

Summary of Existing Water Use Permit Applications for Public and Private Water Systems in the Lahaina Surface and Groundwater Management Area, Maui

November 2025

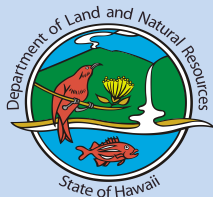
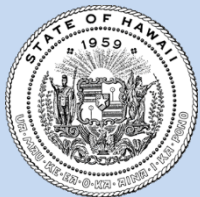
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State of Hawai'i

Department of Land and Natural Resources

Commission on Water Resource Management



Cover Page: Mauna Kahālāwai from Honokōwai Reservoir, Maui (Photo Credit: Ayrton M. Strauch)

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Abbreviations and Definitions

CFS	cubic feet per second
Chloride	measure of the chloride ion (Cl ⁻) content in water relating to salt concentration
CWRM	Commission on Water Resource Management
DLNR	Department of Land and Natural Resources
MDWS	Maui Department of Water Supply
GPD	gallons per day
GWUPA	groundwater use permit application
LIC	Launiupoko Irrigation Company
LWC	Launiupoko Water Company
KLM	Kā'anapali Land Management Company
HWS	Hawai'i Water Service
Mean	most common type of average value
MGD	million gallons per day
MLP	Maui Land and Pine
OWC	Olowalu Water Company
Pumpage	groundwater withdrawal via a well
SFD	single family dwelling; a residential structure situated on its own piece of land
SWUPA	surface water use permit application
TMK	tax map key
Unit	structure or portion of a structure that provides housing for one or more individuals or a family with a self-contained living space
UWA	Ukumehame Water Association
WML	West Maui Land Company

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Summary of Existing Water Use Permit Applications for Public and Private Water Systems in the Lahaina Aquifer Surface and Groundwater Management Area, Maui

By Ayron M. Strauch

Overview

On June 14, 2022, the State of Hawai‘i’s Commission on Water Resource Management (Commission) designated the Lahaina Aquifer Sector as both a surface water and groundwater management area. The notice to apply for existing water uses was posted on August 5, 2022, providing all users one calendar year to submit their application to be recognized as an existing use. By August 7, 2023, 93 existing use permit applications had been received by the Commission. Both Groundwater Use Permit Applications (GWUPA) and Surface Water Use Permit Applications (SWUPA) for existing (E) uses are being evaluated simultaneously because many water systems in West Maui comeingle groundwater and surface water and serve both potable and non-potable demands. The largest volumes of water requested for existing uses were from applicants representing public and private water systems (Table 1). These systems utilize wells that pump groundwater from the basal lens as well as development tunnels that withdrawal high-elevation dike-impounded groundwater (Figure 1). For the Maui Department of Water Supply (Maui DWS), the North Lahaina and South Lahaina systems are considered separately based on their independent sources and distribution systems, as well as each system’s independent existing use permit application filed by Maui DWS. Non-potable water demand for Maui DWS end users was not articulated in the permit application since Maui DWS does not separately meter potable and non-potable uses. By contrast, some parcels are served by separate potable and non-potable water systems, potentially identified in different applications. In many situations, identifying requested potable, non-potable, and total water use for individual parcels is not simple. Some parcels may have multiple units (e.g., a multi-story building or multiple single-family homes) that may be on the same water meter, or alternatively, there may be multiple meters on one parcel. There may be both non-potable and potable water meters servicing one or more parcels simultaneously. Occasionally, a single meter is used to supply water for multiple parcels (e.g., resorts or hotels that span multiple parcels). In such a situation, the total number of units on each parcel were assigned to that meter. Much of this nuanced information is not readily communicated in applications.

The following report is a breakdown of the requested water use by system as described in each application in terms of parcel and/or meter usage for potable and non-potable water supply (or both). End uses were classified based on county meter classes and parcel zoning. Meter classes identify their primary usage, but this doesn’t always align with parcel zoning. For example, a parcel classified as “R-2 Residential” (TMK 245003016) had a meter classified as “commercial”. In another example (TMK 245001024), the meter is classified as “hotel”, but the parcel was classified as “road”. One meter classified as “hotel” (TMK 245006004) was located on a parcel classified as “B-2 Business”. For private water systems, meter classifications as described by the applicant were largely consistent with Maui DWS classes. The meters for residential or agriculturally-zoned parcels with single family homes were classified as single family dwelling (SFD) meters consistent with Maui DWS. The County of Maui Tax Map Key (TMK) database has its own parcel zoning designation, which was used for end use analysis. Statistics describing water use summarized data by meter and by parcel. If by parcel, all metered data for that parcel were utilized. In a few rare situations, the meter’s TMK number was unknown and the parcel number was assigned based on billing name through a search of the TMK database. Every meter

TMK number was verified, and in some situations, when a meter's TMK classification was assigned as "unknown" or "road", it was reassigned based on additional publicly available information (e.g., business listed, home address, commercial operation). The TMK records identify parcels that are occupied by their owner (owner occupied) or those that are not (non-owner occupied). The non-owner occupied homes are not identified further in the database as transient vacation rentals, long-term rentals, or secondary homes. This report does not assume non-owner occupied parcels are used for a specific purpose, simply that Maui County has designated them as such for tax purposes. Parcels with access to recycled water from the Lahaina Wastewater Reclamation Facility operated by the County of Maui Department of Environmental Management have also been included in this report for clarity. This report is meant to communicate existing permit application data and is not intended to be a judgement on the validity of this data nor a recommendation regarding acceptance of the permits. This report does not include data from individual permit applications, only from large water system operator permit applications.

Table 1. Public and private water systems in the Lahaina Aquifer Sector with operator, number of potable and non-potable wells, and surface water sources.

System Name	Operator	# of potable production wells	# of non-potable wells ¹	# of surface water sources ²
Kapalua Potable	Hawai'i Water Service	2	0	0
Kapalua Non-potable	Hawai'i Water Service	0	2	1
North Lahaina System	Maui DWS	4	0	1
Kā'anapali Potable	Hawai'i Water Service	8	0	0
Kā'anapali Land Non-potable	Kā'anapali Land Management	0	3	1
South Lahaina System	Maui DWS	4	0	1
Launiupoko Water ³	West Maui Land	3	4	2
Olowalu Water	West Maui Land	1	1	1
Ukumehame Water	Ukumehame Water Association	2	0	1

¹non-potable wells may be development tunnels, shafts, or standard basal aquifer wells

²A surface water source may be utilized by multiple systems/applicants

³System is a combination of a potable water system from groundwater sources operated by Launiupoko Water Company and non-potable water system sourced from surface and groundwater sources operated by Launiupoko Irrigation Company serving an overlapping service area.

Single Family Dwelling Water Use

Across the entire Lahaina Aquifer Sector, water use as measured by single family dwelling (SFD) meters varied greatly, with most (52.6%) SFD meters having a 12-month mean daily water use below the county standard of 600 gallons per day (GPD), and 77.9% of SFD meters having a 12-month mean daily water use of less than 1000 GPD. However, 9.7% of all SFD meters had a 12-month mean daily water use greater than 2000 GPD (Figure 2). Across all existing use permit applications, 160 SFD meters were submitted with a 12-month mean daily water use of zero, which partially skewed subsequent calculations of water use (Figure 2). Statistics with and without these 160 SFD meters are provided in Table 2 for clarity. Another difference in water use across the Lahaina Aquifer Sector is between parcels identified as owner occupied and non-owner occupied with SFD meters (Table 2).

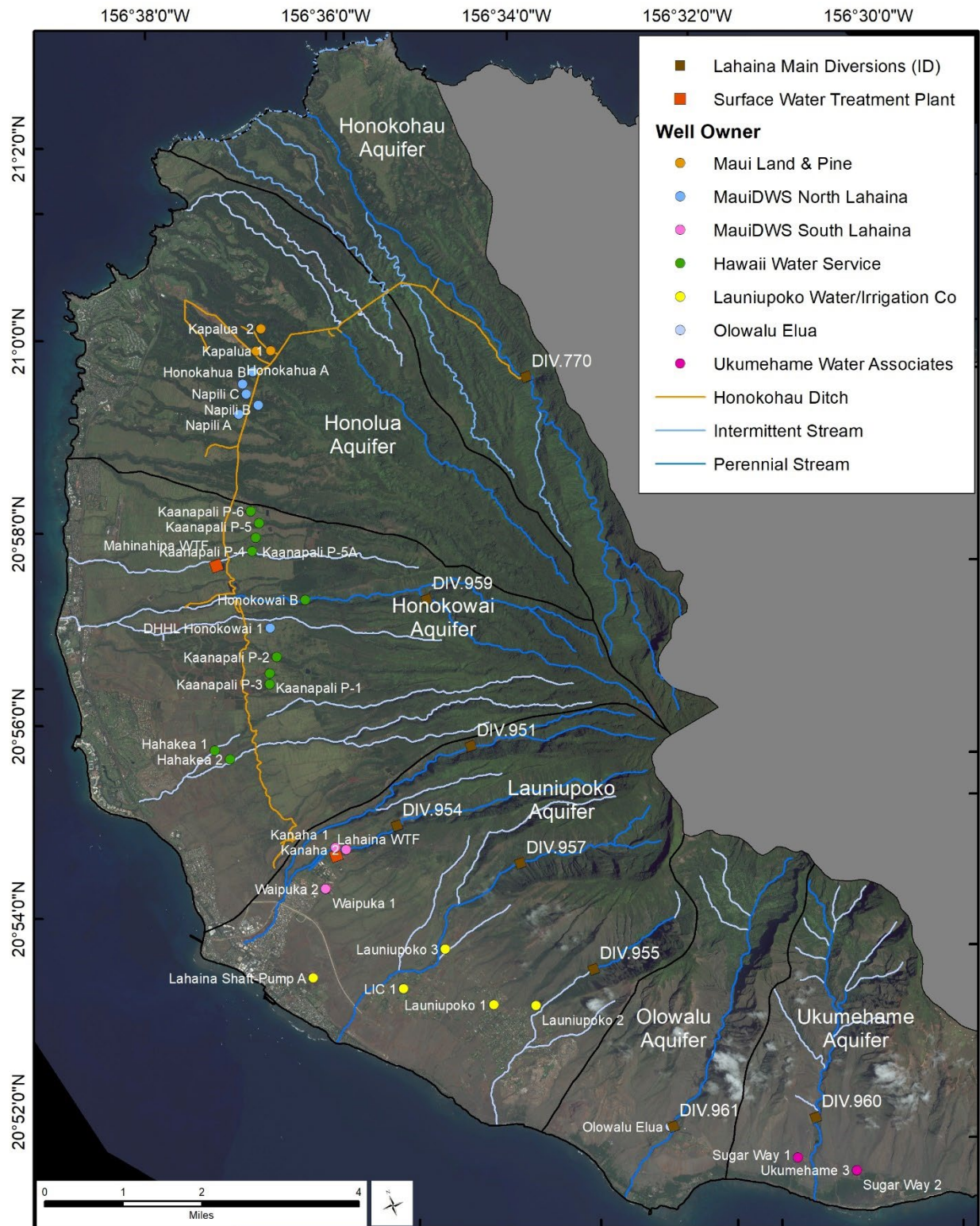


Figure 1. Basal groundwater wells, large stream diversions, and surface water treatment facilities (WTF) serving public and private water systems in the Lahaina Aquifer Sector.

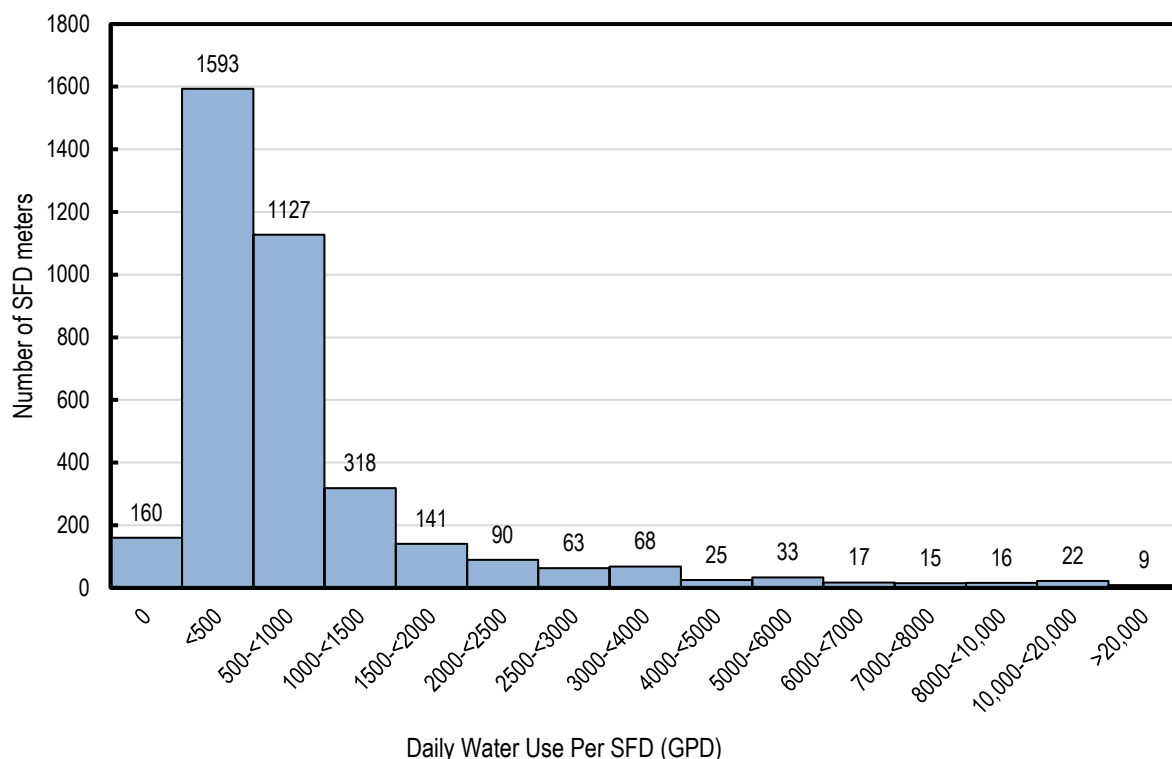


Figure 2. Histogram of single family dwelling (SFD) meters by reported mean daily water use in gallons per day (GPD) in the Lahaina Aquifer Sector. [note differences in water use category ranges]

The mean daily water use of non-owner occupied SFD meter homes (1469 GPD) was approximately twice that of owner occupied SFD meter homes (721 GPD). This discrepancy is also apparent when meters are classified by county land-use zones, with water use by non-owner occupied homes on agriculturally-zoned parcels and on apartment-zoned parcels using more the 4.5x greater water than by owner occupied homes on such parcels (Table 3).

Table 2. Mean and standard deviation (SD) water use (in gallons per day, GPD) for single family dwelling (SFD) meters as submitted in existing use applications for large water systems with reported use greater than zero (e.g., no meters with zero use) and with all meters (e.g., including those with zero reported use) for the Lahaina Aquifer Sector. Values organized by owner occupancy as reported in tax map key database.

Single Family Dwelling Meters	Meters With Use Greater Than Zero (GPD per SFD)			All Meters (GPD per SFD)		
	Mean	SD	# of meters	Mean	SD	# of meters
Owner Occupied	721	1360	1870	713	1355	1890
Non-Owner Occupied	1469	3701	1667	1355	3576	1807

Table 3. Mean and standard deviation (SD) water use (in gallons per day, GPD) for single family dwelling meters organized by tax map key zone "Agriculture" or A-1 and A-2 Apartment as submitted in existing use applications for large water systems; values organized by owner occupancy as reported in tax map key database.

Parcel Occupancy	Agriculture Zoned Parcel (GPD per SFD)			A-1 and A-2 Apartment Zoned Parcel (GPD per SFD)		
	Mean	SD	# of meters	Mean	SD	# of meters
Owner Occupied	592	860	174	608	1540	54
Non-Owner Occupied	2707	9921	87	2779	9813	85

Hotel and Resort Water Use

Hotel and resort zoned parcels in the Lahaina Aquifer Sector are served by multiple potable and non-potable water systems, including the Kapalua potable and non-potable water systems, the Maui DWS North Lahaina and South Lahaina potable water systems, the Kā'anapali potable and non-potable water systems, and the Lahaina Water Reclamation Facility. Hotel and resort properties are diverse in size, amenities, and utilization. Some are traditional hotels with swimming pools and landscaping, while others are self-contained condominiums with access to common area amenities. Some parcels have access to non-potable water for landscape irrigation. Meters that serve hotel and resort parcels may be classified as “Hotel”, “Low-Rise”, or “Commercial”. Some meters are part of the hotel or resort but serve commercial uses within these properties. To complicate matters, within the Nāpili Bay Civic Improvement District parcel zone, there is a combination of owner and non-owner occupied “Low-Rise” and “Hotel” meters. Of the parcel zone classifications, some are listed as apartment, residential, hotel, or resort, while some as commercial or business.

Potable water use for hotel and resort parcels by meter and unit was summarized by system in Table 4. These data do not include additional non-potable water use for overlapping parcels in the Kapalua and Kā'anapali service areas provided by other systems. Across the region, mean daily potable water use per unit is 5,460 gpd.

Table 4. Number of meters, total water use (in gallons per day, GPD), mean water use per meter, total number of units, mean water use per unit, and standard deviation (SD) for hotel and resort potable meters organized by system as submitted in existing use applications for large water systems. [note: does not include non-potable water use for the Kapalua Resort and Kā'anapali Resort service areas.]

System	Number of Meters	Total Water Use (GPD)	Mean per Meter (GPD)	Number of Units	Mean per Unit (GPD)	SD
Kapalua potable	6	75,863	12,644	1135	139	225
Maui DWS North Lahaina	104	1,644,778	15,815	5799	6403	18,352
Kā'anapali Potable	34	2,806,096	82,532	6903	3431	13,850
Maui DWS South Lahaina	6	166,274	27,712	447	4921	11,348

1. Maui Department of Water Supply-North Lahaina Water System

Maui Department of Water Supply (DWS) operates the North Lahaina potable water supply system (Public Water System # 214) that sources water from four wells and the Honokōhau Ditch, which is operated by Hawai‘i Water Service for Maui Land and Pine.

Groundwater Sources

The Maui DWS operates four wells all located in the Honolua Aquifer System (Table 5), with pumpage from a fifth well, Honokahua A, discontinued in 2003. Recent (2018-2025) groundwater pumpage and chloride levels from Maui DWS wells are provided in Figure 4. The Kahana Well (Well No. 5738-002) (not shown on Figure 1) was drilled prior to the designation of the Lahaina Aquifer Sector as a ground water management area to provide redundancy for existing uses when surface water availability was limited due to drought, but has not been permitted to begin operating as a new source.

Table 5. Maui DWS North Lahaina Water System mean and maximum well pumpage and chloride levels as of March 2025. [note: 12-month mean chloride is pumpage-weighted mean]

Well Name	Well No.	12-month mean pumpage (mgd)	12-month maximum pumpage (mgd)	12-month mean chloride (mgd)	12-month maximum chloride (ppm)
Honokahua B	5938-001	0.356	0.627	33	43
Nāpili A ¹	5838-001	0.119	0.270	210	210
Nāpili B ¹	5838-002	0.304	0.893	123	140
Nāpili C	5838-004	1.266	1.406	245	250
total =		2.045	mean =	188	

¹chloride reading only submitted for three of previous 12 months

Surface Water Sources

The Maui DWS operates the Mahinahina Surface Water Treatment Facility (SWTF) that serves the North Lahaina Water System. This facility is supported by the 50 MG Mahinahina Reservoir, which receives non-potable water transmitted by the Honokōhau Ditch originating from the Honokōhau Stream. The normal operating capacity of the Mahinahina SWTF is approximately 2.5 mgd. Potable water production has declined post-pandemic and post-fire due to ongoing drought (Table 6). In September 2021, Maui DWS began reporting daily metered data to the Commission instead of monthly metered data, which helped refine the production analysis.

Flow in Honokōhau Stream is monitored at USGS 16620000. This station is upstream of groundwater development tunnels (Well No. 6735-001, -002) that contribute to the availability of streamflow at Aotaki Weir. In May 2021, the Commission established an Interim Instream Flow Standard (Interim IFS) on Honokōhau Stream at 340ft in elevation above MacDonald’s Dam of 13.3 cfs (8.6 mgd). Median (Q₅₀) and low (Q₉₀) flows for water years (WY) 2005-2024 were 19.1 cfs (12.3 mgd) and 11.3 cfs (7.3 mgd), respectively. This represents a decline of 17.7% and 19.3%, relative to the WY 1985-2004 period Q₅₀ (23.2 cfs; 15.0 mgd) and Q₉₀ (14 cfs; 9.0 mgd), respectively. From June 2021 to March 2025, there was not enough water in Honokōhau Stream to supply 2.32 cfs (1.5 mgd) to the Mahinahina SWTF while meeting the Interim IFS on 57 days (4.07%). Recent (Water Year 2025) declines in rainfall have continued to affect streamflow and water availability in Honokōhau (Figure 3).

Table 6. Maui DWS Mahinahina Surface Water Treatment Facility mean, median, and maximum daily production volumes for different periods of record: prior to the SARS-COV-2 pandemic reduction in demand, during the pandemic recovery before the August 8, 2023 Lahaina fire, and post-Lahaina fire.

Period of Record	Mean Production (mgd)	Median Production (mgd)	Maximum Production (mgd)
01/2015 - 12/2019	1.680	1.731	2.090
01/2021 - 08/2023	1.293	1.390	4.460
09/2023 – 03/2025	0.840	0.750	2.649

Service Area

Maui DWS applied for an existing groundwater use of 1.911 mgd from the Honolua Aquifer System (GWUPA-E 01159 and 01160) and 1.41 mgd of surface water from the Honokōhau Hydrologic Unit (SWUPA-E 6096.6). In a separate permit application, County of Maui Parks and Recreation submitted an application for the irrigation of Nāpili Park (GWUPA-E 01165) from a County-owned well (Well No. 6-5939-002) for 0.026 mgd. In its application (GWUPA-E 01159 and 01160), Maui DWS requested water for 1138 individual meters for the North Lahaina System (Figure 5). The system stretches from Honokōwai to Nāpili/Kapalua.

The breakdown of water use by Maui DWS meter classification is provided in Table 7. The total daily, mean daily, per unit and per acre water use rates for hotel and apartment zoned parcels is provided in Table 8. The total number of units for each parcel served by each meter was determined by an analysis of publicly available development plans for residential, apartment, hotel, and resort parcels. For example, the Nāpili Kai Beach Resort is composed of 11 adjoining TMK parcels collectively supporting 163 units. The distribution of water use by parcel is depicted in Figure 5. Some meters serve more than one parcel and to avoid double counting, additional parcels were not colored in Figure 5, but the use was included in all analyses. For single family dwellings (SFD), the breakdown of total daily water use and mean daily water use by meter for owner occupied and non-owner occupied units organized by parcel classification is provided in Table 9.

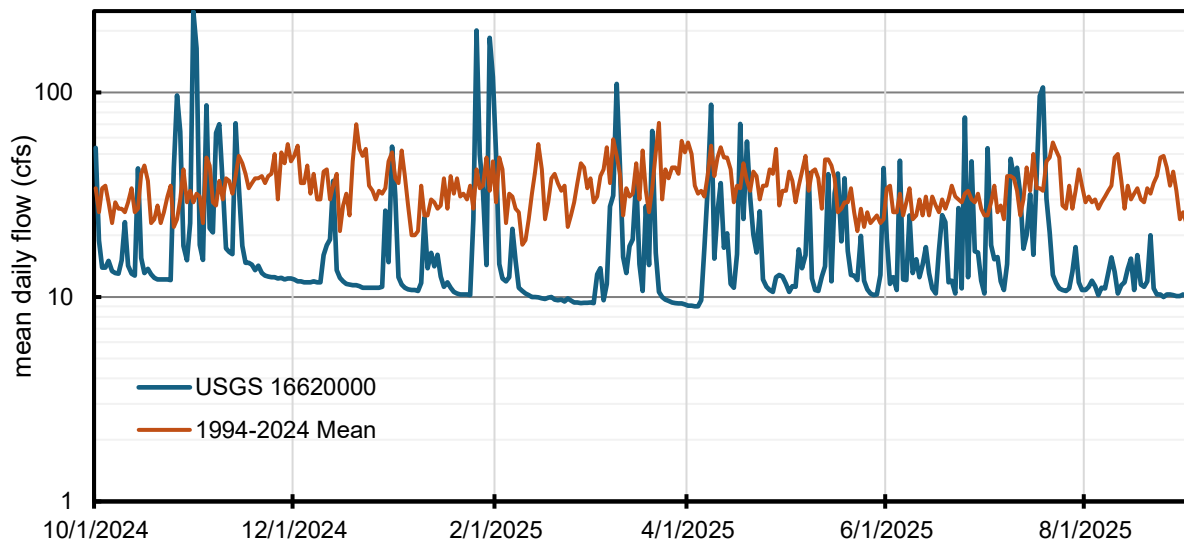


Figure 3. Mean daily flow at USGS 16620000 Honokōhau Stream (blue) for Water Year 2025 and 1994-2024 mean flow value for each day of year (brown).

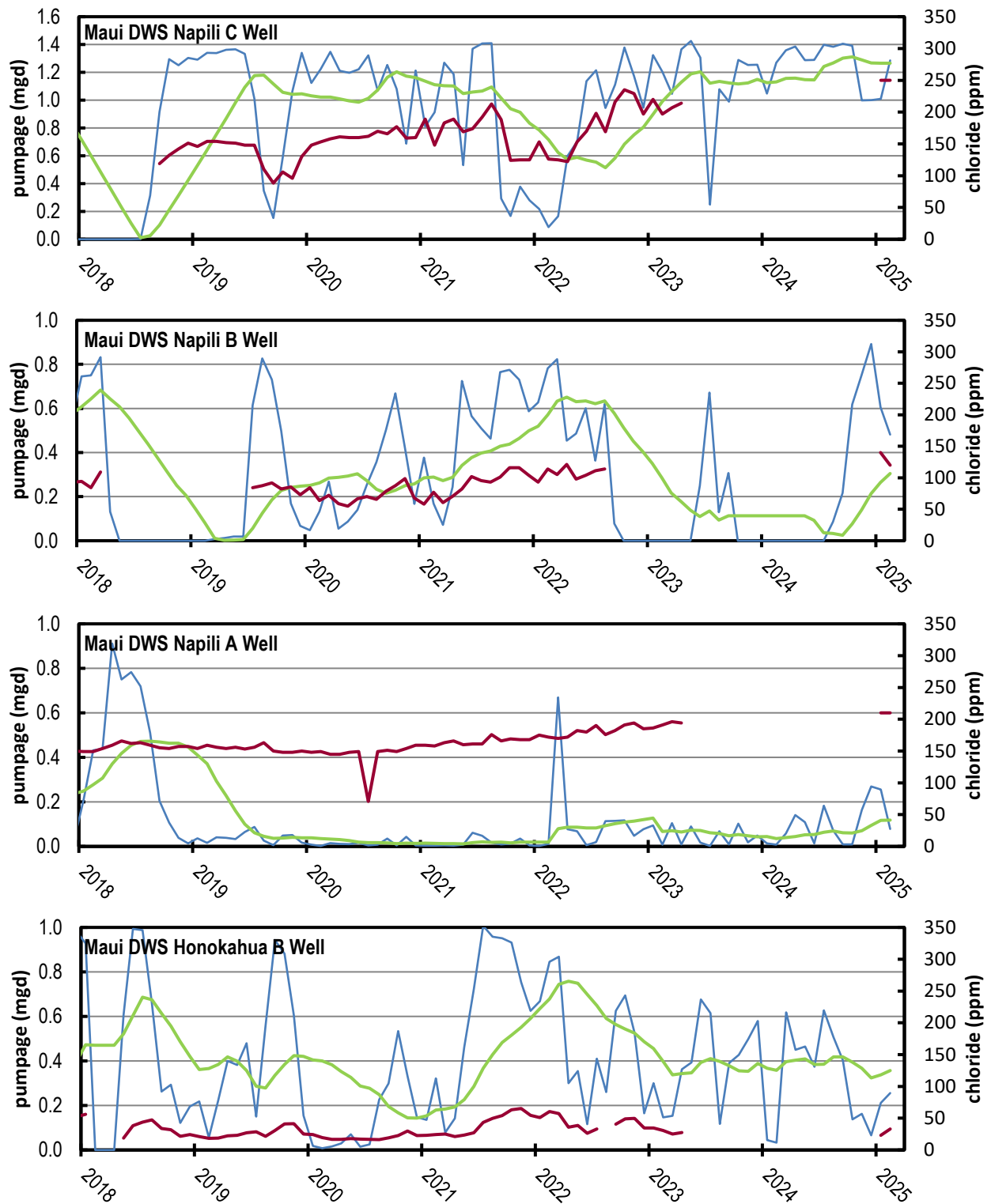


Figure 4. Monthly pumpage (blue), 12-month moving average (green), and chloride level (maroon) for wells in the Hawaii Water Service- Kapalua Water System

Table 7. Maui DWS North Lahaina Service Area number of meters, total daily water use (gallons per day, GPD) and mean daily water use by meter classification. [meter classifications are: CO GOVT = county government; COM = commercial; HOTEL = hotel/motel/resort; IND = industrial; LO-RISE = multiunit residential building ≤ 3 stories; PSCHOOL = primary school; RELIGION = building of religious worship; SFD = single family dwelling]

Meter Classification	Number of Meters	Total Daily Water Use Per Meter (GPD)	Mean Daily Water Use Per Meter (GPD)
CO GOVT	12	8,218	685
COM	43	184,328	4,389
HOTEL	34	940,886	28,512
IND	9	58,021	6,447
LO-RISE	119	1,006,134	8,527
PSCHOOL	1	1,308	1,308
RELIGION	4	1,744	436
SFD	917	623,960	682

Table 8. Maui DWS North Lahaina Service Area metered water use (gallons per day, GPD; gallons per acre per day, GAD) for parcels zoned Hotel, the Napili Bay Civic Improvement District (CID), or apartment. [note: units based on publicized total units per development; parcel acreage based on taxable acreage]

Parcel Classification	Number of Meters	Number of Units	Total Daily Water Use (GPD)	Mean Daily Water Use Per Unit (GPD)	Mean Daily Water Use (GAD)
H Hotel	13	586	651,057	1,111	1,527
H-2 Hotel	22	851	308,411	362	428
H-M Hotel	13	695	103,656	15	243
Nāpili Bay CID	18	2,560	290,304	113	328
D-1 Duplex	4	99	37,072	374	283
A-1 Apartment	28	742	198,431	267	216
A-2 Apartment	34	2,046	375,982	184	337

Table 9. Maui DWS North Lahaina Service Area metered water use for single family dwelling (SFD) meters zoned as residential or agriculture parcels by owner occupancy.

Parcel Classification	Number of Parcels		Total Daily Water Use (GPD)		Mean Daily Water Use (GPD)	
	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied
R-0 Residential	19	28	5,090	7,209	257	268
R-1 Residential	180	131	75,768	93,356	713	421
R-2 Residential	142	167	82,829	94,312	565	583
R-3 Residential	73	47	83,488	44,218	941	1,144
Agriculture	94	39	53,894	29,795	573	764

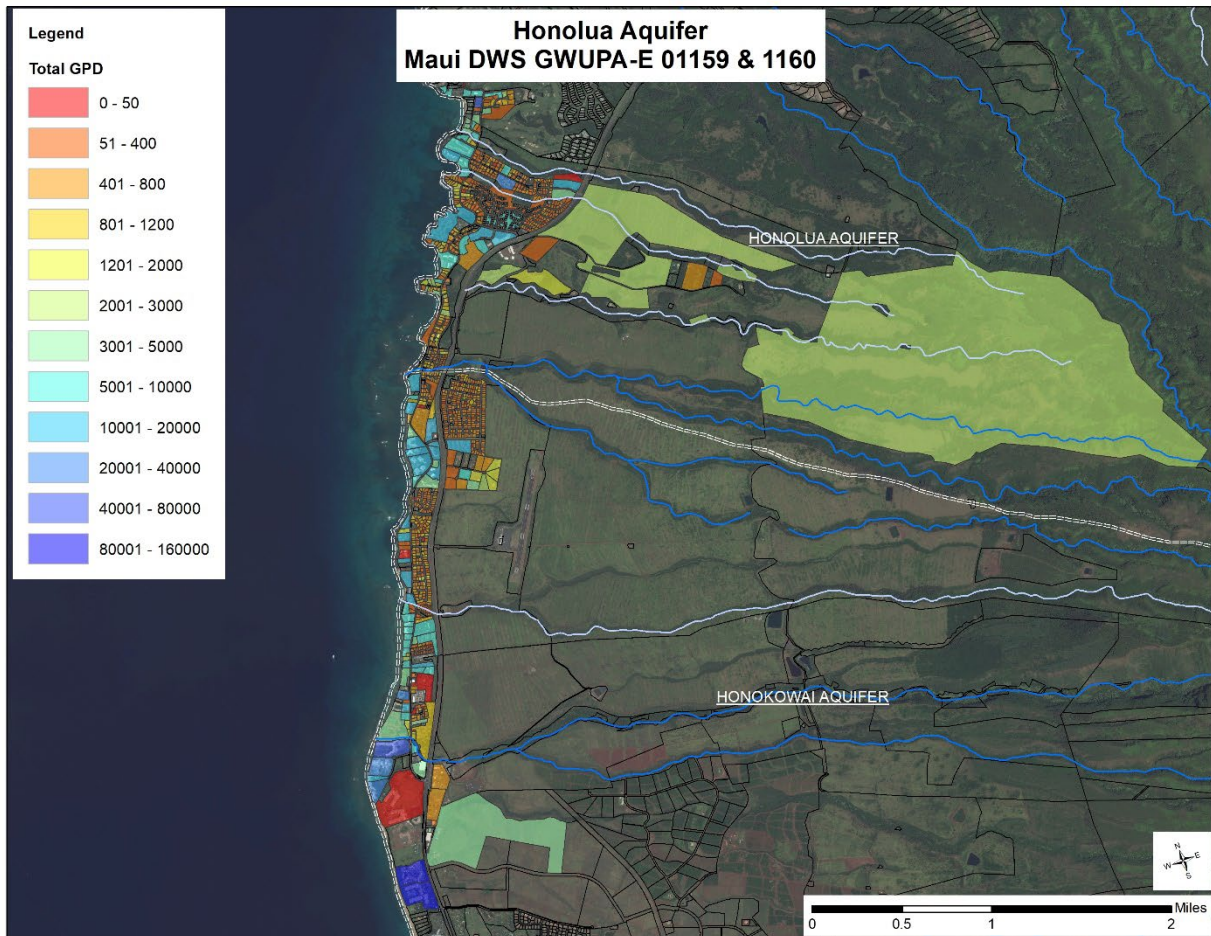


Figure 5. Maui DWS North Lahaina Water System parcels identified in its water use permit with existing usage colored by the total daily water consumption (gallons per day, GPD).

2. Hawai'i Water Service- Kapalua Water System

Hawai'i Water Service (HWS) operates two discrete water distribution systems in Kapalua. One system is a potable, drinking water system (Public Water System # 204) sourced by wells and the other is a non-potable irrigation system sourced by surface water and development tunnels. Most parcels in the Kapalua Resort Service Area are served by both systems.

Groundwater Sources

Hawai'i Water Service operates two potable wells owned by Maui Land & Pine (MLP) and located in the Honolua Aquifer System (Table 10). Recent (2018-2025) pumpage and chloride levels for Kapalua wells are provided in Figure 7. Kapalua 1 and Kapalua 2 wells provide potable water for the various resorts, residential neighborhood developments, and commercial developments in the Kapalua Area (Figure 8). The Kapalua 3B well was drilled but no pump was ever installed.

Table 10. Hawai'i Water Service- Kapalua Water System well numbers, 12-month mean and maximum pumpage and chloride levels as of March 2025. [note: mean 12-month mean chloride is pumpage-weighted mean]

Well Name	Well No.	12-month mean pumpage (mgd)	12-month maximum pumpage (mgd)	12-month mean chloride (mgd)	12-month maximum chloride (ppm)
Kapalua 1	5938-002	0.245	0.378	20	22
Kapalua 2	5938-003	0.229	0.340	14	18
Kapalua 3B	5938-004	--	--	--	--
total =		0.474	mean =	17	

Surface Water Sources

Hawai'i Water Service operates Diversion 770 at Aotaki Weir on Honokōhau Stream which diverts water to Honokōhau Ditch and is owned by MLP. In May 2021, the Commission approved an amended Interim IFS for Honokōhau Stream at 340ft in elevation at MacDonald's Dam (8.6 mgd, 13.3 cfs). The ditch transmits water from Honokōhau to four distribution points: Village Reservoir, Plantation Reservoir, Yak Box, and Mahinahina Reservoir. In the HWS application, the 12-month mean daily flow (August 2022 to July 2023) to Village Reservoir was 1.215 mgd, to Plantation Reservoir was 0.140 mgd (mostly estimated), and to Yak Box was 0.160 mgd (estimated). Improvements to Diversion 770 have reduced the withdrawal of excess water following the Commission's November 2019 order and increased the flow remaining in Honokōhau Stream to meet the Interim IFS. Surface water at Aotaki Weir is a combination of surface water measured at USGS 16620000 (Figure 3) and groundwater gains from development tunnel 21 (Well No. 5735-001) and tunnel 22 (Well No. 5735-002). Total measured groundwater gains range from 3.9 cfs (2.52 mgd) to 6.7 cfs (4.33 mgd) and depend on antecedent rainfall conditions. When streamflow at USGS 1662000 drops below 9.33 cfs (6.03 mgd), no water is available for off stream use.

Service Area

Hawai'i Water Service submitted for an existing use permit application (GWUPA-E 01170) for 0.779 mgd from two wells in the Honolua Aquifer System for the Kapalua Service Area. The system is limited to the Kapalua resort community makai of the highway and the various phases of residential agricultural lots mauka of the highway, including Pineapple Hill, Honolua Ridge and Mahana Estates. In its application, Hawai'i Water Service requested groundwater for 268

individual meters, broken down by residential, two types of hotel, and commercial/ancillary facilities, including potable consumption at golf course facilities. The total number of units for each hotel parcel was determined by an analysis of publicly available data. The breakdown of total daily and mean daily water use (GWUPA-E 01170) is provided in Table 10. For residential units (e.g., single family homes, and agriculturally-zoned homes), the breakdown of total daily and mean daily potable water use by meter for owner occupied and non-owner occupied units is also provided in Table 11. Table 12 provides the hotel and commercial classified metered water use in Kapalua. Hawai'i Water Service submitted for an existing use permit application (SWUPA 6072.6) for 1.516 mgd from Honokōhau Hydrologic Unit. The parcels identified as using non-potable water for irrigation in Kapalua had a total mean daily water use of 0.782 mgd for 347.058 acres (2,252 gallons per acre per day) (Figure 9). Of this amount, 0.327 mgd is used for 167.716 acres designated as golf course (1,950 gallons per acre per day). An additional 9,500 gallons per day is requested as system loss (1.2%).

Table 11. Hawai'i Water Service- Kapalua Water System metered potable water use (gallons per day, GPD) for owner occupied and non-owner occupied residential developments, agricultural parcels, and for hotel, commercial and accessory properties based on GWUPA-E 01170.

Name	Number of Meters		Total Daily Water Use Per Meter (GPD)		Mean Daily Water Use Per Meter (GPD)		Neighborhood Code
	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied	
Kapalua Place	1	8	340	6,223	340	778	1100-2, 4212-1, 4213-1
Golf Villas		5		47,012		9,402	42892-2
Pineapple Hill	31	90	27,395	142,891	884	1,588	4210-1
Honolua Ridge Phase II	17	71	10,682	226,096	628	3,184	4251-5
Honolua Makai		2		2,433		1,216	4252-6
Kapalua Makai Resort Irrigation		6		94,123		15,687	42891-3
Honolua Ridge Phase II	1		795		795		4342-5
Kapalua Mauka		1		1,707		1,707	4355-5
Kapalua Mauka baseyard		2		1,125		563	4155-5
Kapalua Makai baseyard		2		3,466		1,733	4377-8
Mahana Estates	2	19	1,411	32,252	705	1,697	4482-5
Park		1		3,532		3,532	4871-6
total =	52	207	40,622	560,860	781	2,709	

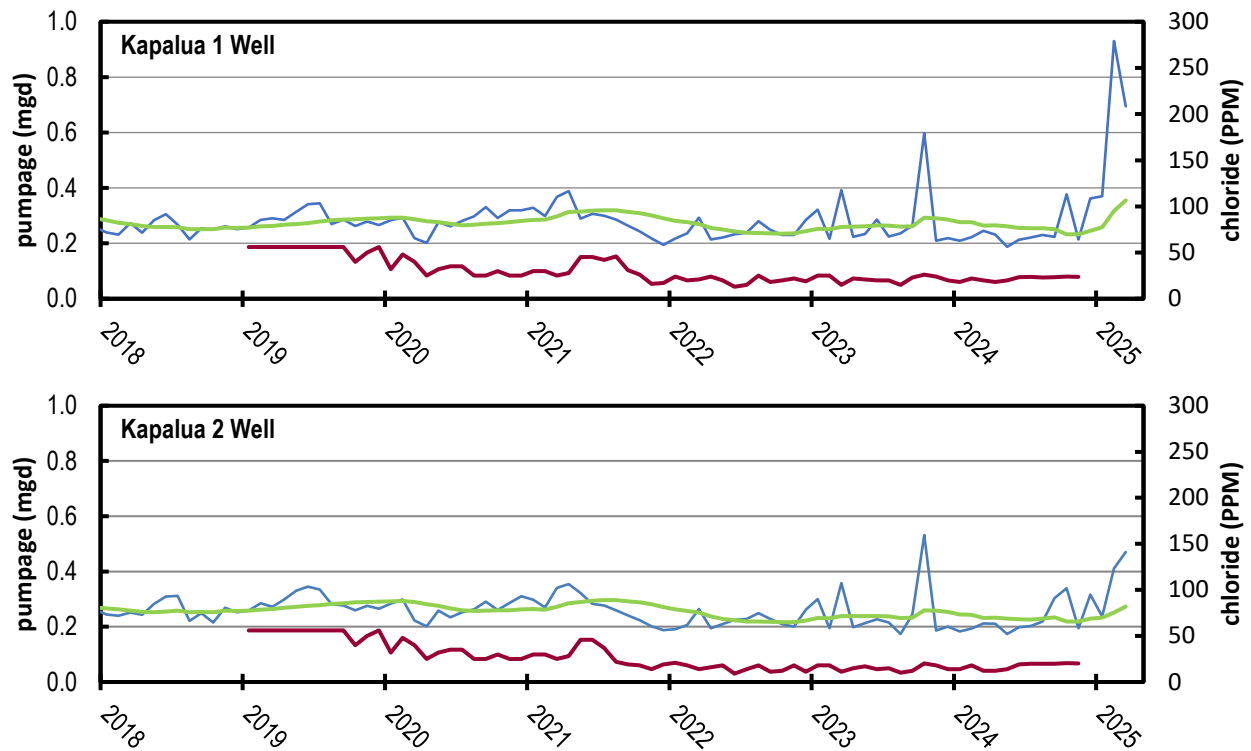


Figure 7. Monthly pumpage (blue), 12-month moving average (green), and chloride level (maroon) for wells in the Hawai'i Water Service- Kapalua Water System

Table 12. Hawai'i Water Service- Kapalua Water System metered potable water use (gallons per day, GPD) for hotel, commercial and accessory properties based on GWUPA-E 01170.

Meter Classification	Number of Meters	Total Daily Water Use (GPD)	Mean Daily Water Use Per Meter (GPD)	Total Number of units	Mean Daily Water Use Per Unit (GPD)
INHOTEL	1	59,751	--	466	128
OFHOTEL	3	8,851	26,553	322	567
COMMERCIAL ¹	5	60,546	12,109		

¹includes accessory facilities to golf courses

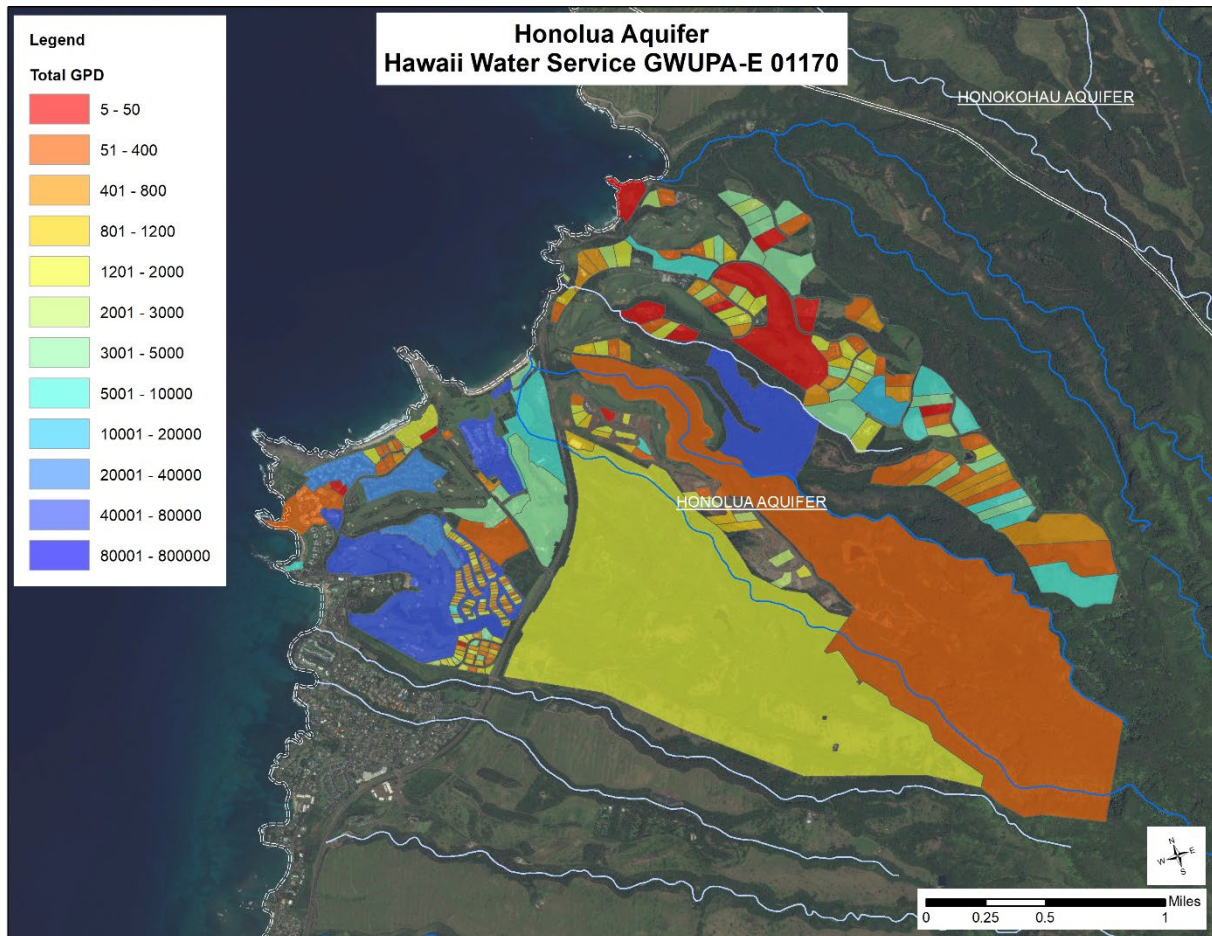


Figure 8. Hawai'i Water Service- Kapalua System parcels identified in its water use permit with existing usage colored by the total daily potable water consumption (gallons per day, GPD).

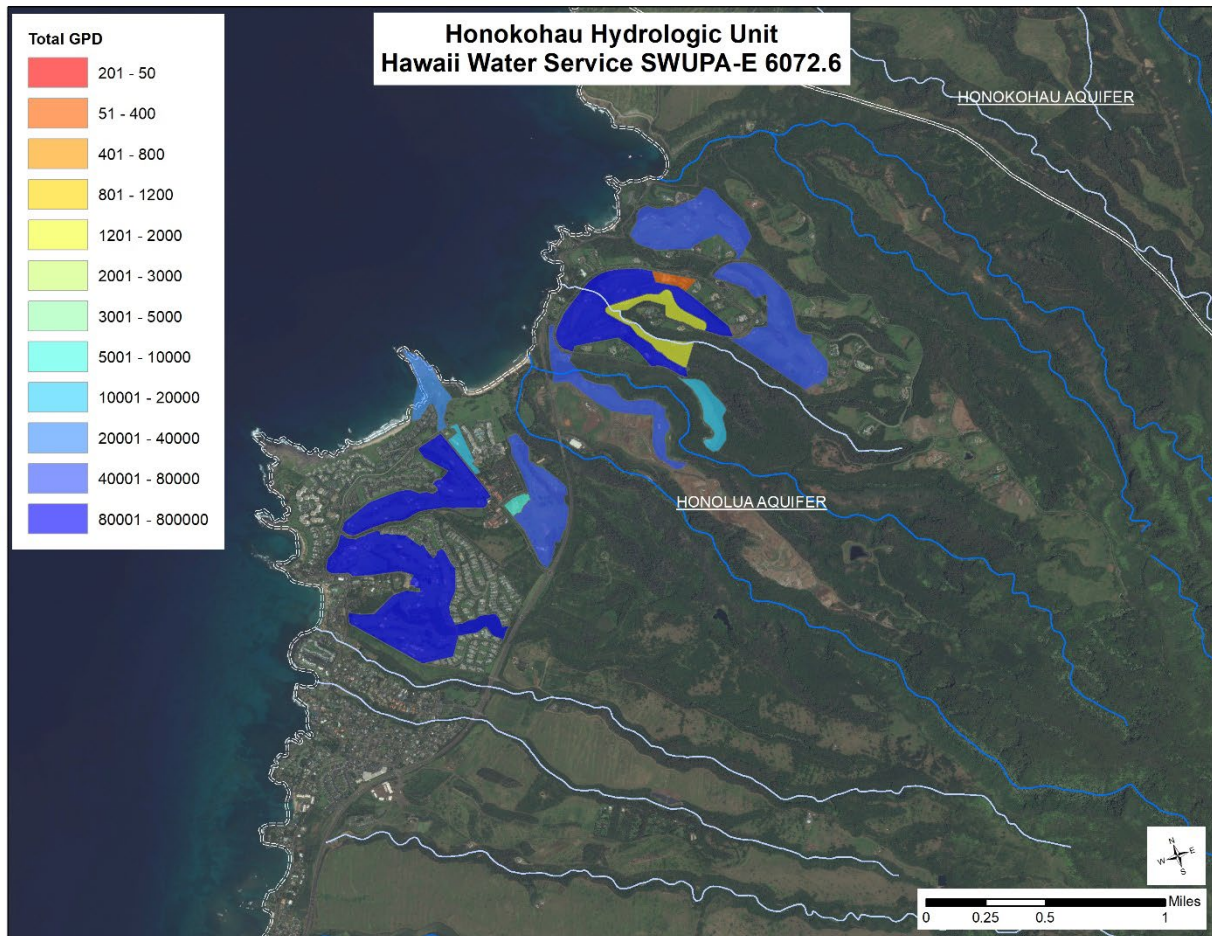


Figure 9. Hawai'i Water Service- non-potable system parcels identified in its water use permit with existing usage colored by the total daily non-potable water consumption (gallons per day).

3. Hawai‘i Water Service- Kā‘anapali Water System

Hawai‘i Water Service (HWS) operates a potable water distribution system in Kā‘anapali (Public Water System # 205) sourced by groundwater wells in the Honokōwai Aquifer System. Many properties in this service area are also served by non-potable R-1 recycled water sourced from the Lahaina Wastewater Reclamation Facility operated by Maui County. Additionally, a portion of the irrigation demand for the Kā‘anapali golf course is met with groundwater from the Pu‘ukoli‘i Well (Well No. 5540-001) operated by the Kā‘anapali Land Management Company (KLM). Kā‘anapali Land Management residential development’s potable water demand is served by HWS while non-potable water demand is met via the KLM surface water system. These other systems will be discussed later.

Groundwater Sources

Hawai‘i Water Service operates eight production wells in the Kā‘anapali Water System located within the Honokōwai Aquifer System (Table 13). Recent (2018-2015) pumpage and chloride levels are provided in Figure 10. Chloride levels have steadily increased in this region during this time. Pumpage from Honokōwai B well was discontinued in 2016 due to excessive chlorides.

Table 13. Hawai‘i Water Service- Kā‘anapali Water System wells, 12-month mean and maximum pumpage and chloride levels as of March 2025. [note: mean 12-month mean chloride is pumpage-weighted mean]

Well Name	Well No.	12-month mean pumpage (mgd)	12-month maximum pumpage (mgd)	12-month mean chloride level (ppm)	12-month maximum chloride level (ppm)
Hāhākea 2	5540-003	0.172	0.308	259	292
Kā‘anapali P-1	5539-001	0.363	0.553	200	240
Kā‘anapali P-2	5539-002	0.543	0.735	466	610
Kā‘anapali P-3	5539-003	0.704	0.895	182	222
Kā‘anapali P-4	5739-001	0.690	0.858	325	405
Kā‘anapali P-5 ¹	5738-001	0.983	1.146	244	337
Kā‘anapali P-5A	5739-004	0.720	0.804	413	492
Kā‘anapali P-6 ²	5739-002	0.295	0.261	346	795
total =		4.47	mean =	304	

¹pump was shut down in February 2024 due to chronic chloride problems; values represent 12-months prior to shutdown

²pump was shut down in August 2024 due to chronic chloride problems; values represent 12-months prior to shutdown

Non-potable Water Use

Some of the resorts and golf course acreage in Kā‘anapali utilize R-1 recycled water from the Lahaina Wastewater Reclamation Facility. Landscape irrigation demand in parcels not served by the R-1 system is met with potable water.

Service Area

Hawai‘i Water Service submitted existing use permit applications (GWUPA-E 01172, 01173, and 01174) for 4.388 mgd of groundwater from the Honokōwai Aquifer System. In its GWUPA Hawai‘i Water Service requested water for individual meters, broken down by single family dwelling (SFD) (zoned agriculture and residential), apartment, hotel, and resort (Figure 11). The

system is limited to the Kā'anapali resort community and the KLM residential development, including the various phases of development in Pu'ukoli'i. The breakdown of total daily and mean daily water use as submitted for meter classifications is provided in Table 14 with owner occupied and non-owner occupied SFD parcels identified as residential or agricultural meters.

Table 15 provides the metered water usage for large unit developments in Kā'anapali with water use per unit and per acre calculated. The total number of units for each parcel served by each meter was determined by an analysis of publicly available development plans for residential, apartment, hotel, and resort parcels.

Table 14. Hawai'i Water Service- Kā'anapali Water System service area metered water use for owner occupied and non-owner occupied parcels.

Meter Classification	Number of Meters		Total Daily Water Use (GPD)		Mean Daily Water Use Per Meter (GPD)	
	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied
Residential	184	231	238,928	706,523	1,299	3,059
Apartment	--	3	--	129,586	--	43,195
Hotel	1	19	3,400	2,279,764	--	119,988
Resort	--	3	--	128,334	--	42,778
Residential-Agriculture	34	14	12,749	81,044	2,384	911

Table 15. Hawai'i Water Service- Kā'anapali Water System parcel TMK number, number of units, metered total daily water use (gallons per day, GPD), mean daily water use per unit and per acre for hotel, condominium, and resort parcels. [note: parcel area is the sum of total taxable area]

TMK number	Parcel Name	Number of units	Parcel Area (acre)	Total Daily Water Use (GPD)	Mean Daily Water Use Per Unit (GPD)	Mean Daily Water Use Per Acre (GAD)
244006034, 244006048-244006052	MASTERS KAA NAPALI HILLSIDE - CONDO	200	37.94	145,310	727	3,830
244006006	INTERNATIONAL COLONY - CONDO MASTER	45	10.57	26,419	587	2,499
244006011	HALE KAA NAPALI - CONDO MASTER	264				
244006016	KAA NAPALI PLANTATION - CONDO MASTER	62	10.00	85,436	1,378	8,544
244006055	VINTAGE AT KAA NAPALI - CONDO MASTER	73	16.97	73,351	1,005	4,322
244008002	WHALER ON KAA NAPALI BEACH - CONDO MASTER	360	6.66	98,126	273	14,734
244008003	PARADISE OWNER LLC	432	10.35	134,027	310	12,949

Table 15. [continued]

TMK number	Parcel Name	Number of units	Parcel Area (acre)	Total Daily Water Use (GPD)	Mean Daily Water Use Per Unit (GPD)	Mean Daily Water Use Per Acre (GAD)
244008005	KYO-YA HOTELS & RESORTS LP	508	23.87	199,003	392	8,337
244008007	ROYAL LAHAINA OWNER LP	333	9.06	71,263	214	7,866
244008013	ROYAL LAHAINA OWNER LP	127	18.13	97,367	767	5,370
244008019	CAMPBELL HAWAII INVESTOR LLC	769	12.00	280,537	365	23,378
244008020	PINEAPPLE PROPERTIES LLC	105	4.13	1,145	11	277
244008021	MAUI ELDORADO I,II - CONDO MASTER	204	10.23	77,712	381	7,596
244008022	KAANAPALI ALII - CONDO MASTER	264	8.03	107,370	407	13,371
244013001	MAUI OCEAN CLUB - CONDO MASTER	480	15.90	232,915	485	14,649
244013008	HMC MAUI LP	841	13.18	521,055	620	39,534
244014003	MAUI TIMESHARE VENTURE LLC CONDO MASTER	131	4.45	190,255	338	6,785
244014004	10 KAI ALA DRIVE CONDOMINIUM	40	1.16	170	2	72
244014005	OCEAN RESORT VILLAS VACATION OWNERS ASSC	280	13.94	94,586	338	5,864
244014006	OCEAN RESORT VILLAS NORTH - CONDO MASTER	516	11.49	825	2	1,782
244014011	VSE PACIFIC INC	390	26.62	156,101	400	7,319
244014013	HONUA KAI CONDOMINIUM - CONDO MASTER	672	39.77	70,855	105	5,440
244014014	FGF LAND LLC	8	0.98	7,173	897	2,980
244014015	40 KAI ALA CONDO- CONDO MASTER	5	0.96	5,222	1,044	3,579
244017020	PAPAYA PROPERTIES LLC	4	0.88	2,622	656	671
244014003	FALK,JIM TRUST	5	0.95	3,400	680	6,785
244014004	THE SUMMIT AT KAAANAPALI - PHASE I	17	7.53	5,055	297	72

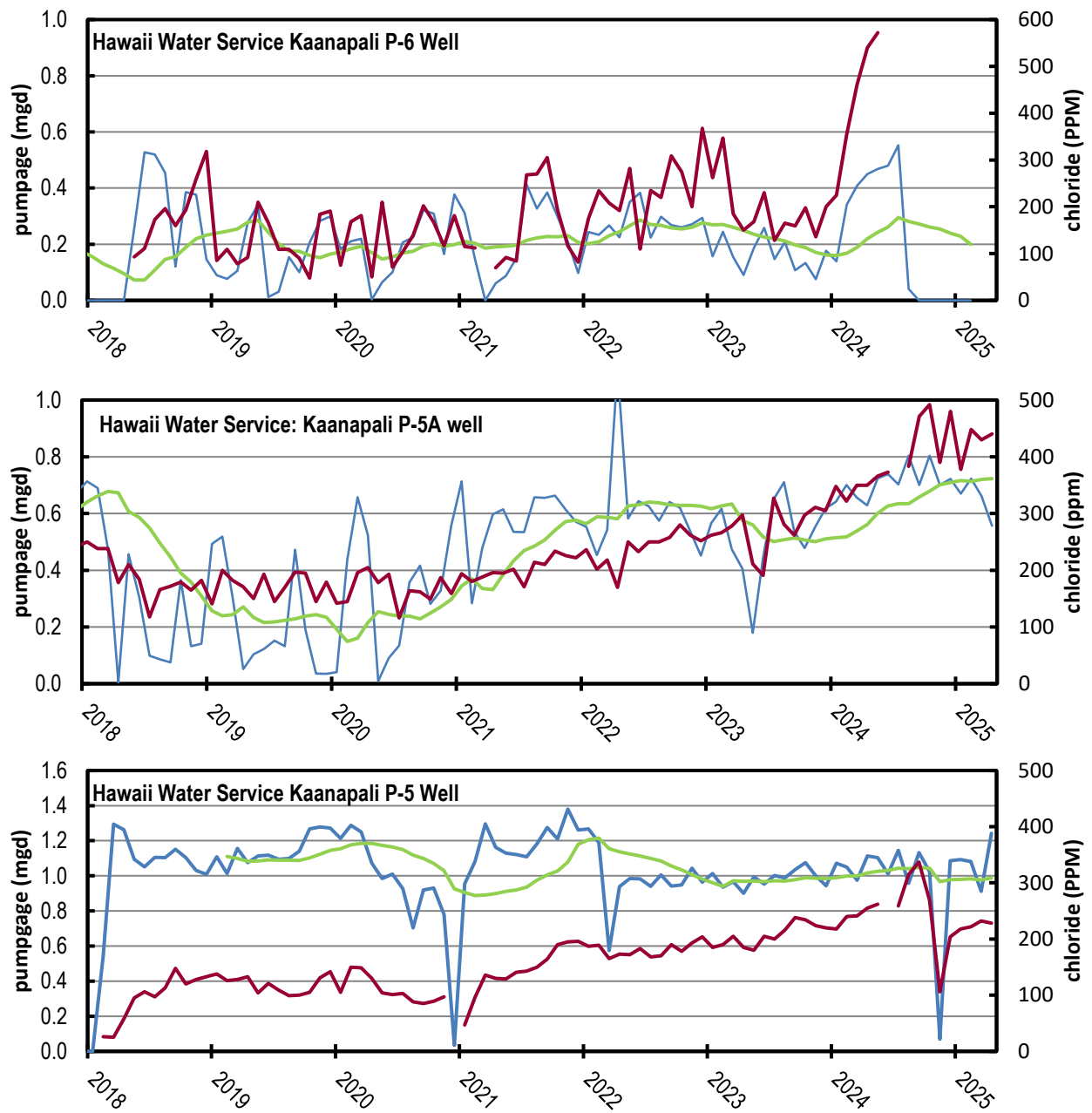


Figure 10. Monthly pumpage, 12-month moving average (green), and chloride level (maroon) for wells in the Hawai'i Water Service- Kā'anapali System. Wells are located in both the Honokōwai and Honolua Aquifer Systems.

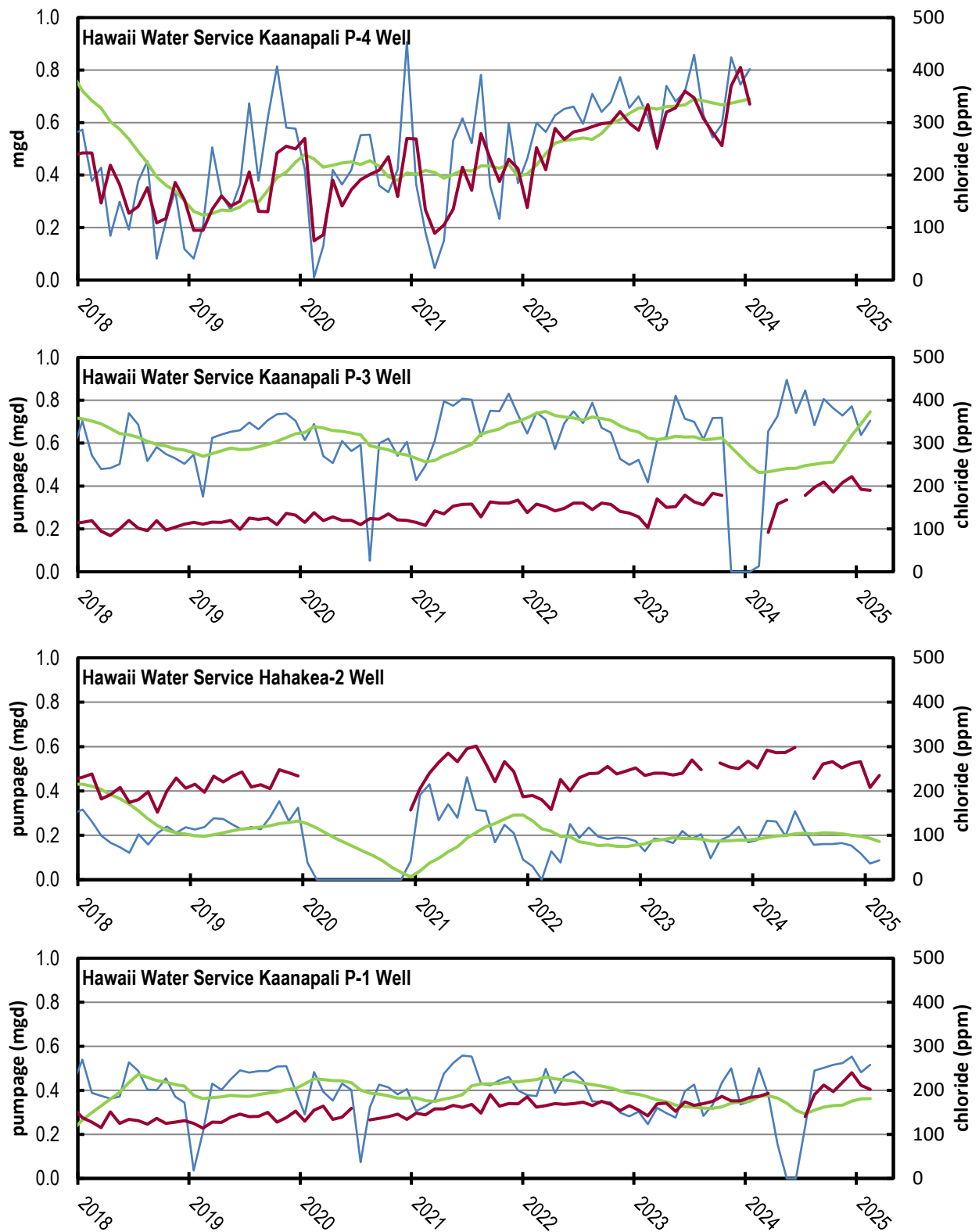


Figure 10. (continued)

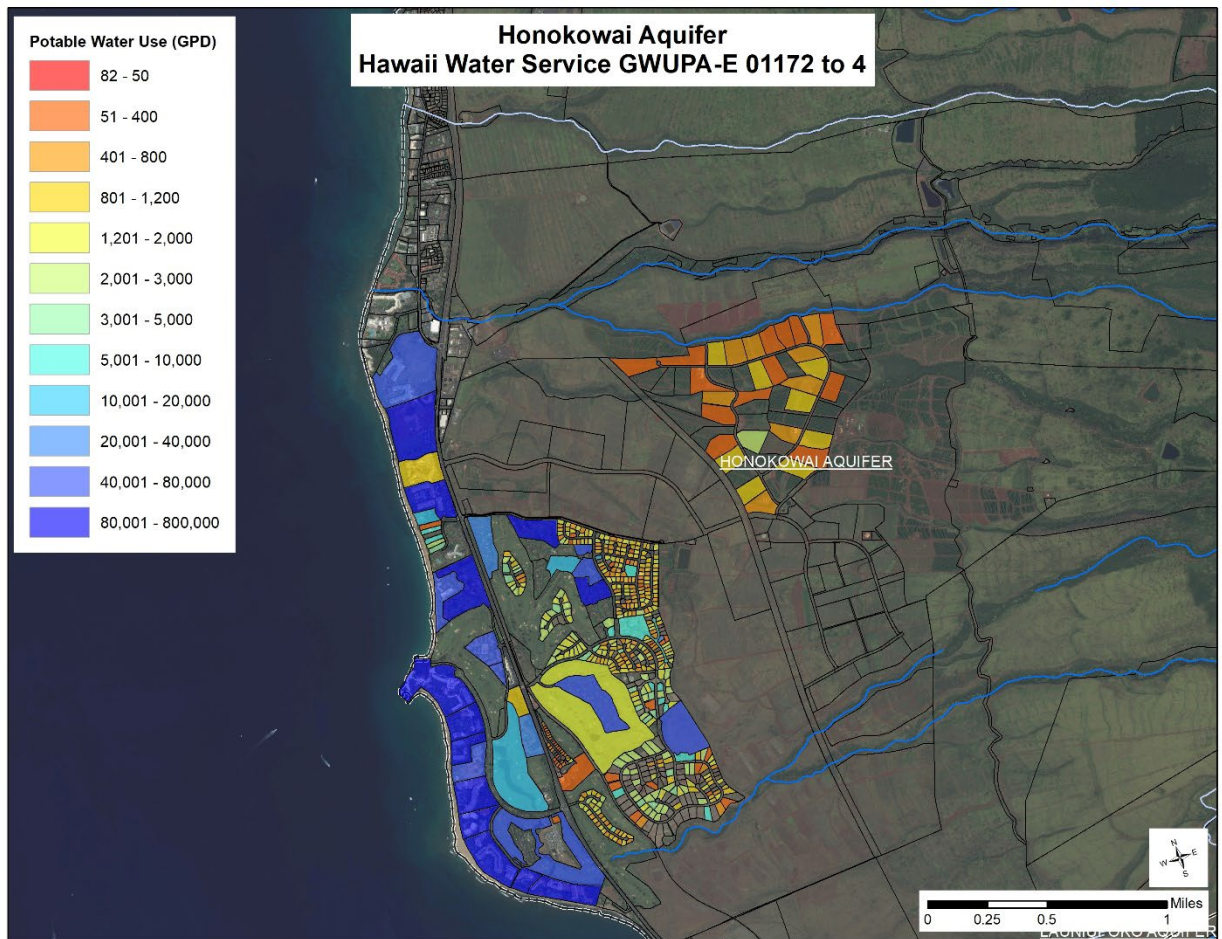


Figure 11. Hawai'i Water Service- Kā'anapali System parcels identified in its water use permit with existing usage colored by the total daily potable water consumption (gallons per day, GPD).

4. Kā'anapali Land Management- Honokōwai Water System

Kā'anapali Land Management (KLM) operates a single non-potable basal well, two high-elevation tunnels (Tunnel 20-A and Tunnel 20-B) discharging into Kapaloa Stream, and a surface water diversion to meet some of the non-potable water demands of parcels in the Kā'anapali area.

Groundwater Sources

Kā'anapali Land Management operates a single non-potable basal well (Pu'ukoli'i, Well No. 6-5540-001). Recent pumpage and chloride levels for the Pu'ukoli'i well are provided in Table 16 and Figure 12. Two high-elevation tunnels discharge dike-impounded groundwater into Kapaloa Stream: Tunnel 20-A (Well No. 5537-001) is located at 1700 ft in elevation on KLM-owned land (TMK 244007001); Tunnel 20-B (Well No. 5537-002) is located at 1600 ft in elevation on State of Hawai'i-owned land (TMK 244007010). While Pioneer Mill once had a water license for this well, Kā'anapali Land Management's lease (S-5262) expired in 2014.

Table 16. Kā'anapali Land Management Water System well with 12-month mean and maximum pumpage and chloride levels as of March 2025.

Well Name	Well No.	12-month mean pumpage (mgd)	12-month maximum pumpage (mgd)	12-month mean chloride level (ppm)	12-month maximum chloride level (ppm)
Pu'ukoli'i	5540-001	0.536	0.583	181	216

Surface Water Sources

Kā'anapali Land Management operates a stream diversion (DIV. 959) in Honokōwai Gulch diverting water from Honokōwai Stream at approximately 1600 ft in elevation. Honokōwai Stream is fed by groundwater developed by Tunnel 20-A and Tunnel 20-B and surface water in Kapaloa Stream which is captured by the Honokōwai Ditch (Table 17).

Table 17. Summary discharge statistics of non-potable water in the Kā'anapali Land Management surface water system from 2010 to 2025.

Location	Number of Measurements	Mean Measured Flow (mgd)	Median Measured Flow (mgd)
Tunnel 20-A	17	2.08	2.04
Tunnel 20-B	10	0.80	0.79
Honokōwai Ditch at USGS 16629000	7	3.71	3.39

Service Area

Kā'anapali Land Management submitted an existing use permit application (SWUPA-E 6071.6) for 3.296 mgd of surface water from the Honokōwai hydrologic unit and an existing use application (GWUPA-E 01171) for 4.469 mgd of groundwater from the Honokōwai Aquifer System. However, the estimated 12-month mean diverted flow and requested volume is the cumulative flow of surface and groundwater from Honokōwai Gulch and not separate surface water and groundwater sources. The Pu'ukoli'i well is utilized to irrigate the upper elevation portions of the Kā'anapali golf course that cannot be served by the Lahaina Wastewater Reclamation Facility's R-1 distribution system. Additional infrastructure is anticipated to bring R-1 water to a higher elevation for distribution to the entire golf course in fiscal year 2026.

In its application for existing use, KLM did not report any metered end use. All values reported are estimates based on calculated water demands by plants and animals, not metered water delivered. Kā'anapali Land Management uses an estimated 3.036 mgd for diversified agriculture, including 2.302 mgd for coffee, banana, dryland kalo, papaya, and other row crops (Figure 13) and 0.712 mgd for livestock irrigation and crop processing (Figure 14). In addition to diversified agriculture, Kā'anapali Coffee Estates is a luxury agricultural estate development that utilizes non-potable water for coffee and landscape irrigation on the subdivided parcels. These uses are not metered, so water demand was estimated by KLM. The estimated landscape irrigation usage is depicted in Figure 15 and total water usage is depicted in Figure 16 and broken down by owner occupancy in Table 18.

Table 18. Kā'anapali Land Management estimated water use (gallons per day, GPD; gallons per acre per day, GAD) for owner occupied and non-owner occupied parcels zoned urban with gentleman estate developments.

	Crop Irrigation		Landscape Irrigation		Total Water Use	
	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied
Number of parcels	7	48	7	48	7	48
Total Area (acres)	10.67	129.31	7.00	31.36	17.67	162.17
Rate of Water (GAD)	5,819	5,819	2,300	2,300		
Total Water Use (GPD)	62,090	752,473	16,100	69,831	78,190	823,759

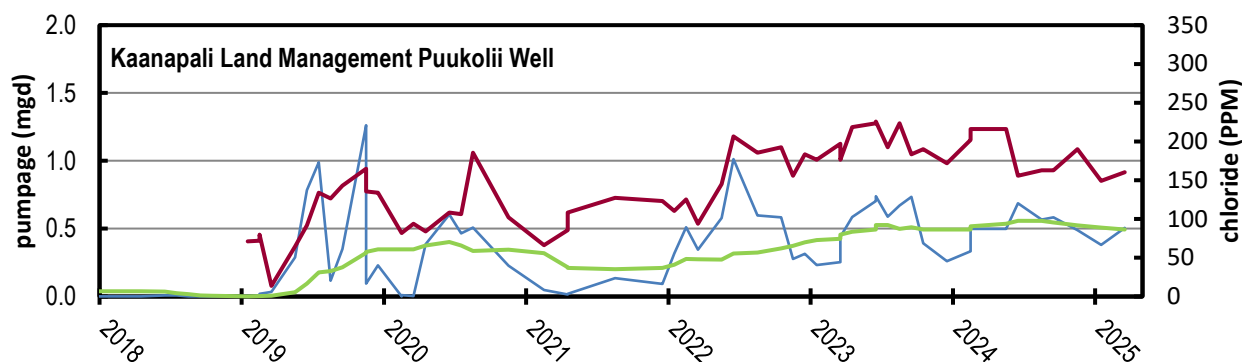


Figure 12. Monthly pumpage, 12-month moving average (green), and chloride level (maroon) for the basal well in the Kā'anapali Land Management non-potable water system in the Honokōwai Aquifer System.

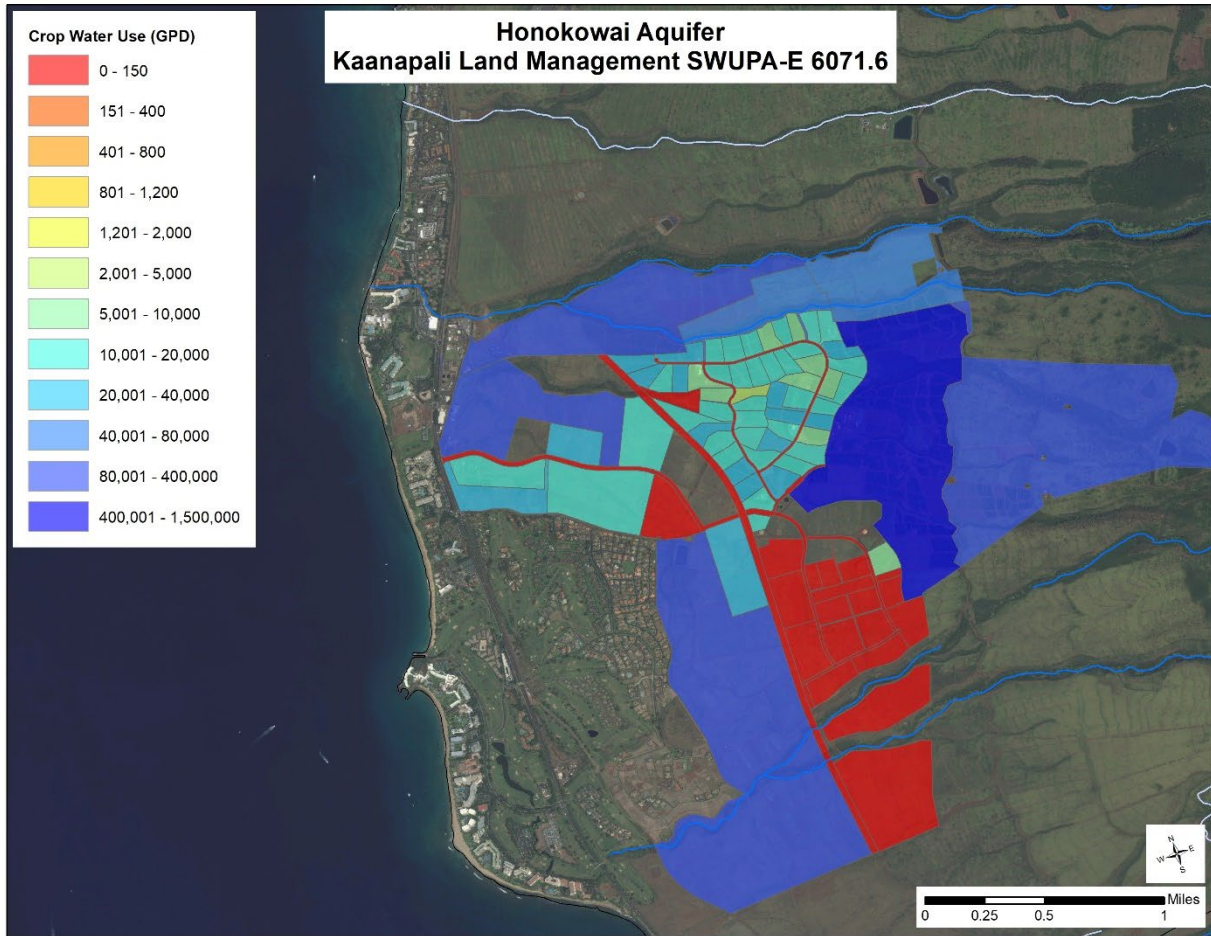


Figure 13. Kā'anapali Land Management estimated existing non-potable crop irrigation water use (gallons per day, GPD) for parcels identified in its surface water use permit.

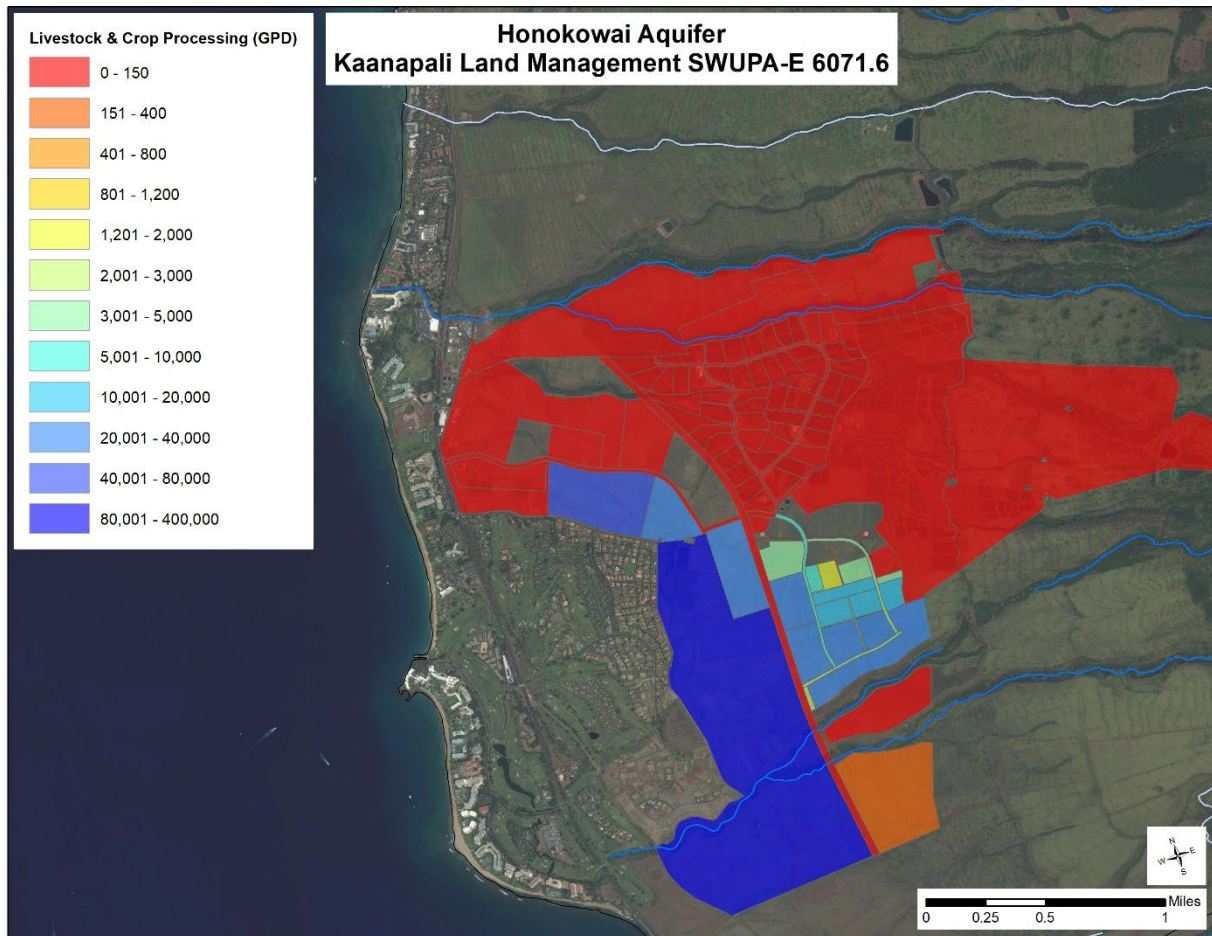


Figure 14. Kā'anapali Land Management **estimated** total existing non-potable livestock and crop processing water use (gallons per day, GPD) for parcels identified in its surface water use permit.

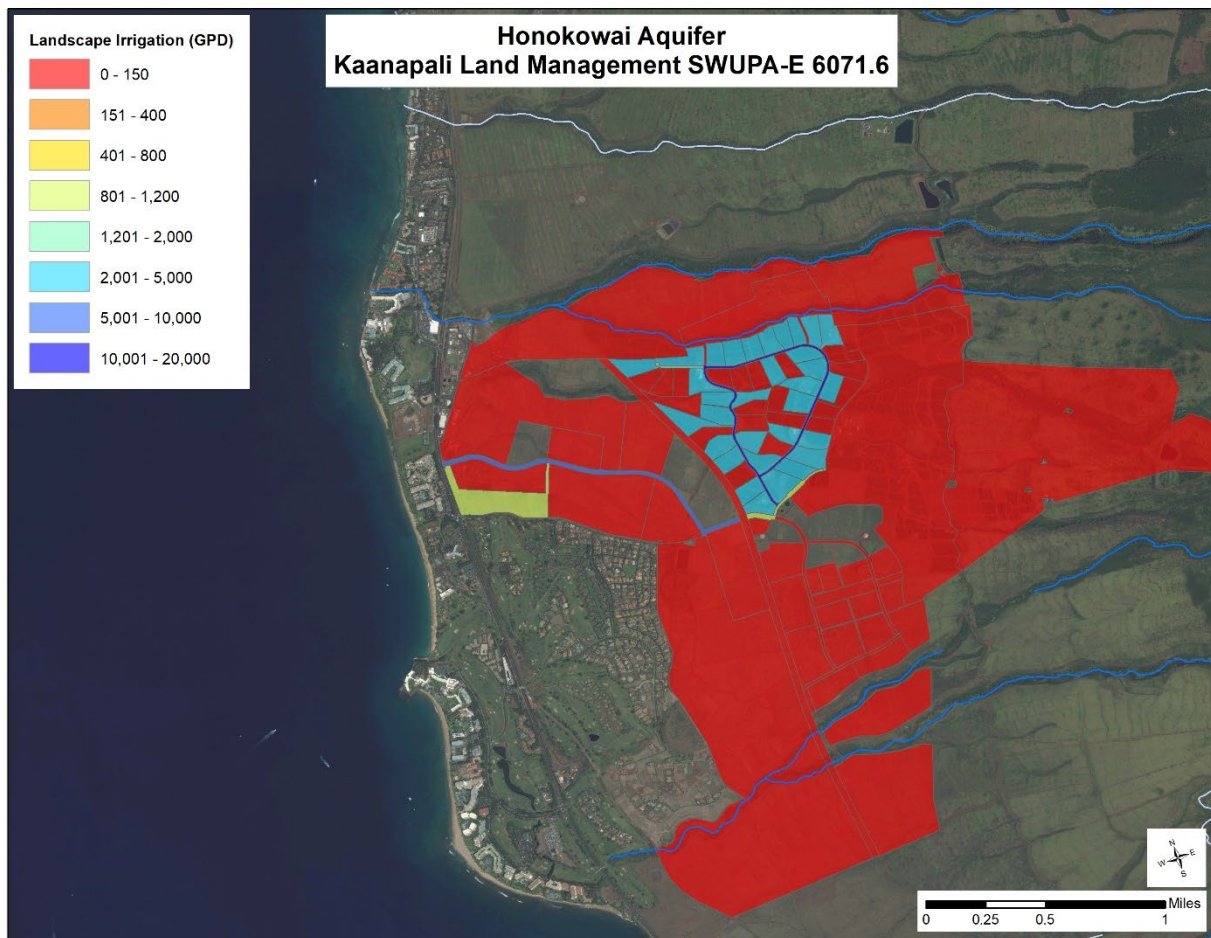


Figure 15. Kā'anapali Land Management estimated existing non-potable landscape irrigation water use (gallons per day, GPD) for parcels identified in its surface water use permit.

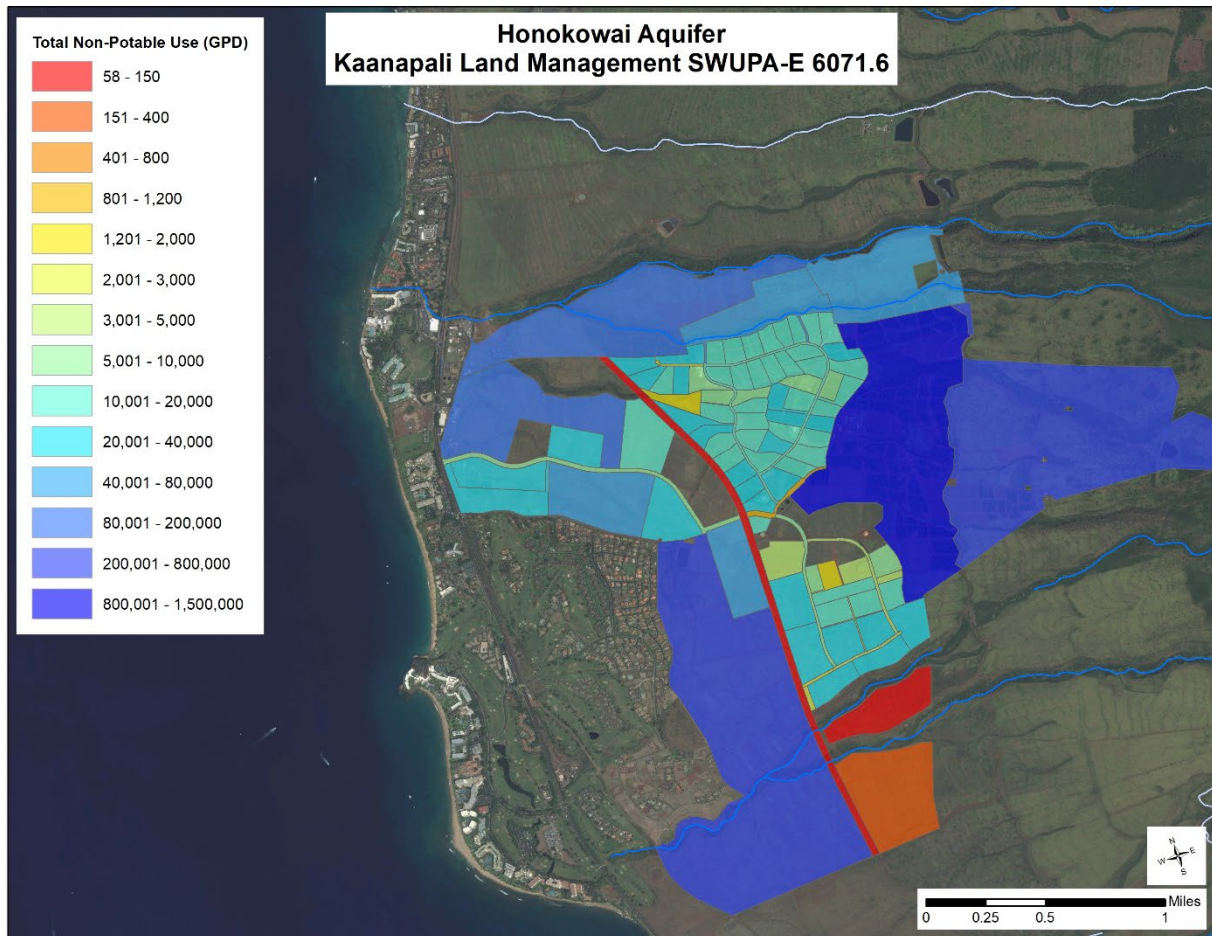


Figure 16. Kā'anapali Land Management estimated total existing non-potable water use (gallons per day, GPD) by parcel identified in its surface water use permit.

5. Lahaina Wastewater Reclamation Facility

Recycled Water Use

The Maui County Department of Environmental Management operates the Lahaina Wastewater Reclamation Facility (WWRF), which produces approximately 4.2 mgd of recycled water. However, only approximately 1.7 mgd is produced to R-1 standards due to the current size of the UV disinfection step, storage, and distribution infrastructure. The Department of Environmental Management operates a recycled water distribution system to deliver R-1 water to non-potable customers in the Kā'anapali area. Maui County is moving forward with a strategic investment plan that prioritizes upgrades to both the production and distribution of R-1 water so that additional customers may utilize this water source as an alternative to potable water for non-potable uses (Figure 17).

The metered use of recycled water is dependent on irrigation need, but the estimated daily consumption for active, under construction, or in design parcels is provided in Figure 18. In many instances, there is a single meter that serves the water demands on multiple parcels (e.g., irrigation demand for Kā'anapali golf course and nearby commercial properties).

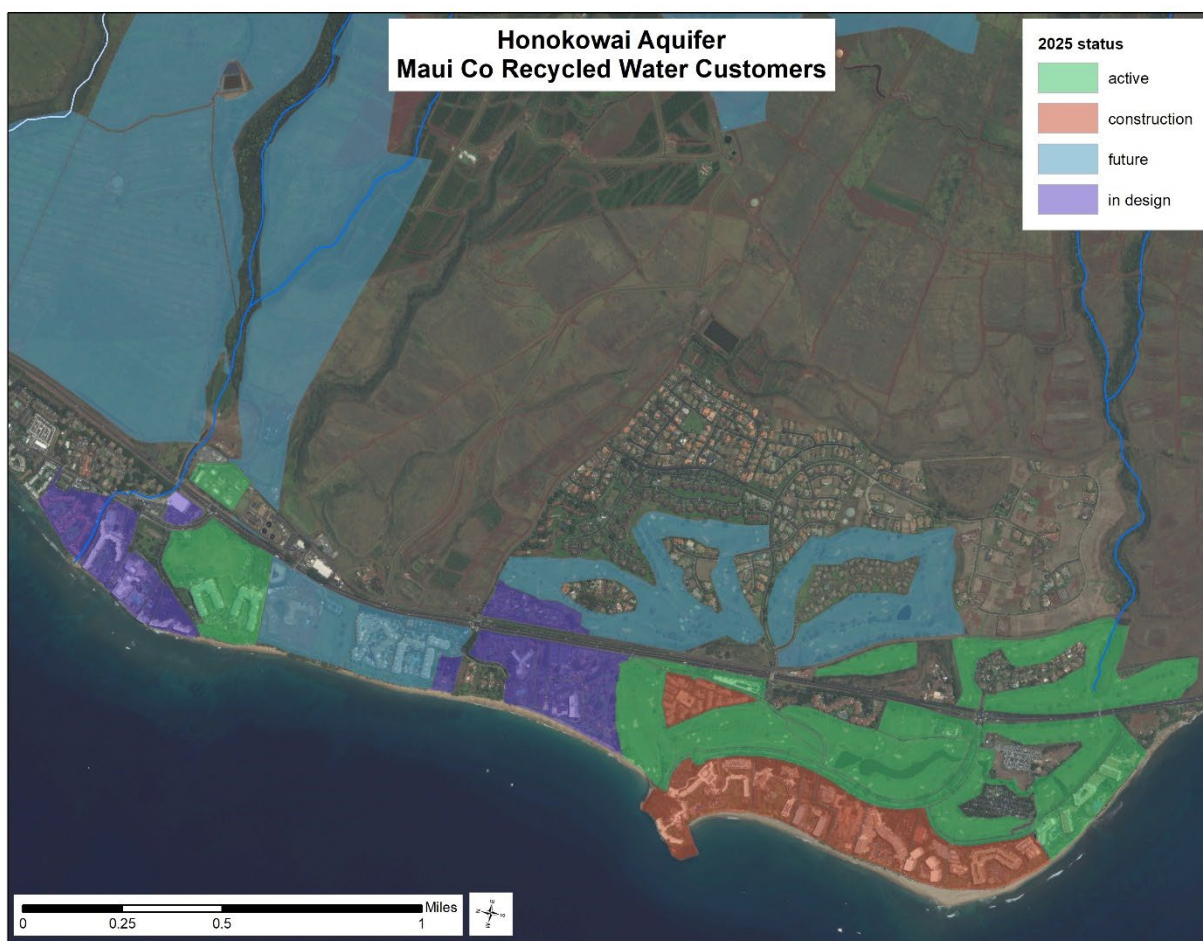


Figure 17. Lahaina Wastewater Reclamation Facility active, under construction, under design, and potential future R-1 recycled water use customers in the Honokowai Aquifer System as of May 2025.

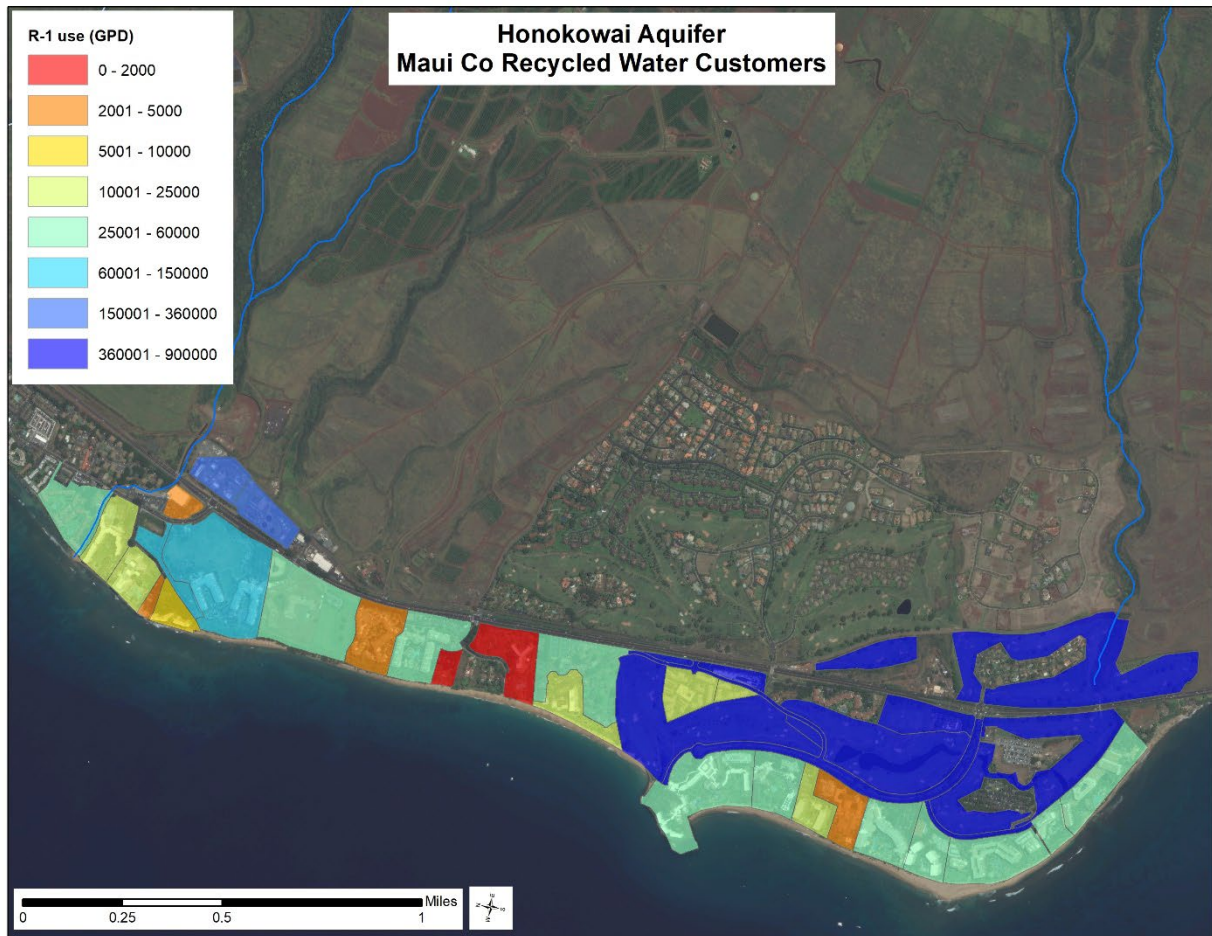


Figure 18. Daily R-1 recycled water use (gallons per day, gpd) by parcel sourced from the Lahaina Wastewater Reclamation Facility in the Honokōwai Aquifer System. Some meters serve multiple parcels with all associated parcels colored together.

6. Maui Department of Water Supply-South Lahaina System

The Maui DWS operates the South Lahaina potable water system (Public Water System #214) sourced from groundwater and surface water sources in the Launiupoko Aquifer and Kahoma hydrologic units, respectively.

Groundwater Sources

The Maui DWS operates four production wells for potable water (Table 19; Figure 19). Recent (2023-2025) pumpage and chloride reflects reduced use due to reduced demand following the 2023 fire.

Table 19. Maui Department of Water Supply South Lahaina Wells wells with 12-month mean and maximum pumpage and chloride levels as of March 2025. [note: chlorides only available for three out of 12 months; mean 12-month mean chloride is pumpage-weighted mean]

Well Name	Well No.	12-month mean pumpage (mgd)	12-month maximum pumpage (mgd)	12-month mean chloride level (ppm)	12-month maximum chloride level (ppm)
Kanahā 1	5339-003	0.011	0.055	34	42
Kanahā 2	5339-004	0.005	0.052	20	22
Waipuka 1	5339-001	0.002	0.085	65	65
Waipuka 2	5339-002	0.048	0.003	67	67
total =		0.066	mean =	58	

Surface Water Sources

Maui DWS operates one stream diversion (DIV.954) on Kanahā Stream to divert surface water to be treated at the Lahaina Surface Water Treatment Facility. Table 20 provides discharge statistics for this system based on daily water processed. This does not include water used in Kanahā Valley for irrigation from the stream.

Table 20. Maui DWS Lahaina Surface Water Treatment Facility processed water statistics from Kanahā Stream January 2021 to March 2025.

Stream Name	2021-2025 mean daily flow (mgd)	2021-2025 median daily flow (mgd)	2021-2025 14-day low flow (mgd)	2021-2025 Maximum flow (mgd)
Kanahā	1.324	1.325	0.363	2.447

Service Area

The Maui DWS South Lahaina System provides potable water to Lahaina Town and its neighborhoods, including as far north as Wahikuli Beach Park and as far south as Launiupoko Beach Park (Figure 20). Maui DWS submitted an existing use permit application for 0.399 mgd from the two Waipuka wells (GWUPA-E 01157) and 0.259 mgd from the two Kanahā wells (GWUPA-E 01158) in the Launiupoko Aquifer System. The Maui DWS also submitted an existing use permit application (SWUPA-E 6086.6) for 1.7895 mgd of surface water from the Kanahā Stream in the Kahoma hydrologic unit. Mean daily water use by meter classification is provided in Table 21. Water use by parcel classification is provided in Table 22, with per unit and per acre water use provided in Table 23. The total number of units for each parcel served by each meter was determined by an analysis of publicly available development plans for residential, apartment, hotel, and resort zoned parcels.

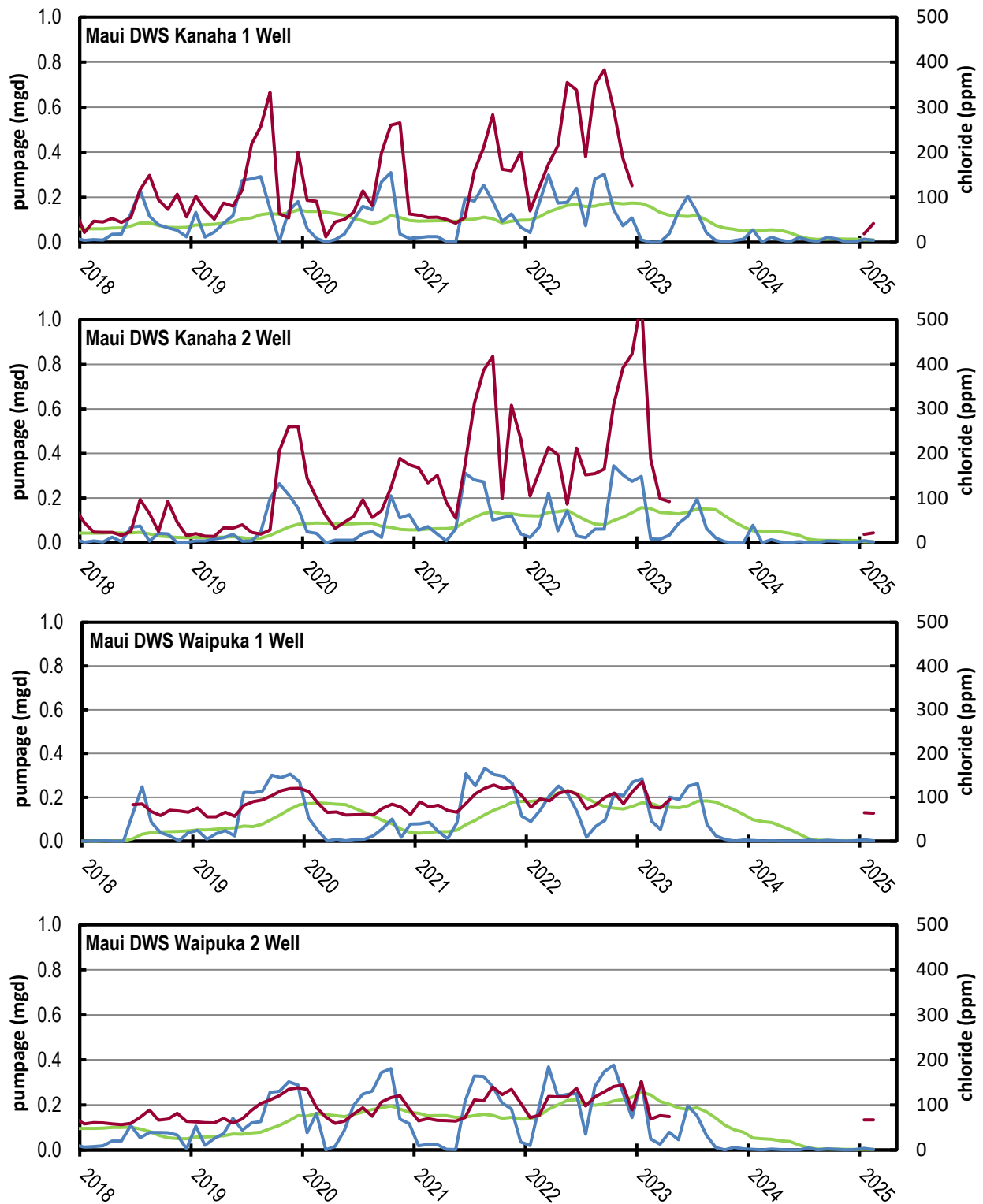


Figure 19. Monthly pumpage, 12-month moving average (green), and chloride level (maroon) for Maui DWS South Lahaina water system wells in the Launiupoko Aquifer System.

Table 21. Maui DWS South Lahaina Service Area number of meters, total daily water use (gallons per day, GPD) and mean daily water use by meter classification. [meter classifications are: CO GOVT = county government; COM = commercial; HI-RISE = multiunit residential building > 3 stories; HOTEL – hotel/motel/resort; IND = industrial; LO-RISE = multiunit residential building ≤ 3 stories; RELIGION = building of religious worship; SFD = single family dwelling; STATE GOVT = state government]

Meter Classification	Number of Meters	Total Daily Water Use (GPD)	Mean Daily Water Use Per Meter (GPD)
CO GOVT	5	13,420	2,684
COM	91	309,990	3,409
HI-RISE	1	36,598	36,598
HOTEL	3	4,334	1,445
IND	29	173,597	5,986
LO-RISE	21	263,083	12,528
RELIGION	8	7,310	914
SFD	1,710	976,388	571
STATE GOVT	5	20,581	20,581

Table 22. Maui DWS South Lahaina Service Area metered water use (gallons per day, GPD; gallons per acre per day, GAD) by parcel classification. [note: units based on publicized total units per development; parcel acreage based on taxable acreage]

Parcel Classification	Number of meters	Number of units	Total Daily Water Use (GPD)	Mean Daily Water Use Per Unit (GPD)	Mean Daily Water Use Per Acre (GAD)
H Hotel	1	199	41,087	206	125,026
H-1 Hotel	1	188	88,340	470	10,239
H-M Hotel	1	1	1,788	1,788	125,026
Business Community	31	31	118,227	3,814	3,333
D-1 Duplex	2	2	1,377	688	3,998
Agriculture	79	79	92,650	1,173	3,313
A-1 Apartment	47	58	143,156	2,200	4,643
A-2 Apartment	2	43	8,188	1,254	8,675
Interim	3	3	70,699	23,566	4,411
M-1 Light Industrial	43	43	230,025	5,349	3,049
M-2 Heavy Industrial	2	2	2,356	1,178	2,605

Table 23. Maui DWS South Lahaina Service Area number of units and water use (gallons per day, GPD) for owner occupied and non-owner occupied parcels per unit and per acre (GAD gallons per acre per day). [note: acreage based on taxable acreage]

Parcel Classification	Number of Parcels		Mean Daily Water Use Per Unit (GPD)		Mean Daily Water Use Per Acre (GAD)	
	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied
A-1 Apartment	35	12	508	6,755	4,838	4,119
A-2 Apartment	0	2		1,254		8,675
AG Agriculture	66	13	552	4,327	3,322	3,269
R-1 Residential	581	261	543	641	3,465	3,576
R-2 Residential	316	380	484	603	2,862	3,105
R-3 Residential	99	74	706	756	2,759	2,923
HD-1 Historic District 1	1	20	748	3,549	4,277	6,826
HD-2 Historic District 2	1	40	314	1,263	2,712	11,376

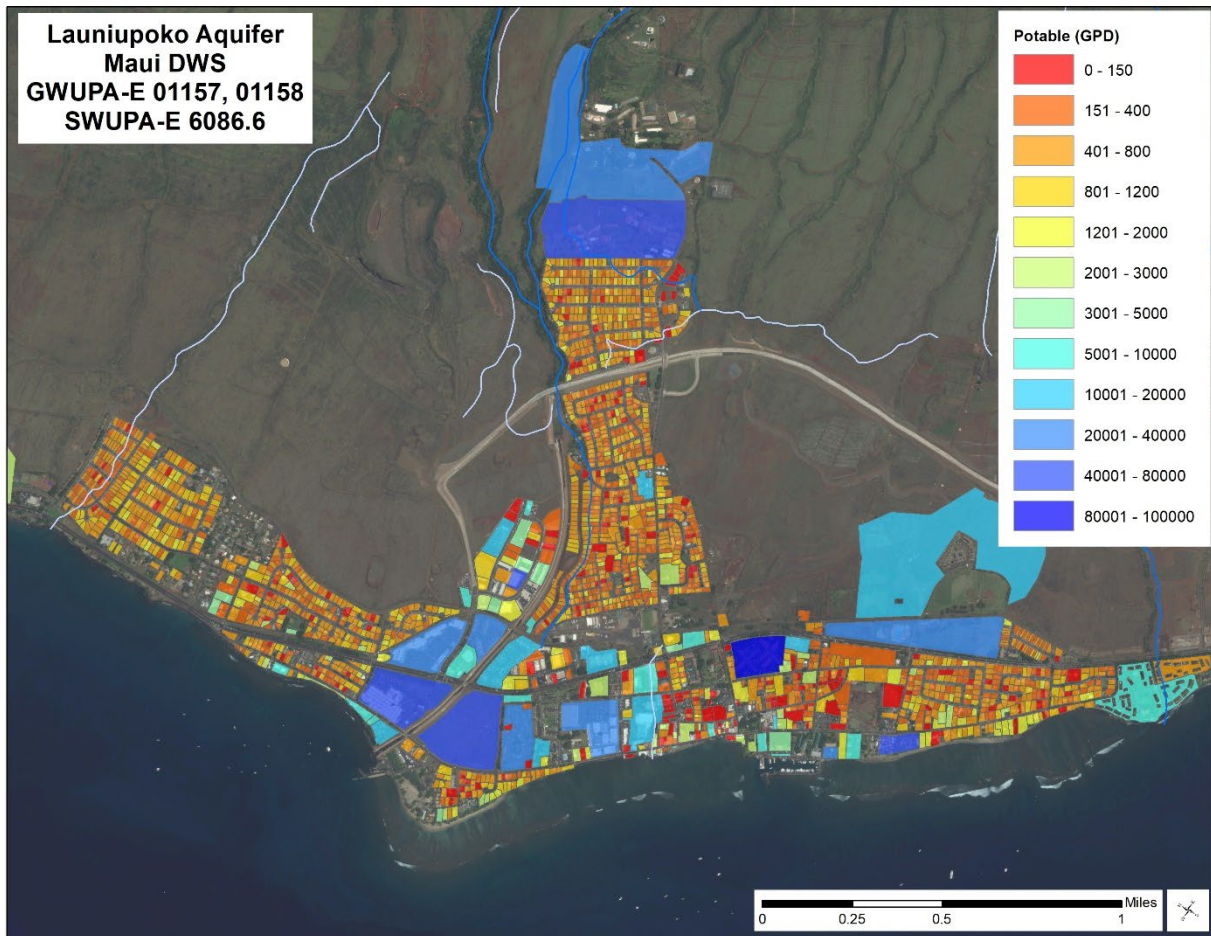


Figure 20. Maui DWS total existing metered potable water usage by parcel identified in its ground and surface water use permits with usage colored by the daily water use (gallons per day, GPD).

7. West Maui Land-Launiupoko Systems

The Launiupoko Water Company (LWC) and Launiupoko Irrigation Company (LIC) are West Maui Land utilities that provide potable (potable water system #251) and non-potable water to their developments. Groundwater is sourced from the Launiupoko Aquifer System and surface water is sourced from the Launiupoko and Kau‘aula hydrologic units. West Maui Land submitted joint groundwater and surface water use permit applications for LWC and LIC.

Groundwater Sources

The Launiupoko Water Company and LIC operate five wells in the Launiupoko Aquifer System, three of which are used for potable water supply and two for non-potable water supply (Table 24; Figure 21). The Launiupoko Irrigation Company operates two stream diversions and two wells (LIC 1 and Lahaina Shaft A) that serve the non-potable water demands of its developments.

Table 24. Launiupoko Water Company (LWC) and Launiupoko Irrigation Company (LIC) wells and 12-month mean and maximum pumpage and chloride levels as of March 2025. [note: mean 12-month mean chloride is pumpage-weighted mean]

Well Name	Well No.	System	12-month mean pumpage (mgd)	12-month maximum pumpage (mgd)	12-month mean chloride level (ppm)	12-month maximum chloride level (ppm)
Launiupoko 1	5138-001	LWC	0.351	0.553	246	292
Launiupoko 2	5137-001	LWC	0.024	0.079	174	256
Launiupoko 3	5238-001	LWC	0.535	0.597	189	205
LIC 1	5139-001	LIC	0.048	0.161	81	93
Lahaina (Wainee) Shaft A	5240-003	LIC	0.293	0.659	102	104
total =			1.251	mean =	180	

Surface Water Sources

Launiupoko Irrigation Company operates two stream diversion: one on Kauaula Stream (DIV.957) and one on Launiupoko Stream (DIV.955). Table 25 provides discharge statistics for the two surface water sources. Mean daily flow in Kaua‘ula Stream is provided by U.S. Geological Survey continuous record station (station ID 16641000) while flow in Launiupoko Stream is based on monthly reported diverted flow. There is one development tunnel (5236-001) which discharges water into Kaua‘ula Stream at the 2000ft elevation from high elevation groundwater. Mean daily water distribution for various uses of the system are also provided in Table 25.

Table 25. Launiupoko Irrigation Company surface water sources, stream flow statistics for the January 2021 to March 2025 period at the diversion, and distributions among uses of the system.

Stream Name	2021-2025 mean daily streamflow (mgd)	2021-2025 median daily streamflow (mgd)	2021-2025 14-day low flow (mgd)	Kapu Ohana and Kuleana Uses (mgd)	Kamehameha Schools Lessees (mgd)	2024-2025 IIFS release at the siphon (mgd)
Launiupoko	0.313	0.271	0.017	0.073	0.063	3.116
Kau‘aula	4.401	3.558	1.545			

Service Area

Launiupoko Water Company and LIC have overlapping service areas and in most cases, parcels are served by both systems. West Maui Land submitted an application for an existing use permit (GWUPA-E 01143) for both LWC and LIC for 1.311 mgd of groundwater in the Launiupoko Aquifer System. This was broken down into 0.675 mgd existing use for potable demand (LWC) and 0.636 mgd for non-potable demand (LIC). West Maui Land submitted an application (SWUPA-E 6067.6) for 1.987 mgd of surface water from the Kaua‘ula Hydrologic Unit (1.647 mgd) and Launiupoko (0.340 mgd) Hydrologic Unit. In its combined application LWC and LIC requested water for 266 individual meters. Some parcels have more than one home, and thus multiple potable water meters and non-potable water meters. The total potable metered use by parcel is provided in Figure 22. Total non-potable metered use by parcel is provided in Figure 23. Non-potable demand is met with a combination of surface water and groundwater through the non-potable system and some parcels augment non-potable demand with water sourced from the potable water system. Since the potable water meters do not distinguish if the water is used for potable (consumption) or non-potable (irrigation) uses, the total water consumed by parcel is more indicative of water usage across the service area (Figure 24). The breakdown of meters and their total daily and mean daily water use as submitted is provided in Table 26 based on owner-occupancy.

Table 26. Launiupoko Water Company and Launiupoko Irrigation Company Service Area metered water use (gallons per day, GPD) for owner occupied and non-owner occupied parcels. Water usage is per parcel, if multiple meters were listed for one parcel, then water usage was combined for the parcel. [note: gallons per acre (GAD) use based on total taxable acreage]

	Potable Water System		Non-Potable Water System		Total Water Use	
	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied
Number of parcels	47	219	47	219	47	219
Total Daily Usage (GPD)	467,051	88,400	1,150,998	160,531	1,618,049	248,931
Maximum Daily Usage (GPD)	19,076	9,664	68,679	14,925	68,679	20,516
Mean Daily Usage (GPD)	2,133	1,881	5,256	3,416	7,388	5,296
Mean Usage Per Acre (GAD)	479	576	865	1,164	1,344	1,740
Maximum Usage Per Acre (GAD)	1,890	6,162	3,475	15,545	4,012	16,226

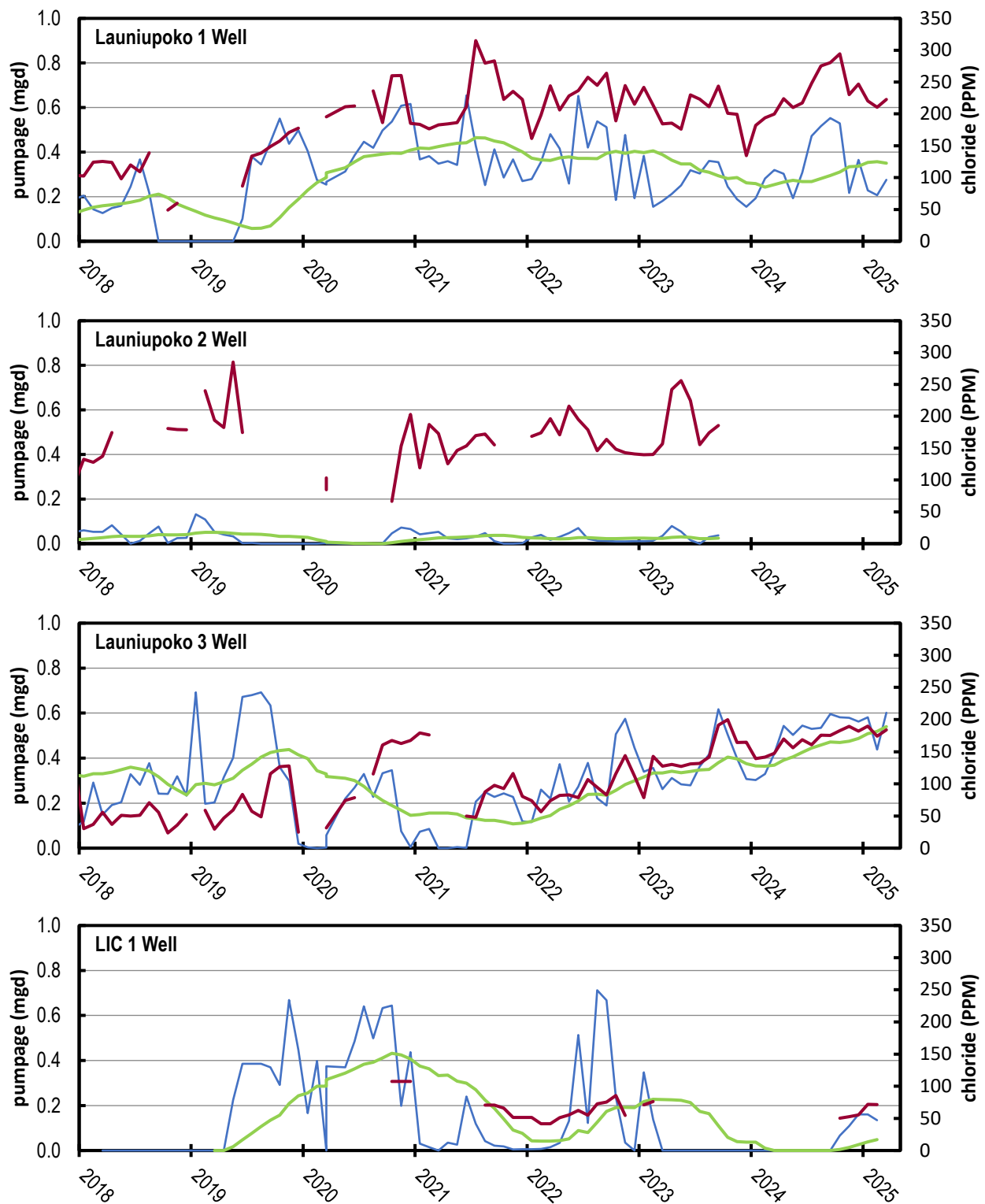


Figure 21. Monthly pumpage (blue), 12-month moving average (green), and chloride level (maroon) for wells in the Launiupoko Water Company potable water system and Launiupoko Irrigation Company non-potable water system in the Launiupoko Aquifer System.

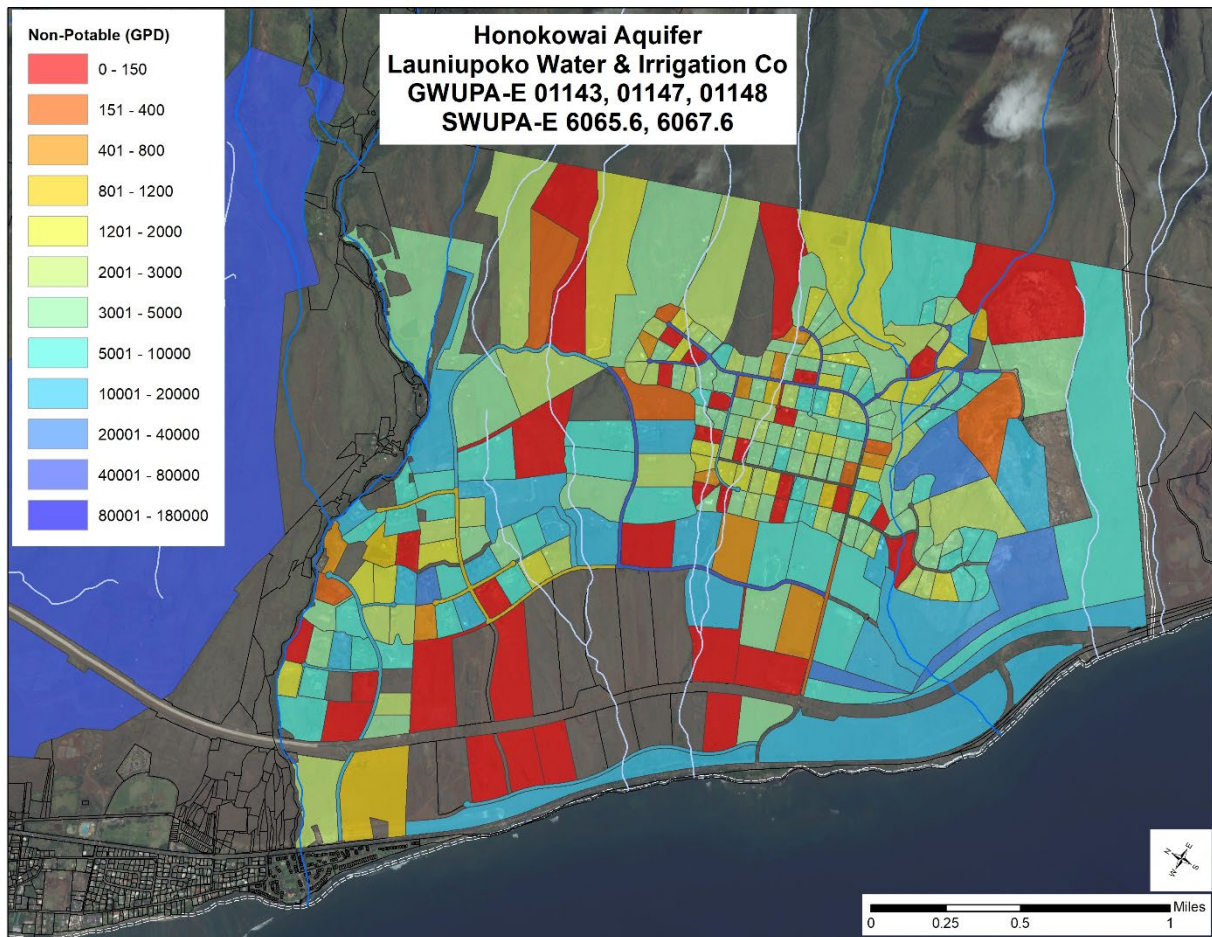


Figure 22. West Maui Land's water usage for parcels identified in its water use permit with existing usage colored by daily non-potable water consumption (gallons per day, GPD).

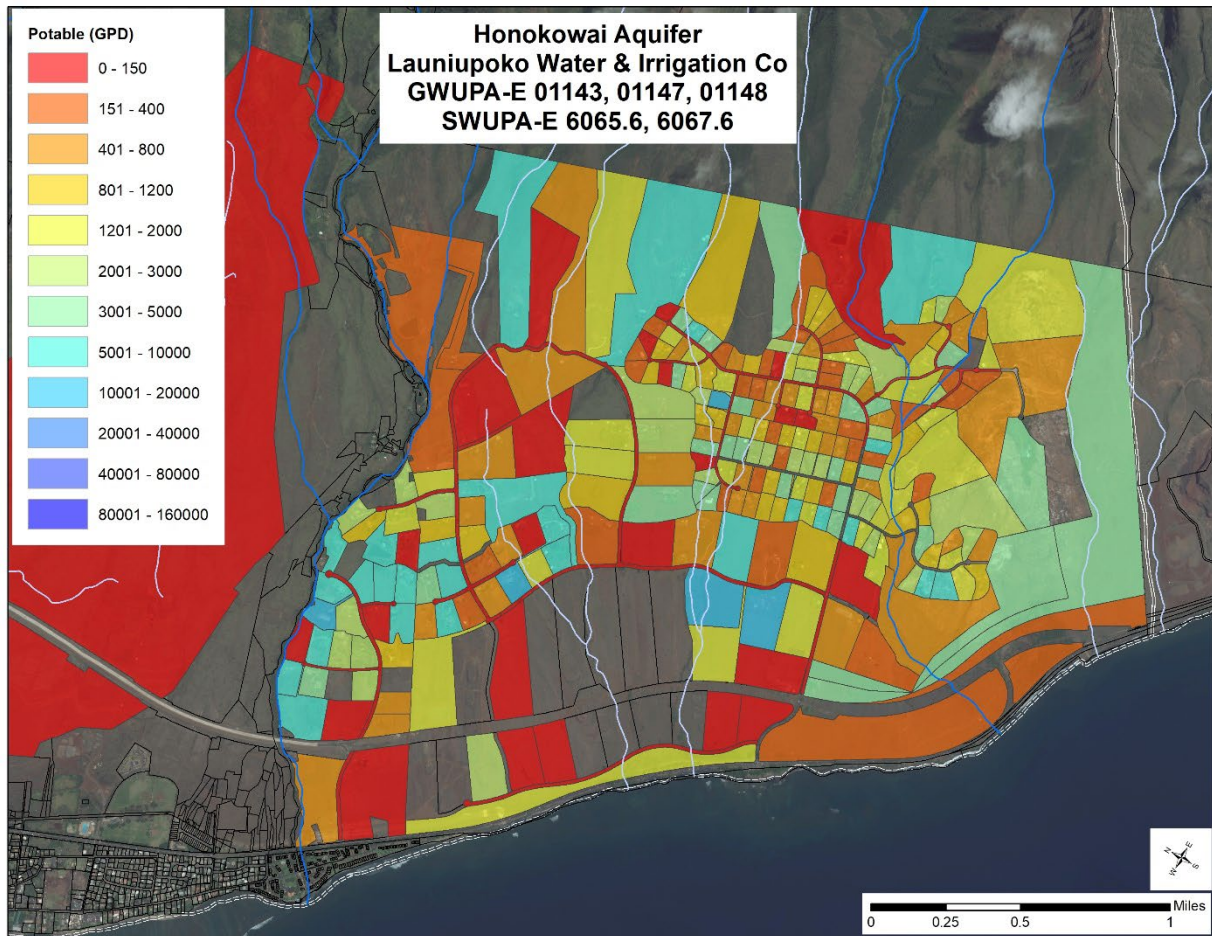


Figure 23. West Maui Land's water usage for parcels identified in its water use permit with existing usage colored by daily potable water consumption (gallons per day, GPD).

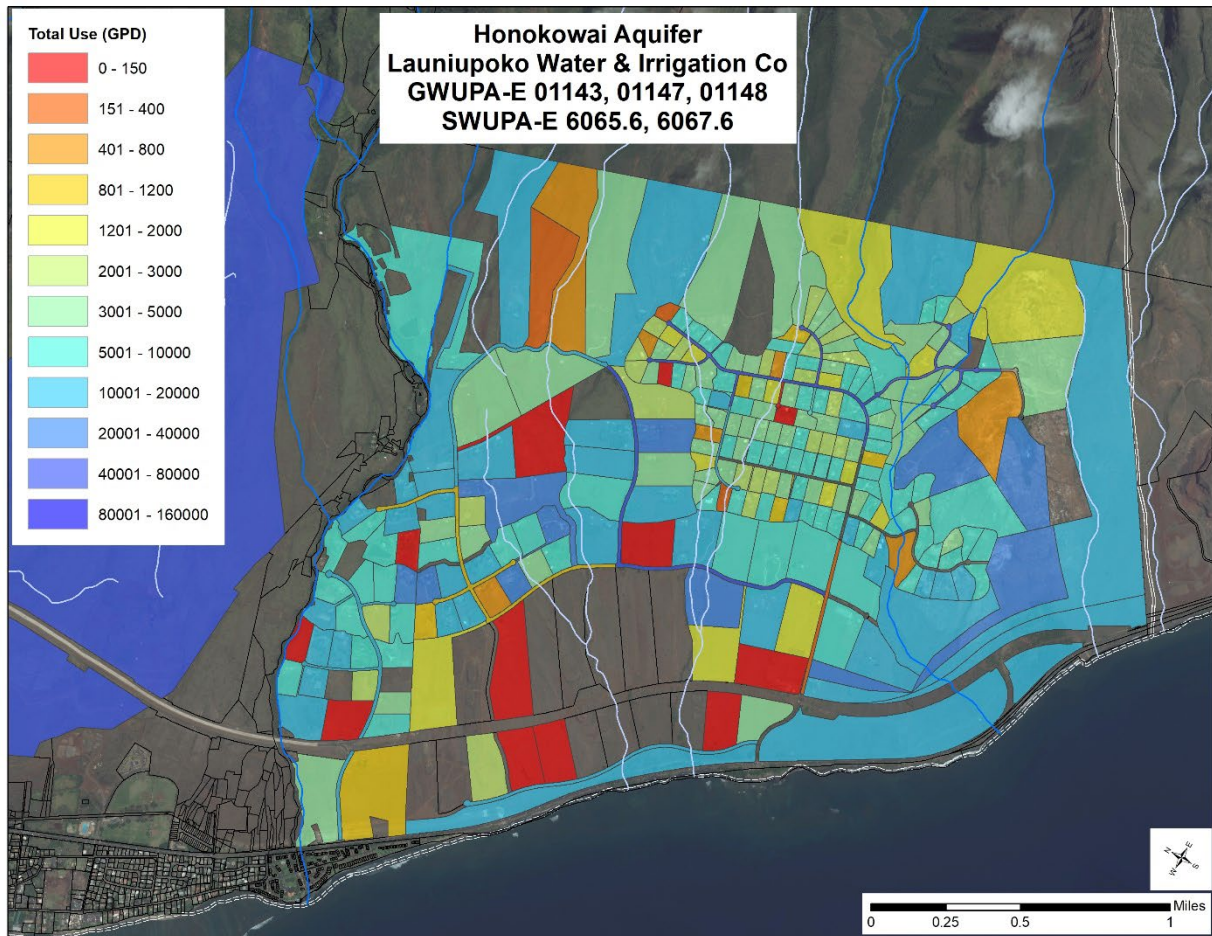


Figure 24. West Maui Land's water usage for parcels identified in its water use permit with existing usage colored by the daily total water consumption (gallons per day, GPD).

7. West Maui Land-Olowalu Water Systems

West Maui Land operates two discrete water systems under the Olowalu Water Company (OWC) utility: one is a potable drinking water system (Public Water System # 209) sourced by a single well; the other is a non-potable irrigation system sourced from a single well and a diversion on Olowalu Stream. Most parcels in their service area are served by both systems.

Groundwater Sources

The Olowalu Water Company operates two wells, one which is for potable water (Olowalu Elua, Well No. 6-4936-001) and one for non-potable water (N Pump, Well No. 6-4937-001) (Table 27; Figure 25). The N-Pump is a Lahaina-style shaft pumped to the Lower Olowalu Ditch, where diverted flow is combined and a portion of the water is pumped up to the Snake Reservoir for distribution. The remainder of water flows to the Olowalu Reservoir, where it is distributed to other points in the service area.

Table 27. Olowalu Water Company wells and 12-month mean and maximum pumpage and chloride levels as of March 2025. [note: mean 12-month mean chloride is pumpage-weighted mean]

Well Name	Well no.	System	12-month mean pumpage (mgd)	12-month maximum pumpage (mgd)	12-month mean chloride level (ppm)	12-month maximum chloride level (ppm)
Olowalu Elua	4936-001	potable	0.125	0.126	40	41
N Pump	4937-001	non-potable	0.323	0.470	61	69
total =			0.448	mean =	55	

Surface Water Sources

The Olowalu Water Company operates one stream diversion (DIV.961) on Olowalu Stream to Lower Olowalu Ditch. Surface water is distributed separately to Olowalu Cultural Lands and to the non-potable OWC system (Table 28).

Table 28. Olowalu Water Company surface water source stream flow statistics for the January 2021 to March 2025 period above the Lower Olowalu Ditch Diversion.

Stream Name	2021-2025 mean daily flow (mgd)	2021-2025 median daily flow (mgd)	2021-2025 14-day low flow (mgd)	2021-2025 mean diverted flow (mgd)	Olowalu Cultural Land Pipeline (mgd)
Olowalu	3.57	1.80	0.18	0.061	0.06

Service Area

The OWC provides water to two subdivisions developed by Olowalu Elua Associates: Olowalu Mauka and Olowalu Makai. West Maui Land submitted existing use permit applications for 0.270 mgd non-potable groundwater use (GWUPA-E 01141, for 0.078 mgd potable groundwater use (GWUPA-E 01135), and 0.262 mgd for non-potable surface water use (SWUPA-E 6063.6). The applications identify non-potable water use (Figure 26), potable water use (Figure 27), and total water use (Figure 28) by parcel. The metered water use by parcel and per acreage of potable and non-potable water by owner occupancy is provided in Table 29.

Table 29. West Maui Land's- Olowalu Water Company Service Area metered water use (gallons per day, GPD) for owner occupied and non-owner occupied parcels. Water usage is per parcel, if multiple meters were listed for one parcel, then water usage was combined for the parcel. [note: gallons per acre per day (GAD) use based on taxable acreage]

	Potable Water System		Non-Potable Water System		Total Water Use	
	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied
Number of parcels	12	39	12	39	12	39
Total Daily Use (GPD)	14,985	27,381	81,667	178,177	96,653	205,558
Mean Daily Use (GPD)	1,249	702	6,806	4,569	8,054	5,271
Maximum Daily Use (GPD)	4,645	4,929	60,307	22,419	64,951	23,606
Mean Daily Use Per Acre (GAD)	2,040	698	965	1,334	3,005	2,032
Maximum Use Per Acre (GAD)	5,108	5,692	6,436	9,703	7,070	10,840

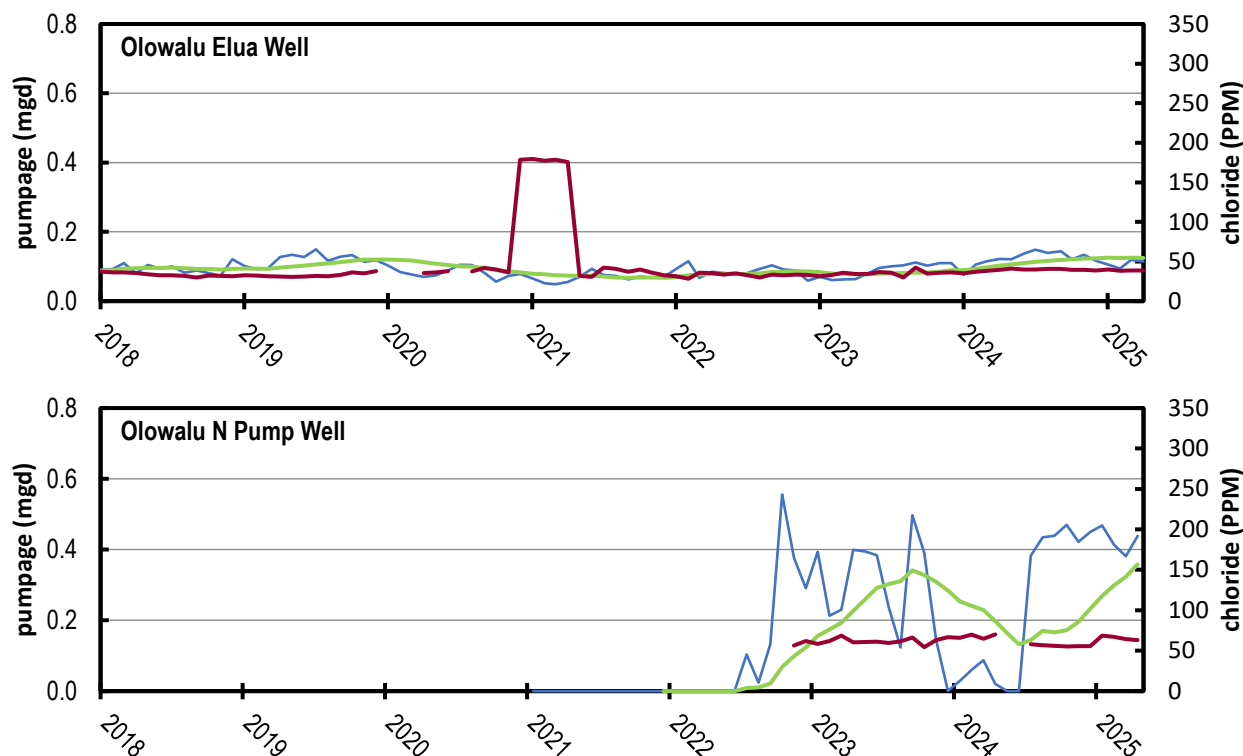


Figure 25. Monthly pumpage (blue), 12-month moving average (green), and chloride level (maroon) for wells in the Olowalu Water Company potable and non-potable water system in the Olowalu Aquifer System.

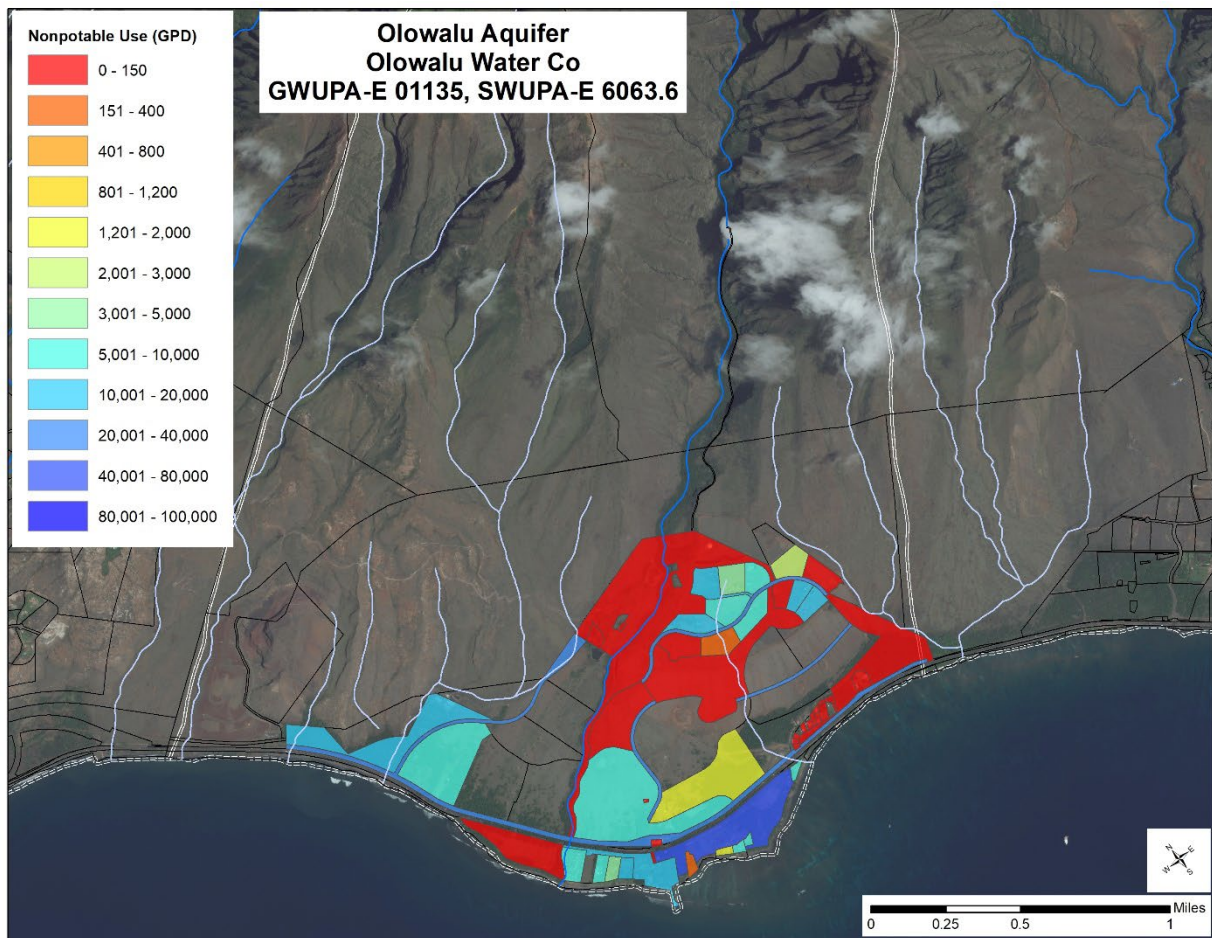


Figure 26. Olowalu Water Company existing non-potable water use (gallons per day, GPD) by parcel.

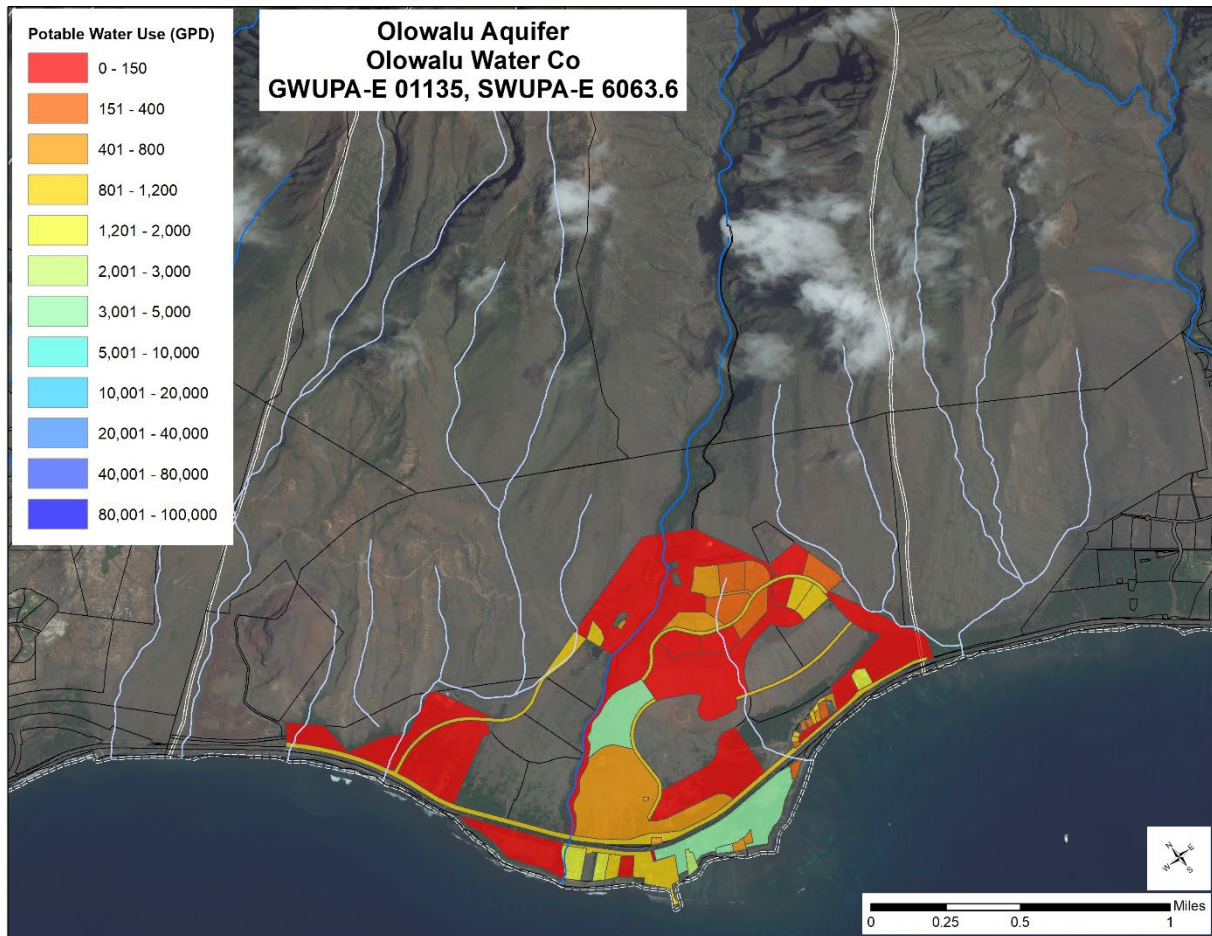


Figure 27. Olowalu Water Company existing potable water use (gallons per day, GPD) by parcel.

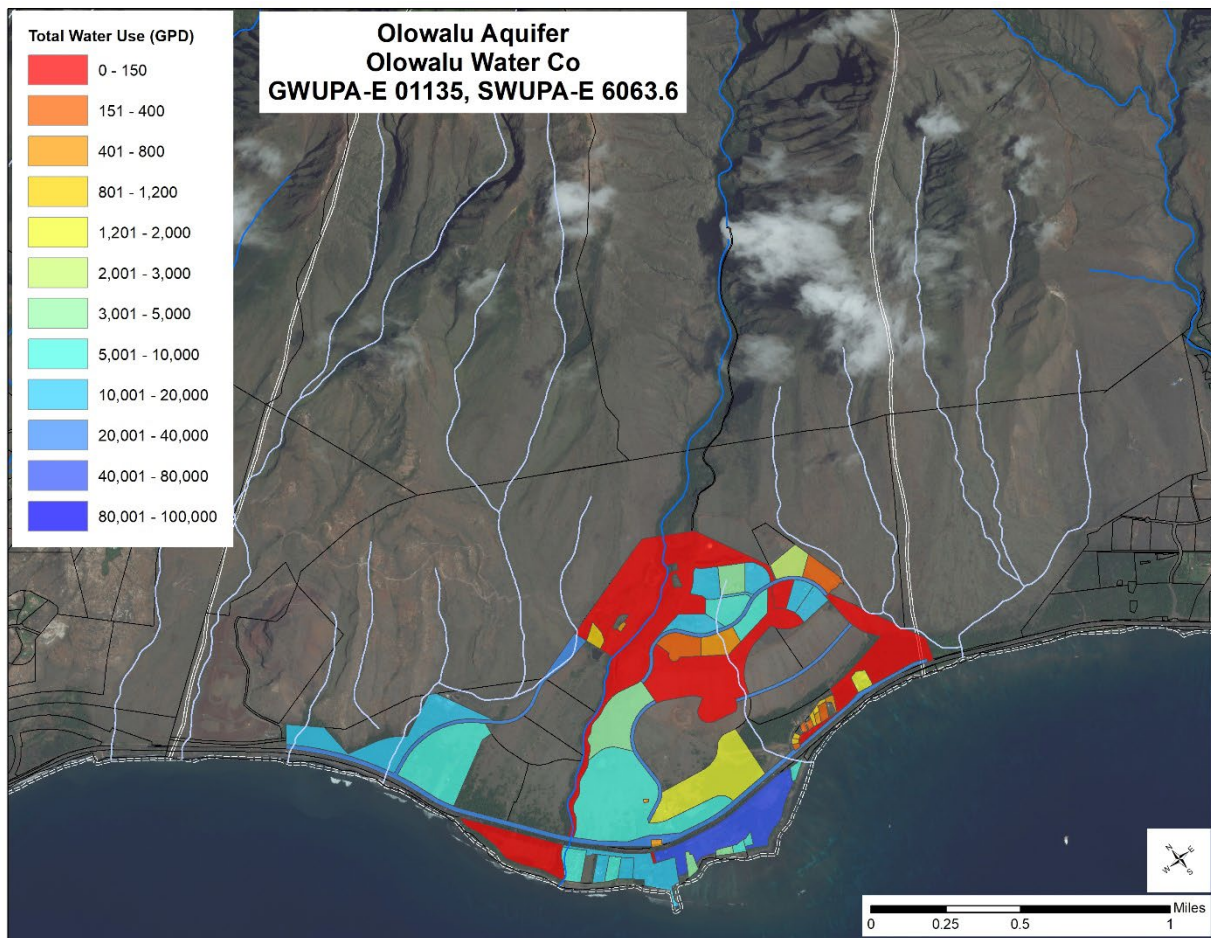


Figure 28. Olowalu Water Company total existing water use (gallons per day, GPD) by parcel.

7. Ukumehame Water Association System

Groundwater Sources

The Ukumehame Water Association (UWA) operates two wells to meet potable and non-potable water demand (Table 30; Figure 29). One well, Sugar Way 1 (6-4835-002), had an initial chloride greater than 300 ppm and therefore was not suitable for the potable water system.

Table 30. Ukumehame Water Association wells and 12-month mean and maximum pumpage and chloride levels as of March 2025. [note: mean 12-month mean chloride is pumpage-weighted mean]

Well Name	Well No.	System	12-month mean pumpage (mgd)	12-month maximum pumpage (mgd)	12-month mean chloride level (ppm)	12-month maximum chloride level (ppm)
Sugar Way 2	4835-003	potable	0.032	0.045	153	165
Ukumehame 3	4835-004	potable	0.042	0.052	314	407
total =			0.074	mean =	287	

Surface Water Sources

Ukumehame Water Association operates one diversion (DIV.960) and an irrigation system from Ukumehame Stream to supply non-potable water to the service area. Due to a fire in 2018, non-potable water supply was cut off from parcels east of Ukumehame Stream, with only a small amount of non-potable water use servicing the commercial agricultural properties to the west of Ukumehame Stream. There is no monitoring of surface water diverted at the intake, but individual parcels that remain connected to the system are metered. Some diverted flow serves wetland kalo production along Ukumehame Stream. Streamflow statistics at the USGS 16479000 Ukumehame Gulch station above the diversion are provided in Table 31.

Table 31. Ukumehame Water Association surface water source stream flow statistics for the June 2020 to March 2025 period at USGS 16647000.

Stream Name	2021-2025 mean daily flow (mgd)	2021-2025 median daily flow (mgd)	2021-2025 14-day low flow (mgd)
Ukumehame	3.68	2.63	0.97

Service Area

Ukumehame Water Association submitted existing use permit applications for 0.0785 mgd of groundwater (GWUPA-E 01129, 01132) and an existing use permit application for 0.0215 mgd of surface water (SWUPA-E 6061.6). In the Ukumehame Water Association service area, there are five parcels with homes constructed that have existing potable water demand. Additionally, the nursery and sod farms located on three other parcels also have potable water use. The current metered potable water use is depicted by parcel in Figure 30. The current metered non-potable water use is depicted by parcel in Figure 31. Two parcels are currently utilizing both surface water and groundwater to irrigate turf sod and one parcel is growing trees as a tree nursery, with approximately 0.0215 mgd of total water use among the three. Total existing water use by parcel is provided in Figure 32.

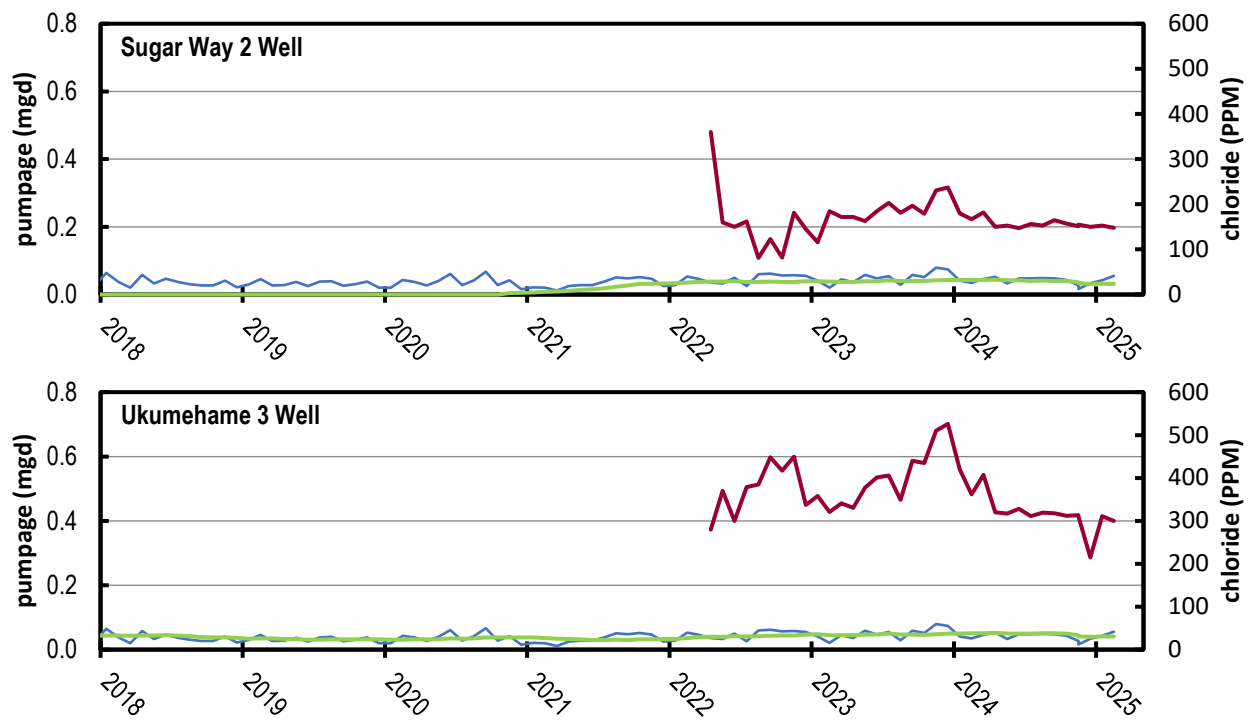


Figure 29. Monthly pumpage (blue),12-month moving average (green), and chloride level (maroon) for wells in the Ukumehame Water Association potable system in the Ukumehame Aquifer System.

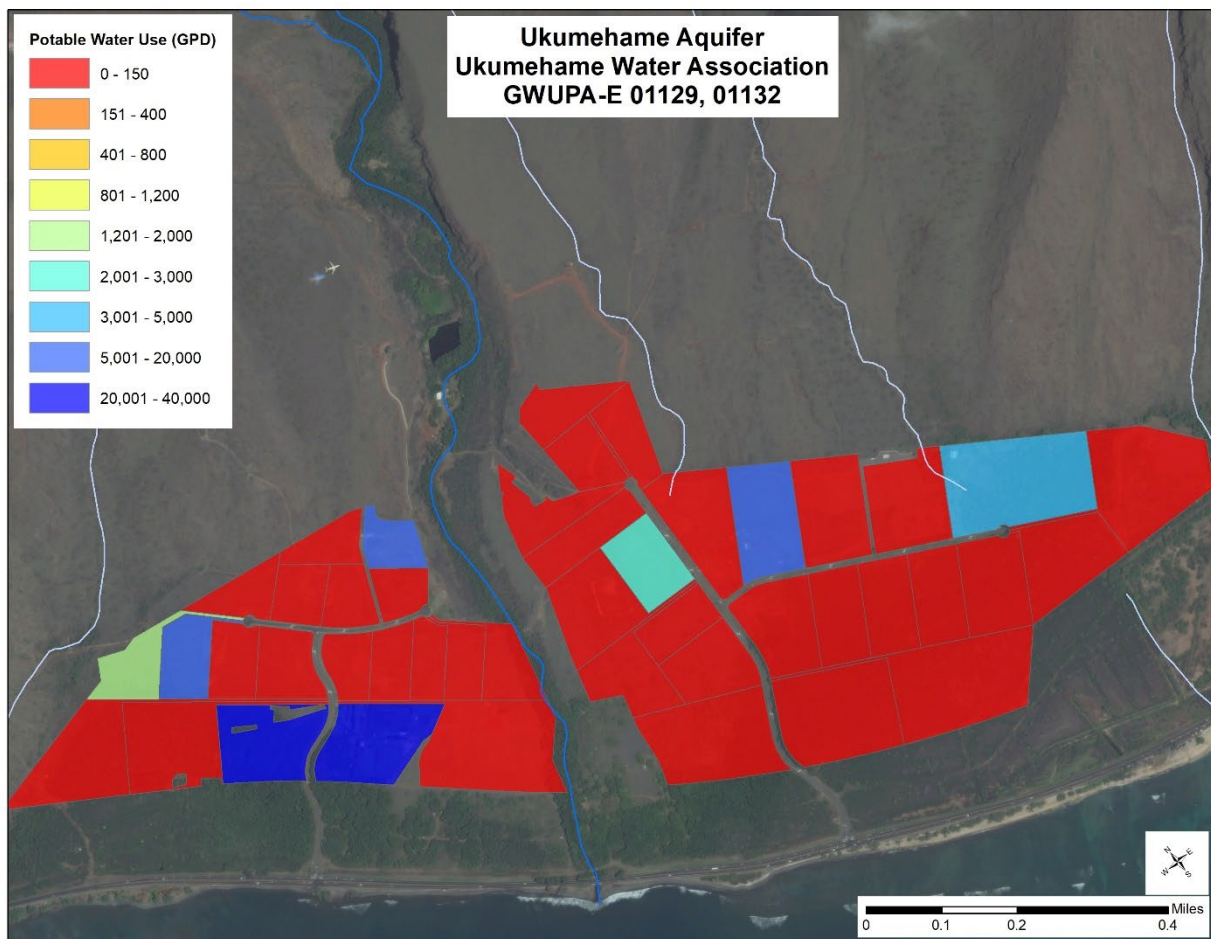


Figure 30. Ukumehame Water Association water usage for parcels identified in its water use permit with existing usage colored by daily potable water consumption (gallons per day, GPD).

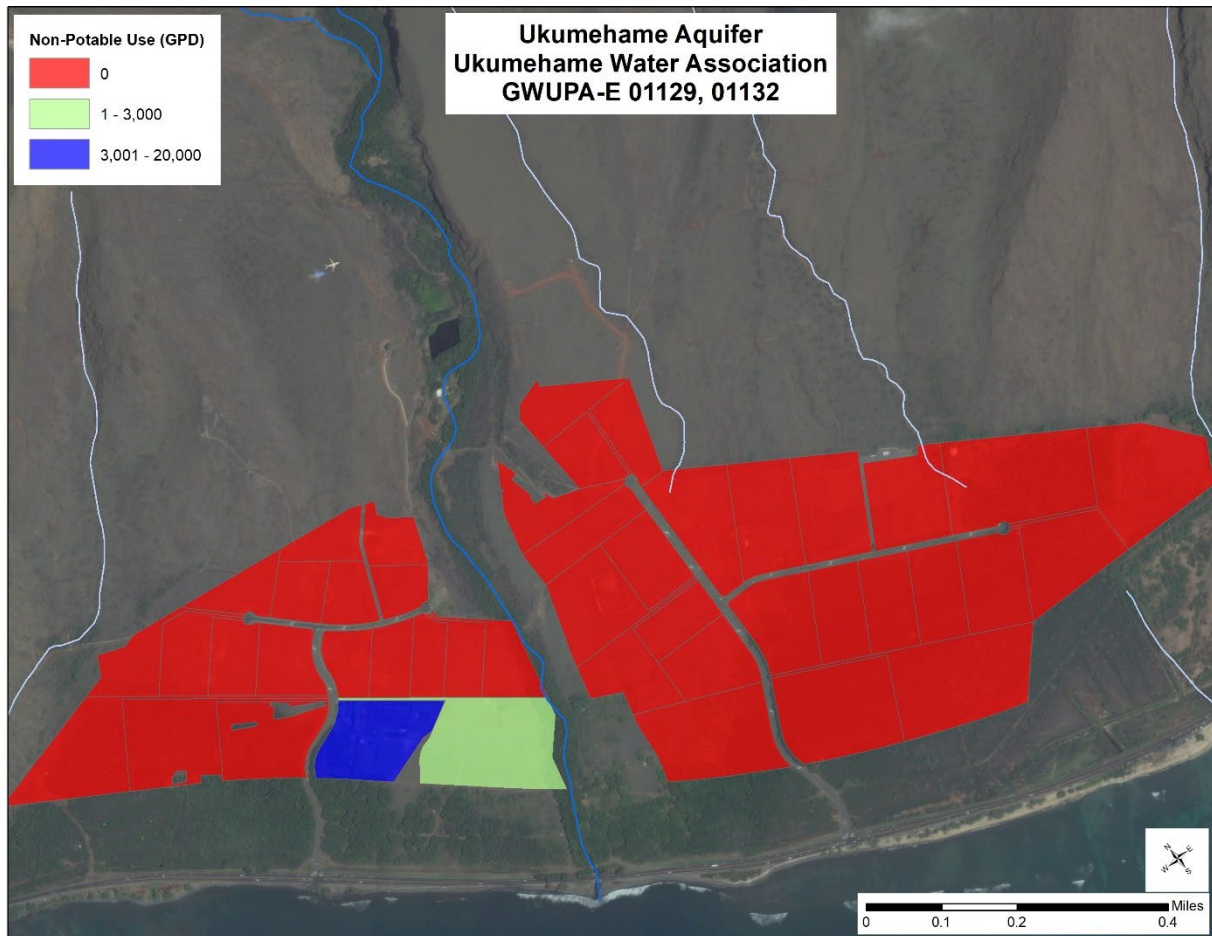


Figure 31. Ukumehame Water Association water usage for parcels identified in its water use permit with existing usage colored by daily non-potable water consumption (gallons per day, GPD).

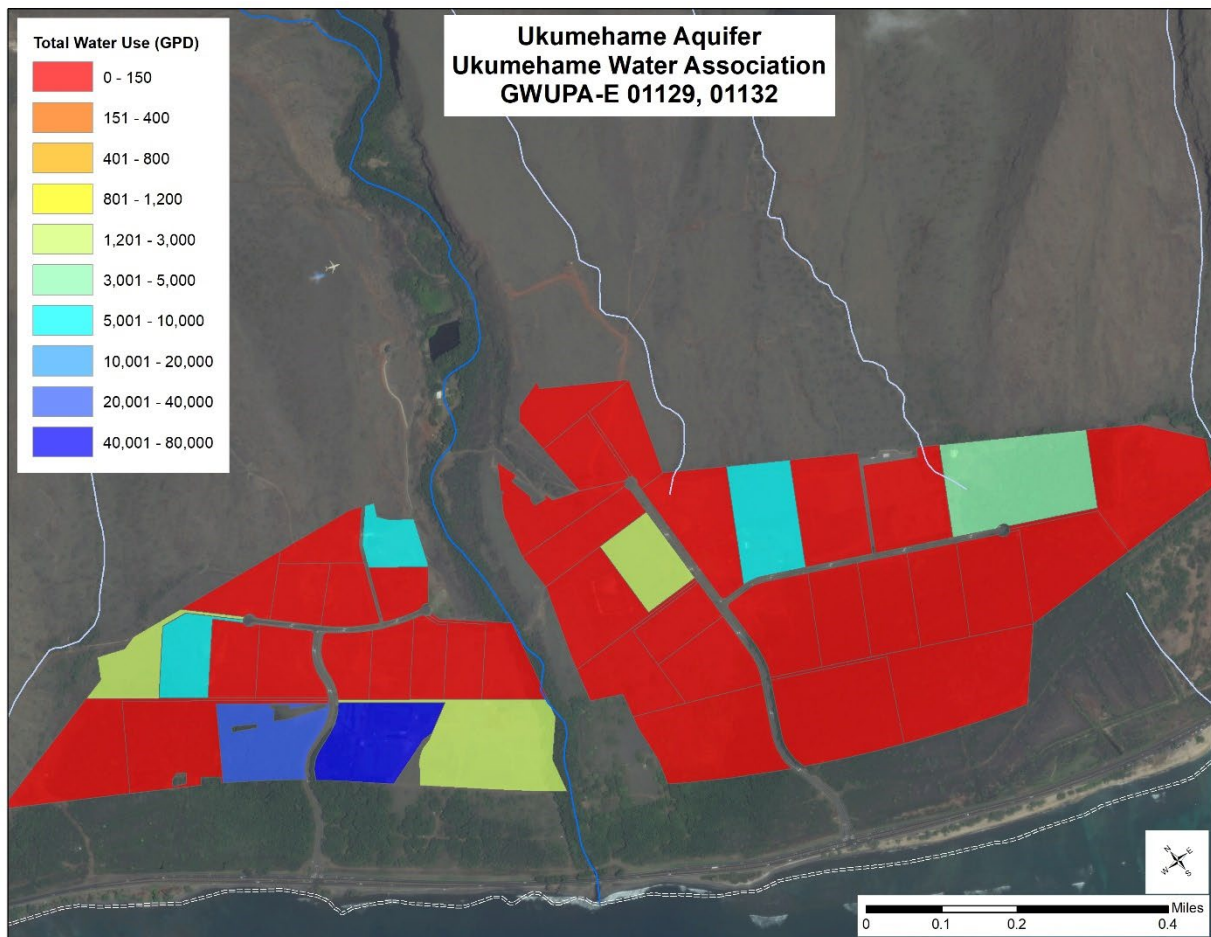


Figure 32. Ukumehame Water Association water usage for parcels identified in its water use permit with existing usage colored by daily total water consumption (gallons per day, GPD).

8. Appendix: Combined Maui Department of Water Supply Statistics

Table 32. Maui DWS combined North and South Lahaina Service Area number of units and water use (gallons per day, GPD) for owner occupied and non-owner occupied parcels per unit and per acre (GAD gallons per acre per day). [note: many Maui DWS water meters in the “LO-RISE” category are for irrigation of parcels zoned “road” within developments]

Parcel Classification	Number of meters		Number of units		Total Water Use (GPD)		Mean Daily Water Use Per Unit (GPD)	
	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied	Owner Occupied	Non-Owner Occupied
A-1 Apartment	41	34	302	63	18,998	98,548	63	1,564
A-2 Apartment	4	33	109	1980	11,811	28,640	108	15
AG Agriculture	160	52	160	53	90,297	85,810	564	1,619
R-0 Residential	19	28	20	28	4,956	7,209	248	258
R-1 Residential	761	392	761	459	224,241	391,531	295	853
R-2 Residential	458	426	591	513	222,327	238,308	376	465
R-3 Residential	172	121	341	138	132,551	94,838	389	687
Road		24		186		21,921		118