



Ke Kahawai Pono

"The trustee who oversees the rightful sharing of water."

Ground Water Use Reporting Outreach Program Summary

Commission On Water Resource Management Meeting

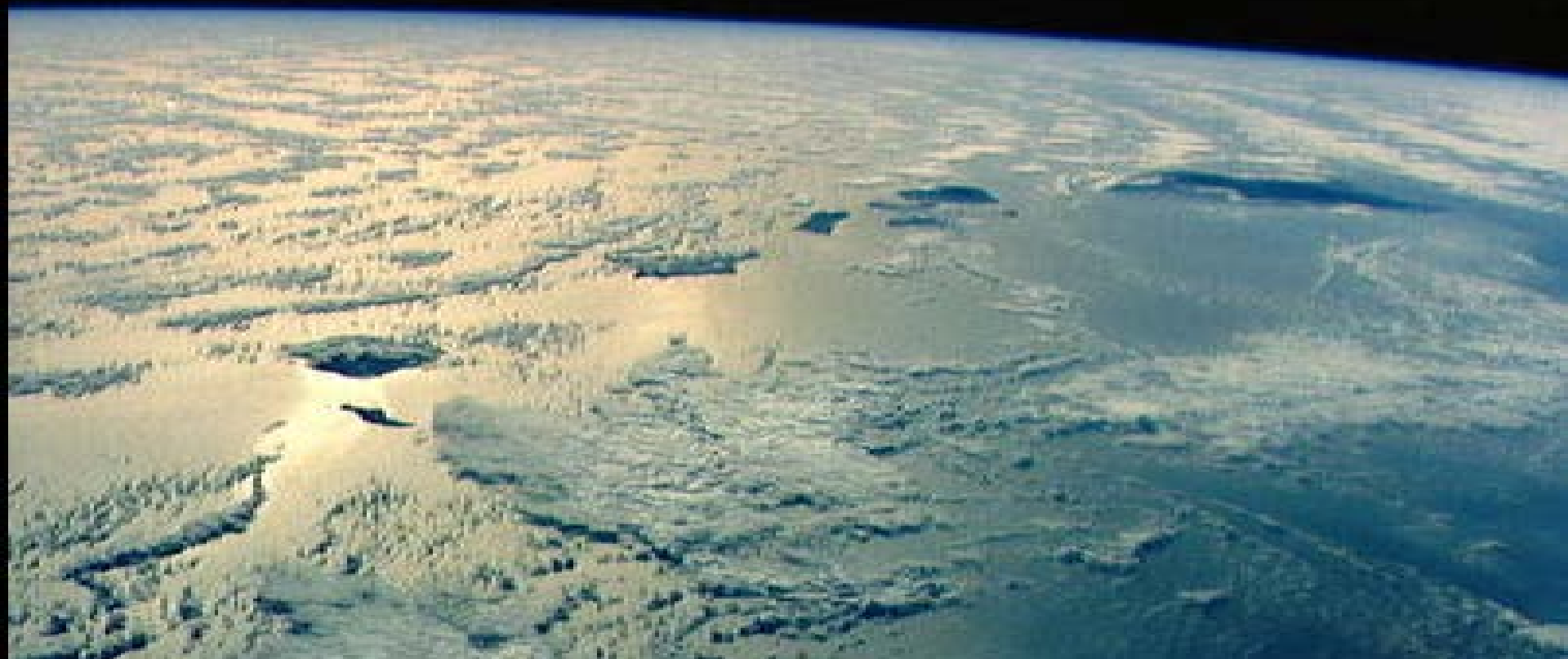
Honolulu, Oahu, Hawaii

October 15, 2019



Ke Kahawai Pono

"The trustee who oversees the rightful sharing of water."



Ground Water Use Reporting Outreach Program

Presentation Outline

- Background – why the Outreach Program?
- What areas have been covered?
- What does the Outreach Program do?
- Success evaluation- How are we doing?

Ground Water Use Reporting Outreach Program

- Currently 2,600 production wells in the State – some over 200 years old.
- Effective management measures & ensures that pumpage remains within the sustainable limits of our aquifers.
- Need to track wells that have been lost or abandoned. Improperly abandoned and sealed wells provide potential pathways for contaminants to pollute our freshwater aquifers.
- Documenting ownership changes and if owners need to obtain a ground water use permit.

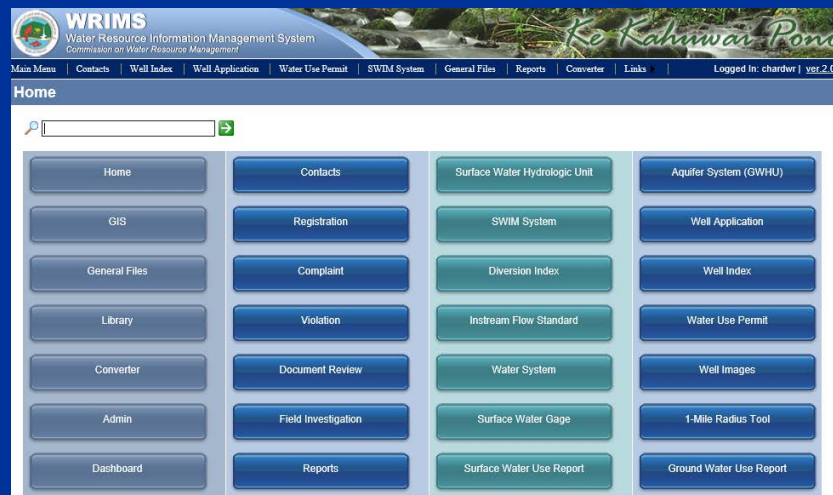
Ground Water Use Reporting Outreach Program

- Essential to the understanding of the behavior and response of our water resources to withdrawals.
- Used to evaluate the effectiveness of alternative water management policies, regulations, and conservation activities; assess the impacts of population growth and corresponding increases in water demands; develop trends in water use; and make projections of future demands.

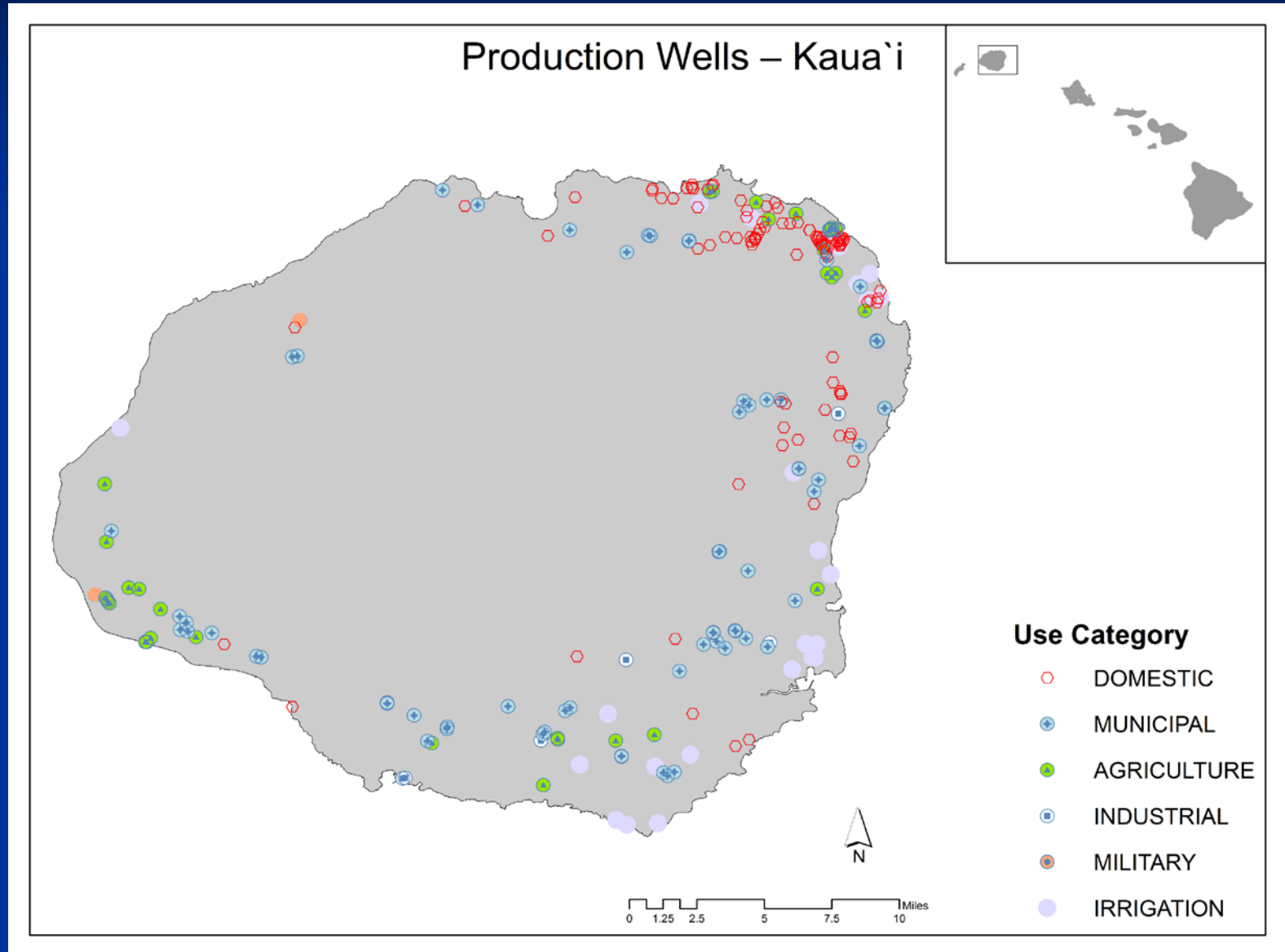
Ground Water Use Reporting Outreach Program

The CWRM manages Hawaii's ground water, as well as surface water resources, through information stored in the Water Resource Information Management System database (WRIMS).

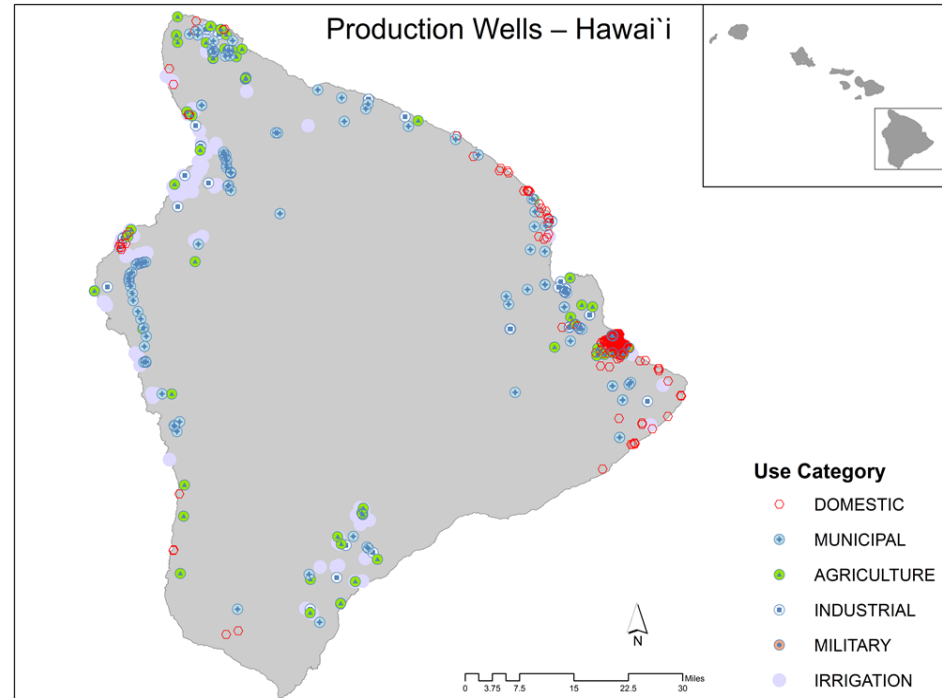
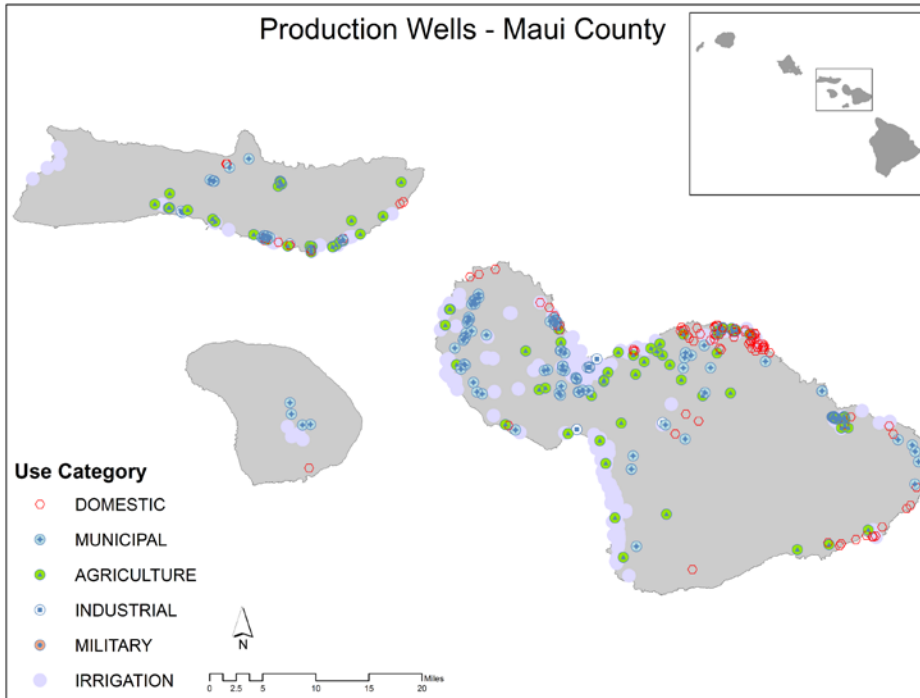
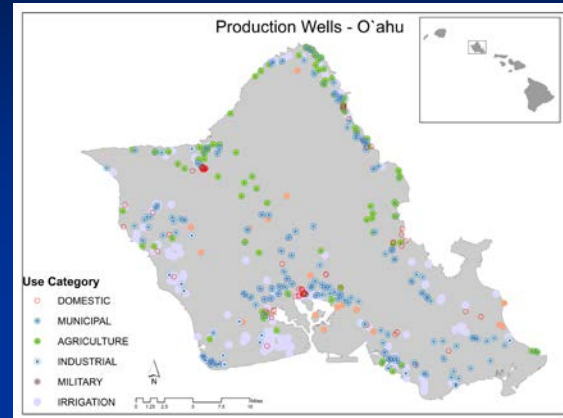
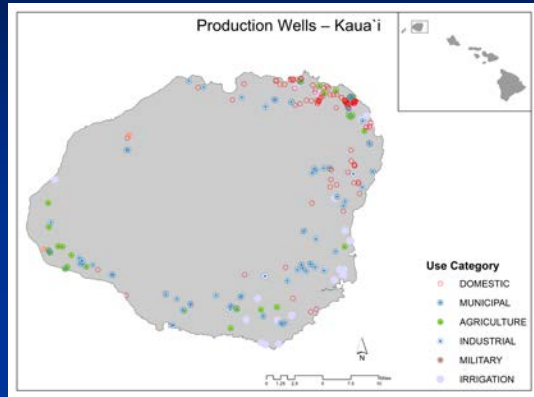
WRIMS is updated continuously, and one of the most important inputs is the water use reports that every well owner is required to submit on a monthly basis.



Ground Water Use Reporting Outreach Program



Ground Water Use Reporting Outreach Program



Ground Water Use Reporting Outreach Program

2008 WRPP

Table 6-1: Status of Ground Water Use Reporting by Island

Island	Total # of Production Wells¹	# Reporters/ # Wells Reported	Largest Reporter/ # Wells Reported
Kauai	228	6/59	DWS ² /47
Oahu	948	59/237	BWS ³ /97
Molokai	99	7/17	DWS ² /4
Lanai	16	1/11	Lanai Co. ⁴ /11
Maui	450	32/119	DWS ² /32
Hawaii	400	27/130	27%

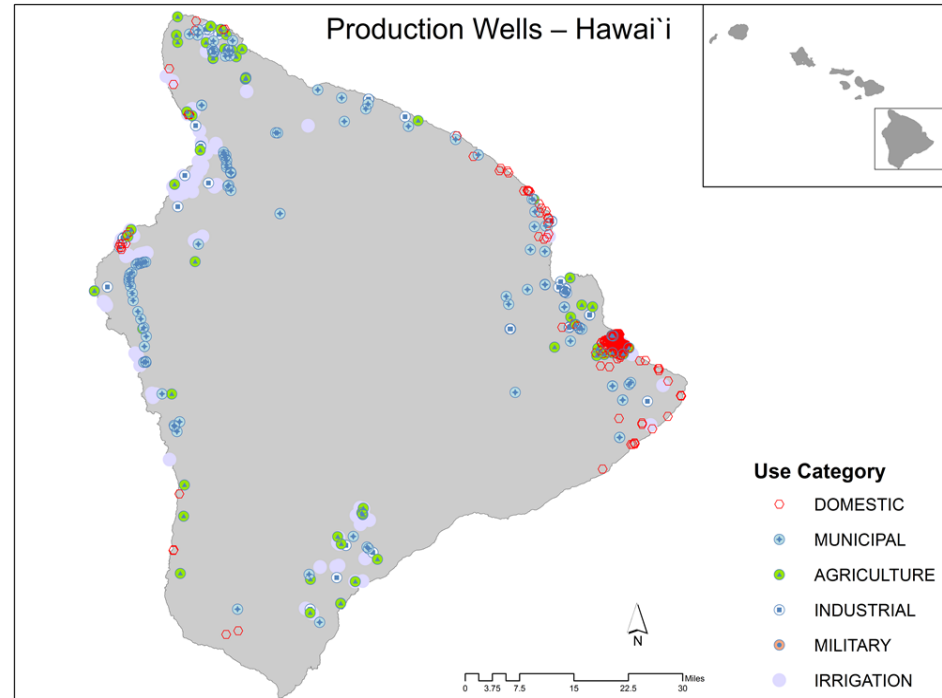
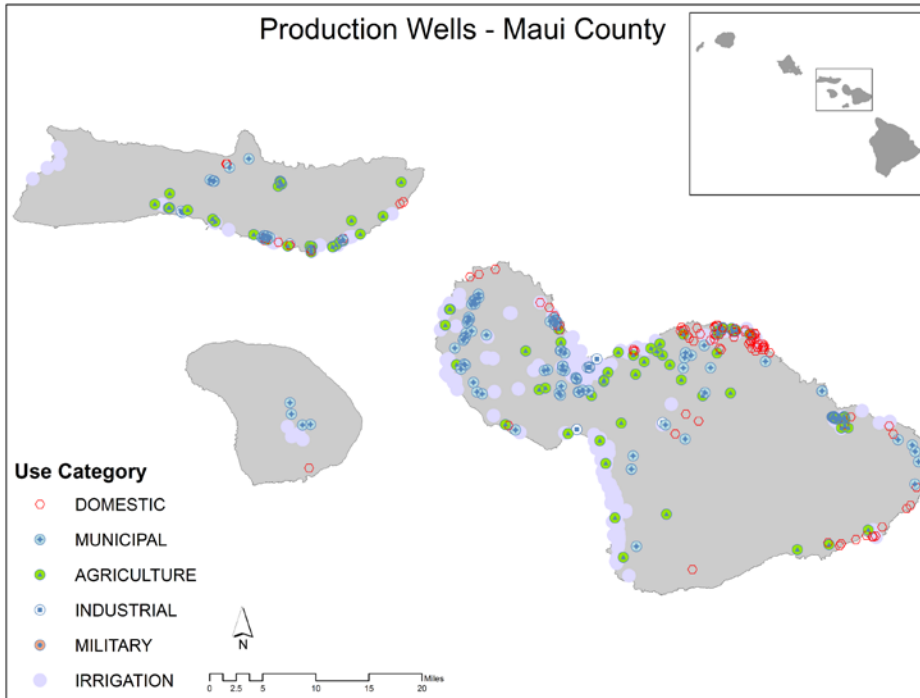
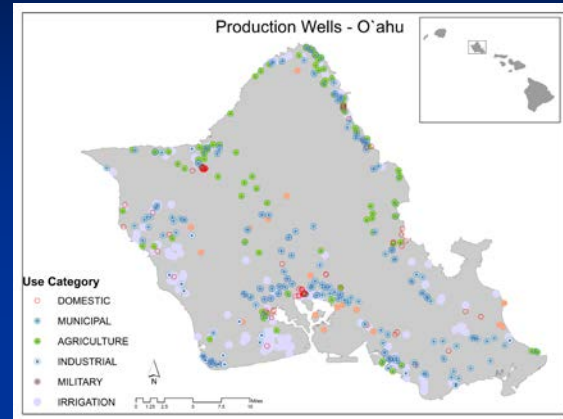
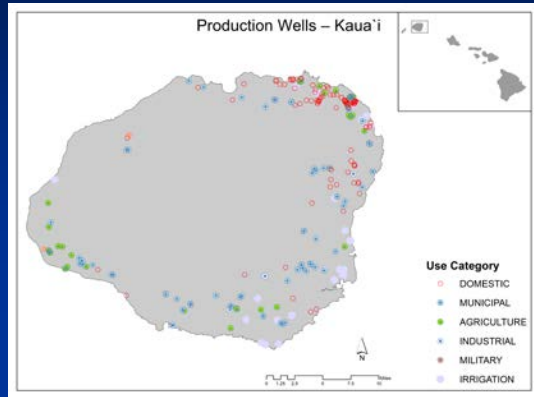
Ground Water Use Reporting Outreach Program

2019 WRPP

Table H-2 Status of Ground Water Use Reporting by Island for 2016

Island	Total # of Production Wells ¹	# Production Wells Reported	Largest Reporter/ # Production Wells Reported
Kaua'i	288	139	DOW ² /67
O'ahu	818	491	BWS ³ /220
Moloka'i	89	40	KPHA ⁴ /7
Lāna'i	10	10	LWC ⁵ /10
Maui	567	240	DWS ⁴ /46
Hawai'i	927	331	DWS ⁶ /71
TOTAL	2,699	1,251	46%

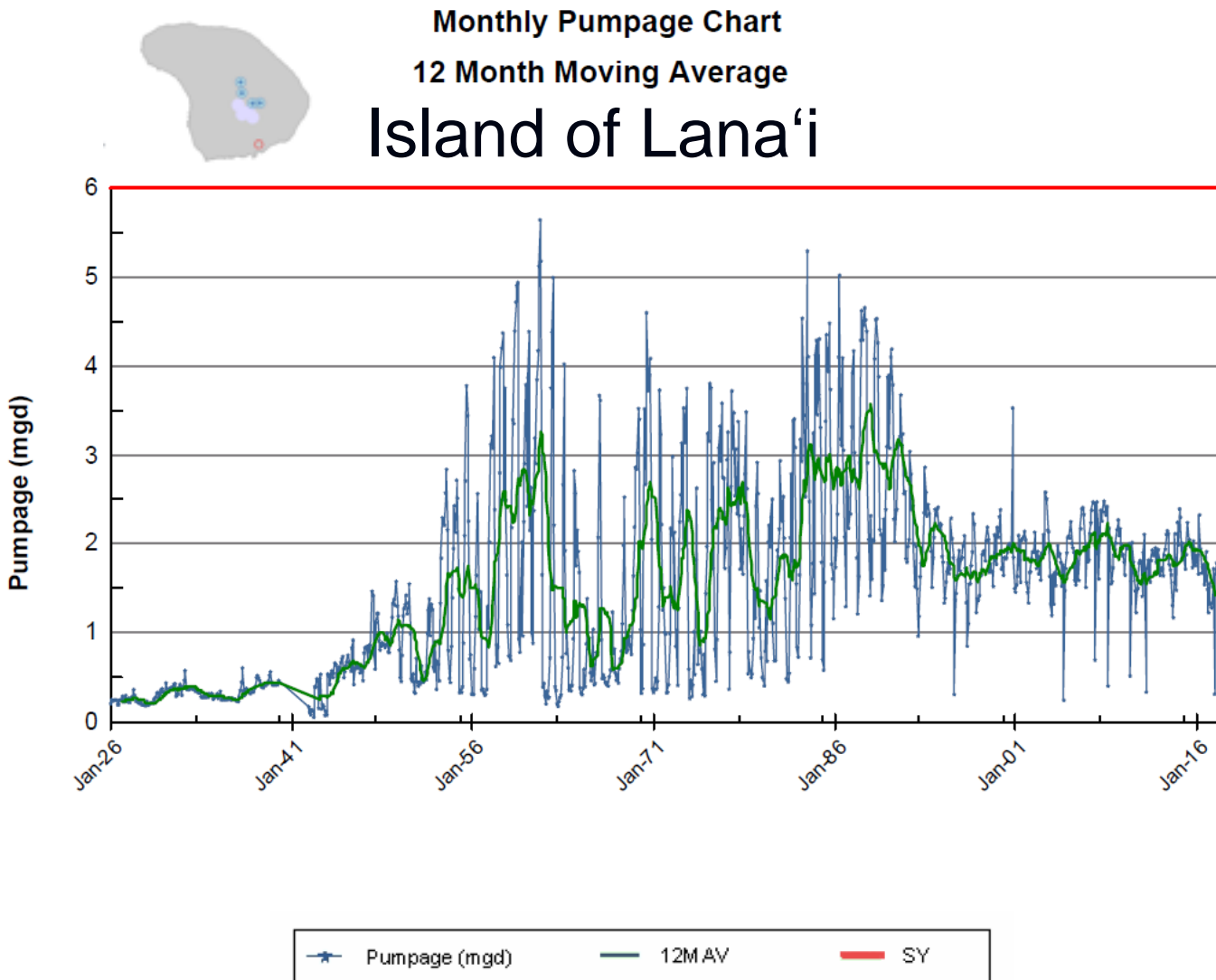
Ground Water Use Reporting Outreach Program



Ground Water Use Reporting Outreach Program



Ground Water Use Reporting Outreach Program



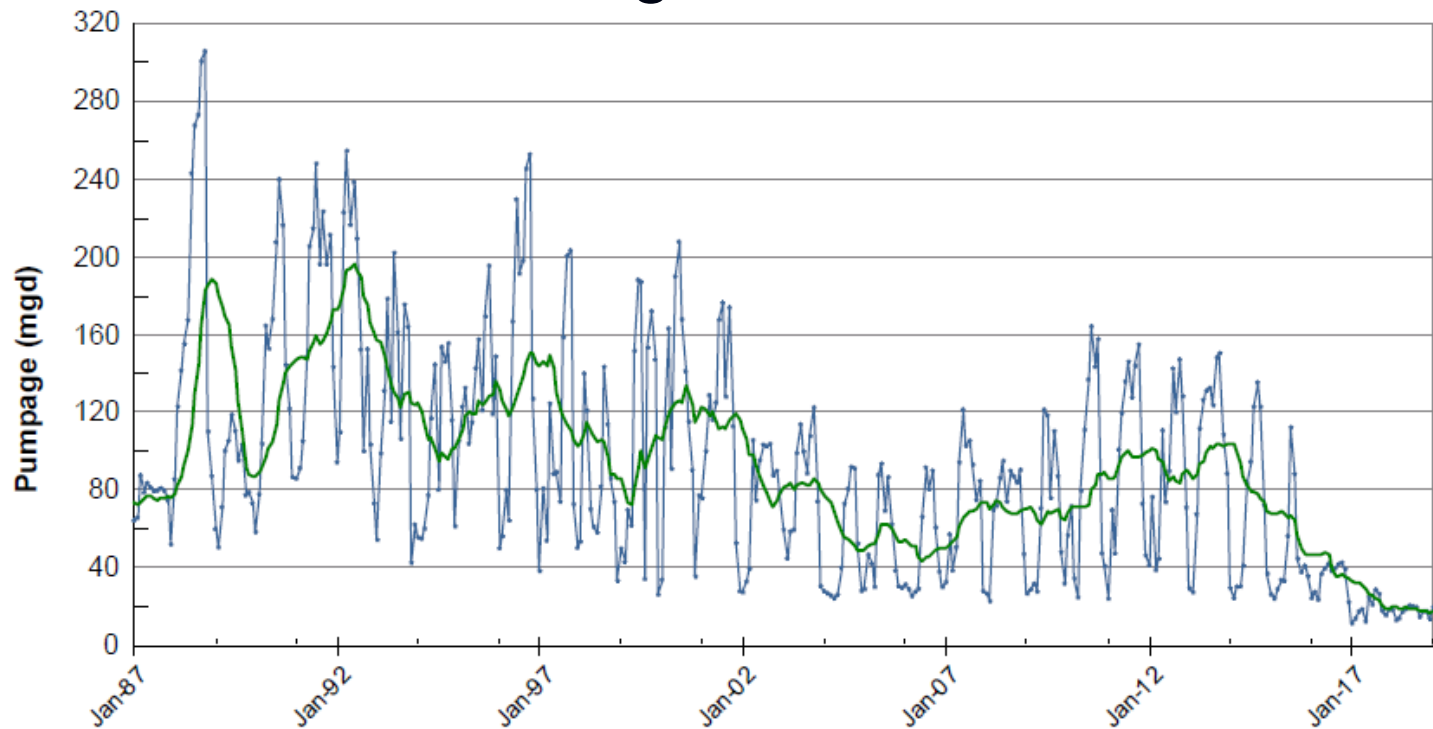
Ground Water Use Reporting Outreach Program



Commission on Water
Resource Management
Information Management System

Monthly Pumpage Chart
12 Month Moving Average

Statewide Agricultural GW Use



Ground Water Use Reporting Outreach Program

WELL USAGE CODES

Production Wells

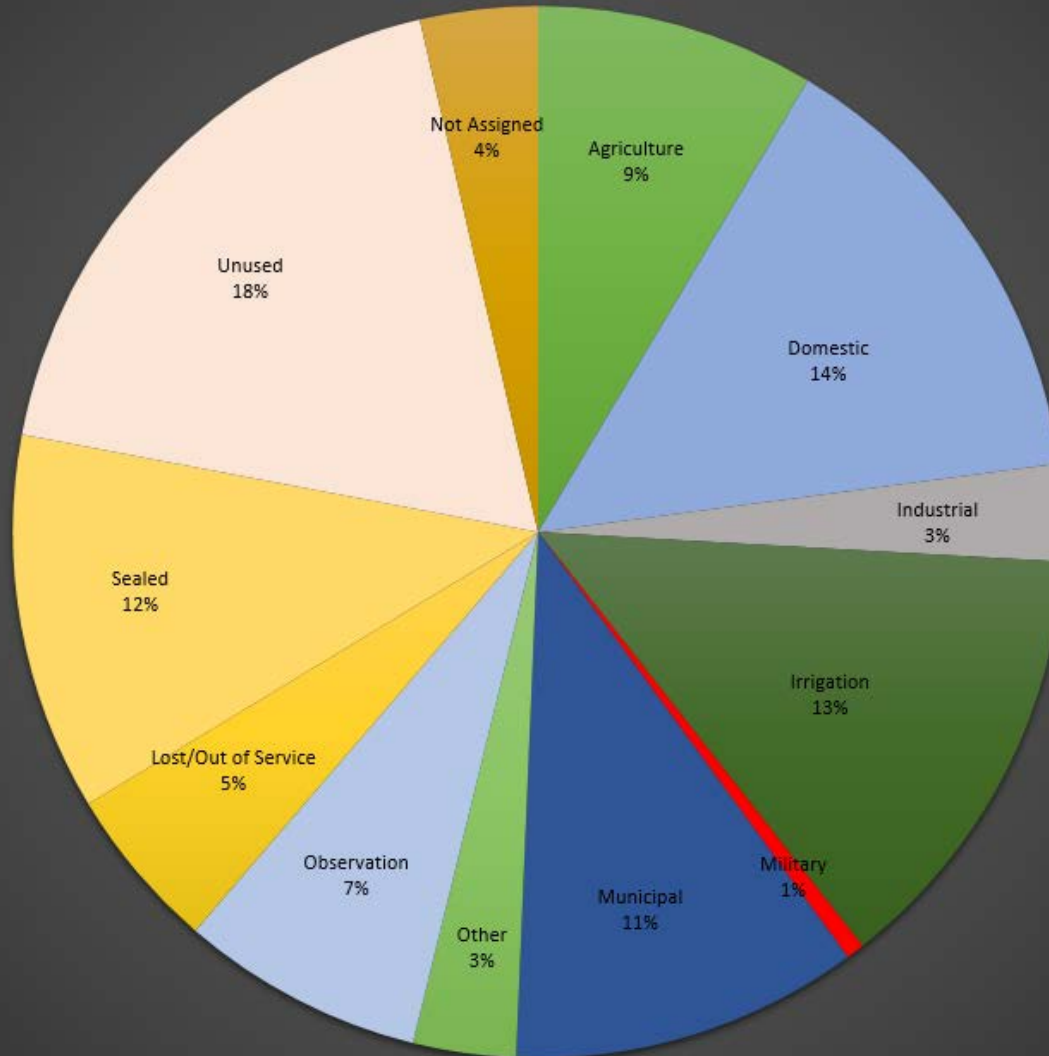
MUN- municipal
AGR- agriculture
IRR- irrigation
IND- industry
MIL- military
DOM- domestic use
OTH- other

Non-Production Wells

OBS- observation
UNU- unused
ABN- abandoned

Ground Water Use Reporting Outreach Program

2014 Pre Outreach Program Statewide Usage Code Percentages



Ground Water Use Reporting Outreach Program

Legal Authority

Anyone who operates or owns a well in the State of Hawaii is required to report the status of the well and water withdrawn from that well. (HAR 13-168-7)

Ground Water Use Reporting Outreach Program

Statue & Administrative Rules

- State Water Code Hawaii Revised Statute HRS 174C Part II
- Hawaii Administrative Rules 13-168-7

§13-168-7 Report of water use. (a) The owner or operator of any well or stream diversion works from which water is being used shall provide and maintain an approved meter or other appropriate device or means for measuring and reporting total water usage on a monthly (calendar or work schedule) basis. If a well or stream diversion works is one of a battery of interconnected water sources, a centralized measuring device or facility may be approved by the commission.

(b) The owner or operator of any well or stream diversion works or battery of such water sources shall file a report of total water usage on a regular monthly (calendar or work schedule) basis to the commission on forms provided by the commission on or before the end of the month following the month for which water usage is to be reported. The reports may include other use-related information such as type of use, salinity, and water level, as may be deemed appropriate and reasonable by the commission.

(c) At the discretion of the commission, requirements for measuring and reporting monthly water usage may be lessened, modified, or exempted for owners or operators of small, individual wells or stream diversion works. The lessening, modification, or exemption of such requirements shall be approved, disapproved, or otherwise decided by the commission on a case-by-case basis. [Eff. MAY 27 1988] (Auth: HRS §174C-8) (Imp: HRS §§91-2, 174C-50, 174C-82)

Ground Water Use Reporting Outreach Program

Why the Outreach Program?

To educate and encourage non-reporting well owners to comply with their responsibility to report usage.

Before the Outreach Program was launched, approximately 27% of production wells were being reported statewide.

Ground Water Use Reporting Outreach Program

Presentation Outline

- Background – why the Outreach Program?
- What areas have been covered?
- What does the Outreach Program do?
- Success evaluation- How are we doing?

Ground Water Use Reporting Outreach Program

Goal

Focus first on Ground Water Management Areas on Oahu, Maui, and Moloka'i, identify reporters, and bring pumpage reporting for all wells therein into compliance.

There are many individual domestic wells that do not require water use permits but nevertheless pump in a designated management area.

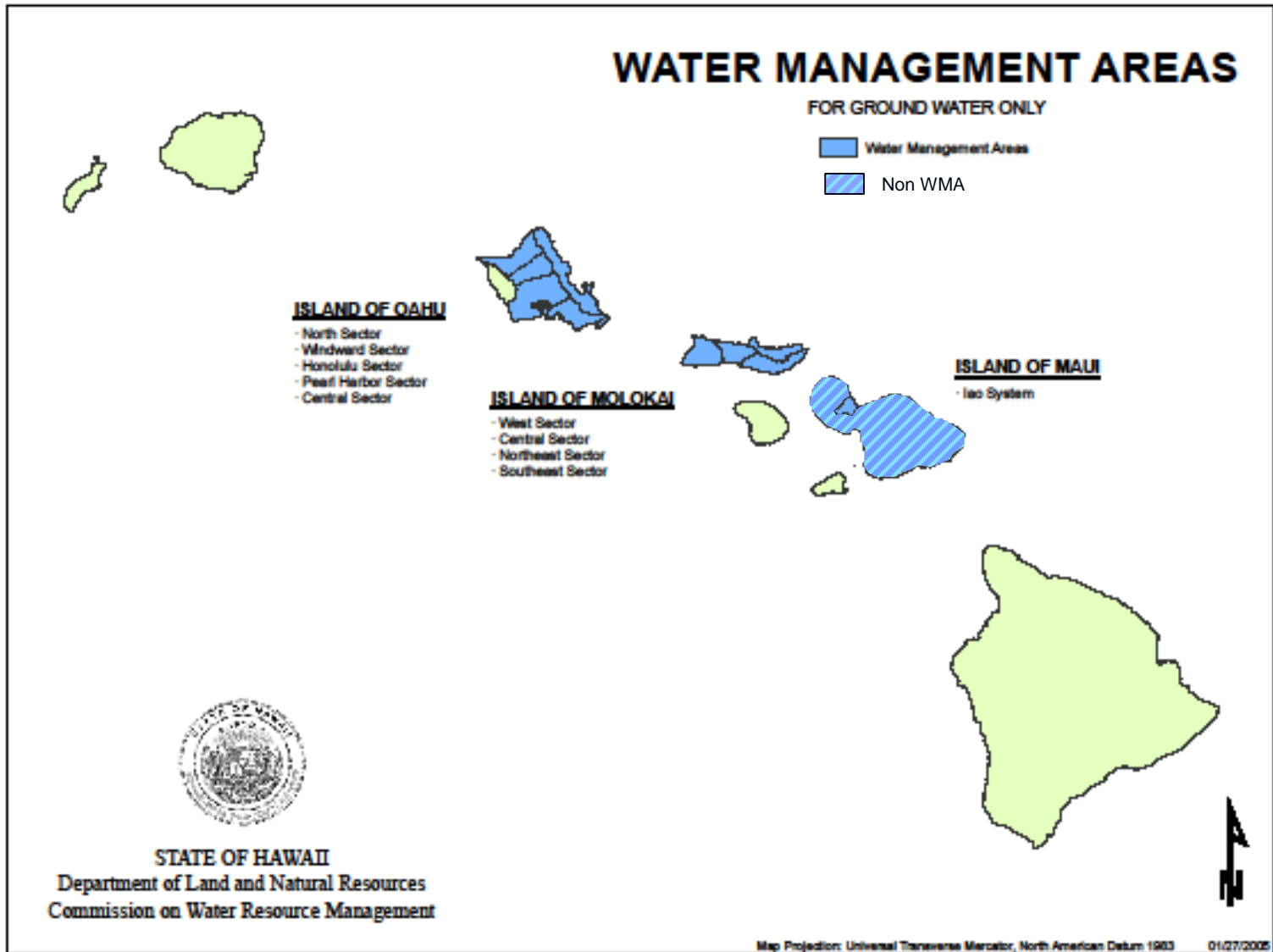
Ground Water Use Reporting Outreach Program

Ground Water Management Areas:

- The 1st Outreach Program (2014-2018)
 - Island of O‘ahu (except Wai‘anae), &
 - ‘Īao Aquifer System Area of West Maui.
 - \$ 213,403 Contract

- The 2nd (2017 to present)
 - Island of Moloka‘i
 - Remainder of Maui.
 - \$ 210,010 Contract

Ground Water Use Reporting Outreach Program



Ground Water Use Reporting Outreach Program

Presentation Outline

- Background – why the Outreach Program?
- What areas have been covered?
- What does the Outreach Program do?
- Success evaluation- How did we do?

Ground Water Use Reporting Outreach Program

What does the Outreach Program do?

The principal objectives of the WUR Outreach Program include:

1. Confirm existence, condition, and usage of non-reporting wells
2. Remind/inform the well owner/reporter of their responsibility to report usage, even if it is not being used (i.e., 0 gpm, but should report water-levels)
3. Demonstrate the on-line reporting system, and provide hands-on experience to facilitate familiarity with system.

Ground Water Use Reporting Outreach Program

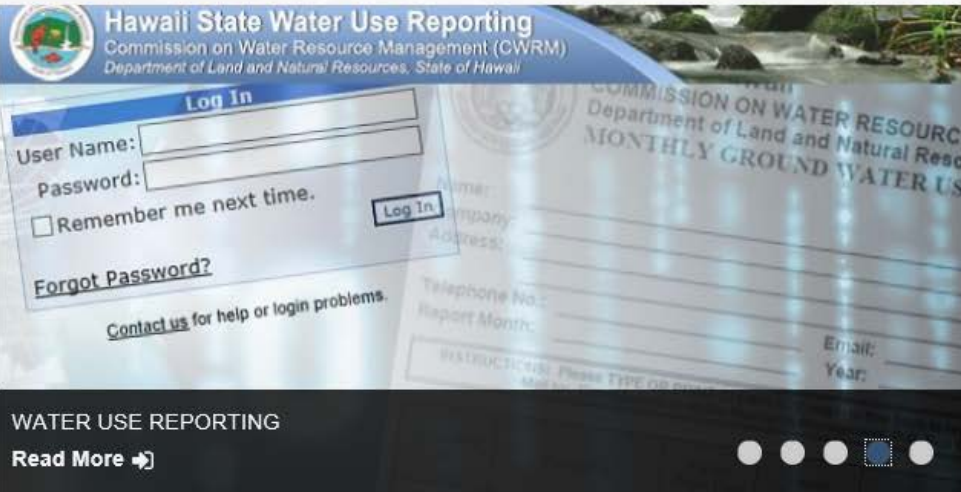


State of Hawaii, Department of Land and Natural Resources
Commission on Water Resource Management

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Hawaii State Water Use Reporting
Commission on Water Resource Management (CWRM)
Department of Land and Natural Resources, State of Hawaii

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COMMISSION ON WATER RESOURCE
Department of Land and Natural Resources
MONTHLY GROUND WATER USE

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ADDRESS: _____
TELEPHONE NO.: _____
REPORT MONTH: _____
EMAIL: _____
YEAR: _____

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WEBSITE UPDATES

As of June 20, 2018

- CCH-MA13-01: Commission issues Findings of Fact, Conclusions of Law, & Decision and Order (News Release)
- June 2018 Water Resource Bulletin
- Meet Commissioner Dr. Bruce S. Anderson

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WATER USE REPORTING

Water use information is essential to the understanding of the behavior and response of our water resources to stresses from water withdrawals. Such information also ensures that demand is managed effectively within the sustainable limits of our water supply. Water use information can also be used to evaluate the effectiveness of alternative water management policies, regulations, and conservation activities; assess the impacts of population growth and corresponding increases in water demands; develop trends in water use; and make projections of future demands.

In an effort to implement management policies of the Commission identified through the State Water Code, its Rules, and the Water Resource Protection Plan, well and stream diversion owners are required to document and report their total monthly water use so that our public trust resources can be better understood and managed for future generations.

Reported water use data, including pumpage, water level, and chloride, or diversion amounts, is entered into our Water Use Reporting database. Water Use Report forms are in the [Applications & Forms](#) page.

On [January 22, 2014](#), the Commission required all wells in the State of Hawaii to report monthly ground water use including quantity pumped, chloride (and/or conductivity) concentrations, temperature, and (pump off) water-level data. A Water Use Reporting [brochure](#) and [video](#) also provide additional help and information on water use reporting methods.

[View Online Water Use Reporting Instructions](#)

[LOG IN TO ONLINE WATER USE REPORTING](#)

Reporters should avoid submitting online reports between the hours of 3-4am

INFORMATION INDEX

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- [Presentations](#)
- [Publications](#)
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Ground Water Use Reporting Outreach Program



Hawaii State Water Use Reporting
Commission on Water Resource Management (CWRM)
Department of Land and Natural Resources, State of Hawaii



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Ground Water

Action

- Submit New Water Use Report
- Change Password
- Instructions & Manual Report Form
- Submit New Water Use Report in Excel Format
- Download Template Excel Sheet

Water Use Report (Last 30 Reports)

Start Date	End Date	Date Submit	Wells Reported Count	Total (Mg)	Total (Mgd)	MAX Chloride (mg/L)	Memo
------------	----------	-------------	----------------------	------------	-------------	---------------------	------

Wells Required to Report

Well Number	Well Name	Use	Metered	Last Reported Dates	Last Pumpage (Mg)	Last Pumpage (Mgd)	Last Chloride (PPM)	Pumpage Graph
7-3438-001	Ahupu Well	IRR		-				View Graph
7-3533-001	Hakioawa	UNU		01/07/1989 - 01/07/1989			1200.0	View Graph

Total wells reporting = 2

Ground Water Use Reporting Outreach Program



Hawaii State Water Use Reporting
Commission on Water Resource Management (CWRM)
Department of Land and Natural Resources, State of Hawaii



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Well Index - 7-3533-001 Hakioawa



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Well Index (6) | Water Use Report (3) | Files (3)

Coordinate Information

Island	Aquifer System	Aquifer Type	Geology Code	Latitude (DD)	Latitude (DMS)	Longitude (DD)	Longitude (DMS)	Map KML
Kahoolawe	70000 NA			20.587972	20° 35' 16.70" N	-156.550672	156° 33' 2.42" W	
GPS	UTM	TMK	QUAD	Field Investigation Date	Latest Certificate Issued Date (Well)	Latest Certificate Issued Date (Pump)		
Street Address	City	State	Zip					
	HI							

Well Names

Well Number	Well Name	Old Well Number	Old Well Name	Battery
7-3533-001	Hakioawa			

Current Names Information

Well Owner/Operator	Well Owner/Operator Alias	Latest Driller	Driller Alias
<u>Land Division Maui, DLNR-LD</u>			
Land Owner	Land Owner Alias	Latest Pump Installer	Pump Installer Alias
<u>State of Hawaii</u>			
Water Use Reporter	Reporting Cycle	Latest Surveyor	Surveyor Alias
<u>J Foss</u>	Monthly		

Well

Well Construction	Elevations (ft)	Depth (ft)
Latest WCR	Ground Elevation	70% Grout cu. yds
12/01/1940	32	
Date Completed	Benchmark	Grout Method
Original Year Drilled	Bottom Solid	Solid Case
Well Type	Bottom Perf	Perf Case
Dug		
Hole Diameter	Bottom Hole	Well Depth
8	14	18
Casing Diameter	Pump Elevation	Pump Depth
Casing Material	Top of Casing Elevation	Required Sealing Volume

Pump

Pump Info	Pump Test Parameters and Results	
Latest PIR	Test Date	
Date Pump Installed	SDT Max (gpm)	Spec Cap gpm/ft
Original Pump Year	SDT Max DD (ft)	K (ft/d)
PumpTDH (ft)	CRT Ave (gpm)	T (ft ² /day)
Pump GPM	CRT Max DD (ft)	
Pump Mgd	End CRT Chloride (ppm)	
Flow Meter	End CRT Temp	Unit

Water Info

Init Head (ft above msl)	Init Head 2 (ft above msl)	Init Head 3 (ft above msl)	CUR 12-MAV	Active WUP
Init Chloride (ppm)	Water Quality (From Init Chloride)	Initial Temp	Initial Temp Unit	Well Use
12,600	Brackish			UNU

Ground Water Use Reporting Outreach Program



Hawaii State Water Use Reporting
Commission on Water Resource Management (CWRM)
Department of Land and Natural Resources, State of Hawaii

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Well Index - 7-3533-001 Hakioawa



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Ground Water Use Reporting Outreach Program

What needs to be reported ?

- Quantity pumped (via meter)
- Cond/Cl/Salinity/Temperature
- Water Level



Ground Water Use Reporting Outreach Program

Benefits of on-line reporting are:

- 24/7 availability for the reporter to submit data on-line at their convenience,
- Direct data submission & error checking features – data quality control.
- Reporters, and now well owners, have access and can download the pumping history, including graphs, and any documents associated with their reported well(s).

Ground Water Use Reporting Outreach Program

Presentation Outline

- Background – why the Outreach Program?
- What areas have been covered?
- What does the Outreach Program do?
- Success evaluation- How are we doing?

Ground Water Use Reporting Outreach Program

Success evaluation- How are we doing?

- As more water use reporters are reached and added to our on-line system by our staff, the percent of successful submissions has increased substantially.
- The first Outreach Program included 495 wells on Oahu and 15 wells in the 'Īao Aquifer System Area, for a total of 510 wells.
- 299 wells were visited.
- 94 wells were either sealed, abandoned, or identified as candidates for sealing.

Ground Water Use Reporting Outreach Program

Success evaluation- How are we doing?

- The second Outreach Program included 500 wells on Maui and 136 on Molokai, for a total of 636 wells.
- 80% completed. Working on the breakdown.

Ground Water Use Reporting Outreach Program



**Commission on Water
Resource Management**
Information Management System

WUR Statistics

Report Parameters

Pumpage Date: 01/01/2019 - 12/31/2019
 Island: All
 Aquifer Sector: All
 Aquifer: All
 Aquifer Type: All
 TMK: All
 Water Quality: All
 Pump Capacity: All
 Water Use Permit: All

Island	Number of wells Permanently Sealed and Abandoned	Number of wells with NO usage classification	Number of Production Wells	Number of Non- Production Wells	Number of Production Wells Reporting Usage	Number of Non- Production Wells Reporting Usage	Percent of Production Wells Reporting Usage
Niihau	0	23	2	2	0	0	0.0%
Kauai	44	0	298	168	133	17	44.6%
Oahu	504	55	773	921	545	190	70.5%
Molokai	6	3	71	107	42	26	59.2%
Lanai	0	0	9	19	9	17	100.0%
Maui	25	9	460	378	289	57	62.8%
Hawaii	38	5	986	322	351	33	35.6%
Others	0	0	1	2	0	0	0.0%
TOTAL:	617	95	2600	1919	1369	340	52.7%

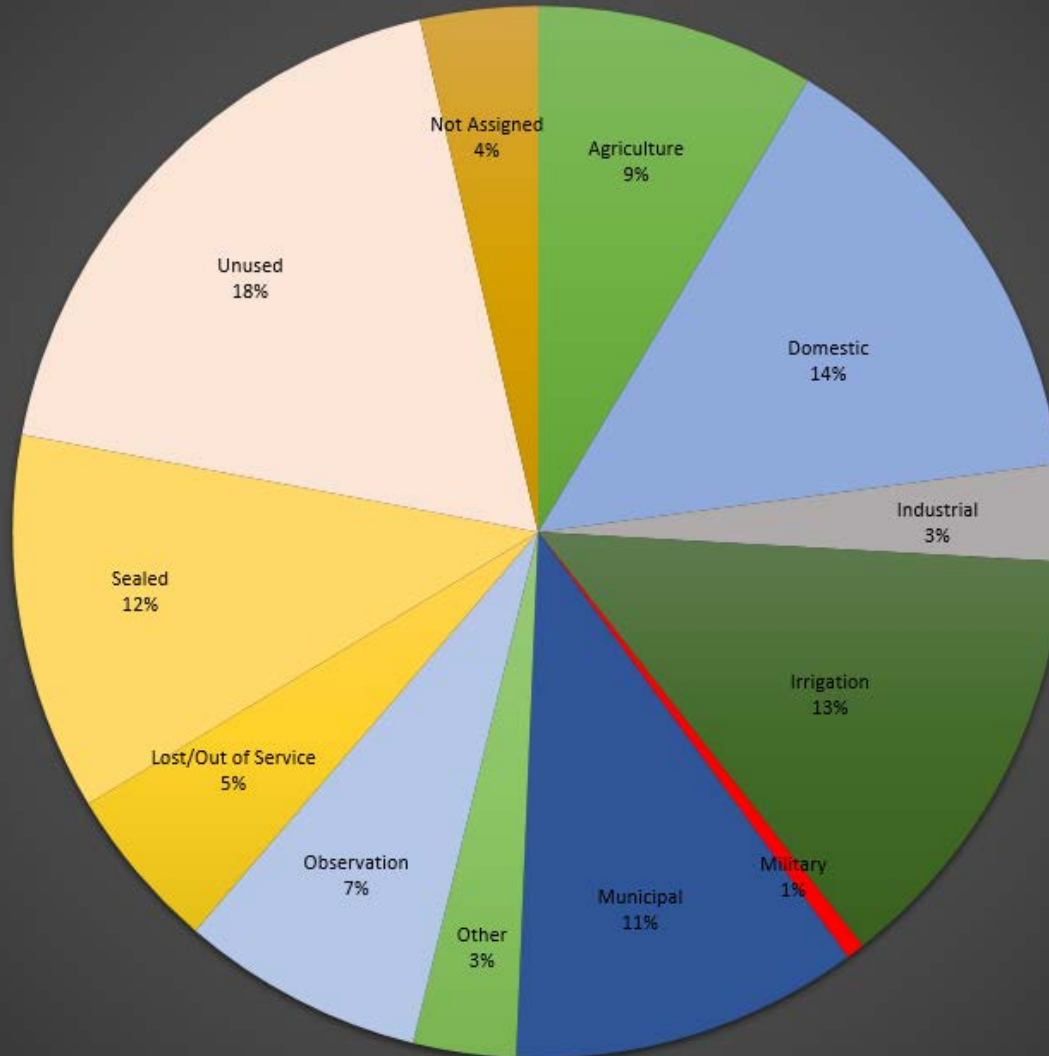
Ground Water Use Reporting Outreach Program

Success evaluation- How are we doing?

- The number of production wells reporting statewide increased from 27% in 2008 to 53% in 2019. Therefore, the Outreach Program has effectively doubled the percentage of production wells reporting statewide.

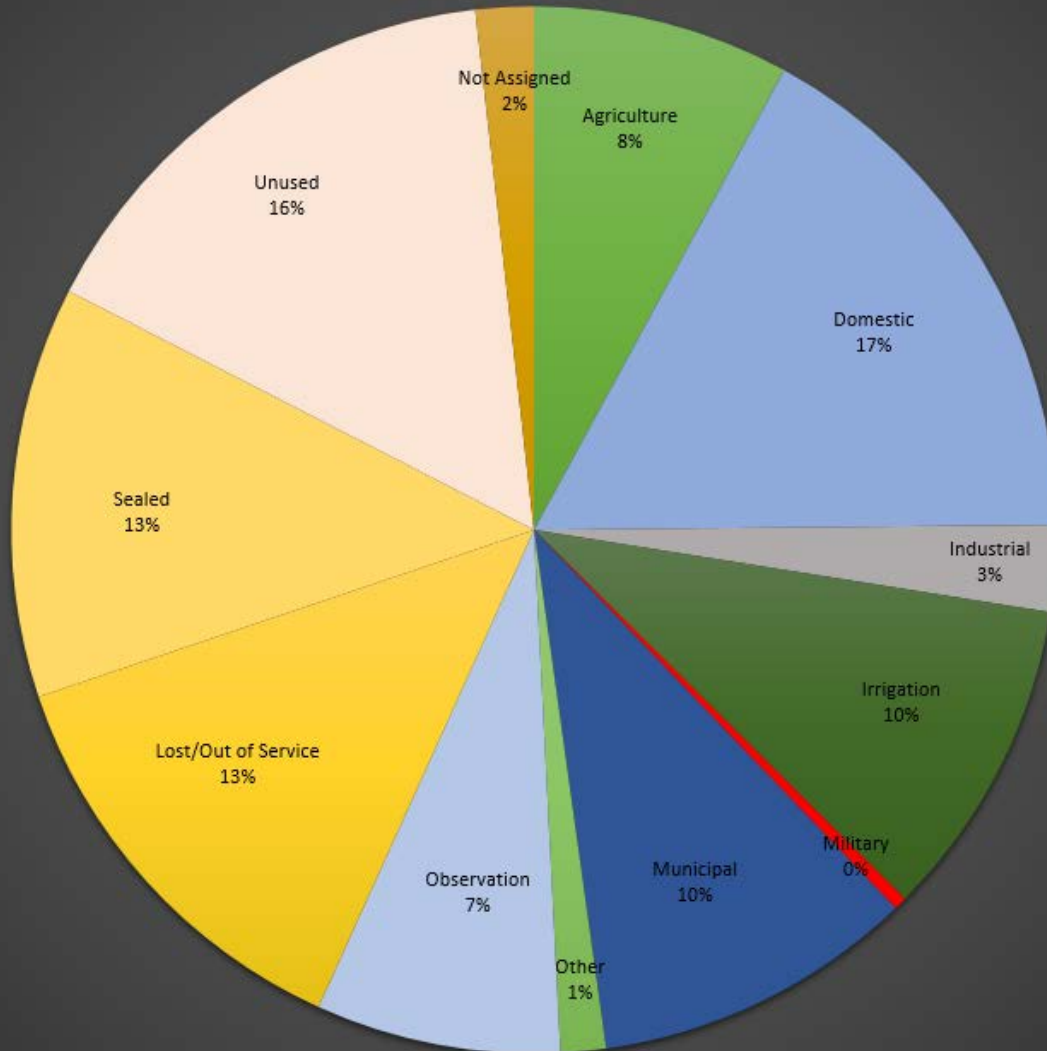
Ground Water Use Reporting Outreach Program

2014 Pre Outreach Program Statewide Usage Code Percentages



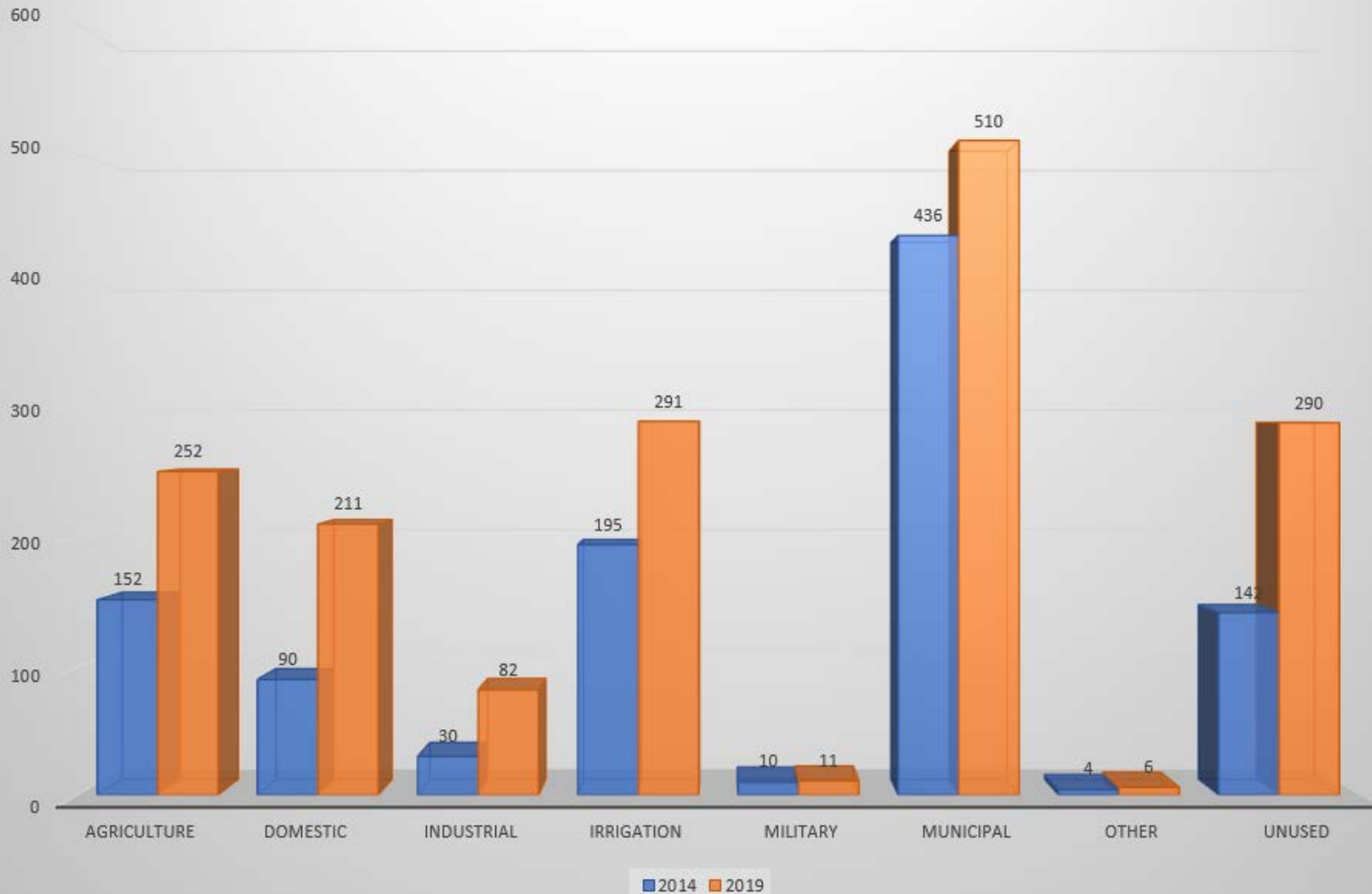
Ground Water Use Reporting Outreach Program

Current Statewide Usage Code Percentages



Ground Water Use Reporting Outreach Program

Change in Number of Water Use Reporters
From Pre-Outreach Program (2014) to Current (2019)



Ground Water Use Reporting Outreach Program

Success evaluation- How are we doing?

- 235% overall increase in number of production wells reporting in GWMA and Maui (373 in 2008, 876 in 2019).
- Confirmed general type of use occurring, which should be the case in GWMA since GWUPS required.
- More than doubling (244 to 691) of confirmed abandonment candidates. Good news - no pumpage impacts. Bad news - risks to the resource from contamination increased.

Ground Water Use Reporting Outreach Program

Success evaluation- How are we doing?

- 119 wells/owners did not respond, or denied contractor access to the well or site.
 - Next Steps – Enforcement in GWMA only? All who've been contacted? We need to finalize penalty and enforcement policy/rules.

- We're still a long way from our compliance goals, but the increased usage information, and the increase in reporting compliance using this system is very encouraging.
 - Next Steps – Waianae & Big Island
 - Seeking legislative approval for 2 new staff positions to focus on well abandonment.
 - Chloride, water level, & temperature reporting compliance.



Ke Kahawai Pono

"The trustee who oversees the rightful sharing of water."

<https://dlnr.hawaii.gov/cwrm/>

