



STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES | KA 'OIHANA KUMUWAIWAI 'ĀINA
COMMISSION ON WATER RESOURCE MANAGEMENT | KE KAHUWAI PONO
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STAFF SUBMITTAL

COMMISSION ON WATER RESOURCE MANAGEMENT

August 15, 2023
O'ahu, Hawai'i

Request and Delegation of Authority to Chairperson to
Enter into a Joint Funding Agreement with U.S. Geological Survey
For Statewide Hydrologic Data Collection and
Water Resource Monitoring for Federal Fiscal Year (FFY) 2024; and

Declare that Project is Exempt from Environmental Assessment Requirements under
Hawaii Revised Statutes Chapter 343, and Hawaii Administrative Rules Chapter 11-200.1

SUMMARY OF REQUEST

Staff recommends that the Commission on Water Resource Management (Commission) enter into a Joint Funding Agreement (Agreement) with the U.S. Geological Survey (USGS) for the inventory and investigation of Hawai'i's water resources.

BACKGROUND

The cooperative monitoring of Hawai'i's hydrologic resources began in 1909 when the USGS entered into an Agreement with the Territory of Hawai'i. Initially, monitoring was focused on surface water, and 12 streams were gaged continuously. By 1914, there were 87 continuous-record stations, largely serving sugarcane plantation data needs. Following statehood, the Division of Water and Land Development (DOWALD) managed the Agreement with USGS for the Department of Land and Natural Resources (DLNR) to maintain funding for many gages. The program continued to grow, reaching a peak in 1966 when 197 stream gages were operational. In 1972, ground water data collection became an integral part of the Agreement. Baseline data throughout the State covered 170 observation wells. Various monitoring programs and data collection objectives were funded cooperatively between the State and the USGS through various mechanisms.

With the passage of the State Water Code in 1987, responsibility to coordinate monitoring programs and activities concerning water resource protection and management were transferred to the Commission. The cooperative monitoring of Hawai'i's hydrologic resources is part of the Commission's mandate to "maintain an inventory of all water uses and water resources" [Haw.

Rev. Stat. §174C-5(14)]. The program also helps the Commission to assess how climate variability, changing land use, and increasing water demands affect water resources. Maintaining a long-term hydrologic monitoring program with the USGS is an essential component of the Commission's Water Resource Protection Plan, including:

...the effect on the environment, procreation of aquatic life and wildlife, and water quality; study the quantity and quality of water needed for existing and contemplated uses, including irrigation, power development, geothermal power, industrial, and municipal uses; study such other related matters as drainage, reclamation, flood hazards, floodplain zoning, dam safety, and selection of reservoir sites, as they relate to the protection, conservation, quantity, and quality of water. (HAR §13-170-21)

Over the years, stream and well observation gages were discontinued for a variety of reasons. There was a shift in fiscal priorities, economic realities, completed data acquisition objectives, and reduced plantation partnership engagement as plantations ceased operations. Beginning in 1998, the Commission streamlined the Agreement by transferring the crest-stage stream-gaging program to the City and County of Honolulu (for O'ahu) or the Department of Transportation (for neighbor islands) where this data (e.g., flooding issues) are more relevant to disaster response rather than resource management or sustainability issues. In addition, the Waiāhole Trust Fund was established in 1997 to defray the cost of monitoring stream and rainfall gages within the region impacted by the Waiāhole Ditch.

Duplication of groundwater data collection sites were eliminated in 1998. Groundwater data gathering changed and expanded to incorporate data provided by water system purveyors and well owners, who were required by law and rule to report their water-use, water levels, and chloride levels. Further, Commission staff has developed in-house capacity and expertise to take over monitoring of selected well sites on a quarterly basis. As a result, the Commission's Survey Branch is assuming the monitoring of many wells previously monitored by the USGS. With this Agreement, an additional 6 groundwater monitoring wells are maintained.

During the economic recession of the mid-2000s, watershed management grant funding through the Division of Forestry and Wildlife that supported many stream gaging stations was discontinued. In order to maintain the continuity of important monitoring records, money from the Commission budget was dedicated to the operation and maintenance costs for these stations as part of the Agreement. In 2011, the Commission's Stream Protection and Management (SPAM) Branch started monitoring interim instream flow standards (interim IFS) on the island of Maui. Since that time, additional monitoring has been needed to ensure the compliance of interim IFS throughout the State.

Commission staff has also developed the in-house capacity and expertise to install, maintain, and monitor selected surface water locations. While the overall installation cost and the operation and maintenance cost per station can be much lower when Commission staff maintains a stream gaging station, staff time dedicated to this type of work takes away from the Stream Protection and Management Branch's other duties, including the development of interim instream flow standards. Currently, Commission staff monitors 35 observation wells and maintains approximately 50 stream or ditch gaging stations across the state. Commission staff are

currently over-extended and do not have the capacity to expand the existing gaging network. With this Agreement, an additional 46 streamflow and one ditchflow monitoring station are maintained.

The 2019 Update to the Water Resource Protection Plan¹ identified a need to monitor the hydrological consequences of climate change across the State. Further, the 2020 USGS Hydrological Monitoring Needs Assessment for the State of Hawai‘i² identified the location of new streamflow monitoring stations needed to fully implement a hydrological monitoring network to characterize the consequences of climate change. Stations re-established in locations with previous long-term streamflow monitoring can also be used to help track shifts in water availability or hydrological processes associated with climate change.

USGS also maintains high quality assurance and quality control standards which can be challenging for the Commission to replicate with limited staffing. An overall increase in monitoring needs as a result of new interim IFS, and a need to better understand how changes in climate patterns are affecting surface water availability, has led to an increase in the number of CWRM-funded USGS stream gaging stations. Commission staff have also worked with other state, county, and federal agencies to support the collection of hydrological data. The Commission is the largest, cooperator of the USGS in the State of Hawai‘i (Table 1).

Table 1. Summary of current (FFY2024) total USGS monitoring efforts as well as the breakdown of the number of CWRM co-funded USGS monitoring stations and the other cooperators.

	rainfall stations	groundwater well stations	continuous stream monitoring stations (not real-time)	real-time stream monitoring stations	continuous ditch monitoring stations
USGS total	22	32	5	82	1
CWRM-USGS co-funded	17	6	5	41	1
Other cooperators	5	26	0	41	0

The total cost of the Agreement, the Commission share, and the costs for operating and maintaining each type of rainfall, stream, and groundwater monitoring station has been standardized across stations and the most recent years are provided in Table 2.

Table 2. Summary of annual cost requirements for various stations and the source of funds for the CWRM-USGS statewide hydrologic data collection agreement by Federal Fiscal Year (FFY).

Cost of services or source of funds	FFY2020	FFY2021	FFY2022	FFY2023	FFY2024
Total Joint Funding Requirement	\$1,107,850	\$932,770	\$1,133,144 ¹	\$1,261,031	\$1,231,072
Expected (full-year) CWRM cost-share not to exceed	\$859,139	\$711,475	\$909,076 ¹	\$1,005,646	\$999,964
Percentage CWRM cost-share ²	78%	76%	80%	80%	82%

¹Does not reflect discount applied due to FFY2021 reduced services associated with the SARS-COV-2 pandemic

²Does not include contributions from other agencies including HI DOT, USDA Forest Service, Maui County, Hawaii County, Kauai County, Mahi Pono, or Kamehameha Schools

¹ <https://dlnr.hawaii.gov/cwrmp/planing/hiwaterplan/wrpp/>

² <https://pubs.er.usgs.gov/publication/sir20205115>. To build out the full network of water resource monitoring needs in the USGS report will cost \$177 million. This cost includes rainfall, streamflow, and monitor wells.

CURRENT AGREEMENT

Rainfall Monitoring

The defacto State Climate Office was originally located under DOWALD within DLNR. DOWALD acted as a repository for climate data collected by disparate entities (mostly private agricultural companies). With the passage of the State Water Code and the establishment of the Commission, the Climate Office was transferred to the University of Hawai'i (UH) Department of Meteorology. While UH does not serve the same function as DOWALD, they continue to be a repository for climate data and field data requests. Through the Agreement, the Commission has funded the monitoring of rainfall in important locations throughout the state for the last few decades. Rainfall stations all provide real-time continuous data that are relied upon by the Commission, Federal (e.g., National Weather Service), State and County (e.g., Departments of Civil Defense, Emergency Management, Public Works) agencies, and the public to closely monitor weather conditions. Commission staff continue to work with UH staff to implement the Hawai'i Mesonet real-time climate monitoring network across the state. Rainfall data are utilized to assess short-term and long-term climate patterns and their effects on watershed hydrology.

Groundwater Monitoring

The general nature of the FFY 2024 Agreement and relationship of the parties remains mostly the same as FFY 2023 for groundwater data collection. USGS will monitor six (6) ground water observation wells for the Commission, taking quarterly or bi-monthly depth and/or conductivity, temperature, and depth (CTD) profiles. In a few locations, ground water levels are monitored in real-time. Together with data gathered by the Commission, these data help with the assessment of groundwater conditions over time in response to changes in pumpage, rainfall-recharge, and historical land use patterns. For FFY 2024, USGS recommended the discontinuation of data collection at the following sites due to the poor condition of the pipes resulting in possibly erroneous readings:

1. Well 3-1851-19 Halekauwila Street, Pipe A, Oahu, HI
2. Well 3-1851-19 Halekauwila Street, Pipe B, Oahu, HI

An additional 54 groundwater monitoring sites are needed to fulfill the statewide monitoring needs as identified by Cheng 2020.

Streamflow Monitoring

With respect to streamflow monitoring, the Agreement in FFY 2024 will cover the operation and maintenance costs for all previously established stream gaging stations except for station 16643100 on Kaua'ula Stream. Stream gaging stations are utilized to assess natural and regulated flow conditions in response to climate change or resource management decisions. As part of staff's effort to quantify low-flow conditions in streams affected by stream diversions, the following stations are being added as a low-flow, non-real time, continuous monitoring station as part of the Agreement:

1. USGS 16545000 Puohokamoia Str ab Spreckels Ditch

As identified in the USGS State Monitoring Needs Assessment, this station was active from 1913-1971 and will monitor the availability of regulated streamflow that may be diverted for drinking water and agricultural needs in the central Maui region. This station is located below both the Waikamoi Flume diversions and Lower Kula pipeline diversions which divert an unknown amount of water to the Olinda and Pi'iholo Water Treatment Facilities in Upcountry Maui, respectively. Data from this and other re-activated stations in East Maui can be used to assess groundwater gains in streamflow under changing climate patterns for instream and non-instream uses.

An additional 24-30 streamflow monitoring stations plus an unknown number of instream flow standard monitoring stations are needed to fulfill the statewide monitoring needs as identified by Cheng 2020.

Shifting Cooperators for Monitoring Stations in FFY 2024 Agreement

In June 2022, Commission staff contacted Maui County Department of Water Supply and requested that they seek funding from the Maui County Council for two USGS streamflow stations in East Maui:

1. USGS 16527000 Honomanū nr Huelo
2. USGS 16536000 Haipuaena Str ab Spreckels Ditch

The reconnaissance and permitting for these stations were funded in FFY2023 with their installation and 6 months of operation to be funded in FFY 2024. In concert with USGS 16545000 to be funded by this Agreement, data will support decision making by Maui DWS and Commission.

In February 2023, Commission staff sent a letter to the Agribusiness Development Corporation (ADC) requesting that they anticipate funding USGS 166210100 on Wahiawa Ditch. However, ADC has not responded to the letter nor repeated follow up emails. Commission staff believe this station provides critical data for monitoring the availability of water for agriculture dependent on the Wahiawā Ditch.

In February 2023, Commission staff sent a letter to the Hawai'i County Department of Water Supply (Hawai'i DWS) requesting that they assume funding responsibility for USGS 16757000 on Waikoloa Stream and USGS 16576000 on Kohākōhau Stream above Hawai'i DWS stream diversions. These stations were previously operated as low-flow stations from 2019-2023 (16757000) or continuous monitoring stations (16756100) from 1998-2011. Hawai'i DWS has since responded that they will assume the cost-share responsibility for these stations with USGS.

In March 2023, Commission staff sent a letter to Kaua'i County Department of Water (Kaua'i DOW) requesting that they assume the funding responsibilities for three stations in the South Fork Wailua watershed which provides drinking water to Waiahi Surface Water Treatment Facility in Lihue: USGS 16057900 Waiahi Stream, USGS 16060000 SF Wailua River, and USGS 220122159275401 10545.0 Waiahi RG at alt 815ft. Kaua'i DOW has since responded that they will assume the cost-share responsibility for these stations with USGS.

OTHER

I. Chapter 343 – Environmental Assessment (EA) Compliance

Environmental Assessment (“EA”) Triggers

Under Hawaii Revised Statutes §343-5(a), the use of state funds triggers the need for an EA.

EA Exemption

The proposed action is exempt from an EA based on Hawaii Administrative Rule §11-200.1-15(c)(5) and the Exemption List for the Commission on Water Resource Management approved by the Environmental Council on January 5, 2021, and falls under Exemption Class 5, Part 1, No. 3, which provides for “Installation of new, small groundwater, surface water, or climatological monitoring and data collection equipment, structures that house or protect this equipment, and installation of electrical, telemetry, or communications systems to service these equipment or structures.” No exemption notice is required.

Consistency with the Hawai‘i Water Plan

The Water Resource Protection Plan, updated in 2019, reiterates the need for reliable, long-term data to make sound water management decisions. Monitoring of ground water and streams allows for an accounting of the quantity and variability of water, whether streamflows are sufficient to meet environmental and cultural needs, and how water is made available for human use.

RECOMMENDATIONS:

Staff recommends that the Commission:

- 1) Authorize the Chairperson to enter into a Joint Funding Agreement with the U.S. Geological Survey for FFY 2024 to undertake the specified monitoring activities;
- 2) Delegate authority to the Chairperson to modify the list of monitoring stations, provided that there is no increase in cost to the Commission; and
- 3) Find that this Joint Funding Agreement is exempt from the preparation of an environmental assessment under Hawaii Revised Statutes §343 based on Hawai'i Administrative Rules §11-200-8(a)(5) and the Exemption List for the Department of Land and Natural Resources approved by the Environmental Council on June 5, 2015.

The terms of this Agreement are subject to the approval of the Attorney General's Office. Contract execution will be done in accordance with Hawai'i Revised Statute Chapter 103D and Hawai'i Administrative Rules, Chapter 3-122.

Ola i ka wai,



M. KALEO MANUEL
Deputy Director

Exhibit (s):

1. Summary of Changes to the Cooperative Program: FFY 2015 to 2024
2. Proposed Scope of Services
The Agreement covers FFY2024 (October 1, 2023 to September 30, 2024).
3. Monitoring Stations to be funded in the FFY 2024 Agreement
The total cost of the Agreement will not exceed \$1,231,072. The Commission's share will not exceed \$999,964.

APPROVED FOR SUBMITTAL:



DAWN N. S. CHANG
Chairperson

SUMMARY OF CHANGES TO THE COOPERATIVE PROGRAM: 2015 to 2024

Federal Fiscal Year	Streamflow station	Groundwater stations	Rainfall stations	CWRM contribution	Changes and Comments
2015	26	14	16	\$444,700	1. Mt. Wai'ale'ale Rain Gage added 2. South Fork Kaukonahua stream gage (16208000) added 3. Waiāhole Trust Fund to provide \$41,650 for Waiāhole stations
2016	26	14	16	\$486,933	1. CWRM cost share increases to 65% 2. Waiāhole Trust Fund to provide \$41,650 for Waiāhole stations
2017	27	12	17	\$494,148	1. Waiāhole Trust Fund to provide \$45,264 for Waiāhole stations 2. Waimea River nr Waimea stream gage (16031000) added
2018	27	9	17	\$495,520	1. CWRM cost share increases to 67% 2. CWRM staff to assume monitoring of three wells previously monitored by the USGS
2019	32	8	17	\$624,317	1. Waiāhole Trust Fund to provide \$67,200 for Waiāhole stations 2. Five new gaging stations added to agreement (4 stream, 1 ditch): Waiahi on Kaua'i; Honomanū, Kahoma, Wailuku, Kau'aula on Maui; Kauaula Ditch (Maui)
2020	39	8	17	\$859,139	1. Waiāhole Trust Fund to provide \$91,564 for Waiāhole stations 2. Seven new stream gaging stations added to the agreement: Waimea River, North Fork Wailua River, and Huleia Stream on Kaua'i; Kamananui Stream on O'ahu; Waikolu Stream and East Fork Kawela Stream on Moloka'i; Naili'ilihā'ele Stream on Maui.
2021	39	8	15	\$696,864	1. Honolulu BWS assumes responsibility for providing cooperative funds for four streamflow gaging stations and two rainfall stations on Oahu. 2. CWRM will assume responsibility for providing cooperative funds for one station previously funded by HiEMA on Wainiha Stream, Kauai (USGS 16108000) 3. The reconnaissance costs for three new stations are provided in FY2021
2022	42	8	18	\$775,932	1. Installation costs for Ukumehame, Maui, Kaupuni, Oahu, and Wailuku, Hawaii whose permitting costs were paid for in FY2021 2. Permitting costs for three new stream gaging stations added to the Agreement: Waihanau Stream, Moloka'i; Waikapū Stream, Maui; Manowai'ōpae Stream, Hawai'i
2023	48	8	18	\$1,005,646	1. Installation costs for two new stream gaging stations added to the Agreement: Hakalau Stream, Hawai'i; Manowai'ōpae Stream, Hawai'i 2. Four low-flow stations previously funded separately added to the Agreement: 16522950 Pi'ina'au Stream, Maui; 16417800 LB Hono'ulimalo'o Stream, Moloka'i; 16409000 Waihanau Stream, Moloka'i; 16751500 Awini Puali, Hawai'i 3. Requested HI DOT take responsibility for funding 16049000 Hanapēpē River
2024	46	6	17	\$999,964	1. Data collection at two wells was discontinued due to poor site conditions 2. Kauai DOW assumes responsibility for funding two stream and one rainfall station 3. One low-flow station will be removed from Kaua'ula Stream (16643100) and one low-flow station will be added to Puohokamoa Stream (16545000).

EXHIBIT 1

PROPOSED SCOPE OF SERVICES

1. This Joint Funding Agreement (“Agreement”) is a continuation of the joint funding agreement for the collection of hydrological data in the State of Hawai‘i between the U.S. Geological Survey, United States Department of the Interior and the Commission on Water Resource Management, Department of Land and Natural Resources, State of Hawai‘i (“Commission”).
2. The scope of services involves the collection and computation of data on water resources collected in multiple locations throughout the State of Hawai‘i.
3. U.S. Geological Survey shall collect data at an agreed upon list of surface water stations, ground water monitoring stations, and rainfall stations, as set forth in Exhibit 3 which is attached hereto and incorporated by reference.
4. U.S. Geological Survey shall provide data summary reports and review of historical data sets.
5. U.S. Geological Survey shall host the maps, data, and reports resulting from this program in a publicly-accessible website, and shall provide the Commission staff direct and easy access to acquire, download, or transfer the data and report from a USGS server. The parties shall use good faith efforts to resolve any disagreements in the scope and validation of data acquisition and the contents of the report.
6. U.S. Geological Survey shall provide a readable statement of cooperative relations and visually identifiable symbol of the Commission as a cooperator in print, digital, and online publications of the data and reports of the monitoring stations that are included in the current cooperative program, and as well as the stations that were historically supported and funded by the Commission.
7. At least quarterly and upon request by the Commission on Water Resource Management, the U.S. Geological Survey will update the Commission on the progress of its work on this Joint Funding Agreement.
8. The Commission on Water Resource Management shall assist the U.S. Geological Survey in its work under the Joint Funding Agreement to the extent feasible and practicable under existing resources of the Commission.

MONITORING STATIONS TO BE FUNDED IN THE FFY 2024 AGREEMENT

State of Hawaii Commission on Water Resource Management
 Attachment for 24ZHJFA00000001
 2023-10-01 to 2024-09-30

Attachment 1

SURFACE WATER

SITE	Collection Description	FUNDS		
		USGS	COOP	TOTAL
16016000	Waimea River US of Kekaha-Waiahulu Int., Kauai, HI Full Range Streamflow Station	\$4,564.51	\$24,975.49	\$29,540
16031000	Waimea River near Waimea, Kauai, HI Full Range Streamflow Station	\$2,643.83	\$14,466.17	\$17,110
16052400	RB Lawai Stream 300ft US of fork, Kauai, HI Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16060950	NF Wailua Riv abv N Wailua Ditch Int, Kauai, HI Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16068000	EB of NF Wailua River nr Lihue, Kauai, HI Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16071500	Left Branch Opaekaa Str nr Kapaa, Kauai, HI Full Range Streamflow Station	\$2,643.83	\$14,466.17	\$17,110
16097500	Halaulani Str at alt 400 ft nr Kilauea, Kauai, HI Full Range Streamflow Station	\$2,643.83	\$14,466.17	\$17,110
16103000	Hanalei River nr Hanalei, Kauai, HI Full Range Streamflow Station	\$12,000	\$13,900	\$25,900
16108000	Wainiha River nr Hanalei, Kauai, HI Full Range Streamflow Station	\$14,254	\$16,286	\$30,540
16210100	Wahiawa Ditch at Wahiawa, Oahu, HI Full Range Streamflow Station	\$6,834	\$10,346	\$17,180
16210200	Kaukonahua Stream blw Wahiawa Reservoir, Oahu, HI Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16211800	Kaupuni Str at alt 374 ft nr Waianae, Oahu, HI Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16294100	Waiahole Stream above Kamehameha Hwy, Oahu, HI Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16294900	Waikane Str at alt 75 ft at Waikane, Oahu, HI Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16296500	Kahana Str at alt 30 ft nr Kahana, Oahu, HI Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16301050	Punaluu Str abv Punaluu Ditch Intake, Oahu, HI Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16325000	Kamananui Str at Pupukea Mil Rd, Oahu, HI Full Range Streamflow Station	\$2,065.93	\$11,304.07	\$13,370
16345000	Opaeula Str nr Wahiawa, Oahu, HI Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16408000	Waikolu Str blw pipe nr Kalaupapa, Molokai, HI Full Range Streamflow Station	\$3,206.28	\$17,543.72	\$20,750
16409000	Waihanau Stream nr Kalaupapa, Molokai, HI Full Range Streamflow Station	\$3,149.11	\$17,230.89	\$20,380
16415000	EF Kawela Gulch nr Kamalo, Molokai, HI Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16417800	LB Honoulimaloo Str US diversion, Molokai, HI Full Range Streamflow Station	\$3,149.11	\$17,230.89	\$20,380
16508000	Hanawi Stream near Nahiku, Maui, HI Full Range Streamflow Station	\$12,298	\$13,602	\$25,900
16518000	West Wailuaiki Stream near Keanae, Maui, HI Full Range Streamflow Station		\$11,752	\$11,752
16522950	Piinaau Str 470 ft US Koolau Ditch, Maui, HI Full Range Streamflow Station	\$3,149.11	\$17,230.89	\$20,380
16527500	Honomanu Stream near Hana Hwy, Maui, HI Full Range Streamflow Station	\$2,643.83	\$14,466.17	\$17,110
16545000	PUOHOKAMOA STR AB SPRECKELS DITCH NR HUELO, MAUI Full Range Streamflow Station	\$3,149.11	\$17,230.89	\$20,380
16570000	Naillihalee Stream near Huelo, Maui, HI Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16587000	Honopou Stream near Huelo, Maui, HI Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16604500	Wailuku River at Kepaniwai Park, Maui, HI Full Range Streamflow Station	\$2,643.83	\$14,466.17	\$17,110
16614000	Waihee Rv abv Waihee Dtch intk nr Waihee, Maui, HI Full Range Streamflow Station	\$2,643.83	\$14,466.17	\$17,110
16620000	Honokohau Stream near Honokohau, Maui, HI Full Range Streamflow Station	\$8,000	\$21,540	\$29,540
16638500	Kahoma Stream at Lahaina, Maui, HI Full Range Streamflow Station	\$2,643.83	\$14,466.17	\$17,110

Staff Submittal
 USGS-CWRM Annual Cooperative Funding Agreement

August 15, 2023

16641000 Kauaula Stream US of ditch diversion, Maui, HI			
Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16647000 Ukumehame Gulch nr Olowalu, Maui, HI			
Full Range Streamflow Station	\$2,643.83	\$14,466.17	\$17,110
16647900 Waikapu Str US of S Waikapu Dt intake, Maui, HI			
Full Range Streamflow Station	\$2,643.83	\$14,466.17	\$17,110
16701800 Wailuku River nr Kaumana, HI			
Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16704000 Wailuku River at Piihonua, HI			
Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16717000 Honolii Stream nr Papaikou, HI			
Full Range Streamflow Station	\$2,643.83	\$14,466.17	\$17,110
16717700 Hakalau Stream nr alt 1300 ft, HI			
Full Range Streamflow Station	\$2,643.83	\$14,466.17	\$17,110
16717815 Manowaiopae Stream near Spencer Road, HI			
Full Range Streamflow Station	\$2,920.42	\$15,979.58	\$18,900
16720000 Kawainui Stream nr Kamuela, HI			
Full Range Streamflow Station	\$4,002.06	\$21,897.94	\$25,900
16725000 Alakahi Stream near Kamuela, HI			
Full Range Streamflow Station	\$2,643.83	\$14,466.17	\$17,110
16751500 Awini Puali Gulch US of Kohala Ditch, HI			
Full Range Streamflow Station	\$3,149.11	\$17,230.89	\$20,380
16757000 Waikoloa Stream nr Kamuela, HI			
Full Range Streamflow Station	\$10,000	\$10,380	\$20,380
16770500 Paauau Gulch at Pahala, HI			
Full Range Streamflow Station	\$2,643.83	\$14,466.17	\$17,110
Total: \$194,293.5 \$814,088.5 \$1,008,382			

CLIMATE

SITE	Collection Description	FUNDS		
		USGS	COOP	TOTAL
194117155174801	83.0 Quarry Rain Gage at Saddle Rd, HI Precipitation, Continuous	\$1,678.08	\$9,181.92	\$10,860
194602155091801	125.12 Honolii Rain Gage near Papaikou, HI Precipitation, Continuous	\$1,095.54	\$5,994.46	\$7,090
194945155534402	92.5 Kiholo Rain Gage, HI Precipitation, Continuous	\$1,678.08	\$9,181.92	\$10,860
200518155405801	185.7 Kawainui Rain Gage near Kamuela, HI Precipitation, Continuous	\$1,678.08	\$9,181.92	\$10,860
203721156151601	255.0 Kepuni Gulch Rain Gage, Maui, HI Precipitation, Continuous	\$1,678.08	\$9,181.92	\$10,860
204916156083701	348.5 West Wailuaiki Rain Gage nr Keanae, Maui, HI Precipitation, Continuous	\$1,678.08	\$9,181.92	\$10,860
205735156351301	Precipitation, Continuous	\$3,500	\$3,590	\$7,090
212855157504501	837.7 Waiahole RG at Kamehameha Hwy., Oahu, HI Precipitation, Continuous	\$1,678.08	\$9,181.92	\$10,860
213237157530701	886.4 Kahana Rain Gage at alt. 95 ft., Oahu, HI Precipitation, Continuous	\$1,678.08	\$9,181.92	\$10,860
213608158011101	897.9 Pupukea Rd Rain Gage at alt 1,160 ft,Oahu,HI Precipitation, Continuous	\$1,678.08	\$9,181.92	\$10,860
213732158010201	897.11 Kamanui Rain Gage at alt. 720 ft, Oahu,HI Precipitation, Continuous	\$1,678.08	\$9,181.92	\$10,860
220356159281401	1051.0 N Wailua Ditch Rain Gage nr Lihue, Kauai,HI Precipitation, Continuous	\$2,240.54	\$12,259.46	\$14,500
220427159300201	1047.0 Mt. Waialeale Rain Gage nr Lihue, Kauai, HI Precipitation, Continuous	\$2,240.54	\$12,259.46	\$14,500
220523159341201	1042.0 Waiatae Rain Gage nr Waimea, Kauai, HI Precipitation, Continuous	\$1,678.08	\$9,181.92	\$10,860
220713159361201	1083.0 Mohihi Crsg Rain Gage nr Waimea, Kauai, HI Precipitation, Continuous	\$1,678.08	\$9,181.92	\$10,860
220739159373001	1082.0 Waiakoali Rain Gage nr Waimea, Kauai, HI Precipitation, Continuous	\$1,678.08	\$9,181.92	\$10,860
220927159355001	1084.0 Kilohana Rain Gage nr Hanalei, Kauai, HI Precipitation, Continuous	\$2,240.54	\$12,259.46	\$14,500
Total: \$31,454.12 \$156,545.88 \$188,000				

GROUND WATER

SITE	Collection Description	FUNDS		
		USGS	COOP	TOTAL
205405156305401	6-5430-05 Waiehu Deep Monitor Well, Maui, HI Groundwater level, Continuous	\$1,180.53	\$6,459.47	\$7,640
210402156495801	4-0449-01 Ualapue Shaft (S6), Molokai, HI Groundwater Level, Measurement	\$553.18	\$3,026.82	\$3,580
212154158015201	3-2101-03 Honouliuli (W266), Oahu, HI Groundwater Level, Measurement	\$553.18	\$3,026.82	\$3,580
212238157561101	3-2256-10 Aiea Bay nr Naval Res (187-B), Oahu, HI Groundwater level, Continuous	\$1,180.53	\$6,459.47	\$7,640
215607159344301	2-5634-01 Hanapepe Ridge, Kauai, HI Groundwater Level, Measurement	\$553.18	\$3,026.82	\$3,580
Total:		\$4,020.6	\$21,999.4	\$26,020

WATER QUALITY

SITE	Collection Description	FUNDS		
		USGS	COOP	TOTAL
210825157004301	4-0800-01 Kualapuu Deep Monitor Well, Molokai, HI Water Quality, Measurement	\$1,339.69	\$7,330.31	\$8,670
Total:		\$1,339.69	\$7,330.31	\$8,670
GRAND TOTAL:				\$1,231,072