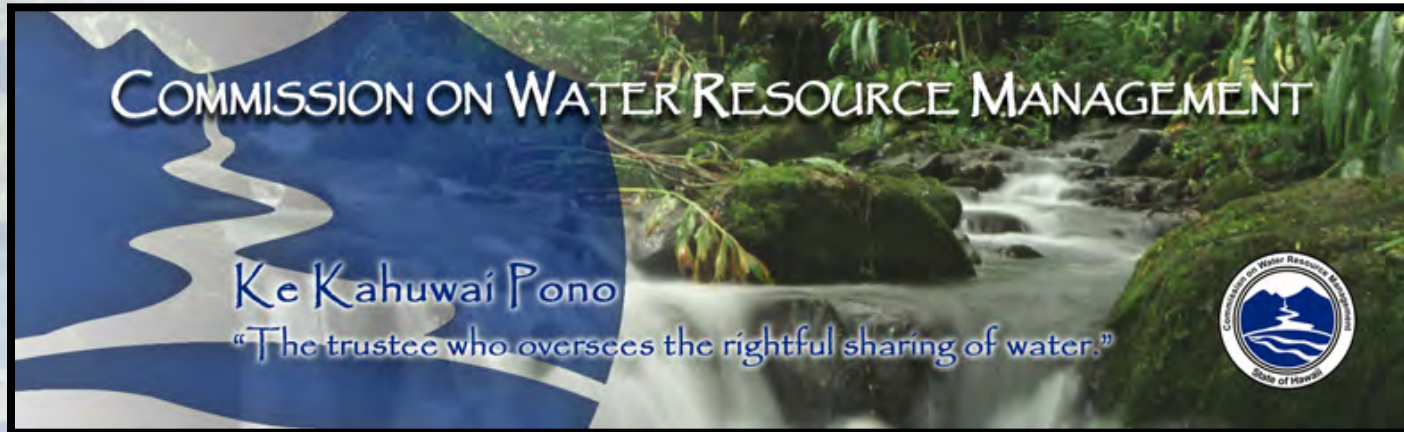


# Informational Briefing:

## Existing Water Systems and Uses Related to the Honokōhau, Honolua, and Honokōwai Streams, West Maui

*Ayron M. Strauch, In-Stream Use Protection Section*



# West Maui Timeline

- 2010-2013 USGS/CWRM fieldwork
- 2014 USGS Study Published
- 2015 CWRM begins instream values fieldwork

## **Phase I:** Ukumehame, Olowalu, Launiupoko, Kau'aula streams

Mar 2018 Interim IFS submittal to Commission

## **Kahoma Phase:** Kahoma, Kanahā streams

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## **Phase III:** Honokōwai, Honolua, Honōkohau streams

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July 2019 DRAFT IFSAR completed and available online

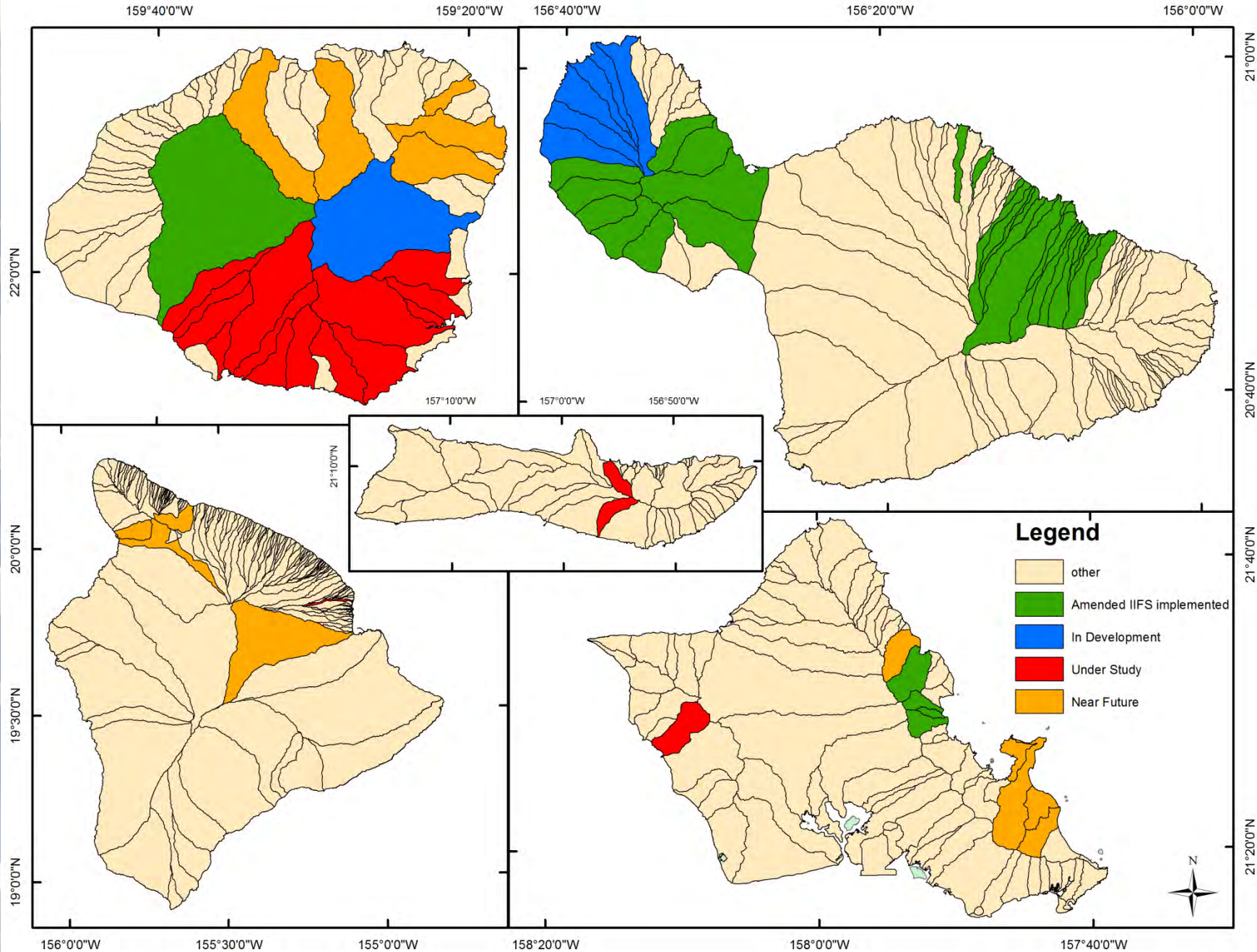
→ Open for public comment until Oct 9, 2019

Aug 2019 West Maui Surface Water Users Meeting

Sep 9, 2019 Public fact-gathering meeting

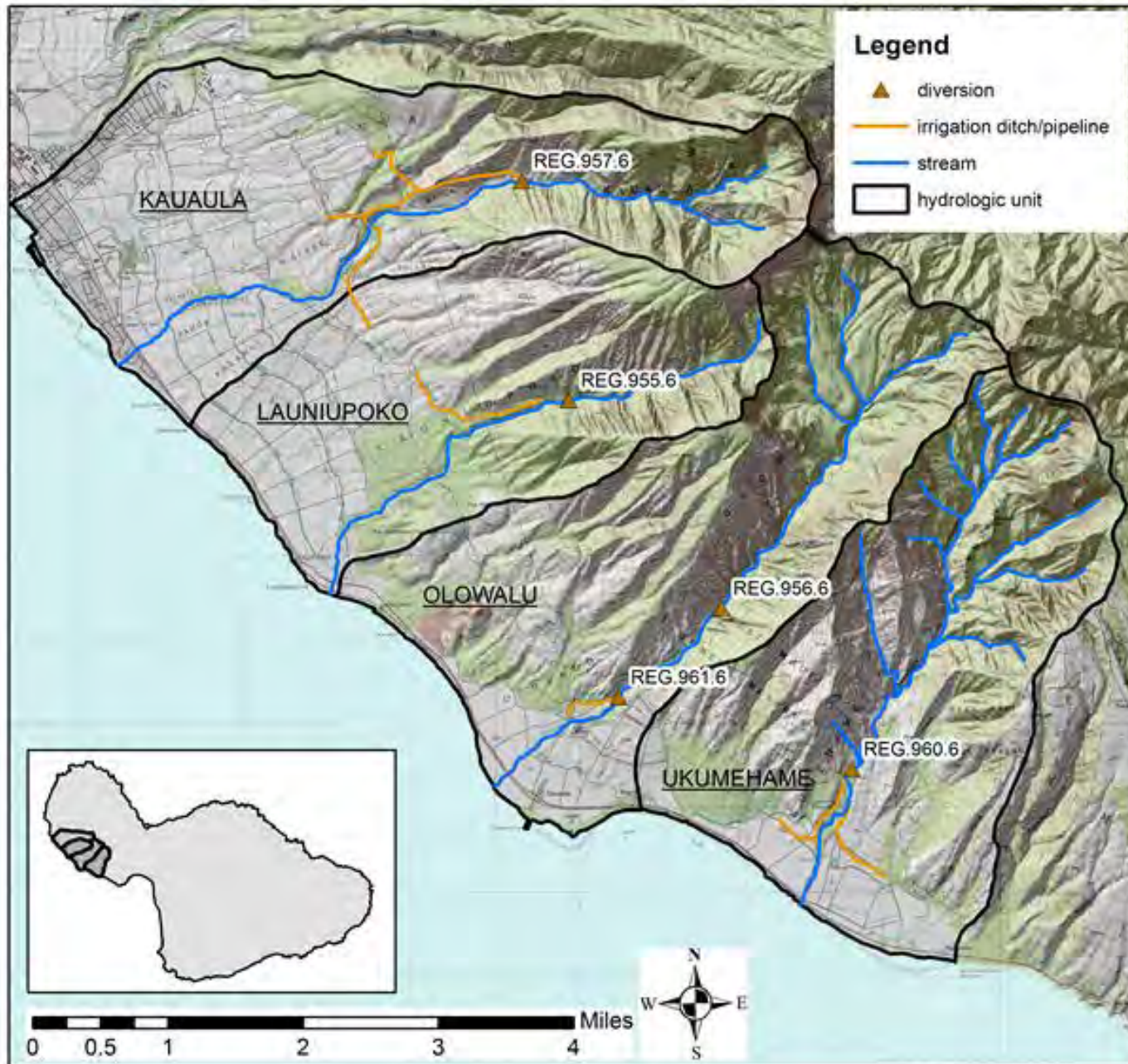
Lahaina Civic Center Main Hall 5:30-7:30 pm

# Statewide IIFS Priority Areas



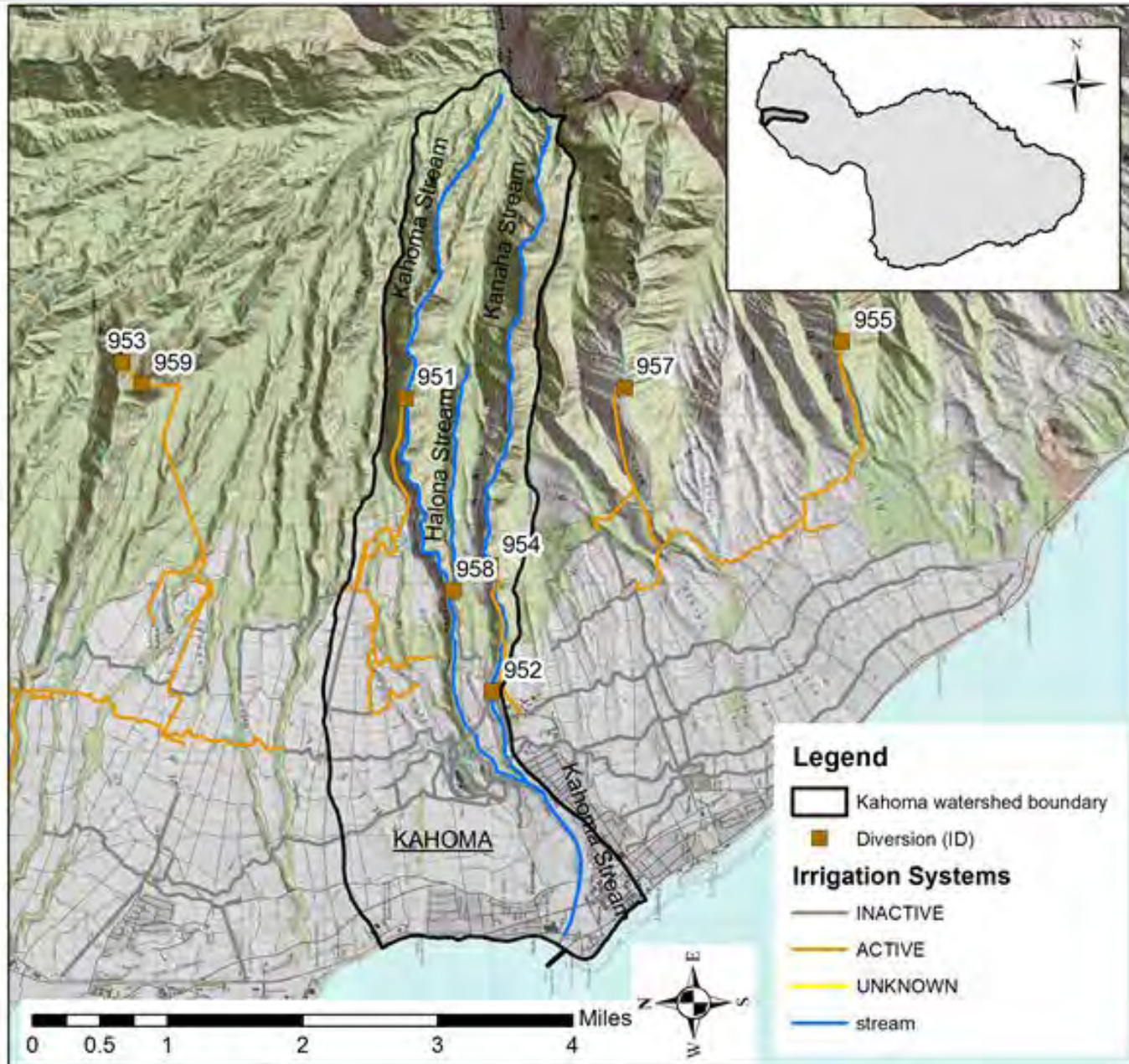


# West Maui IFS: Phase I



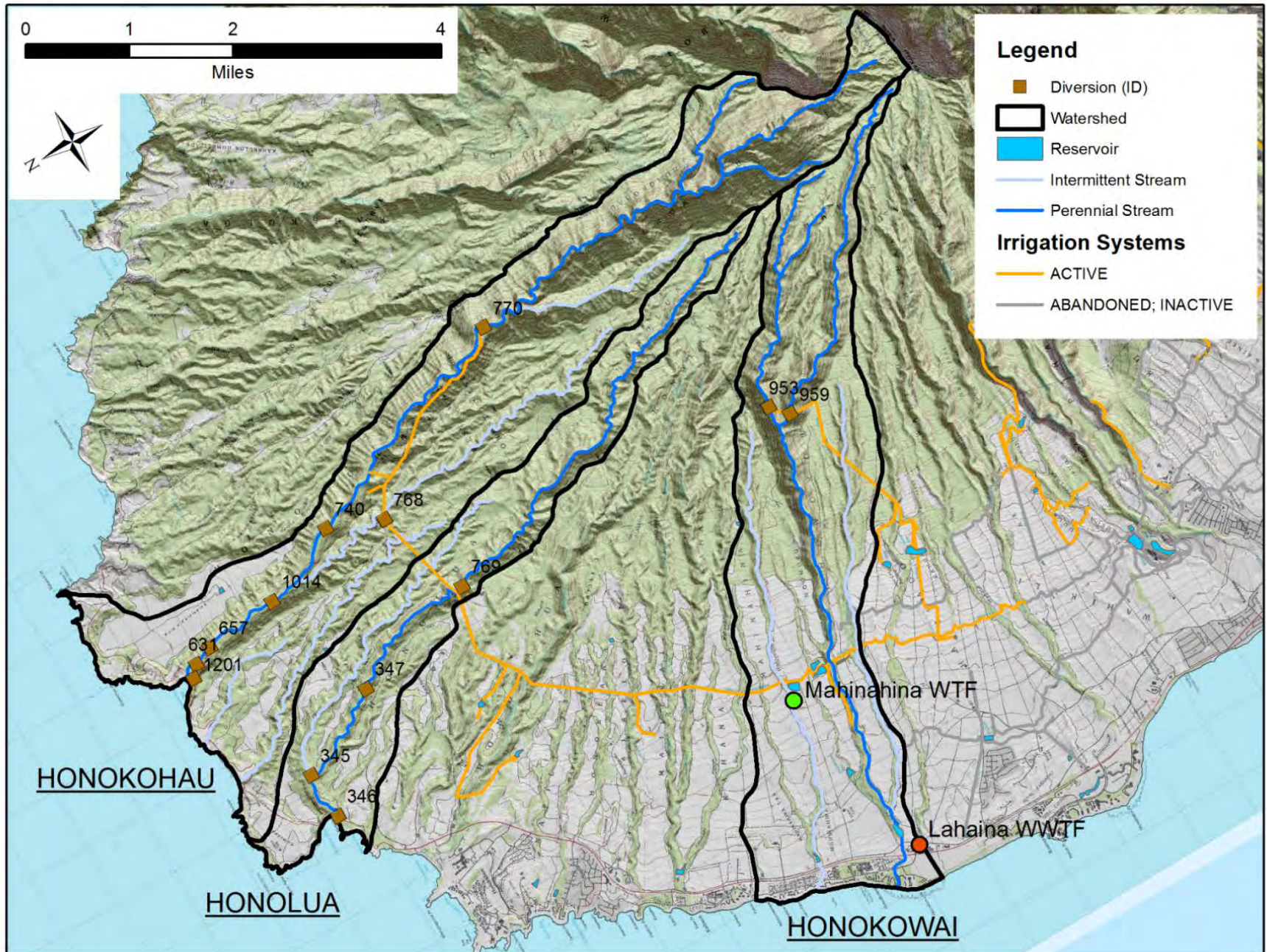


# West Maui IIFS: Kahoma Phase





# West Maui IIFS: Phase III

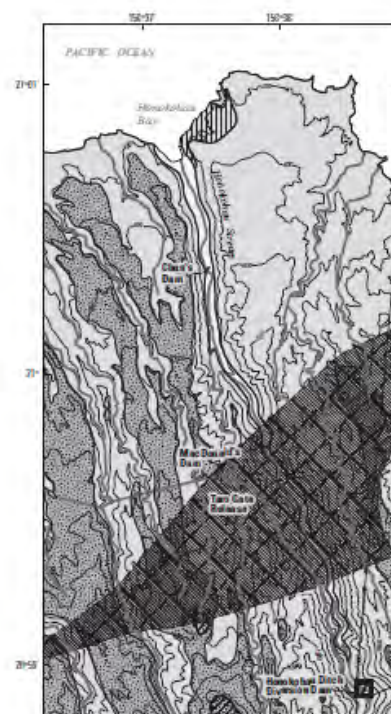




## Availability and Distribution of Base Flow in Lower Honokohau Stream, Island of Maui

U.S. Department of the Interior  
U.S. Geological Survey

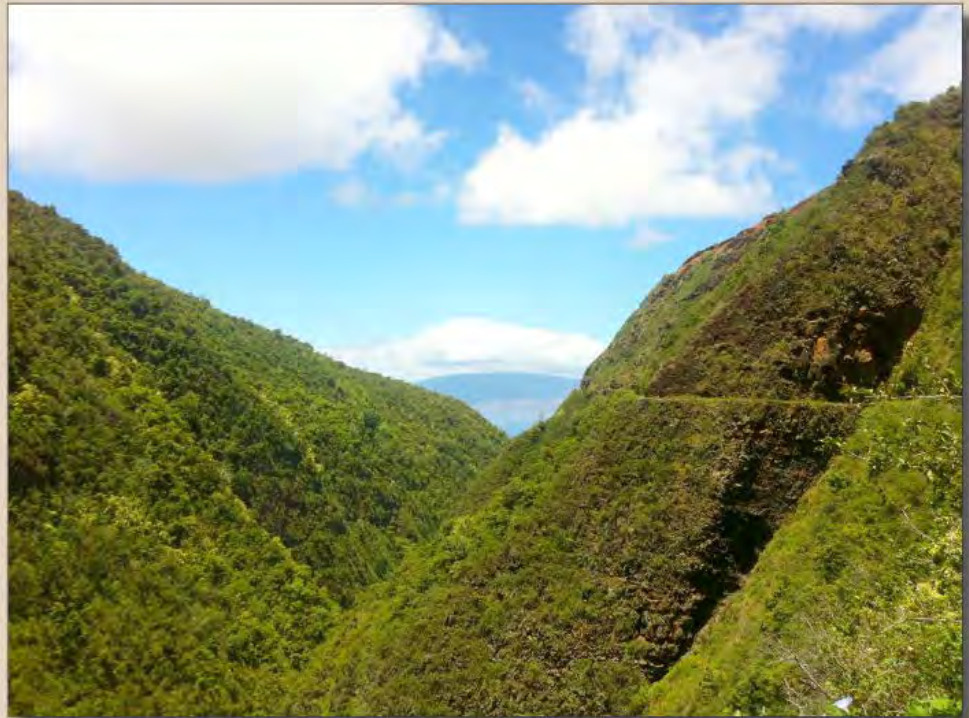
Water-Resources Investigations Report 03-4060



Prepared in cooperation with the  
STATE OF HAWAII OFFICE OF HAWAIIAN AFFAIRS

Prepared in cooperation with the State of Hawai'i Commission  
on Water Resource Management

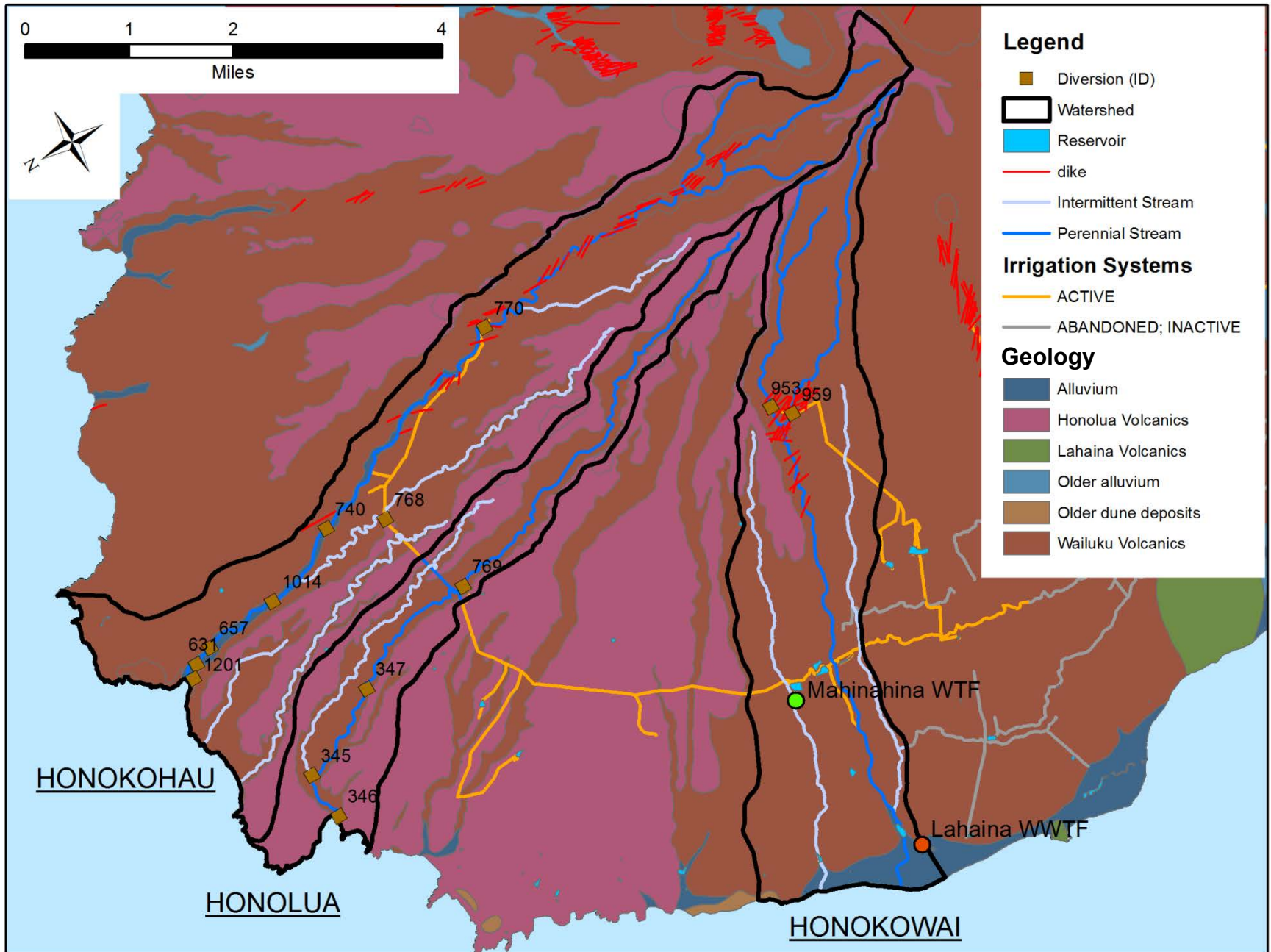
## Low-Flow Characteristics of Streams in the Lahaina District, West Maui, Hawai'i



Scientific Investigations Report 2014–5087

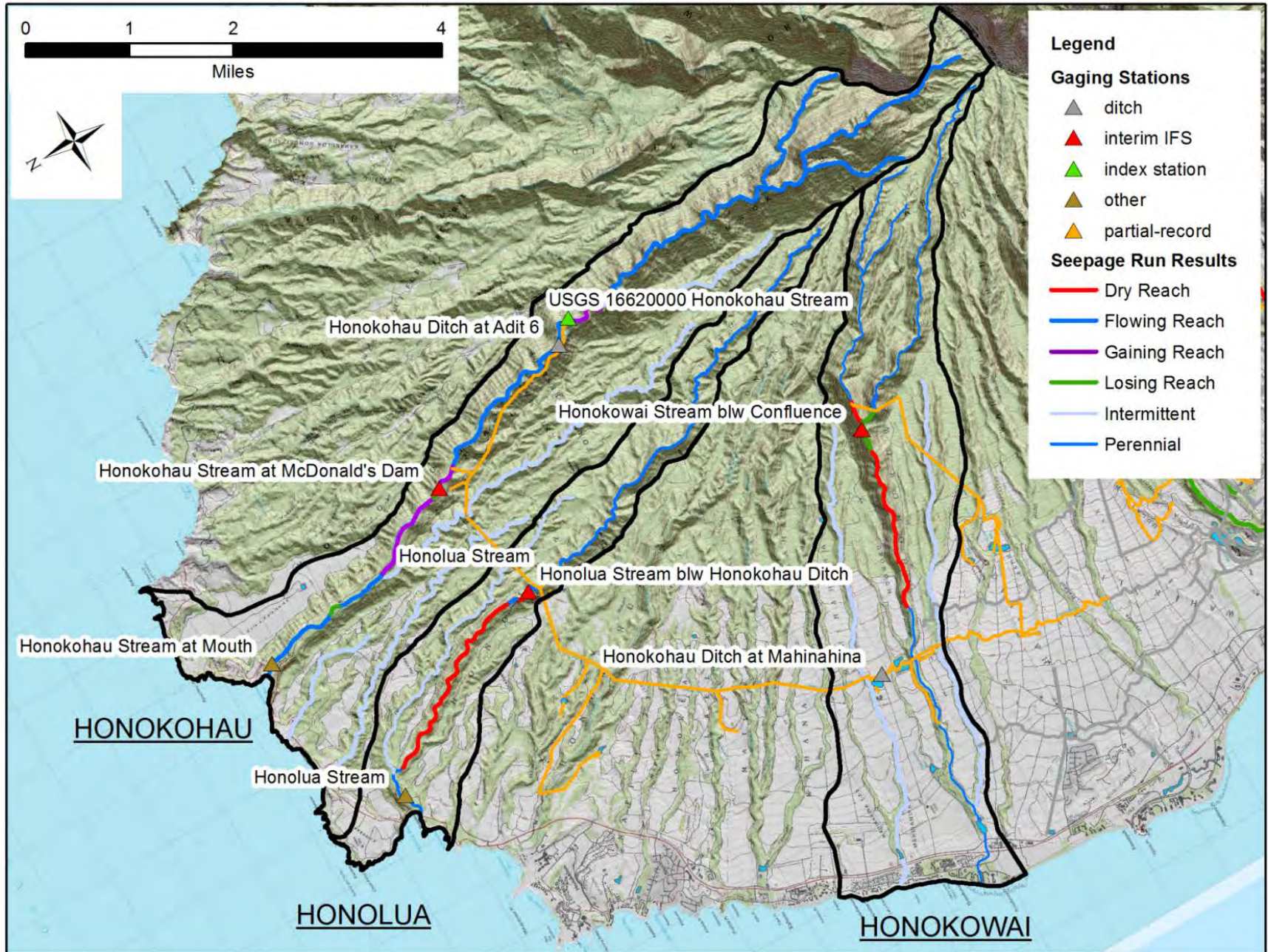


# Geologic and Hydrologic Background



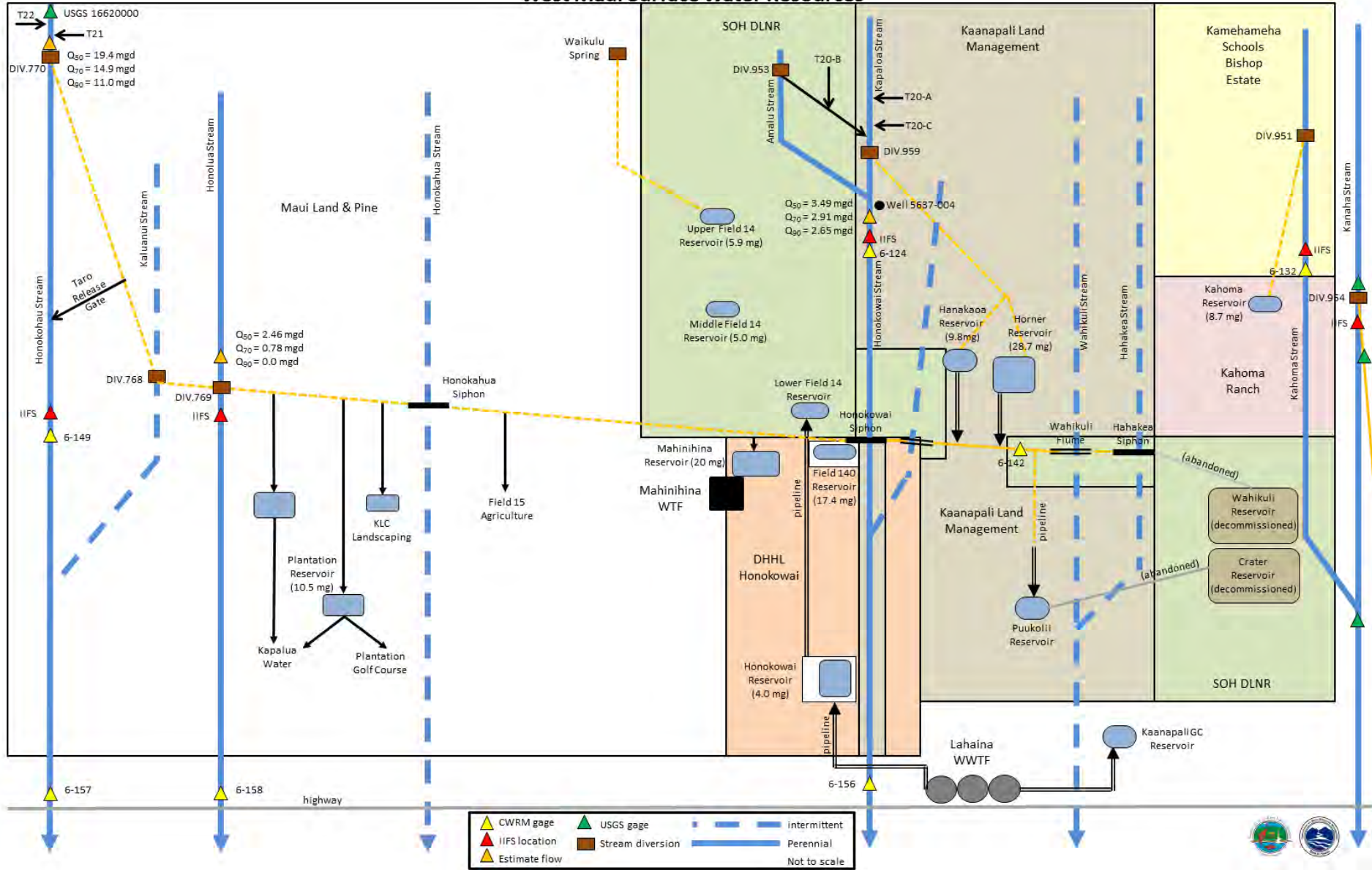


# Surface water-ground water interactions





# West Maui Surface Water Resources





# Honokōhau Ditch Intake #1 (Aotaki Weir)

July 7, 2017



June 11, 2019





# Honokōhau Stream above Aotaki Weir

July 7, 2017



June 11, 2019





# Background- Development Tunnels

Honokōhau: Tunnel 22



Honokōhau: Tunnel 21



USGS\* total flow estimates:

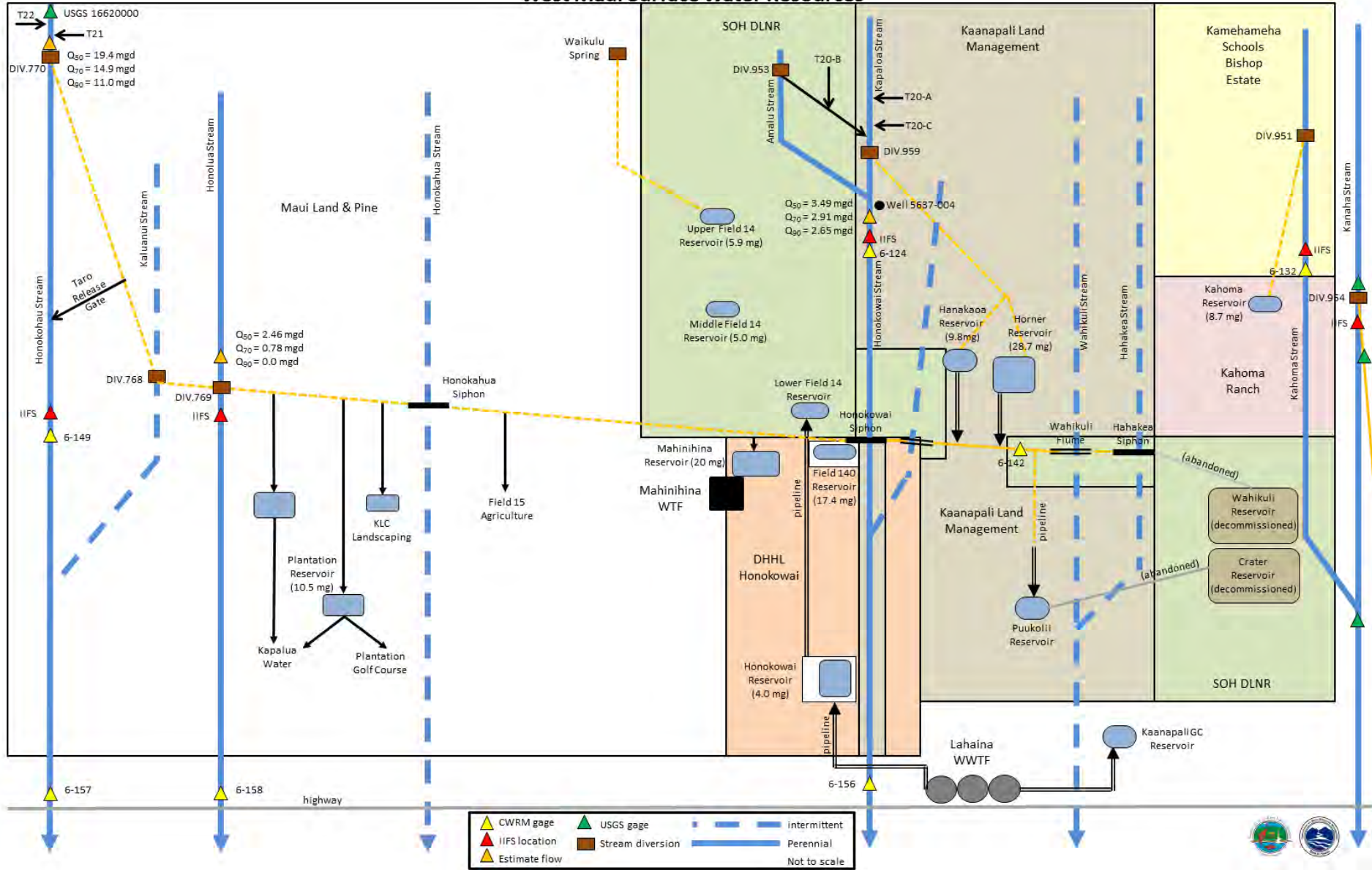
$Q_{50}$ : 3.4 mgd

$Q_{70}$ : 2.8 mgd

$Q_{90}$ : 2.3 mgd



# West Maui Surface Water Resources





# Honolua Stream Diversion

June 11, 2019

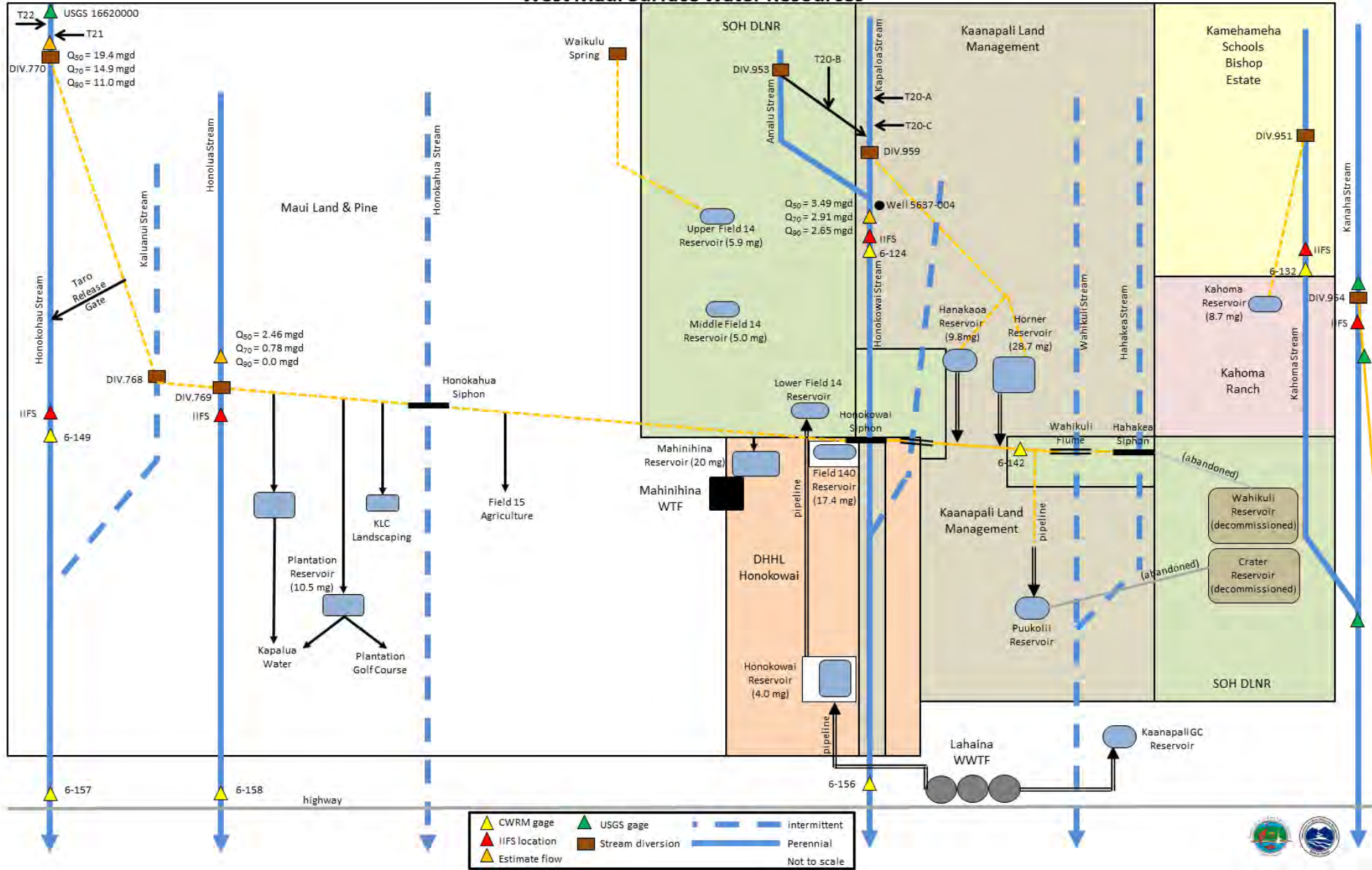


August 30, 2013





# West Maui Surface Water Resources





# Amalu Stream Diversion, Honokōwai





# Kapaloa Stream Diversion, Honokōwai





# Development Tunnels

Honokōwai: Tunnel 20-B



estimated flow: 1.2 mgd

Honokōwai: Tunnel 20-A



estimated flow: 2.5 mgd

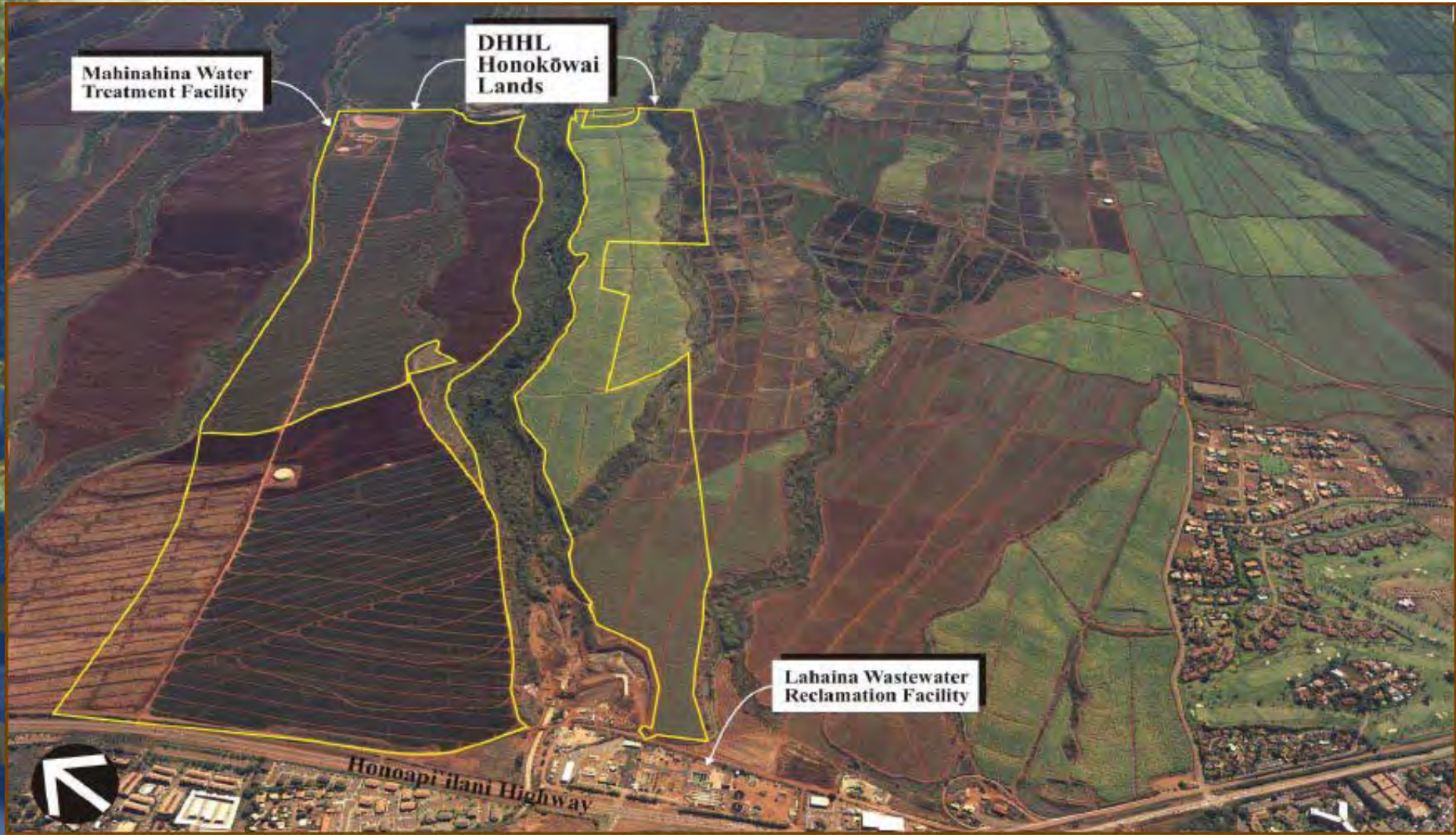
Honokōwai: Tunnel 20-C



estimated flow: <0.01 mgd

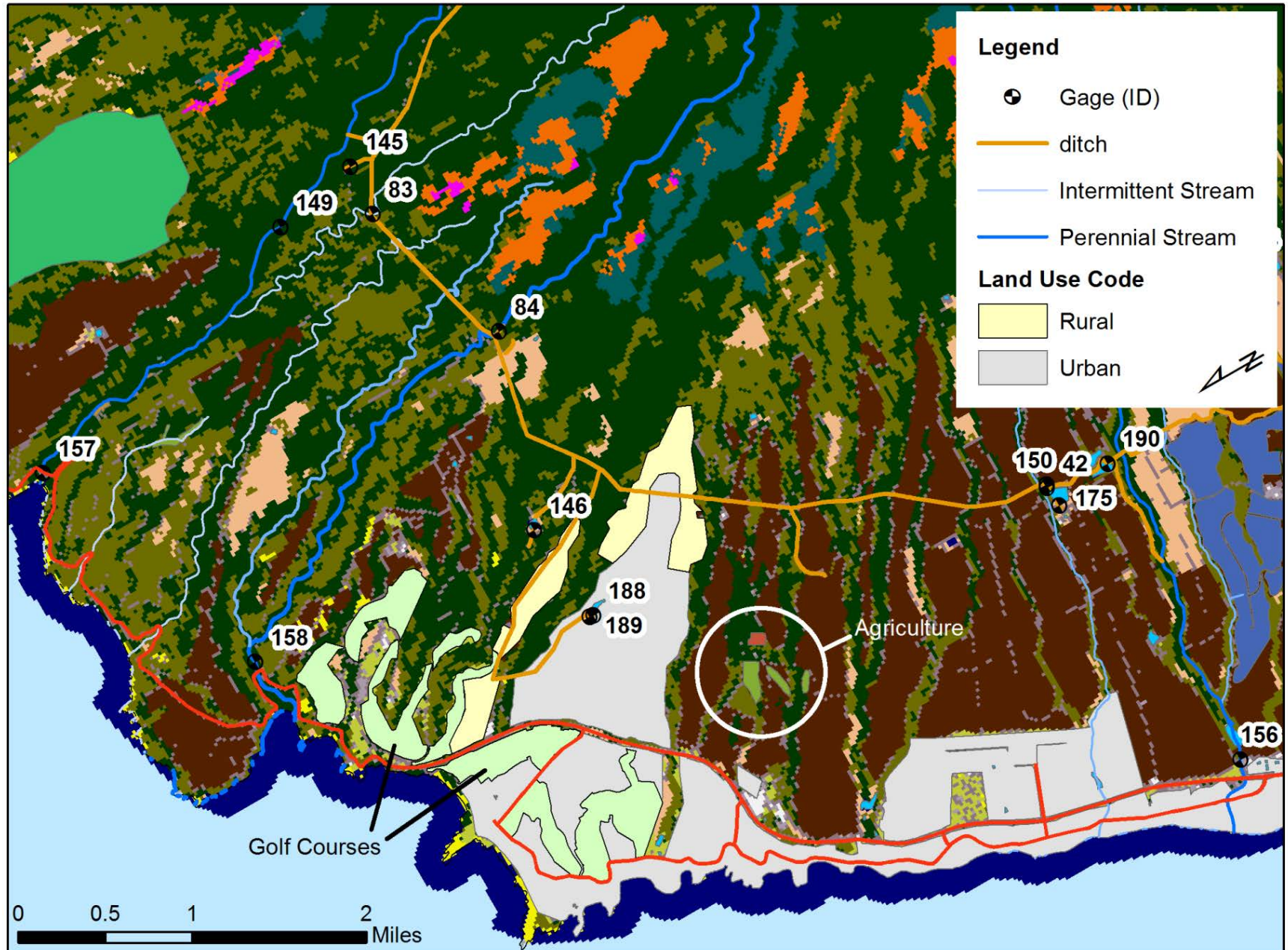


# DHHL Honokōwai Lands





# Honokōhau Ditch Uses





# Current and Future Surface Water Use

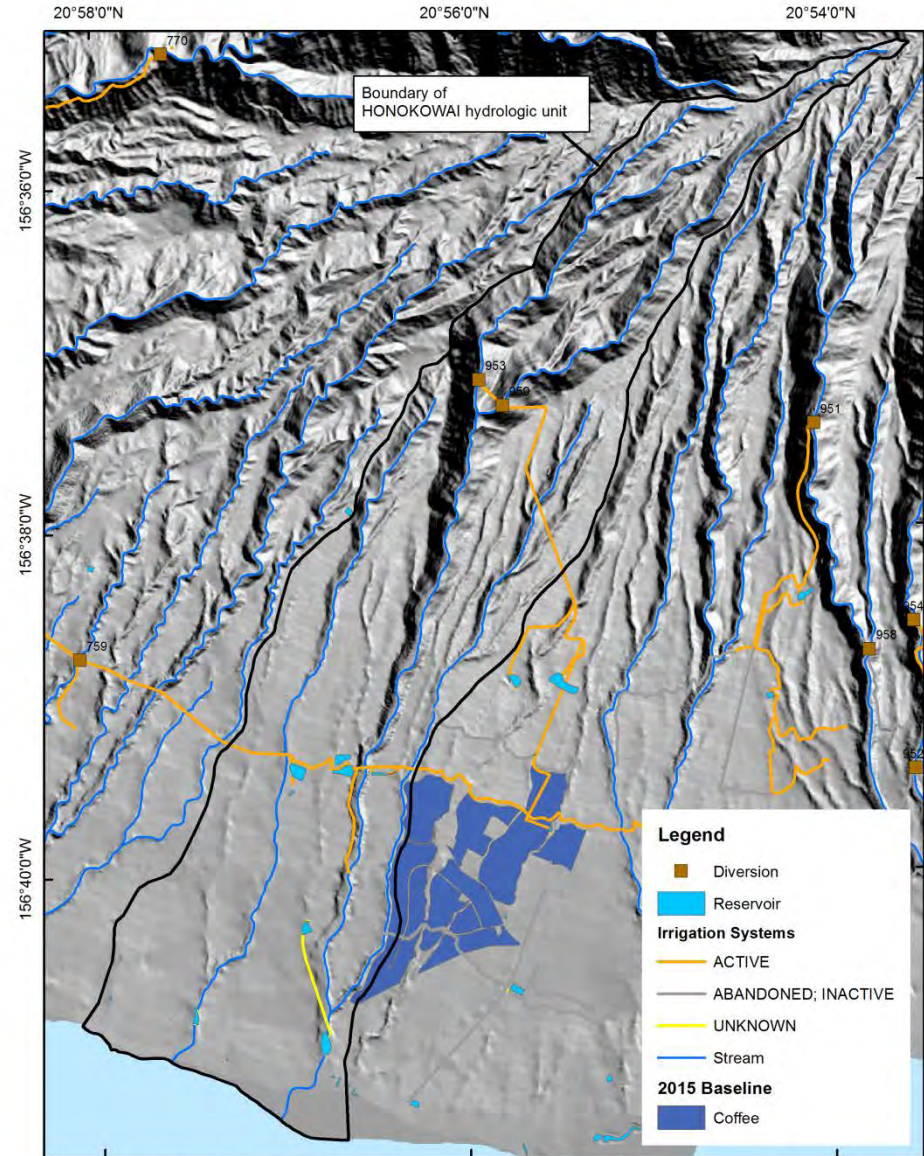
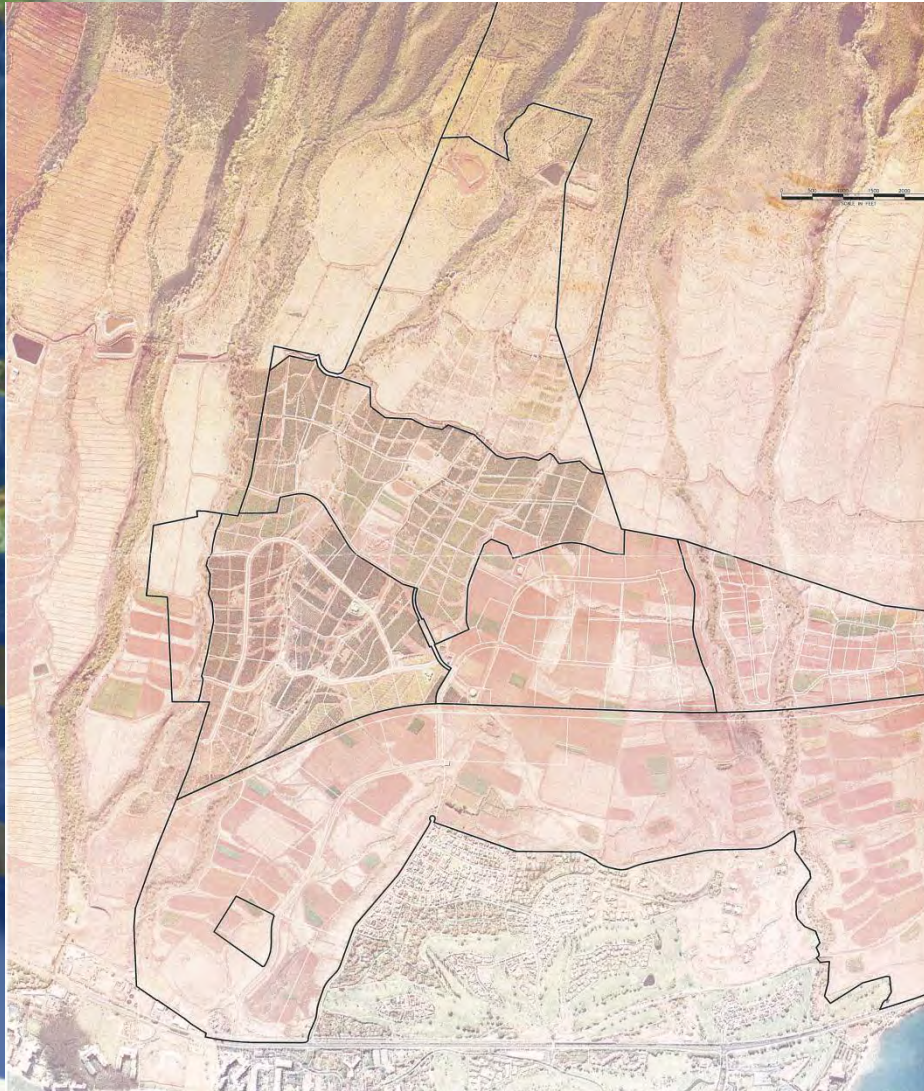
User	Water Use	registered demand <sup>1</sup> (mgd)	service area (acres)	rate (gad)	2018 actual use (mgd)	future estimated use (mgd)
KLC	Landscape Irrigation	3.3	600	5500	1.77	1.0
KLC	Diversified Agriculture	--	--	--	0.45	0.45
MPC	Pineapple Agriculture	7.5	2000	3750	0	0
KWC	Landscape Irrigation	1.0	220	4550	0.95	0.95
MDWS	Domestic/Municipal	3.7	n/a		1.9	2.5
DHHL	Diversified Agriculture <sup>2</sup>	n/a	780	4900	0	2.5
<b>Total</b>		19.4			5.07	7.4

<sup>1</sup>Does not include the balance of diverted flow that was transmitted to Pioneer Mill (24-60 mgd)

<sup>2</sup>Does not include the water demand for the parcel leased by KLM to avoid double counting



# Honokōwai Ditch Uses



Prepared by the Department of Land and Natural Resources,  
Commission on Water Resource Management  
Transverse Mercator Projection, Zone 4, North American Datum 1983



# Current and Future Surface Water Use

User	Water Use	registered demand <sup>1</sup> (mgd)	service area (acres)	rate (gad)	2018 actual use (mgd)	future estimated use (mgd)
KLM	Coffee <sup>1</sup>	3.9	1098.5	3552	2.9	3.8
Total		3.9			2.9	3.8

<sup>1</sup>Currently 100% met with surface water from Honokōwai



# Waste Complaint: Honokōhau Ditch- MLP



Dec 2018



# Waste Complaint: Honokōhau Ditch- MLP





# Waste Complaint: Honokōhau Ditch- MLP



March 2017





# Waste Complaint: Honokōhau Ditch- MLP

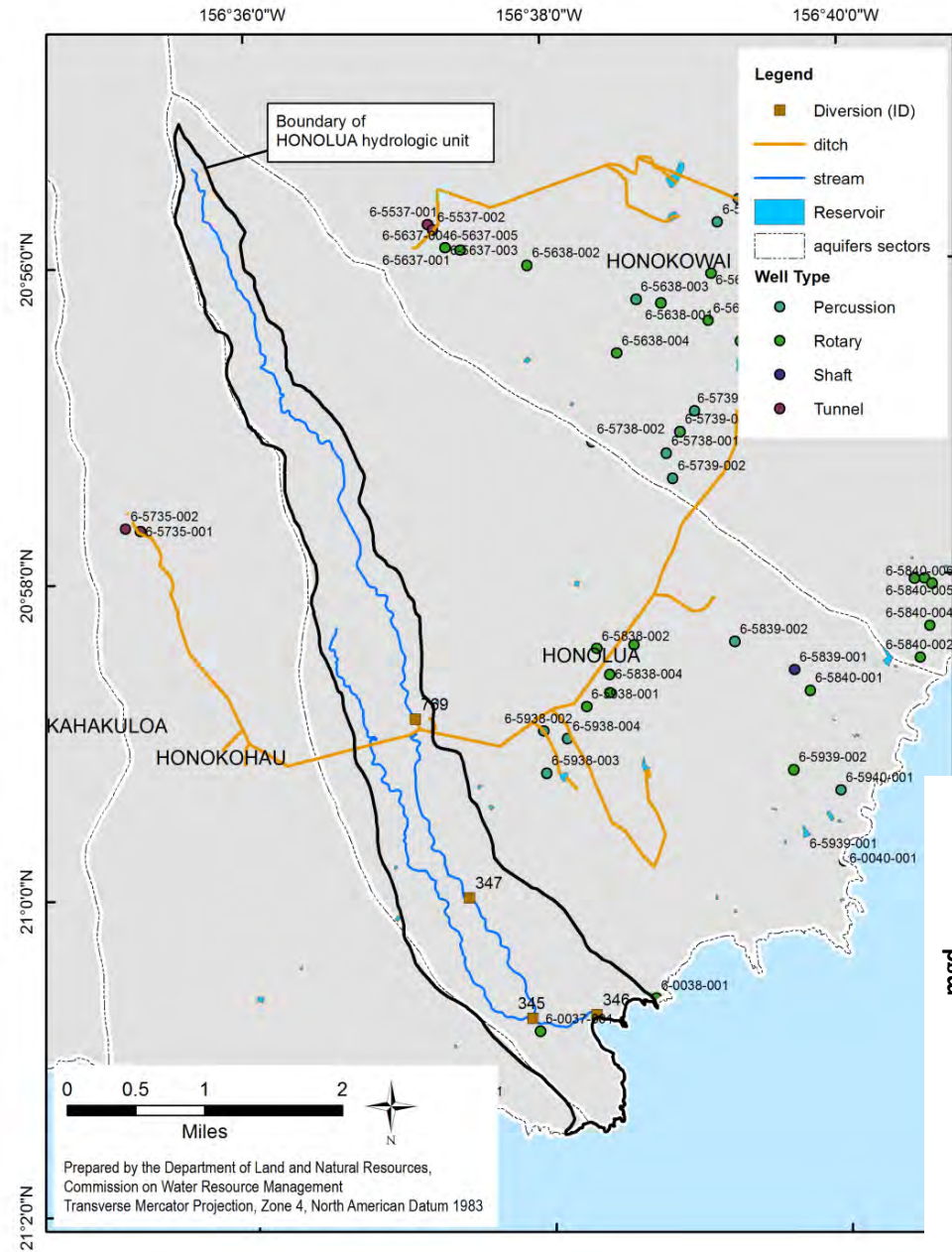


July 2019

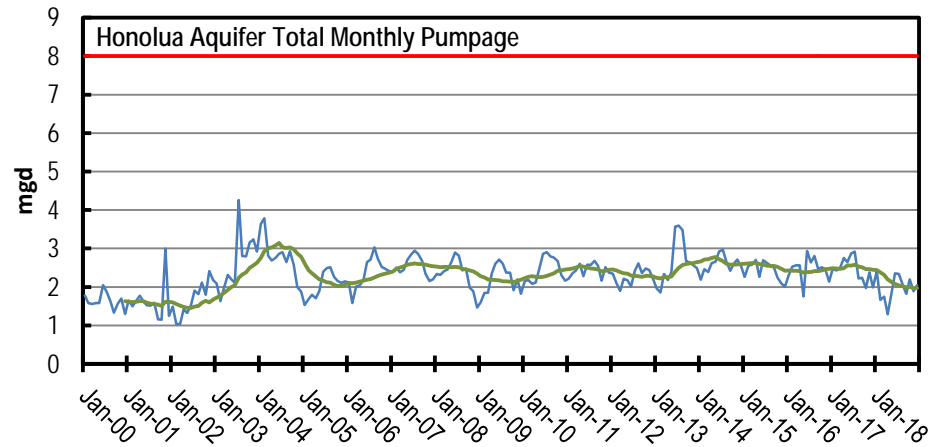




# Alternative Water Sources: Groundwater

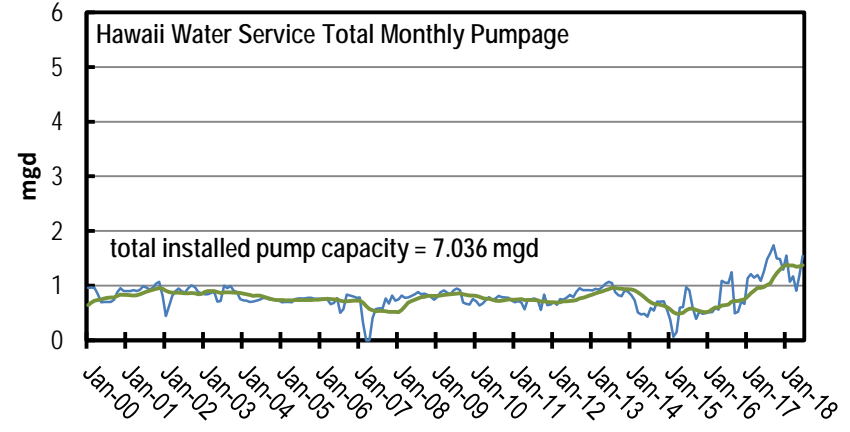
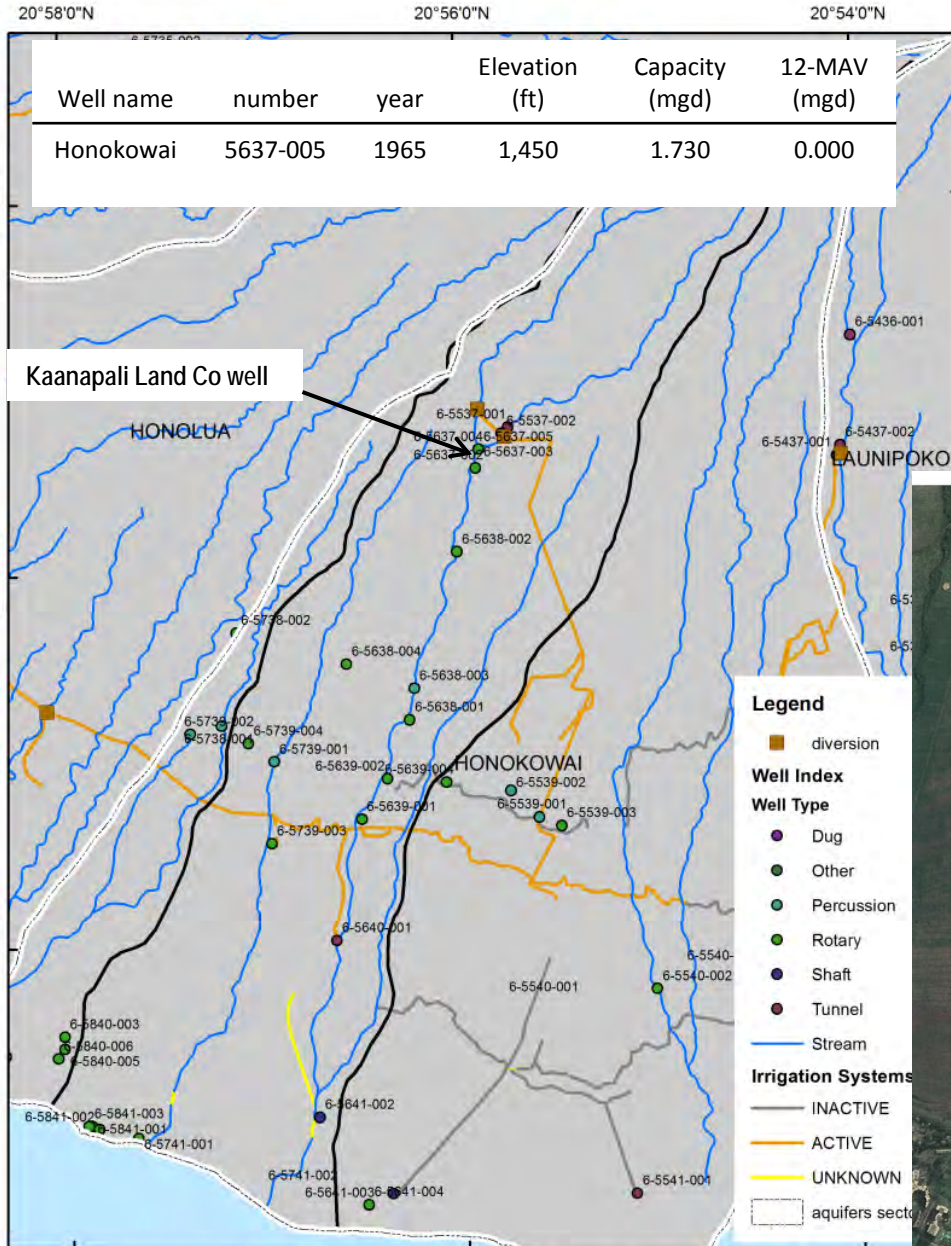


Well name	number	year	Elevation (ft)	Capacity (mgd)	12-MAV (mgd)
Kapalua 1	5938-002	1989	764	1.152	0.257
Kapalua 2	5938-003	1991	771	1.152	0.258
Kapalua 3B	5938-004	1998	788	no pump	n/a

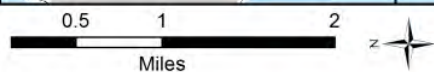




# Alternative Water Sources: Groundwater



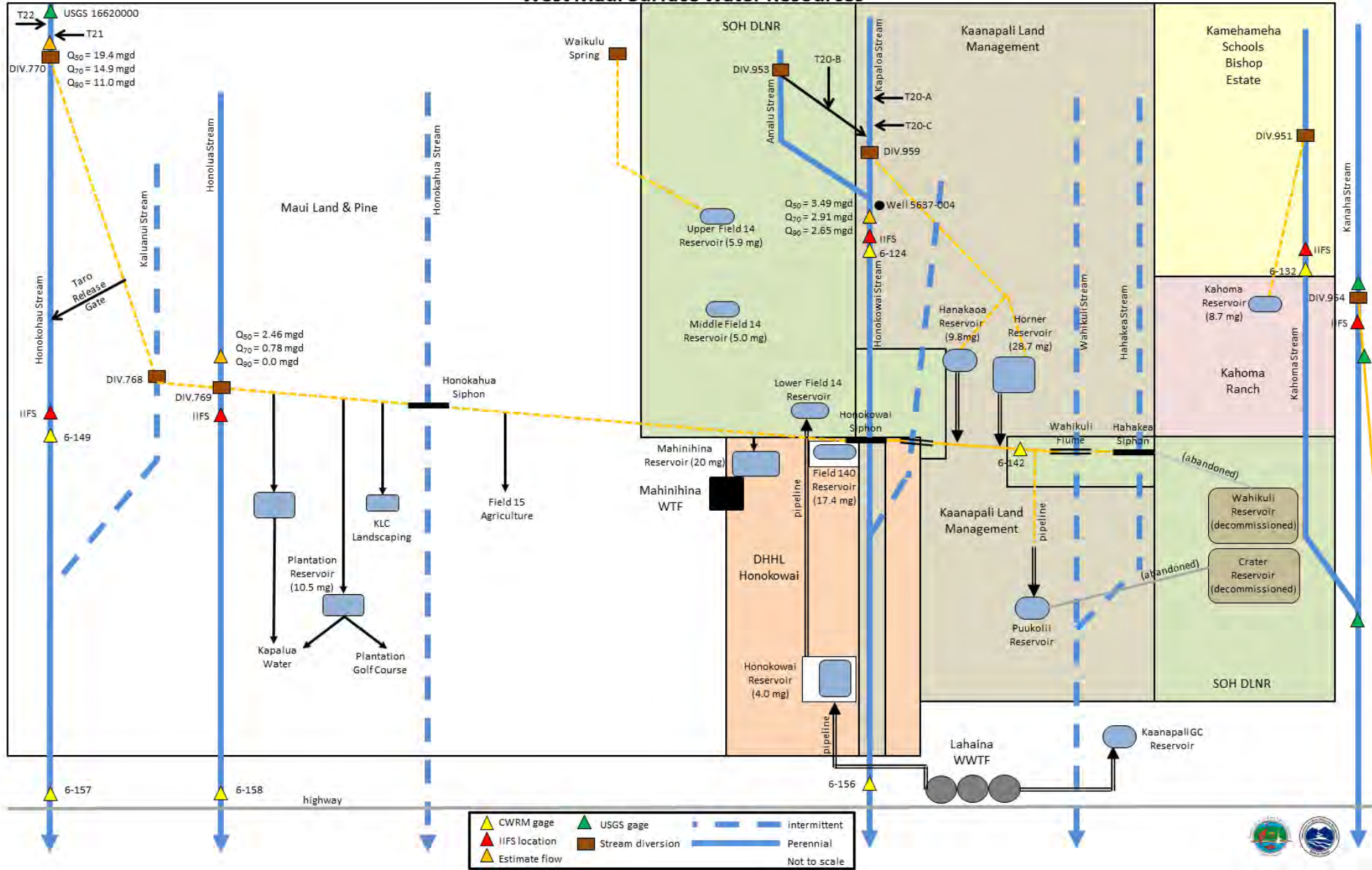
Prepared by the Department of Land and Natural Resources,  
Commission on Water Resource Management  
Transverse Mercator Projection, Zone 4, North American Datum 1983



**Hawaii Water Service: Service area**

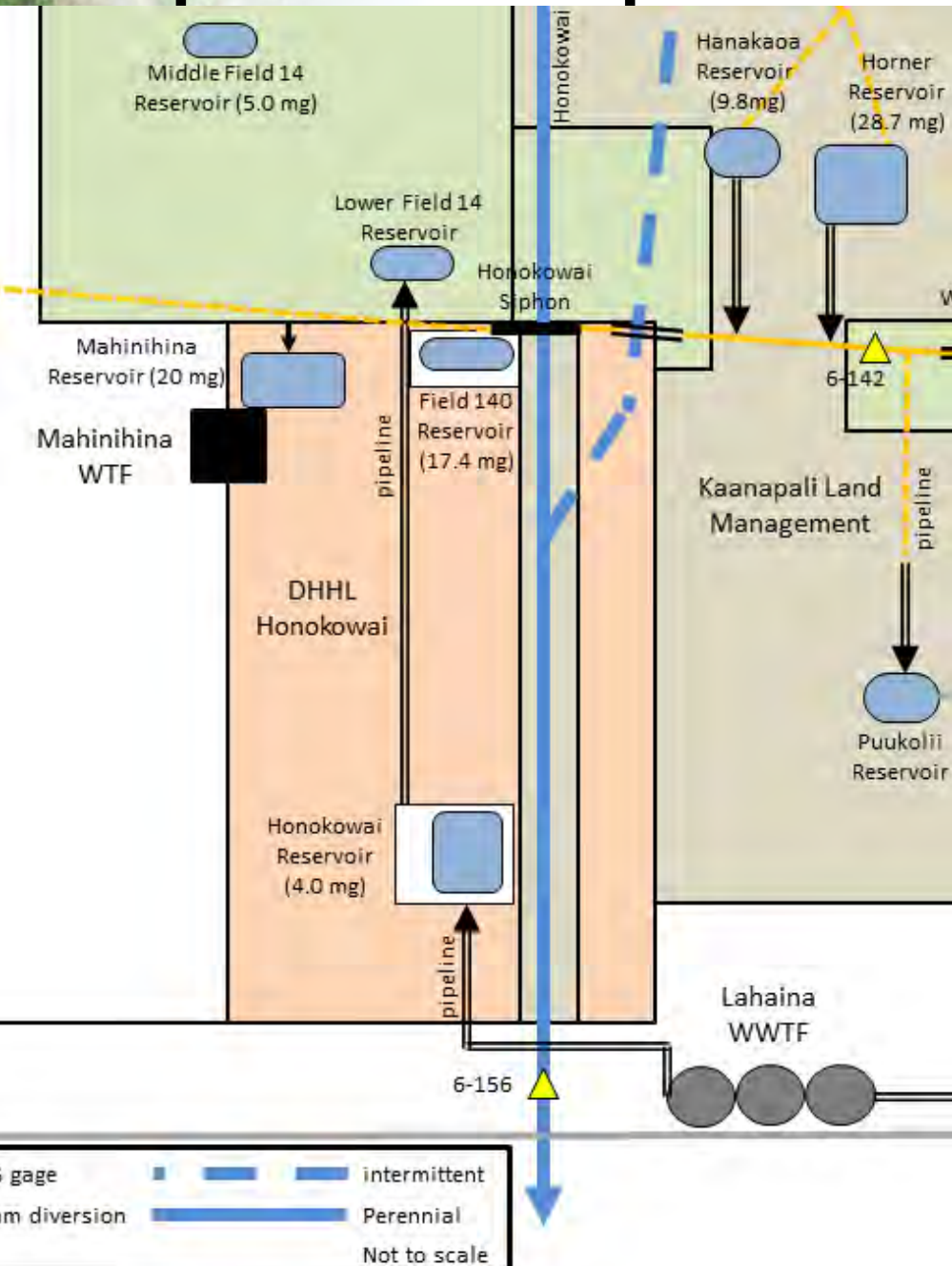


# West Maui Surface Water Resources





# Proposed development of R1 distribution system



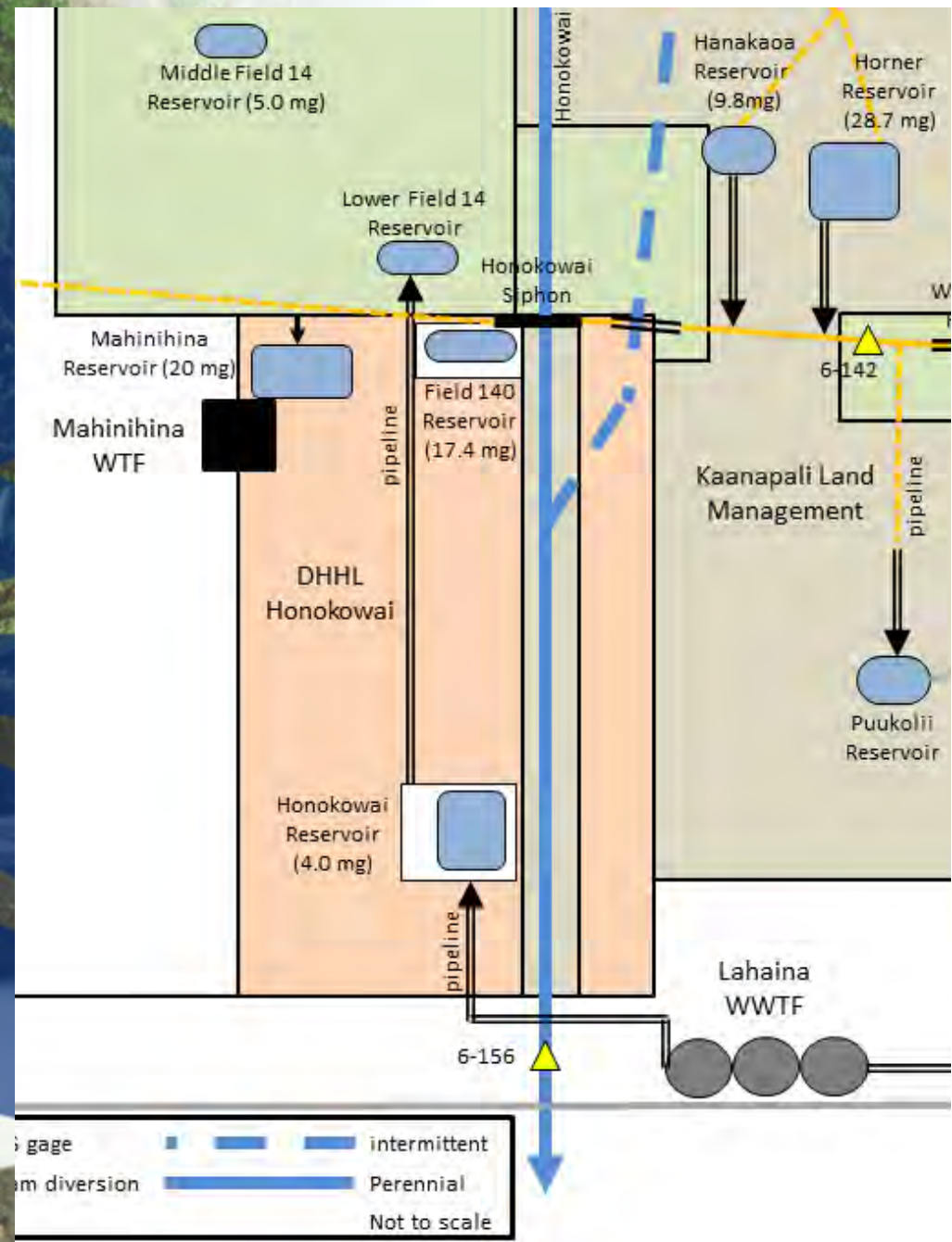
Get recycled water to a high enough elevation to gravity feed it to end users

→ Need infrastructure: pumps, pipelines, storage, easements, ownership

→ Needs to be acceptable quality for end users ( $\text{NO}_3$ ,  $\text{PO}_4^+$ ,  $\text{Cl}^-$ )

→ Need to blend with higher quality water to reduce  $[\text{Cl}^-]$





**Source:**

- Upgraded WWTF
- Pipeline to Honokōwai Reservoir
- Pumps to Honokōwai Reservoir
- Upgrade Intake on Honokōhau Ditch to optimize offshore use and reduce waste

**Storage:**

- Transfer of Honokōwai Reservoir from MLP to Maui Co
- Easement of Lower Field 14 Reservoir from SOH to Maui Co
- Replace pipeline from Honokōwai Reservoir to Lower Field 14 Reservoir
- Upgrade pumps from Honokōwai Reservoir to Lower Field 14 Reservoir

**Blending:**

- Transfer of Field 140 Reservoir from MLP to Maui Co
- Upgrade of Field 140 Reservoir

**Distribution:**

- Easement of Honokōhau Ditch to KLM
- DHHL Distribution from Field 140 Reservoir



# Honokōwai Reservoir (300 ft)





# Lower Field 14 Reservoir (700 ft)





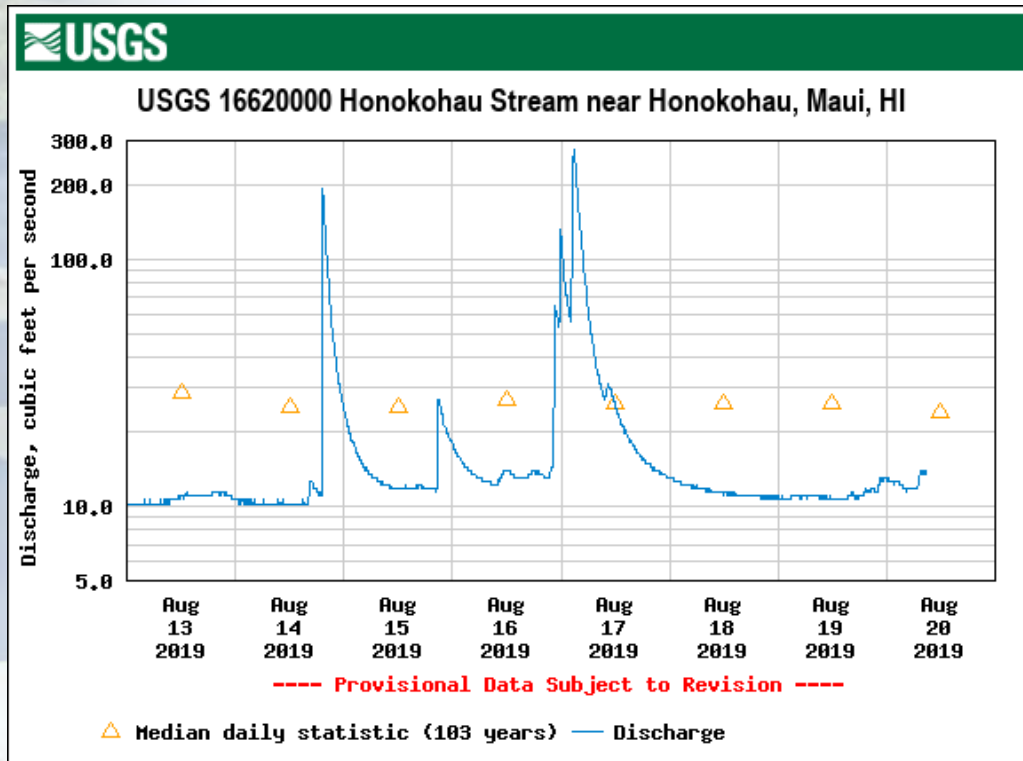
# Field 140 Reservoir (690 ft)





# Honokōhau Stream at USGS 16620000

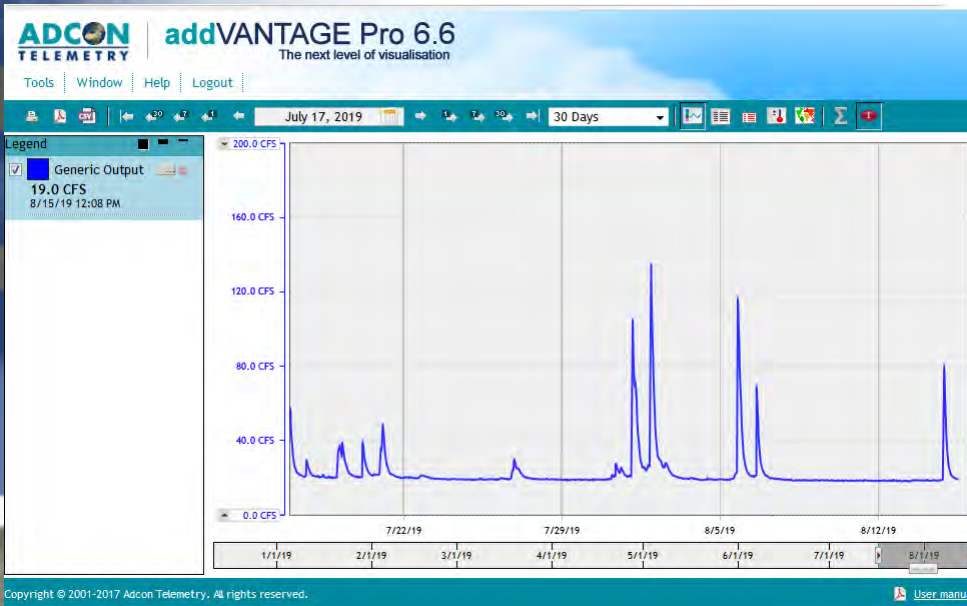
USGS station installed 1912





# Honokōhau Stream at MacDonald's Dam

CWRM station installed Dec 2018





# Honokōhau Ditch at Adit 6

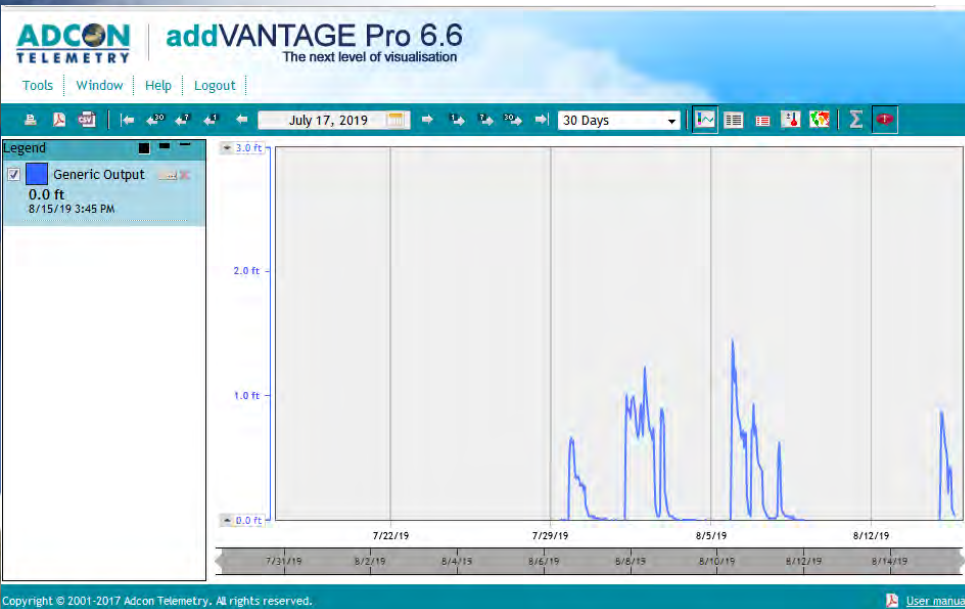
CWRM station to be installed





# Honokōhau Ditch at Māhinahina Weir

CWRM station installed July 2019





# Monitoring of Surface Water Resources in West Maui

addVANTAGE Pro 6.6  
The next level of visualisation

Login

User Name:

Password:

Login

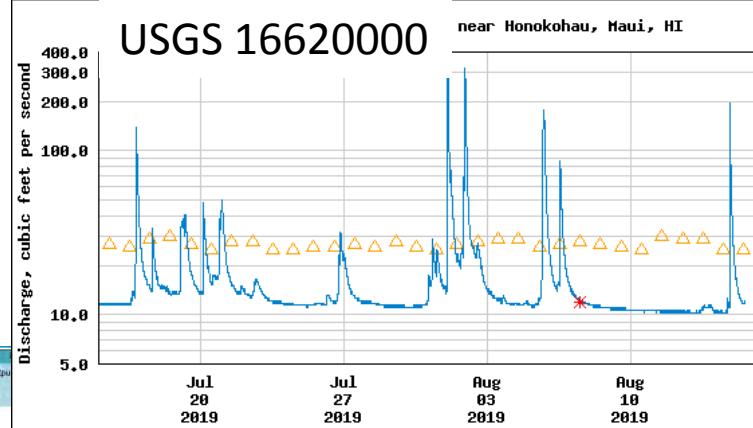
User manual  
New features

ADCON  
TELEMETRY Smart Wireless Solutions

Go to [livedata](#)

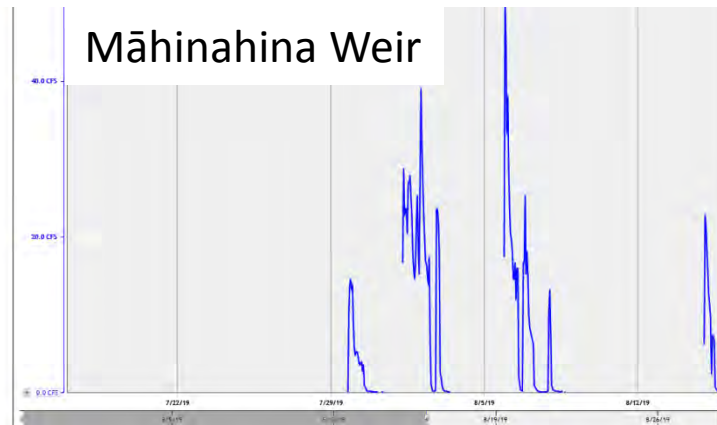
<http://fc01.mccrometer.net/secure/common/main.vm>

User Name: public  
PW: public



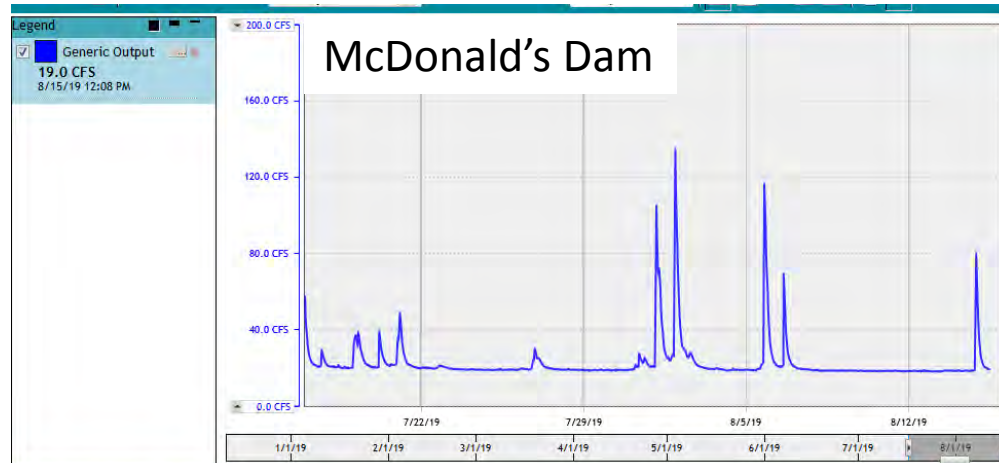
Legend  
Generic Output  
0.3 CFS  
8/15/19 12:48 AM

Māhinahina Weir



Legend  
Generic Output  
19.0 CFS  
8/15/19 12:08 PM

McDonald's Dam



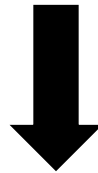


# Staff amendments to an instream flow standard...

DRAFT Instream Flow Standard Assessment Report



Public Comments and Fact Gathering



Update IFSAR  
Compile public testimony  
Submittal to Commission to Amended IIFS  
(additional public testimony accepted at Commission Meeting)



# West Maui Timeline

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- 2014 USGS Study Published
- 2015 CWRM begins instream values fieldwork

## **Phase I:** Ukumehame, Olowalu, Launiupoko, Kau'aula streams

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[Home](#) » [Surface Water](#) » [Instream Flow Standards](#) » IFS: Honokōwai, Honolua, and Honōkohau Streams, Maui

## IFS: HONOKŌWAI, HONOLUA, AND HONŌKOHOU STREAMS, MAUI

### Instream Flow Standards: Hydrologic Units of Honokōwai (6010), Honolua (6013), and Honokōhau (6014)

The Commission on Water Resource Management is preparing a proposal to amend the interim instream flow standards for streams within the surface water hydrologic units of Honokōwai (6010), Honolua (6013), and Honokōhau (6014), in West Maui. Provided below are Draft Instream Flow Standard Assessment Reports for each of the three hydrologic units. These reports, prepared by the Commission staff, will serve as supporting documentation in a future interim instream flow standard recommendation to the Commission. Please take some time to review the reports and provide the Commission staff with any additional information for inclusion.



The diversion on Honokōhau Stream is maintained by Maui Land and Pineapple Company for domestic and irrigation use by Kapalua Water Company, Maui Department of Water Supply, Kā'anapali Land Management Corp., and others.



The diversion on Honolua Stream was previously

Most links throughout this website will either open an Acrobat PDF file or will link to a page within this site. Exceptions to these are indicated by the symbols below.

Symbols:

- indicates an external website link
- 📺 indicates a video link

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**E-mail: [dlnr.cwrp@hawaii.gov](mailto:dlnr.cwrp@hawaii.gov)**