Report to the Thirty-First Legislature
2021 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

December 2020

REPORT TO THE THIRTY-FIRST LEGISLATURE
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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 2020 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."

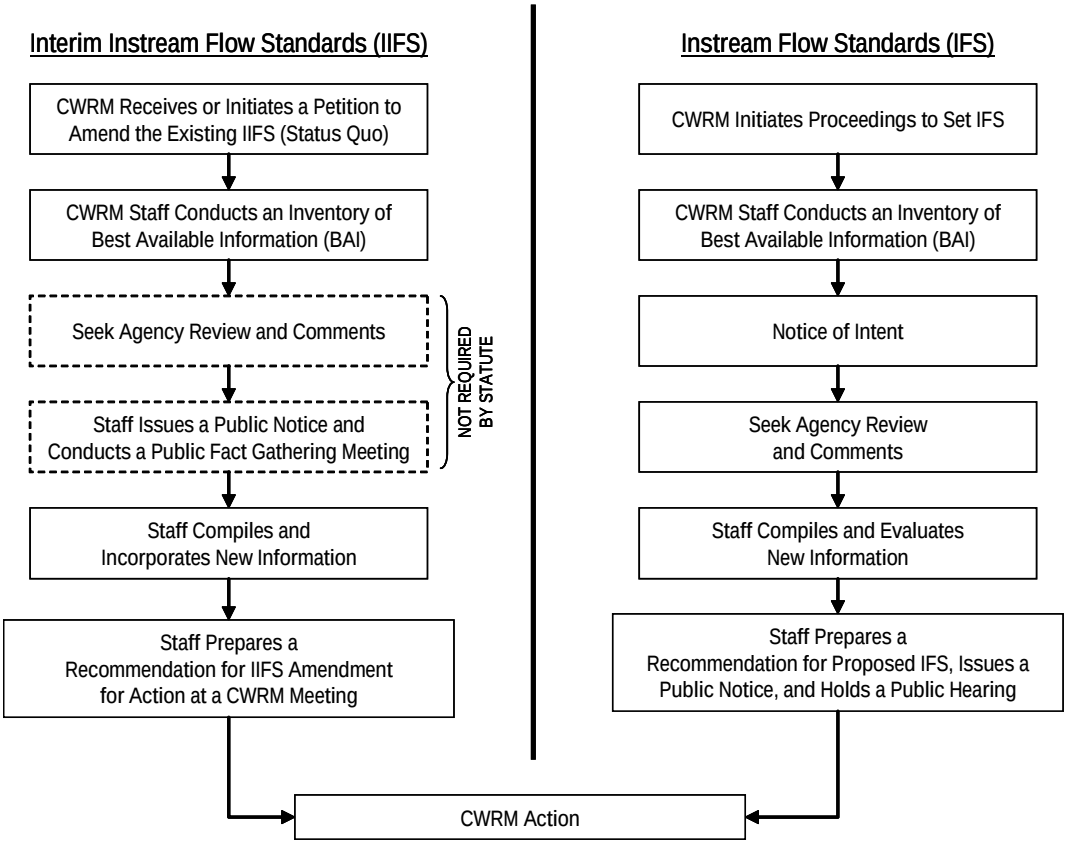
Figure 1-1. Information to consider in setting measurable instream flow standards.

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 2020, 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, though occasional trips were conducted to minimally maintain gaging stations, retrieve data, and perform streamflow measurements to continue monitoring instream flow standards across Maui, West and Southeast Kauaʻi, and Hawaiʻi. 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. Commission staff are also continuing to collect data and information towards the development of IFS, particularly on Oʻahu and East and West Maui, and address a number of stream-related complaints across the State as drought conditions continue to increase across the State.

On Kauaʻi, 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 Poʻai 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, is also continuing to study 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 (Waiʻaleʻale 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. The Commission also conducted a Public Fact Gathering Meeting in October 2019 to initiate a proposed amendment of the IFS for Lāwaʻi. Again, there was sufficient support for the USGS study to be completed before proceeding further with any IFS amendment.

Phase 1 of the USGS Study to estimate low-flow characteristics for streams on Kauaʻi, Oʻahu, Molokaʻi, Maui, and Hawaiʻi, 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.

The SPAM Branch was in position to fill its vacancies just as COVID-19 hit. As a result, funding for all vacant positions have currently been eliminated. There are three additional positions (One Biologist VI and two Biologist III positions) that were authorized by the 2019 State Legislature that the Commission is still working to establish.

The SPAM Branch is continuing to work on developing an internet platform to make stream gaging more publicly available and user-friendly. The program will be 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, still under development, will be available on the Commission's website at: *https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/*.

B. Nā Wai ʻEhā: 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 Waiheʻe, Waiehu, Wailuku River (previously known as ʻĪao Stream) and Waikapū Streams, Maui (CCH-MA15-01)

On December 6, 2006, Earthjustice, representing Hui o Nā Wai ʻEhā and Maui Tomorrow Foundation, Inc. filed a petition requesting that the Commission either: (1) recognize the watersheds of Waiheʻe, Waiehu, ʻĪao, and Waikapū Streams (collectively, Nā Wai ʻEhā) as part of the existing ʻĪao Ground Water Management Area, or (2) designate the Nā Wai ʻEhā Surface Water Hydrologic Units as a surface water management area. Responses from both the previous Mayor and previous Director of the 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 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 ʻEHĀ 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 ʻEhā 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 ʻEhā 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 ʻEhā 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 ʻEhā Surface Water Management Areas of Waiheʻe, Waiehu, ʻĪao and Waikapū Streams, Maui, Hawaiʻi. 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 ʻĪao Stream to Wailuku River. This name change affects the main stream corridor from ʻĪao 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 ʻEhā and Maui Tomorrow Foundation, Inc., filed a Motion and Petition to Amend Upward the Interim Instream Flow Standards for Waiheʻe 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.

The Commission is continuing its deliberations and review of the Hearings Officers Proposed Findings of Fact, Conclusions of Law, and Decision and Order.

Information on the Nā Wai ʻEhā 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 ʻĪao Ground Water Management Area High-Level Source Water Use Permit Applications and Petition to Amend Interim Instream Flow Standards of Waiheʻe River, Waiehu Stream, Wailuku River, and Waikapū Streams Contested Case Hearing (CCH-MA-01), visit the Commission website at:
http://dlnr.hawaii.gov/cwrm/newsevents/cch/cch-ma06-01/.

For information on the Nā Wai ʻEhā: Contested Case Hearing on Provisional Recognition of Appurtenant Rights, Nā Wai ʻEhā Surface Water Management Area, Waiheʻe, Waiehu, ʻĪao, Waikapū Streams, Maui, Hawaiʻi (CCH-MA13-02), visit the Commission website at:
http://dlnr.hawaii.gov/cwrm/newsevents/cch/cch-ma13-02/.

For more information on the designation of the Nā Wai ʻEhā 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 IIFS 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/.

C. Complaint for Dispute Resolution, Petition to Amend the Interim Instream Flow Standard, and Declaratory Order on Against Waste for Waimea River, Kauaʻi

On July 24, 2013, Poʻai Wai Ola and West Kauaʻi 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, Hawaiʻi (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. Hawaiʻi Revised Statutes, §174C-5(8); Hawaiʻi 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 Kōkeʻe 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 Kōkeʻe and Kekaha Ditch Irrigation Systems. Sites included the Waimea Canyon Lookout, Puu Lua Reservoir, Puu Moe Ditch Divide, Black Pipe Siphon viewpoint, end of Kōkeʻe 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 Kōkeʻe Ditch Systems, and by the Kauaʻi 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 Kōkeʻe 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, Kawaikōī, Kauaikinanā, and Kōkeʻe 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 IIFS 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 Kauaʻi Island Utility Cooperative's Stream Diversion Works Permit (SDWP.5321.2) and Stream Channel Alteration Permit (SCAP.5150.2) for Kōkeʻe Ditch diversion modifications and installation of monitoring stations at Waiakōali (Diversion 620), Kawaikōī (Diversion 616), Kauaikinana (Diversion 607), and Kōkeʻe (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) Kawaikōī 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) Kōkeʻe 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 October 6, 2020.

D. Wailuku River Fish Passage Project, Maui

Wailuku River (formerly ʻĪao Stream) is a 26-mile long perennial stream that drains a large amphitheater-headed valley in the West Maui Mountains. Native amphidromous species are dependent on the connectivity of habitat between headwater streams and the ocean and have evolved to use suction disks on their ventral sides to climb wet rocks and up waterfalls. Newly hatched larvae migrate passively downstream to the ocean where they spend time developing as juveniles, and then migrate upstream to recolonize freshwater habitats.

As a result of the restoration of water to Wailuku River, the Commission believes that the currently degraded habitat of Nā Wai ʻEhā may be restored resulting in increased recruitment and repopulation by native fauna. However, due to a stream diversion in the upper stream section, there is a 1,000-ft dry stretch if stream limits the upstream migration of native sections and may entrain larvae during their downstream. Additional barriers to migration include an overhanging concrete bank at the top of a naturally occurring waterfall in the mid-sections, and a concrete-channelized portion in the lower section.

On June 24, 2015, the Commission authorized the Chairperson to enter into a Joint Funding Agreement with the U.S. Fish & Wildlife Service (USFWS) to improve biological connectivity by limiting downstream larval entrainment and improve upstream migratory pathways in ʻĪao Stream. The Commission approved funding, not to exceed $15,000, towards completion of the project. Project partners will provide an in-kind match of $10,000. The total cost of the agreement is $50,000.

From the onset of 2016, the Commission staff was progressing with a project to restore connectivity for native aquatic fauna at a waterfall site located at the Waiheʻe Ditch siphon on Wailuku River. However, the extreme rainstorm event that occurred on Maui in September 2016 considerably altered the Wailuku River channel and severely impacted residents in ʻĪao Valley, along with government facilities and infrastructure. The Governor issued an Emergency Proclamation on September 16, 2016, while the President approved a Federal disaster declaration on October 6, 2016. Despite these setbacks, Commission staff were able to make considerable progress with the selection of a fabricator to manufacture a fiberglass ramp intended to aid native gobies and mollusks in ascending a 22-foot concrete drop structure located within the flood channel on the Wailuku River.

On September 17, 2019, the Commission delegated authority to the Chairperson to temporarily suspend the interim IFS in order to allow the contractor to install the fiberglass fish ladder onto the 22-foot vertical concrete drop structure in the flood control channel in Wailuku River.

Installation of the fish ladder took place on October 29, 2019, with Wailuku Water Company and Mahi Pono diverting some of the water out of Wailuku River to allow the contractor low-flow conditions to work in. Unfortunately, due to severely reduced flows, the Commission began receiving reports of fish kills in the ensuing days. An internal memo was sent to Wailuku Water Company and Mahi Pono to discontinue the excess diversion of water and that the interim IFS was reestablished.

On November 4, 2019, the Commission staff met with Wailuku community members to apologize, take responsibility for, and address the impacts caused by the fish ladder installation. The Commission staff also presented the matter before the Commission at its regularly scheduled meeting on November 20, 2019, held in Lahaina, Maui. The details of the presentation and discussion are available in the Commission's meeting minutes available on the Commission website at: *https://files.hawaii.gov/dlnr/cwrm/minute/2019/mn20191120.pdf*.

E. 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 partoal Federal Government shutdown from December 2018 to January 2019, as well as delays in data collection cased 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 report is currently in the queue for USGS editorial review, but a final report publication remains uncertain.

The report is currently expected to be published in December 2020, and will be made available on the Internet as a USGS Scientific Report. Information on the Study is 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 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.

Publication of this report and the development of the StreamStats application is still currently anticipated for September 2021; however, it is reasonable to anticipate that the COVID-19 pandemic may have prolonged impacts on USGS' ability to conduct fieldwork towards completion of this Study.

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 41. For Federal Fiscal Year (FFY) 2021, the total cost of the agreement will not exceed $932,770. The Commission's share will not exceed $711,469 (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.

The increased costs associated with expansion of stream gaging stations were to fund the reconnaissance, permitting, installation and development of new streamflow monitoring stations. Due to complications relating to permitting and COVID-19, which halted travel and thus fieldwork for USGS, much of the funds designated for these stations will not be spent by the end of FFY 2020. The extension of the FFY 2020 USGS Agreement will cover a portion of the costs associated with the fieldwork and personnel to be spent in FFY

2021. Thus, the cost to the Commission for the FFY 2021 Agreement is reduced by this offsetting amount ($147,664) and is reflected in the Commission's total share not to exceed $711,469.

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 2019 to 2021.

COST	FFY 2019	FFY 2020	FFY 2021
Total Joint Funding Requirement	$870,842	$1,107,850	**$932,770**
Expected CWRM cost-share	$624,317	$859,139	**$711,469**
Percentage CWRM cost-share	72%	78%	**76%**
Waiāhole Ditch Monitoring Fund	$67,200	$91,564	**$84,956**
Ground water well continuous monitoring	$6,620	$6,740	**$6,930**
Rain gage continuous recording	$9,400	$9,570	**$9,850**
Continuous recording stream gage	$22,400	$22,800	**$23,500**

Table 3. Summary of annual changes in the number of gages from Federal FY 2017 to 2021.

GAGING STATION TYPE	FFY 2017	FFY 2018	FFY 2019	FFY 2020	FFY 2020
No. of continuous stream gages	27	27	32	39	**40**
No. of wells (ground water levels and water quality)	12	9	9	9	**9**
No. of rain gages	17	17	17	17	**15**

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: *http://hi.water.usgs.gov/*.

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 is proceeding 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. To download copies of the reports, see the Commission's website at:
https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/westmaui1/.

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

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. To view the chronology of the instream flow standards, see the Commission's website at:
https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/westmaui2/.

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. To view the chronology of instream flow standards for these streams, see the Commission's website at: *https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/westmaui3/*.

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.

I. 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 has been taking measurements on Lāwa'i Stream since June 2017 and conducting background research and fieldwork over the past couple years. 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.

For more information and to view the Report, see the Commission's website at: *http://dlnr.hawaii.gov/cwrm/surfacewater/ifs/2050-lawai/*.

J. 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 IIFS 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 three 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, and preparing the Instream Flow Standard Assessment Reports to develop a measurable interim IFS to address the Petition and the Complaint.

K. Waiʻaʻama Stream, Hawaiʻi Interim IFS

In 2015, a complaint was filed against an unpermitted diversion of water from Waiʻaʻama Stream located along the Hāmākua coast on the island of Hawaiʻi. Following a site visit, it was determined that the landowner, Mr. and Mrs. Richard Ha, Jr., had modified and repurposed an old Mauna Kea Sugar Company diversion that had been constructed in the early 1900's, but was never registered with the Commission at the outset of the State Water Code. Mr. Ha was using the diverted water for a new hydropower plant with the tailrace water returned to Waimāʻauou (Lonokaeho) Stream.

In 2018, Mr. Ha, under Hāmākua Springs, LLC, filed an after-the-fact stream diversion works permit application requesting 9.05 mgd of water from Waiʻaʻama Stream to continue use of the water for the hydropower plant. At its regular meeting on January 15, 2019, the Commission fined Mr. Ha for using an unregistered diversion and approved the after-the-face stream diversion works permit with the special condition that a remediation plan be developed to restore the stream to a more natural condition for the purpose of protecting ecology.

While Waiʻaʻama Stream is a perennial stream with a modeled low-flow value (Q_{90}) of 9.2 mgd, the channel substrate is dominated by relatively young, porous bedrock which contributes to losing stream reaches that results in some zero flow days. Given this variability in flow, the Commission approved an interim IFS value of 1.5 mgd just downstream of Mr. Ha's diversion to support the maintenance of water in their natural state and protect the stream channel for fisheries, wildlife and other beneficial instream uses. The Commission staff is continuing to regulate and monitor this interim IFS.

L. Wailuku River Tributaries, Hawaiʻi Interim IFS and Department of Hawaiian Home Lands Reservation of Water

In October 2018, the Department of Hawaiian Home Lands (DHHL) filed a request for surface water reservation of 1.74 mgd of water from Wailuku River near Hilo on the island of Hawaiʻi. The request was triggered by Hawaiʻi Electric Light Company's intent to obtain a 65-year lease of water from the Wailuku River to continue operating two hydroelectric plants. Under Chapter §171-58(g), the Department of Land and Natural Resources (DLNR) and the DHHL are required to jointly develop a reservation of water as part of the leasing process. The 1.74 mgd requested by DHHL represents the total potable (0.14 mgd) and non-potable (1.60 mgd) demand for water for the Lower Piʻihonua area, with only the non-potable needs of 1.60 mgd intended to be met from surface water.

DHHL's Kaūmana-Piʻihonua Planning Area (December 2017 DHHL Regional Plan update) addresses the approximately 1,900 acres of DHHL-designated Home Lands located in the South Hilo District on Hawaiʻi Island spanning four ahupuaʻa: Piʻihonua, Pōnahawai, Kaūmana, and Kūkūau. The Kaūmana and Piʻihonua Homestead areas are

both designated for residential use. The Lower Pi‘ihonua Area is designated as mostly general and subsistence agriculture, with a small portion along Pi‘ihonua Road designated for residential use. The Kaūmana Area is planned for 54 lots across 17 acres, the Pi‘ihonua Homestead Area is planned for 17 lots across 6 acres, and the Lower Pi‘ihonua Area is planned for 1,882 acres of agriculture, with a small portion designated as residential.

The Wailuku River drains the largest catchment (252.2 mi^2) in the State of Hawai‘i and supports a large network (196.1 miles) of perennial stream reaches. The Commission staff found that the utilization of 1.60 mgd of surface water from the Wailuku surface water hydrologic unit would amount to less that 2-percent of the estimate 98.9 mgd median flow and thus would have no long-term impacts on instream uses.

To accommodate DHHL’s future water needs but not knowing exactly where the water would be diverted from at this stage in the their planning process, the Commission staff recommended setting measurable interim IFS on each of four tributary stream reaches that bound the Lower Pi‘ihonua Area tract. At its regular meeting on March 17, 2020, the Commission approved DHHL’s reservation of water request for 1.60 mgd of surface water from the Wailuku surface water hydrologic unit and established the following interim IFS values on four tributaries of the Wailuku River:

- ‘Āwehi Stream at approximately 1,440 ft. elevation: natural flow
- Aale Stream at approximately 1,560 ft. elevation: 3.2 mgd (2.1 ft^3/second)
- Laualu Stream at approximately 1,720 ft. elevation: 3.5 mgd (2.2 ft^3/second)
- Kapehu Stream at approximately 1,550 ft. elevation: 9.3 mgd (6.0 ft^3/second)

M. He‘eia, 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.

The Commission will be holding 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.

For more information and to view the Report, see the Commission’s website at: *https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/oahu/3028-heeia/*.

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.