



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

STAFF SUBMITTAL

COMMISSION ON WATER RESOURCE MANAGEMENT

July 19, 2022
Honolulu, Hawai'i

Approve Extension of Temporary Relief for a Period of 90 Days and Delegation of Authority to the Chairperson to Approve Future Extensions of Temporary Relief from the Interim Instream Flow Standard for Kaua'ula Stream, Kaua'ula Stream, Lahaina, Maui, To Provide for the Continued Diversion of 300,000 Gallons Per Day During Low-Flow Conditions to Kuleana Users and Kamehameha Schools' Tenants
Whose Sole Source of Water is Kaua'ula Stream

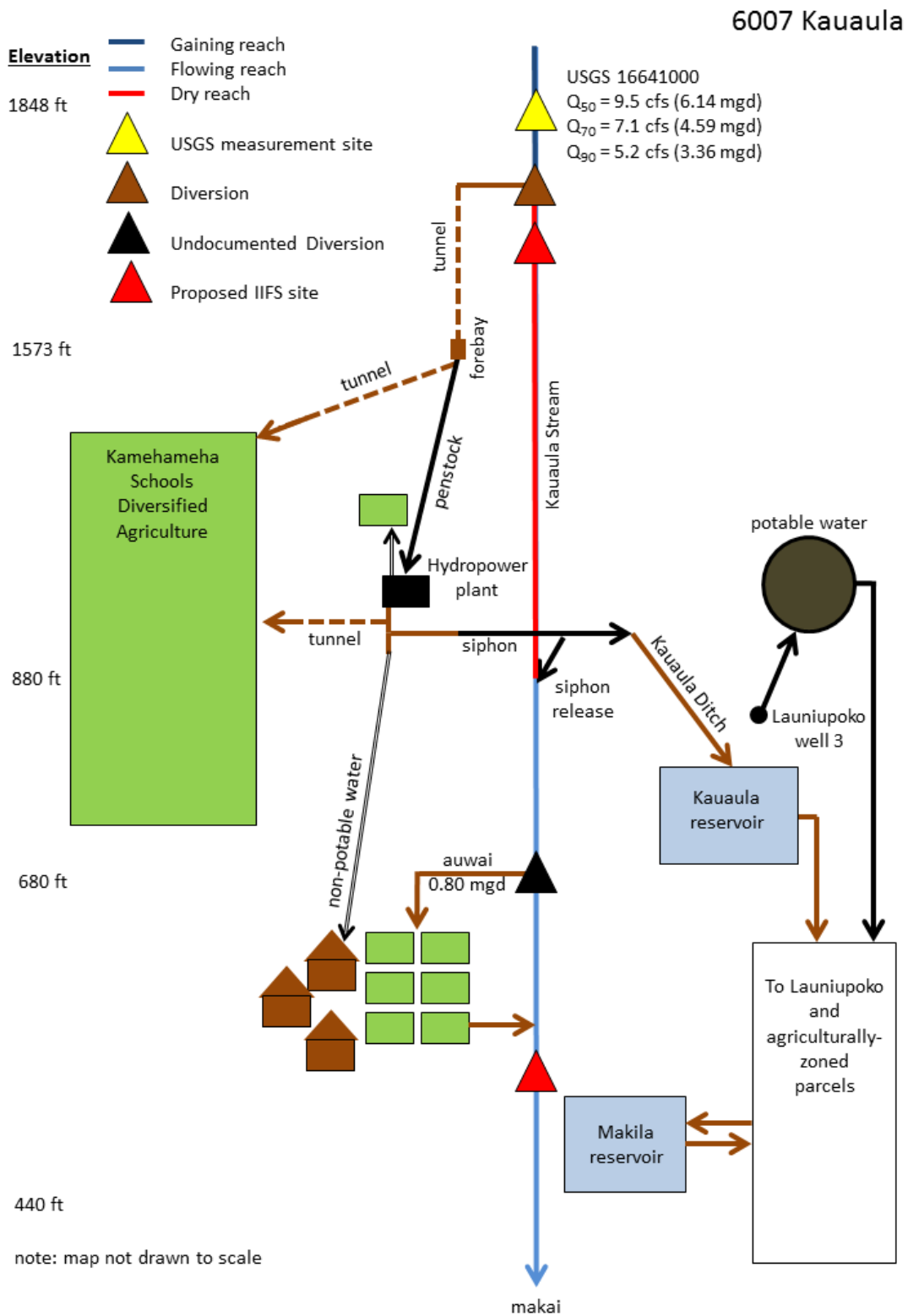
SUMMARY OF REQUEST

Staff is requesting that the Commission on Water Resource Management (Commission) approve the temporary relief of interim instream flow standards (interim IFS) on Kaua'ula Stream at Diversion 957 to ensure the continued use of 300,000 gallons per day of water to meet the immediate needs of public trust uses of Kuleana tenants, including water for traditional and customary practices (150,000 gallons per day) and domestic uses (50,000 gallons per day), and the reasonable irrigation use for agricultural and cultural education purposes of Kamehameha Schools' tenants with no alternative water sources (100,000 gallons per day), for a period of 60 days, so that staff can reassess the balance of water for public trust uses during drought conditions. Staff is also requesting the delegation of authority to the Chairperson to approve any future extensions of temporary relief from the interim instream flow standards for Kaua'ula Stream as needed.

LEGAL AUTHORITY

Under the State Water Code (Code), the Commission shall have jurisdiction statewide to hear any dispute regarding water resource protection, water permits, or constitutionally protected water interests, or where there is insufficient water to meet competing needs for water, whether or not the area involved has been designated as a water management area under this chapter. The final decision on any matter shall be made by the Commission. HRS § 174C-10.

Figure 1: Simplified schematic diagram for the hydrologic unit of Kaua'ula (6007).



Approve Extension of Temporary Relief from the IFS for Kaua‘ula Stream

BACKGROUND

On March 20, 2018, the Commission approved amendment of the interim instream flow standard (interim IFS) for the hydrologic unit of Kaua‘ula (ID: 6007), as follows:.

Interim IFS A: The interim IFS below the main diversion (REG.957.6), near an altitude of 1,540 feet, shall be established at an estimated flow of 5.2 cubic feet per second (3.36 million gallons per day) based on U.S. Geological Survey (USGS) estimates of total flow Q_{90} . This interim IFS is designed to provide habitat and maintain a wetted pathway between the diversion and the siphon release point. Due to the uncertainty of existing hydrogeologic conditions of Kaua‘ula Stream, this interim IFS will be subject to a conditional release of water and monitoring by Commission staff. Should an estimated flow of 5.2 cubic feet per second not be sufficient, the interim IFS may be revised by a future Commission action.

Interim IFS B: The interim IFS below the Kuleana users near an altitude of 270 feet, shall be established at an estimated flow of 6.35 cubic feet per second (4.1 million gallons per day) based on USGS estimates of total flow Q_{70} and seepage losses. This interim IFS is designed to provide habitat and maintain a wetted pathway between the siphon release point and the ocean while providing for Kuleana water needs downstream of the siphon. Due to the uncertainty of existing hydrogeologic conditions of Kaua‘ula Stream, this interim IFS will be subject to a conditional release of water and monitoring by Commission staff. Should an estimated flow of 6.35 cubic feet per second not be sufficient, the interim IFS may be revised by a future Commission action. This interim IFS allows Launiupoko Irrigation Company to meet the 0.4 mgd agricultural demand for Kamehameha Schools 100-percent of the time and when combined with water diverted from Launiupoko Stream, allows Launiupoko Irrigation Company to meet their 0.303 mgd agricultural water demand 100-percent of the time.

On October 18, 2018 Commission staff updated the Commission on the implementation of the interim IFS for Kaua‘ula Stream, documenting the measured flow values diverted at Diversion 957, returned to the stream below Diversion 957, and transmitted to Kaua‘ula Reservoir.

On September 28, 2021, the Commission sent a letter to Mr. Glenn Tremble, of Launiupoko Irrigation Company (LIC), which sought implementation of required follow-up actions including modification of LIC’s main diversion (No. 957) and monitoring and reporting of water use for the amount of water distributed to Maui Ku‘ia Estate Chocolate Inc. (KEC), the Kaua‘ula Valley homes, Kaua‘ula Reservoir, and returned to the stream at the siphon.

On November 4, 2021 and December 2, 2021, the Commission received response letters from LIC, that commencement of the diversion modification would be conditioned on LIC’s receipt of a revised temporary rate increase from the Hawai‘i Public Utilities Commission (PUC) “providing LIC with the funds required to fund pumping costs and to meet other operating expenses...”

On November 19, 2021, at Maui County Councilmember Tamara Paltin’s request, Commission staff coordinated a meeting with KEC and Ku‘ia Agricultural Education Center (KAEC) to discuss the impacts of water curtailment by LIC on their irrigation needs.

Approve Extension of Temporary Relief from the IIFS for Kaua‘ula Stream

On March 31, 2022, the Commission issued a Notice of Alleged Violation (NOAV) that LIC continued to be in violation of the two interim IFS established on Kaua‘ula Stream. This Notice was forwarded to the PUC on April 8, 2022, as Additional Information to Request for Public Comment in Docket No. 2020-0089.

On April 3, Mr. Gunars Valkirs, of KEC, sent an email to Commission staff indicating that he had been made aware of the NOAV issued to LIC and that the Commission actions “may cause LIC to greatly reduce or eliminate altogether the diverted stream water that is the sole source of water for Ku‘ia and the kuleana families.”

On April 4, 2022, Mr. Tremble responded that the March 31, 2022 NOAV was received and that the release valves adjacent to the main diversion on Kaua‘ula Stream were set at approximately 2,150 to 2,350 gpm, to comply with the interim IFS of 3.36 mgd.

On April 10, 2022, Mr. Valkirs forwarded a Water Update, dated April 8, 2022, sent from LIC to all of its paying customers. The Update indicated that “Unfortunately, as a result, we expect there will be many days of little to no irrigation water available. If there’s anything that might prompt action by the PUC, it’s the personalized requests of LIC’s consumers to grant LIC’s temporary rate increase that will facilitate supplementing the lack of surface water with pumped ground water. We urge you to write or email the PUC at the email address below with your support for LIC’s Temporary Rate Case that, if approved as requested by LIC, will help replace the surface water that is no longer available from Kauaula Stream due to the IIFS.”

On April 13, 2022, Mr. Valkirs notified Commission staff via email that he “warned that LIC was setting the stage to take this action and now they have. Today there is no water in the diversion and all water has been directed into the stream. Kamehameha Schools land has been cut off so that Maui Ku‘ia Estate Chocolate and Ku‘ia Agricultural Education Center have no water. The Kuleana users have no water. There is no water in the diversion.

“If this is what CWRM hopes to accomplish with its Notice of Alleged Violation then you have succeeded. If not then something must be done IMMEDIATELY to get water back into the diversion. In one week I will lose the rest of this year's harvest of cacao. In 2-3 weeks the trees will be irreparably damaged and the farm will be lost.”

On April 14, 2022, Mr. Tremble further explained that LIC took the following actions: 1) LIC staff visited the intake seven (7) times and adjusted the release to 2,200 gpm (3.17 mgd) to try and meet the interim IFS exactly, while allowing remaining water to enter the Kaua‘ula Ditch; 2) the second release at the siphon was adjusted to 400 to 700 gpm to achieve the 4.1 mgd below).

On April 14, the Commission also notified Mr. Valkirs that the Commission staff was working on a staff submittal to seek temporary relief for a period of 60 days from the interim IFS for Kaua‘ula Stream to provide for the continued diversion of 300,000 gallons per day during low-flow conditions to kuleana users and Kamehameha Schools tenants whose sole source of water is Kaua‘ula Stream.

Approve Extension of Temporary Relief from the IIFS for Kaua‘ula Stream

On April 14, the Commission was notified by Attorney Bianca Isaki that, on behalf of Kuleana tenants, a lawsuit was filed against LIC with 1) A complaint; 2) A motion for preliminary injunction; and 3) An Ex Parte motion for a ten day stay and to advance hearing on motion for preliminary injunction.

On April 19, 2022, the Commission approved the following order:

- 1) Approve a temporary relief for a period of 90 days from the interim IFS for Kaua‘ula Stream to provide for the continued diversion of 300,000 gallons per day (0.300 mgd; 0.46 cfs) during low-flow conditions (e.g., when flow measured at USGS 16641000 drops below 5.60 cfs (3.62 mgd)) such that the interim IFS becomes the mean daily flow minus 300,000 gallons; at all other times the interim IFS should be met.
- 2) Order Launiupoko Irrigation Company, Inc. to continue to meet the public trust water needs of Kuleana tenants at all times, including their traditional and customary and domestic uses.
- 3) Order Launiupoko Irrigation Company, Inc. to continue to meet the water needs of tenants of Kamehameha Schools for reasonable irrigation use for agricultural and cultural education purposes who currently have no other alternative source of water.

On April 21, 2022, LIC responded to the Commission order that: due to the rapid rise and fall of streamflow in Kau‘aula Stream in response to temporary rainfall conditions, to continue to divert a specific volume (i.e., 300,000 gallons per day) would require the deployment of staff on a nearly continual basis to the diversion to make modifications. LIC suggested that the 90-day mean streamflow was 3.4 mgd and that they could set their flow meter on the pipeline that releases water back to Kau‘aula Stream from the ditch to 3.1 mgd to meet the instream uses. All flows above 3.1 mgd would then be diverted to meet the kuleana and reasonable agricultural needs.

Commission staff is currently assessing Kaua‘ula Stream flow data and is in discussions with Kuleana users, Kamehameha Schools, and Launiupoko Irrigation Company to assess the established interim instream flow standards and seek solutions to more efficiently deliver water to system users.

ANALYSIS

Kaua‘ula Stream is gaining in the uppermost reaches in the watershed but in the reach immediately above the diversion, from about 1850 ft in elevation to the partial-record gaging station (USGS station number 205239156372101) at 1,560 ft in elevation, the stream was losing flow in 2008. One-hundred percent of the low-flows are diverted at the diversion at 1,560 and the stream has been dry until water is released at the Kaua‘ula Ditch siphon at 940 ft in elevation. The stream then loses flow at about 1.1 cfs mi⁻¹ in the channel down to the ‘auwai diversion.

In 2014, USGS published low-flow duration statistics for Kaua‘ula Stream above Diversion 957 (Table 1). These statistics were consistent with the monthly reported amount of water diverted

Approve Extension of Temporary Relief from the IIFS for Kaua‘ula Stream

from Kaua‘ula Stream via Kaua‘ula Ditch provided by LIC: mean diverted flow from 2009-2015 was 4.162 mgd. However, they represent larger estimated flows than what Hatton (1976) reported as the Q₅₀ and Q₉₀ flows of 6.92 cfs (4.47 mgd) and 4.56 cfs (2.95 mgd), respectively.

Table 1. Low-flow duration discharge statistics in cubic feet per second (cfs) and million gallons per day (mgd) for Kaua‘ula Stream at 1540 ft, Maui (Source: Cheng, 2014; USGS SIR 2014-5087)

Discharge (Q) for a selected percentage (xx) discharge was equaled or exceeded										
1984-2013	Q ₅₀	Q ₅₅	Q ₆₀	Q ₆₅	Q ₇₀	Q ₇₅	Q ₈₀	Q ₈₅	Q ₉₀	Q ₉₅
cfs	9.5	8.6	8.1	7.6	7.1	6.6	6.2	5.7	5.2	4.8
mgd	6.14	5.56	5.24	4.91	4.59	4.27	4.01	3.68	3.36	3.10

On March 22, 2022, Commission staff measured 1.18 cfs (0.76 mgd) in Kaua‘ula Stream at the ‘auwai diversion when 1.81 cfs (1.172 mgd) was being returned to the stream at Kaua‘ula siphon. On this day, 4.76 cfs (3.08 mgd) was flowing in the stream above Diversion 957 at 12:00pm and only 0.50 cfs (0.32 mgd) was flowing below Diversion 957 at 12:00pm.

On April 26, 2022, Commission staff measured 3.84 cfs (2.48 mgd) in Kaua‘ula Stream at the ‘auwai diversion and there was mauka to makai flow in Kaua‘ula Stream. On this day, 13.0 cfs (8.4 mgd) was flowing above Diversion 957 at 12:00pm and 5.34 cfs (3.45 mgd) was flowing below Diversion 957 at 12:00pm.

ISSUES

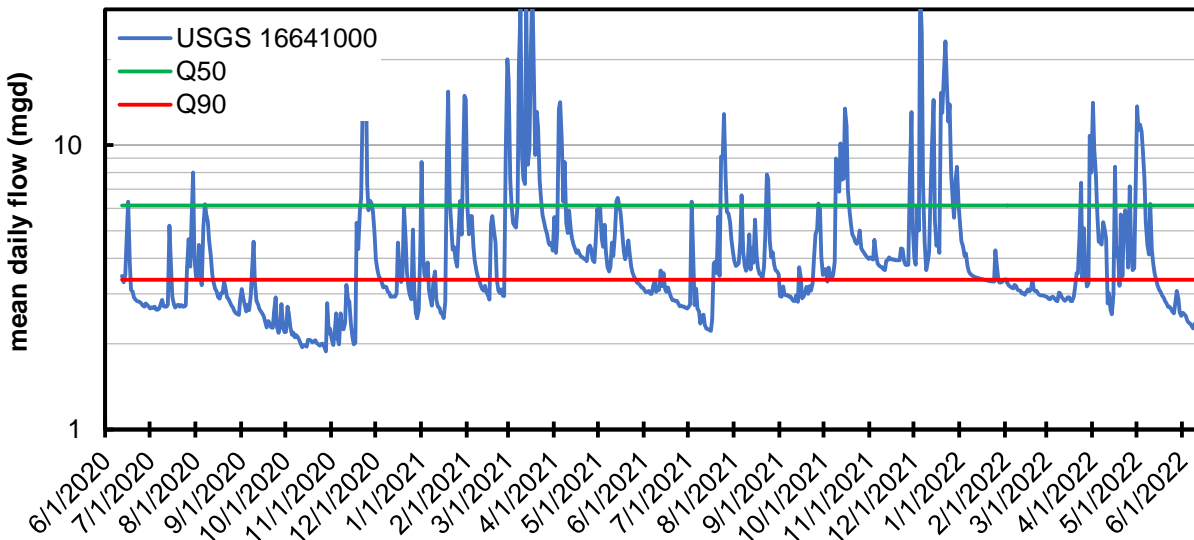
Kaua‘ula Stream once supported traditional agriculture and domestic needs for a large population of Native Hawaiians in the Kaua‘ula ahupua‘a as well as in neighboring ahupua‘a (e.g., Waione‘e, Ku‘ia Makila, Puehuehuiki, and others). At the time of the Māhele, there were three main ‘auwai on the Lahaina (North) side of Kaua‘ula Stream: Pi‘ilani, Waimana, Pu‘uhuliliole. At an elevation higher than the existing Diversion 957, Pi‘ilani ‘Auwai transported water from Kaua‘ula Stream to support wetland and dryland agriculture on the plateau of Kaua‘ula Valley high above the stream channel. This ‘auwai was displaced when Pioneer Mill Company (Pioneer Mill) constructed the constructed Diversion 957 to collect water from Kaua‘ula Stream for plantation use. Remnants of the Pi‘ilani ‘Auwai are visible along the pali for great distances. On the Olowalu (South) side of Kaua‘ula Stream two ‘auwai Pu‘upapai and Muliwaikane. Descriptions of additional smaller ‘auwai which fed riparian lo‘i have also been noted. Pioneer Mill destroyed portions (e.g., Pi‘ilani) or restricted downstream flow (e.g., Pu‘upapai) of all the ‘auwai and only the Waimana ‘Auwai is currently in use.

Pioneer Mill Company constructed Kaua‘ula Ditch to transport water from Kaua‘ula Stream via the 0.8 mile Kaua‘ula Tunnel to the “600” fields in sugar cane cultivation. At the tunnel exit, a forebay and penstock were built to produce power at the Makila Hydropower Plant. The penstock is connected to two pipelines which support traditional and customary practices (primarily lo‘i kalo) originally dependent on the Pi‘ilani ‘Auwai. The return flow (approximately 80%) from the lo‘i complex re-enters the ditch via a 2-inch PVC pipe (Figure 4). Below the tailrace of the hydropower plant, non-potable water is distributed to tenants of Kamehameha Schools and to Kuleana families.

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On March 20, 2018, the Commission established an interim IFS of 3.32 mgd immediately below Diversion 957, representing the Q_{90} flow. In order to ensure that sufficient water was available to meet recognized uses and enforce the interim IFS, Commission approved funding for the establishment of a real-time USGS stream gaging in August 2018. Due to delays associated with permitting and the pandemic, the stations were finally installed in June 2020 (Figure 2).

Figure 2. Mean daily flow above Diversion 957 at USGS 16641000 on Kaua‘ula Stream at 1550 ft with estimated Q_{50} and Q_{90} flow duration statistics superimposed.



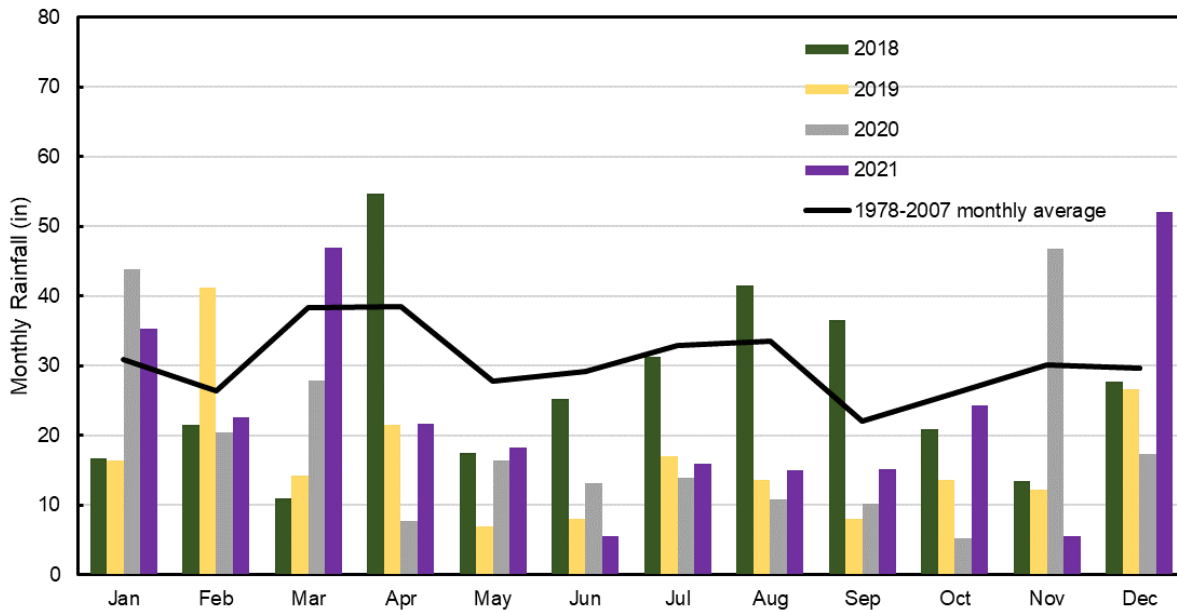
Since installation in 2020 (i.e., for 2 full years), approximately 86% of the days have had a mean daily flow less than the Q_{50} estimated by USGS and 47% of the days have had a mean daily flow less than the Q_{90} estimated by USGS. By comparison, during this same period (June 2020 to June 2022), mean daily flow at USGS station 16620000 on Honokōhau Stream was less than the Q_{50} 65% of the days and less than Q_{90} 24% of the days.

Current rainfall trends and projects predict significant declines in rainfall in leeward Maui. Following almost two years of continuous data at USGS 16641000 on Kaua‘ula Stream, Maui has experienced multiple, prolonged periods of drought resulting in sustained rainfall deficits that have limited groundwater recharge and streamflow (Figure 3). Consequently, mean daily flow has been below the estimated Q_{50} flow 86% of the time, and below the estimated Q_{90} flow 46% of the time. This has affected the availability of water for both instream and non-instream public trust uses as well as reasonable irrigation needs of non-public trust uses.

Kamehameha Schools owns multiple parcels of land in the adjoining ahupua‘a which were originally dependent on the Pi‘ilani ‘auwai. Kamehameha Schools has two long-term tenants conducting commercially viable, educational, and/or cultural agricultural activities that do not have alternative sources of water readily available.

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Figure 3. Total monthly rainfall (vertical bars) from 2018-2021 and 30-year mean monthly rainfall (black line) at USGS rainfall station 25327156351102 Puu Kukui



Alterative Water Sources

Launiupoko Irrigation Company was established to distribute non-potable water to customers in three subdivisions of Launiupoko: Mahanalua Nui, Makila, and Pu‘unoa. All customers in these subdivisions have access to both potable and non-potable water. Potable water is supplied by two large capacity wells: 6-5138-001 (Launiupoko 1; 12-month average pumpage of 0.363) and 6-5137-001 (Launiupoko 2; 12-month average pumpage <0.001 mgd). Non-potable water is supplied by water diverted from Launiupoko Stream and Kaua‘ula Stream. Since 2004, diverted flow from Launiupoko Stream has averaged 0.41 mgd.

The Kuleana families in Kaua‘ula Valley and the agricultural tenants of Kamehameha Schools do not have alternative sources of water to rely upon. Recent metered usage by these entities totals approximately 300,000 gallons per day of water for public trust uses, including water for traditional and customary practices (150,000 gallons per day) and domestic uses (50,000 gallons per day), and the reasonable irrigation use for agricultural and cultural education purposes with no alternative water sources (100,000 gallons per day).

KEC has applied for and received a well construction permit (October 2020) to develop a well for their agricultural irrigation needs knowing that reliance on stream water would be limited in the future. It is staff’s understanding that development of the well has been delayed due to COVID-19.

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Figure 4. Kaua'ula Ditch below the hydropower tailrace. Flow of water to Kamehameha Schools tenants is indicated by the green arrow (water is conveyed in a pipeline located in the ditch, with its intake situated further upstream in the tailrace tunnel to the right), return flow from lo'i complex mauka of hydropower plant indicated in orange circle, pipeline to Kuleana families in valley is indicated by the red arrow (water is conveyed in a pipeline located in the ditch), and downstream direction of flow in ditch to siphon indicated by the blue arrow.



RECOMMENDATIONS

Staff recommends that the Commission:

- 1) Extend the temporary relief for an additional period of 90 days from the interim IFS for Kaua‘ula Stream to provide for the continued diversion of 300,000 gallons per day (0.300 mgd; 0.46 cfs) during low-flow conditions (e.g., when flow measured at USGS 16641000 drops below 5.60 cfs (3.62 mgd)) such that the interim IFS becomes the mean daily flow minus 300,000 gallons; at all other times the interim IFS should be met.
- 2) Order Launiupoko Irrigation Company, Inc. to continue to meet the public trust water needs of Kuleana tenants at all times, including their traditional and customary and domestic uses.
- 3) Order Launiupoko Irrigation Company, Inc. to continue to meet the water needs of tenants of Kamehameha Schools for reasonable irrigation use for agricultural and cultural education purposes who currently have no other alternative source of water.
- 4) Delegate authority to the Chairperson to extend additional periods of temporary relief from the interim IFS for Kaua‘ula Stream to provide for the continued diversion of 300,000 gallons per day (0.300 mgd; 0.46 cfs) during low-flow conditions, as needed.

Ola i ka wai,



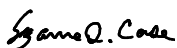
M. KALEO MANUEL
Deputy Director

Exhibit:

1. Submittal C-4, April 19, 2022

<https://files.hawaii.gov/dlnr/cwrm/submittal/2022/sb20220419C4.pdf>

APPROVED FOR SUBMITTAL:



SUZANNE D. CASE
Chairperson