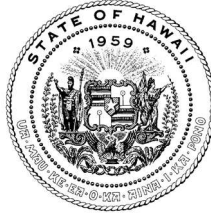


DAVID Y. IGE
GOVERNOR OF
HAWAII



DEPT. COMM. NO. 49

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAOHOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES**

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

November 1, 2021

The Honorable Ronald D. Kouchi,
President
and Members of the Senate
Thirty-First State Legislature
State Capitol, Room 409
Honolulu, Hawaii 96813

The Honorable Scott K. Saiki, Speaker
and Members of the House of
Representatives
Thirty-First State Legislature
State Capitol, Room 431
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Saiki, and Members of the Legislature:

For your information and consideration, I am transmitting a copy of the Identification Of Rivers And Streams Worthy Of Protection report, as required by Section 174C-31(c)(4), Hawaii Revised Statutes (HRS). In accordance with Section 93-16, HRS, a copy of this report has been transmitted to the Legislative Reference Bureau and the report may be viewed electronically at <https://files.hawaii.gov/dlnr/reports-to-the-legislature/2022/CW22-River-and-Streams-Rpt-FY21.pdf>.

Sincerely,

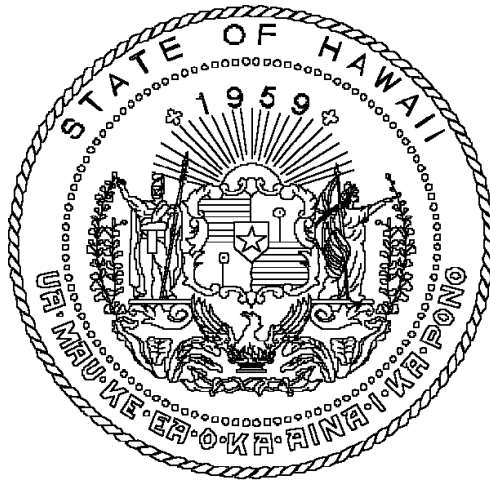
A handwritten signature in cursive script that reads "Suzanne D. Case".

SUZANNE D. CASE
Chairperson

Enclosure

Report to the Thirty-First Legislature
2022 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

November 2021

**REPORT TO THE THIRTY-FIRST LEGISLATURE
2022 Regular Session**

IDENTIFICATION OF RIVERS AND STREAMS WORTHY OF PROTECTION

I. INTRODUCTION

The Hawai‘i 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 2021 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

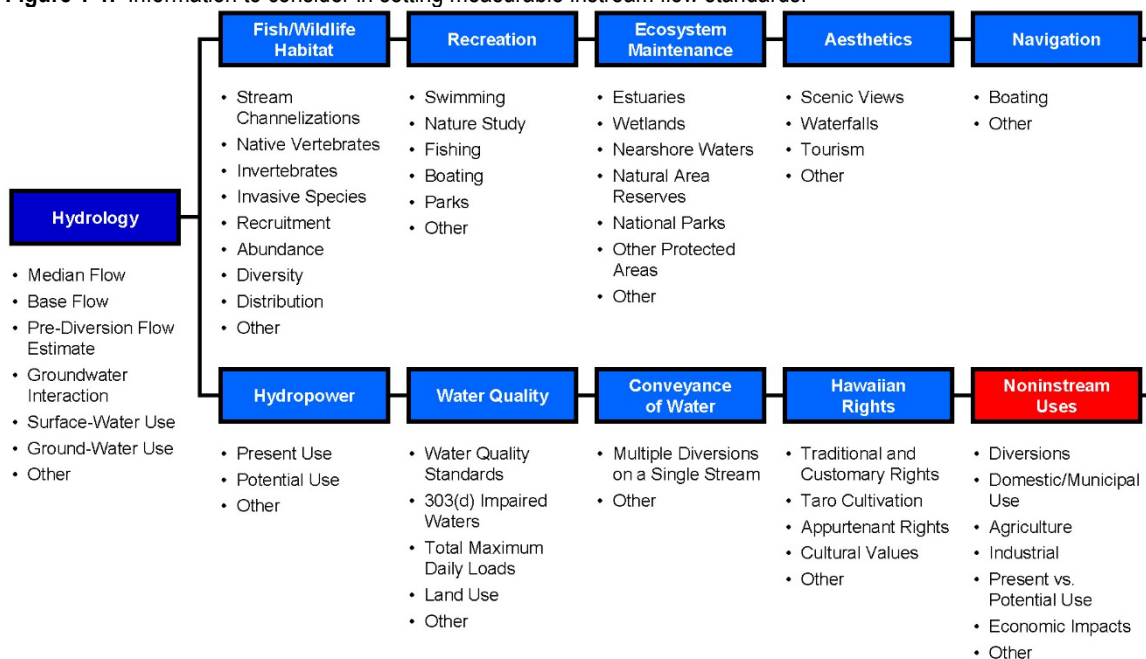
Plan to “[m]anage and Protect Hawai‘i’s Surface Water Resources through a Comprehensive Instream Use Protection Program and the Establishment of Instream Flow Standards.”

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



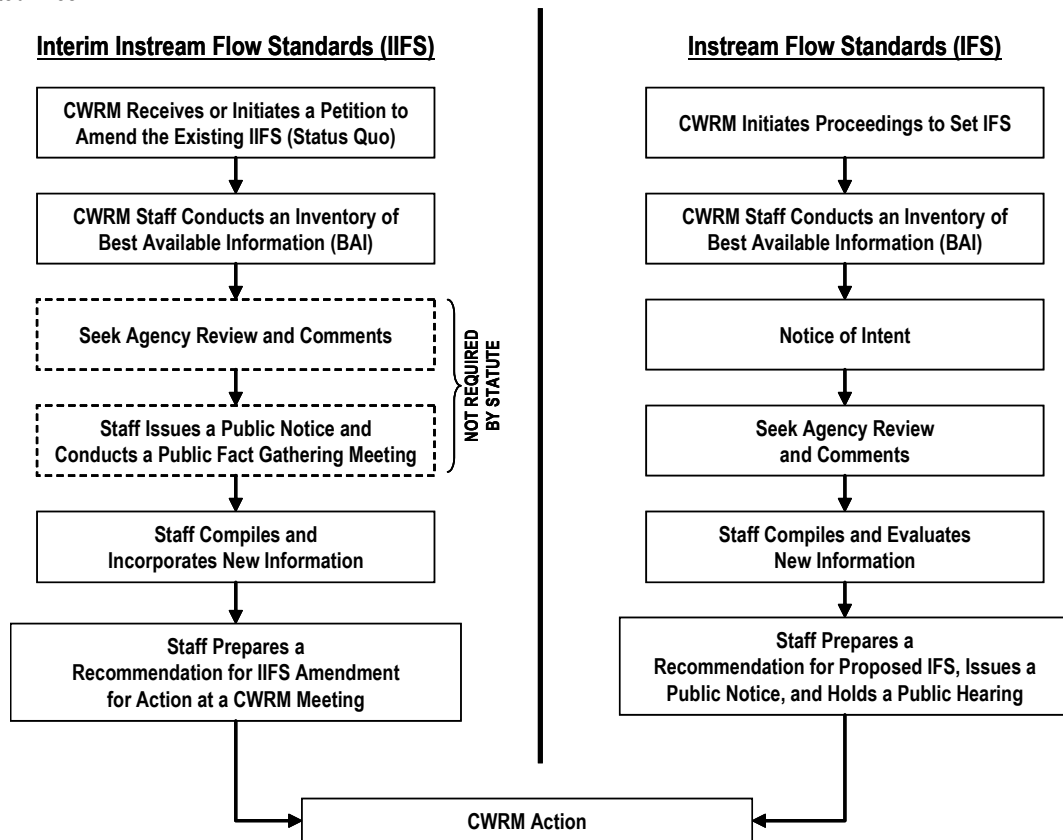
To the casual observer, IFS may appear relatively simple to establish upon a basic review of the Code provisions. However, the complex nature of IFS becomes apparent upon further review of the individual components that comprise surface water hydrology,

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 1-1) 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 1-2. 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 1-2), 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 2020, please see previous year's annual reports.

III. STREAM PROTECTION AND MANAGEMENT UPDATES

A. SPAM Branch:

During 2021, the Commission's SPAM Branch continued to provide administrative support for a contested case hearing pertaining to appurtenant rights and surface water use permit applications in Central Maui (CCH-MA15-01). Staff field activities were considerably curtailed due to the continuing COVID-19 pandemic; however Commission staff resumed trips, with safety protocols in place, to maintain gaging stations, retrieve data, and perform streamflow measurements to continue monitoring instream flow standards across Maui, West and Southeast Kaua'i, and Hawai'i. Staff efforts continue to increase the number of surface water users reporting their water use on a regular basis with particular emphasis on legacy plantation irrigation systems, but also beginning to outreach to smaller, individual users. Water use is reported for roughly 450 stream diversions statewide, comprising nearly all legacy plantation irrigation systems and many small diverters, and the Commission is prioritizing work on improving the complexities of tracking water use reporters and diversions. Commission staff are also continuing to collect data and information towards the development of IFS, particularly on O'ahu and East and West Maui, and address a number of stream-related complaints across the State as drought conditions continue across portions of the State.

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 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. The hearing has not moved forward, in part due to the insistence that the USGS study be completed before proceeding with the hearing. Based on this USGS study, the Commission staff will begin development of measurable interim instream flow standards for the entire Wailua hydrologic unit in addition to other hydrologic units in Southeast Kaua'i.

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 is nearing completion, providing 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 was in position to fill its vacancies just as COVID-19 hit. As a result, all vacant positions were eliminated. The Commission is seeking to request for the reestablishment of four Aquatic Biologist positions (Two Biologist VI and two Biologist III positions). In addition, the Hydrologist III position became vacant and the Commission is currently seeking applicants to fill the position

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. 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.

The deadline to file appeals is currently pending. 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.

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/cwrn/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/cwrn/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/cwrn/newsevents/cch/cch-ma13-02/>.

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/cwrn/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/cwrn/surfacewater/monitoring/>.

C. 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, Kawaiele Pumping Station, Reservoir N at the end of the Kekaha Ditch system, Waiakoali, Kawaikōi, Kauaīkinanā, 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.

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 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 26, 2021.

D. Study on Low-Flow Characteristics for Streams in Southeast Kauaʻi, Hawaiʻi

The history of large-scale sugarcane cultivation in Southeast Kauaʻi by Līhuʻe 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, Lāwaʻi, and Hanapēpē. Additionally, the USGS has worked with the Kauaʻi Department of Water consistently over the past two decades in assessing groundwater hydrology for the Southern Līhuʻe Basin. This combination of issues and work in Southeast Kauaʻi 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 Kauaʻi: Wailua, Hanamāʻulu, Puali, Hulēʻia, Waikomo, Aepo, Lāwaʻi, 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.

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 Kauaʻi.

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>

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

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

E. Estimation of Low-Flow Characteristics for Streams in Hawaiʻi

On June 1, 2013, the Commission entered into a JFA (Phase 1) with the USGS to cooperatively study low-flow characteristics of streams in Hawaiʻi. 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 Kauaʻi, Oʻahu, Molokaʻi, Maui, and Hawaiʻi. 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.

As of September 2020, the USGS serviced 11 continuous-record low-flow stream-gaging stations and continued data collection at 55 partial-record sites. Continuous-record low-flow stream-gaging stations were established on Ukumehame Gulch, Pi‘ina‘au Stream, and Kukui‘ula Stream on Maui; Waikama, Waikoloa, Manowai‘ōpae, and Hakalau Streams on the island of Hawai‘i; and Wahānau, Kainalu, Honoulimalo‘o, and West Fork Kawela Streams on the island of Moloka‘i. Data collection at partial-record sites is about 60 percent complete. The USGS also conducted reconnaissance survey of seepage-run measurement sites on Kawainui Stream, O‘ahu, and collected seepage-run discharge measurements on Honomu Stream, Hawai‘i island, and Oio Stream, O‘ahu, and documented results of the seepage runs in internal seepage-run reports.

As of June 2021, USGS serviced 11 continuous-record low-flow stream-gaging stations and continued data collection at 50 partial-record sites. Data collection at partial record sites was about 85 percent complete. Reconnaissance surveys of seepage-run measurement sites were conducted for Kawainui and North Fork Kaukonahua Streams on O‘ahu, and for Lanikele and Hahalawe Streams on Maui. Work has also been started to transfer the selected continuous-record low-flow stream-gaging stations to the USGS’ Data section for continued operation beyond September 30, 2021.

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.

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/>.

F. 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 42. For Federal Fiscal Year (FFY) 2022, the total cost of the agreement will not exceed \$1,133,144. The Commission's share will not exceed \$909,076 (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 2022 will cover the installation costs of the three (3) new stations added to the Agreement in FFY 2021 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. This Agreement will encumber an additional \$240,000 in general funds, received in FY 2020, 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. The Commission also plans to request an additional increase in general funds to continue to add 10 more stream gaging stations to support interim IFS development and monitoring. 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. In FFY 2021, HBWS took over the funding responsibility of four (4) streamflow stations on the island of O'ahu. The Waiāhole Trust Fund continues to defray the cost of monitoring the Waiāhole Ditch system and its sources.

Table 2. Summary of annual changes in funding requirements for the USGS Cooperative Agreement from Federal FY 2020 to 2022.

COST	FFY 2020	FFY 2021	FFY 2022
Total Joint Funding Requirement	\$1,107,850	\$932,770	\$1,133,144
Expected CWRM cost-share	\$859,139	\$711,469	\$909,076
Percentage CWRM cost-share	78%	76%	80%
Waiāhole Ditch Monitoring Fund	\$91,564	\$84,956	\$86,018
Ground water well continuous monitoring	\$6,740	\$6,930	--
Rain gage continuous recording	\$9,570	\$9,850	\$9,960
Continuous recording stream gage	\$22,800	\$23,500	\$23,800

Table 3. Summary of annual changes in the number of gages from Federal FY 2018 to 2022.

GAGING STATION TYPE	FFY 2018	FFY 2019	FFY 2020	FFY 2021	FFY 2022
No. of continuous stream gages	27	32	39	39	42
No. of wells (ground water levels and water quality)	9	9	9	9	9

No. of rain gages	17	17	17	15	18
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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>.

G. 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): Honolulu, 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 Honolulu 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 instream flow standards 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 instream flow standards 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 instream flow standards 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 instream flow standards 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 instream flow standards 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 meeting, the Commission also approved: 1) setting an interim IFS of natural flow be established for Honolulu 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 Honolulu Stream see the Commission's website at: <https://dlnr.hawaii.gov/cwrmsurfacewater/ifs/maui/6013-honolulu/>.

For more information on the interim IFS for Honokōhau Stream see the Commission's website at: <https://dlnr.hawaii.gov/cwrmsurfacewater/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.

H. Lāwa‘i, Kaua‘i Interim IFS

Despite the pending USGS Study on Low-Flow Characteristics for Streams in Southeast Kaua‘i, Hawai‘i, the Commission staff decided to move forward with developing interim instream flow standards for Lāwa‘i Stream located on the south side on the island of Kaua‘i. Historically, the region supported some of the oldest and most productive sugarcane plantations, but today the region supports residential, small diversified agriculture, and resort facilities.

The Commission staff had been taking measurements on Lāwa‘i Stream since June 2017 and conducting background research and fieldwork. In October 2019, the Commission posted a draft Instream Flow Standard Assessment Report (PR-20190-05) on its website and held a Public Fact Gathering Meeting in Līhu‘e, Kaua‘i on October 28, 2019, to receive testimony and any additional information to be compiled as part of a final Report. However, there was considerable support for the Commission to wait for the findings of the Southeast Kaua‘i USGS Study before moving forward with an interim IFS recommendation to the Commission.

With the release of the USGS’ Southeast Kaua‘i Study in December 2020, the Commission staff reassessed its findings and made recommendations to amend the interim IFS for Lāwa‘i Stream on March 16, 2021. The Commission approved the establishment of one measurable interim IFS for Lāwa‘i Stream near an altitude of 500 feet, below the Lāwa‘i Ditch Intake (Diversion 812). The interim IFS shall be established at a flow of 2.4 cfs (1.56 mgd). This value represents the estimated 65th percentile flow (Q65) at the diversion. Thus, it is expected that when the flow in Lāwa‘i stream is less than the Q65, no water shall be diverted from the stream in order to protect instream values. At medium flow (4.25 cfs; 2.75 mgd), the Lāwa‘i Ditch can still divert 1.85 cfs (1.19 mgd), which is more than necessary to meet the estimated non-potable needs of the Lāwa‘i Ditch service area (0.5 mgd). Excess flows can also be diverted and stored in the series of reservoirs associated with the Lāwa‘i Ditch. During extreme droughts, backup groundwater is also available for non-potable use in the system. Due to the uncertainty surrounding this value, the interim IFS may be revised by future Commission action as more data is gathered. McBryde Resources is currently in the process of modifying its diversion intake, by order of the Commission, to accommodate the approved interim IFS.

For more information on the interim IFS for Lāwa‘i Stream see the Commission’s website at: <https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/kauai/2050-lawai/>.

I. Moloka‘i Interim IFS

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 seeks to establish measurable interim IFS for Kawela, Kaunakakai, Manawainui, and Waikolu Streams.

Similar to Lāwa‘i Stream on Kaua‘i, the Commission staff initiated taking measurements at Waikolu and Kawela Streams in 2017 and has begun conducting background research and fieldwork over the past four years. The Commission staff is continuing its work in gathering the necessary information in the field, working with the petitioners to understand the stream systems, requesting additional water use data from Moloka‘i Properties Limited, and preparing the Instream Flow Standard Assessment Reports to develop a measurable interim IFS to address the Petition and the Complaint.

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

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, Papahāna Kūaola, 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.

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. Wai'oli Stream, Halele'a, Kaua'i, Interim IFS

The Commission staff began discussions with representatives of the Wai'oli Valley Taro Hui in 2018 following catastrophic flooding events that left portions of their historic diversion intakes and 'auwai damaged. While the Wai'oli Valley Taro Hui and their ancestors have been cultivating kalo in Wai'oli Valley since time immemorial, a portion of the historic ditch system was on State-owned lands. As a part of the background information reviewed by the Board of Land and Natural Resources for the February 28, 2020 Amendment to the Grant of Term for a Non-Exclusive Easement, the research conducted by the Office of Hawaiian Affairs (OHA) established that this lo'i kalo irrigation system has been in existence since before the arrival of Westerners in Hawai'i. Mo'olelo, genealogical scholarship, Māhele documentation, and Native Testimony in support of Land Commission Awards in particular, establishes lo'i use in Wai'oli from the 1500s.

A Cultural Impact Assessment for the Wai'oli Ahupua'a documented forty-one (41) Royal Patent Grants or grants of land sold from the Government body of land (prior to the illegal overthrow). There are fifty-five Land Commission Awards documented in the Buke Māhele for Wai'oli Ahupua'a. A 2019 OHA report found that forty-one (41) kuleana awards had at least one (1) 'āpana that was lo'i, although that survey was not exhaustive (Tong 2019). Based on a thorough review of these and other documents, a significant majority of LCAs have more than one (1) 'āpana; some, up to six (6). Records from the

Māhele indicate that, at that time, the system provided water to kuleana parcels, many of which were engaged in kalo cultivation (DLNR, Land Division, 2020).

Today, the Wai‘oli Valley Taro Hui consists of fourteen (14) farms and sixteen (16) kalo farmers in Wai‘oli Valley, whose families have been living and working in this area for generations. In addition to kalo cultivation, these individuals are engaged in a variety of traditional and customary Native Hawaiian practices from the ma uka reaches of their watershed to the sea. Their rights and practices are representative of practitioners in this area. Several Hui members are also beneficiaries of the Department of Hawaiian Home Lands and 100% Native Hawaiian. The Hui’s members are not only keenly familiar with this ‘āina (land; that which feeds) and their traditional and customary Native Hawaiian practices that have evolved over centuries, they also feel an obligation to ensure the responsible use of the land and its resources.

On May 18, 2021, following months of working closely with the Waipi‘o Valley Taro Hui, Commission staff recommended supporting the Native Hawaiian custom of keeping half of the stream’s flow remaining in the stream and establishing one measurable interim IFS for Wai‘oli Stream near an altitude of 40 feet, below the confluence of Wai‘oli Stream and the Wai‘oli tributary on the right bank. The interim IFS was established at a flow of 6.3 cfs (4.0 mgd) at all times, unless the Commission declares an emergency or water shortage. This value represents 50% of the estimated 90th percentile flow (Q90) at the po‘owai (intake), which was estimated to be 12.5 cfs (8.0 mgd). Thus, it is expected that during drought conditions, only 50% of the water, shall be diverted from the stream in order to protect instream values. This results in a varying amount of water for kalo production based on the amount of water flowing in the stream. Additional implementation and monitoring measures are included in the Commission staff submittal.

For more information on the interim IFS for Wai‘oli Stream see the Commission’s website at: <https://dlnr.hawaii.gov/cwrmsurfacewater/ifs/kauai/2018-waioli/>.

L. Kaukonahua Stream, Waialua, O‘ahu, Interim IFS

Over the past two years, the Commission staff has held occasional meetings with consultants for the Agribusiness Development Corporation (ADC) regarding their efforts to improve its existing irrigation system and further develop agricultural opportunities in central O‘ahu. Part of ADC’s plans include raising the quality of reclaimed wastewater produced at the Wahiawā Wastewater Treatment Plant and diverting additional surface water from the Wahiawā Reservoir (also known as Lake Wilson). Under this proposed plan, the Commission staff acted preemptively to develop an interim IFS for Kaukonahua Stream, downstream of Lake Wilson.

On August 17, 2021, following consultations with community members, North Shore Neighborhood Board, Wahiawā-Whitmore Neighborhood Board, Dole Food Company, Agribusiness Development Corporation and their representatives, Division of State Parks, and the Division of Aquatic Resources, the Commission was presented with an interim IFS recommendation of 3.5 cubic feet per second (2.26 million gallons per day) located on

Kaukonahua Stream below Wahiawā Reservoir at USGS gaging station 16210200. With sufficient storage of higher flows in Wahiawā Reservoir, off-stream uses up to 10 to 15 mgd are not expected to be affected by this interim IFS. However, there is insufficient data to evaluate if there is sufficient reservoir capacity, given the current dam safety regulations, to meet new off-stream uses proposed by ADC while meeting the interim IFS. Further, current dam safety regulations limit the functionality of the recreational freshwater fishery as reservoir levels remain too low to provide for spawning habitat. The accumulation of sediment in the reservoir from the watershed has further depleted its capacity to provide storage and habitat. Additional implementation and monitoring measures are included in the Commission staff submittal.

For more information on the interim IFS for Kaukonahua Stream see the Commission's website at: <https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/oahu/3082-kiikii/>.

M. Interim IFS for Non-Petitioned East Maui Streams, Hydrologic Units of Ho‘olawa (6035), Waipi‘o (6036), Hoalua (6038), Hanawana (6039), Kailua (6040), Naililihale (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. Currently, Commission staff is continuing to coordinate with the Division of Aquatic Resources to conduct both hydrologic and biological stream surveys in support of pending interim IFS recommendations expected in early 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/>.

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.