

Protecting Wai for Wai‘anae

Groundwater Management Area Designation of the Wai‘anae Aquifer Sector

What is being proposed?

The Honolulu Board of Water Supply (BWS) intends to petition the State Commission on Water Resource Management (CWRM) to designate the Wai‘anae Aquifer Sector Area as a Ground Water Management Area (GWMA) to increase protection and management of groundwater resources equal to the same level as the rest of O‘ahu aquifers. Currently, and only in Wai‘anae, any landowner can drill a well and pump groundwater for any use with limited regulatory approvals on the amount of use or despite potential detrimental impacts.

The State Water Code, HRS §174C-41 states:
“When it can be reasonably determined, after conducting scientific investigations and research, that the water resources in an area may be threatened by existing or proposed withdrawals or diversions of water, the commission shall designate the area for the purpose of establishing administrative control over the withdrawals and diversions of ground and surface waters in the area to ensure reasonable beneficial use of the water resources in the public interest.”

HRS §174C-44 specifies: *“In designating an area for water use regulation, the commission shall consider the following:”*



1. **Whether an increase in water use or authorized planned use may cause the maximum rate of withdrawal from the ground water source to reach 90% of the sustainable yield of the proposed ground water management area;**
2. There is an actual or threatened water quality degradation as determined by the Department of Health;
3. **Whether regulation is necessary to preserve the diminishing ground water supply for future needs, as evidenced by excessively declining ground water levels;**
4. Whether the rates, times, spatial patterns, or depths of existing withdrawals of ground water are endangering the stability or optimum development of the ground water body due to upconing or encroachment of salt water;
5. Whether the chloride contents of existing wells are increasing to levels which materially reduce the value of their existing uses;
6. Whether excessive preventable waste of ground water is occurring;
7. **Serious disputes respecting the use of ground water resources are occurring;**
8. Whether water development projects that have received any federal, state, or county approval may result, in the opinion of the commission, in one of the above conditions.

Bolded criteria may apply to the Wai‘anae Aquifer Sector.

Table of Aquifer Sustainable Yields and Groundwater Production 2016

Aquifer System Area	Sustainable Yield (SY) (mgd)	Production Average (mgd)	SY Minus Production (mgd)	Existing Water Use as a % of SY
Nānākuli	1	NRU*	NRU	
Lualualei	3	0.13	2.87	4.3%
Wai'anae	3	2.77	0.23	92.3%
Mākaha	3	2.68	0.32	89.3%
Kea'au	3	0	3.00	0.0%
Total	13	5.58	6.42	

* No Reported Use

Data obtained from the 2019 State Water Resources Protection Plan using 2016 data.

"Sustainable yield" means the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water source as determined by the commission (HRS 174C-3).

Note: BWS Mākaha and Wai'anae production was reduced from 2.6 mgd in 2016 to 1.4 mgd in 2020.

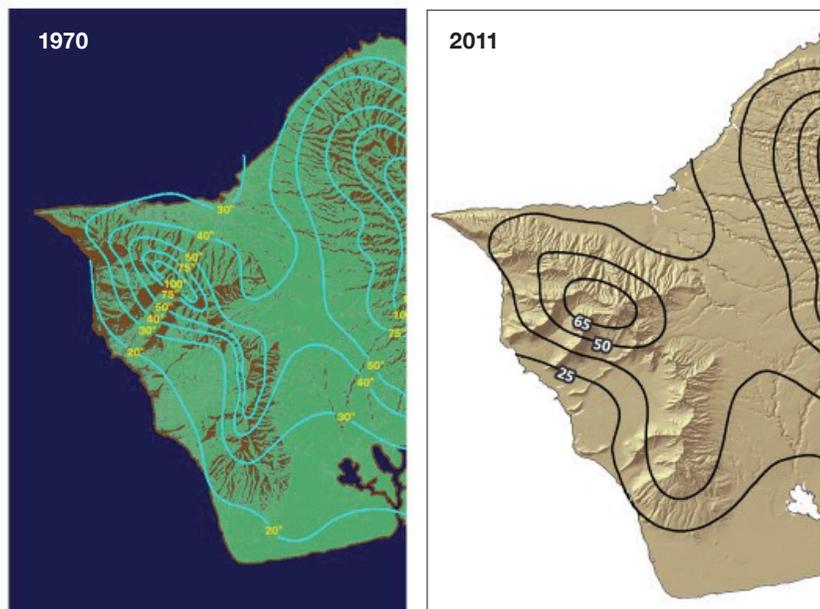
Why is Designation Needed?

Designation is essential to elevate protection and management of Wai'anae groundwater resources to the same level as the rest of O'ahu. This would sustain the BWS vision of Safe, Dependable and Affordable Water, Now and Into the Future. Specifically, designation is needed because:

- Wai'anae aquifer production meets the 90% criteria. Although BWS decreased Mākaha source production in 2020, authorized planned use in Mākaha could increase pumpage to 90% of sustainable yield.
- Climate change is causing decreasing rainfall trends affecting groundwater levels and stream flows, despite production levels below the adopted aquifer sustainable yields.
- Increasing temperatures also drive up water demand as evapotranspiration rates increase.
- BWS seeks to be responsive to the Wai'anae community by advocating for designation to proactively avoid serious conflicts.

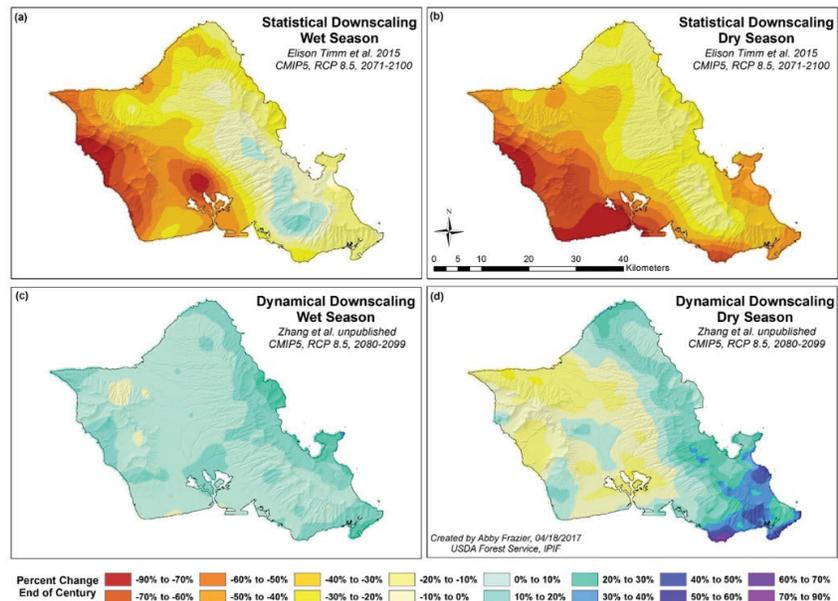
A comparison of rainfall maps from 1970's to 2011 show a decrease in rainfall. Ka'ala rainfall decreased from 100-inches to 65-inches.

References: BWS 1970 Oahu Water Plan; University of Hawai'i 2011 Rainfall Atlas, T. Giambelluca



Mean Annual Rainfall

UH 2100 rainfall forecasts using 2 downscaled climate models show decreasing rainfall in Wai'anae. In the worst-case statistical model, rainfall could decrease an average of 65% in important mauka recharge areas, reducing the amount of water that can be sustainably withdrawn from the aquifer.



The Wai'anae Watershed Management Plan (WMP), 2009 is the ahupua'a-based integrated resource management plan that aligns with the Wai'anae Sustainable Communities Plan 2012. WMP's goal, endorsed by Neighborhood Boards and adopted by CWRM and the City Council, is to balance the protection and management of Wai'anae's water resources with reasonable water use and development. Designation promotes this goal and WMP's five plan objectives - to promote sustainable watersheds, to protect and enhance water quality and quantity, to protect Native Hawaiian rights and traditional and customary practices, to facilitate public participation and education, and to meet future water demands at reasonable costs.

The BWS is initiating a comprehensive outreach effort to gain important feedback for the petition development and to elevate community awareness of the many important issues going on in the area and the benefits and requirements of designation.

- Designation provides a formal public process to discuss Wai'anae's competing water issues including but not limited to: potential decreases in sustainable yields, water availability for affordable housing, Department of Hawaiian Home Lands (DHHL) and agriculture, water conservation and reuse to reduce freshwater use, forest management, stream habitat, traditional and customary practices, to balance water resource protection and management in the context of watershed health.
- Water production in Mākaha and Wai'anae may be reduced if sustainable yields are lowered due to decreasing rainfall and higher temperatures caused by climate change, even without designation.
- More than ½ of Wai'anae's drinking water is imported from the Pearl Harbor aquifer sector, so Wai'anae's freshwater security depends on water sources in Wai'anae and approximately 16 miles of BWS transmission pipelines, booster pumps and reservoirs.
- Increasing freshwater import into Wai'anae will require major new source development, booster pumps and transmission infrastructure. Higher water rates could result in elevating affordability and equity issues for low income and elderly customers on O'ahu, especially important in Wai'anae.
- CWRM is amending Interim Instream Flow Standards for Kaupuni Stream, which may result in a stream restoration mandate to disconnect and release gravity tunnel water into streams.

- BWS is discharging Wai'anae Plantation Tunnel #3 water back into Kaupuni Stream restoring flows and habitat to the coast, but it comes with lower drinking water system capacity and less dependability and resilience in Wai'anae Valley.



For many years, Wai'anae communities have been expressing concern about water management and to how to proactively plan for restoration and resilience. Wai'anae elected officials, Neighborhood Board members, Nānākuli High School students, and the Concerned Elders of Wai'anae have raised this concern.

Who will BWS reach out to?

Beginning fall 2021 BWS and its consultant Kahālāwai Consulting will be seeking to meet with elected officials (including Neighborhood Boards), DHHL beneficiaries, farmers, landowners, homeowner associations, and any community groups interested in talking with the BWS about this important subject.

What happens if the Water Commission agrees to protect the Wai'anae Aquifer Sector Area as a GWMA?

The most significant difference between water management in a GWMA and non-designated areas is that large users are required to obtain a Water Use Permit to ensure reasonable and beneficial water use. In non-designated areas, permits are only required for constructing wells and installing pumps.

Who is required to get a ground water use permit?

Every owner of a ground water well or tunnel source is required to submit a water use permit application (WUPA), EXCEPT well owners that have individual domestic systems or water catchment systems. In addition, people who exercise traditional and customary native Hawaiian practices dependent on ground water are not required to submit or receive a WUPA, but they may intervene and comment on ground water uses that may impact their protected practices.

What is the process for getting a water use permit?

In a newly designated GWMA, existing water users have one year from the date of designation to file a WUPA. The permit application process is not insignificant and can be challenged.

The State Water Code, HRS §174C-49 requires permit applicants to address their water use:

- (1) Can be accommodated with the available water source;
- (2) Is a reasonable-beneficial use as defined in section 174C-3;
- (3) Will not interfere with any existing legal use of water;
- (4) Is consistent with the public interest;
- (5) Is consistent with state and county general plans and land use designations;
- (6) Is consistent with county land use plans and policies; and
- (7) Will not interfere with the rights of the department of Hawaiian home lands as provided in section 221 of the Hawaiian Homes Commission Act.

Applicants pay an application fee and for an advertisement of their permit in the local paper. If anyone objects to the permit, a hearing is held, and at that hearing parties can further request a contested case, which is a quasi-judicial hearing on the objections. Otherwise, the CWRM considers and votes on the permit at a regular meeting, which is the more common path to approval of WUPA.