

Report to the Twenty-Eighth Legislature
2016 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 Hawaii

Section 174C-31(c) (4), Hawaii Revised Statutes

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REPORT TO THE TWENTY-EIGHTH LEGISLATURE
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I. INTRODUCTION

The Hawaii 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 2015 activities to implement this mandate.

II. BACKGROUND

In 1990, the Commission (in partnership with the National Park Service) prepared the Hawaii Stream Assessment. This 2-year project had two primary objectives: 1) Inventory Hawaii's perennial streams and their physical characteristics; and 2) Assess the aquatic, riparian, cultural, and recreational values of Hawaii'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 Hawaii 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 Waiahole 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 Hawaii’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 2015, please see previous year’s annual reports.

III. STREAM PROTECTION AND MANAGEMENT UPDATES

A. SPAM Branch:

During 2015, 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-MA13-02 and CCH-MA15-01). Staff has also reestablished quarterly monitoring of instream flow standards in East and Central (Na Wai Eha) Maui.

On Kauai, the SPAM Branch has conducted several investigations related to the Waimea River and has held multiple meetings with the petitioners and other organizations associated with the complaint and petition to amend the instream flow standard. The Commission has also entered into a Joint Funding Agreement with the U.S. Geological Survey (USGS) to study low-flow characteristics in the southeast region of the island from Wailua to Hanapepe.

Phase 1 of a separate study with the USGS, to estimate low-flow characteristics for stream on Kauai, Oahu, Molokai, Maui, and Hawaii, came to a close. The Commission is working to identify funding for Phase 2 of the study which focuses on field data collection and the development of a web-based application called StreamStats.

The Kahana Stream Restoration Project (Oahu), partially funded through a grant from the U.S. Fish and Wildlife Service (USFWS), is moving forward with a revised work plan under development and permitting issues being addressed. The Commission also received another USFWS grant to partially fund an Iao Stream Fish Passage Project on Maui as streamflows to Iao Stream were restored October 2014.

The SPAM Branch has continued working to fill its vacancies. The Hydrologist VI position is currently vacant and is being actively recruited. The Commission also received legislative approval to create two more positions in the SPAM Branch (a Planner and an Engineering Aid/Technician) to address the increasing workload of surface water issues. The two new positions are currently vacant and are being actively recruited.

B. Contested Case Hearing on Petitions to Amend the Interim Instream Flow Standards (IIFS) for the Honopou, Huelo (Puolua), Hanehoi, Waikamoi, Alo, Wahinepee, Puohokamoa, Haipuaena, Punalau/Kolea, Honomanu, Nuaailua, Piinaau, Palauhulu, Ohia (Waianu), Waiokamilo, Kualani, Wailuanui,

Waikani, West Wailuaiki, East Wailuaiki, Kopiliula, Puakaa, Waiohue, Paakea, Waiaka, Kapaula, Hanawi, and Makapipi Streams, Maui, Hawaii (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 Koolau 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/Kolea, Honomanu, West Wailuaiki, East Wailuaiki, Kopiliula, Puakaa, Waiohue, Paakea, Kapaula and Hanawi 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 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, Kolea, Honomanu, West Wailuaiki, East Wailuaiki, Kopiliula, Puakaa, Waiohue, Paakea, Kapaula and Hanawi 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 (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 recently 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). The matter now rests with the Hearings Officer to prepare his Proposed FOF, COL, and D&O for issuance to the Commission and the parties.

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 East Maui Irrigation Co. (EMI) and the communities 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/cwrn/surfacewater/monitoring/>.

C. Na Wai Eha: 1) Iao Ground Water Management Area High-Level Source Water Use Permit Applications, and 2) Petition to Amend Interim Instream Flow Standards of Waihee, Waiehu, Iao, and Waikapu Streams Contested Case Hearing:

In June 2010, the Commission issued its final Decision and Order (D&O) setting IIFS for four West Maui streams – Waihee, Waiehu, Iao and Waikapu (collectively Na Wai Eha). The Commission’s D&O was subsequently appealed. On August 15, 2012, the Supreme Court issued its decision. *In Re Iao Ground Water Management Area High-Level Source Water Use Permit Applications and Petition to Amend Interim Instream Flow Standards of Waihee, Waiehu, Iao, and Waikapu Streams Contested Case Hearing*, 128 Haw. 228, 287 P.3d 129 (August 15, 2012). The Court addressed four points of error:

1. The Court dismissed the Maui Department of Water Supply’s cross-appeal on the grounds that it sought resolution of an abstract proposition of law.
2. The Commission failed to enter Findings of Fact and Conclusions of Law regarding the effects of its amended IIFS on traditional and customary Native Hawaiian practices.
3. The Commission failed to adequately justify its decision not to restore streamflow to the Iao and Waikapu Streams and the Commission’s analysis regarding instream use was incomplete;
4. The Commission violated the Public Trust Doctrine in its treatment of diversions and erred in its:

- a. Calculation of Hawaiian Commercial & Sugar Company's (HC&S) acreage;
- b. Treatment of some of the diverters' system losses;
- c. Consideration of HC&S's Well No. 7; and
- d. Consideration of recycled wastewater.

The Court dismissed Maui Department of Water Supply's cross-appeal, vacated the Commission's June 10, 2010 Finding of Fact, Conclusions of Law, D&O, and remanded the remaining points to the Commission for further proceedings consistent with their opinion.

On May 22, 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 September 24, 2013, Dr. Miike held a prehearing conference to set a briefing schedule for the hearing (on remand). The contested case hearing was scheduled to begin on Maui on March 10, 2014.

On March 10, 2014, the Commission issued a press release stating that the Na Wai Eha contested case hearing would be postponed to March 17, 2014. This was followed by another press release on March 17 stating that the contested case hearing would be postponed indefinitely to "allow the parties to meet and discuss potential avenues of settlement."

On April 21, 2014, the Commission issued a press release stating that the parties reached agreement in the Na Wai Eha contested case hearing. The Commission issued its Order adopting the Hearings Officer's Recommendations on the Mediated Agreement Between the Parties; and Stipulation regarding the Mediator's Report of Joint Proposed Findings of Fact, Conclusions of Law, Decision and Order.

The D&O maintained the IIFS for Waihee River at 10 million gallons per day (mgd) per the Commission's 2010 D&O.

The North Waiehu IIFS was changed to 1.0 mgd and relocated further downstream, while the South Waiehu Stream IIFS provides for diversion of 250,000 gallons per day by Hawaiian Commercial & Sugar Company with the remaining low flow being returned to the stream.

The IIFS for Iao Stream, just below the upper diversion was set at 10 mgd, with provisions for lower streamflows that would allow Wailuku Water Company to continue to divert water that it provides to the County of Maui's Department of Water Supply. At these lower flow conditions, the IIFS in Iao Stream would be reduced accordingly. An IIFS of 5 mgd was also established at or near the mouth of Iao Stream.

The IIFS for Waikapu Stream was set at 2.0 mgd below the South Waikapu Ditch Diversion.

For information on the Iao Ground Water Management Area High-Level Source Water Use Permit Applications and Petition to Amend Interim Instream Flow Standards of Waihee, Waiehu, Iao, and Waikapu Streams Contested Case Hearing (CCH-MA-01), see Commission website: <http://dlnr.hawaii.gov/cwrn/newsevents/cch/cch-ma06-01/>.

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/cwrn/surfacewater/monitoring/>.

D. Na Wai Eha: Contested Case Hearing on Provisional Recognition of Appurtenant Rights, Na Wai Eha Surface Water Management Area, Waihee, Waiehu, Iao, Waikapu Streams, Maui, Hawaii (CCH-MA13-02)

On September 27, 2011, the Commission adopted a procedure to determine appurtenant rights in the Na Wai Eha Surface Water Use Permit proceedings. The Commission issued a public notice on October 26, 2011 announcing the appurtenant rights determination process in the Na Wai Eha surface water management areas (Waihee, Waiehu, Iao and Waikapu Streams). The Commission outlined a two-step process for appurtenant rights determination: 1) Determine whether there is an appurtenant water right associated with the parcel of land on which the water is being used or proposed to be used; 2) Quantify the amount of water associated with that parcel as part of the surface water permitting process. Applicants for appurtenant water rights were given until February 6, 2012 to submit information in support of their claim.

On August 15, 2012, the Commission delegated authority to the Chairperson to appoint a Hearings Officer to handle the appurtenant rights claims. Dr. Lawrence H. Miike was selected to serve as the Hearings Officer.

On August 29 and September 5, 2012, the Commission published notice in the Maui News and the Honolulu Star Advertiser, describing how written objections to the appurtenant rights claims should be filed. With the second notice, any person or entity with a legal or material interest in the appurtenant rights claimed had the opportunity to submit written objections according to the following criteria: 1) Documentation demonstrating that the parcel was not used as a residence or for cultivation at the time of the Mahele; 2) Documentation demonstrating that the appurtenant right has been reserved or extinguished; or 3) Evidence suggesting there are materially false statements or representations in the application. Written objections were to be submitted by September 19, 2012. A total of 216 appurtenant rights claims were received.

On March 4 and March 11, 2013, the Commission published a second notice in the Maui News and the Honolulu Star Advertiser to include a number of claimants who submitted documentation after the initial deadline.

On August 6, 2013, the Commission issued a Notice to Applicants and Those Filing Objections in the Provisional Recognition of Appurtenant Rights for Na Wai Eha Surface Water Management Areas of Waihee, Waiehu, Iao and Waikapu Streams, to announce that a due process hearing would be held in Wailuku, Maui to receive and act on the Hearings Officer's Findings and Recommendations regarding the Provisional Recognition of Appurtenant Rights. The hearing was scheduled for August 30, 2013.

On August 21, 2013, the Commission formally determined that the provisional recognition of Appurtenant Rights in the Na Wai Eha Surface Water Management Areas of Waihee, Waiehu, Iao, and Waikapu Streams, Maui would be a contested case hearing. Accordingly, the due process hearing scheduled for August 30, 2013 was postponed indefinitely.

On September 25, 2014, the Commission issued a Notice to Applicants and Those Filing Objections in the Provisional Recognition of Appurtenant Rights for Na Wai Eha Surface Water Management Areas of Waihee, Waiehu, Iao and Waikapu Streams, to announce that a due process hearing would be held in Kahului, Maui to receive testimony on the Hearings Officer's Findings and Recommendations regarding the Provisional Recognition of Appurtenant Rights.

On October 14 and November 21, 2014, the Commission held due process hearings on Maui.

On December 31, 2014, the Commission issued a Provisional Order on Claims that Particular Parcels have Appurtenant Rights. As noted in the Order, the appurtenant rights proceedings were the "Second Stage in a Three (3) Stage process to resolve the contested case over waters of Na Wai Eha, Maui, Hawaii. Stage One involved the amended Interim Instream Flow Standards. Stage Two address appurtenant rights. Stage Three will determine surface Water Use Permits and the ultimate integration of all three stages." The process will now continue as part of a separate contested case hearing on Surface Water Use Permit Applications (see CCH-MA15-01 below).

Information on the Na Wai Eha Contested Case Hearing on Provisional Recognition of Appurtenant Rights is available on the Commission website at:
<http://dlnr.hawaii.gov/cwrp/newsevents/cch/cch-ma13-02/>.

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

E. Na Wai Eha: 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 Waihee, Waiehu, Iao and Waikapu Streams, Maui (CCH-MA15-01)

On December 6, 2006, Earthjustice, representing Hui o Na Wai Eha and Maui Tomorrow Foundation, Inc. filed a petition requesting that the Commission either: (1) recognize the watersheds of Waihee, Waiehu, Iao, and Waikapu Streams (collectively, Na Wai Eha) as part of the existing Iao Ground Water Management Area, or (2) designate the Na Wai Eha 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 NA WAI EHA 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 Na Wai Eha 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 Na Wai Eha 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 Na Wai Eha 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 Na Wai Eha Surface Water Management Areas of Waihee, Waiehu, Iao and Waikapu Streams, Maui, Hawaii. 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 has 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.

The start of the contested case hearing has been tentatively established as the first week in June, 2016. Witness testimonies and exhibits, as well as any opening statements, would be due the first week of February 2016. Any responsive testimonies and exhibits would be due six weeks later, or mid-March. Rebuttals (to any responses to initial testimonies and exhibits) would be due three weeks later, or the first or second week in April. Parties would then have six or seven weeks to prepare for the opening of the contested case. Sometime in May, another prehearing conference would be held to discuss the order of witnesses.

Information on the Na Wai Eha 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/>.

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

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, Hawaii.

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. Hawaii Revised Statutes, §174C-5(8); Hawaii 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 Kokee 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 Kokee and Kekaha Ditch Irrigation Systems. Sites included the Waimea Canyon Lookout, Puu Lua Reservoir, Puu Moe Ditch Divide, Black Pipe Siphon viewpoint, end of Kokee 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 Kokee Ditch Systems, and by the Kauai 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 Kokee 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,

Kawaikoi, Kauaikinana, and Kokee 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.

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

G. Kahana Stream Restoration Project, Oahu

The Kahana Stream watershed is a large valley in the Koolau Loa District on the east side of Oahu. 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 Oahu (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.

The Commission staff has conducted several site visits, begun assessing accessibility and stream channel conditions, and is continuing to work closely with the USFWS to develop a detailed work plan while identifying the necessary permits and regulations that will need to be addressed as part of the project.

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

H. Iao Stream Fish Passage Project, Maui

Iao Stream (Wailuku River) 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 Iao Streams, the Commission believes that the currently degraded habitat of Na Wai Eha 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.

Project partners include the Division of Aquatic Resources, Wailuku Water Company, and Hawaiian Commercial & Sugar Company.

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 Iao 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.

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

I. Study on Low-Flow Characteristics for Streams in Southeast Kauai, Hawaii

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 Kauai: Wailua, Hanamaulu, Puali, Huleia, Waikomo, Aepo, Lawai, Kalaheo, Wahiawa, and Hanapepe. This is a 4-year cooperative study divided into two periods at a total cost of \$707,000. Period 1 will run from June 1, 2015 to June 30, 2017 at a cost of \$446,000 (Commission's share is \$312,200), while Period 2 is anticipated to run from July 1, 2017 to April 30, 2019 (Commission's share is \$78,300).

The history of large-scale sugarcane cultivation in Southeast Kaua'i by Lihue Plantation, Grove Farm, Koloa 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, Lawai, and Hanapepe. Additionally, the USGS has worked with the Kauai Department of Water consistently over the past two decades in assessing groundwater hydrology for the Southern Lihue 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.

The USGS will undertake 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.

The report is expected to be published in April 2019, and will be made available on the Internet as a USGS Scientific Report.

J. Estimation of Low-Flow Characteristics for Streams in Hawaii

On June 1, 2013, the Commission entered into a JFA (Phase 1) with the USGS to cooperatively study low-flow characteristics of streams in Hawaii. 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 Kauai, Oahu, Molokai, Maui, and Hawaii. 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.

Phase 2 is a 4.5-year study (budgeted for \$2,059,000) 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) Collect additional data; 2) Compute low-flow duration discharges at new sites; 3) Identify and quantify relevant basin characteristics; 4) Incorporate new data and relevant basin characteristics into StreamStats; 5) Identify regions and develop regressions equations for each; and 6) Implement StreamStats for ungaged locations.

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 Hawaii. 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 Hawaii. Overall, Hawaii 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.

The Commission staff is coordinating with the USGS to begin initiation of Phase 2 of this study subject to available funding. The Commission has requested, as part of the Department’s budget package, a legislative appropriation in the amount of \$1,500,000 for Fiscal Year 2017.

For more information on the USGS Low-Flow Regionalization of Streams in Hawaii Study, see the USGS website at: <http://hi.water.usgs.gov/studies/lowflow1/>. The USGS Phase 1 report is expected to be available in late 2015.

K. USGS Cooperative Agreement:

In 1909, the USGS and the Territory (now State) of Hawaii officially began a cooperative agreement to gage Hawaii streams (and measure Hawaii’s groundwater). Since 1909, over

140 (37%) of Hawaii’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 the same as the previous year’s Agreement, the total number of stream gauging stations has remained at 26. For Federal Fiscal Year (FFY) 2016, the total cost of the agreement will not exceed \$749,069. The Commission’s share will not exceed \$486,933 (See Table 1).

The Waiahole Trust Fund continues to defray the cost of monitoring the Waiahole Ditch system and its sources.

Table 1. Summary of annual changes in funding requirements for the USGS Cooperative Agreement From Federal FY 2014 to 2016.

COST	FFY 2014	FFY 2015	FFY 2016
Total Joint Funding Requirement	\$702,650	\$717,381	\$749,069
Expected CWRM cost-share	\$433,2180	\$444,700	\$486,933
Percentage CWRM cost-share	62%	62%	65%
DOFAW Watershed Management Grant	\$0	\$0	\$0
Waiahole Ditch Monitoring Fund	\$41,650	\$41,650	\$41,650
Ground water well continuous monitoring	\$7,230	\$7,015	\$7,015
Rain gage continuous recording	\$9,670	\$9,370	\$9,420
Continuous recording stream gage	\$20,090	\$20,900	\$20,143

Table 2. Summary of annual changes in the number of gages from Federal FY 2012 to 2016.

GAGING STATION TYPE	FFY 2012	FFY 2013	FFY 2014	FFY 2015	FFY 2016
No. of continuous stream gages	27	28	25	26	26
No. of wells (ground water levels and water quality)	18	18	14	14	14
No. of rain gages	14	14	15	16	16

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/>.

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 Hawaii Water Plan and into the Commission's decision making on an ongoing basis.

The efforts described above are all critical to developing IFS. They 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.