

Report to the Thirtieth Legislature  
2019 Regular Session

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



Prepared by the

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

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

Honolulu, Hawai'i

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**REPORT TO THE THIRTIETH LEGISLATURE**  
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**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 2018 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 Waiahole 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, 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.”

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 2018, please see previous year’s annual reports.

### **III. STREAM PROTECTION AND MANAGEMENT UPDATES**

#### **A. SPAM Branch:**

During 2018, the Commission’s SPAM Branch continued to provide administrative support for contested case hearings pertaining to instream flow standards for streams in East Maui (CCH-MA13-01) and appurtenant rights and surface water use permit applications in Central Maui (CCH-MA15-01). Staff continues to conduct regular monitoring of instream flow standards in East and Central (Nā Wai ‘Ehā) Maui, along with expanded streamflow monitoring in West Maui, West and Southeast Kaua‘i, and Moloka‘i. Staff efforts have also increased the number of surface water users reporting their water use on a regular basis, with particular emphasis on legacy plantation irrigation systems.

On Kaua‘i, the SPAM Branch has initiated implementation 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 instream flow standards 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 Hanapepe. Fieldwork continues to support the development of Instream Flow Standard Assessment Reports (IFSAR) in southeast Kaua‘i for Hanapēpē, Wahiawa, Lāwa‘i, Waikomo, Māhā‘ulepū, Hulē‘ia, Hanamā‘ulu, and Wailua hydrologic units. Staff initiated the establishment of quantifiable interim instream flow standards in two streams in Wailua (Wai‘ale‘ale and Waikoko) by publishing draft IFSAR reports, conducting a public fact-gathering meeting, and recommending interim IFS values to the Commission at its August 21, 2018 meeting. However, prior to decision-making, several requests were made for a contested case hearing. On October 16, 2018, the Commission was presented with a submittal to take action on the petitions for a contested case hearing filed by Kaua‘i Island Utility Cooperative, Earthjustice, on behalf of Hui Ho‘opulapula Nā Wai O Puna, James Torio, Department of Hawaiian Home Lands, and Grove Farm Company, Inc. The Commission deferred taking any action to a future meeting to continue discussions and allow time to meet with petitioners and determine if there is an opportunity for mediation in this case.

Phase 1 of the USGS Study to estimate low-flow characteristics for stream 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.

The Kahana Stream Restoration Project (O‘ahu), partially funded through a grant from the U.S. Fish and Wildlife Service (USFWS), ended in September 2017. The work consisted of hau removal and reestablishment of the primary stream corridor to improve stream habitat for native stream organisms. Contracted workers completed close to 1-acre of hau removal, with additional hau removal and native species outplanting continuing with Commission staff and other divisions from the Department of Land and Natural Resources. The Commission continued planning and preliminary assessment under another USFWS grant in support of an ‘Īao Stream Fish Passage Project on Maui as streamflows to Wailuku River were restored in October 2014.

The SPAM Branch has continued working to fill its vacancies. One Hydrologist IV position was offered to a candidate following an exhaustive search. There are four positions (Engineering Aid, Planner, and two Hydrologist IV) that are currently vacant and are being actively recruited.

SPAM Branch staff were trained to install, program, and troubleshoot new, real-time continuous streamflow monitoring stations. Since January 2018, five stations have been installed across the state (Table 1), with plans to expand the gaging to other regions where real-time data is critical for making management decisions.

**Table 1.** Real-time continuous streamflow gaging stations installed by Commission staff.

<b>Station Name</b>	<b>Island</b>	<b>Region</b>	<b>Date of Installation</b>
Waikapu at 915ft	Maui	Nā Wai ‘Eha	January 2018
Waihe‘e blw Spreckels Ditch	Maui	Nā Wai ‘Eha	July 2018
Ukumehame at 410ft	Maui	West Maui	April 2018
Wai‘ale‘ale blw Bluehole Intake	Kauai	Wailua	March 2018
Lāwa‘i blw Lawai Ditch	Kauai	Koloa	September 2018

The SPAM Branch is also working 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.

As part of the Commission’s community outreach efforts, SPAM Branch staff participated in a number of public informational and outreach events including Department of Hawaiian Home Lands (DHHL) water resource training seminars (June & August 2018), the Nā Wai ‘Eha Community Day (May 2018), the Honolulu Board of Water Supply Friends of Halawa Xeriscape Garden Day (August 2018), and the West Maui Ridge2Reef public outreach event (August 2018).

**B. Contested Case Hearing on Petitions to Amend the Interim Instream Flow Standards (IIFS) for the Honopou, Huelo (Puolua), Hanehoi, Waikamoi, Alo, Wahinepe'e, Puohokamoa, Haipuaena, Punalau/Kōlea, Honomanū, Nua'ailua, Pi'ina'au, Palauhulu, 'Ōhi'a (Waianu), Waiokamilo, Kualani, Wailuanui, Waikani, West Wailuaiki, East Wailuaiki, Kopiliula, Puaka'a, Waiohue, Pa'akea, Waiaka, Kapaula, Hanawī, and Makapipi Streams, Maui, Hawai'i (CCH-MA13-01)**

On November 30, 2012, the Intermediate Court of Appeals (ICA) issued an opinion vacating the Commission's May 25, 2010 decision and remanding the matter back to the Commission with instructions to: 1) Grant Na Moku Aupuni o Ko'olau Hui's (Na Moku) Petition for Hearing; and 2) Conduct a contested case hearing pursuant to Haw. Rev. Stat. Chapter 91 and in accordance with state law. *In Re Petition to Amend Interim Instream Flow Standards for Waikamoi, Puohokamoa, Haipuaena, Punalau/Kōlea, Honomanū, West Wailuaiki, East Wailuaiki, Kopiliula, Puaka'a, Waiohue, Pa'akea, Kapaula and Hanawī Streams*, Intermediate Court of Appeals, Order No. CAAP-10-0000161 (November 30, 2012).

The Court concluded, inter alia, that the Commission erred in determining that 1) Na Moku Aupuni o Ko'olau Hui (Na Moku) had no right to a contested case hearing; and 2) there is no legal requirement to hold a contested case hearing on IIFS amendments. The Commission must now conduct a contested case hearing consistent with the Court's decision and order.

On July 17, 2013, the Commission delegated to the Chairperson the authority to appoint a qualified Hearings Officer to conduct the contested case hearing. Dr. Lawrence H. Miike was selected to serve as the Hearings Officer.

On January 29, 2014, the Commission entered into a Contract for Professional Services with Lawrence H. Miike to serve as Hearings Officer for the Contested Case Hearing Regarding the Petitions to Amend Interim Instream Flow Standards for Waikamoi, Puohokamoa, Haipuaena, Punalau, Kōlea, Honomanū, West Wailuaiki, East Wailuaiki, Kopiliula, Puaka'a, Waiohue, Pa'akea, Kapaula and Hanawī Streams.

On June 30, 2014, the Hearings Officer held a Hearing on an Integrated Approach to Establishing Interim Instream Flow Standards for All 27 East Maui Streams which were the Subject of Na Moku's Petition. Upon reviewing the record, the Hearings Officer concluded that the Commission voted to take an integrative approach to establishing IIFS for all 27 streams by first addressing eight (8) of the twenty-seven (27) streams. Therefore, the contested case hearing on amended IIFS for East Maui (CCH-MA13-01) must now address all 27 streams and not just the thirteen streams named in the request for contested case. The Hearings Officer further concluded that the Intermediate Court of Appeals vacated the Commission's recommendation on the remaining 19 streams and ordered the Commission to hold hearings under the requirements of the Hawaii Administrative Procedures Act. Minute Order 7 (May 30, 2014)

On August 20, 2014, the Commission authorized, ordered, delegated, and directed the Hearings Office to conduct a contested case hearing on Petitions to Amend the Interim Instream Flow Standards for all twenty-seven (27) Petitions and streams filed by Native Hawaiian Legal Corporation (NHLC) (representing Na Moku).

On November 13, 2014, a Standing Hearing was held on Maui for the purpose of determining the standing of three additional parties. The Hearings Officer determined that only one party had standing; however, the other two could provide testimony to the record.

Beginning on March 2 and ending on April 2, 2015, 15 days of hearings were held in Wailuku, Maui. The transcripts were completed and submitted to the Commission.

On October 2, 2015, the parties submitted their Proposed Findings of Fact (FOF), Conclusions of Law (COL), and Decision and Order (D&O).

On January 15, 2016, the Hearings Officer issued his Proposed FOF, COL, and D&O. Just days prior, Alexander & Baldwin (A&B) announced that Hawaiian Commercial & Sugar Company (HC&S) would cease farming sugar by the end of 2016 and would transition to a diversified agricultural model for its 36,000 acre Maui plantation. Written exceptions to the Hearings Officer's Proposed FOF, COL, and D&O were filed by the parties on February 29, 2016.

On April 1, 2016, in response to A&B's announcement, the hearings Officer issued a recommendation regarding an interim restoration of stream flow while the contested case hearing was reopened to address HC&S's cessation of sugar operations. All parties agreed that restoring 18 million gallons per day to East Maui streams, per the Hearings Officer's recommendations of January 15, 2016, should be effective immediately. Responses to the Hearings Officer's recommendation were filed in mid-April, resulting in an amended recommendation being issued on May 31, 2016.

On June 9, 2016, motions were filed on the scope of the reopened hearing, while responses to the Hearings Officer's amended recommendation were filed on June 10, 2016.

On July 18, 2016, the Commission issued an Order re Interim Restoration of Stream Flow, which directed A&B to coordinate with Commission staff in its efforts to permanently abandon or remove all diversion structures on certain streams that provide water to downstream taro farmers.

On August 26, 2016, NHLC and Maui Tomorrow Foundation, Inc. filed Motions to Reconsider the Order Regarding the Scope of the Re-Opened Hearing.

The Re-Opened Hearing commenced on February 6, 2017 and lasted for three days. The Hearings Officer's Amended Proposed Findings of Fact, Conclusions of Law, and Decision and Order was issued on August 2, 2017. The Commission issued its final Decision and Order in June 2018. There were no appeals.

Information on the East Maui Contested Case Hearing are available on the Commission website at: <http://dlnr.hawaii.gov/cwrn/newsevents/cch/cch-ma13-01/>.

The Commission staff is continuing to work with A&B and East Maui Irrigation Co. (EMI) and the communities to monitor and assess the IIFS releases ordered by the Commission and to process the stream diversion works abandonment permit applications filed by A&B. Commission staff continues to conduct streamflow measurements and download data from installed stream measurement devices on quarterly scheduled trips. Monitoring data is available on the Commission website at: <http://dlnr.hawaii.gov/cwrn/surfacewater/monitoring/>.

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

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

The Commission is currently reviewing the Hearings Officers Proposed Findings of Fact, Conclusions of Law, and Decision and Order with closing oral arguments anticipated for scheduling in late 2018 or early 2019. 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/cwrp/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-MA-01), visit the Commission website at:

<http://dlnr.hawaii.gov/cwrp/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/cwrp/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/cwrmsurfacewater/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/cwrmsurfacewater/monitoring/>.

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

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

Investigating entire river systems with complex historic diversions is not a simple undertaking. Due to current staff shortages and multiple contested case hearings on Maui, the Commission exercised its authority to appoint agents, including hearings officers and consultants necessary to carry out the purposes of the State Water Code. Hawai‘i Revised Statutes, §174C-5(8); Hawai‘i Administrative Rules (HAR) §13-167-3(13) and §13-167-23(d).

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

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

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

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

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

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

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

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

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

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

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

The SPAM Branch continues to follow up with the implementation of the Waimea Watershed Mediated Agreement with fieldwork to verify streamflows, administrative support to verify deadlines are kept, and working group meetings to address various aspects of the Agreement.

#### **E. Kahana Stream Restoration Project, O‘ahu**

The Kahana Stream watershed is a large valley in the Ko‘olau Loa District on the east side of O‘ahu. Kahana Stream (also known locally as Kahawainui Stream) drains the valley and is comprised of two primary tributaries, Kawa and Keaniani. Kahana Stream is one of the largest perennial streams on O‘ahu (in terms of discharge) and ranks high among streams statewide for biological diversity, supporting a full complement of native freshwater fish, shrimp, and mollusk.

Hau clogs the Kahana Stream corridor and has significantly altered the stream ecosystem. The thick vegetation obstructs stream flow and reduces the open channel. The narrow stream forces floodwaters out of the banks onto adjacent areas, scouring the area, eroding secondary channels, and deepening the main channel. The invasion of hau physically changes the stream channel and water flow patterns, and negatively alters the migration patterns, habitats, and food sources of native aquatic organisms. The primary purpose of the Kahana Stream Restoration Project is to remove hau and improve access of migrating aquatic organisms and the ecological function of Kahana Stream by restoring appropriate water flow to the channel.

On August 21, 2013, the Commission authorized the Chairperson to enter into a Joint Funding Agreement with the U.S. Fish and Wildlife Service (USFWS) to restore approximately 7.5 acres along the riparian corridor of Kahana Stream by removing invasive hau and replanting native species. The Commission approved funding, not to exceed \$50,000, towards completion of the project. Project partners will provide an “in-kind match” of \$20,000.

On August 30, 2013, the Commission received notice that the USFWS had approved the Commission’s application for Federal financial assistance under the National Fish Passage Program in the amount of \$70,000.

Additional project partners include the community group Hōala ‘Āina Kūpono Corporation, and DLNR’s Division of State Parks, Division of Aquatic Resources, Engineering Division, Division of Forestry and Wildlife, and Office of Conservation and Coastal Lands.

On June 28 and 29, 2016, the Kahana Stream Restoration Project kicked off with staff from the Department’s Division of Forestry and Wildlife, Engineering Division, and the Commission. The goal of this initial effort was to clear hau along a lower portion of the stream and create a staging area for more intensive hau removal work by contracted labor.

During June, a contractor was hired to remove hau along approximately 1,000 ft. of stream length, with a setback of 50 ft. on either side of the stream channel. The contracted work began in September 2016 and was completed in June 2017. Approximately 1-acre of hau was cleared. Additional hau removal and outplanting of native Hawaiian species continues with the assistance of the Division of Forestry and Wildlife, the Division of State Parks, and other divisions in the Department.

The Commission staff and others will continue to conduct site visits, monitor stream channel conditions and water quality, and work closely with the USFWS and other project partners to continue removing hau, outplanting native vegetation, and restoring stream channel integrity.

The project was completed in September 2017, with the final report submitted to USFWS in December 2017. The final report can be viewed on the Commission website at: [http://files.hawaii.gov/dlnr/cwrm/publishedreports/USFWS\\_Kahana.pdf](http://files.hawaii.gov/dlnr/cwrm/publishedreports/USFWS_Kahana.pdf).

#### **F. Wailuku River Fish Passage Project, Maui**

Wailuku River (‘Īao 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 ‘Ehā 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 'Īao 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 Waihe'e 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 'Īao 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. The Commission staff is continuing to reassess the project and to identify alternatives in light of stream channel conditions that are continually changing two years later.

More information will be made available on the Commission website as it becomes available.

#### **G. Study on Low-Flow Characteristics for Streams in Southeast Kaua'i, Hawai'i**

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

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

The USGS is undertaking the study in five steps: 1) Conducting background research on existing surface water diversions, rainfall, groundwater, and surface-water data; 2) Conducting stream reconnaissance surveys to understand the general hydrologic conditions of streams; 3) Establishing low-flow partial records stations upstream from existing diversion intakes to quantify streamflow under natural, undiverted low-flow conditions; 4)

Conducting seepage analyses to characterize gains and losses in streamflow; and 5) Preparing maps to be published as part of the report.

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

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

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

As of September 2018, the USGS has completed data collection at 10 out of a total of 19 low-flow partial record sites, with a majority of the stream measurements showing satisfactory correlations with existing continuous-record streamflow-gaging stations (index stations). Discharge measurements at low-flow partial record stations are continuing.

The report is expected to be published in April 2019, 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/southeastkauai/>.

## **H. Estimation of Low-Flow Characteristics for Streams in Hawai‘i**

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

Phase 1 is a 2.5-year study (budgeted for \$350,000), that includes data compilation and the computation of low-flow duration discharges for gaged sites. In Phase 1, the USGS will: 1) Compile existing data from continuous record stream gaging stations, low-flow partial-record and miscellaneous discharges measurement sites; 2) Incorporate calculated duration

discharges into StreamStats; 3) Explore different methods in developing regional regressions models for estimating low-flow characteristics at ungaged sites; and 4) Identify additional data needs. Other cooperators in Phase 1 include the Office of Hawaiian Affairs and the Department of Hawaiian Home Lands.

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

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

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

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 2018, two continuous-record low-flow stream-gaging stations were installed on the island of Hawai‘i, while collection of streamflow measurements at partial-record sites established on O‘ahu, Maui, and the island of Hawai‘i began. A total of 7 continuous-record low-flow stations and 40 partial-record sites have been established. Four continuous-record low-flow stream-gaging stations will be installed on Moloka‘i in October 2018. Of the 40 partial-record sites that have been established, three are on Kaua‘i, nine are on O‘ahu, six are on Maui, seven are on Moloka‘i, and 15 are on Hawai‘i island.

For more information on the USGS Low-Flow Regionalization of Streams in Hawai‘i Study, see the USGS website at: <http://hi.water.usgs.gov/studies/lowflow1/>. A summary of the StreamStats application can also be found on the Commission website at: <http://dlnr.hawaii.gov/cwrm/surfacewater/sw-activities/streamstats/>.

## I. 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 gauging stations has remained at 27. For Federal Fiscal Year (FFY) 2019, the total cost of the agreement will not exceed \$870,842. The Commission’s share will not exceed \$624,317 (See Tables 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. Increases in cost due to additional stations relate to one-time infrastructure costs and do not reflect the long-term operation and maintenance costs associated with the additional stations.

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 2017 to 2019.

<b>COST</b>	<b>FFY 2017</b>	<b>FFY 2018</b>	<b>FFY 2019</b>
Total Joint Funding Requirement	\$756,284	<b>\$737,700</b>	<b>\$870,842</b>
Expected CWRM cost-share	\$494,148	<b>\$495,520</b>	<b>\$624,317</b>
Percentage CWRM cost-share	65%	<b>67%</b>	<b>72%</b>
Waiāhole Ditch Monitoring Fund	\$45,264	<b>\$49,080</b>	<b>\$67,200</b>
Ground water well continuous monitoring	\$7,173	<b>\$6,500</b>	<b>\$6,620</b>
Rain gage continuous recording	\$9,581	<b>\$9,200</b>	<b>\$9,400</b>

Continuous recording stream gage	\$20,552	<b>\$22,000</b>	<b>\$22,400</b>
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**Table 3.** Summary of annual changes in the number of gages from Federal FY 2014 to 2018.

<b>GAGING STATION TYPE</b>	<b>FFY 2015</b>	<b>FFY 2016</b>	<b>FFY 2017</b>	<b>FFY 2018</b>	<b>FFY 2019</b>
No. of continuous stream gages	26	27	27	<b>27</b>	<b>31</b>
No. of wells (ground water levels and water quality)	14	14	12	<b>9</b>	<b>9</b>
No. of rain gages	16	17	17	<b>17</b>	<b>17</b>

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/>.

## **J. West Maui Interim Instream Flow Standards**

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:

<http://dlnr.hawaii.gov/cwrm/surfacewater/ifs/westmaui/>.

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, Launiupoko, and Kaua‘ula streams. Staff have been working to monitor stream flow releases 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 will be prepared and submitted for the Commission’s review and approval in November 2018. To download copies of the report, see the Commission’s website at:

[http://dlnr.hawaii.gov/cwrm/surfacewater/ifs/kahoma\\_ifs/](http://dlnr.hawaii.gov/cwrm/surfacewater/ifs/kahoma_ifs/).

#### **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.