backyards. In the following excerpt, Kahaʻi describes how his family and others living in Honokōwai at the time acquired their drinking water.

LK	*Ke ʻano nō paha o kēlā wahi o Honokōwai, he ʻano kuaʻāina paha?*	LK	That's kind of how it was like there in Honokōwai like, kind of country-like, right?
EK	*Kuaʻāina. Pololei. Kuaʻāina.*	EK	Country. That's right. Country.
LK	*Pehea ka mea, ʻaʻohe nō paha loʻa paipu wai ia manawa. Loʻa nō?*	LK	How was it like, was there no tap water at that time. Or was there?
EK	*ʻAʻole, ai ā—komo mai ka paipu wai, komo mai ka paipu wai i ka makahiki ʻumi kūmāiwa ʻumi kūmāwalu. Ma mua o kēlā manawa, ʻaʻole loʻa paipu wai. Kā mākou wai inu mai ua mai a he mea nō hoʻi, . . .*	EK	No, until—piped water, piped water came in nineteen eighteen. Before that time, there wasn't tap water. Our drinking water was rainwater and, you know, . . .
LK	*Pahu wai?*	LK	Water tank?
EK	*Pahu wai. Hoʻopiha nō hoʻi i kēlā. A ne ʻaʻale lawa, a hele nō mākou i ka kula, ma ka kula, ka kula, loʻa paipu wai; ka kula aupuni a mākou.*	EK	Water tank. You would fill that up. And if it wasn't enough, then we'd go to the school, at the school, the school, there was tap water, our public school.
LK	*Ka hale kula?*	LK	The schoolhouse?
EK	*Yeah. He wai nō ma laila. Hele nō mākou kiʻi i wai ma laila.*	EK	Yeah. There was water there. We'd go and get water there.
LK	*ʻĒ, ʻē, ʻē, halihali.*	LK	Yeah, yeah, yeah, haul it.
EK	*ʻĀ. Hoʻokomo nō hoʻi i loko o ka mea, pahu liʻiliʻi. Hoʻihoʻi ma kauhale. Hāpai.*	EK	Yeah. Put it into the thing, small container. Take it home. Carry it.
LK	*ʻĒ.*	LK	Yeah.
EK	*Kahi manawa nō hoʻi, a he lio nō hoʻi, hoki nō hoʻi, hoʻokau ma luna, hoʻihoʻi.*	EK	Sometimes there was a horse, a mule, load it on, take it home.
LK	*ʻAhe loʻa pūnāwai?*	LK	Weren't there springs?
EK	*Loʻa pūnāwai, paʻakai.*	EK	There were springs, salty.
LK	*Hapa kai?*	LK	Brackish?
EK	*ʻĀ, hapa kai.*	EK	Yeah, brackish.

LK	*I mea aha nō hoʻi kēlā wai? I wai inu nō hoʻi, ʻaʻole?*	LK	What was that water for? Was it drinking water? no?
EK	*ʻAʻole mākou i—yeah, ne ʻoe mamake inu, ne mea nō hoʻi, a inu nō ʻoe. ʻAno mea nō—*	EK	Not didn't—yeah, if you wanted to drink, if it was, you know, then you'd drink it. It was kind of—
LK	*ʻAwaʻawa ē?*	LK	Bitter?
EK	*ʻAwaʻawa, yeah, paʻakai. But inu nō kekahi poʻe.*	EK	Bitter, yeah, salty. But some people would drink it.
LK	*ʻĒ, ʻē, ʻē. Ai kēlā i kahakai?*	LK	Yeah, yeah, yeah. Was that by the ocean?
EK	*ʻAʻale.*	EK	No.
LK	*Kēia pūnāwai?*	LK	This spring?
EK	*ʻŌ, ʻā.*	EK	Oh, ah.
LK	*Pili i ka hale paha?*	LK	Close to the house?
EK	*No, yeah, pili i ka hale. Nā hale a pau, loʻa pūnāwai.*	EK	No, yeah. Close to the house. All the houses had springs.
LK	*Na ka poʻe nō i ʻali?*	LK	The people dug them?
EK	*Yeah, na lākou i ʻali a na lākou ka pūnāwai.*	EK	Yeah, they dug them, and the springs were theirs.

(Kahaʻi 1977 at 21 minutes, 43 seconds [21:43] of the interview; translation by Keao NeSmith)

4 CULTURAL, HISTORICAL, AND NATURAL RESOURCES

The following is a short overview of cultural, historical, and natural resources of value to Native Hawaiians within the vicinity of the permit area as well as traditional and customary practices being carried out there. This overview is the results of archival research and existing oral history interviews with individuals knowledgeable about contemporary traditional and customary Native Hawaiian rights and practices undertaken within the permit area or associated with freshwater resources. These cultural resources are needed for Native Hawaiians to have the ability to conduct cultural practices and perpetuate Indigenous Knowledge.

4.1 Culturally Significant Natural Resources

Native Hawaiian culture focused heavily upon natural resources. The moku system allowed Native Hawaiians to manage biocultural resources in a sustainable fashion, which provided food to inhabitants from mauka to makai (Winter et al. 2018). Several of these natural resources are dependent upon fresh water for their survival and propagation.

4.1.1 Limu

Native Hawaiians use freshwater and marine limu as a relish or condiment to season food. While the marine varieties of limu are known for their more pronounced taste, the freshwater limu found on rocks in streams is also collected and enjoyed as part of the diet (Krauss 1993:16). Many species of nearshore limu thrive best in areas where both freshwater and ocean mix together (Abbott 1992).

4.1.2 Freshwater Stream Species

Excluding insects and other invertebrates, there are nine native animal species found in Hawaiʻi's streams. These consist of five types of fish, two types of crustaceans, and two types of mollusks. All of these species exhibit amphidromous behavior, which means they migrate between freshwater habitats and the ocean. Eight of these species are endemic to Hawaiʻi. Native Hawaiians called the fish *ʻoʻopu*, the crustaceans *ʻōpae*, and the mollusks *hīhīwai* (or *wī*) and *hapawai*. While there are several more Hawaiian names to describe regional variations and physical differences of these creatures, these are the most common names by which they are known. Several *ʻōlelo noʻeau* (traditional Hawaiian proverbs and poetical sayings) and *moʻolelo* (oral histories, myths, and/or legends) demonstrate that Native Hawaiians were observant of these creatures and understood their life cycles, behaviors, and habitats well. These native freshwater fish, crustaceans, and mollusks were an important food source to Native Hawaiians (Miike 2004:14–18).

Public testimony from K. Steward reveals that culturally important freshwater stream species such as *ʻoʻopu ʻakupa* (*Eleotris sandwicensis*), ʻopu ʻalamoʻo, ʻoʻopu nākea, *ʻopu naniha* (*Stenogobius hawaiiensis*), ʻoʻopu nōpili, ʻōpae kuahiwi/kalaʻole, *ʻōpae ʻoeha* (*Macrobrachium grandimanus*), hapawai, and hīhīwai/wī used to be abundant in the Honolua Stream. He mentioned that many of these species are returning to Honolua Stream.

4.1.3 Native Plant Resources and Lāʻau Lapaʻau

Although this report uncovered few contemporary accounts of gathering for lāʻau lapaʻau, the mauka areas of the Honolua Aquifer System are home to numerous culturally utilized native plant species, including ʻakoko, ʻākia, ʻēkaha, alaheʻe, ʻaʻaliʻi, huehue, ʻiliahialoʻe, kīlau, kāʻapeʻape, kolokolo, ʻōhiʻa

lehua, koali ʻawahia and koali ʻawa, moa, palaʻā, palapalai, pūkiawe, ʻuhaloa, and ʻūlei (Tetra Tech 2021, cited in Wong and Lee-Greig 2021:67).

With funding support from MDWS, Maui Land and Pineapple Company, Inc., conducts revegetation efforts in Honolua Wao Kele in the Puʻu Kukui Watershed Preserve for the purpose of watershed protection and Native Hawaiian cultural education. Within this 9,881-acre section of native forest are 40 rare plant species and six endemic land snails (PBR Hawaiʻi and Associates 2007: 5–6).

Continuing protection of native forest ecosystems could allow for more individuals to return to traditional and customary gathering practices within the Honolua Aquifer System. Additionally, considering the vast geographic scope of the area surveyed by this Ka Paʻakai Analysis, it is important to note that it is possible that cultural practitioners *do* gather within the areas impacted by the planned wells, though it was not captured here.

4.2 Traditional and Customary Practices

4.2.1 Coastal Fishing and Gathering

The nearshore marine environment of Kāʻanapali has supplied the people of the area for centuries. Kahaulelio's (1902a–d) accounts revealed the area to be rich in marine resources, including nehu and several species of sharks. The importance of ongoing fishing and marine gathering emerged from multiple existing oral history interviews as well. Narrators specifically mentioned gathering limu, honu, and heʻe, as well as fishing for nearshore and deepsea fish species.

4.2.2 Loʻi Kalo Farming

The cultural importance of kalo cultivation arose in nearly every interview and segment of public testimony presented in this report. Kalo farming emerged as perhaps the most important traditional and customary cultural practice taking place in the vicinity of Honokōhau Stream in particular and, to a lesser degree, Honolua Stream.

5 ASSESSMENT OF POTENTIAL IMPACTS

A primary purpose of this Ka Paʻakai Analysis is to identify "the extent to which those resources—including traditional and customary native Hawaiian rights—will be affected or impaired by the proposed action" (Ka Paʻakai O Ka ʻAina 2000). This section presents the assessment of potential impacts to traditional and customary Native Hawaiian rights and practices resulting from putting into use the planned MDWS H1, H2, and Kahana #5738-002 wells within the Honolua Aquifer System.

5.1 Types of Traditional and Customary Rights Referenced Under the State Water Code

The following provision on Native Hawaiian water rights outlined in the State Water Code, HRS Chapter 174C-101, defines the types of traditional and customary water rights of Native Hawaiians:

> (c) Traditional and customary rights of ahupuaʻa tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778 shall not be abridged or denied by this chapter. Such traditional and customary rights shall include, but not be limited to, the cultivation or propagation of taro on one's own kuleana and the gathering of hīhīwai, ʻōpae, ʻoʻopu, limu, thatch, ti leaf, aho cord, and medicinal plants for subsistence, cultural, and religious purposes (2019:15).

It is notable that kalo, hīhīwai, ʻōpae, oʻopu, limu, and medicinal plants are specifically identified within the State Water Code. As has been noted above, these culturally significant resources are frequently mentioned in oral interviews and public testimony regarding the Lahaina Aquifer.

5.2 Approach to Assessing Impacts

Using the information gathered through archival research, existing oral history interviews, and reports containing cultural consultation testimony, SWCA identified cultural resources, including traditional and customary Native Hawaiian practices, within the permit area of the planned H1, H2, and Kahana #5738-002 wells. This study also determined the extent to which these resources and practices may be affected or impaired by the proposed use of the planned wells in the Honolua Aquifer System by the MDWS.

The potential impacts to traditional and customary practices extend beyond the immediate vicinity of the planned H1, H2, and Kahana #5738-002 wells. Activities such as loʻi kalo farming, subsistence gathering of stream and nearshore ocean species, and the gathering of lāʻau lapaʻau from areas below the planned wells could all be impacted by changes in freshwater availability due to the proposed wells. Although there is no hydrologic model to determine decrease in discharge to streams and nearshore environments due to wells, stream flows can be an indicator of water abundance or scarcity within the aquifer. For this reason, discussions of stream flows have been included here.

Given the geographic extent of the Honolua Aquifer System, this report cannot definitively identify and address the full breadth of potential impacts to all cultural resources and traditional and customary practices in the areas near the planned H1, H2, and Kahana #5738-002 wells. Nevertheless, the research reveals that existing pressure on freshwater resources already endangers the traditional and customary practices described above. Community members expressed concerns that the installation of additional wells could worsen the threat to the preservation of their cultural traditions by reducing the water table and diminishing streamflow.

5.3 Community Concerns

Based upon information gathered from archival research, existing oral history interviews, and region-specific public testimony from the IFSAR meetings, as well as public testimony from the September 2023 CWRM meeting, the predominant community concerns pertaining to freshwater quality, access, and impacts to cultural practices in the planned H1, H2, and Kahana #5738-002 well permit areas were identified. These concerns are discussed in detail below.

5.3.1 Ahupuaʻa-Based Approach

The community expressed that water needs to be managed holistically and that the County's water management practices should employ an ahupuaʻa-wide approach.

5.3.1.1 CONCERNS REGARDING FOREST AND WATERSHED HEALTH

- The protection of watersheds from mauka to makai emerged as a common concern of community members.
- According to several individuals—especially marine biologist Kaneolani Steward, members of the Palakiko ʻohana of kalo farmers, respected ʻAha Moku members Kekai Keahi, Keʻeaumoku Kau, and Uʻilani Kapu, and Oʻahu-based community organizer Mia Lisa Otis—adequate freshwater is needed to ensure the growth and regeneration of native species.
- Several community members personally observed changes in the presence and abundance of culturally important freshwater species under different stream conditions. They would like to see MDWS monitor and protect populations of culturally important native species found in streams. These include the five types of ʻoʻopu fish, the two types of crustaceans or ʻōpae, and the two types of mollusks hīhīwai (or wī) and hapawai.
- Several existing oral history interviews, recorded well before August 2023, called out the need to ensure ecosystem resilience against fire hazards and climate change by protecting native forests and water resources. K. Kapu and U. Kapu also highlighted the potential fire hazards associated with overall drier conditions and the proliferation of invasive species in their interview with SWCA in July 2023. These concerns were tragically corroborated following the wildfires on Maui in early August 2023. The potential fire risks due to profligate private water consumption also arose in most of the public testimony for the September 19, 2023, CWRM meeting.

5.3.1.2 CONCERNS REGARDING NEARSHORE AND OCEAN RESOURCES

- Some community members alleged that certain private water purveyors had stopped their water in the past, leading to the immediate die-off of riparian species like ʻoʻopu.
- A few community members personally observed changes in the presence and abundance of culturally important saltwater species under different stream conditions. They would like to see MDWS monitor and protect populations of culturally important limu species such as *limu ʻeleʻele* (*Enteromorpha prolifera*), *limu kohu* (*Asparagopsis taxiformis*), *limu līpeʻe* (*Laurencia* sp.), limu līpoa, *limu manauea* (*Gracilaria coronopifolia*), *limu wāwaeʻiole* (*Codium edule*). Other culturally important marine vertebrate species in the area include *kole* (surgeonfish; *Ctenochaetus strigosus*), *owama/oama* (young weke or goatfish), *manini* (a common reef surgeonfish; *Acanthurus triostegus*), *halalu* (young akule; *Trachurops crumenophthalmus*), *kūmū* (goatfish; *Parupeneus porphyreus*), weke, and *manō* (sharks), in addition to invertebrate species such as *kūpeʻe* (an edible marine snail; *Nerita polita*), *ʻopihi* (limpets; *Cellana talcosa, C. sandwicensis, C. exarate*, and *C. melanostoma*), *hāʻukeʻuke* (a type of edible sea urchin; *Colobocentrotus*

atratus), *wana* (long-spined sea urchins; possibly *Diadema paucispinum* or *Echinothrix diadema*), and heʻe.

- Mahesh Cleveland specifically cited damage to the coral reefs caused by the nitrogen from R1 water put into the County's injection wells.

5.3.2 Abundance and Quality of Freshwater Flow

Stream flow is one of the prime indicators of water health within an aquifer. While the current analysis addresses the water use permit application for new subsurface wells, rather than the diversion of surface water, withdrawing water from the Honolua Aquifer System through these wells has the potential to impact all components of the watershed, including stream flow.

5.3.2.1 INSUFFICIENT MONITORING AND ENFORCEMENT OF CURRENT WATER SUPPLIES

- The most common concern voiced by community members was the need to restore and protect streamflow to irrigate loʻi kalo.
- Several community members suggested bringing back the kānāwai system of water management for loʻi kalo farming, which requires water users to return the water that they used back into the streams in the same amount and condition.
- Several individuals claim that their observations of the streamflow do not align with established instream flow standards and that they would like to see CWRM monitor actual instream flow. For example, respected community members such as Archie Kalepa, Keʻeaumoku Kapu, Karen Kanekoa, Wili Wood, Tiare Lawrence, Professor Kapua Sproat, Representative Mahina Poepoe, and others all called for CWRM to respect the Instream Flow Standards and the State Water Code.
- A common sentiment within the IFSAR testimony is that kalo farmers would like to see all streams restored to 100% flow. Community members called out the fact that decreasing freshwater flow resulted in increasing water temperatures, causing kalo crops to rot. Some community members alleged that certain private water purveyors had stopped their water in the past, leading to kalo crop destruction.
- Another frequent concern was the lack of enforcement of existing water allocations, particularly for large landowners who are perceived to receive preferential water access over kalo farmers. This was one of the most frequently mentioned issues during the September 19, 2023, CWRM meeting. The community members were nearly unanimous on this point.

5.3.2.2 LACK OF VIABLE ALTERNATIVE WATER SUPPLIES

- Numerous community members expressed an interest in greater use of R1 water for non-potable uses. Specifically, Mahesh Cleveland of Earth Justice testified regarding the Lahaina Wastewater Reclamation Facility. He believes that the County already has access to at least 3 to 5 million gallons of R1 water per day produced through this facility, which he alleges go to Kāʻanapali resorts. He would like to see the County stop putting this water into injection wells, which he claims harms coral reefs, and instead use this resource for agricultural purposes.

5.3.3 Reduced Water Quality

- Informants noted that silt, fertilizers, and pesticides from upstream are being deposited into the reefs, endangering nearshore and reef species. These conditions are particularly dangerous for culturally important species of limu.

5.3.4 Need for Additional Community Input for Current and Future Projects

- Many individuals testified during the September 19, 2023, CWRM meeting that more inclusive decision making regarding water use allocations is essential for restoring the community's damaged trust in government. One community member, John Cardi, specifically stated that policymakers and government officials should consider traditional ecological knowledge when making decisions about water use.
- Potential undocumented kuleana uses that did not emerge during this research may exist within the permit area. These undocumented kuleana uses could be identified through additional community input.

6 PROPOSED ACTIONS TO PROTECT TRADITIONAL AND CUSTOMARY NATIVE HAWAIIAN RIGHTS

Following the assessment of potential impacts associated with the proposed permit activity, SWCA and the MDWS identified a series of feasible actions that could be taken to mitigate these impacts and serve to reasonably protect and revitalize Native Hawaiian rights, traditions, and customs associated with the permit area. The feasible actions suggested here are intended to address community concerns expressed in existing oral history interviews, and community consultation and testimony from the IFSAR meetings.

6.1 Apply an Ahupua‘a-Based Approach to All Water Use Decisions

Upon analyzing the findings of the community consultation, public testimony from the IFSAR meetings, and oral history interviews, it is clear that a mauka to makai approach to water management is essential for revitalizing Native Hawaiian traditional and customary practices. The health of the upland forests directly impacts that of streams and aquifers, which in turn affects the nearshore environment.

- In making decisions regarding water use within the Honolua Aquifer System, the MDWS will employ an ahupua‘a-based approach. This involves not only taking into account the potential impacts to the lands in the immediate vicinity of the permit activity but considering the effect of the project on the entire watershed, from the uplands to the nearshore waters, as well as the cultural practices currently being carried out within the ahupua‘a.
- As part of its community outreach efforts, the MDWS will seek to raise public awareness of ahupua‘a management practices and foster partnerships for the use and management of water sources with existing community and school-based ahupua‘a restoration efforts.
- As part of this ahupua‘a-based approach to water planning and management, the MDWS will work with the local community and cultural practitioners to monitor and protect both the upland watershed and the coastal marine resources.

6.1.1 Mauka: Reforestation and Invasive Species Control to Improve Watershed Health

The retreat and reduction of forested slopes impacts cloud coverage and resulting rainfall. This, in turn, effects the amount of available groundwater. A lack of rainfall also renders both the uplands and the lower slopes vulnerable to wildfires. Invasive species, which often outcompete native species, potentially use up more water than native vegetation, further reducing the water table and increasing fire risk. Invasive grasses are particularlly vulnerable to wildfires.

- To combat this cycle, MDWS intends to support reforestation effort within the Lahaina Water Management Area. Maui County will continue financial support for watershed management partnerships designed to improve groundwater recharge, reduce fire hazards, and prevent erosion through native species reforestation, invasive species control, fencing, and weed eradication efforts.
- The MDWS will support watershed partnerships’ outreach to West Maui schools to develop service-learning experiences that allow students to assist with invasive species control and the planting of native species.

6.1.2 Makai: Monitoring Culturally Important Aquatic Species

A number of community members observed local declines in culturally important stream, nearshore, and marine species since the plantation era, when the Honolua Stream was diverted into the Honokōhau Ditch.

- CWRM and the University of Hawai‘i Water Resources Research Center should consider developing, coordinating, and funding a region-wide system for inventorying and monitoring culturally important native aquatic species such as fish, limu, mollusks, and shrimp that may be affected by and are indicators of changing water supply. They should partner with community organizations like Kamehameha Schools, ‘Aha Moku o Maui, Inc., cultural practitioners, and other relevant NHOs in these endeavors.
- The MDWS will support and fund the inventorying and monitoring of culturally important native species conducted by watershed partnerships in watersheds directly impacted by the MDWS’s existing and proposed water sources.

6.2 Protect and Recharge of Groundwater and Surface Water Flow

6.2.1 Maintaining and Monitoring Current Water Supplies

The availability of freshwater to irrigate lo‘i kalo emerged as the most common concern among community members when discussing surface water issues. To ensure sufficient streamflow to irrigate kalo and feed fishponds, the MDWS will:

- Use U.S. Geological Survey water studies to determine the most sustainable ways for the County to manage and develop groundwater withdrawals.
- Work with the State CWRM to ensure that existing instream flow standards are being met. In those cases where existing instream flow standards are not feasible due to the limitations of existing wells, the MDWS will work with CWRM to develop alternate strategies to ensure adequate water supplies.
- Monitor and enforce current water use restrictions imposed on MDWS customers in a water shortage.

6.2.2 Alternative Water Source Strategies

Many community members expressed interest in alternative water strategies such as recycling graywater (R-1) to be used for sewage, landscaping, agriculture, and other uses. To this end, the MDWS will:

- Support capital improvement program funding for recycled water projects and needed infrastructure expansion in the Honolua Aquifer System and the broader Kā‘anapali region to offset potable water to the maximum extent feasible.
- MDWS will support the increased utilization of R1 water from the Lahaina Wastewater Reclamation Facility for agricultural purposes, rather than directing it into injection wells.
- Support exploration and permitting of greywater systems to offset potable water use.
- Explore desalination of seawater and brackish water as an alternative water supply for West Maui demand.

6.3 Support Water Quality

Several community members noticed that a decline in water quality impacts limu populations. They observed also that silt, pesticides, and fertilizers running off into the reefs contributed to the loss of key limu species prized by gatherers. In the Lahaina area, narrators identified additional impacts from leach fields and cesspools. To combat water quality issues, MDWS will:

- Encourage the State Department of Health and Maui County to focus cesspool upgrades to areas impacting the nearshore marine environment and prioritize expanding sewer lines into residential areas that are currently unsewered so as to reduce the amount of wastewater entering the aquifer and nearshore environment.

6.4 Require Archaeological and Cultural Monitoring for New Well Construction

Community members have expressed concern that, due to the number of known traditional and historic burials within the Honolua area, the potential exists for iwi kūpuna (ancestral remains) to be disturbed during the construction of new well sites.

- In order to protect *iwi kūpuna* (ancestral remains) and historic properties, and to satisfy regulatory requirements, MDWS will submit plans and descriptions for all proposed well site projects to the State Historic Preservation Division (SHPD) for historic preservation review under HRS 6E-8, "Review of Effect of Proposed State Projects." Maui County DWS will follow SHPD's recommendations regarding the need for an archaeological survey to determine if historic properties are present, as per Hawai'i Administrative Rules §13-275, "Rules Governing Procedures for Historic Preservation Review for Government Projects Covered Under 6E-7 and 6E-8." SHPD may request that an archaeological monitoring plan be prepared, and an archaeological monitor be present during all ground disturbing activities. If there is a possibility that iwi kūpuna may be encountered during construction, SHPD may recommend that a cultural monitor should also be present.
- All construction plans for new well sites will include instructions for the contractor to immediately halt all ground-disturbing activity in the event that iwi kūpuna are encountered. The contractor will then follow the steps outlined in HAR Section 13-300-40, "Inadvertent Discovery of Human Remains," by notifying the MDWS, the SHPD, the Maui County Police Department, and the medical examiner/coroner to assess the situation. If the human remains are determined to be 50 years old or older, the MDWS shall follow whatever further instructions SHPD provides.

6.5 Solicit Ongoing Community Input for Current and Future Projects

Members of 'Aha Moku stressed that many community members have a stake in water use decisions and recommend regular venues for them to share their *mana'o* (thoughts). Therefore, the MDWS will:

- Hold annual meetings with community groups, cultural practitioners, lineal and cultural descendants of the area, and other interested community members to discuss current and planned water uses and to encourage ongoing cooperation and consultation regarding MDWS projects.
- Consult with 'Aha Moku regarding new water development projects in the subject moku so as to obtain information and feedback on impacts to Native Hawaiian traditional and customary uses and advice on proper actions.

- Promote existing MDWS grant programs by proactively advertising in venues such as social media, the Office of Hawaiian Affair's *Ka Wai Ola* magazine, and in local newspapers.

7 SUMMARY

The Native Hawaiian perspective on water resource management recognizes the need for a comprehensive and unified approach that underscores the interconnected nature of the water cycle. It is not enough to ensure the *survival* of traditional and customary practices in the planned permit area; instead, all feasible efforts should be made to support cultural practitioners in their efforts to ensure that traditional and customary practices are able to *thrive*. For cultural practitioners to continue to pass on their traditions to future generations, it is crucial that the natural and cultural resources foundational to these practices are kept healthy and vibrant.

Using a combination of ethnohistoric research, existing oral history interviews, and public testimony from the September 19, 2023, CWRM meeting and the IFSAR meetings, this Ka Paʻakai Analysis report has identified and discussed the traditional and customary practices undertaken within the Lahaina Aquifer Sector, and more specifically within the Honolua Aquifer System, that are related to water use and could potentially be impacted by water use associated with the proposed Maui County H1, H2, and Kahana #5738-002 wells. These traditional and customary practices include the cultivation of wetland kalo, nearshore subsistence fishing, the gathering of limu and other marine resources, and the gathering of medicinal and other plants.

These traditional and customary practices are dependent upon the quality, abundance, and availability of freshwater. Community members and cultural practitioners expressed the need to monitor populations of culturally important species, such as ʻoʻopu, ʻōpae, hīhīwai, hapawai, and marine species such as edible invertebrates and nearshore fish species that feed on limu, to ensure their continued abundance. Community members expressed particular concern for populations of ʻoʻopu and ʻōpae, as these creatures require mauka to makai connectivity during their lifespan since they spawn in rivers and grow to maturity in the ocean.

The planned MDWS wells in the ahupuaʻa of Mailepai and Kahana addressed in this analysis are expected to have less of an impact on freshwater availability than the large-scale diversion of streamwater from the Honokōhau Ditch to supply the residential and resort developments in Kāʻanapali. Groundwater withdrawal to support communities in Kāʻanapali, however, contributes to the overall reduced availability of freshwater. Traditional and customary practices such as gathering lāʻua lapaʻau, loʻi kalo cultivation, and gathering riparian species such as ʻoʻopu, ʻōpae, and the shellfish hīhīwai and hapawai have all declined dramatically in the area due to decades of commercial pineapple and sugar cultivation. The surfacewater diversions from the Honolua and Honokōhau Streams, mixed with the ecological disturbances from legacy sugar cane and pineapple fields, led to cascading effects on the natural environment. These cascading effects included a decline in water to irrigate loʻi kalo; damage to the reefs due to silt, pesticide, and fertilizer runoff; a lack of mauka to makai stream water connectivity to support the life cycle of ʻoʻopu and ʻōpae; and an influx of invasive plant and animal species in the mauka areas which in turn reduces aquifer replenishment. In spite of these changes, cultural practitioners continue to fish and gather in the areas makai of the proposed wells.

This Ka Paʻakai Analysis identified a number of feasible actions to mitigate the potential impacts of groundwater withdrawal from the H1, H2, and Kahana #5738-002 wells. These include employing a mauka to makai approach to water conservation; supporting community-based efforts to restore watersheds; maintaining and monitoring water quality; developing alternative water source strategies; requiring archaeological and cultural monitoring during new well construction; and soliciting ongoing feedback from community members.

8 GLOSSARY OF HAWAIIAN WORDS USED IN THE TEXT

‘a‘ali‘i	a common, small dryland and mesic forest tree; *Dodonaea viscosa*
ahupua‘a	traditional land division usually extending from the mountains to the sea and encompassing a range of environmental zones that were known and used by the land’s early Hawaiian residents. It was “so called because the boundary was marked by a heap (ahu) of stones surmounted by an image of a pig (pua‘a), or because a pig or other tribute was laid on the altar as tax to the chief” (Pukui and Elbert 1971:8).
‘āina	land
‘āina pa‘akai	salt lands
‘ākia	an important sub shrub to small tree, *Wikstroemia oahuensis var. oahuensis*, sometimes used to stun fish
‘akoko	a term for native herbs, sub-shrubs, or shrubs in the genus Euphorbia; in this case, *Euphorbia celastroides* var. *lorifoli*
akule	big-eyed or goggle-eyed scad fish; *Trachurops crumenophthalmus*
alahe‘e	a native forest tree known for its sweet-smelling flowers; *Psydrax odorata*
ala loa	main road or trail
ali‘i	chief, individual of chiefly blood
‘aumākua	deified ancestors/familial protective deities
‘auwai	ditch, canal
‘ēkaha	a native forest fern; *Asplenium nidus*
halalu	young akule; *Trachurops crumenophthalmus*
hapawai	a shellfish; *Theodoxus vespertinus*
hā‘uke‘uke	a type of edible sea urchin; *Colobocentrotus atratus*
he‘e	octopus; *Octopus cyanea, O. ornatus*
heiau	traditional temple or shrine
hīhīwai	an endemic, edible, freshwater and brackish grainy snail, *Neritina granosa*; also known as wī if in freshwater; there is a shellfish of the same name
honu	turtle
huehue	a native vine, *Cocculus orbiculatus,* used for twine and funnel-mouthed fish traps
‘iliahialo‘e	coastal sandalwood; *Santalum ellipticum*
iwi kūpuna	ancestral remains

kāʻapeʻape	a native holly fern; *Cyrtomium caryotideum*
kahuna	priest, expert in any profession
kai	ocean water or saltwater
kalo	taro; *Colocasia esculenta*
kamaʻāina	long-term residents
kānaka maoli	Native Hawaiians
kīlau	a native bracken fern; *Pteridium aquilinum* ssp. *decompositum*
koali ʻawahia, koali ʻawa	beach morning glory, *Ipomoea indica*, used for medicine and cordage
kole	surgeonfish; *Ctenochaetus strigosus*
kolokolo	a small, tongue-like native fern; *Adenophorus tenellus*
konohiki	land stewards, sometimes minor aliʻi
kuaʻāina	people of the land/from local area
kula	plain or open country
kuleana	responsibility; also a small piece of land awarded in fee simple to the common people.
kūmū	goatfish; *Parupeneus porphyreus*
kumu kākoʻo	assistant teacher
kūpeʻe	an edible marine snail; *Nerita polita*
lāʻau lapaʻau	medicine, medicinal plants
limu	algae
limu ʻeleʻele	*Enteromorpha prolifera*
limu kohu	*Asparagopsis taxiformis*
limu līpeʻe	*Laurencia* sp.
limu līpoa	*Dictyopteris plagiogramma* and *D. australis*
limu manauea	*Gracilaria coronopifolia*
limu wāwaeʻiole	*Codium edule*
loʻi kalo	irrigated taro terraces
maiʻa	banana

māi‘i‘i	surgeonfish; *Acanthurus nigrofuscus*
maka‘āinana	farmers/commoners
makai	toward the sea
malo‘o	dry
mana‘o	thoughts
manini	a common reef surgeonfish; *Acanthurus triostegus*
manō	shark
mauka	inland
moa	whisk fern, not a true fern; a seedless non-vascular native plant; *Psilotum nudum*
moi	*Polydactylus sexfilis*
moku	district, land section, or island
mo‘o	reptilian water deity
mo‘o	shorthand for *mo‘okū‘auhau* (genealogy) and *mo‘opuna* (grandchild, descendant)
mo‘olelo	story, tradition, legend, history
muliwai	river mouth
nehu	anchovies; *Encrasicholina purpureus*
‘ohana	family
‘ōhi‘a lehua	*Metrosideros* sp., often *polymorpha*; an iconic Native forest tree with beautiful red flowers
‘ō‘io	ladyfish/bonefish; *Albula vulpes*
‘ōlelo no‘eau	traditional Hawaiian proverbs and poetical sayings
omalemale	young uhu, or parrotfishes, including *Scarus perspicillatus*
‘o‘opu nōpili	*Sicyopterus stimpsoni*
‘ōpae	endemic shrimp
‘opihi	limpets; *Cellana talcosa, C. sandwicensis, C. exarate*, and *C. melanostoma*
‘o‘opu	refers to all species of native Hawaiian goby fish
‘o‘opu ‘akupa	*Eleotris sandwicensis*
‘o‘opu nākea	*Awaous guamensis*

‘ōpae	endemic shrimp
‘ōpae kuahiwi/ kala‘ole	*Atyoida bisulcata*
‘ōpae ‘oeha	*Macrobrachium grandimanus*
‘ōpelu	mackerel scad; *Decapterus macarellus*
‘opihi	limpets; *Cellana talcosa, C. sandwicensis, C. exarate, and C. melanostoma)*
‘opu ‘alamo‘o	*Lentipes concolor*
‘opu naniha	*Stenogobius hawaiiensis*
owama/oama	young weke or goatfish
pa‘akai	sea salt
pala‘ā	a beautiful, culturally important fern, *Sphenomeris chinensis;* used as offerings, medicine, lei
palapalai	a beautiful, culturally important fern, *Microlepia strigosa* var. *strigosa;* an important plant in hula
pānuhunuhu	stareye parrot fish; *Calotomus sandvicensis*
papa ho‘okele wa‘a	canoe voyaging class
pūkiawe	a native medicinal shrub whose wood was used for tattooing; *Leptecophylla tameiameiae*
‘uala	sweet potato; *Ipomoea batatas*
‘uhaloa	a medicinal plant; *Waltheria indica*
‘uhinipili”	deified spirits
‘ūlei	a native spreading shrub, *Osteomeles anthyllidifolia,* used for digging sticks, musical instruments, and fishing spears
wahi pana	storied place
wai	freshwater
wana	long-spined sea urchins; possibly *Diadema paucispinum* or *Echinothrix diadema*
weke	certain species of the Mullidae, surmullets, or goatfish. All weke have large scales and are usually found in reefs, sometimes in deep water

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APPENDIX A

Request for Consultation Letter

SWCA
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1200 Ala Moana Boulevard, #380
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June 7, 2023

Re: Cultural Consultation for Lahaina Water Management Area Ka Pa'akai Analyses

Aloha,

On behalf of the County of Maui Department of Water Supply (DWS), SWCA Environmental Consultants (SWCA) is conducting Ka Pa'akai Analyses in support of water use permit applications for all DWS existing and proposed water sources in the Lahaina Aquifer Sector.

In 2022, the State of Hawai'i, Department of Land and Natural Resources, Commission on Water Resources Management (CWRM) designated the Lahaina Aquifer Sector as both a Surface and Ground Water Management Area. As a result, the Department of Water Supply is required to submit water use permit applications to the CWRM for all existing and proposed water sources within the Lahaina Aquifer Sector.

The Maui County DWS currently operates two surface water treatment plants and eight well pumps within the Lahaina Aquifer Sector (Figure 1). These existing sources withdraw groundwater from the Honolua aquifer system and the Launiupoko aquifer system, and surface water from Honokōhau and Kanaha Streams. The DWS is preparing water use permit applications for all of these existing water sources. In addition, the DWS plans to prepare water use permit applications for new water sources under development. These proposed water sources include three wells in the Honolua aquifer, one well in Honokowai aquifer and two wells in Launiupoko aquifer.

As water use within the Lahaina Aquifer Sector has the potential to affect traditional and customary Native Hawaiian rights and practices, a required part of the CWRM water use permit application for each water use is the preparation of a Ka Pa'akai Analysis. These analyses will follow the guidelines established by the 2000 Hawai'i Supreme Court decision in Ka Pa'akai O Ka 'Aina v. Land Use Commission and will involve:

- The identification of cultural, historical, and natural resources of value to Native Hawaiians located within the water use permit area, and the extent to which traditional and customary Native Hawaiian rights are exercised in the area.
- The determination of the extent to which those resources, including traditional and customary Native Hawaiian rights, will be affected or impaired by actions associated with the existing or proposed water use.
- If impacts are found to exist, the identification of actions that could be taken, as needed, to reasonably protect traditional and customary Native Hawaiian rights and practices within the permit area and the development of an implementation plan and budget for these mitigating actions.

The Ka Pa'akai Analyses and consultation process is intended to address each of these three elements. As part of the consultation process, SWCA is attempting to identify and consult with individuals and organizations familiar with past and present cultural activities conducted in the permit areas, particularly those related to water. We are seeking your kōkua and mana'o regarding the following aspects of our study:

- Help to identify kama'āina, kūpuna, and other individuals who might be willing to share their cultural knowledge of the permit areas and their cultural resources.
- Information on present and past water use in the permit areas.

- Information on place names and cultural traditions associated with the permit areas.
- Information on cultural resources that may be impacted by water use activities by the DWS.
- Knowledge of traditional gathering practices within the permit area, both past and ongoing.
- Information on any current cultural practices being carried out within the permit areas.
- Any other concerns the community might have related to cultural practices within or in the vicinity of the permit areas.

We appreciate any information you would be willing to share regarding the permit areas and those individuals knowledgeable about its past and present cultural uses. Please contact us at Wainani.Traub@swca.com or by phone at (808) 646-6309. We look forward to hearing from you.

Mahalo no kou kōkua 'ana mai,

Wainani Traub
Assistant Project Anthropologist

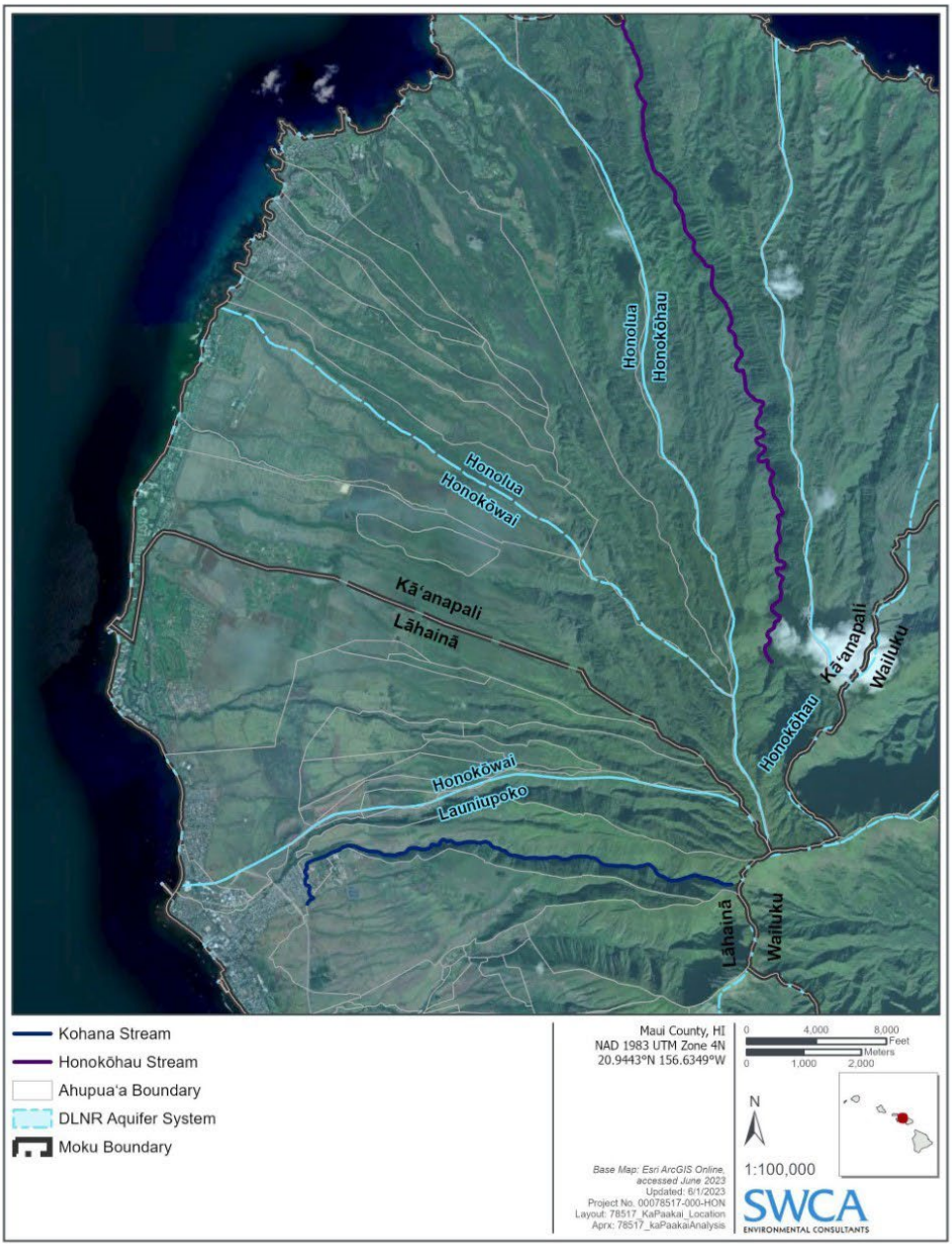

Figure 1. Lahaina Aquifer Sector