

MICHAEL P. VICTORINO
Mayor

HELENE KAU
Director

SHAYNE R. AGAWA, P.E.
Deputy Director



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

June 22, 2022

Honorable Michael P. Victorino
Mayor, County of Maui
200 South High Street
Wailuku, Hawaii 96793

APPROVED FOR TRANSMITTAL

For Transmittal to:

for Mayor  6/23/22
Date

Shane M. Sinenci, Chair
Agriculture and Public Trust Committee
200 South High Street
Wailuku, Hawaii 96793

Dear Chair Sinenci,

SUBJECT: **BILL 79 (2022), EXEMPTIONS FROM AGRICULTURAL WATER CONSUMERS FROM RESTRICTIONS OR MANDATES DURING WATER SHORTAGES** (APT-60)

Thank you for your letter dated June 8, 2022 with regards to the above-entitled matter. Following are my responses to your questions:

1. You mentioned during the meeting that “ag use Upcountry is 84 percent of the use in that area.” Please explain and provide any relevant data. Please also include data on:

(a) Total Upcountry water capacity and demand?

Response:

See Attachments 2 and 3.

(b) Upcountry ag water use in total and broken down by (1) well use and surface water use?

Response:

See Attachments 4, 5-7.

“By Water All Things Find Life”

(c) Upcountry ag water use by geographical area?

Response:
See Attachment 3.

(d) Percentage of Upcountry water demand attributed to ag use?

Response:
See Attachment 1.

(e) Total East Maui stream water use?

Response:
About 2,400,000,000 gallons per year.

2. What are the Department's plans to address additional water source needs in East Maui and Upcountry?

Response:
Strategies to meet additional demand on the DWS Upcountry System were adopted in the Maui Island Water Use and Development Plan (WUDP). The plan guides DWS source development plans as follows:

- Exploration of new well development in Makawao aquifer.
- Exploration of well development in Haiku aquifer, in compliance with the East Maui Consent Decree and subject to a hydrologic study and cost benefit analysis, currently under contract.

Additional strategies that address new and reliable source for the Upcountry system include:

- Execute a long term source agreement for use and maintenance of the Wailoa Ditch to ensure adequate potable supply for the Upcountry System and non potable supply for the Kula Agricultural Park.
- Update Wailoa ditch flow analysis to optimize raw water storage and Kamole Weir treatment plant capacity.

3. Please provide an update on the development of the Po'okela back up well and the Kealaloa exploratory well.

Response:
Pookela well is 50 percent complete with a contract completion date of 12/30/2022. A water shortage Upcountry due to drought or other reasons will likely impact project completion.

4. What is the approximate cost to provide well water to Upcountry users for 30 days?

Response:

About \$106,000 per month.

5. Are golf courses subject to the same restrictions during water shortages as agricultural water consumers? If not, please describe the differences.

Response:

No. Golf courses would not be afforded the 90-day grace period.

6. What actions did the Department take to address the water shortage declared from July [2012] 2021 through October 2021?

Response:

June 25, 2021: Issued Notification of Declaration of Stage 1 Water Shortage.

June 25, 2021 – October 22, 2021: Weekly notices published in Maui News on: 6/25/21, 7/2/21, 7/9/21, 7/16/21, 7/23/21, 7/30/21, 8/6/21, 8/13/21, 8/20/21, 8/27/21, 9/3/21, 9/10/21, 9/17/21, 9/24/21, 10/1/21, 10/8/21, 10/15/21, 10/22/21.

June-September 2021: Department launched the Summer Water Conservation Campaign “Don’t Waste a Drop”. A series of Public Service Announcements, and community outreach events in an effort to inform the public about the importance of water conservation with free giveaways to include high efficiency faucets/shower heads etc.

July 2, 2021: Stage 1 Water Shortage Declaration went into effect.

July-October 2021: Issued Notice of Violation Tags to residences reported to be in violation of Maui County Code Subsection 14.06A.060B “When a water shortage is declared, the director may...prohibit the use of water for... Irrigation, Lawns, Personal Washing of Vehicles, Other Nonessential Activities”. The courtesy notice was used to inform consumers of a reported prohibited use of water.

September 24, 2021: Agricultural customers are subject to the same restrictions and mandates as other water customers.
October 22, 2021 Stage 1 Water Shortage ended.

7. Does the Department have recommendations for agricultural water consumers to help prepare for water shortages?

Response:

Conservation measures that apply to agricultural water consumers include:

- Refer to Maui County's Landscape and Gardening Handbook for soil preparation, mulching, and irrigation techniques available on our website: <https://waterresources.mauicounty.gov/153/Water-Conservation>.
 - Adapt to climate appropriate crops.
 - Water late early in the morning or late in the day.
 - Consider using smart controllers such as soil moisture sensors and ET controllers to reduce water losses.
 - Seek technical assistance for water conservation from Maui County's Soil and Water Conservation Districts: <http://www.mauicountysoilandwater.org/conservation-planning>.
8. Does the Department have a Water Conservation Plan to limit or restrict non-agricultural water use prior to and during drought conditions? If so, please provide a written copy or details.

Response:

The Department in running conservation ads (newspaper and radio) from June through at least August, 2022.

9. Has the Department considered or applied for Federal grants to develop reservoirs? If so, what is the status of the applications?

Response:

No

10. Has the Department contacted private well owners to discuss possible water sharing?

Response:

DWS collaborates with private water purveyors as contingency in certain areas, such as Kapalua Water Company in West Maui and Department of Hawaiian Homelands in Kualapu`u, Molokai. System cross connections are subject to Department of Health regulations and approval.

11. Will water continue to be available to Mahi Pono if or when the Upcountry water supply is exhausted?

Response:

If the Upcountry water supply were to be exhausted, it is unlikely that Mahi Pono would have water.

Shane M. Sinenci, Chair
Agriculture and Public Trust Committee
June 22, 2022
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If you have additional questions, please do not hesitate to contact me.

Sincerely,


HELENE KAU
DIRECTOR

HK:kk
Attachments

Gen	In Thousands of Gallons			Total Consumption	In Thousands of Gallons		
	FY19	FY20	FY21		FY19	FY20	FY21
Wailuku	3,971,191	3,927,560	3,626,835	4,204,441	4,184,277	3,801,293	
Makawao	160,093	182,655	169,219	876,236	947,816	1,048,534	
Lahaina	1,218,684	1,219,272	1,057,935	1,239,177	1,241,296	1,081,669	
Molokai	60,207	59,544	65,422	64,134	68,131	77,801	
Hana	14,133	21,076	20,519	20,559	27,453	29,301	
Ag				%AG			
Wailuku	233,250	256,717	174,458	6%	6%	5%	
Makawao	716,143	765,161	879,315	82%	81%	84%	
Lahaina	20,493	22,024	23,734	2%	2%	2%	
Molokai	3,927	8,587	12,379	6%	13%	16%	
Hana	6,426	6,377	8,782	31%	23%	30%	

DEPARTMENT OF WATER SUPPLY – FY 2021 ANNUAL REPORT

COMPARISON OF WATER CONSUMPTION AND SALES BY DISTRICT TWELVE MONTHS ENDED JUNE 30, 2021 OVER 2020

BY DISTRICT	Services			Consumption (1,000 Gallons)			Revenues		
	2020	2021	Increase (Decrease)	2020	2021	Increase (Decrease)	2020	2021	Increase (Decrease)
Wailuku District									
Wailuku	6,635	6,618	(17)	1,406,529	1,470,160	64,631	8,366,746	8,683,151	317,405
Waihee	202	199	(3)	21,605	23,626	2,021	132,242	146,328	13,086
Waikapu	973	970	(3)	128,374	137,805	9,431	701,813	743,276	41,463
Wailuku Heights	498	497	(1)	67,167	71,878	4,711	373,763	380,318	6,555
Kahulul	5,342	5,342	0	1,601,186	1,492,470	(8,716)	8,681,190	8,607,853	(73,337)
Puunone	12	12	0	4,923	3,365	(1,558)	31,074	22,364	(8,710)
Kihei	6,048	6,038	(10)	3,966,657	3,705,842	(260,815)	22,070,836	21,000,018	(1,070,818)
Maalea	45	45	0	96,308	75,041	(20,267)	678,000	460,961	(117,039)
Makona	203	206	2	242,687	246,954	4,267	1,447,060	1,468,741	11,682
Paia-Kuau	914	906	(9)	145,897	140,767	(5,130)	836,637	804,666	(31,981)
Spreckelsville	206	202	(4)	74,069	79,365	5,316	423,068	448,538	25,471
Subtotal	21,078	21,033	(45)	7,652,402	7,447,293	(205,109)	43,641,416	42,756,203	(886,213)
Makawao District									
Kokomo-Kaupakalua	1,161	1,162	1	170,476	184,876	14,400	943,097	1,017,651	74,554
Kuiaha	306	306	0	48,412	53,881	5,469	248,976	277,211	28,236
Haiku-Pauwela	858	862	4	121,246	132,467	11,222	664,008	720,686	56,677
Makawao	2,020	2,028	8	281,899	301,919	20,020	1,665,377	1,668,470	101,094
Pukalani	2,143	2,141	(2)	321,736	333,060	11,316	1,786,271	1,840,122	53,852
Hallimalls	200	200	0	33,704	32,262	(1,442)	183,963	173,972	(9,991)
Upper Kula	2,352	2,349	(3)	441,641	482,136	40,496	2,161,790	2,316,817	165,027
Lower Kula	1,127	1,126	(2)	656,742	764,109	97,367	2,113,040	2,249,646	136,606
Ulupalakua-Kanaio	81	81	0	60,067	62,693	(7,364)	145,266	142,788	(2,478)
Kula Ag Park	39	38	(1)	131,156	145,821	14,666	172,722	188,872	16,150
Subtotal	10,287	10,292	5	2,267,066	2,473,214	206,149	9,974,608	10,594,134	619,626
Lahaina District									
Lahaina	2,186	2,184	(2)	848,277	802,141	(46,136)	4,917,264	4,644,944	(272,320)
Honokowai	462	448	(14)	489,974	429,683	(60,291)	2,913,407	2,567,811	(345,596)
Alafoa	806	807	2	520,146	477,963	(42,183)	3,061,292	2,809,458	(241,834)
Honokohau	13	13	0	1,116	1,209	93	7,231	7,690	458
Subtotal	3,466	3,452	(14)	1,859,514	1,710,996	(148,518)	10,889,194	10,029,903	(869,291)
Molokai District									
Kawela-Kaunakakai	1,179	1,183	4	196,310	196,606	296	1,166,652	1,161,970	(3,682)
Ualapue/Kamalo	396	399	3	60,814	64,413	3,599	366,720	362,016	(4,704)
Kalae	114	114	0	8,696	8,101	(495)	66,009	62,067	(3,942)
Halawa	6	6	0	0	0	0	0	0	0
Subtotal	1,695	1,702	7	264,721	268,120	3,399	1,666,381	1,586,042	(339)
Hana District									
Hana	408	408	0	67,550	68,981	1,431	348,429	347,496	(933)
Nahiku	38	38	0	3,834	3,063	(771)	26,463	20,136	(6,327)
Keanae	86	86	0	7,190	6,366	(824)	48,829	43,707	(5,122)
Kaupo	21	21	0	2,076	2,678	602	6,486	7,028	542
Subtotal	553	553	0	70,650	71,088	438	429,206	418,367	(10,840)
Total ALL DISTRICTS	37,069	37,032	(37)	12,114,362	11,970,711	(143,641)	66,600,706	65,363,649	(1,137,066)

Attachment 2

DEPARTMENT OF WATER SUPPLY – FY 2021 ANNUAL REPORT

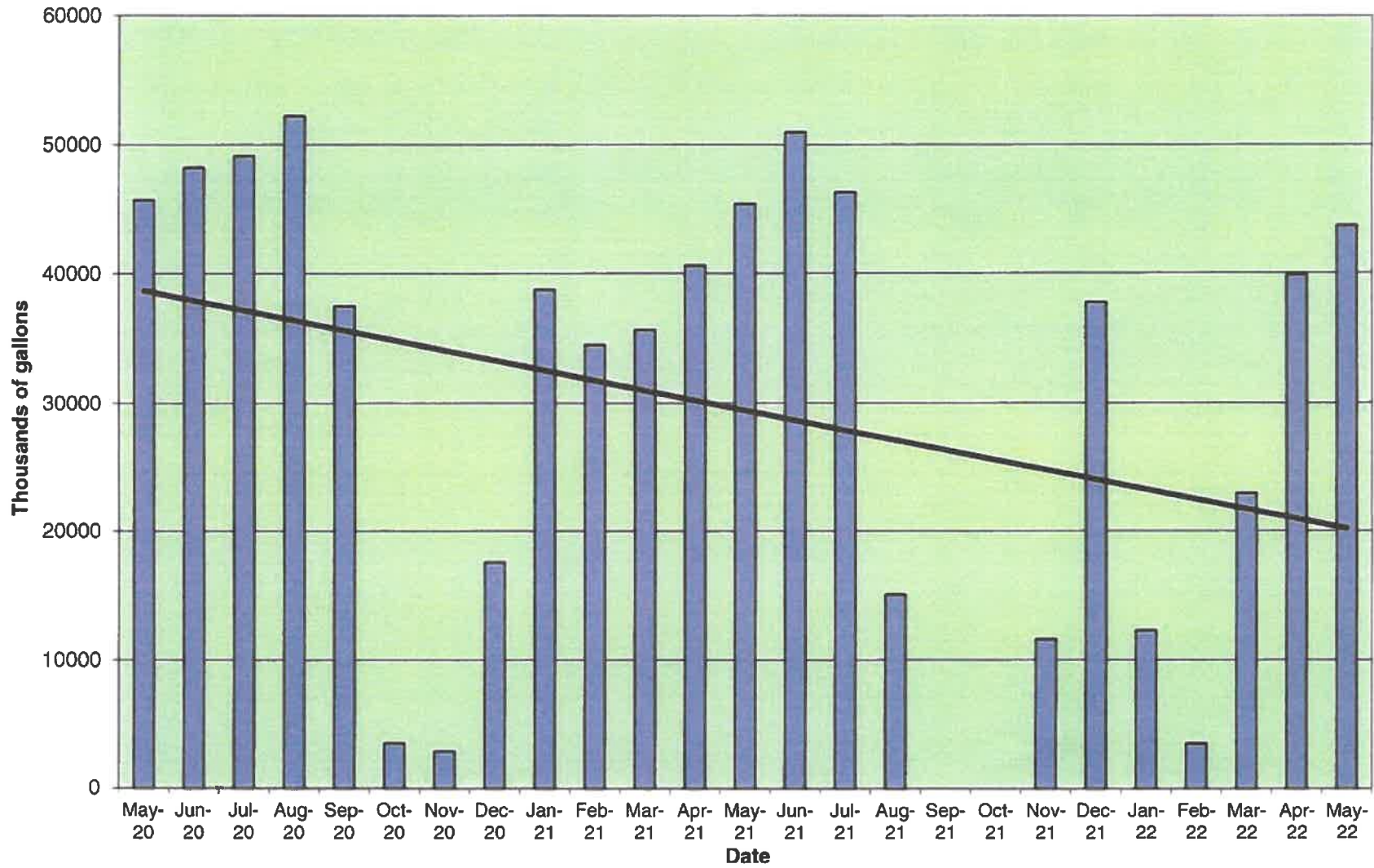
**Dept. of Water Supply, County of Maui
Consumption By District
General & Agricultural in Thousands of Gallons**

General	Total	Wailuku	Makawao	Kula	Lahaina	Molokai	Hana
July	976,482.0	627,306.0	97,967.0	58,471.0	160,415.0	27,122.0	5,201.0
August	938,772.0	640,361.0	95,245.0	59,965.0	116,984.0	20,524.0	5,693.0
September	986,978.0	658,892.0	95,649.0	59,008.0	140,872.0	26,932.0	5,625.0
October	922,265.0	612,717.0	85,396.0	48,434.0	151,080.0	19,873.0	4,765.0
November	949,736.0	645,307.0	93,384.0	46,371.0	144,102.0	16,349.0	4,223.0
December	816,778.0	548,025.0	66,695.0	47,566.0	127,064.0	22,620.0	4,808.0
Subtotal	5,591,011.0	3,732,608.0	534,336.0	319,815.0	840,517.0	133,420.0	30,315.0
January	945,627.0	635,630.0	83,317.0	48,441.0	156,205.0	18,432.0	3,602.0
February	738,889.0	505,140.0	63,171.0	44,340.0	119,407.0	2,641.0	4,190.0
March	754,064.0	488,891.0	63,909.0	36,783.0	123,901.0	35,360.0	5,220.0
April	913,013.0	610,179.0	73,270.0	51,434.0	150,403.0	21,381.0	6,346.0
May	891,090.0	613,577.0	76,397.0	50,022.0	145,163.0	267.0	5,664.0
June	1,038,349.0	686,810.0	85,077.0	63,587.0	151,666.0	44,240.0	6,969.0
Subtotal	5,281,032.0	3,540,227.0	445,141.0	294,607.0	846,745.0	122,321.0	31,991.0
Total General	10,872,043.00	7,272,835.0	979,477.0	614,422.0	1,687,262.0	255,741.0	62,306.0
AGRICULTURAL							
July	105,072.0	18,879.0	6,506.0	74,452.0	2,417.0	2,136.0	682.0
August	97,999.0	16,932.0	5,609.0	71,058.0	2,595.0	1,417.0	388.0
September	103,632.0	18,758.0	6,290.0	74,071.0	2,452.0	1,331.0	730.0
October	88,766.0	16,101.0	5,251.0	62,961.0	2,666.0	984.0	803.0
November	86,053.0	16,353.0	6,637.0	59,390.0	2,402.0	572.0	699.0
December	83,366.0	16,009.0	3,601.0	60,609.0	1,502.0	754.0	891.0
Subtotal	564,888.0	103,032.0	33,894.0	402,541.0	14,034.0	7,194.0	4,193.0
January	81,503.0	18,468.0	4,333.0	54,965.0	2,417.0	450.0	870.0
February	61,315.0	9,684.0	3,181.0	46,299.0	1,270.0	8.0	873.0
March	57,910.0	12,177.0	3,395.0	39,028.0	1,195.0	1,048.0	1,067.0
April	81,191.0	9,275.0	4,165.0	65,076.0	1,125.0	848.0	702.0
May	86,110.0	14,033.0	4,488.0	65,375.0	1,642.0	-	572.0
June	165,751.0	7,789.0	5,522.0	147,053.0	2,051.0	2,831.0	505.0
Subtotal	533,780.0	71,426.0	25,084.0	417,796.0	9,700.0	5,185.0	4,589.0
Total Agricultural	1,098,668.0	174,458.0	58,978.0	820,337.0	23,734.0	12,379.0	8,782.0
Grand Total	11,970,711.0	7,447,293.0	1,038,455.0	1,434,759.0	1,710,996.0	268,120.0	71,088.0

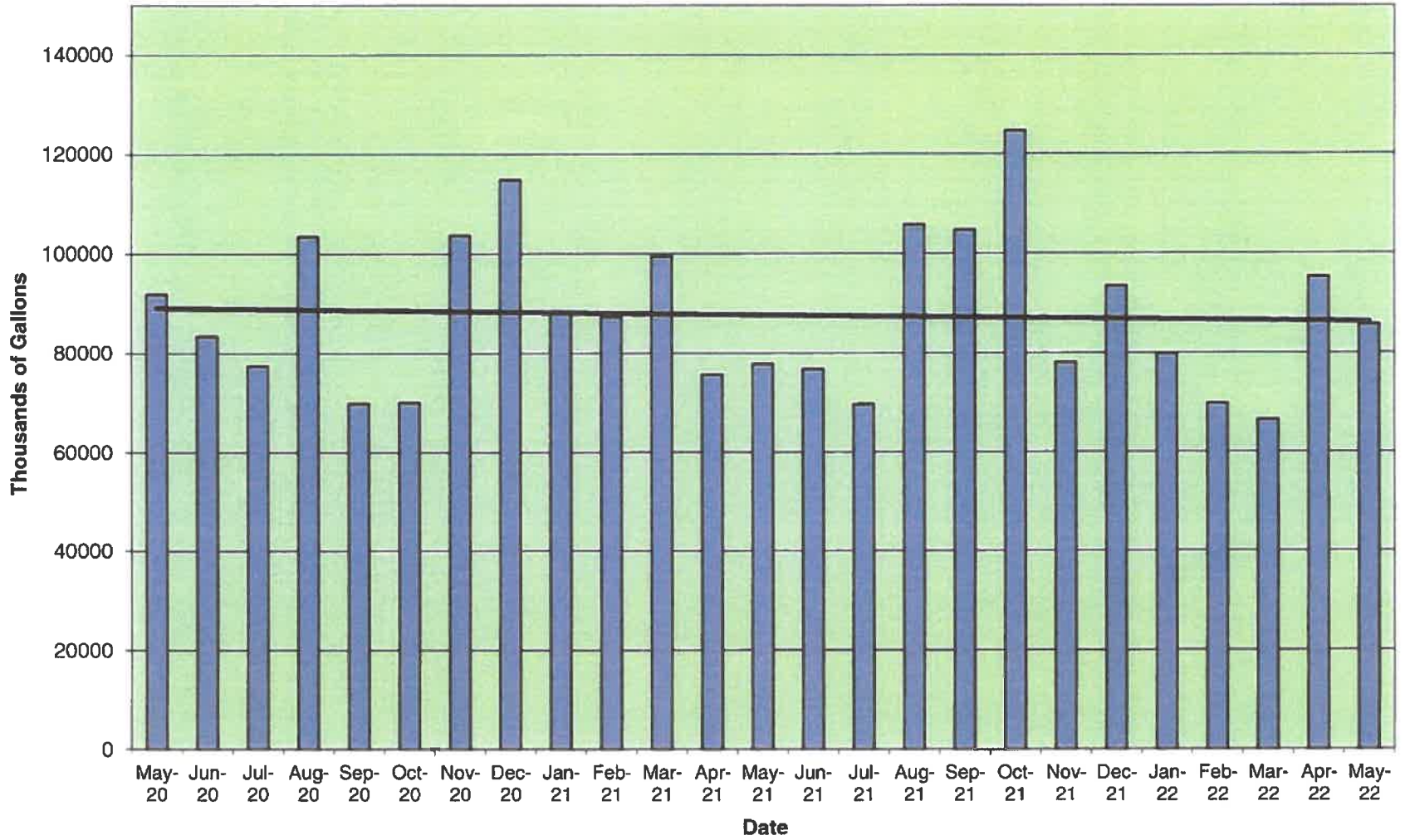
**County of Maui
Dept. of Water Supply
Monthly Source Reports
(Gals X 1000)**

WELL NAME	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Current Year	Last 12 Months
<i>Central</i>														
Mokuhau 501	18,671	11,108	14,228	15,793	10,743	995	100	0	1,031	14,891	12,056	12,297	40,274	111,912
Mokuhau 503	77,789	90,485	74,183	57,698	76,575	72,090	66,871	90,253	73,445	74,548	95,936	77,789	411,971	927,662
Waihee 577	52,889	60,631	67,021	74,522	74,715	70,213	68,779	70,798	61,754	75,830	77,048	79,481	364,911	833,681
Waihee 578	59,924	61,793	71,811	73,674	72,529	69,390	34,539	45,283	54,422	78,344	76,903	71,408	326,360	770,020
Waihee 579	120,276	122,846	115,585	74,349	72,357	74,466	62,722	68,112	69,465	70,202	71,457	69,200	348,436	991,037
Waiehu Hts 514	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waiehu Hts 515	44,486	43,113	42,861	42,247	42,221	40,662	37,347	40,059	37,408	41,201	40,971	46,054	205,693	498,630
Iao	51,523	33,150	17,907	39,419	17,417	51,740	18,645	30,837	47,350	17,015	33,859	56,861	185,922	415,723
Waikapu	36,268	37,242	35,545	40,643	40,531	36,146	31,699	36,597	37,340	37,259	32,578	33,165	176,938	435,012
Wailuku 1	42,290	34,441	46,442	22,683	51,467	22,489	59,817	16,590	7,547	48,846	50,815	13,473	137,271	416,900
Wailuku 2	416	24,123	32,859	24,407	8,670	4,844	247	169	1,507	109	175	1,727	3,687	99,253
DAILY AVERAGE	16,818	16,740	16,724	15,515	15,072	14,768	12,283	12,861	13,974	14,782	16,393	14,886	14,579	15,068
Kepaniwai 511	19,114	19,865	19,636	19,144	19,636	19,224	19,860	6,107	9,034	22,320	21,600	22,270	81,331	217,810
Iao Tunnel	30,902	32,450	33,289	32,255	33,289	32,679	26,895	32,918	42,722	49,462	47,699	49,595	222,396	444,155
DAILY AVERAGE	1,667	1,688	1,707	1,713	1,707	1,730	1,508	1,259	1,848	2,316	2,310	2,318	2,011	1,814
N. Waihee #1	47,203	49,039	17,730	15,654	17,730	15,766	11,508	12,327	12,938	13,368	13,539	13,652	65,825	240,455
N. Waihee #2	231	423	14,843	13,247	14,843	13,771	12,937	15,917	14,457	15,708	14,891	16,175	77,148	147,443
Kanoa #1	52,837	54,774	32,703	30,184	32,703	28,933	27,798	30,791	27,506	31,083	29,211	31,936	150,528	410,260
Kanoa #2	252	377	26,454	26,611	26,454	27,866	25,822	27,553	24,305	27,352	27,375	27,702	134,287	268,123
Kupaa	49,148	49,850	49,635	48,123	49,635	48,109	47,645	48,726	44,201	50,727	45,464	50,327	239,444	581,589
DAILY AVERAGE	4,982	4,983	4,560	4,461	4,560	4,459	4,055	4,407	4,459	4,459	4,349	4,509	4,419	4,515
Maui Lani #5	86	459	46	408	4,243	4,760	5,053	4,627	4,426	5,052	5,080	4,931	24,116	39,171
Maui Lani #6	10,592	11,685	22,320	21,321	10,390	9,470	9,256	9,209	8,394	9,293	8,993	9,293	45,182	140,216
Maui Lani #7	15,950	15,701	10,821	10,581	14,566	15,894	16,507	15,988	14,868	16,513	15,929	16,448	79,747	179,767
DAILY AVERAGE	888	898	1,071	1,077	942	1,004	994	962	989	995	1,000	989	987	984
<i>UpCountry</i>														
Haiku	12,377	13,681	13,887	13,178	1,039	0	0	0	0	0	0	0	0	54,162
H' Poko #1	3,801	6,034	0	0	0	0	0	0	5,543	10,998	115	0	16,657	26,492
H' Poko #2	2,478	4,565	0	0	0	0	0	0	6,362	7,597	0	0	13,960	21,003
Kaupakalua	20,022	18,465	17,506	17,218	16,813	17,664	16,394	17,102	16,600	19,365	15,566	17,133	85,766	209,848
Pookela	6,638	23,812	4,893	174	7,357	26,800	7,639	20,601	34,058	38,202	3,105	7,897	103,862	181,175
DAILY AVERAGE	1,511	2,147	1,171	1,019	813	1,482	775	1,216	2,234	2,457	626	807	1,459	1,350
<i>Lahaina</i>														
Kanaha 575	5,794	5,697	7,867	5,256	2,863	3,773	2,060	1,343	4,892	9,277	5,233	5,511	26,256	59,566
Kanaha 576	9,385	8,735	8,467	3,062	3,485	3,631	1,235	754	1,979	6,866	1,616	4,443	15,658	53,658
Waipuka 559	9,235	7,840	10,303	9,549	9,192	7,866	3,511	2,790	3,943	6,448	7,571	6,672	27,424	84,920
Waipuka 560	6,466	10,195	10,126	8,434	6,495	5,463	1,101	625	5,406	11,427	7,151	7,675	32,284	80,564
Napili A 569	1,858	1,482	542	265	392	1,071	144	83	309	20,766	2,319	2,103	25,560	31,334
Napili B 570	16,971	15,820	14,367	25,523	24,046	21,917	18,217	19,448	21,897	25,536	13,624	15,077	95,582	232,443
Napili C 571	41,068	43,649	43,711	9,073	5,169	11,339	8,677	6,739	2,449	5,105	17,925	21,761	53,979	216,665
Honokahua A 572	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Honokahua B 573	21,685	31,230	29,716	28,960	28,904	22,613	19,368	20,724	23,691	26,905	9,016	10,997	91,333	273,809
DAILY AVERAGE	3,749	4,021	4,035	3,004	2,598	2,589	1,752	1,694	2,306	3,624	2,149	2,395	2,438	2,830
<i>Hana</i>														
Hamoia 597	1,186	4,419	2,380	6,323	2,184	6,132	4,238	864	3,597	4,695	1,753	3,419	14,328	41,190
Hamoia #2	229	4,428	5,895	774	4,918	1,758	3,158	6,492	5,149	3,389	5,657	3,368	24,055	45,215
Keanae #1	1,222	124	741	519	650	219	722	72	657	668	220	504	2,120	6,317
Keanae #2	626	1,011	438	575	544	829	0	814	168	299	590	548	2,419	6,442
Wakui 550 B	1,131	1,308	1,106	1,921	2,196	926	3,291	2,522	2,695	2,096	382	1,608	9,303	21,182
Wakui C	2,900	2,540	2,347	1,228	1,059	2,451	116	1,157	761	1,564	3,284	2,569	9,335	21,976
DAILY AVERAGE	243	446	416	378	373	411	372	385	465	410	396	388	408	390
<i>Molokai</i>														
Kawela 551	9,662	1,737	1,560	7,016	9,430	395	0	13	6,028	1,915	0	0	7,955	37,755
Kawela 552	4	5,255	3,034	3	9	7,490	9,310	9,327	2,565	2,999	4,161	4,078	23,130	48,235
Ualapue 553	2,251	3,619	1,819	2,238	4,331	2,124	3,257	3,373	2,993	3,530	3,575	3,839	17,310	36,949
Ualapue 554	5,843	3,831	5,086	3,793	2,117	4,167	1,592	1,965	2,672	4,000	3,151	3,951	15,739	42,168
Kualapue	13,622	16,669	17,782	13,534	12,395	12,527	8,425	7,970	8,803	14,450	15,766	17,302	64,291	159,245
Waikalae Tunnel	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAILY AVERAGE	1,046	1,004	945	886	912	890	729	731	824	868	888	941	850	889

Olinda WTF 2yr Monthly Production



Pi'iholo WTF 2 yr Monthly Production



Kamole WTF 2 yr Production

