



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
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STAFF SUBMITTAL

COMMISSION ON WATER RESOURCE MANAGEMENT

Honolulu, O'ahu

Designation of Lahaina Aquifer Sector, Maui as a Surface Water and Ground Water Management Area

SUMMARY OF REQUEST:

No Action; The purposes of this submittal are to (1) share information with the Commission on the Chair's decision to initiate proceedings to designate the entire Lahaina Aquifer Sector, Maui as both a Surface Water and Ground Water Management Area based on threats to water resources as identified from factual data presented below; and (2) provide responses received to date from consultation with the Maui County Council, Maui Mayor, and Maui Board of Water Supply (Hawai'i Revised Statutes § 174C-41 (b)).

SUMMARY OF JUSTIFICATION:

Harm to Ground Water Quantity and Quality by Saltwater Intrusion

Current and authorized planned uses of the Honokōwai and Launiupoko aquifer systems either exceed or approach 90% of sustainable yields and threaten the aquifer due to saltwater intrusion of the freshwater lens. Maui County Department of Water Supply projects a 67% increase in potable water consumption in the Lahaina District by 2035, from 10.819 million gallons per day (mgd) in 2020 to 15.554 mgd, based on population growth and community planned development timelines.¹ This demand is currently being met with a mixture of surface water and ground water, which is likely to continue.

Serious Historic and Ongoing Disputes over Current and Planned Uses are Occurring

The use of water for non-public trust purposes is affecting the availability of water to meet public trust needs. Instream values, including water needed to support traditional and customary practices, domestic water uses, recreational uses, and native aquatic biota, have historically, currently, and will continue to be harmed if the Commission does not consider additional protective actions.

Climate Uncertainty – Drought and Decline in Rainfall

Rainfall has declined significantly across the Lahaina District, particularly during the dry season.² Anticipated declines in rainfall based on future projections will negatively affect ground water recharge and streamflow,³ reducing the water availability.⁴

¹ Maui County Water Use and Development Plan ("WUDP"). 2017 Draft.

² Frazier, A.G., and T.W. Giambelluca. 2017. Spatial trend analysis of Hawaiian rainfall from 1920 to 2012. *International Journal of Climatology*, 37(5): 2522-2531.

³ Elison Timm, O., *et al.* 2015. Statistical downscaling of rainfall changes in Hawai'i based on the CMIP5 global model projections. *Journal of Geophysical Research: Atmospheres*, 120(1): 92-112.

⁴ Mair, A. *et al.* 2019. Estimated groundwater recharge from a water-budget model incorporating selected climate projections, Island of Maui, Hawai'i. USGS SIR 2019-5064.

Enhanced Management and Protection Through Integration of Surface and Ground Water Uses

Water use in the Lahaina Aquifer Sector (see Figure 1) and its associated surface water hydrologic units (see Figure 2) (referred to hereafter as the Lahaina District) is reliant on a combination of surface water diversions and ground water wells. Throughout the Lahaina District, there is an inextricable relationship between surface water and ground water, both in their source and in their use, such that reductions in the availability of one, affects the use and availability of the other. As interim instream flow standards are implemented, the availability of surface water to meet the non-potable needs of the Lahaina District has declined, resulting in the construction of new wells to meet non-potable demand. However, such usage may threaten public trust uses including the domestic needs supplied by existing wells and the needs of the Department of Hawaiian Home Lands in these same aquifers. Water Management Area designation will ensure that the Commission can regulate and manage surface water and ground water in an integrated manner to protect water resources in the Lahaina District.

LOCATION MAP:

Figure 1: Lahaina Aquifer Sector highlighted in blue - Ground Water Hydrologic Units, Island of Maui

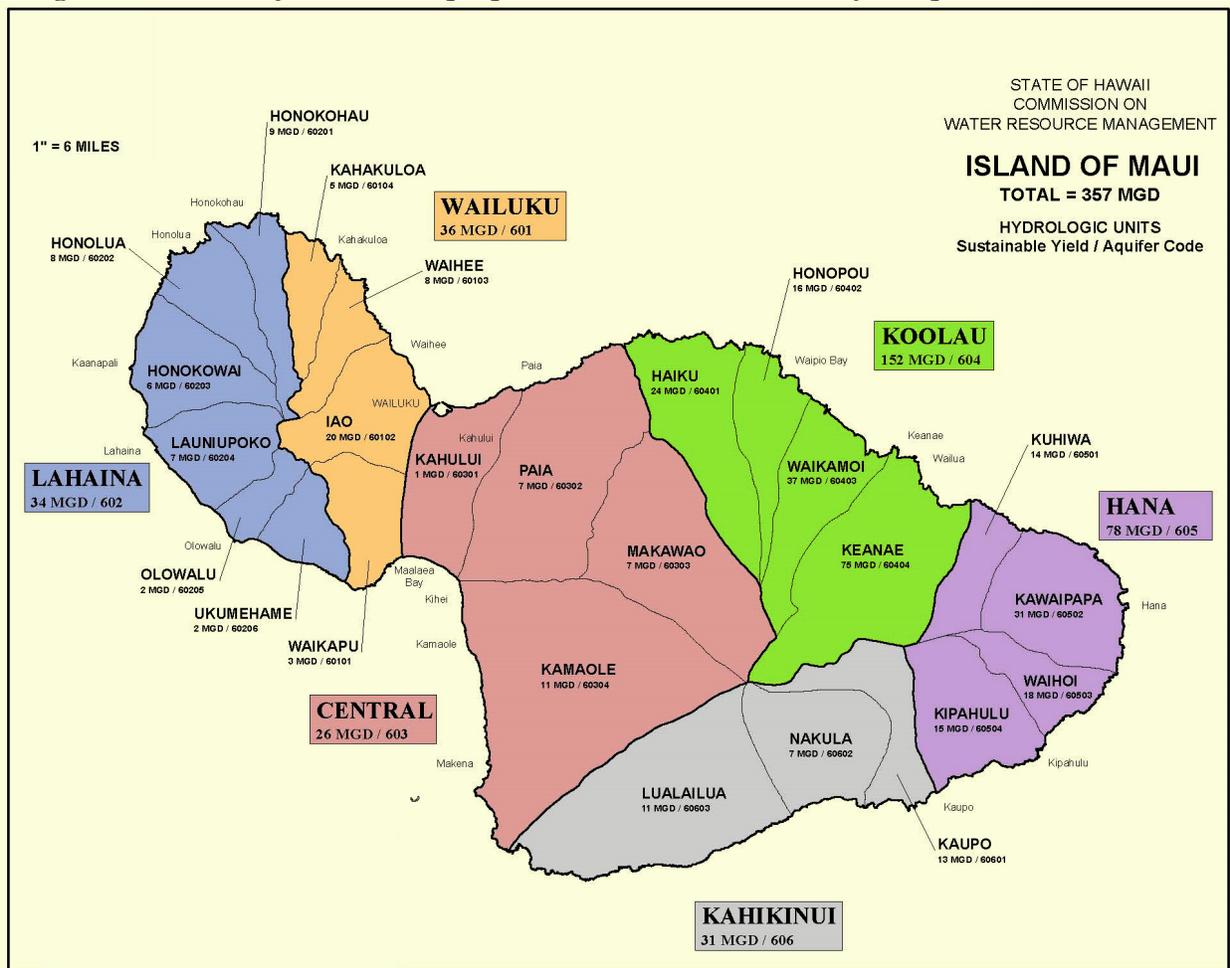
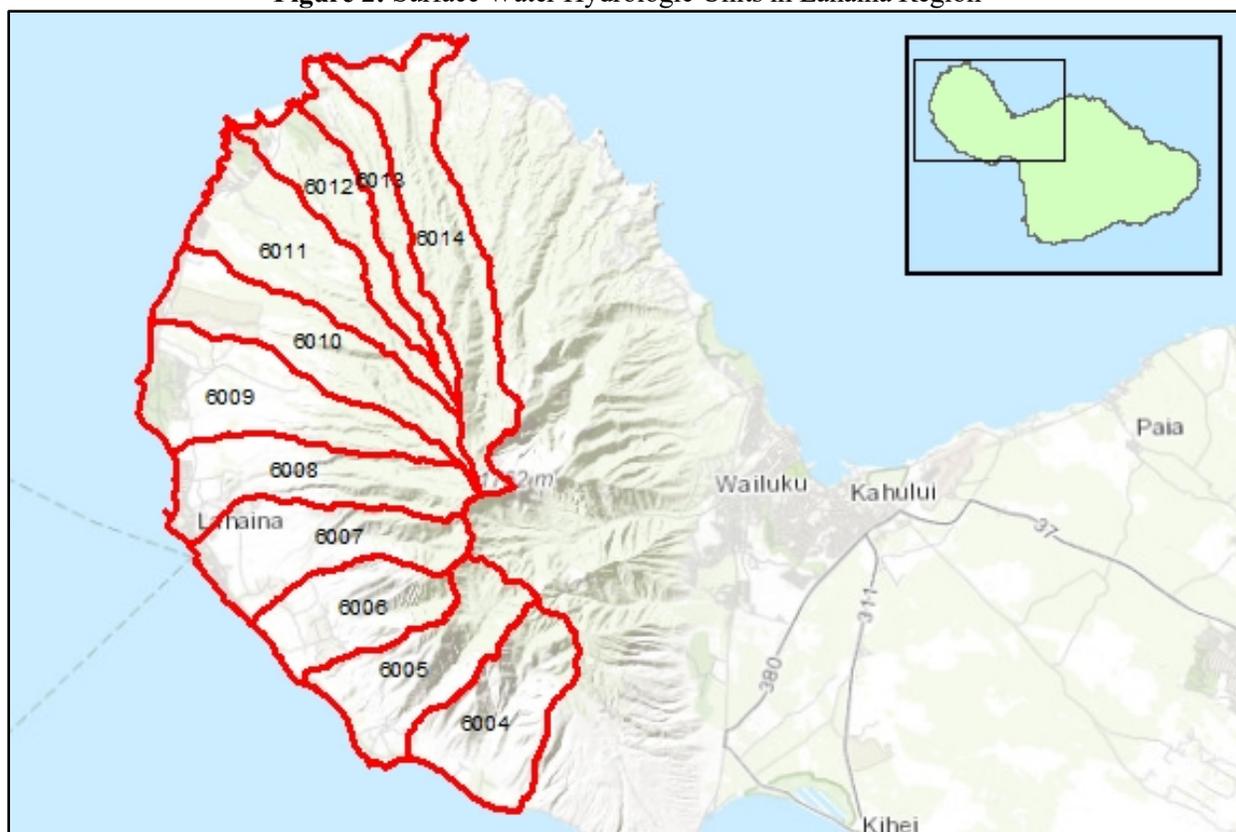


Figure 2: Surface Water Hydrologic Units in Lahaina Region**BACKGROUND:**

The Lahaina Aquifer Sector is one of six on the island of Maui. It consists of six ground water hydrologic units: Honokōhau, Honolulu, Honokowai, Launiupoko, Olowalu, and Ukumehame (Figure 1) and 11 surface water hydrologic units: Honokōhau (6014), Honolulu (6013), Honokahua (6012), Kahana (6011), Honokōwai (6010), Wahikuli (6009), Kahoma (6008), Kaua‘ula (6007), Launiupoko (6006), Olowalu (6005), and Ukumehame (6004) (Figure 2).

BACKGROUND GEOLOGY:

The West Maui Volcano is composed of a central caldera and two main rift zones trending northwest and southeast from the caldera. Thousands of dikes exist within the rift zone with the number increasing toward the caldera and with depth. Dikes also exist in a radial pattern around the caldera⁵. Most rocks in West Maui originated as shield building Wailuku Basalt overlain with post-shield Honolulu Volcanics. In some locations, a late rejuvenation phase of Lahaina Volcanics is present. Wedges of sedimentary deposits are found in stream valleys and along the coasts. Sedimentary deposits have relatively low permeability compared to volcanic rocks and their subsurface extent influences the hydraulic gradient of dike-free volcanic rocks. The permeability of the subaerial, shield-building, and dike-free lava flows in West Maui is high and influenced by: 1) clinker zones associated with ‘a‘ā flows; 2) voids along the contacts between lava flows; 3) cooling joints normal to flow surfaces; and 4) lava tubes associated with pāhoehoe flows. The regional horizontal hydraulic conductivity of the dike-free volcanic rocks ranges from hundreds to

⁵ Gingerich, S.B., and Engott, J.A. 2012. Groundwater availability in the Lahaina District, West Maui, Hawai‘i. U.S. Geological Survey Scientific Investigations Report 2012-5010.

thousands of feet per day⁶. Because of the high permeability of these rocks, the horizontal water-table gradients are small (around one foot per mile), with the horizontal permeability as much as 10-100 times the vertical permeability. For large areas of the Lahaina Aquifer Sector, the dike-free basal aquifer is not interrupted by geologic anomalies, resulting in a homogenous region across the Launiupoko, Olowalu, and Ukumehame aquifer systems (Figure 3). Similarly, the dike-free regions of the Honokōwai, Honolua, and Honokōhau aquifer systems are also relatively homogenous, with similar hydraulic conductivities.

CURRENT CONDITIONS: SURFACE WATER

Natural stream flow is declining in perennial streams throughout the Lahaina District due to declines in rainfall, ground water recharge, and subsequently, the baseflow contribution to streams.^{7,8} Current estimates of median and low-flow conditions are based on limited data for the 1984-2013 climate period.⁹ Additional declines in rainfall since then have reduced the availability of streamflow. Projected declines in seasonal and annual rainfall throughout West Maui will continue to negatively affect surface water resources and the instream values they support.¹⁰

Conflicts among water users, stakeholders, and the protection of instream values have persisted for generations. In 2018, the Commission amended interim instream flow standards for six perennial streams in the Lahaina District (Table 1). However, subsequent reductions in the availability of water to meet off-stream demand continue to strain existing water uses, including kuleana tenants and traditional and customary practitioners, and have led to additional conflicts. Currently, a docket is before the Public Utilities Commission (“PUC”) on Launiupoko Irrigation Company, Inc’s (“LIC”) request for a general rate increase for its delivery of stream water from Launiupoko and Kaua‘ula stream and pumping of existing and new ground water sources in the Launiupoko aquifer.¹¹ This docket concerns the IIFS for Kaua‘ula stream, curtailments of water deliveries, including kuleana tenants who are dependent on the LIC system, effects on traditional and customary Native Hawaiian practices, and the new use of a former plantation skimming well shaft. In December 2021, CWRM staff participated in a stakeholder meeting and provided public comments to the PUC. (See Exhibit 1)

A number of informal (e.g., phone calls, letters, emails) and five formal complaints have been filed with the Commission regarding the lack of streamflow, the waste of diverted surface water, the delivery of water, and issues with diversion management from Honokōhau, Honokōwai, Kahoma, Kanahā, Kaua‘ula, Launiupoko, Olowalu, and Ukumehame since 2018. In 2020 alone, Commission staff have fielded complaints for Honokōhau, Kahoma, Kanahā, Kaua‘ula, and Ukumehame streams. The latest is a waste complaint filed for Kaua‘ula Stream on December 9, 2021 alleging leakages of water at multiple locations of LIC’s system and a reduction of water delivered for kalo cultivation from the needed 90,000 gpd to between 47,000-52,000 gpd. The complaints ask the commission to order repairs and delivery of water through the traditional Pi‘ilani ‘auwai. CWRM staff will be forwarding complaint for formal response to LIC and anticipate future recommendations to come before the Commission for action.

⁶ Rotzoll, K., El-Kadi, A.I., and Gingerich, S.B. 2007. Estimating hydraulic properties of volcanic aquifers using constant-rate and variable-rate aquifer tests. *Journal of the American Water Resources Association*, 43(2): 334-345.

⁷ Frazier, A.G., and T.W. Giambelluca 2017. *Id.*

⁸ Gingerich, S.B., and Engott, J.A. 2012. *Id.*

⁹ Cheng, C.L. 2014. Low-flow characteristics of streams in the Lahaina District, West Maui, Hawai‘i. U.S. Geological Survey Scientific Investigations Report, 2014-5087.

¹⁰ Elison Timm, O., *et al.* 2015. *Id.*

¹¹ PUC Docket No. 2020-0089. See <https://dms.puc.hawaii.gov/dms/dockets?action=search>

Figure 3. Distribution of regional aquifer hydraulic conductivity in central and West Maui, Hawai'i (Gingerich and Engott, 2012)

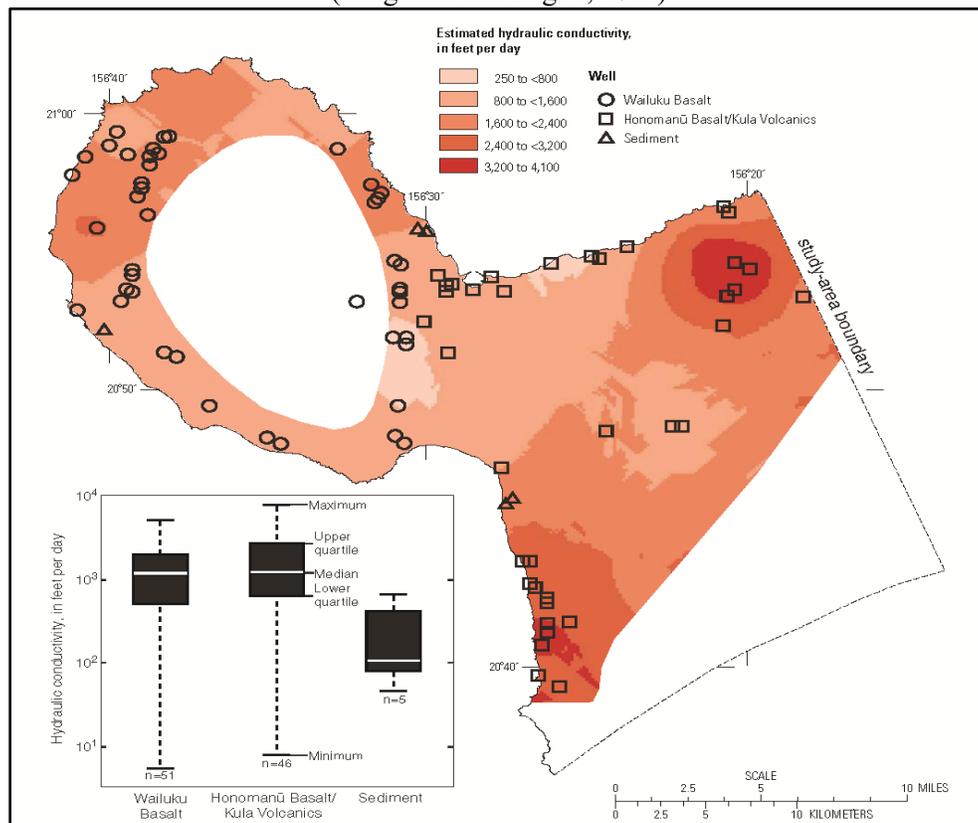


Table 1. Existing interim IFS for surface water hydrologic units in the Lahaina Aquifer Sector. [n/a = not applicable]

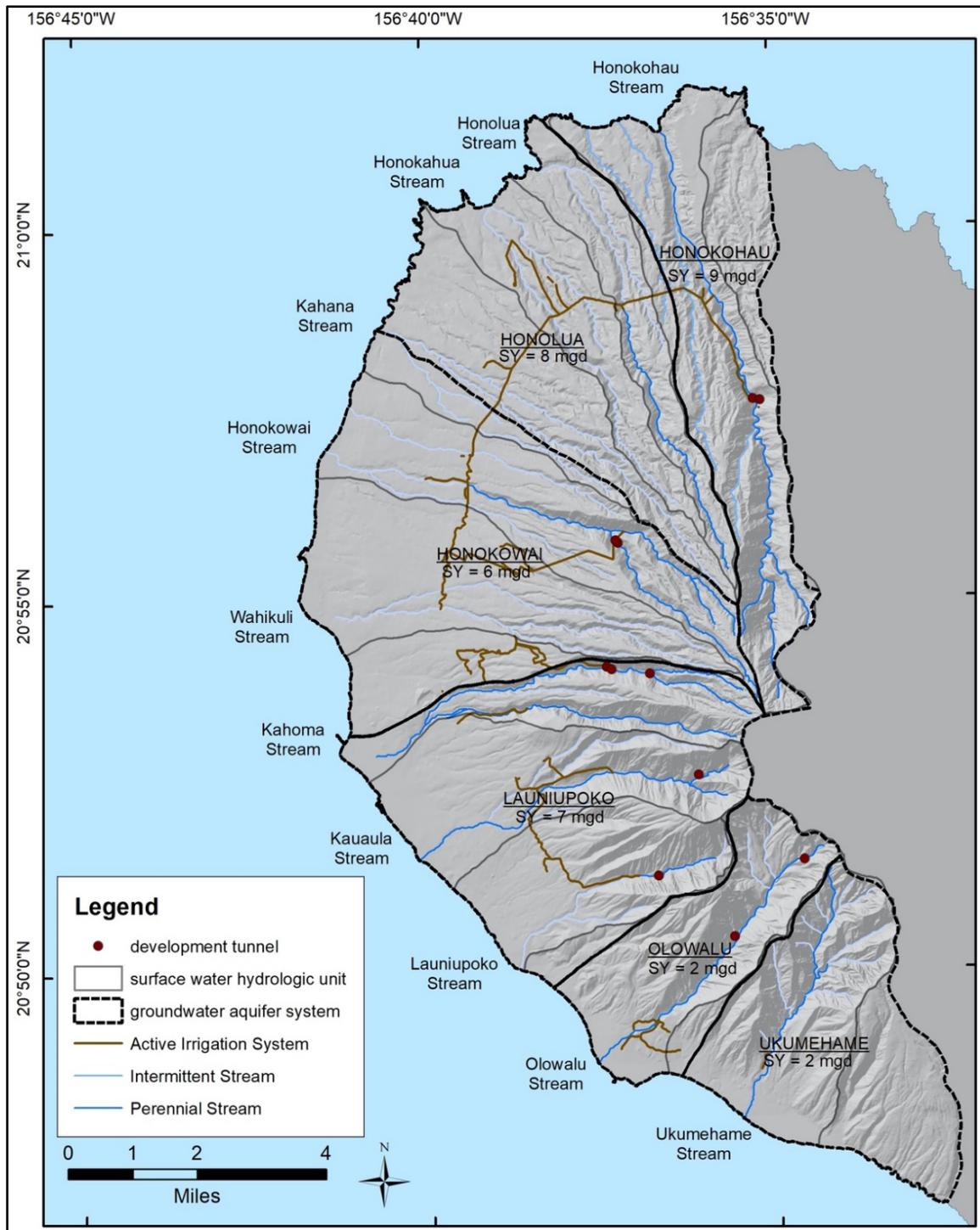
surface water hydrologic unit	stream name	Q ₅₀ (mgd)	Q ₉₀ (mgd)	interim IFS (mgd)	interim IFS elevation (ft)	estimated flow available for non-instream use at Q ₅₀ (mgd)
Honokōhau	Honokōhau	19.4	11.0	8.6	340	12.2 ¹
Honolua	Honolua	2.46	0.00	natural flow	750	0.0
Honokōwai	Amalu ²	--	--	n/a	1600	0.0
Honokōwai	Kapaloa	--	--	n/a	1560	n/a
Honokōwai	Honokōwai	3.49	2.32	n/a	1480	n/a
Kahoma	Kahoma	3.75	1.87	3.49	2100	0.26
Kahoma	Kanahā	3.17	2.65	0.50	1100	2.67
Kaua'ula	Kaua'ula	6.14	3.36	3.36	1540	2.78
Launiupoko	Launiupoko	0.30	0.23	0.00	1340	0.30
Olowalu	Olowalu	3.23	2.20	2.65	130	0.58
Ukumehame	Ukumehame	3.23	2.07	2.90	220	0.33

¹amount reflects downstream location of interim IFS and groundwater gains between intake and interim IFS

²intake sealed by rockfall during 2018 storm and is no longer functional

In May 2021, the Commission approved the Department of Hawaiian Home Lands' (DHHL) reservation of 2 mgd of surface water to meet their foreseeable future non-potable water needs in Honokōwai serviced by the Honokōhau Ditch from the Honokōhau Stream. Commission action to modify Maui Land and Pineapple's intake also reduced the peak flow available to the ditch to approximately 20 mgd, which partially addressed a formal waste complaint received in 2019.

Figure 4. Ground water Aquifer Systems Areas and their sustainable yields (SY) for the Lahaina Aquifer Sector with overlaying surface water hydrologic units and their perennial and intermittent streams with development tunnels and active irrigation ditch systems.



Ditch Systems

The Lahaina Aquifer Sector has eight water collection systems (see Figure 4) with the Honokōhau ditch being the largest. Honokōhau ditch diverts stream and development tunnel water at the 825-foot elevation in Honokōhau Valley and transports it across six surface water hydrologic units and three aquifer systems to meet potable and non-potable needs. The Honokōwai Ditch diverts stream and development tunnel water at the 1560-foot elevation in Honokōwai Gulch for non-potable uses in the Honokōwai and Wahikuli hydrologic units. The Kahoma Ditch diverts surface and development tunnel water from Kahoma Stream at the 1920-foot elevation for non-potable use in the Kahoma hydrologic unit. Kanahā pipeline diverts water from Kanahā Stream at the 1120-foot elevation for potable and non-potable use also in the Kahoma hydrologic unit. Kaua‘ula Ditch diverts surface and development tunnel water from Kaua‘ula Valley at the 1540-foot elevation for non-potable use in Kaua‘ula and Launiupoko hydrologic units. Similarly, Launiupoko Ditch diverts water from Launiupoko Stream for non-potable use in Kaua‘ula and Launiupoko hydrologic units. Olowalu Stream is diverted at the lower Olowalu Ditch at the 200-foot elevation for non-potable uses. Ukumehame Stream is diverted at the 240-foot elevation for non-potable uses.

CURRENT CONDITIONS: GROUND WATER

Water Withdrawals

Current 12-month moving average ground water withdrawals, development tunnel discharge, entitled/authorized planned use, other permitted well capacity and their totals are provided in Table 2 for the Aquifer System Areas in the Lahaina Aquifer Sector. Honokōwai and Launiupoko are exceeding SY. The grey column of maximum reported pumpage is to show the highest rate of pumping that has historically occurred.

Table 2. Current (November 2021) 12-month moving average (MAV) reported pumpage and for aquifer systems in the Lahaina Aquifer Sector. development tunnel discharge and existing entitled/authorized planned use [million gallons per day, mgd]

System	SY (mgd)	2020 12-month average (mgd)	2021 12-month average (mgd)	development tunnel discharge (mgd)	entitled/ auth. planned use* (mgd)	other permitted well capacity (mgd)	total existing and auth. planned use (mgd)	% of SY
Ukumehame	2.0	0.042	0.030	0.00	1.080	0.000	1.11	56%
Olowalu	2.0	0.082	0.064	0.10	0.003	0.000	0.167	8%
Launiupoko	7.0	1.637	1.305	3.91	1.036	1.777	8.028	115%
Honokōwai	6.0	3.480	3.998	2.50	2.533	1.150	10.181	170%
Honolua	8.0	2.131	2.554	0.00	1.969	1.150	5.673	71%
Honokōhau	9.0	0.000	0.000	3.75	0.001	0.000	3.751	42%

*based on email and excel table from County of Maui DWS September 3, 2020

Water Use Reporting

The owner or operator of a well is required to report their monthly water use to the Commission whether it is used or not. However not all owners are compliant, particularly in the Honokōwai Aquifer System Area, which already exceeds its SY. This makes it difficult for the Commission to monitor and account for how much water there is. The compliance rate of water use reporting is shown in Table 3.

Table 3. Water Use Reporting by Aquifer System Area

Aquifer System Area	Total # of Wells (including OBS and UNU)	# Wells Reporting Water Use	Compliance Rate
Ukumehame	5	1	20%
Olowalu	5	4	80%
Launiupoko	31	22	71%
Honokōwai	42	28	67%
Honolua	16	11	69%
Honokōhau	4	0	0%

For the most part, Commission staff understand the current status of most wells, whether they are pumping, not in use, or are lost. There are a few wells in which we don't know their status and have ignored our outreach program. These include two in the Honokōhau Aquifer System, one in the Honokōwai Aquifer System, and one in the Launiupoko Aquifer System. There are a number of old test holes listed as observation wells, eight in the Honokowai Aquifer System and four in the Launiupoko Aquifer System, that staff need to verify their existence and could be potentially utilized in our network of monitoring wells on island. In addition, staff need to visit an old shaft and two DLNR wells in the Honolua Aquifer System to verify their current condition.

Maximum Permitted Well Capacity

The maximum permitted well capacity describes the amount of water that the well is capable of pumping in a day. Most domestic well users only pump water for a limited amount of time per day until their need is met. The Maui County DWS wells are pumping for many hours a day and are closer to reaching their maximum pump capacity, especially in times of drought and higher water demand. Maximum permitted pump capacity is an important data set to estimate potential water uses when wells are not reporting. Some of the large capacities identified include all of the former sugar skimming wells, most of which are now unused (Table 4).

Table 4. Maximum Permitted Pump Capacity by Aquifer System Area

Aquifer System Area	Maximum Pump Capacity (mgd)	SY (mgd)
Ukumehame	4.954	2
Olowalu	8.553	2
Launiupoko	42.302	7
Honokōwai	43.369	6
Honolua	7.752	8
Honokōhau	0.012	9

Saltwater Intrusion and Chloride Levels

Hawai'i's public trust describes the "authority and duty to maintain the purity and flow of Hawai'i's waters for future generations."¹² A degradation of ground water resources that may compromise existing or future beneficial uses shall not be allowed or permitted.¹³ Many wells in the Lahaina Aquifer Sector have become brackish and are already exceeding the chloride concentration of greater than 250 milligrams per liter (mg/L

¹² *In Re Water Use Permit Applications*, 94 Hawai'i 97, 138 (2000) ("Waiāhole I").

¹³ The Department of Health assesses degradation of ground water quality only pertaining to organic and inorganic contaminants pursuant to HAR Chapter 11-20 and HRS § 174C-44 (2), the Commission assesses saltwater intrusion and chloride levels pursuant to HRS § 174C-44 (4) and (5).

or part per million – ppm) that is considered unacceptable for drinking purposes under the EPA Secondary Drinking Water Standards.¹⁴ The county water departments generally limit chloride levels of water within their municipal system to less than 160 mg/L. The public trust and the precautionary principle require the Commission to limit the use of brackish water and wells to prevent further salination. This will lead to less available non-potable water sources.

In addition to monthly reports of water use, the Commission may require salinity and water level reporting as may be deemed appropriate. Currently, only seven County wells in Honolulu, seven Hawai'i Water Service wells in Honokōwai, and five County wells in Launiupoko report chlorides monthly to the Commission.

Mahinahina Deep Monitoring Well (“DMW”) (6-5739-003)

Beginning in 2001, CWRM staff has monitored on a quarterly basis, the Mahinahina DMW (6-5739-003) located approximately two miles inland and 1.4 miles southeast of the Kā'anapali Airport, in the Honokōwai Aquifer System Area. Figure 5 illustrates the most recent Conductivity, Temperature, and Depth (“CTD”) profile measured in this well on November 18, 2021. The profile shows a typical basal aquifer lens, with fresh water overlying a brackish water transition zone, which in turn, overlies the brackish/sea water interface.

Figure 6 presents a time series chart illustrating the trends of the measured Top of Transition Zone (“TTZ” at 1,000 $\mu\text{S}/\text{cm}$), mid-point of Transition Zone (“MPTZ” at 25,000 $\mu\text{S}/\text{cm}$), and brackish/sea water interface (50,000 $\mu\text{S}/\text{cm}$) during the period of monitoring. The time series shows the measured fresh water/ brackish water interface (TTZ) has been stable since 2013. The time series shows a slow rise in the MPTZ, near the calculated Gyben Herzberg elevation of 128 feet below mean sea level (msl). Additionally, the sea water interface has remained relatively stable at ± 170 feet below msl.

The trends illustrated show that the water level in this DMW has risen nearly 0.5 feet, while the TTZ has declined 1.27 feet, indicating a thickening of the freshwater lens. The gentle rise of the Mid-Point (MPTZ) to near the calculated Mid-Point, based upon the water level, and the stability of the brackish/sea water interface, also indicates this area of the Honokowai ASA has been stable over the period of monitoring.

Note: the TTZ measured prior to 2006 may be considered suspect and is included on this figure for comparative purposes (stability over the period of monitoring, 2001-2006). The CTD instrument used to collect profile data prior to 2007 had a suspected calibration issue in the 1,000 $\mu\text{S}/\text{cm}$ range and was replaced in 2008 by the instrument currently used to collect CTD data (calibrated annually).

¹⁴ See <https://www.epa.gov/sdwa/secondary-drinking-water-standards-guidance-nuisance-chemicals>

Figure 5. Conductivity, Temperature, and Depth (CTD) profile November 18, 2021

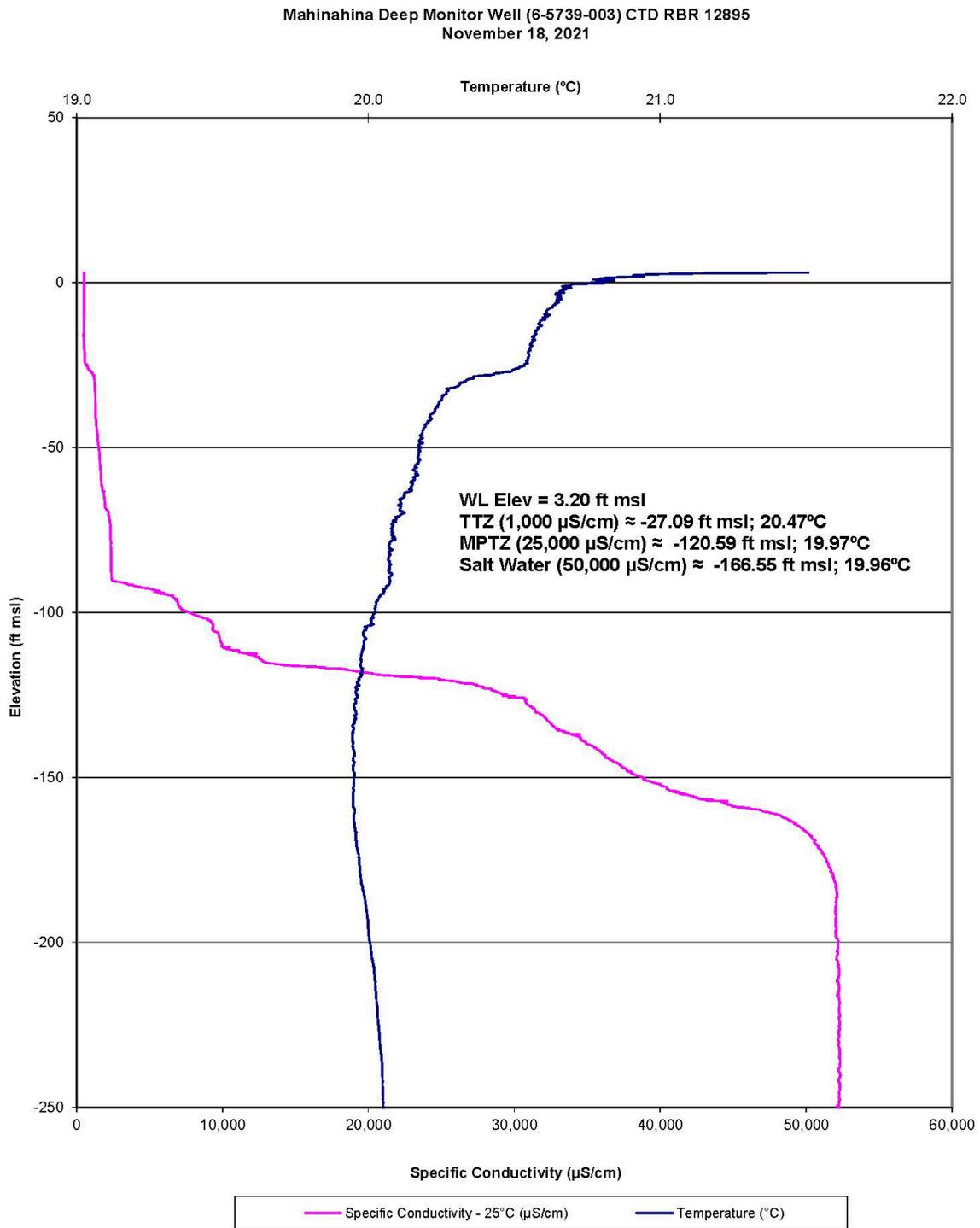
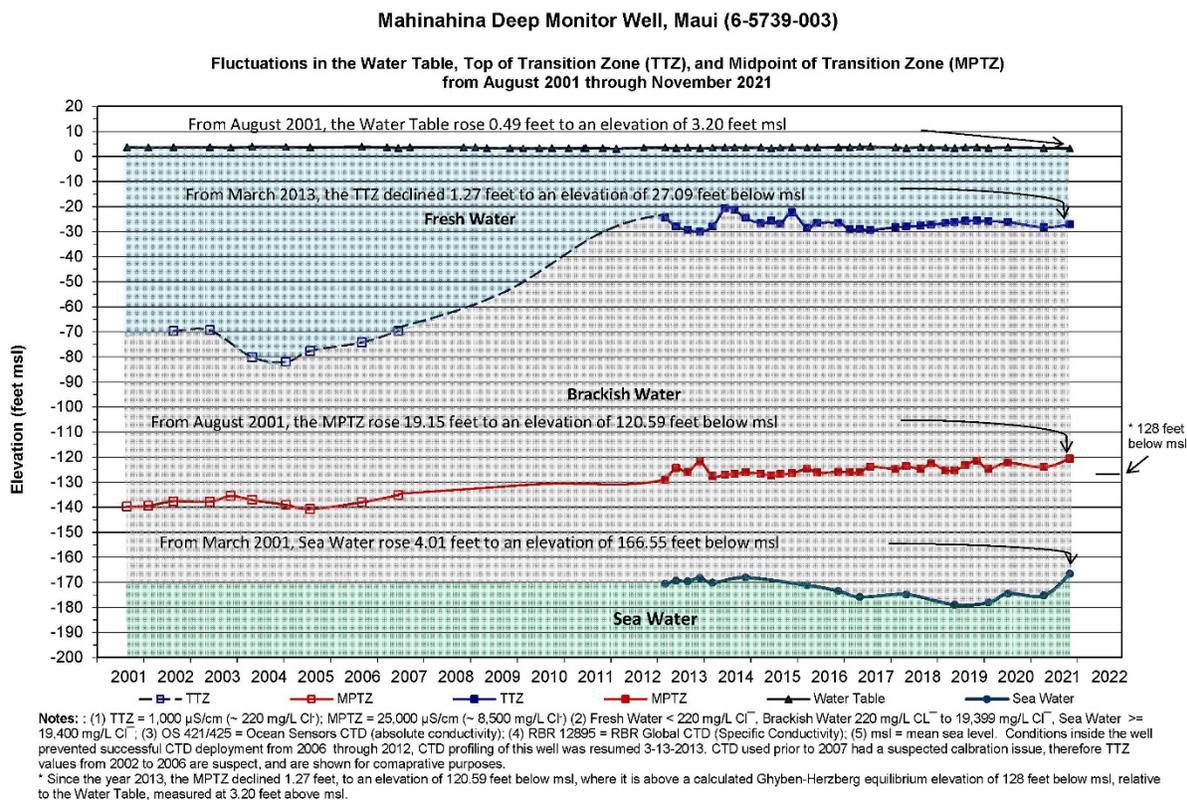


Figure 6. Time Series Chart of Water Trends from 2001-Present



last updated 1/13/2022

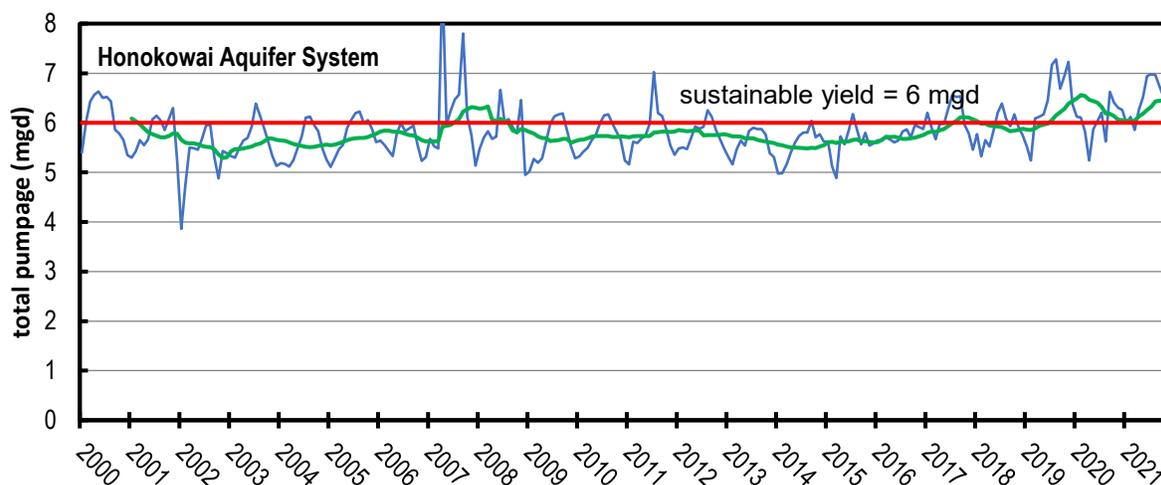
Honokōwai Aquifer

The sustainable yield of the Honokōwai Aquifer System Area is 6.0 mgd. As of November 2021, the average withdrawals of ground water from the Honokōwai Aquifer System Area are 3.998 mgd, a 10% increase from August 2020 (3.626 mgd), with a maximum historic monthly pumping rate of 4.778 mgd. These values do not consider the withdrawal of approximately 2.5 mgd of ground water from development tunnels. In addition, DHHL has an approved water reservation of 770,000 gpd from the Honokōwai Aquifer System Area that is included in the authorized planned use total of 2.533 mgd that counts against sustainable yield. Reported total ground water withdrawals and 12-month moving average (12-MAV) for the Honokōwai Aquifer System Area are provided in Figure 7.

There is lower hydraulic conductivity in the coastal alluvium and weathered basalt relative to the north-south conductivity of the basalt aquifer system that connects the Honokōwai Aquifer System to the neighboring Honolua and Honokōhau Aquifer System Areas¹⁵. Therefore, withdrawals from Honokōwai in the dike-free basal aquifer will most likely affect the neighboring aquifers.

¹⁵ Glenn, Craig R., Robert B. Whittier, Meghan L. Dailer, Henrieta Dulaiova, Aly I. El-Kadi, Joseph Fackrell, Jacque L. Kelly, Christine A. Waters, Jeff Sevadjan. 2013. "Lahaina Groundwater Tracer Study – Lahaina, Maui, Hawaii." *Final Report prepared from the State of Hawaii Department of Health, the U.S. Environmental Protection Agency, and the U.S. Army Engineer Research and Development Center.*

Figure 7. Current monthly pumpage (blue line) and 12-month moving average (green line) from the Honokowai Aquifer System, including ground water development tunnel discharge, in million gallons per day (mgd).



Launiupoko Aquifer

The sustainable yield of the Launiupoko Aquifer System Area is 7.0 mgd. As of November 2021, the average withdrawals of ground water from the Launiupoko Aquifer System Area are 1.305 mgd, a 20% decrease from August 2020 (1.637 mgd) with a maximum historic monthly pumping rate of 2.638 mgd. These values do not consider the withdrawal of approximately 4.01 mgd of ground water from development tunnels as well as current pending well applications whose combined proposed daily uses of 1.200 mgd with a combined pump capacity 1.777 mgd are referenced in Table 5.

There is a proposed LIC-2 well (State Well No. 6-5138-005) that is planned to have a 500 gallon per minute pump installed, for a total proposed use of 0.700 mgd for agricultural purposes. This well has not yet been permitted and thus not included in the maximum pumped capacity above. There are also the currently unused Lahaina Shaft-Pump A (State Well No. 6-5240-003) and Lahaina Shaft-Pump B (State Well No. 6-5240-002). Pump A has had a 7,000 gpm pump installed (maximum capacity of 10 million gallons per day) since 1942 and Pump B had a 1,400 gpm pump installed (maximum capacity of 2 million gallons per day), also since 1942. Recently, the well owner installed a 700 gpm pump in Pump A, which would have a maximum daily production of 1 million gallons per day. Acceptance of this pump is pending a pump test and staff analysis that there are no adverse impacts to the environment and other existing water users. It is staff's understanding that a replacement would be requested for Pump B, but it is not known at this time how much quantity will be requested to be withdrawn in total for the Lahaina Shaft Pumps A & B, and whether or not they would be run at the same time.

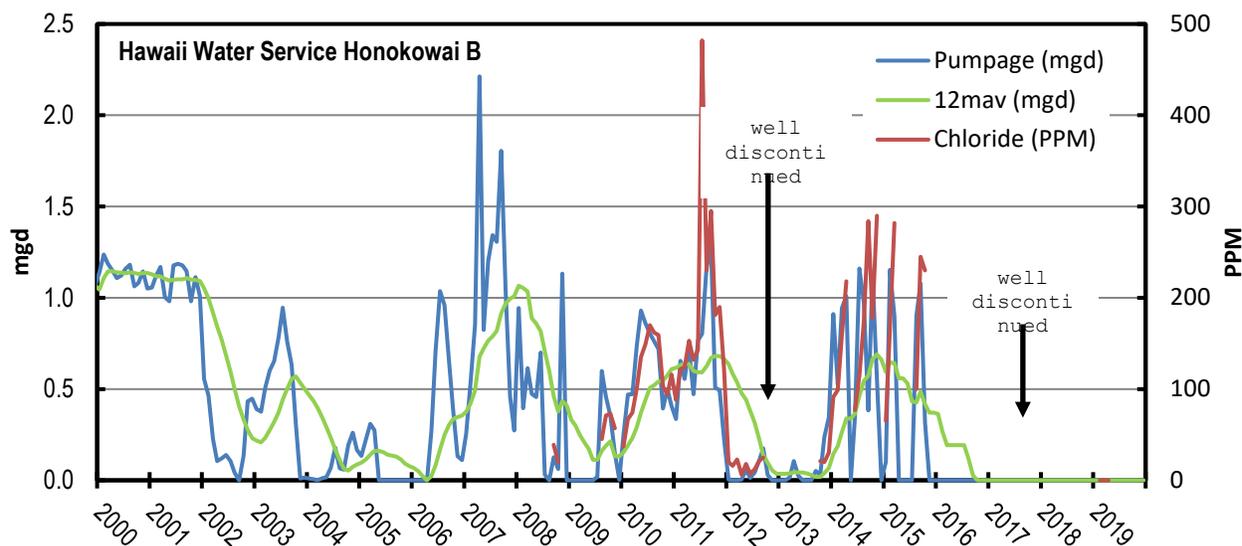
Similar to the Honokōwai system, there is lower hydraulic conductivity in the coastal alluvium and weathered basalt relative to the north-south conductivity of the basalt aquifer system that connects the Launiupoko Aquifer System to the neighboring Honokōwai and Olowalu Aquifer System Areas. Depending on well location and withdrawal rate, withdrawals from Launiupoko in the dike-free basal aquifer may affect the neighboring aquifers.

Table 5. Current (2018-2020) well applications pending completion in the Lahaina Aquifer Sector.

Aquifer System	Well Name	Well Number	Proposed Pump Capacity (mgd)	Proposed Daily Amount (mgd)
Launiupoko	Jackson Rancheria	6-5037-001	0.187	0.075
Launiupoko	Maria Lynn Moyer Memorial	6-5137-002	0.006	0.005
Launiupoko	Makila Kai	6-5138-002	0.504	0.150
Launiupoko	Rogers	6-5139-004	--	--
Launiupoko	Kui‘a Estate	6-5239-001	0.360	0.270
Launiupoko	LIC 1B	6-5139-005	0.720	0.700
total			1.777	1.200

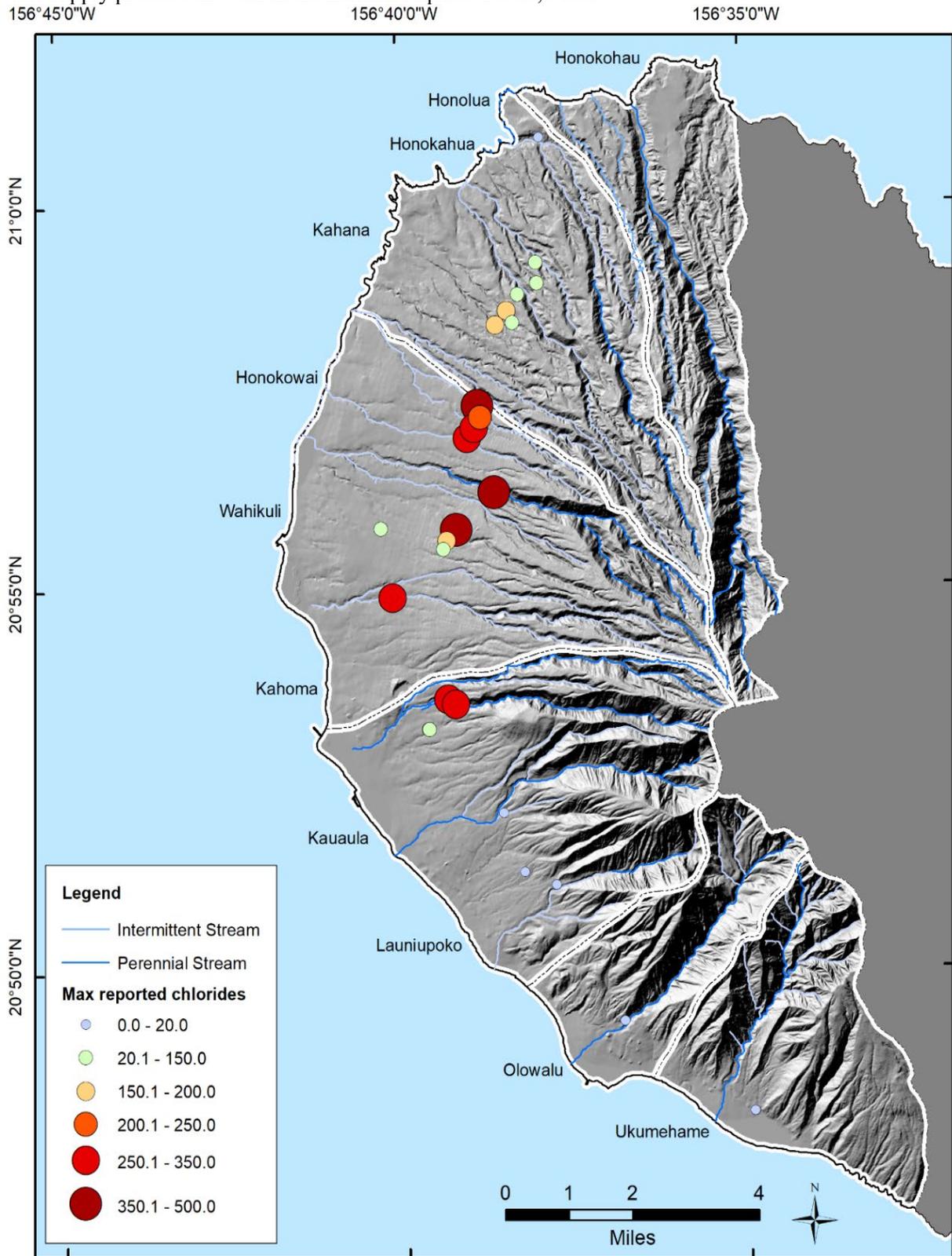
As ground water resources reach or exceed maximum withdrawal rates in the Honokōwai and Launiupoko Aquifer System Areas, ground water development will need to shift to other adjacent aquifers to avoid harm in overpumping and upconing. In addition, existing wells in the Lahaina Aquifer Sector have been discontinued or cannot be continuously pumped because of increasing chlorides as evident in Figure 8.

Figure 8. Monthly pumpage (mgd), 12-month moving average (12MAV) and chloride (ppm) for Honokōwai B (5638-003), operated by Hawaii Water Service, West Maui.



The majority of the large capacity production wells which supply the potable water needs of the Lahaina District have reported maximum chloride content exceeding the EPA standard for drinking water supply (Figure 9). For this reason, Maui County Department of Water Supply is reliant on a combination of ground water and surface water sources to reduce the salinization of the aquifer. Water Management Areas can ensure proper well spacing and limit withdrawals to avoid impacts to water quality.

Figure 9. Maximum reported chloride content (parts per million, ppm) between 2010-2020 for potable water supply production wells in the Lahaina Aquifer Sector, Maui



LEGAL AUTHORITY

The Hawai'i Constitution mandates protection of Hawai'i's natural resources, promoting development and use of resources in a manner consistent with conservation and self-sufficiency. The State also "has an obligation to protect, control, and regulate the use of Hawai'i's water resources for the benefit of its people." Article XI, Sections 1 and 7. This constitutional public trust creates a dual mandate of protection and maximum reasonable and beneficial use. The mandate of protection establishes the affirmative duty to ensure the continued availability and existence of Hawai'i's water resources for present and future generations. The Commission is the primary guardian of water resources and must take the initiative in considering, protecting, and advancing public rights in the resource at every stage of the planning and decision-making process.¹⁶

State Water Code

Legal requirements for initiating the water management area designation process are found primarily in HRS § 174C-41 et seq. and HAR § 13-171-3 et seq.:

§174C-41 Designation of water management area. (a) When it can be reasonably determined, after conducting scientific investigations and research, that the water resources in an area may be threatened by existing or proposed withdrawals or diversions of water, the commission shall designate the area for the purpose of establishing administrative control over the withdrawals and diversions of ground and surface waters in the area to ensure reasonable-beneficial use of the water resources in the public interest.

(b) The designation of a water management area by the commission may be initiated upon recommendation by the chairperson or by written petition. It shall be the duty of the chairperson to make recommendations when it is desirable or necessary to designate an area and there is factual data for a decision by the commission. The chairperson, after consultation with the appropriate county council, county mayor, and county water board, shall act upon the petition by making a recommendation for or against the proposed designation to the commission within sixty days after receipt of the petition or such additional time as may be reasonably necessary to determine that there is factual data to warrant the proposed designation.

(c) Designated ground water areas established under chapter 177, the Ground-Water Use Act, and remaining in effect on July 1, 1987, shall continue as water management areas. [L 1987, c 45, pt of §2; am L 1999, c 197, §4]

The State Water Code (Hawai'i Revised Statutes ("HRS") chapter 174C, part IV, Regulation of Water Use) and supporting administrative rules¹⁷ on water management area designation state the Commission shall designate an area once a reasonable determination is made – based on scientific investigation and research – that water resources in an area are threatened by existing or proposed withdrawals or diversions of water. If determined, the Commission shall designate the area for the purpose of establishing administrative control over the withdrawals and diversions of ground and surface waters in the area to ensure reasonable-beneficial use of the water resources in the public interest.

Factual Data required for Chairperson's Recommendation to Commission

The Chairperson may initiate the designation process if:

- it is either desirable or necessary to designate an area; and

¹⁶ *Waiāhole I*, at 143.

¹⁷ HAR chapter 13-171, subchapter 2. Designation of Water Management Areas.

- there is factual data for a decision by the Commission.¹⁸

Such factual data may be gathered by investigations. HRS § 174C-43. The Chairperson is further obligated to consult with the appropriate county council, county mayor, and county water board as part of the designation process. HRS §§ 174C-41(b) and 174C-46.

If the Commission accepts the Chairperson's recommendation to designate, the Commission then holds a public hearing in accordance with HRS § 174C-42 and HAR § 13-171-5.

CRITERIA FOR SURFACE WATER DESIGNATION (HRS § 174C-45)

In designating an area for water use regulation, the Commission shall consider the following:

- (1) Whether regulation is necessary to preserve the diminishing surface water supply for future needs, as evidenced by excessively declining surface water levels, not related to rainfall variations, or increasing or proposed diversions of surface waters to levels which may detrimentally affect existing instream uses or prior existing off stream uses;
- (2) Whether the diversions of stream waters are reducing the capacity of the stream to assimilate pollutants to an extent which adversely affects public health or existing instream uses; or
- (3) Serious disputes respecting the use of surface water resources are occurring.

ANALYSIS OF CRITERIA FOR SURFACE WATER DESIGNATION

Chairperson's initiation of designation proceedings is based on Commission staff findings that:

- (1) There is a direct tradeoff between the regulation of diversions and restoration of instream flows and the availability of water to support the off-stream needs of the general public through public and private municipal water systems.
- (2) The non-potable water needs of 2 mgd for current and foreseeable development and use of Hawaiian Home Lands as set forth in section 221 of the Hawaiian Homes Commission Act may be impacted by other off-stream non-potable uses in Kapalua and Kā'anapali.
- (3) While the priority is always given to protecting the four public trust uses of water: (1) water in its natural state; (2) water used for traditional and customary practices; (3) water for domestic uses; (4) water reserved for DHHL, without the designation of a water management area and issuance of water use permits, there are few methods for regulating non-instream uses.
- (4) Designation of a water management area will require analysis and use of alternative water sources for non-potable uses.
- (5) There continues to be serious disputes between instream uses of water and operators of former plantation irrigation systems.

CRITERIA FOR GROUND WATER DESIGNATION (HRS § 174C-44)

In the designation of an area for water use regulation, the Commission shall consider the following:

¹⁸ Unlike when the designation process is initiated by written petition, the Chairperson is not required to act on the petition within 60 days of receipt although additional time as may be reasonably necessary to determine there is factual data is allowed. HRS § 174C-41(b).

- (1) Whether an increase in water use or authorized planned use may cause the maximum rate of withdrawal from the ground water source to reach ninety percent of the sustainable yield;
- (2) There is an actual or threatened water quality degradation as determined by the department of health;
- (3) Whether regulation is necessary to preserve the diminishing ground water supply for future needs, as evidenced by excessively declining ground water levels;
- (4) Whether the rates, times, spatial patterns, or depths of existing withdrawals of ground water are endangering the stability or optimum development of the ground water body due to upconing or encroachment of saltwater;
- (5) Whether the chloride contents of existing wells are increasing to levels which materially reduce the value of their existing uses;
- (6) Whether excessive preventable waste of ground water is occurring;
- (7) Serious disputes respecting the use of ground water resources are occurring; or
- (8) Whether water development projects that have received any federal, state, or county approval may result, in the opinion of the Commission, in one of the above conditions.

ANALYSIS OF CRITERIA FOR GROUND WATER DESIGNATION

Chairperson's initiation of designation proceedings is based on Commission staff findings that:

- (1) There has been an increase in water use as well as an increase in authorized planned use which has caused the maximum rate of withdrawal from the ground water to reach ninety percent of the sustainable yield in the Honokōwai Aquifer System;
- (2) Recent (2018-2020) well construction permits (installed pump capacity of 1.777 mgd) for the Launiupoko Aquifer System Area approved by the Commission are not included in the entitled/authorized planned use as summarized by the Maui DWS Water Use Development Plan and therefore cause the maximum rate of withdrawal from the ground water to exceed the sustainable yield in the Launiupoko Aquifer System Area;
- (3) Based on reporting, certain wells within the Lahaina Aquifer Sector Area, there is an actual or threatened water quality degradation, with chloride content surpassing the 250 ppm maximum for safe drinking water as determined by the US EPA and Department of Health;
- (4) The existing withdrawal of ground water is resulting in an increase in saltwater intrusion and a rise in the top of the transition zone endangering the stability or optimum development of the aquifer;
- (5) The chloride content of some existing wells has increased to levels which have led them to be either discontinued completely or the pumping rate managed to such a degree as to materially reduce the value of their existing use;

DESIGNATION PROCESS

The process to designate a ground water management area is described in HRS § 174C-41 to -46 and

Hawaii Administrative Rules (HAR) § 13-171-3 to -9. The process follows these general steps:

- (1) Recommendation to designate by the Chairperson or by written petition for initiation or continuation of investigation of the situation in the proposed management area; HRS § 174C-41(a).
- (2) Consultation with county council, county mayor, and county water board concerning the recommendation or petition HRS § 174C-41(b).
- (3) Commission action to accept recommendation regarding designation of water management area and to hold public hearing. HRS § 174C-42.
- (4) Notice for and Conduct of Public Hearing. HRS § 174C-42.
- (5) Commission action to accept, deny, or defer recommendation to designate a water management area HRS § 174C-46.

CURRENT STATUS

The Chairperson initiated designation proceedings and began consultation with the County Council, County Mayor, and County Water Board via formal letter dated November 29, 2021 (See Exhibit 2)

The Commission received responses from the County Council dated December 7, 16, and 29, 2021 with clarifying questions requesting data, a request to present to the County Council, and to understand the designation process and timeline. The Commission responded with letter dated December 17, 2021 (See Exhibit 3).

The Commission received a response from Maui DWS dated December 28, 2021 (See Exhibit 4) providing preliminary comments that are summarized below with staff's response:

1. How is tunnel discharge accounted for in relation to sustainable yield?
 - “Ground water means any water found beneath the surface of the earth, whether in perched supply, dike-confined, flowing, or percolating in underground channels or streams, under artesian pressure or not, or otherwise.” HRS § 174C-3. Tunnels in Honokōwai and Launiupoko tap into high level ground water that would otherwise discharge naturally as spring sources or discharge into the basal lens. As such, these tunnels, as developed sources of ground water, are counted against sustainable yield.
2. Do not support designation for entire aquifer sector because some aquifer systems included in this initiative have no basis for designation as set forth in the State Water Code. Honokōwai aquifer may exceed sustainable yield and support investigations to consider designation of Honokōwai Aquifer System only.
 - Given the uncertainty of rainfall recharge due to the climate crisis, the Commission is recommending to proactively designate both ground and surface water management areas based on the data and analysis presented above and following the precautionary principle. Precautionary Principle: The Commission’s duties under the constitution and Code embody the precautionary principle, which holds that scientific uncertainty should not be a basis for postponing effective measures to prevent environmental degradation. Rather, the Commission as a trustee has a duty to take anticipatory action to prevent harm to public resources. At minimum, “the absence of firm scientific proof should not tie the Commission’s hands in adopting reasonable measures designed to further the public interest.”¹⁹

¹⁹ *Waiāhole I*, at 154, 155.

- The irrigation ditch systems in the Lahaina aquifer sector cross multiple aquifer systems and surface water hydrologic units. (See Figure 4) In *Waiāhole I*, the Hawai‘i Supreme Court also held that the Commission can consolidate the regulation of a single system because it comports with the Commission’s function of comprehensive water planning and management.²⁰ The Court ruled that the areas covered by the ditch system are to be considered hydrologically controllable irrespective of hydrologic units under HRS § 174C-50 (h) which deems uses between existing users as competing when water is drawn from a hydrologically controllable area.²¹
 - In *Waiāhole I*, the Court acknowledged the direct interrelationship between ground and surface waters and held that the designation of Windward O‘ahu as a ground water management area subjected both ground and surface water diversions from the designated area to the statutory permit requirement.²²
3. Designation undermines current efforts in Maui WUDP and West Maui Community Plan to engage public, private purveyors, and county agencies in land use and water planning integration.
- We acknowledge MDWS’s significant effort, time and commitment spent in producing a comprehensive Maui Island Water Use and Development Plan (MIWUDP) and understand that the Maui County Council is currently reviewing the MIWUDP through its public hearing process and receiving public input on the WUDP. We also acknowledge MDWS’s close coordination with Commission Staff, the Maui Planning Department, and the community throughout this planning process. We encourage MDWS to continue its approval process for the MIWUDP while continuing to consult with Commission staff. Designation of Lahaina Sector as a ground and surface water management area will compliment and strengthen MDWS plans for future water development instead of undermining them, while ensuring the protection of public trust purposes and resources for future generations.
 - The State Water Code requires all counties to develop WUDP regardless of water management area designation. In fact, designation of a water management area and its subsequent Water Use Permit Application (“WUPA”) process fosters more public and private participation including notice and public hearing requirements. A Water Use Permit is issued to reasonable and beneficial uses of water and will ensure even greater consistency and integration between land use and water resource availability. Moreover, the Hawai‘i Supreme Court held in *Ko‘olau Ag* that there is no judicial review of the Commission’s decision to designate aquifers as water management areas because the rights of individual water users are fully protected in the permitting process. The Court further noted that water management area designations do not affect the interests of any potential water users; the impact of such a designation is only that the user’s water source is subject to the Commission’s regulation, which does not, in and of itself, affect the user’s water rights.²³
4. Based on cooperative studies with USGS to address threats of salt water intrusion and climate change impacts, Maui DWS plans to distribute pumpage throughout Launiupoko aquifer.
- While DWS can space pumpage through Launiupoko to minimize salt water intrusion in their wells, there are additional private wells that are being developed that may have impacts on other existing wells, including Maui DWS, and the larger aquifer as a whole. As such, designation will provide CWRM, as a regulator, the ability to determine the proper spacing of all wells to protect the aquifer and other legally permitted water uses.

²⁰ *Waiāhole I*, at 174.

²¹ *Id.*

²² *Waiāhole I*, at 173.

²³ *Ko‘olau Agricultural Co., Ltd. v. Comm’n on Water Res. Mgmt* (“Ko‘olau Ag.”), 83 Hawai‘i 484, 493 (1994).

5. Utilize groundwater models and monitoring data to ensure adequate pump distributions vs. designation.
 - In addition to the pumpage data that's discussed above, the Commission only receives chloride data from 20 of 66 wells that report in the Lahaina district and water level data from its sole deep monitoring well. Based on that data and estimated future reduction in recharge, there is already indication of potential threats to water resources and increased management is important.
6. Request to defer SWMA proceedings until IIFS can be adopted for other priority streams. Balancing reasonable and beneficial in-stream and off-stream uses via water use permitting of both surface and groundwater resources will provide better data in determining the most appropriate IIFS.
 - The surface water conflicts in this region have been persistent for decades. Setting of IIFS and managing surface water use permits are not mutually exclusive and are handled by different staff. Commission staff anticipate completing all IIFS for relevant streams in the Lahaina district in the coming year, but deferral of designation is not dependent on establishment of an IIFS, as these are interim in nature and are meant to be iterative based on continuous evaluation and balancing of instream and off-stream needs.

The Commission has not received any formal response or comments from Mayor Victorino.

Based on Commission discussion and public testimony, staff anticipate bringing a submittal in February 2022 to act on the Chairperson's recommendation regarding designation of water management area and to hold public hearing HRS § 174C-42.

In summary, there are various criteria that are met for designation of both surface and groundwater aquifers. The Commission has an opportunity to protect and manage water resources in an integrated manner and at an aquifer sector level proactively and holistically.

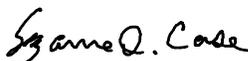
Ola i ka wai,



M. KALEO MANUEL
Deputy Director

Exhibits: 1. CWRM Public Comment to PUC December 17, 2021
 2. CWRM Letter November 29, 2021
 3. County Council Correspondence
 4. Maui DWS Letter

APPROVED FOR SUBMITTAL:



SUZANNE D. CASE
Chairperson



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

December 17, 2021

The Honorable Chair and Members of the
Hawai'i Public Utilities Commission
State of Hawai'i
465 South King Street, Room 103
Honolulu, Hawai'i 96813

Dear Commissioners:

Re: Request for Public Comment in Docket No. 2020-0089, Launiupoko Irrigation Company, Inc. Application for a Change in Rates and Other Approvals

The Commission on Water Resource Management (CWRM) responds to the Hawai'i Public Utilities Commission's (Commission) request for public comment in Docket No. 2020-0089 on Launiupoko Irrigation Company's (LIC) rate case. The Commission requested CWRM's analysis on its understanding of LIC's current irrigation water needs and available surface water. CWRM would like to preface its answers to questions below with the caveat that surface water availability highly fluctuates because of the flashiness of streams that don't always align with water and energy utilities' needs and demands. The Commission specifically wanted to know the following:

- 1) *CWRM's estimate of the surface water currently available from both the Kaua'ula and Launiupoko streams that LIC can use while still meeting those streams' interim instream flow standard (IIFS);*

The IIFS for Kaua'ula stream is 5.2 cubic feet per second (cfs) (3.36 million gallons per day (mgd)) below the main diversion, near an altitude of 1,540 feet, and 6.35 cfs (4.1 mgd) below the kuleana users near an altitude of 270 feet. The IIFS for Launiupoko stream is 0 cfs (0 mgd) below the diversion, near an altitude of 1,340 feet, meaning that LIC can divert 100% of the streamflow of Launiupoko stream.

To accommodate LIC's transition to other non-potable water sources, CWRM did agree to phase in the implementation of the IIFS for Kaua'ula stream and provided a timeline for the year of 2018. This phased approach required an immediate release of 1 mgd below the main diversion on March 27, 2018 and 0.8 mgd at the siphon from Kaua'ula Ditch; phase 2 required the release of 2 mgd below the main diversion on September 24, 2018 and 0.8 mgd at the siphon from Kaua'ula Ditch.¹

¹ CWRM letter to LIC from May 7, 2018. See Exhibit B of Application for a Change in Rates and Other Approvals; Exhibits A through M; Verification; Docket 2020-0217 from 12/30/2020.

CWRM staff has data that indicates that LIC has not been in compliance with the IIFS since CWRM's March 2018 order and the phased approach agreed upon on May 7, 2018. See attached Exhibit A. CWRM's estimate of the surface water available from Kaua'ula stream can be found in Table 1 of Exhibit A. That table references CWRM's analysis of the real time data from the U.S. Geological Survey (USGS) gages above and below the main diversion. Prior to the installation of the USGS gages, LIC's reported water use is listed in Exhibit B. LIC has not reported water use from September 2018 to June 2020. In 2018, CWRM staff took spot measurements that are shown in Exhibit A Table 3. Additionally, CWRM staff has a monitoring station in Kaua'ula stream at about 210ft elevation. See Exhibit A Table 4 and 5. These tables reference measurements from that location. CWRM does not have a stream gage in Launiupoko stream, and it is LIC's responsibility to monitor the surface water removed from Launiupoko stream. LIC's reported water use for Launiupoko stream is shown in Exhibit C.

2) *CWRM's estimate of LIC's current irrigation water needs, and whether surface water withdrawals within the IIFS limits are sufficient to meet these needs;*

Establishing IIFSs is the "primary mechanism" by which CWRM discharges its affirmative "duty to protect and promote the entire range of public trust purposes dependent on upon instream flow."² The public trust embodies a "dual mandate of 1) protection and 2) maximum reasonable and beneficial use."³ Therefore, the public trust is "the duty and authority to maintain the purity and flow of our waters for future generations and to assure that the waters of our land are put to reasonable and beneficial uses."⁴ The Hawai'i Supreme Court has recognized four public trust purposes; the maintenance of water in its natural state, domestic water uses, water for the Department of Hawaiian Home Lands, and water use in the exercise of traditional and customary Native Hawaiian rights.⁵ Private commercial uses are not protected by the public trust and are subject to a "higher level of scrutiny."⁶

The State Water Code defines an instream flow standard as a "quantity or flow of water or depth of water which is required to be present at a specific location in a stream system at certain specified times of the year to protect fishery, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses." See Hawaii Revised Statutes (HRS) § 174C-3 ("Definitions"). In considering a petition to amend an interim instream flow standard, the Code directs CWRM to "weigh the importance of the present or potential instream values with the importance of the present or potential uses of water for noninstream purposes, including the economic impact of restricting such uses." HRS §174C-71(2)(D).

² *In re Water Use Permit Applications ("Waiāhole I")*, 94 Hawai'i 97, 148, 9 P.3d 409, 460 (2000).

³ *Id.* at 139, 9 P.3d 445.

⁴ *Id.* at 138, 9 P.3d 450.

⁵ *See Kauai Springs, Inc. v. Planning Comm'n of Kaua'i*, 133 Hawai'i 141, 172, 324 P.3d 951, 982 (2014).

⁶ *Id.*

“Instream use” means beneficial uses of stream water for significant purposes which are located in the stream and which are achieved by leaving the water in the stream. Instream uses include, but are not limited to:

- 1) Maintenance of fish and wildlife habitats;
- 2) Outdoor recreational activities;
- 3) Maintenance of ecosystems such as estuaries, wetlands, and stream vegetation;
- 4) Aesthetic values such as waterfalls and scenic waterways;
- 5) Navigation;
- 6) Instream hydropower generation;
- 7) Maintenance of water quality;
- 8) The conveyance of irrigation and domestic water supplies to downstream points of diversion; and
- 9) The protection of traditional and customary Hawaiian rights.

“Noninstream use” means the use of stream water that is diverted or removed from its stream channel and includes the use of stream water outside of the channel for domestic, agricultural, and industrial purposes.

Since the establishment of the Stream Protection and Management Branch in July 2002, CWRM has been developing a framework for setting measurable instream flow standards statewide. This framework involves an assessment of natural flow conditions, an analysis of the instream uses protected by the State Water Code, the existing and planned noninstream reasonable and beneficial uses of surface water, and the availability of water from alternative sources.

To assess the natural flow conditions, CWRM relied on data from USGS Scientific Investigations Report (2014-5087)⁷, which was a cooperative study from 2011 to 2013 funded by CWRM and USGS to assess low-flow characteristics for streams in the Lahaina District for the 1984-2013 climate period. See Table 1 below. The 50-percent flow-duration discharge, commonly referred to as median (Q50) discharge, is the flow that has been equaled or exceeded 50 percent of the time during a given period of record. Flow-duration discharges that describe low-flow conditions are generally considered to be those equal to or less than the Q50 discharge. The Q₉₀ flow is the flow estimated to be exceeded 90% of the time for the 30-year period 1984-2013 (i.e., on 10% of the time will streamflow be less than this value)

⁷ Cheng, C.L., 2014, USGS Scientific Investigations Report 2014-5087, Low-Flow Characteristics of Streams in the Lahaina District, West Maui, Hawai'i, available at <https://pubs.usgs.gov/sir/2014/5087/pdf/sir2014-5087.pdf>

Table 1. Estimated natural median (Q₅₀) and low-flow (Q₇₀ and Q₉₀) values for four hydrologic units on West Maui (from USGS Report Cheng 2014) above the main diversion. [cfs = cubic feet per second; mgd = million gallons per day]

Hydrologic Unit	Estimated natural-flow Q50	Estimated natural-flow Q60	Estimated natural-flow Q70	Estimated natural-flow Q80	Estimated natural-flow Q90
Launiupoko (6006)	0.47 cfs (0.30 mgd)	0.44 cfs (0.28 mgd)	0.41 cfs (0.26 mgd)	0.38 cfs (0.25 mgd)	0.35 cfs (0.23 mgd)
Kaua‘ula (6007)	9.5 cfs (6.14 mgd)	8.1 cfs (5.24 mgd)	7.1 cfs (4.59 mgd)	6.2 cfs (4.00 mgd)	5.2 cfs (3.36 mgd)

CWRM weighs often competing instream and noninstream uses of water against the amount of water available to accommodate the needs of these uses, where priority is always given to public trust purposes of water. If there is sufficient water to meet the instream uses, then noninstream uses can be considered. The availability of alternative water sources to meet the needs of noninstream uses is also considered. This process is based upon best available information when weighing the present or potential, instream and noninstream uses. In this process CWRM uses hydrologic considerations, instream use considerations, and noninstream considerations.⁸

To assist the balancing between the protection of the public trust purposes and other instream uses and noninstream uses, CWRM distinguished LIC’s various noninstream irrigation water needs as agricultural-zoned farm lots, small commercial agricultural operations, and landscaping within private and common use areas.

CWRM used the Irrigation Water Requirement Estimation Decision Support System (IWREDSS) to estimate the irrigation demand for LIC’s various noninstream uses.⁹ IWREDSS is an ArcGIS-based numerical simulation model that estimates irrigation demand and water budget components for different crops grown in the Hawaiian environment. The model accounts for different irrigation application systems and water application practices. Using the existing TMK layer and remote sensing data (World View 2.0 satellite imagery, Google Earth, and Google Streetmaps), the approximate acreage of agriculture (and type where possible) and acreage of landscaping was estimated. See data visualized in Exhibit E Figures 1 and 2. Table 2 below details an estimate of LIC’s irrigation water needs by use.

⁸ For detailed information on Kaua‘ula and Launiupoko hydrologic units see Staff Submittal Amended Interim Instream Flow Standards For the Surface Water Hydrologic Units of Ukumehame (6004), Olowalu (6005), Launiupoko, (6006), and Kaua'ula (6007), Maui from March 20, 2018. Available at <https://files.hawaii.gov/dlnr/cwrn/submittal/2018/sb20180320B1.pdf>

⁹ See Instream Flow Standard Assessment Report (IFSAR), Kauaula Unit 6007, PR-2018-04, at 106-199. Available at <https://files.hawaii.gov/dlnr/cwrn/ifsar/PR201804-6007-Kauaula.pdf>

Table 2. Estimated non-potable water use for Launiupoko and Kaua'ula hydrologic units and reported water diverted in 2017. Agriculture and landscaping uses are combined since they share a common distribution system managed by LIC.

Hydrologic Unit	Water Users	Method	Estimated Use
Launiupoko			
Reported Water Diverted:	0.643 cfs (0.416 mgd)		
Kaua'ula	Kamehameha Schools lessees (diversified agriculture 13 acres, cacao 53 acres)	Reported	0.613 cfs (0.396 mgd)
	Agriculturally zoned parcels (irrigated pasture 10 acres, diversified agriculture 43 acres, tree crops 35 acres)	IWREDSS	0.469 cfs (0.303 mgd)
	Landscaping (194 acres)	IWREDSS	1.502 cfs (0.969 mgd)
	Return to stream	Reported	1.550 cfs (1.000 mgd)
Reported Water Diverted:	7.09 cfs (4.58 mgd)	Total Water Use:	4.134 cfs (2.672 mgd)

Additionally, in 2018, CWRM considered that LIC provides a small amount of water that is pumped up hill to TMK parcels, which may have appurtenant rights, originally fulfilled by the Pi'ilani 'auwai, which was subsequently replaced by the Kaua'ula Ditch during the plantation era. LIC approximately 1.5 cfs (1.0 mgd) released at the Kaua'ula siphon back into Kaua'ula stream after the hydropower plant to support lo'i agriculture for kuleana users in Kaua'ula Gulch, as part of an informal agreement. Non-potable water is also provided directly to these homes via a separate transmission pipe on the west side of the gulch. See Exhibit G.

When establishing the IIFS for Kaua'ula stream, CWRM found that a lack of streamflow has continued to impede kuleana uses of water, including traditional and customary gathering practices, the cultivation of taro, and the recreational use of water. Insufficient flow is affecting taro cultivation and traditional gathering in Kaua'ula Valley. There is currently one 'auwai supplying sufficient water for six lo'i, but recent field investigations revealed that as many as 33 lo'i have been cleared and are ready to be planted if sufficient water were supplied.

CWRM assumed that restoration of flows to Kaua'ula stream will greatly benefit native aquatic species since native species are common in nearby streams that support smaller flows. The IIFS is designed to provide habitat and maintain a wetted pathway between the Kaua'ula stream diversion and the siphon release point.

CWRM also found that the IIFS for Kaua'ula stream would allow LIC to meet the 0.4 mgd agricultural demand for Kamehameha Schools' lessee 100-percent of the time, and LIC could meet their 0.303 mgd agricultural use water demand 100-percent of the time, when combined with water diverted from Launiupoko stream. See Exhibit G and H. LIC's landscaping irrigation needs could be met with pumping groundwater as an alternative water source. CWRM also advised that "[w]ater conservation should be mandated throughout the [Launiupoko] hydrologic unit, including the planting of drought tolerant plants. Large expanses of sod as landscaping is an inappropriate use of scarce water resources and should be eliminated as much as possible."

To assess LIC's current irrigation water needs as requested by the Commission, CWRM has not conducted an update of the IWREDSS due to the extensive research this entails to estimate the current agricultural and landscaping uses of LIC's customers. CWRM staff assumes that LIC's water needs for landscaping have increased due to more lots having been developed in the past four years with a potential slight increase for agricultural uses as well.

CWRM relies on the cooperation of diverters to report their water use timely. On December 14, 2021, CWRM has received LIC's report of its water use for the Launiupoko stream diversion for the entire year of 2021. See Exhibit C. On September 28, 2021, CWRM requested LIC to provide reports of the amount of water distributed to Ku'ia Estate Chocolate (KEC), the Kaua'ula valley homes, Kaua'ula reservoir, and returned to the stream at the siphon immediately. On October 28, 2021, LIC provided the above requested data with the exception of the flow into Kaua'ula reservoir.¹⁰

CWRM's preliminary analysis of this data found that KEC's daily water use, which ranges approximately between 0.060 and 0.108 mgd, is less than CWRM's 2018 estimated need of 0.396 mgd. However, CWRM would like to highlight that water use is not an indication of the actual need. KEC's need may indeed be higher as the reported use, which could be due to LIC's curtailments or not having reached full buildout yet. Moreover, the eight months span of LIC's reported use is an extremely small sample size for hydrology, and this sample occurred during one of the most severe hydrological droughts on record for Maui. For example, between June and July 2021 (51 days), flow at Wailuku River at Kepaniwai Park (USGS 16604500) was below Q₇₅ 33 days, below Q₈₅ 21 days, and below Q₉₅ 5 days.

The average daily water use of the Kaua'ula valley homes is 0.058 mgd and the total Kapu uses average between 0.032 and 0.112 mgd based on the report by LIC. CWRM would like to note that the reported water use for Kapu 1" and 1.5" is not a total consumptive use and an unknown amount of water is returned from the kalo lo'i back to LIC's ditch system. Traditional kalo cultivation utilizes a throughflow of irrigation water and is only minimally consumptive. On December 9, 2021, CWRM received a formal complaint by Na Aikane O Maui and Ke'eaumoku Kapu alleging

¹⁰ LIC Letter to CWRM from October 28, 2021. See Letter From: R. Strand To: Commission Re: Launiupoko Irrigation Co., Inc., Docket No. 2020-0089 from 11/12/21.

wasted water by LIC at various location of LIC's system. This alleged waste potentially affected the kuleana users' reported water use by LIC as well. CWRM will forward this formal letter to LIC for their response. Additionally, CWRM would like to highlight for the Commission that some of the Kaua'ula valley water uses are considered domestic uses, which is one of the public trust purposes.

Based on the data provided by LIC, CWRM staff estimates that the total daily noninstream water use for KEC's agricultural uses and other constitutionally protected uses averages between 0.150 and 0.280 mgd. Table 1 of Exhibit A shows when the 0.280 mgd of use was available to divert in 2021 (highlighted in green). In 2021, LIC's agricultural uses of 0.303 mgd could be met with surface water diverted by Launiupoko every month except for June and September, including considering a small increase of agricultural uses as well. See Exhibit C.

CWRM would like to note that LIC in its request for a certificate of public convenience and necessity (CPCN) estimated its non-potable water demand to be approximately 1.331 mgd at full 6000 acres buildout in 2008.¹¹ See PUC Docket No. 2002-0203. LIC's projection was that Kaua'ula and Launiupoko stream together would provide a supply of 2.1 mgd of surface water and the estimated demand of 1.331 mgd is approximately 63% of the estimated supply. Already in 2018 LIC exceeded its own estimated demand and continues to do so in 2021.

3) Does CWRM expect LIC's current irrigation water needs to change over the next 12-18 months?

CWRM cannot determine LIC's future irrigation water needs, but CWRM has been preparing for changes in rainfall and an increased frequency of extreme weather events such as droughts and flooding. In March 2019, CWRM entered into a joint funding agreement with USGS to estimate ground water recharge for future climate conditions in Hawai'i.¹² Results of this study are expected to be published in early 2022.

Additionally, CWRM would like to clarify statements made by LIC in its application for general rate increase and notify the Commission of other pending items concerning LIC before CWRM.

In its application LIC stated that "[r]ecent governmental rule changes and usage demands have led to the necessity to locate and improve additional sources to provide continued service to the service area community."¹³ CWRM fulfilled its affirmative constitutional duty to protect public trust purposes when establishing a numeric IIFS for Kaua'ula stream in March of 2018. This does not constitute a governmental rule change. Furthermore, CWRM's Hawai'i Administrative Rules (HAR) explicitly provide that "[i]nterim instream flow standards are by their nature temporary and subject to change. Consequently, any reliance upon the interim standards shall be at the water user's own risk." See HAR § 13-169-43 (b).

¹¹ Decision and Order No. 20424 at 3, PUC Docket No. 2002-0203

<https://dms.puc.hawaii.gov/dms/DocumentViewer?pid=A1001001A08D19B13930H17002>

¹² Available at <https://files.hawaii.gov/dlnr/cwrm/submittal/2019/sb20190319B1.pdf>

¹³ Application for a Change in Rates and Other Approvals; Exhibits A through M; Verification; Docket 2020-0217 from 12/30/2020, Exhibit A at 1.

LIC also stated the following: “As the severe limitation of Applicant’s primary non-potable water source was effectuated with little warning by the CWRM, Applicant could not adequately anticipate the significant disruption in the purveyance of non-potable water and Applicant experienced significant expenses that could not be recovered in the current rate structure, as the current rate structure assumed gravity fed water sources, rather than pumped groundwater sources.”¹⁴

CWRM provided ample notice of its intent to set a numeric IIFSs for ten streams in West Maui. On March 16, 2011, CWRM entered into a joint funding agreement with USGS to conduct a study of low-flow characteristics for streams in the Lahaina district.¹⁵ West Maui Land Company (WML) provided access to the study sites from 2011 to 2013, and WML and Peter Martin did participate in a stakeholder meeting with USGS on May 1, 2014. In October 2016, CWRM began its outreach to irrigation managers, landowners, and community groups and conducted its first site visit to Launiupoko on December 1, where introductions with WML employees took place. On January 25, 2017, CWRM met with WML at their Kahului office.

The following are pending items concerning LIC before CWRM.

On September 28, 2021, CWRM has notified LIC that the company has not been meeting the IIFS established on March 20, 2018 and has not implemented CWRM’s order to modify LIC’s stream diversion.¹⁶ In this letter CWRM staff also requested LIC to install appropriate measuring devices (e.g., rated flume, weir with staff plate) and to monitor the amount of water flowing to Kaua‘ula Reservoir above the siphon within 90 days. On October 28, 2021, LIC replied stating that within 30 days LIC would submit conceptual plans for the modification and that “[c]ommencement of these modifications will be conditioned on LIC’s receipt of a revised temporary rate increase from the PUC providing LIC with funds required to fund pumping costs and to meet other operating expenses not objected to by the Consumer Advocate and to remove the condition to discontinue rationing in drought conditions.”¹⁷ On November, 29 2021, LIC submitted conceptual plans for the modifications of the diversion structure and reiterated above mentioned condition for commencement of the modification. See Exhibit D. CWRM staff is currently reviewing the conceptual plans. While CWRM understands there are costs associated with modifications, CWRM orders cannot be made dependent on funding relief through orders by the Commission.

On September 29, 2021, CWRM notified Wainee Land and Homes, LLC that CWRM requires a pump installation permit for the installation of a 700 gallons per minute (gpm) pump at the State Well No. 6-5240-002 (TMK (2) 4-6-015:001) and if Wainee Land and Homes, LLC intends to install a second pump another pump installation permit is required prior to commencement of work. See attached Exhibit F. Wainee Land and Homes, LLC is the landowner of the latter TMK parcel including the State Well Nos. 6-5240-002 and -003 and has an easement agreement with

¹⁴ Application for a Change in Rates and Other Approvals; Exhibits A through M; Verification; Docket 2020-0217 from 12/30/2020, at 7-8.

¹⁵ <https://files.hawaii.gov/dlnr/cwrmm/submittal/2011/sb201103C1.pdf>

¹⁶ CWRM Letter to LIC from September 28, 2021 (Ref: CWRM.5738.6). See Letter From: R. Strand To: Commission Re: Launiupoko Irrigation Co., Inc., Docket No. 2020-0089 from 11/12/21.

¹⁷ LIC Letter to CWRM from October 28, 2021. See Letter From: R. Strand To: Commission Re: Launiupoko Irrigation Co., Inc., Docket No. 2020-0089 from 11/12/21.

LIC who is the proposed well operator.¹⁸ LIC refers to these wells as Wainee A/B skimming wells and the pump installations are part of LIC's capital improvement projects.¹⁹ CWRM has only received a Well Completion Report Part II from West Maui Construction for State Well No. 6-5240-002 and is awaiting a pump installation permit application.

As mentioned earlier, on December 9, 2021, CWRM received a formal complaint by Na Aikane O Maui alleging wasted water by LIC at various location of LIC's irrigation system that potentially affect kuleana users' reported water use by LIC. CWRM will forward this formal letter to LIC for their response.

If there are any questions, please contact me at kaleo.l.manuel@hawaii.gov or via phone at 808-587-0214.

Ola i ka wai,



M. Kaleo Manuel
Deputy Director

Attachments:

- Exhibit A – CWRM Data for Kaua'ula Stream
- Exhibit B – LIC Reported Data for Kaua'ula Stream
- Exhibit C – LIC Reported Data for Launiupoko Stream
- Exhibit D – LIC Letter to CWRM from November 29, 2021
- Exhibit E – IWREDSS Figures
- Exhibit F – CWRM Letter to Wainee Land and Homes, LLC (Ref: 6-5240-002 and -003.let.docx)
- Exhibit G – Kaua'ula Schematic
- Exhibit H – Launiupoko Schematic

¹⁸ See Attachment 1 to Launiupoko Irrigation Co., Inc.'s Responses to Consumer Advocate's Second Submission of Information Requests; Exhibits; Verification; Docket No. 2020-0089 from 10/22/21, at 143 [PDF], Lease of Easement.

¹⁹ See Launiupoko Irrigation Co., Inc.'s Responses to Public Utilities Commission's Information Requests; Exhibits; Verification; Docket No. 2020-0089 from 11/24/2021; PUC-LIC-IR-04 referencing Exhibit G Update.

Council Chair
Alice L. Lee

Vice-Chair
Keani N.W. Rawlins-Fernandez

Presiding Officer Pro Tempore
Tasha Kama

Councilmembers
Gabe Johnson
Kelly Takaya King
Michael J. Molina
Tamara Paltin
Shane M. Sinenci
Yuki Lei K. Sugimura



Director of Council Services
Traci N. T. Fujita, Esq.

Deputy Director of Council Services
David M. Raatz, Jr., Esq.

COUNTY COUNCIL
COUNTY OF MAUI
200 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793
www.MauiCounty.us

December 29, 2021

M. Kaleo Manuel, Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Via email only: kaleo.l.manuel@hawaii.gov

Dear Mr. Manuel:

**SUBJECT: CONSULTATION ON RECOMMENDATION TO
DESIGNATE THE LAHAINA AQUIFER SECTOR AS
SURFACE WATER AND GROUND WATER
MANAGEMENT AREA (PAF 21-358)**

Thank you for your responsive correspondence dated December 17, 2021, on the designation of the Lahaina Aquifer Sector on Maui as a Surface Water and Ground Water Management Area. Copies of our earlier correspondence are attached for ease of reference.

Unfortunately, much of the information provided is difficult to understand. To provide an informed policy response, it would be beneficial to receive a summary and justification of the technical tables and charts.

Because the Maui County Council is required to make land-use and fiscal decisions on the entire County's water resources and delivery systems, I respectfully suggest a comprehensive presentation is needed to fulfill the consultation requirements of Section 174C-41(b), Hawaii Revised Statutes. For this reason, I remain unable to provide substantive comments by the December 31, 2021, deadline. Instead, I will attend the Commission on Water Resource Management's January 18, 2022, meeting to learn more and perhaps ask questions.

M. Kaleo Manuel
December 29, 2021
Page 2

If you have any further comments or questions, please email your response to paige.greco@mauicounty.us and county.council@mauicounty.us. To ensure efficient processing, please include the relevant PAF number in the subject line of your response.

Should you have any questions, please contact me, Legislative Analyst Paige Greco at (808) 270-7660, or Legislative Analyst Alison Stewart at (808) 270-7661.

Sincerely,

A handwritten signature in black ink, appearing to read "Alice L. Lee". The signature is fluid and cursive, with a large initial "A" and "L".

ALICE L. LEE, Chair
Maui County Council

paf:pmg:21-358c

Attachments

Council Chair
Alice L. Lee

Vice-Chair
Keani N.W. Rawlins-Fernandez

Presiding Officer Pro Tempore
Tasha Kama

Councilmembers
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David M. Raatz, Jr., Esq.

COUNTY COUNCIL
COUNTY OF MAUI
200 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793
www.MauiCounty.us

December 7, 2021

M. Kaleo Manuel, Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

kaleo.l.manuel@hawaii.gov

Dear Mr. Manuel:

**SUBJECT: CONSULTATION ON RECOMMENDATION TO
DESIGNATE THE LAHAINA AQUIFER SECTOR AS
SURFACE WATER AND GROUND WATER
MANAGEMENT AREA (PAF 21-358)**

Thank you for your correspondence dated November 29, 2021, relating to the designation of the Lahaina Aquifer Sector on Maui as a Surface Water and Ground Water Management Area. Without supporting factual data on the proposed designation, it is difficult to provide comments. Respectfully, I note the request merely characterizes factual data without sharing it, which appears contrary to the consultation requirements of Section 174C-41(b), Hawaii Revised Statutes.

May I please request a response to the following questions:

1. Can the Commission share with the Maui County Council the relevant factual data indicating "there is harm to ground water quantity and quality"?
2. Would the Chairperson be willing to appear before the Council or one of its committees to provide a presentation and answer questions regarding the proposal?
3. If the consultation finds the factual data supports the recommended designation, what would be the process and anticipated timeline, including opportunities for stakeholder and public engagement?

M. Kaleo Manuel
December 7, 2021
Page 2

Please email your response to paige.greco@mauicounty.us. To ensure efficient processing, please include the relevant PAF number in the subject line of your response.

Should you have any questions, please contact me, Legislative Analyst Paige Greco at (808) 270-7660, or Legislative Analyst Alison Stewart at (808) 270-7661.

Sincerely,

A handwritten signature in black ink, appearing to read "Alice L. Lee". The signature is fluid and cursive, with a large initial "A" and "L".

ALICE L. LEE, Chair
Maui County Council

paf:pmg:21-358a

Council Chair
Alice L. Lee

Vice-Chair
Keani N.W. Rawlins-Fernandez

Presiding Officer Pro Tempore
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Director of Council Services
Traci N. T. Fujita, Esq.

Deputy Director of Council Services
David M. Raatz, Jr., Esq.

COUNTY COUNCIL
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WAILUKU, MAUI, HAWAII 96793
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December 16, 2021

Mr. M. Kaleo Manuel, Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

kaleo.1.manuel@hawaii.gov

Dear Mr. Manuel:

**SUBJECT: CONSULTATION ON RECOMMENDATION TO
DESIGNATE THE LAHAINA AQUIFER SECTOR AS
SURFACE WATER AND GROUND WATER
MANAGEMENT AREA (PAF 21-358)**

May I kindly request a response to my attached correspondence, dated December 7, 2021, by December 20, 2021. This will allow adequate time for me to respond with my comments by your December 30, 2021, deadline.

Please email your response to county.council@mauicounty.us and paige.greco@mauicounty.us. To ensure efficient processing, please include the relevant PAF number in the subject line of your response.

Should you have any questions, please contact me, Legislative Analyst Paige Greco at (808) 270-7660, or Legislative Analyst Alison Stewart at (808) 270-7661.

Sincerely,

A handwritten signature in cursive script, appearing to read "Alice L. Lee".

ALICE L. LEE, Chair
Maui County Council

paf:pmg:21-358b

Attachment



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

December 17, 2021

Honorable Chair Alice L. Lee and Councilmembers
Maui County Council
Kalana O Maui Building, Eighth Floor
200 South High St.
Wailuku, Hawai'i 96793

Aloha e Honorable Chair Alice L. Lee,

Subject: Response to Council Letters Dated December 7 and December 16, 2021

Mahalo for your two letters dated December 7 and December 16, 2021 in response to the Commission on Water Resource Management's (Commission) letter dated November 29, 2021 related to the designation of the Lahaina Aquifer Sector on Maui as a Surface Water and Ground Water Management Area. Please see our responses to your questions below:

1. *Can the Commission share with the Maui County Council the relevant factual data indicating "there is harm to ground water quantity and quality"?*

Please see the attached figures and tables with data on water resource availability, infrastructure, pumpage, reporting, permitted use, and chloride data.

2. *Would the Chairperson be willing to appear before the Council or one of its committees to provide a presentation and answer questions regarding the proposal?*

There will be a presentation to the Commission at its January 18, 2021 meeting on this matter and the Commission would encourage the Council and public to participate and attend. If the Council has any additional questions after review of the attached data and the presentation on January 18, 2021, Commission staff and I can appear before the Council or one of its committees to provide a presentation and answer additional questions.

3. *If the consultation finds the factual data supports the recommended designation, what would be the process and anticipated timeline, including opportunities for stakeholder and public engagement?*

The Designation process is governed by Hawaii Revised Statutes (HRS), Sections 174C-41 to 46 and a summary of that process is identified below.

- (1) Recommendation to designate by the Chairperson or by written petition for initiation or continuation of investigation of the situation in the proposed management area; HRS § 174C-41(a).
- (2) Consultation with county council, county mayor, and county water board concerning the recommendation or petition; HRS §174C-41(b).
- (3) Commission action to accept recommendation regarding designation of water management area and to hold public hearing; HRS §174C-42.
- (4) Notice for and Conduct of Public Hearing; HRS §174C-42.
- (5) Commission action to accept, deny, or defer recommendation to designate a water management area; HRS §174C-46.

As mentioned above, the Commission staff will be doing a presentation to the Commission in January 2022. Based on that presentation, we anticipate an action item in February to continue the designation process. As the next step the Commission would conduct a Public Hearing. Both of those Commission meetings provide an opportunity for stakeholders and the public to engage and provide comment and testimony. The Public Hearing is planned for March 2022. Pending that Public Hearing, a final recommendation on designation would be presented to the Commission in April or May. These are all the opportunities for stakeholder and public engagement.

If there are any additional questions, please contact me at (808) 587-0214 or via email at kaleo.l.manuel@hawaii.gov.

Ola i ka wai,



M. Kaleo Manuel
Deputy Director

Attachment

cc: Councilmember Keani Rawlins-Fernandez
Councilmember Gabe Johnson
Councilmember Tasha Kama
Councilmember Kelly Takaya King
Councilmember Mike Molina
Councilmember Tamara Paltin
Councilmember Shane Sinenci
Councilmember Yuki Lei Sugimura
Mayor Michael P. Victorino
Chair Dean Frampton, Maui Board of Water Supply
Director Jeff Pearson, Maui Dept. of Water Supply

Figure 1. Ground Water Aquifer System Areas and their sustainable yields (SY) for the Lahaina Aquifer Sector with overlaying surface water hydrologic units and their perennial and intermittent streams with development tunnels and active irrigation ditch systems.

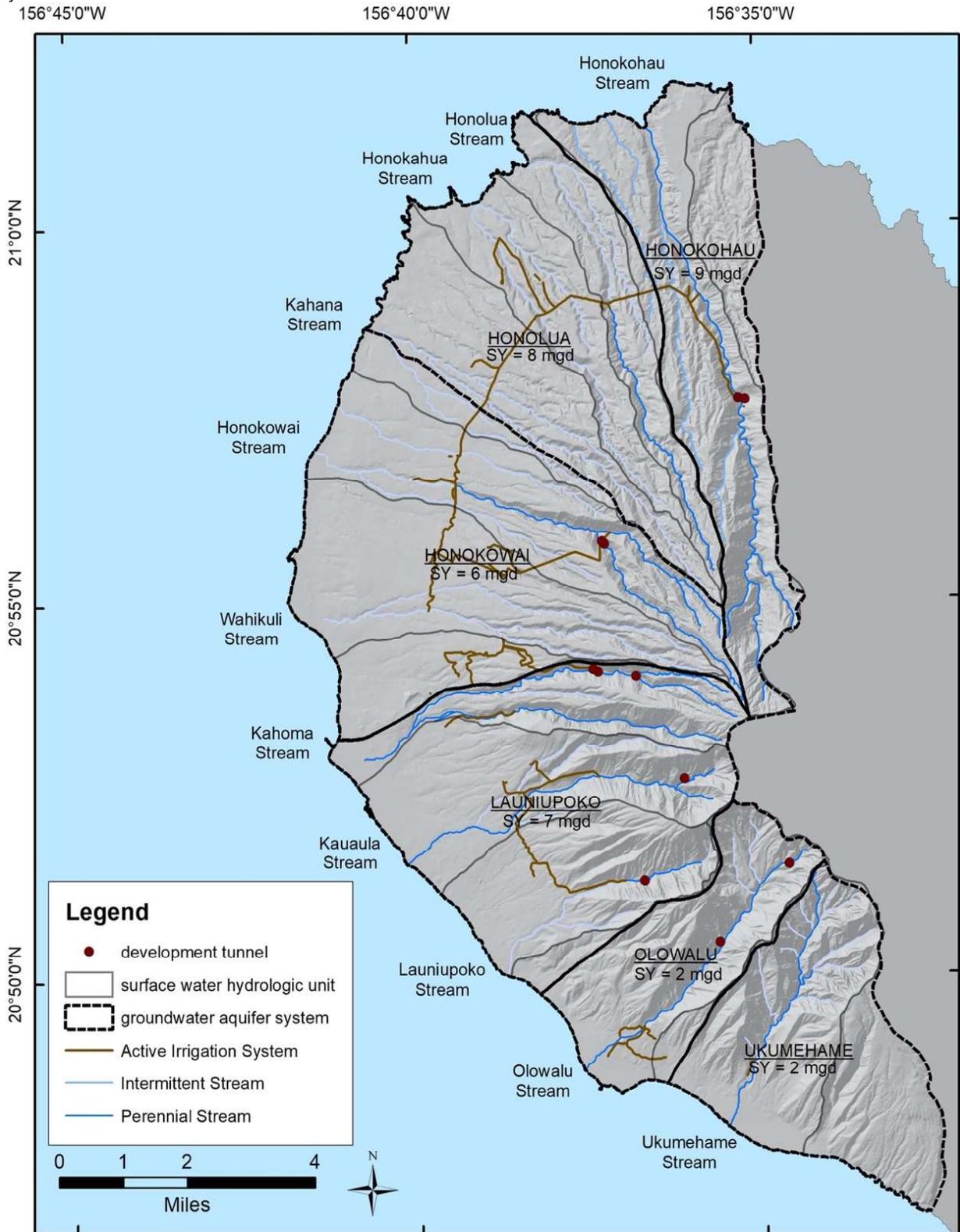


Figure 2. Distribution of regional aquifer hydraulic conductivity in central and West Maui, Hawai'i (Gingerich and Engott, 2012)

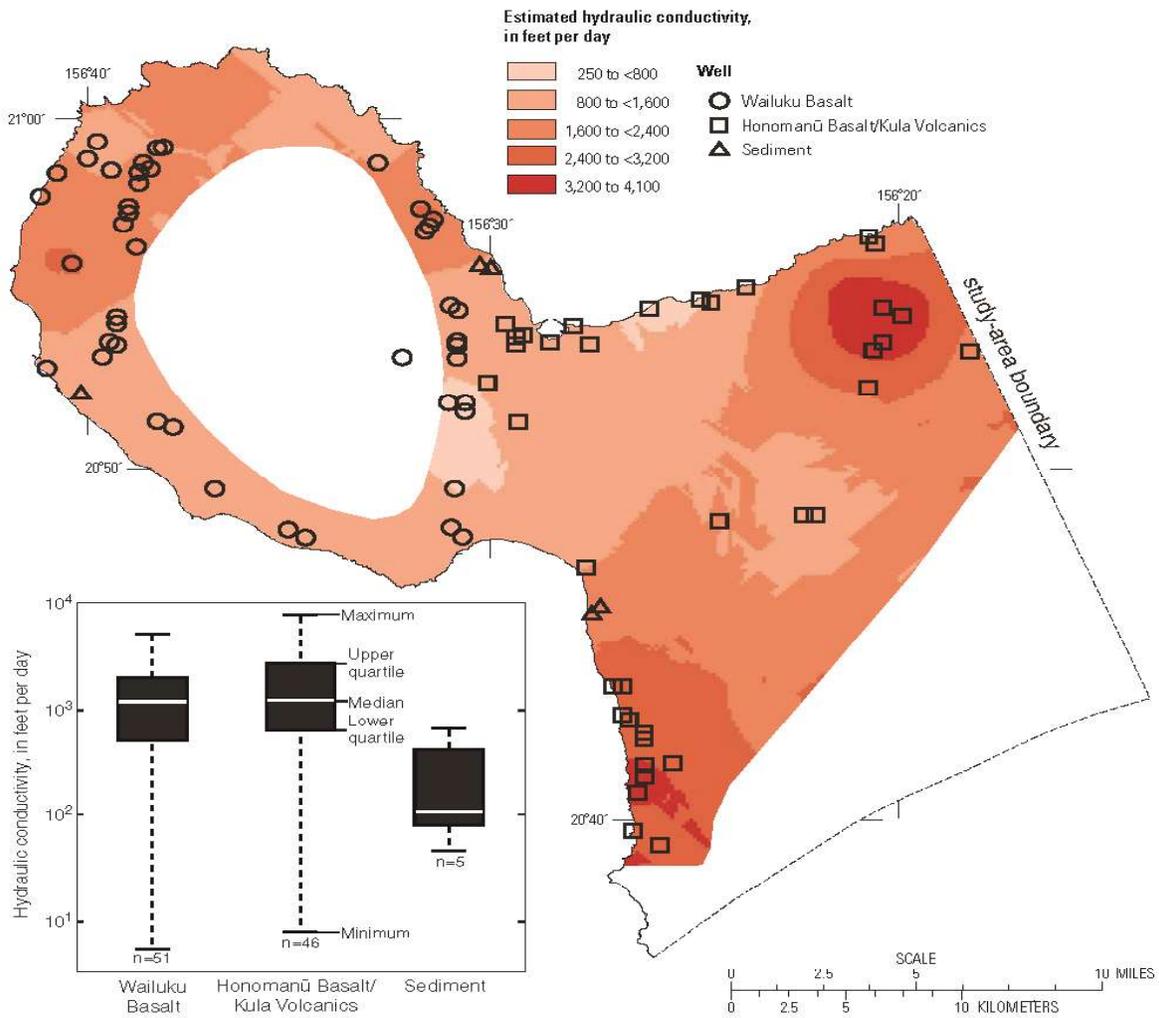


Table 1. Existing interim IFS for surface water hydrologic units in the Lahaina Aquifer Sector. [n/a = not applicable]

surface water hydrologic unit	stream name	Q ₅₀ (mgd)	Q ₉₀ (mgd)	interim IFS (mgd)	interim IFS elevation (ft)	estimated flow available for non-instream use at Q ₅₀ (mgd)
Honokōhau	Honokōhau	19.4	11.0	n/a	825	n/a
Honolua	Honolua	2.46	0.00	n/a	750	0.0
Honokōwai	Amalu	--		n/a	1600	n/a
Honokōwai	Kapaloa	--		n/a	1560	n/a
Honokōwai	Honokōwai	3.49	2.32	n/a	1480	n/a
Kahoma	Kahoma	3.75	1.87	3.49	2100	0.26
Kahoma	Kanahā	3.17	2.65	0.50	1100	2.67
Kaua'ula	Kaua'ula	6.14	3.36	3.36	1540	2.78
Launiupoko	Launiupoko	0.30	0.23	0.00	1340	0.30
Olowalu	Olowalu	3.23	2.20	2.65	130	0.58
Ukumehame	Ukumehame	3.23	2.07	2.90	220	0.33

Table 2. Current (August 2021) 12-month moving average (MAV) reported pumpage and for aquifer systems in the Lahaina Aquifer Sector. development tunnel discharge and existing entitled/authorized planned use [million gallons per day, mgd]

System	SY (mgd)	2020 12-month MAV (mgd)	2021 12-month MAV (mgd)	maximum monthly pumpage (mgd)	development tunnel discharge (mgd)	entitled/authorized planned use ^a (mgd)	other permitted well capacity (mgd)	total existing and authorized planned use (mgd)	percentage of SY
Ukumehame	2.0	0.034	0.049	0.045	0.00	1.080	0.000	1.42	71%
Olowalu	2.0	0.100	0.074	0.150	0.10	0.003	0.000	0.203	10%
Launiupoko	7.0	1.625	1.434	2.638	4.01	1.036	1.777	8.448	121%
Honokōwai	6.0	3.626	3.777	4.778	2.50	2.533	1.150	9.809	163%
Honolua	8.0	2.103	2.450	2.331	0.00	1.969	1.150	5.222	65%
Honokōhau	9.0	0.000	0.000	0.000	3.75	0.001	0.000	3.751	42%

Table 3. Water Use Reporting by Aquifer System Area

Aquifer System Area	Total # of Wells (including OBS and UNU)	# Wells Reporting Water Use	Compliance Rate
Ukumehame	5	4	80%
Olowalu	4	3	75%
Launiupoko	32	22	68.8%
Honokōwai	42	29	69%
Honolua	16	10	62.5%
Honokōhau	4	0	0%

Table 4. Maximum Permitted Pump Capacity by Aquifer System Area

Aquifer System Area	Maximum Pump Capacity (mgd)	SY (mgd)
Ukumehame	4.954	2
Olowalu	8.553	2
Launiupoko	42.302	7
Honokōwai	43.369	6
Honolua	7.752	8
Honokōhau	0.012	9

Figure 3. Current monthly pumpage (blue line) and 12-month moving average (green line) from the Honokowai Aquifer System, including ground water development tunnel discharge, in million gallons per day (mgd).

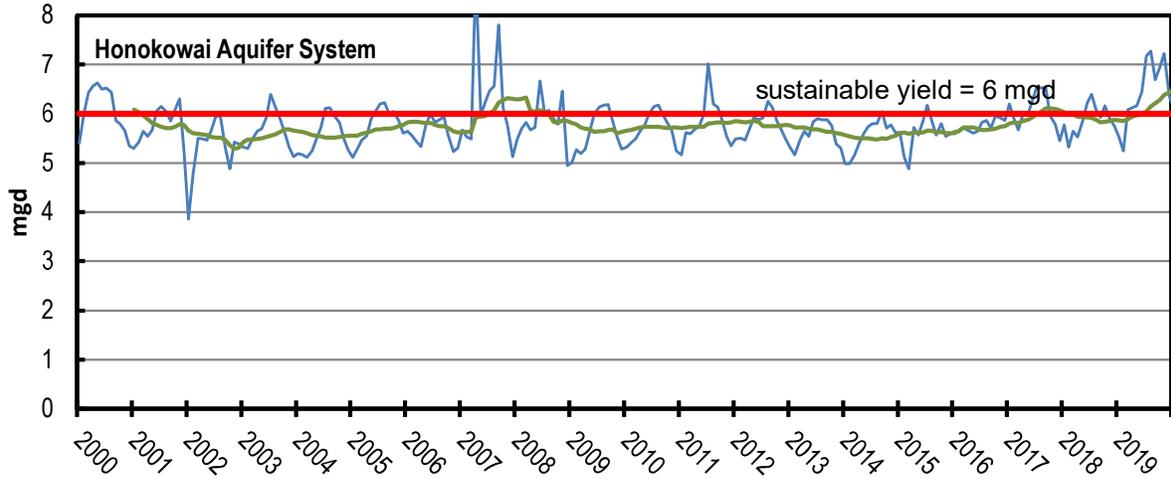


Table 5. Current (2018-2020) well applications pending completion in the Lahaina Aquifer Sector.

Aquifer System	Well Name	Well Number	Proposed Pump Capacity (mgd)	Proposed Daily Amount (mgd)
Launiupoko	Jackson Rancheria	6-5037-001	0.187	0.075
Launiupoko	Maria Lynn Moyer Memorial	6-5137-002	0.006	0.005
Launiupoko	Makila Kai	6-5138-002	0.504	0.150
Launiupoko	Rogers	6-5139-004	--	--
Launiupoko	Kui'a Estate	6-5239-001	0.360	0.270
Launiupoko	LIC 1B	6-5139-005	0.720	0.700
total			1.777	1.200

Figure 4. Monthly pumpage (mgd), 12-month moving average (12MAV) and chloride (ppm) for Honokōwai B (5638-003), operated by Hawaii Water Service, West Maui.

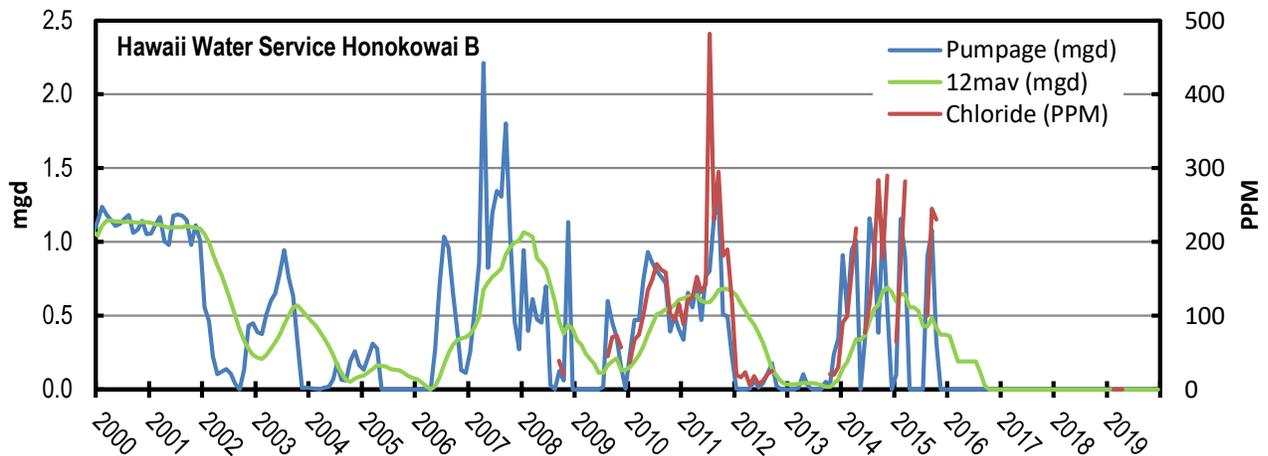
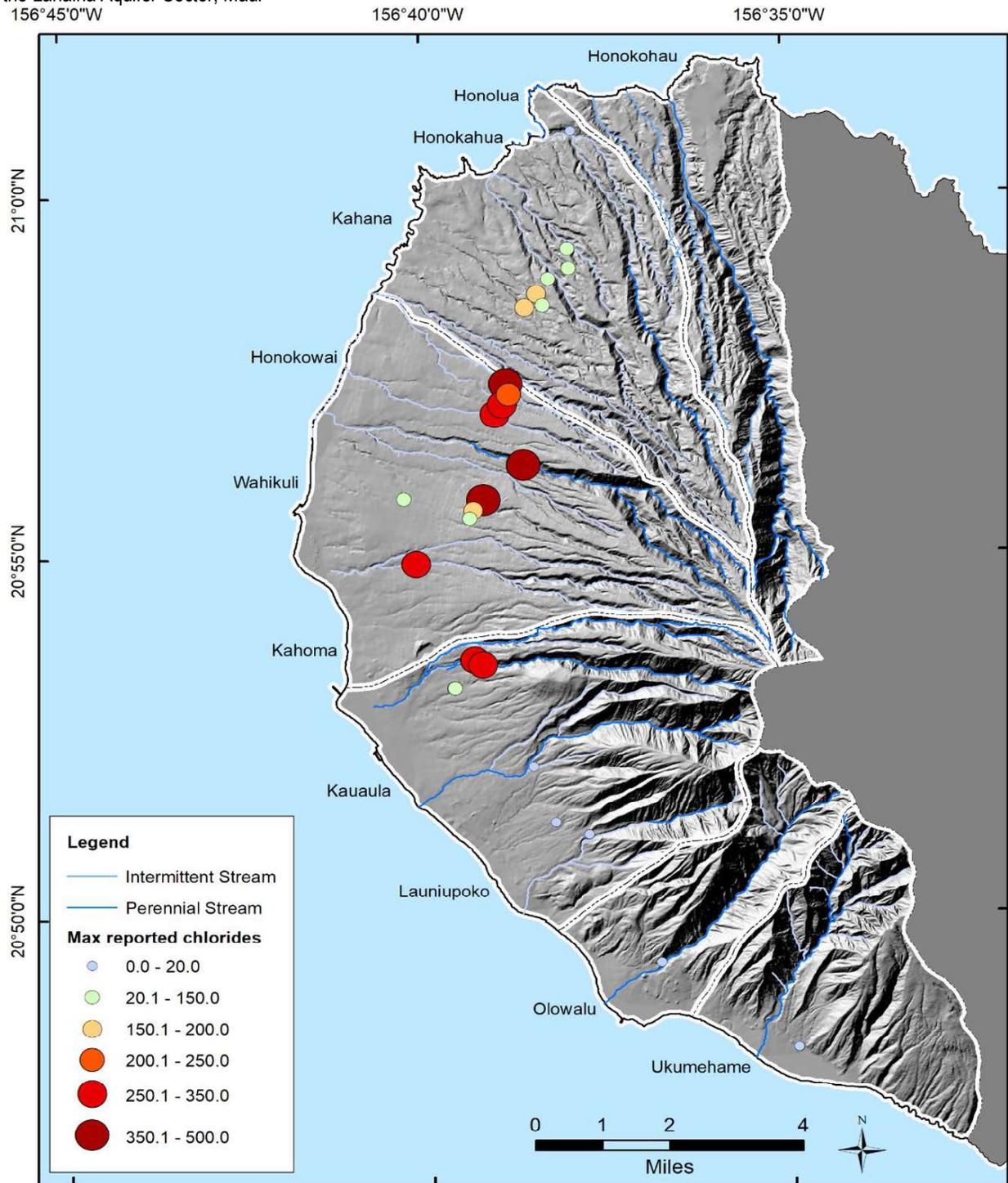


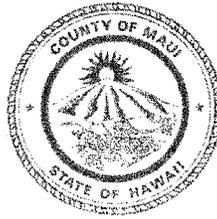
Figure 5. Maximum reported chloride content (parts per million, ppm) since 2010 for potable water supply production wells in the Lahaina Aquifer Sector, Maui



MICHAEL P. VICTORINO
Mayor

JEFFREY T. PEARSON, P.E.
Director

HELENE KAU
Deputy Director



DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793
www.mauicounty.gov/water

December 28, 2021

Mr. M. Kaleo Manuel, Deputy Director
State of Hawaii Department of Land and Natural Resources
Commission on Water Resource Management
P.O. Box 621
Honolulu, Hawaii 96809

RECEIVED
COMMISSION ON WATER
RESOURCE MANAGEMENT
2022 JAN -4 AM 10:57

SUBJECT: Consultation on Chairperson's Recommendation to Designate the Lahaina Aquifer Sector, Maui as Surface Water and Ground Water Management Area

Aloha Deputy Director Manuel,

Thank you for the opportunity to comment on your recommendation to initiate the designation process of the entire Lahaina Aquifer Sector on Maui. We note that selected data was provided in your December 17, 2021 response to Maui County Council Chair Lee's request for information. We look forward to the technical analyses that triggered this initiative. Meanwhile, we provide preliminary comments below.

Threats to water resources by existing and proposed withdrawals:

Table 2 in your December 17, 2021 letter appears to double count tunnel discharge in Launiupoko and Honokowai as both against basal sustainable yield, as calculated in the 2019 Water Resources Protection Plan, and as dike source to basal recharge. Your calculations in Table 2 are not consistent with how high-level tunnel sources are accounted for against basal sustainable yield in the Iao Groundwater Management Area designation and confirmed in the Na Wai Eha contested case.

Reported pumpage of Honokowai aquifer, as provided by the Commission on Water Resource Management (CWRM) to the Maui County Department of Water Supply (MDWS) represents about 67% of sustainable yield. We project that unreported and varying pumpage, future groundwater needs to offset non-potable uses of Honokowai Stream along with issued groundwater reservation

"By Water All Things Find Life"

for the Department of Hawaiian Homelands **may** exceed established sustainable yield. Factors that influence projections include assumptions about Interim Instream Flow Standards, yet to be established for Honokowai stream, water duty for agricultural irrigation needs, expansion of recycled water availability, conservation measures implemented by private water purveyors and implementation of the policies and strategies proposed in the Draft Maui Island Water Use and Development Plan (WUDP), as well as the West Maui Community Plan update.

CWRM has consulted with the MDWS and the Maui County Planning Department on interpreting demand projections and Authorized Planned Use (APU), as defined in the State Water Code. We find that current groundwater use and APU does not reach 90% of sustainable yield for any other aquifer system than Honokowai. Tentatively, MDWS supports investigations to consider designation of **Honokowai Aquifer System** only.

Serious disputes over current and planned water uses:

The Draft WUDP is the culmination of a 3 year long public process, followed by public hearings conducted by the Board of Water Supply, and deliberations over 2 ½ years in council committees. In 2021, council committee chair Sinenci conducted additional consultations with the `Aha Moku Councils to ensure culturally generational Kanaka Maoli perspectives were incorporated. The plan's strategies offer compromises to address community concerns and disputes, align with the General Plan and Community Plan for the Lahaina region to allocate water to planned land use. In their review of WUDP strategies, CWRM staff noted the benefit of strategies to meet future needs, including transfers from adjacent aquifers, to help guide CWRM in future decision-making on water management area designation.

The WUDP is the tool to allocate water to land use in consistency with the water resource protection policies set forth under the overall Hawaii Water Plan Framework. The Maui County Planning Department worked closely with MDWS in their update of the West Maui Community Plan and incorporated proposed WUDP strategies into the community plan. CWRM was consulted with regards to water policies and implementing actions. Both planning documents have included rigorous community scrutiny and CWRM had ample opportunity to provide guidance in the planning process and address any serious disputes over current and planned water uses. The current initiative to designate the entire aquifer sector seriously undermines the enormous effort to engage the community, private purveyors and sister county agencies and the progress in land use and water planning integration the county agencies have achieved to date.

Harm to groundwater quantity and quality by saltwater intrusion and climate uncertainty:

MDWS has funded multiple cooperative studies with the U.S Geological Survey (USGS) to guide

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resource management for Central Maui and Lahaina regions that specifically address threats to water quantity and quality and climate change impacts. These tools underpin the proposed WUDP strategies to allocate water to land use, guide sustainable groundwater pumpage, address declining rainfall and climate uncertainty. Specifically, distribute pumpage throughout Launiupoko aquifer where increased pumpage in MDWS wells result in high chloride levels. Current well exploration in Launiupoko aquifer is guided by the 2012 USGS study on groundwater availability in the Lahaina district. MDWS is actively preparing to shift to groundwater to reduce reliance on surface water long term and to provide for planned growth of the Lahaina community. Sustainable well development should consider optimal withdrawals of a groundwater unit and the interaction with surface water.

We believe that proactive guidance by CWRM to interpret and utilize available groundwater models and monitoring data to ensure adequate pump distributions are arguably better tools to enhanced and integrated management, than designation.

There are clearly aquifer systems included in this initiative with no basis for designation as set forth in the State Water Code. MDWS does **not** support designation of the entire aquifer sector. We believe a better approach is proactive collaboration between CWRM, public and private purveyors and community representatives to ensure implementation of WUDP strategies as well as resource management policies established in the WRPP. We expect the WUDP to be before CWRM in the first quarter of 2022. At a minimum, CWRM staff and commissioners should have the opportunity to review the WUDP in lieu of the designation process.

Designation of a Surface Water Management Area (SWMA) is premature and also inconsistent with the WUDP. We believe CWRM's ability to enforce IIFS is at the heart of the problem, a concern that is echoed by the community. At the same time, IIFS decisions must be flexible enough to adapt to the obstacles and time it takes water supply purveyors to transition to practicable alternatives. MDWS respectfully requests CWRM to **defer** SWMA proceedings until IIFS can be adopted for other priority streams, including all diverted streams in East Maui and until CWRM can secure adequate staffing to monitor and enforce decisions.

Sincerely,



Jeffrey T. Pearson, P.E.
Director of Water Supply

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