WATER RESOURCES ON THE ISLAND OF LĀNAʻI

Commission on Water Resource Management
September 2025

Overview of tonight's presentation

- History of CWRM actions on Lanai
- Sustainable yield of the Central Aquifer System
- Update on Lanai well permits
- Current ground water data

HISTORY OF CWRM ACTIONS

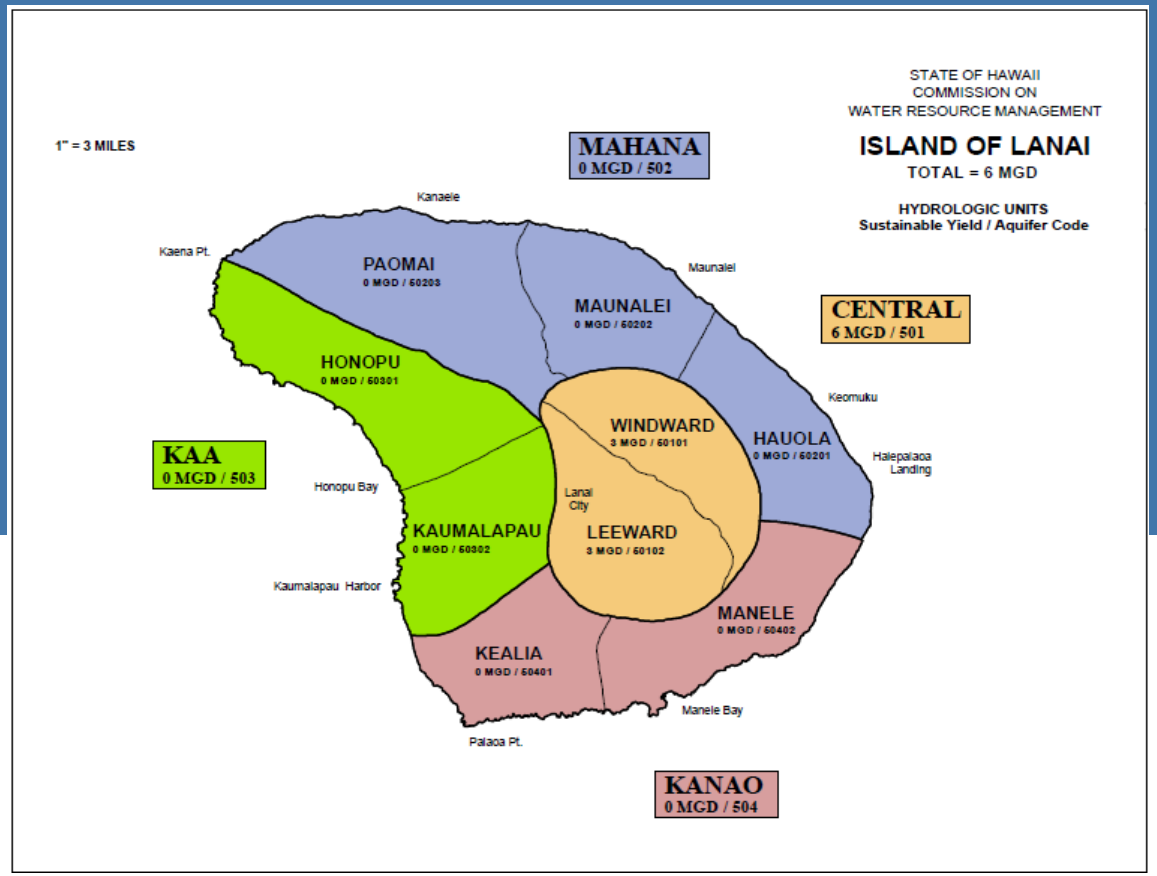
- March 2, 1989 - **Petition to designate Lānaʻi as a groundwater management area** is submitted

- March 29, 1990 - **CWRM denies petition** for designation. The ground water monitoring thresholds that would authorize the reinstatement of water management area proceedings were: if the static water level of any production well falls below one-half its original elevation above mean sea level; or if pumpage exceeds 4.3 million gallons per day.

- October 1994 – Lānaʻians for Sensible Growth **request that CWRM reconsider designation**
- June 1995 - County created **Lānaʻi Water Subcommittee** (LWS)
- September 1995 - CWRM **approved numerical model**
- April 1996 - LWS created **Lānaʻi Working Group (LWG)**

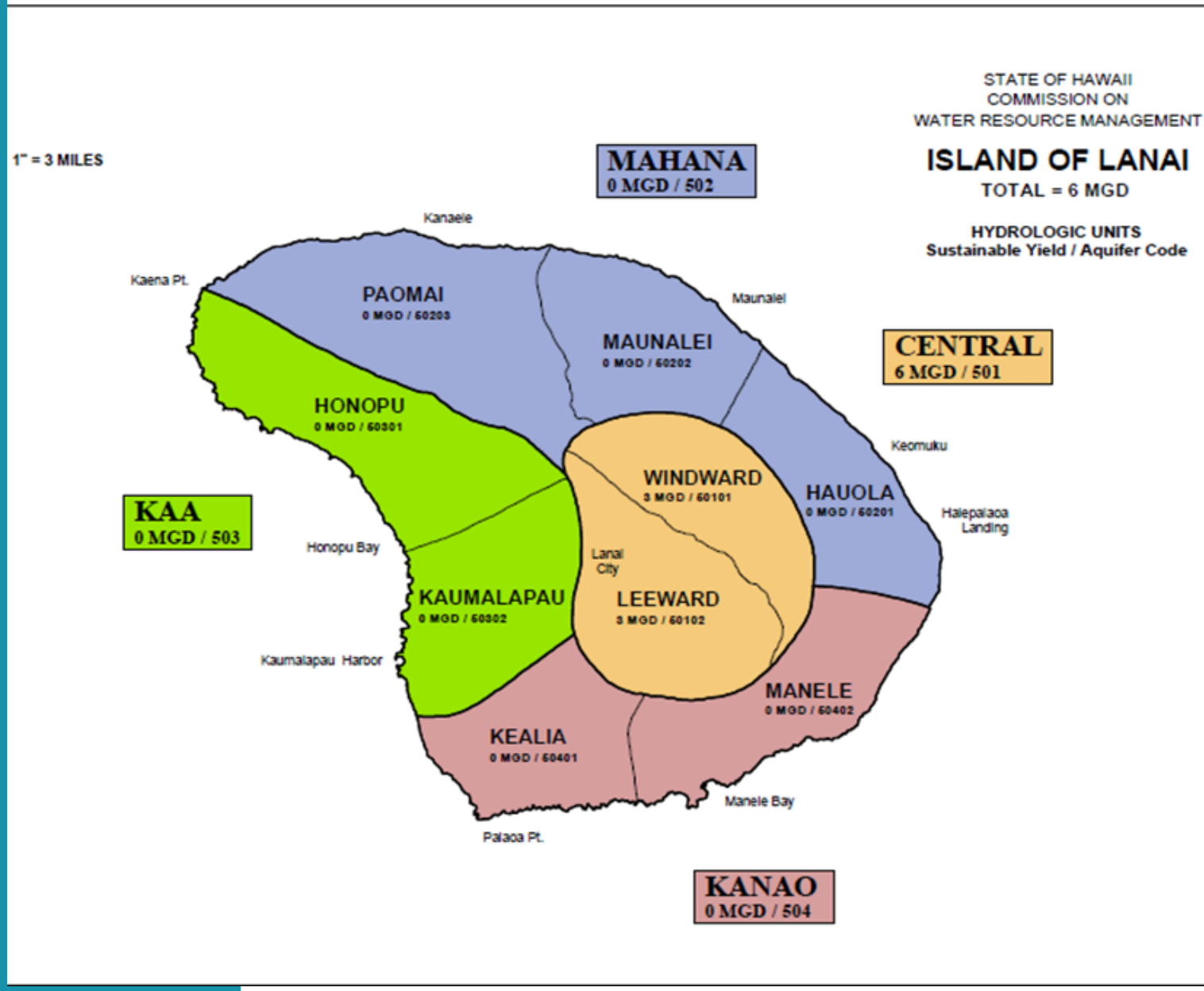
- February - 1997 **LWG report** presented to Commission
- April 1997 - Reconsideration for designation **denied by CWRM**
- August 15, 2012 - formal adoption of **Lānaʻi Water and Use and Development Plan (LWUDP)**
- October **public information meetings ceased** with adoption of LWUDP

- February 14, 2019 - **public information meetings restart** with County of Maui, Lānaʻi Planning Commission & Pulama Lānaʻi
    - 8/19/2020
    - 9/15/2021
    - 10/19/2022
    - 9/20/2023
    - 12/16/2024



SUSTAINABLE YIELD OF THE CENTRAL AQUIFER SECTOR

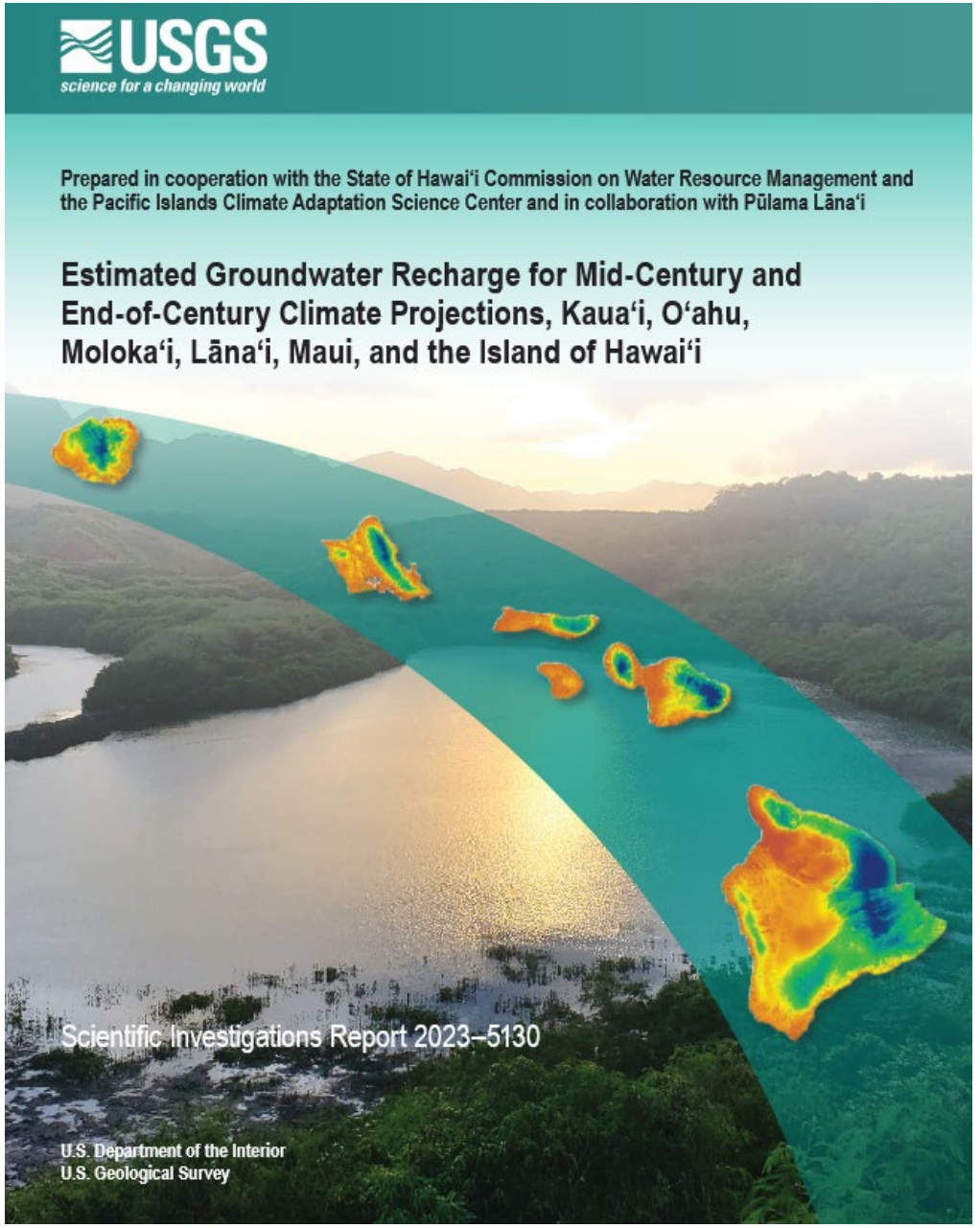
In 1990, the entire island was an aquifer sector, and the Central “system” had a sustainable yield of 6 mgd. Subsequently the Central was designated as a “sector”, with two 3 mgd sustainable yields for the Windward and Leeward Sectors.



In 2024, the U.S. Geological Survey published the report shown to the right.

The study estimated groundwater recharge for two climate projections: mid-century and end-of century.

Pulama Lānaʻi participated in funding a portion of this study.



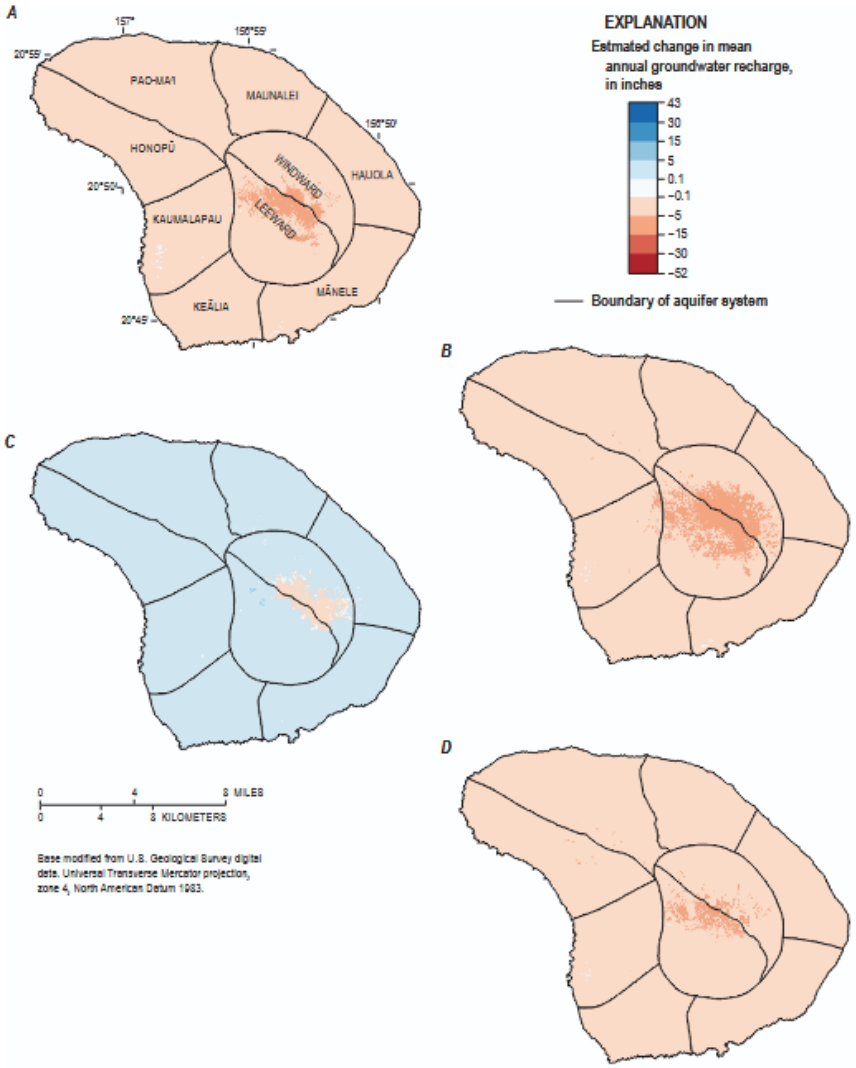


Figure 19. Maps showing estimated change in mean annual groundwater recharge for three future-climate scenarios and one drought scenario for Lāna'i. (*A*) Statistical Downscaling (SD) Representative Concentration Pathway (RCP) 8.5 2041–71 scenario from Elison Timm and others (2015), (*B*) SD RCP8.5 2071–99 scenario from Elison Timm and others (2015), (*C*) Hawai'i Regional Climate Model version 2 (HRCM2) RCP4.5 2080–99 scenario from Zhang and others (2017), and (*D*) 2008–12 drought scenario. Estimated changes are relative to mean annual recharge for the 1978–2007 scenario. Aquifer system boundaries from State of Hawai'i (2014).

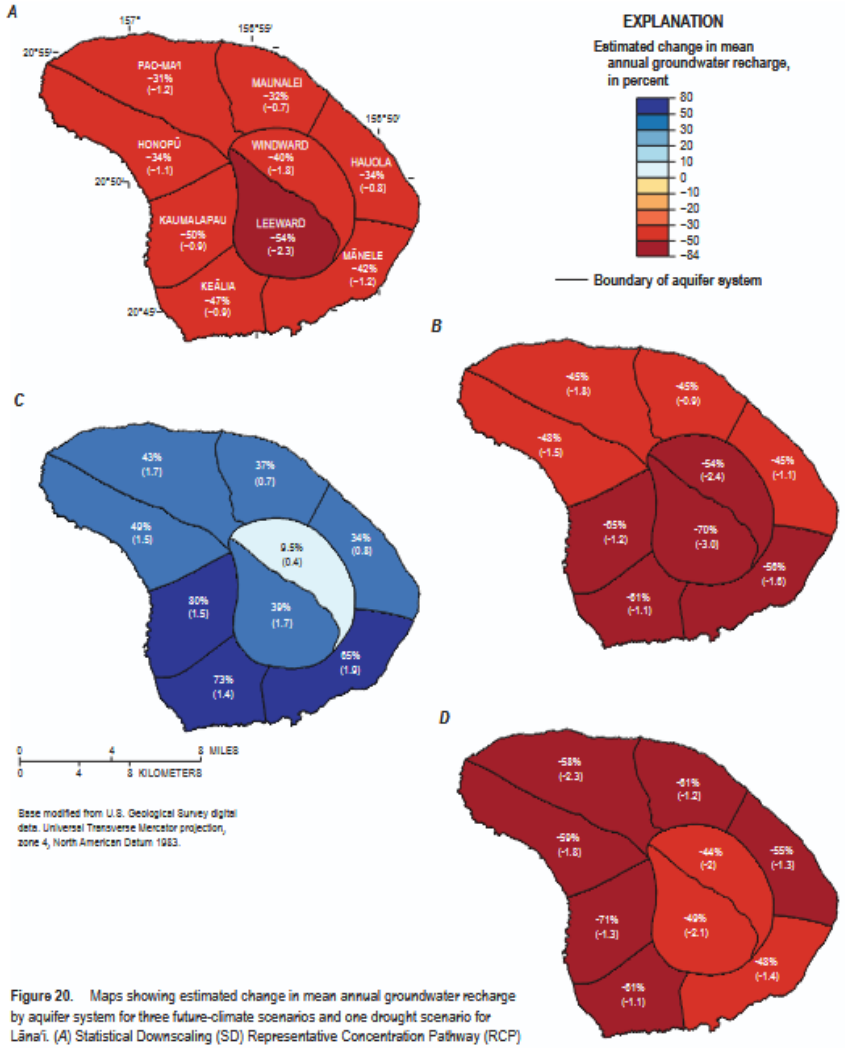


Figure 20. Maps showing estimated change in mean annual groundwater recharge by aquifer system for three future-climate scenarios and one drought scenario for Lāna'i. (*A*) Statistical Downscaling (SD) Representative Concentration Pathway (RCP) 8.5 2041–71 scenario from Elison Timm and others (2015), (*B*) SD RCP8.5 2071–99 scenario from Elison Timm and others (2015), (*C*) Hawai'i Regional Climate Model version 2 (HRCM2) RCP4.5 2080–99 scenario from Zhang and others (2017), and (*D*) 2008–12 drought scenario. Estimated changes are relative to mean annual recharge for the 1978–2007 scenario. Values in parentheses represent change in millions of gallons per day. Aquifer system boundaries from State of Hawai'i (2014).

- Sustainable yields are calculated using the Robust Analytical Model (RAM)
- RAM has limitations which include requiring an even distribution of pumpage, and is primarily for basal lenses
- CWRM is currently contemplating different methodologies for calculating sustainable yields, based in part upon the USGS recharge studies
- Sustainable Yields will need to undergo additional outreach and methodology evaluation prior to revisions

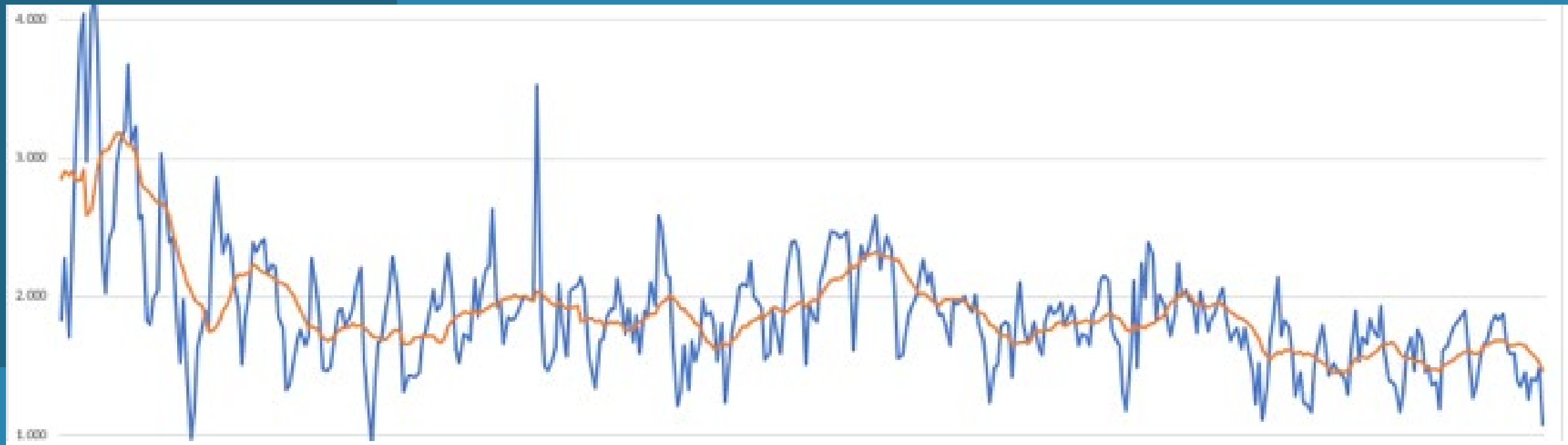
UPDATE ON LĀNAʻI WELL PERMITS

Lānaʻi 7 Well (State Well No. 5-5055-001)

- Well Completion Report received on 9/27/2023.
- Well is pumping and water use reporting is up to date.

Lānaʻi 10 Well (State Well No. 5-4555-001)

- Well deepened to 3466’ below mean seal level
- Temperature logs done and maximum temperature was 142 degrees Fahrenheit.
- No work done recently on the well

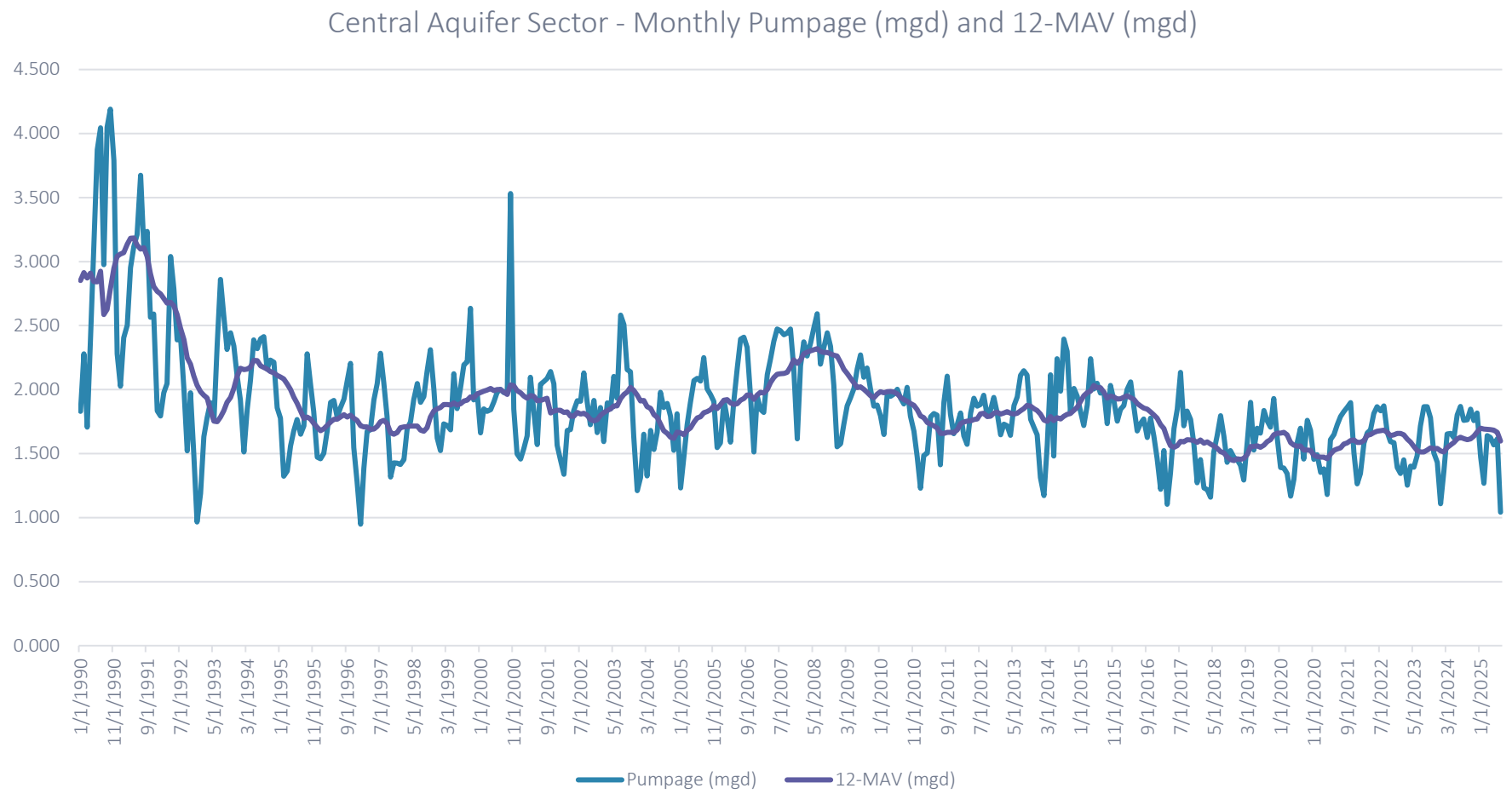


CURRENT GROUND WATER DATA

Pumpage in the Central Aquifer Sector

CWRM continues to get 100% compliance with well reporting in the Central Aquifer Sector.

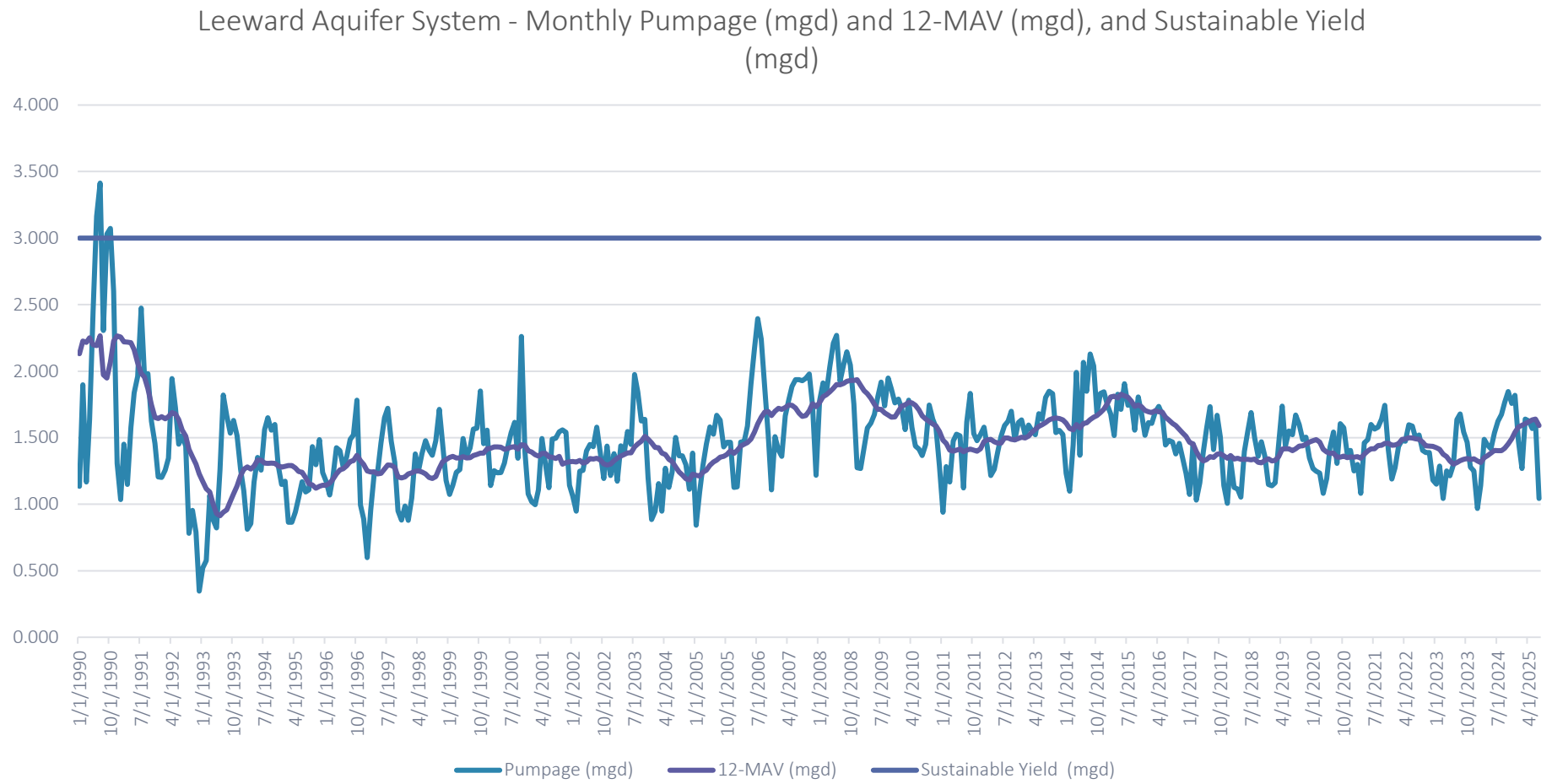
This graph shows that overall pumpage is less than about 1.75 million gallons per day on a 12-month moving average.



Pumpage in the Leeward Aquifer System

CWRM continues to get 100% compliance with well reporting in the Leeward Aquifer System.

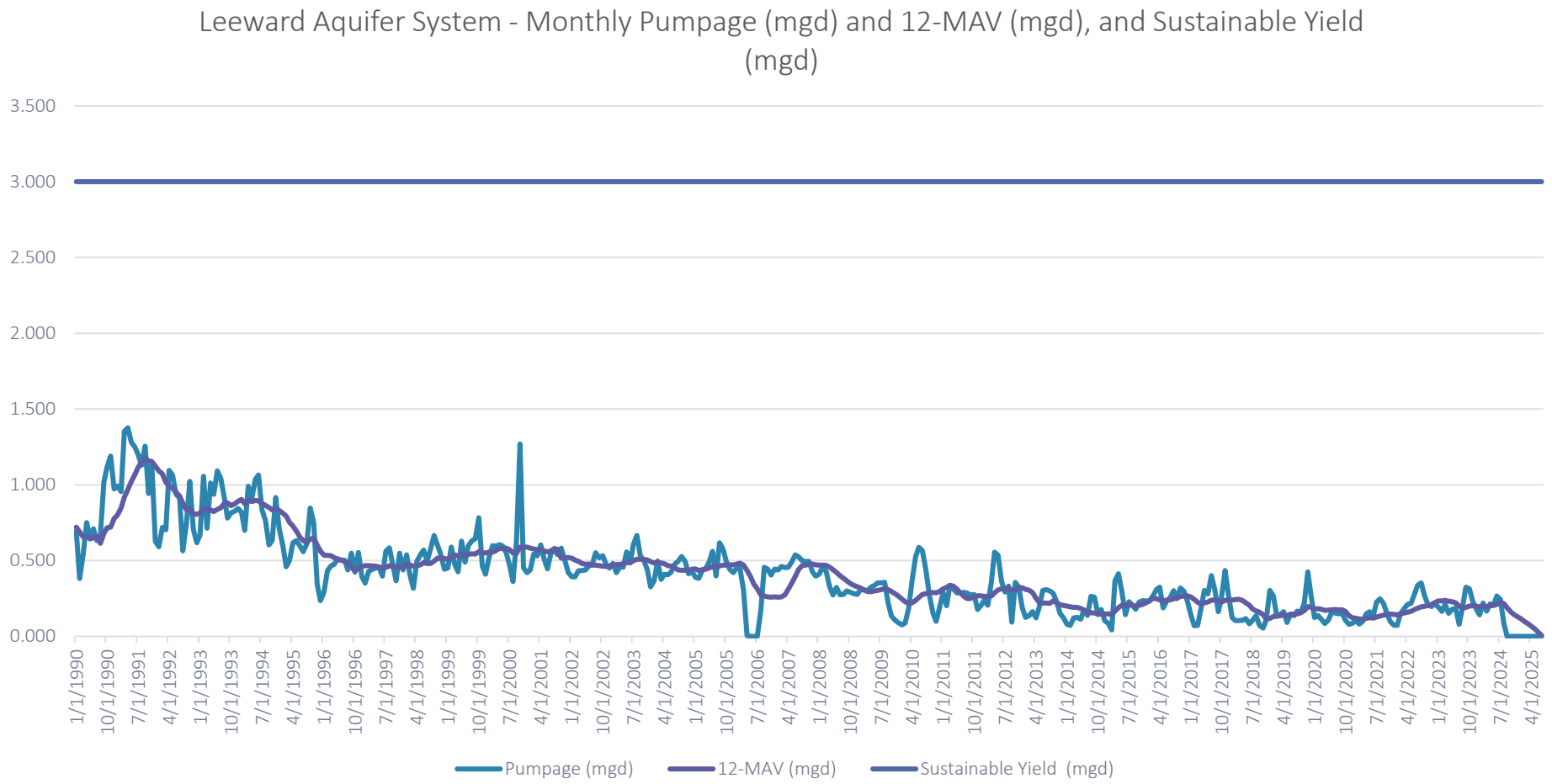
This graph shows that overall pumpage is less than around 1.5 million gallons per day on a 12-month moving average.



Pumpage in the Windward Aquifer System

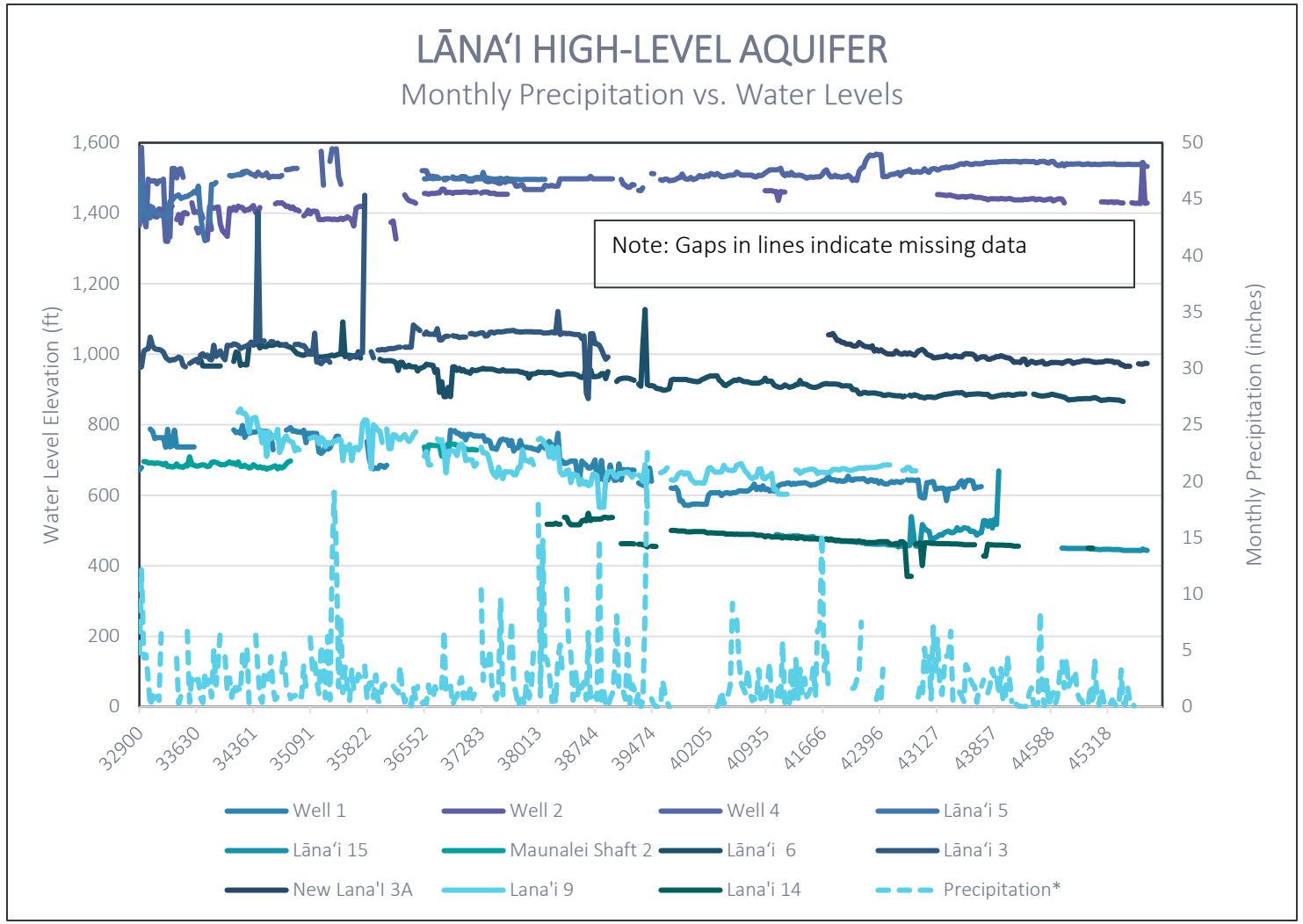
CWRM continues to get 100% compliance with well reporting in the Leeward Aquifer System.

This graph shows that overall pumpage is less than about 0.25 million gallons per day on a 12-month moving average.



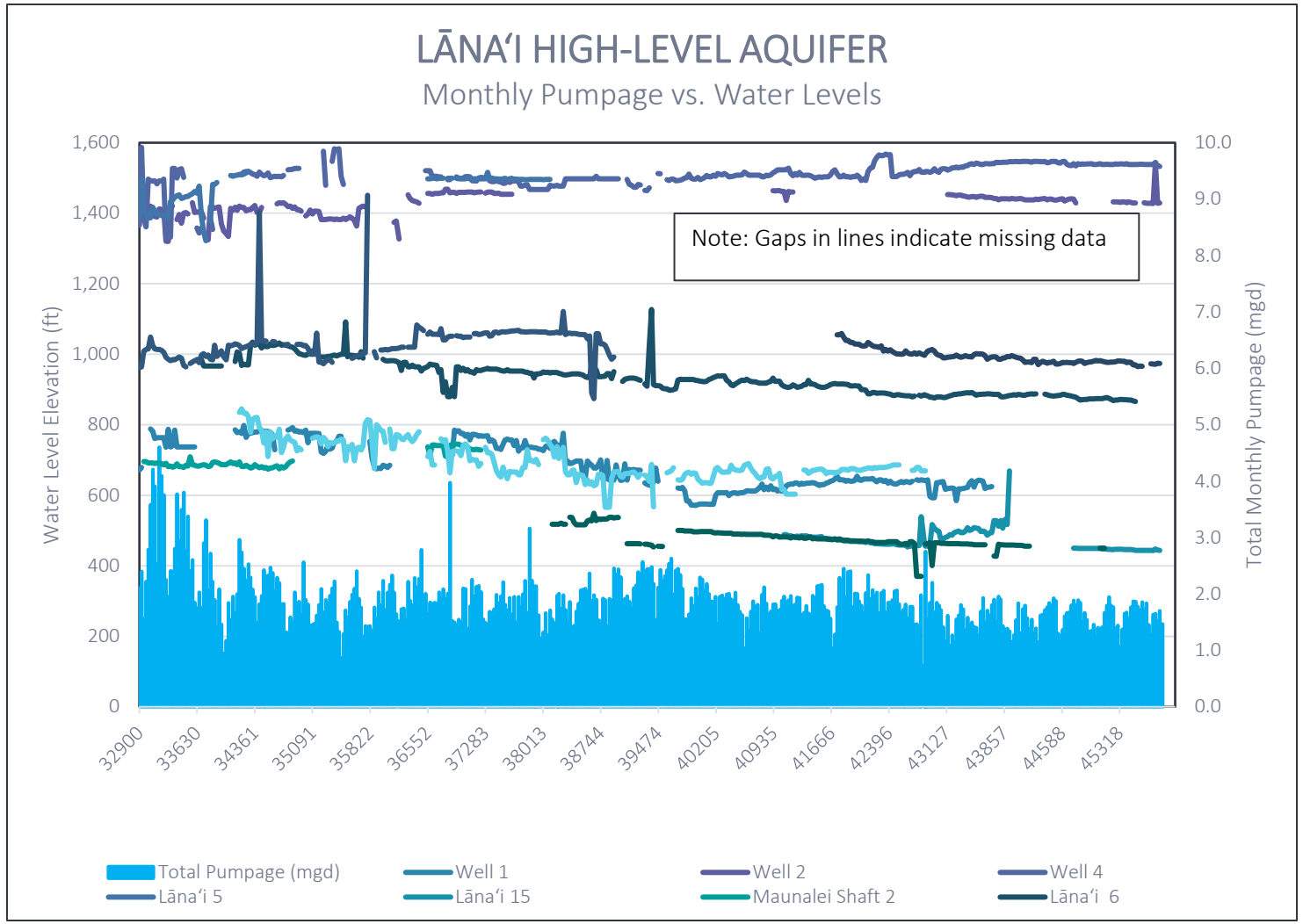
Pumpage and Rainfall

- Although some wells show slight declines in water levels, none have met the criteria for falling below ½ of the original water levels.
- Rainfall data appears to indicate that there may be a correlation between rainfall and water levels.



Pumpage and Rainfall

- This graph indicates that there are some wells that have slightly declining water levels, and some elevating water levels.
- Pumpage seems to have decreased in the past couple of years, but again, the water level changes aren't reflective of the criteria required to reinstitute designation.



MAHALO!!

Any questions can be addressed to:

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