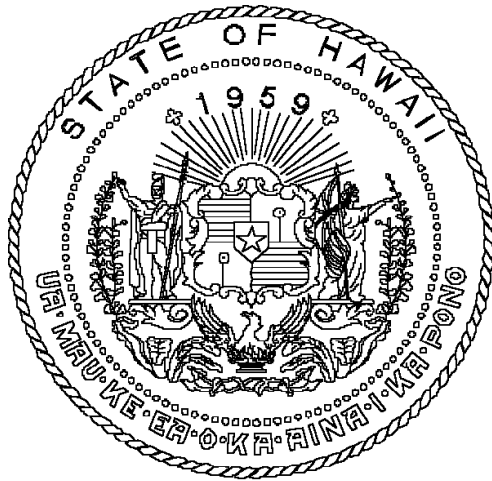


Report to the Thirty-Second Legislature
2023 Regular Session

**IDENTIFICATION OF RIVERS AND STREAMS
WORTHY OF PROTECTION**



Prepared by the

Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawai'i

Section 174C-31(c) (4), Hawai'i Revised Statutes

Honolulu, Hawai'i

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REPORT TO THE THIRTY-SECOND LEGISLATURE
2023 Regular Session

IDENTIFICATION OF RIVERS AND STREAMS WORTHY OF PROTECTION

I. INTRODUCTION

The State Water Code, Hawaii Revised Statutes (Haw. Rev. Stat.), §174C-31(c) (4), directs the State Commission on Water Resource Management (Commission) to,

[i]dentify rivers or streams, or portions of a river or stream, which appropriately may be placed within a wild and scenic river system, to be preserved and protected as part of the public trust. For the purpose of this paragraph, the term 'wild and scenic rivers' means rivers or streams, or a portion of a river or stream, of high natural quality or that possess significant scenic value, including but not limited to, rivers or streams which are within the natural area reserves system. The Commission shall report its findings to the legislature twenty days prior to the convening of each regular legislative session.

This Report updates the Legislature on the Commission's 2022 activities to implement this mandate.

II. BACKGROUND

In 1990, the Commission (in partnership with the National Park Service) prepared the Hawai'i Stream Assessment. This 2-year project had two primary objectives: 1) Inventory Hawai'i's perennial streams and their physical characteristics; and 2) Assess the aquatic, riparian, cultural, and recreational values of Hawai'i's perennial streams. The secondary objectives were to: 1) Centralize stream-related data and reference sources in a database and bibliography; 2) Identify and prioritize areas where more information is needed; 3) Provide data to assist in making management decisions within a statewide context rather than on an ad hoc basis; 4) Develop general stream protection guidelines; and 5) Identify specific streams appropriate for protection and enhancement.

On August 22, 2000, the Hawai'i Supreme Court issued its decision in *In Re Waiāhole Ditch Contested Case Hearing*, 94 Haw. 97, 9 P.3 409 (2000). In its decision, the Supreme Court emphasized that “instream flow standards serve as the primary mechanism by which the Commission is to discharge its duty to protect and promote the entire range of public trust purposes dependent upon instream flows.” 94 Haw. 97 (2000). Accordingly, the Commission has directed its efforts to develop a methodology for establishing instream flow standards (IFS), the identification of rivers and streams worthy of protection, and the implementation of Haw. Rev. Stat. §174C-31(c) (4).

In July 2002, pursuant to the Waiāhole decision, the Commission established the Stream Protection and Management (SPAM) Branch (composed of the Instream Use Protection and the Surface Water Regulation sections). In July 2005, the SPAM Branch prepared a Program Implementation

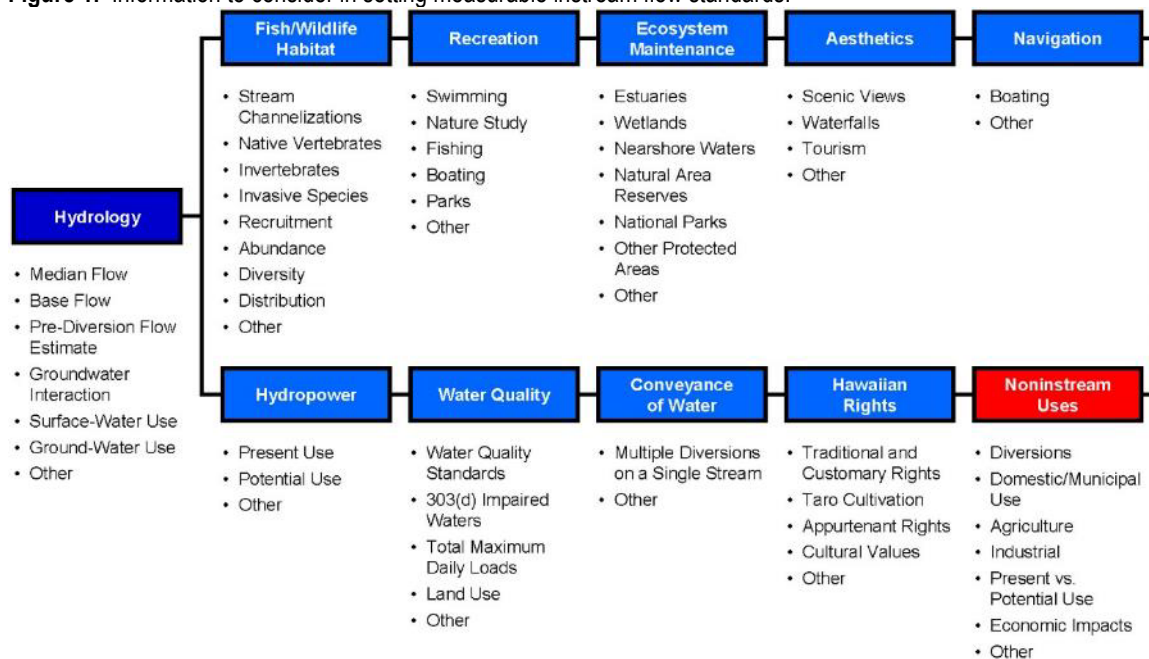
Plan to “[m]anage and Protect Hawai‘i’s Surface Water Resources through a Comprehensive Instream Use Protection Program and the Establishment of Instream Flow Standards.”

A. Instream Flow Standards

Under the State Water Code (Code), Chapter 174C, Hawaii Revised Statutes (HRS), the Commission on Water Resource Management (Commission) has the responsibility of establishing IFS on a stream-by-stream basis whenever necessary to protect the public interest in the waters of the State. Early in its history, the Commission recognized the complexity of establishing IFS for the State’s estimated 376 perennial streams and instead set interim IFS at “status quo” levels. These interim IFS were defined as the amount of water flowing in each stream (with consideration for the natural variability in stream flow and conditions) at the time the administrative rules governing them were adopted in 1988 and 1989.

The Hawaii Supreme Court, upon reviewing the Waiāhole Ditch Contested Case Decision and Order, held that such “status quo” interim IFS were not adequate to protect streams and required the Commission to take immediate steps to assess stream flow characteristics and develop quantitative interim IFS for affected Leeward Oahu streams, as well as other streams statewide. The Hawaii Supreme Court also emphasized that “instream flow standards serve as the primary mechanism by which the Commission is to discharge its duty to protect and promote the entire range of public trust purposes dependent upon instream flows.”

Figure 1. Information to consider in setting measurable instream flow standards.



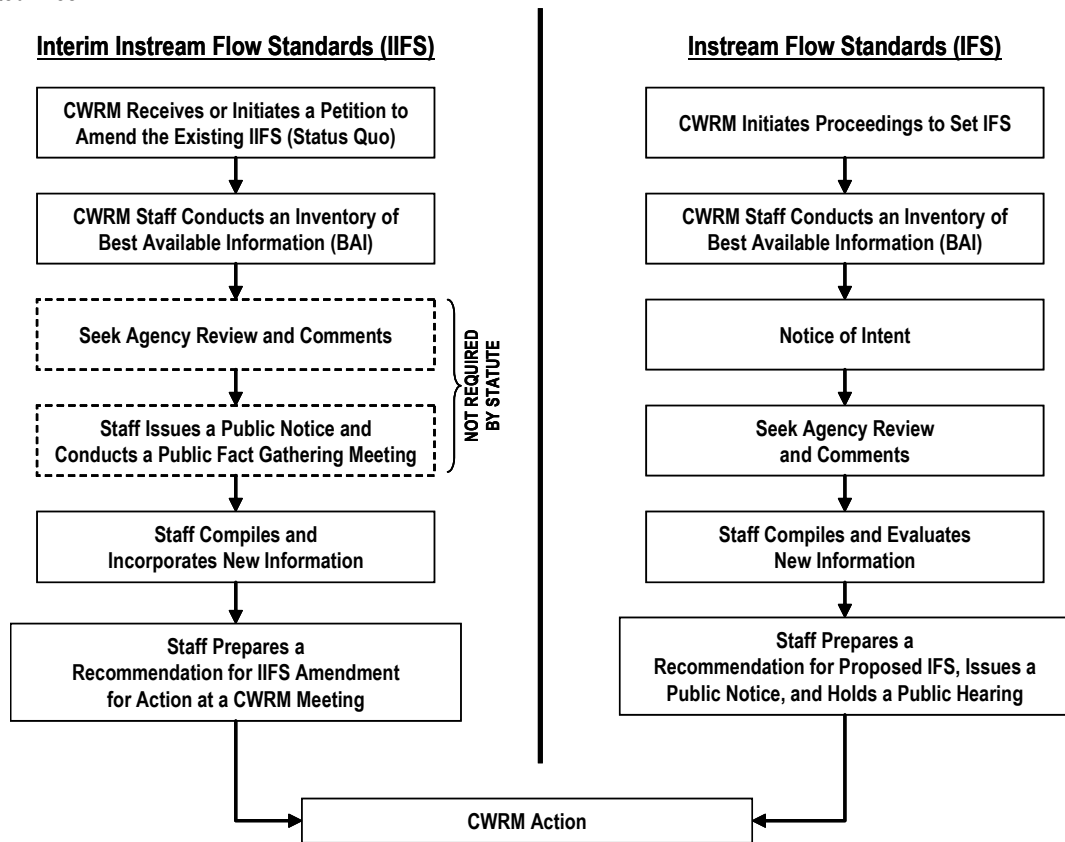
To the casual observer, IFS may appear relatively simple to establish upon a basic review of the Code provisions. However, the complex nature of IFS becomes apparent upon further review of the individual components that comprise surface water hydrology,

instream uses, noninstream uses, and their interrelationships. The Commission has the distinct responsibility of weighing competing uses for a limited resource in a legal realm that is continuing to evolve. The following illustration (Figure 1) was developed to illustrate the wide range of information, in relation to hydrology, instream uses, and noninstream uses that should be addressed in conducting a comprehensive IFS assessment.

B. Interim Instream Flow Standard Process

The Code provides for a process to amend an interim IFS in order to protect the public interest pending the establishment of a permanent IFS. The Code, at §174C-71(2), describes this process including the role of the Commission to “weigh the importance of the present or potential instream values with the importance of the present or potential uses of water for noninstream purposes, including the economic impact of restricting such uses.”

Figure 2. Simplified representation of the interim instream flow standard and permanent instream flow standard processes. Keys steps of the adopted interim IFS process are depicted in the left column by the boxes drawn with dotted lines.



Recognizing the complexity of establishing measurable IFS, while cognizant of the Hawaii Supreme Court’s mandate to designate interim IFS based on best available information under the Waiāhole Combined Contested Case, the Commission at its December 13, 2006 meeting authorized staff to initiate and conduct public fact gathering. Under this adopted process (reflected in the left column of Figure 2), the Commission staff will conduct a preliminary inventory of best available information upon receipt of a petition to amend an

existing interim IFS. The Commission staff shall then seek agency review and comments on the compiled information (compiled in an Instream Flow Standard Assessment Report) in conjunction with issuing a public notice for a public fact gathering meeting. Shortly thereafter (generally within 30 days), the Commission staff will conduct a public fact gathering meeting in, or near, the hydrologic unit of interest.

This Annual Report updates the activities, projects, and studies currently being carried out by the Commission's SPAM Branch to develop and implement a statewide stream protection program. For work prior to 2022, please see previous year's annual reports.

III. STREAM PROTECTION AND MANAGEMENT UPDATES

A. Stream Protection and Management (SPAM) Branch:

During 2022, the Commission's SPAM Branch has expanded its efforts to conduct field investigations and site visits statewide in support of monitoring established measurable interim instream flow standards and surveying stream channel conditions, aquatic biota and habitat, and verifying stream diversions towards further development of instream flow standards. The staff has continued to handle implementation issues related to the 2021 Decision and Order in the Nā Wai 'Ehā contested case hearing (CCH-MA15-01) pertaining to appurtenant rights and surface water use permit applications in Central Maui. This past year, instream flow standard efforts focused on the islands of Maui and Moloka'i. In addition, the Commission approved the designation of the Lahaina Aquifer Sector area as both a Surface Water and Ground Water Management Area comprising most of leeward west Maui.

On Kaua'i, the SPAM Branch continues to work through the implementation issues of the mediation agreement on the Complaint and Petition for Declaratory Order Against Waste Filed by Po'ai Wai Ola and West Kaua'i Watershed Alliance (through Earthjustice) regarding IFS for Waimea River. The U.S. Geological Survey (USGS), in cooperation with the Commission, completed a study on low-flow characteristics in the southeast region of the island from Wailua to Hanapēpē in 2020, which lays the groundwork for the development of interim IFS. In August 2018, the Commission staff proposed the establishment of measurable interim IFS for two streams in Wailua (Wai'ale'ale and Waikoko); however, prior to decision-making, several requests were made for a contested case hearing. Staff is hopeful that the requests will be withdrawn as efforts to develop interim IFS across southeast Kaua'i are expanded in 2023.

On O'ahu, the Commission is continuing to work with the Honolulu Board of Water Supply, U.S. Geological Survey and numerous community organizations to better understand the hydrology associated with He'eia Stream in windward O'ahu.

On the island of Hawai'i, the Commission is continuing to monitor established interim IFS and managing stream gaging equipment in Hāmākua and Waikoloa. The development of interim IFS will likely expand in 2024.

Phase 1 of the USGS Study to estimate low-flow characteristics for streams on Kaua‘i, O‘ahu, Moloka‘i, Maui, and Hawai‘i, came to a close in 2015 with the final report released in mid-2016. With funding from the 2016 Legislature, the Commission entered into a contract with USGS for Phase 2 of the study is focused on field data collection and the development of a web-based application called StreamStats. Fieldwork for Phase 2 has finished, allowing for the analysis of field-collected data, development of regression equations to estimate flow durations, and integration to further development of StreamStats for low-flow statistics.

The SPAM Branch filled its Hydrologist III position and is currently in the process of establishing its four Aquatic Biologist positions (Two Biologist VI and two Biologist III positions) which were approved by the 2022 Legislature.

The SPAM Branch is continuing to work on developing an internet platform to make stream gaging more publicly available and user-friendly. The program is map-based and interactive to provide access to both real-time stream gaging information and continuously recorded data collected by SPAM staff in the field. The Branch is also working to expand its presentation of IFS data on the Commission website, including organization of IFS work by island and regions, identification of priority areas and areas that IFS will not be established (e.g., ephemeral streams and gulches), links to USGS gages and reports, and chronology of resources and events that resulted in IFS decisions. This information has been updated but is still in working development. Information is currently available on the Commission’s website at:

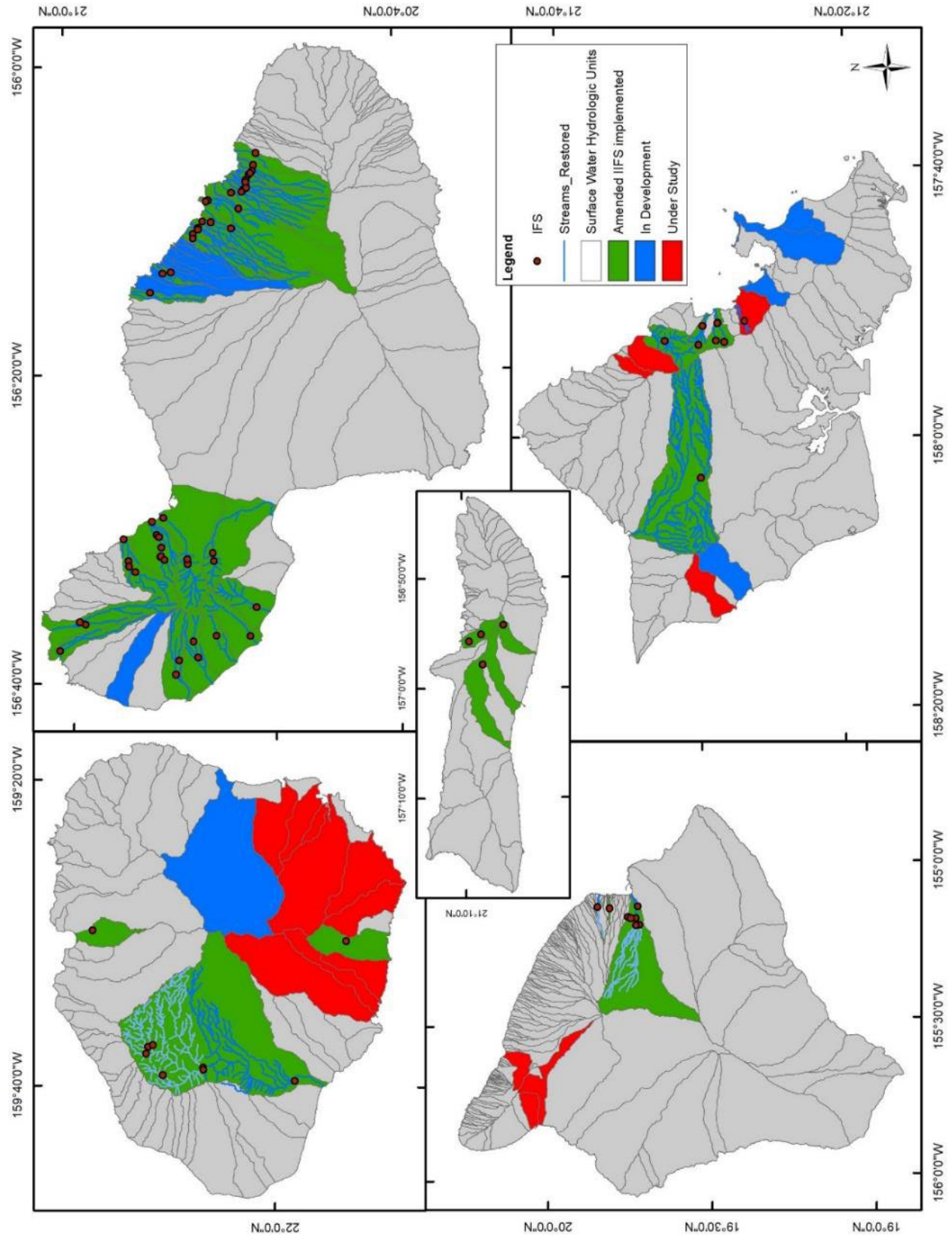
<https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/>.

B. Statewide Prioritization of Instream Flow Standard Development

In 2005, the Commission completed a statewide watershed assessment resulting in the establishment of surface water hydrologic units. These hydrologic units serve as a management tool for assessing both land-based and aquatic resources, data management, and developing, managing, and enforcing instream flow standards. The report identified 558 hydrologic units statewide, with 489 comprising the five major islands of Kaua‘i (74), O‘ahu (87), Moloka‘i (50), Maui (112), and Hawai‘i (166).

Of 489 surface water hydrologic units across the five major islands, the Commission has focused its IFS efforts on those units affected by legacy plantation irrigation systems that typically diverted most, if not all, water from the streams they crossed. Over the years, these efforts have been influenced by interactions with community groups, including filed petitions to amend the interim IFS and complaints of waste, and government agencies including the Land Division’s water lease process and discussions with county water supply departments. Bear in mind that of the 489 hydrologic units, many watersheds do not contain perennial streams, particularly those on the leeward sides of each respective island (e.g., West Moloka‘i, Kaupō side of Maui, Kona side of Hawai‘i island), while others with perennial streams are not impacted by plantation systems and have minimal stream diversions (e.g., Honolulu region of O‘ahu, Na Pali coast of Kaua‘i). The SPAM Branch staff is working on further assessing and prioritizing these “low-priority” areas.

Figure 3. Prioritized surface water hydrologic units for the development of measurable interim instream flow standards, including those where interim IFS have been implemented (green), IFS are in development (blue), and those that are under study (red).



C. Nā Wai ‘Ehā: Contested Case Hearing on Surface Water Use Permit Applications, Integration of Appurtenant Rights and Amendments to the Interim Instream Flow Standards, Na Wa Eha Surface Water Management Areas of Waihe‘e, Waiehu, Wailuku River (previously known as ‘Īao Stream) and Waikapū Streams, Maui (CCH-MA15-01)

On December 6, 2006, Earthjustice, representing Hui o Nā Wai ‘Ehā and Maui Tomorrow Foundation, Inc. filed a petition requesting that the Commission either: (1) recognize the watersheds of Waihe‘e, Waiehu, ‘Īao, and Waikapū Streams (collectively, Nā Wai ‘Ehā) as part of the existing ‘Īao Ground Water Management Area, or (2) designate the Nā Wai ‘Ehā Surface Water Hydrologic Units as a surface water management area. Responses from both the previous Mayor and previous Director of the Maui Department of Water Supply (Maui DWS) stated that they believed “the statutory criteria for surface water designation have been met.”

On January 23, 2007, Mayor Charmaine Tavares and Acting Director of the Maui DWS, Jeffrey Eng, similarly responded that they believe that “the statutory criteria for surface water designation have been met.”

On February 2, 2007, the Maui County Council adopted Resolution No. 07-13, “SUPPORTING THE PETITION TO DESIGNATE NĀ WAI ‘EHĀ AS A SURFACE WATER MANAGEMENT AREA” by a unanimous vote.

On February 21, 2007, Chairperson Young recommended that the Commission continue the surface water management area designation process. The Commission approved the Chairperson’s recommendation. Public notices of the required public hearing were published in the Honolulu Star Bulletin and Maui News issues of March 28, April 4 and 11, 2007.

On April 26, 2007, the Commission a public hearing on the island of Maui at the J. Walter Cameron Center in Wailuku to receive public testimony concerning designation of the Nā Wai ‘Ehā Surface Water Hydrologic Units.

On March 13, 2008, the Commission accepted the Findings of Fact and Chairperson’s Recommendation and designated the four streams of Nā Wai ‘Ehā as a “surface water management area.” The effective date of designation was April 30, 2008 (upon publication of the Public Notice). Applications for existing-use permits had to be filed within one year of the effective date of designation (no later than April 30, 2009). The Commission received 125 surfaces water user permit applications (SWUPA) for existing uses. Of the 125 SWUPAs for existing use, 115 were accepted and 10 were denied. An additional 85 SWUPAs for new use have since been submitted. Objections were subsequently filed for all applications by parties who had standing to file objections, thus a Hearing on Objections for the Applications was required.

On September 24, 2009, the Commission extended the deadline to act on all SWUPAs for existing uses in the Nā Wai ‘Ehā Surface Water Management Areas subject to the holding of a Hearing on Objections and appointment of a Hearings Officer.

On December 1 and 2, 2010, the Commission held the initial public hearing for SWUPAs for existing uses at the Paia Community Center on Maui. The public hearing was not closed to obviate potential requests for a contested case hearing, but remained opened and was continued on October 19, 2011, October 24, 2012, October 24, 2013, and October 23, 2014 respectfully.

On January 28, 2015, the Commission voted to approve holding a contested case hearing for the analysis and determination of surface water use permits in the Nā Wai ‘Ehā Surface Water Management Areas of Waihe‘e, Waiehu, ‘Īao and Waikapū Streams, Maui, Hawai‘i. The Commission also delegated authority to the Chairperson to appoint a Hearings Officer. Dr. Lawrence H. Miike was selected to serve as the Hearings Officer.

On August 11, 2015, the Commission held the first Prehearing Conference to discuss: 1) Which applications for appurtenant rights and water use permits will be the subject of the contested case hearing; 2) The additional documentation and other evidence that would be needed in addition to those previously submitted in the provisional appurtenant rights determination and water use permit application process; and 3) Timetables for producing such additional documentation and the scheduling of the contested case hearing.

On October 14, 2015, the Commission staff took public testimony and formally closed the public hearing at the Wailuku Community Center, Maui. This public hearing was initiated on December 1 and 2, 2010 and had been continued each year since. The parties were not required to attend the public hearing, as all surface water use applicants were already admitted as parties to the contested case and would be allowed to present their information during the contested case hearing.

The Commission scheduled a second prehearing conference for November 5, 2015 at the Wailuku Community Center, Maui, to discuss the status of the parties’ preparation of their testimony and evidence, the due dates for filings and the commencement of the contested case hearing, and other procedural issues related to the contested case hearing.

NOTE: On November 12, 2015, the U.S. Board on Geographic Names, under petition by Mr. John Duey and recommendation by the Hawaii Board on Geographic Names, voted to approve the change in name of ‘Īao Stream to Wailuku River. This name change affects the main stream corridor from ‘Īao State Monument to the river mouth.

On February 5, 2016, multiple parties submitted filings to the Commission. The deadline for filings was extended to March 18, 2016. However, due to the large number of parties, and *pro se* parties in particular, the Hearings Officer granted some leeway in filing submissions.

On March 9, 2016, Earthjustice, on behalf of Hui o Nā Wai ‘Ehā and Maui Tomorrow Foundation, Inc., filed a Motion and Petition to Amend Upward the Interim Instream Flow Standards for Waihe‘e River, North and South Waiehu Streams, Wailuku River, and Waikapū Stream and their tributaries. The Motion refers to the closure of the HC&S sugar plantation as a “game changer” and requests that the Commission amend upward the interim instream flow standards in consolidation or consideration in parallel with the Contested Case Hearing No. CCH-MA15-01.

On June 17, the Commission accepted the Petition filed by Earthjustice dated March 9, 2016, and directed the Hearings Office to address the Petitions in consolidation with Contest Case Hearing CCH-MA15-01. The Commission issued an Order, dated July 7, 2016, informing the parties in the Contested Case Hearing of the consolidation.

On July 11, 2016, the contested case hearing opened and continued for eight days throughout July. Additional witnesses testified during two days in September and one day in October. Parties filed their Proposed Findings of Fact, Conclusions of Law, and Decision & Order to the Hearings Officer on February 17, 2017.

The Hearings Officer issued his Proposed Findings of Fact, Conclusions of Law, and Decision and Order on November 1, 2017.

On November 19, 2019, the Commission held Closing Oral Arguments in Wailuku, Maui. Deliberations were regularly held online throughout 2020 and into 2021.

On June 28, 2021, the Commission issued its Findings of Fact, Conclusions of Law, and Decision and Order, along with an Executive Summary. An Errata to Findings of Fact, Conclusions of Law, and Decision and Order was subsequently issued on June 30, 2021. Several parties filed motions for clarification and/or reconsideration in the ensuing days.

In its Decision and Order, the Commission used a decision matrix that enabled analysis of different allocation rates, acreage limits, and other parameters for each category of use. After testing a range of options, they ultimately agreed upon the following scenarios for all permits:

- 150,000 gallons per acre per day (gad) for kalo;
- a maximum of 2,500 gallons per acre per day for diversified agriculture; and
- 600 gallons per day for domestic use (limited to approximately 1 acre).

These rates were applied to all Surface Water Use Permit Applications (SWUPA) to calculate total offstream demand. This enabled the Commission to ascertain whether the interim IFS set to protect stream health allowed for the diversion of sufficient water to meet the aggregate demand of public trust uses and other reasonable and beneficial uses. Once satisfied that the Commission had achieved a judicious balance, they determined whether the existing water delivery system could actually deliver the allocated water to the permittees, as some users are only able to receive their allocation from a single source, while others have access to water from multiple streams through the ditch system.

The Decision and Order established interim IFS and SWUPA allocations that optimize the Commission's public trust responsibilities. The Commission was able to address all permits requested but took a conservative approach in this initial allocation as they did not want to foreclose on their ability to meet the requirements of potential public trust use applicants who did not participate in this initial permit process. Aggregate water uses authorized in this Decision and Order allocated:

- More than one-half of the available stream flow (i.e., the IIFS and unallocated water) for instream habitat and related benefits.
- Approximately 13 percent of the water for kalo production.
- About a third of the water for beneficial offstream uses, such as municipal water supply and diversified agriculture.

While retaining over half of the flow to remain in the stream for instream habitat and related benefits, the Commission permitted over 23 million gallons a day for other uses.

On September 23, 2021, the Commission issued three Minute Orders to address the motions filed: 1) Order Granting in Part and Denying in Part the Office of Hawaiian Affairs, Hui o Nā Wai 'Ehā and Maui Tomorrow Foundation, Inc.'s July 6, 2021 Motion for Partial Reconsideration of Findings of Fact, Conclusions of Law, and Decision and Order Filed June 28, 2021 ; 2) Order Denying MMK Maui, LP's Motion for Clarification or, in the Alternative, for Partial Reconsideration of the Findings of Fact, Conclusions of Law, Decision and Order Filed June 28, 2021; and 3) Order Denying Mahi Pono, LLC's Motion for Partial Reconsideration of Findings of Fact, Conclusions of Law, Decision & Order Filed on June 28, 2021, as Amended by Errata to Findings of Fact, Conclusions of Law, and Decision & Order Filed June 30, 2021.

Commission staff is continuing to work on the issuance of surface water use permits and implementation of water allocations in accordance with the Commission's Decision and Order. Figure 4 highlights the complexity of the water use permit applications across the Nā Wai 'Ehā region.

Information on the Nā Wai 'Ehā Contested Case Hearing on Surface Water Use Permits, Appurtenant Rights and Interim Instream Flow Standards is available on the Commission website at:

<http://dlnr.hawaii.gov/cwrm/newsevents/cch/cch-ma15-01/>.

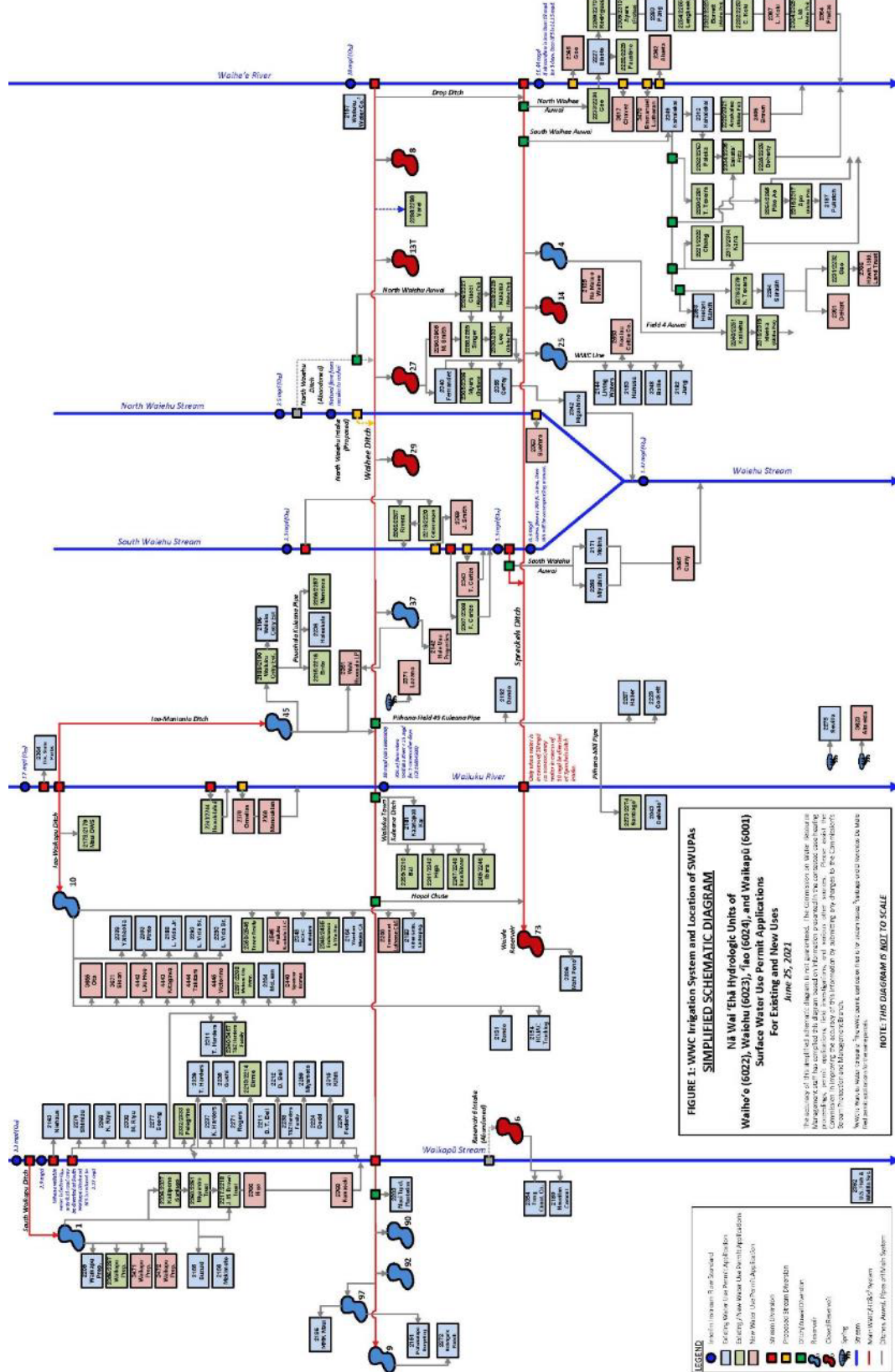
For information on the 'Īao Ground Water Management Area High-Level Source Water Use Permit Applications and Petition to Amend Interim Instream Flow Standards of Waihe'e River, Waiehu Stream, Wailuku River, and Waikapū Streams Contested Case Hearing (CCH-MA06-01), visit the Commission website at:

<http://dlnr.hawaii.gov/cwrm/newsevents/cch/cch-ma06-01/>.

For information on the Nā Wai 'Ehā: Contested Case Hearing on Provisional Recognition of Appurtenant Rights, Nā Wai 'Ehā Surface Water Management Area, Waihe'e, Waiehu, 'Īao, Waikapū Streams, Maui, Hawai'i (CCH-MA13-02), visit the Commission website at:

<http://dlnr.hawaii.gov/cwrm/newsevents/cch/cch-ma13-02/>.

Figure 4. Simplified Schematic Diagram of the Wailuku Water Company (WWC) Irrigation System and the location of surface water use permit applicants across the hydrologic units of Waihe'e (6022), Waiehu (6023), 'Iao (6024), and Waikapū (6001).



For more information on the designation of the Nā Wai ‘Ehā surface water hydrologic units and Surface Water Management Area, visit the Commission website at: <http://dlnr.hawaii.gov/cwrm/surfacewater/swma/nawaieha/>.

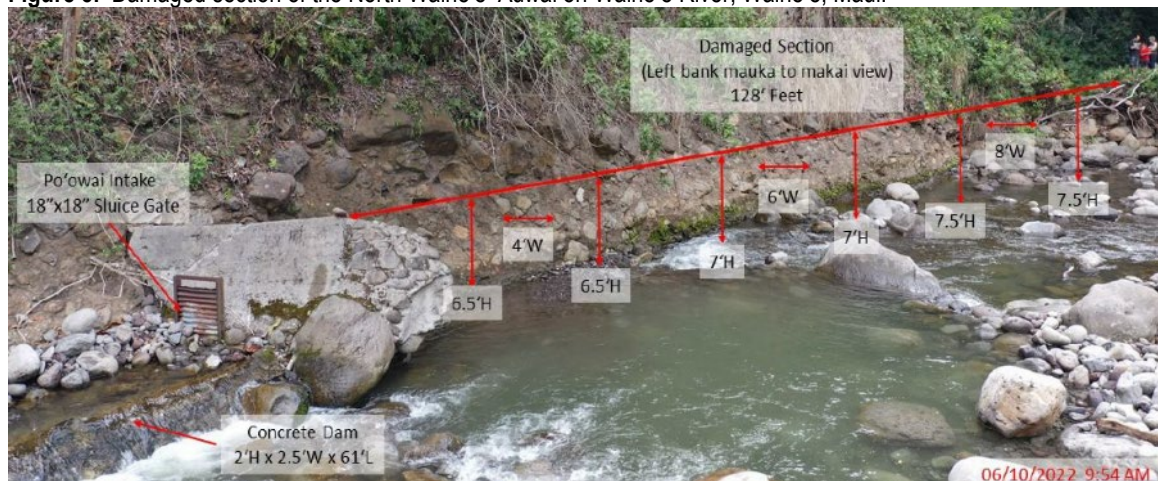
The Commission staff is continuing to monitor and assess the interim IFS established by the Commission. This includes regular quarterly trips to conduct streamflow measurements and download data from installed stream measurement devices. Monitoring data is available on the Commission website at: <http://dlnr.hawaii.gov/cwrm/surfacewater/monitoring/>.

In 2022, the SPAM Branch addressed three implementation issues which are still not fully resolved, but staff is continuing to work with community members to seek full resolution in light of changing climate conditions and a legacy plantation system which conveyed water to kuleana users through unlined ‘auwai experiencing high water losses.

North Waihe‘e Auwai

On September 20, 2022, the Commission approved a Stream Diversion Works Permit for the community organization Hui o Nā Wai ‘Ehā (Hui) and landowners Michael and Dana Pastula to reestablish the North Waihe‘e ‘Auwai. The original North Waihe‘e ‘Auwai was constructed around 1500 A.D. and is about 1.2 miles long with an estimated capacity of 2 to 4 million gallons per day. In 2018, a substantial flood event destroyed the ‘auwai intake and about 130 feet of the ‘auwai. The Hui is working with Mahi Pono, LLC, to use an excavator to restore the po‘owai (intake) and 130-foot long ‘auwai section on the left bank of Wailuku River.

Figure 5. Damaged section of the North Waihe‘e ‘Auwai on Waihe‘e River, Waihe‘e, Maui.



Wailuku Town Kuleana ‘Auwai

The Wailuku Town Kuleana ‘Auwai receives water from a distribution pipe and control valve located on property owned by Imua Family Services. The distribution pipe conveys water from the Waihe‘e Ditch, managed by Wailuku Water Company (WWC). Based on the Nā Wai ‘Ehā Decision and Order, WWC is supposed to release 0.088 mgd at the distribution pipe for four water use permittees. Three of the four permittees (Velez, Ciotti, and Ibara) are located about 0.5 miles away from the control valve and Imua Family

Services. These water users were experiencing limited water flows in the ‘auwai due to water loss in the partially open, partially concrete-lined channel that runs under the homes and streets in Wailuku town. The Commission ordered that the distribution pipe and control valve be fully opened so that staff could assess the system water losses and investigate conditions along the length of the ‘auwai. Investigations are on-going.

Figure 6. Wailuku Town Kuleana ‘Auwai as it flows from the distribution pipe at Imua Family Services through Wailuku Town, Wailuku, Maui.



A) Distribution pipe with valve chained and flow meter at center, located on the boundary of Imua Family Services property.



B) Water flows underground from Imua Family Services and drops into an open ditch on the Koeli LLC property.



C) Water flows in an underground concrete-lined channel behind Wailuku Public Library.



D) Water flows from a driveway culvert at the Velez property and towards Velez, Ciotti, and Ibara.

South Waikapū Kuleana ‘Auwai

In August 2021, staff received a complaint from Hui o Nā Wai ‘Ehā regarding the lack of water delivered to the South Waikapū Kuleana ‘Auwai by WWC. WWC manages the Waikapū Stream diversion, which delivers water to Reservoir 1 and is then dropped into an unlined ‘auwai that flows downhill for approximately 1 mile. A considerable amount of water seeps into the ground along the way, so that the water use permittees at the end of the ‘auwai were not receiving any water. Following several investigations, the staff worked with WWC and the Hui to discuss potential solutions. Area landowner, Waikapu Properties, agreed to work with the Hui to develop an alternative water delivery system

from Reservoir 1. Water is now being delivered to the water use permittees on the South Waikapū Kuleana ‘Auwai via a piped system. This is an interim solution while the Hui is working towards a more permanent solution that seeks to restore the original Waikapū Stream diversion to provide water to the centuries-old ‘Auwai.

Figure 7. Condition of South Waikapū ‘Auwai and alternative water delivery system, Waikapū, Maui.



A) Water was originally released from a valved pipe from Reservoir 1 into the South Waikapū ‘Auwai, experiencing high amounts of water loss.



B) An old section of a County water line sits in the ‘auwai, where the water stops flowing approximately 900 feet before the first kuleana user.



C) Newly installed lateral 4-inch line from Waikapu Properties’ line continues to South Waikapū Kuleana ‘Auwai.



D) Newly installed end of lateral 4-inch line at drop point to South Waikapū Kuleana ‘Auwai considerably reduces water loss from Reservoir 1 nearly 1-mile upslope.

D. Complaint for Dispute Resolution, Petition to Amend the Interim Instream Flow Standard, and Declaratory Order on Against Waste for Waimea River, Kaua‘i

On July 24, 2013, Po‘ai Wai Ola and West Kaua‘i Watershed Alliance, by their attorneys Earthjustice, filed: 1) a Complaint for Dispute Resolution; 2) a Petition to Amend Interim Instream Flow Standard; and 3) a Complaint for Declaratory Order Against Waste in the Waimea River and its tributaries, Waimea, Hawai‘i (Complaint and Petition).

Investigating entire river systems with complex historic diversions is not a simple undertaking. Due to current staff shortages and multiple contested case hearings on Maui, the Commission exercised its authority to appoint agents, including hearings officers and consultants necessary to carry out the purposes of the State Water Code. Hawai‘i Revised

Statutes, §174C-5(8); Hawai‘i Administrative Rules (HAR) §13-167-3(13) and §13-167-23(d).

On August 21, 2013, the Commission delegated to the Chairperson the authority to appoint a qualified consultant to investigate the facts (including the situation on the ground) with regard to the Complaint and Petition. The consultant/investigator will be expected to: 1) Research and assemble information currently available; 2) Meet with relevant individuals and organizations to collect information pertaining to waste; 3) Conduct site visits to investigate the water delivery systems, water use, and allegations of waste; 4) Prepare a preliminary fact report describing the investigation and the facts; and 5) Submit the fact report to the Commission for its consideration.

On June 6, 2014, the Commission entered in to a Contract for Professional Services with Element Environmental (Consultant) to conduct an investigation of the Kōke‘e and Kekaha Irrigation Systems. Preliminary field investigations were conducted with Commission staff in July, with the Consultant beginning baseline data gathering in November.

On April 28, 2015, the Commission conducted a limited meeting to view portions of the Kōke‘e and Kekaha Ditch Irrigation Systems. Sites included the Waimea Canyon Lookout, Puu Lua Reservoir, Puu Moe Ditch Divide, Black Pipe Siphon viewpoint, end of Kōke‘e Ditch, and the Kekaha Ditch crossing at Highway 550. Public testimony was also taken at the conclusion of the limited meeting.

On April 29, 2015, the Commission heard briefings by the Kekaha Agriculture Association (KAA) on the operational aspects of the Kekaha and Kōke‘e Ditch Systems, and by the Kaua‘i Island Utility Cooperative (KIUC) on the proposed pump storage project.

In September 2015, the Commission staff began meeting with representatives from Earthjustice, KAA, Agribusiness Development Corporation (ADC), Department of Hawaiian Home Lands, and KIUC to discuss the potential for resolving certain issues through mediation.

On October 20 and 21, 2015, the Commission again conducted a limited meeting to view more remote portions of the Kōke‘e and Kekaha Ditch Irrigation Systems. Sites included the Mauka Hydropower Plant on Waimea River, Black Pipe Siphon, Menehune Ditch, mouth of the Waimea River, Hukipo Flume on Kekaha Ditch, Waiawa Hydropower Plant, Kawaiete Pumping Station, Reservoir N at the end of the Kekaha Ditch system, Waiakoali, Kawaikōi, Kauaikinanā, and Kōke‘e Stream diversions, and the Kauhao Sluice Gate. A public meeting was also held on the evening of October 20 to receive public testimony and listen to community concerns and issues.

On November 27, 2015, the Department of Hawaiian Home Lands filed a petition to reserve an estimated 33.145 million gallons per day of surface water from the Waimea surface water hydrologic unit. The projected water demands include water for agriculture, pastoral, residential, kalo cultivation, and community use.

On December 16, 2015, the Commission approved delegation of authority to the Chairperson to hire a Mediator to address the Complaint and Petition. Soon after, the Commission staff initiated discussions with mediator Robbie Alm, Collaborative Leaders Network.

On February 16, 2016, the Commission approved Terms of Reference as proposed by the Mediator to initiate the mediation process on the Complaint and Petition. The Commission asked to receive an update on the mediation progress in six months.

On September 21, 2016, the Mediator reported to the Commission on the progress of the mediation, as requested by the Commission in February. Mr. Alm reported that there is a possibility for the parties to reach agreement, but needed until the end of the year to finalize discussions. If agreement could not be reached by the end of the year, then it was very likely the mediation would ultimately end without resolution. The Commission staff would then initiate the interim IFS amendment process for the Waimea surface water hydrologic unit.

On January 17, 2017, the Mediator again updated the Commission on the progress of the mediation. Mr. Alm reported on the unusual circumstances in which the parties were being asked to resolve the issue without extensive studies, findings, or a significant factual record. Regardless, the Mediator requested another extension for the parties to continue working on 3 to 4 very specific issues. The Commission approved the extension.

On April 18, 2017, the Commission approved the Mediation Agreement for the Waimea Watershed Area. The Agreement, starting with a Statement of Guiding Principles, addressed: 1) Modification of Diversions; 2) Permits and Approvals; 3) Interim Instream Flow Standard Numbers; 4) Monitoring Stations; 5) Operating Protocols; and 6) Infrastructure Agreements. The Commission staff has been and will continue to work with the parties to implement and/or monitor the implementation of specific actions outlined in the Agreement.

At its regularly scheduled meeting on September 15, 2020, held virtually via Zoom and livestreamed on YouTube, the Commission approved the Kaua'i Island Utility Cooperative's Stream Diversion Works Permit (SDWP.5321.2) and Stream Channel Alteration Permit (SCAP.5150.2) for Kōke'e Ditch diversion modifications and installation of monitoring stations at Waiakōali (Diversion 620), Kawaikōi (Diversion 616), Kauaikinana (Diversion 607), and Kōke'e (Diversion 622) Streams. The work includes: 1) Waiakōali Stream: Installation of a concrete diversion headwall with a control gate and installation of two pressure transducers, one staff gage, and an instrument shelter; 2) Kawaikōi Stream: Construction of a gravel cofferdam with a gated pipe and trash rack; 3) Kauaikinana Stream: Installation of two pressure transducers, two staff gages, and an instrument shelter; and 4) Kōke'e Stream: Construction of a 36-inch bulkhead with gate, installation of one 85-foot long, 24-inch HDPE pipe flume, and rehabilitation of the tunnel head gate, and installation of one pressure transducer and one staff gage, one acoustic Doppler, and one instrument shelter.

Figure 8. Kōke'e Ditch diversions, Kōke'e, Kaua'i.



A) Diversion dam at Waiakoali Stream.



B) Diversion at Kawaikōi Stream.



C) Diversion dam at Kauaikinanā Stream.



D) Diversion dam at Kōke'e Stream.

On November 17, 2020, the parties provided an update on the Mediation Agreement.

On June 23, 2021, the SPAM Branch hosted a community presentation by the Commission and USGS staff via Zoom. The presentation provided information on the re-activated Waiahulu Stream gage (16016000, co-funded by the Commission and USGS), how streamflow is measured, how the USGS quality-assures data, and how the data can be retrieved by the public online.

On September 20, 2022, the parties again provided the Commission with an update on the Mediation Agreement.

Information on the Waimea River Complaint and Petition is available on the Commission website at: <http://dlnr.hawaii.gov/cwrm/surfacewater/ifs/2060-waimea/>.

The SPAM Branch is continuing to hold stakeholder meetings approximately every other month to work through the implementation of the Waimea Watershed Mediated Agreement with fieldwork to verify streamflows and administrative support to coordinate stakeholder actions. The last stakeholder meeting was held on August 23, 2022.

E. Study on Low-Flow Characteristics for Streams in Southeast Kaua‘i, Hawai‘i

The history of large-scale sugarcane cultivation in Southeast Kaua‘i by Līhu‘e Plantation, Grove Farm, Kōloa Plantation, McBryde Sugar Company, and Olokele Sugar Company has left extensive and complex irrigation systems that continue to serve municipal, hydropower, and agricultural uses. Over the past several years, the Commission has received several complaints and inquiries for streams in the region including Wailua, Waikomo, Lāwa‘i, and Hanapēpē. Additionally, the USGS has worked with the Kaua‘i Department of Water consistently over the past two decades in assessing groundwater hydrology for the Southern Līhu‘e Basin. This combination of issues and work in Southeast Kaua‘i have made it ripe for the assessment of instream flow standards by the Commission.

On June 1, 2015, the Commission entered into a Joint Funding Agreement (JFA) with the U.S. Geological Survey (USGS) to conduct a study of low-flow characteristics for streams in eleven watersheds in Southeast Kaua‘i: Wailua, Hanamā‘ulu, Puali, Hulē‘ia, Waikomo, Aepo, Lāwa‘i, Kalāheo, Wahiawa, and Hanapēpē. This is a 4-year cooperative study divided into two periods at a total cost of \$707,000. Period 1 was initially set to run from June 1, 2015 to June 30, 2017 at a cost of \$446,000 (Commission’s share is \$312,200), while Period 2 was anticipated to run from July 1, 2017 to April 30, 2019 (Commission’s share is \$78,300).

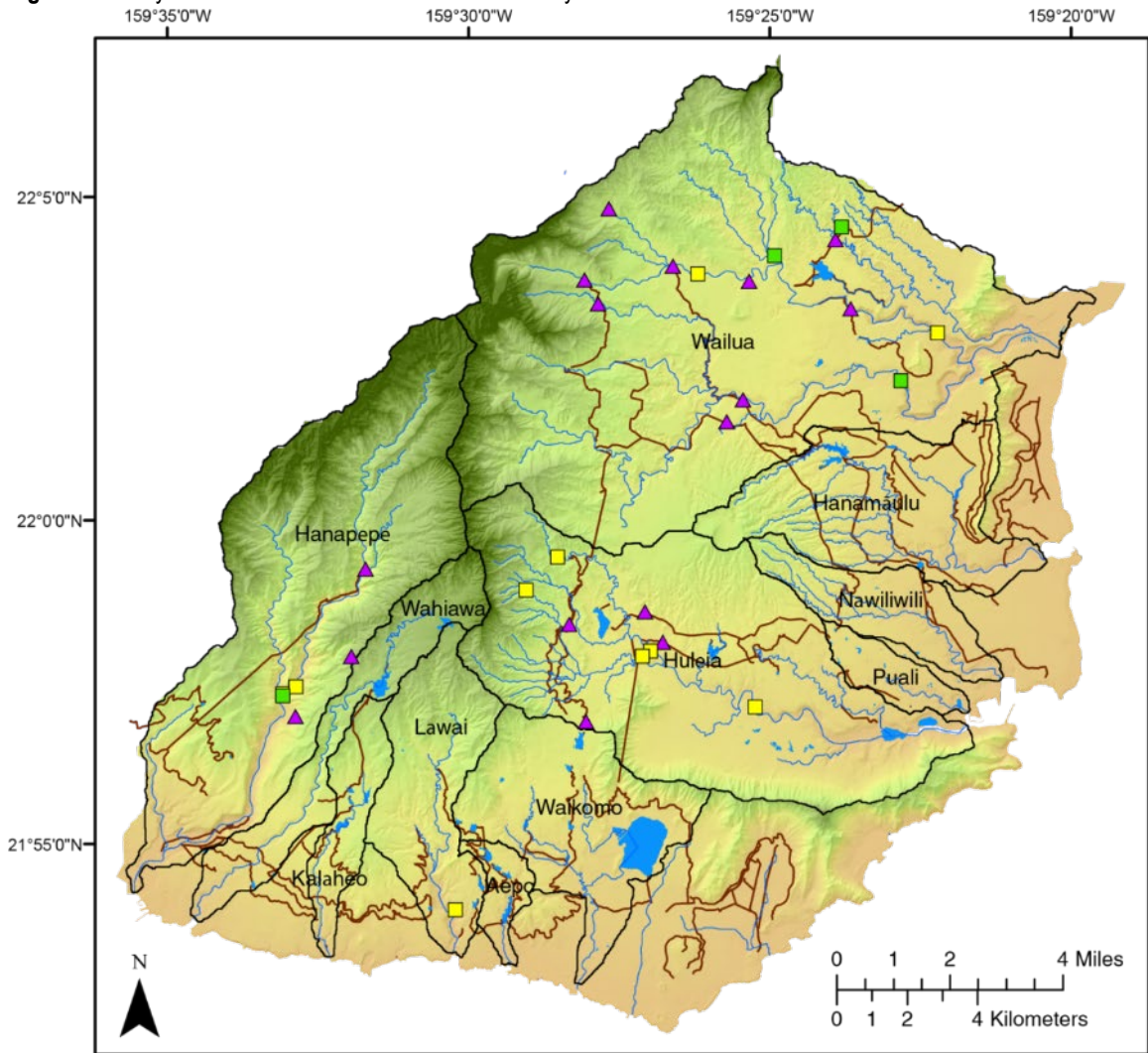
The USGS is undertaking the study in five steps: 1) Conducting background research on existing surface water diversions, rainfall, groundwater, and surface-water data; 2) Conducting stream reconnaissance surveys to understand the general hydrologic conditions of streams; 3) Establishing low-flow partial records stations upstream from existing diversion intakes to quantify streamflow under natural, undiverted low-flow conditions; 4) Conducting seepage analyses to characterize gains and losses in streamflow; and 5) Preparing maps to be published as part of the report.

On May 5, 2017, the Commission received a request from the USGS to increase the period of performance by four months for the Phase 1 JFA, from June 1, 2015 to October 31, 2017. This was a no-cost extension.

Throughout 2017, the USGS continued to field-verify stream diversion intakes, maintain and monitor temporary stream gages, and developed rating curves for accurately determining stream discharges.

On June 20, 2017, the Commission authorized the Chairperson to enter into a JFA for Phase 2 of the Study. The major task of Phase 2 will be continued data collection, analysis, and report preparation, with a performance period from July 1, 2017 to September 30, 2019. The total cost for Phase 2 also increased slightly to \$313,460, with additional contributions from USGS. The overall cost of the Study (Phases 1 and 2) increased from \$707,000 to \$759,460, with no additional funds from the Commission than originally anticipated.

Figure 9. Study area of the USGS Southeast Kaua'i Study.



EXPLANATION

□ Drainage basins within study area

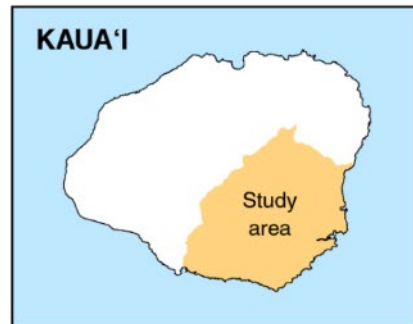
— Diversion systems

Selected USGS gaging stations

■ Surface-water gage, active

■ Surface-water gage, inactive

▲ Diversion intake, inactive



In June 2019, the USGS requested amending the Joint Funding Agreement to increase the period of performance by nine months, changing the original end date of September 30, 2019 to a revised date of June 30, 2020. In its request, the USGS cited the 35-day partial Federal Government shutdown from December 2018 to January 2019, as well as delays in data collection caused by damages to gaging stations and access roads associated with the April 2018 floods in Kaua'i.

On May 13, 2020, the USGS requested a no-cost extension of the period of performance by six months to December 31, 2020. The amendment was requested due to anticipated delays in the USGS peer review process resulting from federal telework requirements and other measures associated with the COVID-19 pandemic.

During April to June 2020, the USGS addressed comments from internal technical and supervisory reviews, as well as peer reviews and courtesy review by Commission staff.

The final report was published and released on December 3, 2020, and is available online as USGS Scientific Investigations Report 2020-5128:

<https://pubs.er.usgs.gov/publication/sir20205128>

The SPAM Branch anticipates starting development of instream flow standards for the streams covered under this study in 2023, bearing in mind that the Commission approved a measurable interim IFS for Lāwa‘i Stream on March 16, 2021.

Information on the Study is also available from the Commission website at:

<http://dlnr.hawaii.gov/cwrm/surfacewater/sw-activities/usgs-southeastkauai/>.

F. Estimation of Low-Flow Characteristics for Streams in Hawai‘i

On June 1, 2013, the Commission entered into a JFA (Phase 1) with the USGS to cooperatively study low-flow characteristics of streams in Hawai‘i. The objectives of the 7-year cooperative study (Phases 1 and 2) are to: 1) estimate selected natural low-flow duration discharges for streams with existing streamflow data at gaged sites; and 2) develop methods to estimate selected natural low-flow duration discharges at ungaged sites. The study will apply regionalization techniques to estimate low-flow duration discharges for streams at sites where streamflow data are limited or unavailable on the islands of Kaua‘i, O‘ahu, Moloka‘i, Maui, and Hawai‘i. Low-flow conditions are characterized by low-flow duration discharges between the 50 and 95 percentiles. Flow duration discharges are the representative average flow characteristics for a specified period of time.

Phase 1 is a 2.5-year study (budgeted for \$350,000), that includes data compilation and the computation of low-flow duration discharges for gaged sites. In Phase 1, the USGS will: 1) Compile existing data from continuous record stream gaging stations, low-flow partial-record and miscellaneous discharges measurement sites; 2) Incorporate calculated duration discharges into StreamStats; 3) Explore different methods in developing regional regressions models for estimating low-flow characteristics at ungaged sites; and 4) Identify additional data needs. Other cooperators in Phase 1 include the Office of Hawaiian Affairs and the Department of Hawaiian Home Lands.

The USGS completed Phase 1 and published this Study in early 2016 as USGS Scientific Investigations Report 2016-5103, *Low-flow Characteristics for Streams on the Islands of Kaua‘i, O‘ahu, Moloka‘i, Maui, and Hawai‘i, State of Hawai‘i*. To download a copy of the report, see the USGS website at: <https://pubs.er.usgs.gov/publication/sir20165103>.

The Commission received from the 2016 Legislature, as part of the Department's budget package, a legislative appropriation in the amount of \$1,500,000 for Fiscal Year 2017.

On January 1, 2017, the Commission entered into a JFA with the USGS to begin Phase 2 of the Study. Phase 2 is a nearly 5-year study (at an overall cost of \$2,327,500) that will include the development of regional regression equations for low-flow duration discharges at ungaged sites and the implementation of the web-based StreamStats application. In Phase 2, the USGS will: 1) Compute selected natural low-flow duration discharges at continuous-record stream-gaging stations and low-flow partial record sites; 2) Identify and evaluate different methods for use in developing regional-regression models for estimating low-flow characteristics at ungaged sites; 3) Utilize information collected in Phase 1 of the Study to identify and establish low-flow partial record sites and conduct seepage runs in selected areas requiring additional data; 4) Compute natural low-flow duration discharges at low-flow partial record sites; 5) Identify and quantify basin characteristics to regionalize low-flow characteristics; 6) Develop multiple-regression equations for separate regions to estimate selected duration discharges for ungaged sites; and 7) Incorporate regional regression models for estimating low-flow characteristics at ungaged sites into StreamStats. Phase 2 also incorporates work completed through an additional JFA between the USGS and the Office of Hawaiian Affairs for \$105,000. Phase 2 is scheduled to be completed by September 30, 2021.

Characterization of low-flow conditions is essential for the Commission to set instream flow standards and ultimately manage competing instream and non-instream uses. Calculating and understanding water availability is also important to protect and support public interest objectives, including but not limited to aquatic biota, freshwater ecosystems, traditional and customary Hawaiian rights, recreation, municipal and agriculture water use.

Incorporating calculated duration discharges from gaged sites and regional regression equations into the tool, StreamStats, will allow for a comprehensive estimate of surface water throughout the state of Hawai'i. StreamStats is a web-based geographic information system (GIS) interactive tool that allows users to easily obtain streamflow statistics and basin characteristics for user-selected sites along streams. This tool is efficient and accurate in estimating streamflow statistics. A study by Rosa and Oki (2010) used StreamStats to estimate the magnitude of peak discharges at ungaged sites on unregulated streams. This same web-based application will be used to estimate low-flow duration discharges throughout Hawai'i. Overall, Hawai'i StreamStats for low-flow conditions is an important tool that is more cost-effective and computationally efficient than current site specific low-flow studies currently being undertaken for instream flow standards.

On June 17, 2021, USGS submitted a request for a no-cost extension of 18 months, noting that data collection for this study encountered significant delays due to the government shutdown, historic flooding preventing access to certain sites, and the continuing COVID-19 pandemic. The no cost extension is needed to allow additional time to develop methods to estimate selected natural low-flow duration discharges at ungaged sites on the islands of Kaua'i, O'ahu, Moloka'i, Maui and Hawai'i and document the results of the study in a

USGS Scientific Investigations Report. Delays are also anticipated for USGS peer review and editorial review of the report as a result of federal telework requirements and other measures associated with the COVID-19 pandemic adding uncertainty to operations and project timelines.

As of September 2022, the USGS completed the last seepage run discharge measurements for the 24th stream in this study and is continuing to draft USGS data release materials for these streams, which are currently under internal review. The USGS completed a modernization of methods for record extension and augmentation, then began application of these methods, computation of selected augmented records for various periods and seasons to support base-period selection for developing regional-regression models.

Publication of this report and the development of the StreamStats application is currently anticipated for April 2023.

A summary of the StreamStats application and background information on the Study can be found on the Commission website at:

<http://dlnr.hawaii.gov/cwrm/surfacewater/sw-activities/usgs-streamstats/>.

G. USGS Cooperative Agreement:

In 1909, the USGS and the Territory (now State) of Hawai‘i officially began a cooperative agreement to gage Hawai‘i streams (and measure Hawai‘i’s groundwater). Since 1909, over 140 (37%) of Hawai‘i’s 376 perennial streams have been gaged. However, there has been a steady decline in the number of monitored streams and thus the amount of data available to water resource managers.

Although the nature of the Agreement and relationship of the parties remains similar to the previous year’s Agreement, the total number of stream gaging stations will increase to 47. For Federal Fiscal Year (FFY) 2023, the total cost of the agreement will not exceed \$1,261,031. The Commission’s share will not exceed \$1,005,646 (See Table 2). Additional stations added to the agreement reflect the State’s increased need for reliable, accurate, and timely streamflow information to make management decisions. Table 3 depicts the changes in the number of gages over the last five federal fiscal years.

With respect to streamflow monitoring, the Agreement in FFY 2023 will cover the installation costs of the three (3) new stations added to the Agreement in FFY 2022 and the permitting costs for additional stream gaging stations to be added to future agreements (Table 3). The installation costs vary widely depending on the location, land ownership, and accessibility. Therefore, the initial reconnaissance of these stations will provide more accurate future installation cost estimates for future agreements. In FY2020, the Commission received an increase of \$240,000 in general funds to cover the costs of additional stream gaging related to the establishment or monitoring of interim IFS, especially in streams impacted by potential water leases. Stations reestablished 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.

Shifting Cooperators for Monitoring Stations in FFY 2023 Agreement

Commission staff have requested that HI DOT fully fund the operation of USGS 16049000 on Hanapēpē River. This station does not monitor natural flow, nor could it be used to monitor a future instream flow standard. This station is more appropriately funded by agencies interested in peak flows or flooding in Hanapēpē.

The City and County of Honolulu Department of Environmental Services (DEM) originally funded USGS 16210200 on Kaukonahua Stream below Wahiawa Reservoir and USGS 1620100 Wahiawā Ditch. Due to reductions in funding, they can no longer fund these stations. Commission staff recommend adding these stations to the Agreement on a temporary basis until the State Department of Agriculture or Agribusiness Development Agency can secure their own funding to cost-share these stations. Commission staff believe these stations provide critical data for monitoring newly established interim IFS and the availability of water for agriculture dependent on the Wahiawā Ditch.

On Maui Island, the installation of one station (16647900) on Waikapū Stream 120ft above South Waikapū Ditch intake was paid for by Mahi Pono in FFY2022 and in FFY2023 Mahi Pono will assume responsibility for funding USGS 16605500 on Wailuku River, while the Commission will cost-share funding of USGS 16649700 on Waikapū Stream with USGS and HI DOT.

On Hawai'i Island, Hawai'i Department of Water Supply (DWS) will assume responsibility for funding USGS 16757000 on Waikoloa Stream above the Hawai'i DWS intake. This station was previously operated as a low-flow station from 2019-2022 as part of the statewide low-flow study.

New Streamflow Monitoring Stations in FY 2023

On Hawai'i Island, the permitting and reconnaissance costs for two stations were paid for in FFY2022 with installation and six months of operation to be paid for in FFY2023.

One station is located on Hakalau Stream at 1300 ft. (USGS 16717700). This station was previously operated as a low-flow station from 2018-2022 and fills a major gap in data collection along the Hāmākua Coast. The installation of real-time monitoring and six months of operation will be paid for in FFY2023, with costs shared by the Hawai'i Department of Transportation (HI DOT).

One station is located on Manowai'ōpae Stream (USGS 16717850). This station was previously operated as a low-flow station from 2018-2022 and fills a major gap in data collection along the Hāmākua Coast. The installation of real-time monitoring and 6 months of operation will be paid for in FFY2023, with costs shared by the USDA Forest Service Institute for Pacific Islands Forestry.

Table 1. Summary of annual changes in funding requirements for the USGS Cooperative Agreement from Federal FY 2020 to 2022.

COST	FFY 2021	FFY 2022	FFY 2023
Total Joint Funding Requirement	\$932,770	\$1,133,144	\$1,261,031
Expected CWRM cost-share	\$711,469	\$909,076	\$1,005,646
Percentage CWRM cost-share	76%	80%	80%
Waiāhole Ditch Trust Fund	\$84,956	\$86,018	\$60,552
Ground water well continuous monitoring	\$6,930	\$9,600	\$10,310
Rain gage continuous recording	\$9,850	\$9,960	\$10,310
Continuous recording stream gage	\$23,500	\$23,800	\$24,620

Table 2. Summary of annual changes in the number of gages from Federal FY 2018 to 2022.

GAGING STATION TYPE	FFY 2019	FFY 2020	FFY 2021	FFY 2022	FFY 2023
No. of continuous stream gages	32	39	39	42	447
No. of wells (ground water levels and water quality)	9	9	9	9	9
No. of rain gages	17	17	17	15	18

Long-term stream data is vital for the long-term monitoring of streamflow trends, assessing resource availability and the impacts of climate change, flood analysis in the construction of roads and housing developments, assessment of water quality criteria, and other environmental concerns. Continued support for the USGS Cooperative Agreement is critically important, not only towards the Commission’s responsibility of water resource protection and management, but for the health and safety of the general public. The Commission staff continues to confer with the USGS on a regular basis to review and evaluate a comprehensive statewide ground and surface water monitoring program.

Real-time and historical data for groundwater (wells) and surface water (streams) are available from the USGS Pacific Islands Water Science Center website at: <https://waterdata.usgs.gov/hi/nwis/rt>.

H. West Maui Interim IFS

On June 21, 2011, the Commission entered into a Joint Funding Agreement (JFA) with the U.S. Geological Survey (USGS) to conduct a low-flow study of the main streams in ten watersheds in the Lahaina District (Maui): Honolua, Honokahua, Kahana, Honokōwai, Wahikuli, Kahoma, Kaua‘ula, Launiupoko, Olowalu, and Ukumehame. The study initially arose from two petitions to establish amended interim IFS for Honokōhau and Honolua Streams in Northwest Maui (August 2006 by Maui Pineapple Company, Inc.). Later, the study area was expanded due to development pressures and changes in land use in West Maui.

Separately, the Department of Land and Natural Resources entered into a \$3 million cost share agreement with the United States Army Corps of Engineers (USACE) to develop a

watershed plan in support of the West Maui “Ridge to Reef” Initiative. The Commission is one of several non-federal participating sponsors. The USGS study will supplement the watershed plan as the project areas partially overlap. The streamflow characteristics will support multiple facets of the USACE effort.

The USGS completed and published this study in June 2014 as USGS Scientific Investigations Report 2014-5087, *Low-Flow Characteristics of Streams in the Lahaina District, West Maui, Hawai‘i*. To download a copy of the report, see the USGS website at: <http://pubs.usgs.gov/sir/2014/5087/>.

Based on the USGS stream study, the Commission proceeded with the development of interim IFS in West Maui. The Commission staff prepared Draft Instream Flow Standard Assessment Reports for the surface water hydrologic units of Ukumehame (6004), Olowalu (6005), Launiupoko (6006), and Kaua‘ula (6007). The draft reports are available online and are available for public review and comment. A Public Fact Gathering Meeting in West Maui was held in early December. Following public input, the reports were finalized in March 2018.

Interim IFS were submitted to the Commission for consideration at its March 2018 Commission meeting. The Commission voted to adopt the recommendations by staff to establish interim IFS on Ukumehame, Olowalu, Launiupoko, and Kaua‘ula streams. Staff are continuing to monitor streamflow releases and coordinate with the large diverters to meet the standards.

For more information on the interim IFS for Ukumehame Stream see the Commission’s website at: <https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/maui/6004-ukumehame/>.

For more information on the interim IFS for Olowalu Stream see the Commission’s website at: <https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/maui/6005-olowalu/>.

For more information on the interim IFS for Launiupoko Stream see the Commission’s website at: <https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/maui/6006-launiupoko/>.

For more information on the interim IFS for Kaua‘ula Stream see the Commission’s website at: <https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/maui/6007-kauauala/>.

In September 2018, a draft instream flow standard assessment report was prepared for the Kahoma (6008) surface water hydrologic unit, including the streams of Kahoma and Kanahā. A public fact-gathering meeting was held in October 2018. Following public input, interim IFS were prepared and submitted for the Commission’s review and approval in November 2018. The Commission voted to adopt the recommendations by staff, with amendments, to establish interim IFS on Kahoma and Kanahā Streams.

For more information on the interim IFS for Kahoma and Kanahā Streams see the Commission’s website at: <https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/maui/6008-kahoma/>.

In November 2019, Commission staff requested that the Commission address a waste complaint filed by Ka Malu O Kahalawai and West Maui Preservation Association against Maui Land and Pineapple Company (MLP) alleging water diverted from Honokōhau Stream overflows the Honokōhau Ditch. At the same time, staff sought to amend the interim IFS for Honolua and Honokōhau Streams. In its decision, the Commission approved certain actions to be taken by MLP to reduce waste and deferred amending the interim IFS for Honolua and Honokōhau Streams so that further discussion could take place between Commission staff, MLP, and the community. Specifically, the Commission ordered MLP to: 1) Replace the existing damaged intake with one that can be remotely operated; and 2) Provide real-time metering of each distribution point from the Honokōhau Ditch and provide the real-time data to the Commission.

On September 15, 2020, the Commission approved the abandonment of Diversion No. 768 on Kaluanui Stream, a tributary of Honokōhau, and Diversion No. 769 on Honolua Stream. Both diversions were owned by Maui Land and Pineapple Co., Inc. (MLP), but were not actively diverting water or being maintained.

On May 18, 2021, the Commission approved a reservation of surface water for the Department of Hawaiian Home Lands (DHHL) based on the updated medium-range demands for the Honokōwai Regional Plan, in the amount of 2.00 mgd from the Honokōhau Stream through the Honokōhau Ditch. The reservation of 2.00 mgd of non-potable water for DHHL provides more certainty for Maui Department of Environmental Management (Maui DEM) to invest in the infrastructure needed to blend and distribute R1-treated wastewater with reduced chloride levels that meet non-potable needs in the Lahaina Region.

At its May 2021 meeting, the Commission also approved: 1) setting an interim IFS of natural flow be established for Honolua Stream, below the abandoned Honokōhau Ditch diversion, to maintain the habitat immediately below the diversion; 2) establishing an interim IFS of natural flow for Kaluanui Stream, below the abandoned Honokōhau Ditch diversion; and 3) setting an interim IFS on Honokōhau Stream at McDonald's Dam (at the 340 foot elevation), at a flow of 8.6 mgd. The interim IFS represents the restoration of 64% of median base flow (BFQ50) as estimated at USGS 16620000 (7.4 mgd), plus the additional 2.3 mgd of groundwater gains between USGS 16620000 and Aotaki Weir and 1.4 mgd of groundwater gains between Aotaki Weir and McDonald's Dam minus 2.5 mgd for the Maui DWS. The interim IFS is expected to be in excess of the water needs to support the existing needs of lo'i as well as future acreage while protecting aquatic biota, recreation, and domestic uses at all elevations, and ensuring sufficient water to meet traditional and customary practices 100% of the time in Honokōhau Valley. MLP is required to meet the interim IFS 100% of the time. There should also be adequate ditch flow to meet Maui

DWS needs of 2.5 mgd at the Māhinahina Water Treatment Facility 100% of the time. It is understood that during extreme drought (< Q90; < 11.0 mgd at Aotaki Weir), 100% of

the off-stream needs of non-public trust uses may not be met. Additional implementation and monitoring measures are included in the Commission staff submittal.

For more information on the interim IFS for Honolua Stream see the Commission's website at: <https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/maui/6013-honolua/>.

For more information on the interim IFS for Honokōhau Stream see the Commission's website at: <https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/maui/6014-honokohau/>.

The Commission is continuing to regulate and monitor the implementation of instream flow standards in West Maui, including the recent installation of three USGS streamflow gages on Kahoma and Kaua'ula Streams.

On April 19, 2022, the Commission approved the temporary relief of 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.

Due to prolonged drought conditions, the temporary relief period was extended an additional 90 days on July 19, 2022, with additional extensions likely.

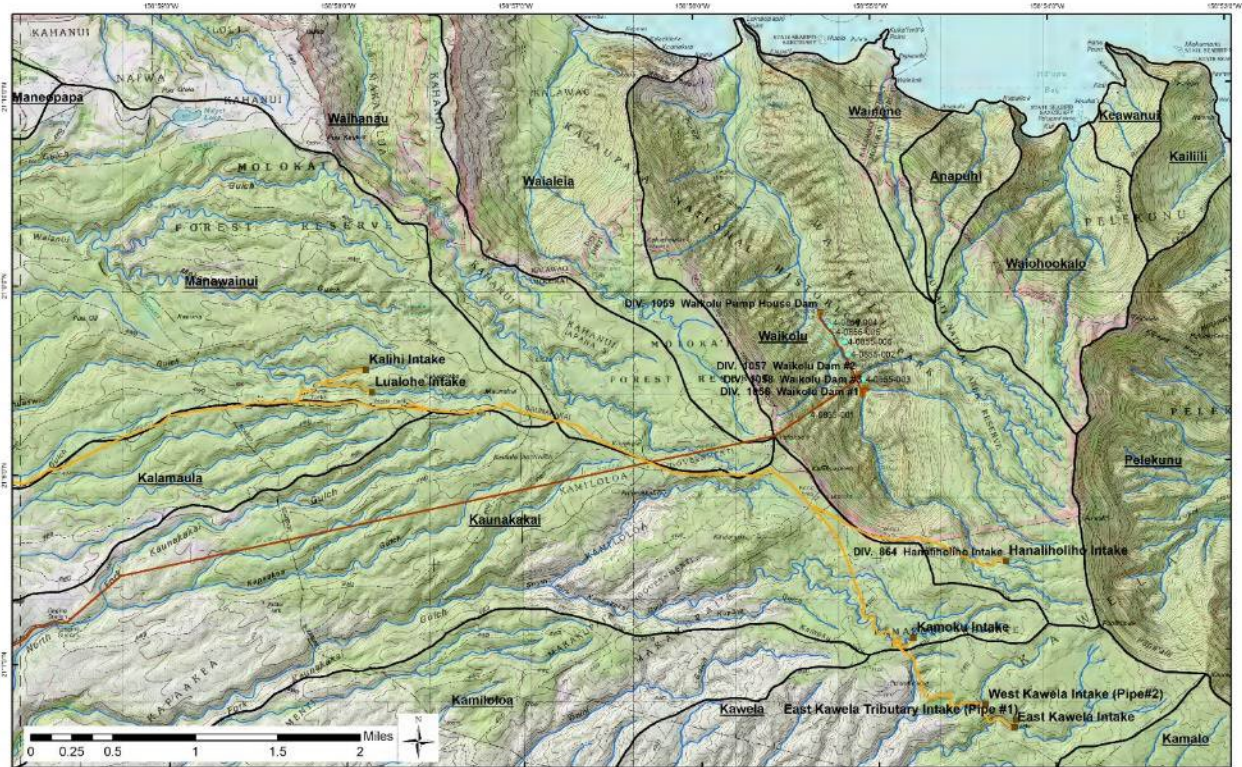
On October 18, 2022, the Commission heard two submittals: 1) Find that Olowalu Water Company, LLC, Owner and Operator of Diversion 961 Violated the Interim Instream Flow Standard on Olowalu Stream and Impose Fines and Order Modifications to Diversion 961, Olowalu Surface Water Hydrologic Unit, Lahaina, Maui; and 2) Amend the Interim Instream Flow Standard on Olowalu Stream Below Diversion 961 to Reflect a Change in Monitoring Location and Hydrologic Conditions, Olowalu Surface Water Hydrologic Unit, Lahaina, Maui. Staff requested that the Commission impose a fine of \$470,050 to Olowalu Water Company, LLC (OWC) for a violation of the interim IFS on Olowalu Stream at Diversion 961 on TMK 4-8-003-008 on 548 days from January 1, 2019 to March 29, 2022 and on five additional days from April to October, 2022, and recommend improvements to the system to meet the interim IFS and reduce system loss. The Commission voted to defer action on the imposition of the fine. In the second submittal, the Commission approved amendment of the interim IFS to be relocated immediately below the Lower Olowalu Flume at an elevation of approximately 180 ft. and a flow of 2.5 cubic feet per second (1.62 million gallons per day) reflecting a change in the hydrology of Olowalu Stream.

I. Interim IFS for Moloka'i Streams, Hydrologic Units of Waikolu (4003), Kawela (4037), Kaunakakai (4039), and Manawainui (4041)

On July 1, 2019, the Commission received a Petition to Amend an Instream Flow Standard (Petition) filed by Earthjustice, on behalf of Moloka'i No Ka Heke, an unincorporated

community association of Moloka'i residents, in conjunction with a Complaint / Dispute Resolution Filing Form (Complaint). The Petition sought to establish measurable interim IFS for Kawela, Kaunakakai, Manawainui, and Waikolu Streams.

Figure 10. Molokai Properties' Molokai Water System diverts water from the surface water hydrologic units of Kawela, Kaunakakai, Waikolu, and Manawainui.



On February 15, 2022, following several years of data collection and investigation, the Commission received a briefing on the status of the combined Petition to Amend the Interim Instream Flow Standards and allegation of waste (CDR.5310.4), filed by Moloka'i No Ka Heke, for streams in the surface water hydrologic units of Waikolu (4003), Kawela (4037), Kaunakakai (4039), and Manawainui (4041), and the reservation of non-potable water for DHHL.

On March 15, 2022, the Commission was presented with two submittals to: 1) Address portions of CDR.5310.4 by amending interim IFS for the surface water hydrologic units of Kawela (4037), Kaunakakai (4039), and Manawainui (4041), Moloka'i; and 2) Approval of surface water reservation of 6.0914 mgd for the Department of Hawaiian Home Lands and amend the interim IFS for Waikolu Stream (4003). However, both submittals were deferred.

On April 19, 2022, following discussions with representatives for Moloka'i No Ka Heke, DHHL, and Molokai Properties, the action items from March were brought back to the Commission. The Commission approved, with amendments, interim IFS for East Kawela Stream, with a goal of full restoration, and South Fork Kuhuaawi Stream at the Lualohe

Intake; abandonment of Diversion 866 on the East Kawela tributary and Diversion 862 on West Kawela Stream, and evaluation of unused stream diversions including Diversions 865 (Kamoku Stream), 863 (Lualohe Intake), and 868 (Kalihi Intake). In a subsequent action, the Commission approved the surface water reservation to DHHL in the amount of 6.0914 mgd from the Waikolu hydrologic unit, via the Moloka‘i Irrigation System, and a small portion from the Mountain Water System; interim IFS on Waikolu Stream at the 900 ft. and 250 ft. elevations; and modifications to Diversion 1059 (Dam #4) to provide for a wetted pathway to maintain habitat connectivity for native aquatic species.

On October 18, 2022, the Commission was presented a staff submittal on the follow-up actions related to the April 19, 2022 Commission decision to amend the interim instream flow standards and complaint against waste by Molokai Properties for the Kawela (4037), Kaunakakai (4039), and Manawainui (4041) hydrologic units filed by Moloka‘i No Ka Heke (CDR.5310.4) by requiring the temporary modification of Diversion 867 on East Kawela, and monitoring streamflow at Lualohe (Diversion 863) and Kamoku (Diversion 865) Intakes, Moloka‘i. The Commission approved the staff submittal, with amendments, which sought to have Molokai Properties abandon Diversion 867 on East Kawela Stream and provide for temporary immediate full restoration of streamflow. Following approval, Molokai Properties requested a contested case hearing, along with Moloka‘i No Ka Heke.

For more information on interim IFS efforts for these Moloka‘i streams, see the individual hydrologic unit webpages on the Commission’s website at:

- Waikolu: <https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/molokai/4003-waikolu/>
- Kawela: <https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/molokai/ifs-4037-kawela/>
- Kaunakakai: <https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/molokai/4039-kaunakakai/>
- Manawainui: <https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/molokai/4041-manawainui/>

J. Interim IFS for He‘eia Stream, Windward O‘ahu

Following at least two years of data collection and meeting with community members and government agencies, the Commission staff completed the Draft Instream Flow Standard Assessment Report for He‘eia in September 2020. The Report was made available on the Commission website and a presentation was made to the Commission at its regularly scheduled Commission meeting on September 15, 2020.

On October 21, 2020, Commission staff held a virtual Public Fact Gathering Meeting on Wednesday, October 21, 2020 to receive testimony and any additional information to be compiled as part of the Instream Flow Standard Assessment Report. A presentation to the Kāne‘ohe Neighborhood Board was also made on November 19, 2020.

On January 19, 2021, the Commission was briefed on the Commission staff work towards developing measurable instream flow standards for He‘eia Stream. With feedback from community organizations and the Honolulu Board of Water Supply (HBWS), the Commission staff deferred the proposed recommendations and began holding subsequent meetings to discuss options that would seek similar streamflow restoration while limiting impacts to the HBWS’ current water supplies in the central Ko‘olaupoko region.

On May 18, 2021, the Commission staff requested delegation of authority to the Chairperson to enter into a Joint Funding Agreement (JFA) with the USGS to conduct an analysis of the impact of groundwater withdrawals from development tunnels and other wells on streamflow in Kahalu‘u and Waihe‘e streams, Ko‘olaupoko, O‘ahu. In order to better understand the effects of groundwater withdrawal from various well sources on streamflow, Commission staff worked with the HBWS and the USGS to fund concurrent groundwater modeling and streamflow analysis studies. The HBWS is funding a study of the He‘eia hydrologic unit, with surface water and groundwater historic data analysis, fieldwork, and modeling. The Commission, USGS, and HBWS are interested in understanding the relationship between development tunnel withdrawal and streamflow in Ha‘ikū, Ioleka‘a, Kahalu‘u, or Waihe‘e streams, the magnitude of this relationship, and the effect of various management scenarios (pumping regimes) on streamflow.

On June 15, 2021, Commission staff requested that the Commission consider the recommendations for improving high-elevation aquifer storage in the Ko‘olaupoko Aquifer System for protecting instream uses in He‘eia Stream affected by groundwater withdrawals from Ha‘ikū Tunnel by bulkheading Ha‘ikū Tunnel (Well No. 2450-001) at the 10-foot thick dike 1,200 feet from the portal entrance. As an interim solution, until the bulkheading is installed, Honolulu Board of Water Supply (HBWS) will reduce their withdrawal from 1.0 million gallons per day to 0.3 million gallons per day, with the resulting difference supporting streamflow.

As part of the Commission’s approved actions, HBWS will complete a feasibility study and preliminary engineering design for the proposed bulkhead, while continuing to communicate and coordinate with Commission staff and community partners including Kamehameha Schools, DHHL, Papahana Kuaola, Hawai‘i Community Development Authority, He‘eia National Estuarine Research Reserve, and Kāko‘o ‘Ōiwi. Upon completion of the study, HBWS will have three years to complete the final design and construction of the bulkhead, which will then allow the Commission to evaluate the implications for baseflow in He‘eia Stream and determine the feasibility of establishing a numeric instream flow standard. If HBWS determines that bulkheading is not a feasible solution, Commission staff will then recommend an amendment to the interim IFS or amend the HBWS’ water use permit as needed. Additional implementation and monitoring measures are included in the Commission staff submittal.

On September 21, 2021, a briefing on the status of the Commission’s Order to Bulkhead He‘eia Tunnel was presented, with supporting information provided by HBWS and testimony from community organizations.

On April 19, 2022, the Commission received an informational briefing from the USGS on the preliminary results of the He‘eia Watershed and Waihe‘e-Kahalu‘u Watershed Studies.

Commission staff continues to coordinate quarterly meetings with government agencies and community stakeholders, including HBWS, USGS, Papahana Kuaola, He‘eia National Estuarine Research Reserve, Kāko‘o ‘Ōiwi, and Paepae o He‘eia.

For more information on interim IFS efforts for He‘eia Stream, see the Commission’s website at: <https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/oahu/3028-heeia/>.

K. Interim IFS for East Maui Streams, Hydrologic Units of Ho‘olawa (6035), Waipi‘o (6036), Hoalua (6038), Hanawana (6039), Kailua (6040), Nailiilihaele (6041), Puehu (6042), Oopuola (6043), Ka‘aiea (6044), Punalu‘u (6045), and Kōlea (6046)

Recognizing that not all streams diverted by the East Maui Irrigation System were included in the Commission’s Decision and Order under contested case hearing CCH-MA13-01, Commission staff began developing Instream Flow Standard Assessment Reports for each of the eleven hydrologic units in the western region of the East Maui license area, managed by DLNR’s Land Division.

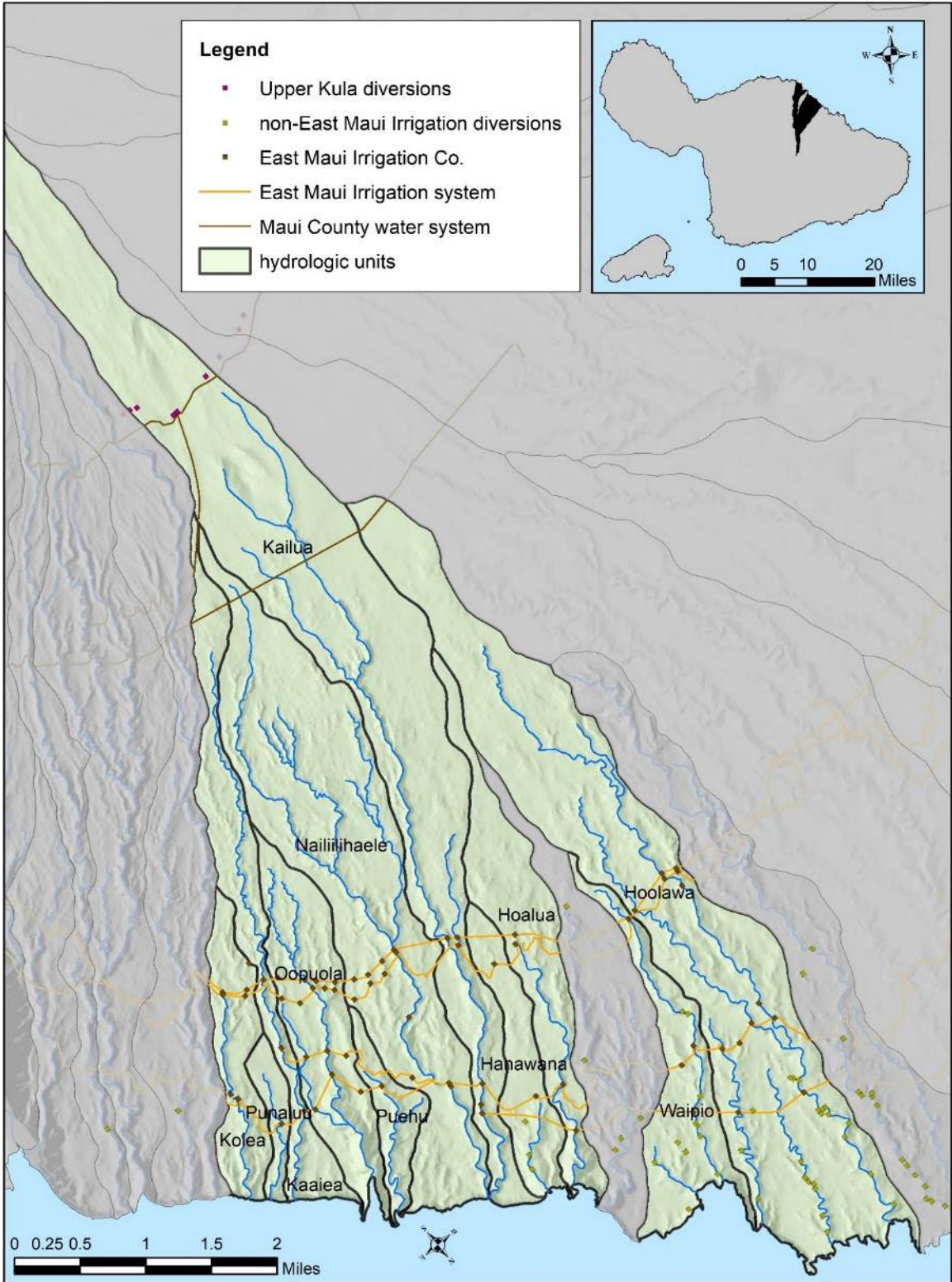
In 2019, Commission staff began efforts to conduct an assessment of, at the time, the remaining “non-petitioned” streams, including the surface water hydrologic units of Kōlea, Punalu‘u, Ka‘aiea, ‘O‘opuola, Puehu, Nailiilihaele, Kailua, Hanawana, Hoalua, Waipi‘o, and Ho‘olawa (Mokupapa is a stream within the Ho‘olawa hydrologic unit). These hydrologic units were preliminarily labeled “non-petitioned” because they were the remaining hydrologic units in the East Maui License Area that were not a part of the Native Hawaiian Legal Corporation’s 2001 Petitions to Amend the Interim Instream Flow Standard that were the subject of contested case hearing CCH-MA13-01. Intensive data collection efforts in these East Maui surface water hydrologic units began in early 2020. Biological habitat monitoring and biota surveys were conducted with the assistance of the Hawai‘i Division of Aquatic Resources. Streamflow measurements (including seepage runs), streamflow monitoring (qualitative assessments), gaging station maintenance (continuous record stations), and diversion verifications were conducted by Commission staff. On occasion, the Commission staff also received the assistance of community members in the reconnaissance of trails to access certain points along the stream channel.

On December 16, 2020, the Commission received, from the DHHL, a Petition for Reservation of 11,177,500 gallons per day (gpd) originating from the watershed of, and tributaries to, the East Maui streams diverted by the East Maui Irrigation system for non-potable water use in the Pūlehunui (1,327,500 gpd) and Kēōkea-Waiohuli (9,850,000 gpd) Hawaiian Home Lands.

In February 2021, the Commission posted the first drafts of the Instream Flow Standard Assessment Reports (IFSAR) for the eleven hydrologic units of Kōlea, Punalu‘u, Ka‘aiea, ‘O‘opuola, Puehu, Nailiilihaele, Kailua, Hanawana, Hoalua, Waipi‘o, and Ho‘olawa.

On September 28, 2021, the Commission received an electronically submitted Petition to Amend an Instream Flow Standard (“Petition”, Exhibit 1), filed by Sierra Club, for Kōlea Stream, Punalu‘u Stream, Ka‘aiea Stream, ‘O‘opuola Stream (Makanali tributary), Puehu Stream, Nailiilihaele Stream, Kailua Stream, Hanawana Stream (Ohanui tributary), Hoalua Stream, Waipi‘o Stream, Mokupapa Stream, and Ho‘olawa Stream (Ho‘olawa ili and Ho‘olawa nui tributaries). Receipt of the Petition was received via email by Deputy Director Kaleo Manuel.

Figure 11. Hydrologic units in East Maui associated with the 2021 petitioned streams and their registered diversions, and water delivery systems.



On April 25, 2022, the Commission received a letter from the Sierra Club of Hawai‘i indicating their “intent to sue in sixty days over the Commission’s failure to address the petition that the Sierra Club filed on September 29, 2022 [sic].”

Following discussions between Deputy Manuel and Sierra Club of Hawai‘i Director Wayne Chung Tanaka, the Commission received a letter from the Sierra Club on May 8, 2022, stating that they “understand that the Code allows a petitioner, with approval from the Commission, to request an extension of this 180 deadline to act, for up to 180 days,” and that they “agree [with] your request for extension pursuant to the Code, beginning from the expiration of the 180 deadline after our September 29, 2021 petition, expiring on September 24, 2022.”

On July 19, 2022, the Commission approved the Sierra Club of Hawai‘i’s request for a 180-day extension for action on its Petition to Amend the Interim Instream Flow Standards for 12 East Maui Streams, expiring on September 24, 2022. The Commission also received an informational briefing by Commission staff on the summary of current instream uses and stream diversions in the Huelo region of East Maui.

On August 16, 2022, the Commission received an information briefing on the analysis of non-instream water uses relying on water from East Maui streams.

On September 20, 2022, in preparation for a future action submittal, the Commission was briefed on the proposed interim IFS for Huelo streams and the DHHL Reservation for water from the East Maui Irrigation system. It is anticipated that the Commission will act on these Huelo-region East Maui streams in late 2022.

For more information on the interim IFS work for these non-petitioned East Maui streams, see the Commission’s website at:

<https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/eastmaui3/>.

L. Designation of the Lahaina Aquifer Sector, Maui, as a Surface Water and Ground Water Management Area

On November 29, 2021, the Chairperson initiated designation proceedings and began consultation with the County Council, County Mayor, and County Board of Water Supply via formal letter.

The Commission received responses from the County Council dated December 7, 16, and 29, 2021 with clarifying questions requesting data, a request to present to the County Council, and to understand the designation process and timeline. The Commission responded with letter dated December 17, 2021.

On December 28, 2021, the Commission received a response from Maui County Department of Water Supply (MDWS).

On January 18, 2022, the Commission staff presented a non-action item on the Designation of the Lahaina Aquifer Sector, Maui, as a Surface Water and Ground Water Management Area, emphasizing the justification of the proposed designation including: 1) Harm to ground water quantity and quality by saltwater intrusion; 2) Serious historic and on-going disputes over current and planned uses are occurring; 3) Climate uncertainty including drought and declines in rainfall; and 4) Enhanced management and protection through integration of surface and ground water uses.

On January 20, 2022, Commission staff presented at the Maui Board of Water Supply monthly meeting. Subsequently, the Maui County Board of Water Supply unanimously voted to support designation of the entire Lahaina Aquifer Sector Area as a surface and ground water management area.

On February 15, 2022, the Commission accepted the Chairperson's recommendation to designate the Lahaina Aquifer Sector as a surface water and ground water management area under HRS Section 174C-41, thus moving the designation process forward to notice and conduct a public hearing.

On April 21, 2022, the Commission issued a 129-page Draft Findings of Fact Report, summarizing the Commission staff's investigations and research, comments from consultation with the County of Maui, the public's written and oral comments received at Commission meetings, and other existing information on file with the Department of Land and Natural Resources.

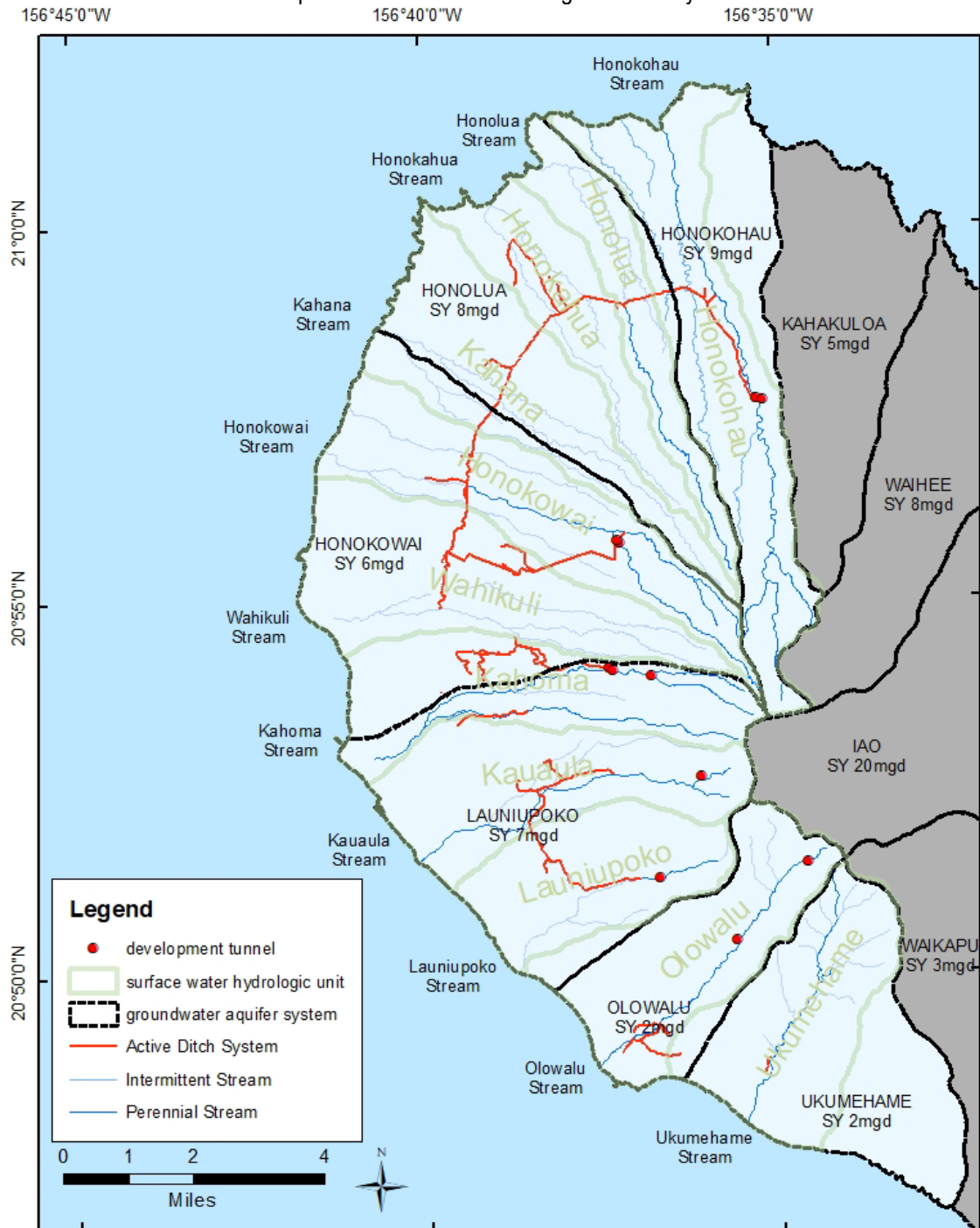
On April 26, 2022, the Commission staff held a public hearing on the recommended designation of Lahaina Aquifer Sector, Maui, at Waiola Church in Lahaina, with over three hours of public testimony received.

On June 14, 2022, the Commission voted to accept the final Findings of Fact and the Chairperson's Recommendation to designate the Lahaina Aquifer Sector Area as both a Surface Water and Ground Water Management Area including the Honokōhau, Honolua, Honokahua, Kahana, Honokōwai, Wahikuli, Kahoma, Kaua'ula, Launiupoko, Olowalu, Ukumehame Surface Water Hydrologic Units and the Honokōhau, Honolua, Honokōwai, Launiupoko, Olowalu, and Ukumehame Groundwater Hydrologic Units, under the authority of §174C-41, HRS.

On July 29, 2022, the Commission issued a public notice announcing the designation of the Lahaina Aquifer Sector Area as a surface and ground water management area and setting the effective date of designation as August 6, 2022 (date of publication of the notice). Applications for water use permits to continue an existing use of surface or ground water must be made within a period of one year from the effective date of designation, that is between August 6, 2022 (the date this Public Notice is published) and no later than August 5, 2023. The Commission is in the process of sending notices to existing users who declared their uses, registered stream diversions or wells, and to persons who have obtained stream diversion works permits or well construction and pump installation permits from

the Commission to file for applications for water use permits to continue their existing uses.

Figure 12. Lahaina Aquifer Sector Area. Ground Water Aquifer Systems Areas and their sustainable yields (SY) for the Lahaina Aquifer Sector with overlaying surface water hydrologic units and their perennial and intermittent streams with development tunnels and active irrigation ditch systems..



For more information on the designation of the Lahaina Aquifer Sector Area, Surface and Ground Water Management Area Designation, Island of Maui, see the Commission's website at: <https://dlnr.hawaii.gov/cwrm/groundwater/gwma/lahaina/>.

IV. CONCLUSION

The Commission's ongoing efforts (described in this Report) are consistent with the Supreme Court's directives and will provide information to support and carry out a comprehensive stream protection and management program statewide. As water resource data is developed, evaluated, and made available, it will be incorporated into the Hawai'i Water Plan and into the Commission's decision making on an ongoing basis.

The efforts described above are all critical to developing instream flow standards, which will improve the Commission's overall management of surface water resources. This work substantially increases the Commission's surface water data collection and monitoring program and facilitates scientific, agency, and public input on stream-related issues.