

# **Pi'opi'o, He 'Āina Ali'i Mai Kahiko Mai**

*Pi'opi'o, land of the chiefs since ancient times*



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Kamehameha Schools

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## He Leo Mahalo

Before we delve into the content of this report, it is especially important that we mahalo and express our deepest aloha to the kūpuna that came before us. To those kūpuna that have helped to carve the path that we walk upon today, and to those who held Hawai'i's history in memory and took the document their 'ike on paper, mahalo.

The Wahi Kupuna Internship Program cannot manifest without the support, assistance and guidance of many people. A huge mahalo to Kamehameha Schools Land Assets and 'Āina Based Education Division for continuously supporting the program for the past six years. We thank Kahea Stocksedale and Carl Matsunaga from the Queen Lili'uokalani Children's Center for your support as well. We thank Andrew Frias and Kumu David "Kawika" Urakami from Waiākea High School for your willingness to work with us and support your students in this endeavor. We also want to thank Codie King from the Wailoa Center for providing us with a home base during our fieldwork.

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Ke aloha nui iā 'oukou pākahi a pau!

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# **EXECUTIVE SUMMARY**

## **Introduction**

The sixth annual Wahi Kupuna Internship Program (WKIP) was a success this year, taking place in the 'ili kūpono of Pi'opi'o. Currently managed by the Department of Land and Natural Resources – State Parks Division, Pi'opi'o is one of Hilo's richest historical and cultural landscapes in the South Hilo district. This report will highlight its significance, particularly the Hawaiian cultural history of the area.

Additionally, this was the first year that the program worked exclusively with high school students. Also, whereas previous program years worked primarily on wahi kupuna lands stewarded by Kamehameha Schools, this year's program was not. This shift in program location reflects a larger institutional shift at KS as described in their new 2015-2020 Kūhanauna Strategic Plan, which provides the justification to support Native Hawaiian professional development programs based on KS and non-KS 'āina such as the WKIP. We also describe our experiences in working with high school students this year and on working on non-KS land.

## **Summary of Findings**

- Working with high school students allowed the program to expand its network by working with other Native Hawaiian organizations to ensure student success and achievement.
- Through the implementation of student assessments, it was revealed that the students left the program with a deeper understanding of the relevance of Cultural Resource Management and Anthropology. Some of the students even expressed interest in pursuing studies in these fields after high school.
- The interns indicated that opportunities to speak publically about their research in Pi'opi'o to professionals and their peers was the most interesting and meaningful activities that took place throughout the program.
- The student presentations surpassed our expectations, as well as the expectations of the community members who attended the community hō'ike. As a second hō'ike, the students will be presenting their research papers on September 26th, 7-8:30pm, as part of the Saigo Lecture Series at the Lyman House Memorial Museum.
- Seventeen sites were identified during our pedestrian survey which took place on June 13th, 2016. The sites were of historic or modern origin, with no sites of pre-contact nature being identified.

## **Summary of Recommendations**

Our recommendation for KS is to continue supporting the WKIP and other 'āina-based collaborators in Pi'opi'o. Even though the program may not be based on KS-land, the programs like the WKIP support the strategic goals outlined in the Kūhanauna Strategic Plan in numerous ways.

## 1.0 HO'OLAUNA – INTRODUCTION

‘O Wailoa, Waiākea, Mohouli, Waihole, a me Hoakimau ka wai. ‘O Pi‘opi‘o ka ‘āina. ‘O Waiākea ke ahupua‘a. ‘O Hilo ka moku. ‘O Hawai‘i ka mokupuni. In partnership with the Kamehameha Schools Land Asset Division (LAD), Huliauapa‘a and Nohopapa Hawai‘i, LLC successfully completed the sixth-annual Wahi Kupuna Internship Program (WKIP). This year’s program took place in Pi‘opi‘o, an ‘ili kūpono situated in the ahupua‘a of Waiākea, Hilo, Hawai‘i.



Figure 1. WKIP 2016 staff and interns. From left to right: Lokelani Brandt, Tusie‘ana Berrios, Natalie Keawekane, Aoloa Santos, Caleb Akau and Craig Okahara-Olsen

As always, the driving goal of the Wahi Kupuna Internship Program is to train ‘Ōiwi & kama‘āina undergraduate students in both the cultural and technical sides of Cultural Resource Management so they have a strong cultural foundation, are connected to their ‘āina, communities, and have the appropriate skills to be well rounded resources managers.

However, this year we worked exclusively with high school students, meaning that the goal of the program was to also introduce the students to the

fields of Anthropology and Cultural Resource Management (CRM), to provide rigorous professional and academic training through teaching CRM-related techniques and skills to students, and to utilize CRM as a platform to encourage each student to pursue higher education and to engage in community-related reserach.

Native Hawaiian and kama‘āina high school students from Waiākea High School (WHS) who were also enrolled in the school’s Early College program were selected to participate in this year’s program (Figure 1). The Early College program is a pre-college program that allows WHS students to enroll in

*“...the driving goal of the Wahi Kupuna Internship Program is to train ‘Ōiwi & kama‘āina undergraduate students in both the cultural and technical sides of Cultural Resource Management so they have a strong cultural foundation, are connected to their ‘āina, communities, and have the appropriate skills to be well rounded resources managers.”*

**wahi kupuna** – ancestral places that are culturally and historically significant.

classes at Hawai‘i Community College. In addition to receiving college credits upon completion of their college courses, the students also receive credits for high school. Initially, five students were selected to participate in this year’s program. However, one of the students were excused from the program after the first week due to prior commitments. In addition to describing the experience of conducting the program on non-KS land, we also reflect on our experience in working with high school students.

This year also differed from previous years because it is the first time that the program took place on non-KS lands. Pi‘opi‘o, our primary focus area, is managed as the Wailoa State Recreational Area by the Department of Land and Natural Resources State Parks Division. Another intent of this report, then, is to describe the benefits and challenges of working on non-KS properties, the value of funding programs like the WKIP, and how such initiatives can still work towards KS’ 2015-2020 Kūhanauna Strategic Plan. It is also important to note that Pi‘opi‘o was initially a part of the Kamehameha Schools land holdings until the devastating 1960 tsunami. After this tragic event, the State of Hawai‘i acquired the land to established a tsunami buffer zone to prevent further personal and economic loss. Although Kamehameha Schools no longer manages this land, it is indeed a part of the land legacy.

In addition to summarizing the effectiveness of working on non-KS land and with high school students, baseline ethnohistorical and archaeological information about the cultural resources in and around Pi‘opi‘o are also provided. Such information provides a clearer understanding of the significance of this ‘ili kūpono to the district of Hilo and more broadly to the island of Hawai‘i.

Lastly, other sections that will be covered in this report include the structure and curriculum of this year’s program, the various partnerships that were formed as a result of the WKIP, and our recommendations to KS and other partners regarding the future of the WKIP.

## 1.1 2016 Cohort Name: Waikūpi'o

Each year, the Wahi Kupuna interns are tasked with creating a cohort name that speaks to their cohort's character and connection to the place where they conducted research. This year's cohort name was Waikūpi'o, and is described below by one of our interns, Natalie Keawekane:

*During the second week of the Wahi Kupuna Internship Program of 2016, we were given the task of figuring out our cohort name and the symbol that would represent us. We were running out of time to do so and needed to pull together an idea fast. After much trial and error, we first decided on a shirt color. The colors that we selected were a light gray and an ocean-blue.*

*Then, we chose to break from the norm and created our symbol before our cohort name. We discussed ideas and painted mental pictures in our heads about what the symbol would look like. Later we took these ideas and drew them onto a piece of paper to be presented in class.*

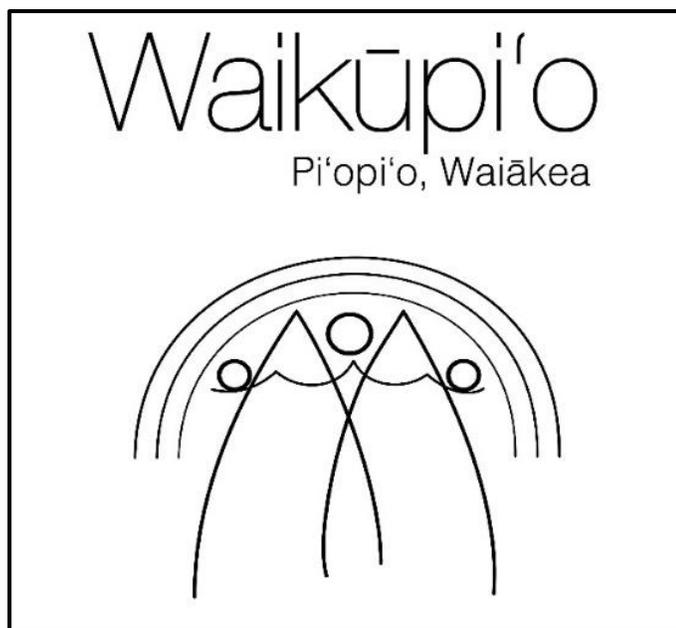


Figure 2 WKIP 2016 cohort name and logo

*All of our images seemed to tie in together, so we thought it would be appropriate to combine them. Craig Okahara-Olson and Caleb Akau wanted to include a rainbow and arches to represent the meaning of "pi'o" and the place name "Pi'opi'o." Tusie'ana Berrios wanted to include the image of the rain water drops that did not quite break the surface of the water, causing it to look like it was hovering. Tusie made this observation during our aquatic survey day. Natalie Keawekane wanted to include the "w" formation. This formation was observed on the surface of the fishponds as the ducks and other animals moved through the water, creating the "w"*

*formation in their wake. The shape also looks like a "W" and reminds us of the Wailoa River which runs alongside Pi'opi'o. Combined, these ideas were drafted up by Tusie'ana and our cohort symbol was created (Figure 2).*

*Finally, after creating a symbol, we came up with our cohort name. We had the words "wai," "Pi'opi'o," and many other words written on the whiteboard that we felt matched our cohort. However, Craig came up with a name that we liked best: Waikūpi'o. For us, Waikūpi'o means to "stand up for land" or to "stand up for ourselves" and we felt it was perfect for our cohort. And with that, Waikūpi'o was created and it helped us to know that our motto is to not give up and stand up for our land and to take care of it as much as we can.*

## 2.0 KA PAPA HANA – PROGRAM NARRATIVE

The following narrative provides a chronological summary of the program. For a detailed schedule of the program, see appendix B.

### 2.1 Daily Program Structure

Although different activities, workshops, and sessions were conducted each week of the program, the daily structure remained same (see Table 1). Students and instructors met daily at 8:00am at the University of Hawai'i at Hilo. Thanks to the generous support of the UH Hilo Anthropology Department, we had a secure classroom to meet everyday with the students and to store our program materials. Throughout the day, students participated in opening and closing piko and various daily activities. Students were also provided with a light breakfast and lunch everyday of the program. At 4:00pm, students were excused until the next day.

<b>Daily Program Structure</b>	
8:00am	Meet at UH Hilo, Anthropology Classroom
08:15am – 08:30am	Morning Piko
8:30am – 12:00pm	Classroom/Fieldwork activities
12:00pm – 1:00pm	Lunch
1:00pm – 3:50pm	Classroom/Fieldwork Activities

Table 1. Daily program structure of the Wahi Kupuna Internship Program.

Days that were not spent at Pi'opi'io were spent at UH Hilo. Fridays were exclusively reserved for classroom time so that the students could work on their research papers. Friday writing workshop were led by Rebecca Jacobs, an English instructor from Hawai'i Community College. The purpose of these workshops and the classroom days was to provide students with in-class time to work on their research papers. This time also allowed the students to get timely feedback from their instructors on their research and writing.

## 2.2 Program Highlights

The following program highlights outline some of the activities that the interns participated in throughout the internship.

### 2.3 Tape and Compass Mapping - June 6 – June 8, 2016



Figure 3. WKIP intern Tusie'ana Berrios works with Dr. Peter Mills and instructor Aoloa Santos to map out points that were collected in the field.



Figure 4. Interns practice taking points using the tape and compass method of mapping.

The first week of the program focused on introducing students to the field of Cultural Resource Management through immediate hands-on experience. Monday, June 6<sup>th</sup>, marked the first day of the internship. On this day, the students were introduced to the program staff and informed of the program requirements and expectations. Interns were then taken to Pi'opi'o for their first site visit. While there, the students received their first lesson on tape and compass mapping. Tape and compass mapping is an essential CRM skill that allows one to create plane view maps of an area (see Appendix E). These maps are important for showing the natural and cultural landscape of particular areas.

After five flags were placed sporadically in a field near the Wailoa Center, the students used 10-meter measuring tapes to measure the distance to the flag from a chosen point of beginning. Using a compass, students provided a bearing reading of the flag. The bearing is important to know the direction that a point was taken. Both the distance and bearing for all of the points were recorded on a worksheet (Figure 3).

On the next two days, June 7<sup>th</sup> and June 8<sup>th</sup>, the students applied their new skills by collecting over 300 points in the Pi'opi'o area surrounding the Wailoa Center. Dr. Peter Mills, Professor of Anthropology at UH Hilo; Matt Clark, a master's candidate in UH Hilo's Cultural Heritage Management Program; and Leilani Waldron, a 2015 Wahi Kupuna alumni, assisted the students in collecting these points. It was also during this time that Dr. Mills taught the students how to plot

each point onto sheets of graph paper to produce a plan view map (Figure 4). The resulting map was showcased at the student's Hō'ike on July 7th.

## 2.4 Museum Day - June 9, 2016



Figure 5. Tour of Pacific Tsunami Museum Archives with Barbara Muffler.



Figure 6. Examining historical photographs at the Lyman House Memorial Museum in Hilo.

The students were introduced to archival research and museum work on June 9<sup>th</sup>, which consisted of museum visits to the Pacific Tsunami Museum and the Lyman House Memorial Museum in Hilo, Hawai'i. The purpose of these visits was to introduce the students to museum work as it relates to CRM. Museums are places that store primary one-of-a-kind historical documents, thus, learning how to access them properly is necessary for collecting data and information on specific sites.

As part of these trips, museum professionals working at both institutions talked to the students about the museum profession. These professionals included Barbara Muffler, Curator and Archivist of the Pacific Tsunami Museum; Lynn Elia, Registrar and Collections Manager of the Lyman Museum; and Jill Maruyama, Curator of Exhibits and Facilities at the Lyman Museum.

At the Pacific Tsunami Museum, the students attended a 20-minute presentation by Barbara about tsunamis in the Hilo area, walked through the museum's exhibits, and learned about the type of records that are curated in the Pacific Tsunami Museum Archives. Later in the day, the students met with Lynn at the Lyman Museum to examine some of the historical documents related to Pi'opi'o that are curated in their institution (Figure 6). Lynn also sat down with the students to talk about the importance of museum work. Lastly, the students toured the historic Lyman Mission House, and walked through the Lyman Museum's Earth Heritage and Island Heritage Galleries.

## 2.5 Selecting Research Projects – June 10, 2016

Friday, June 10<sup>th</sup>, was our first classroom day and was spent finalizing each student's research project. At the beginning of the program, the students were informed that they would be required to write a research paper during the course of the internship. It was at this time that the students were given a list of project ideas to encourage them in developing a project idea. After projects were chosen, the program kumu helped each student to refine their research topics so that they could find research on and write their papers in the span of five weeks. The four research papers cover the following topics:



Figure 7. Interns and staff talk story with Sean Nāleimaile of the State Historic Preservation Division.

- (1) Arsenic contamination and invasive grass species that affect the Wailoa River Estuary
- (2) Developing new interpretive signage for the Pi'opi'o area
- (3) Utilizing the method of repeat photography to analyze change in the Pi'opi'o area after the 1946 tsunami
- (4) The use of kanu kipi, a traditional taro-cultivation method, in the area of and surrounding Pi'opi'o

These papers are attached to this report as Appendix A. As a means to help the students begin their research, a library research worksheet was developed so that the students could start identifying potential resources to utilize for their research (see Appendix C). After finding the three sources, the students turned in the worksheet and received feedback from the instructors on other resources to look for.

## 2.6 Pedestrian Survey - June 13, 2016

On June 13<sup>th</sup>, the students conducted a pedestrian survey to identify historical and archaeological features in Pi'opi'o (Figure 7). They were joined by U'ilani Macabio, 'Iolani Kauhane, and Hattie Gerrish, all Wahi Kupuna alumni. Tracy Tam Sing of the State Parks Division also joined us at the beginning of the day to introduce himself to the students. Later, we were joined by Sean Nāleimaile, Assistant

Archaeologist for Hawai'i Island with the State Historic Preservation Division, who talked to the students about his work and experiences as a Native Hawaiian archaeologist.

## 2.7 Aquatic Survey of Mohouli Fishpond Walls - June 14, 2016

On June 14th, with the help of Kalā Mossman, the students conducted an aquatic survey. Equipped with waterproof notepads, pencils, two kayaks, a paddleboard, and two GoPro camera, they were able to locate the fishpond walls of Mohouli fishpond, located in the mauka section of Pi'opi'o. The aquatic survey was greatly affected by the torrential rain. The rain and size of the kayaks limited the equipment we could take with us. June 15th was marked by conducting an individual site mapping exercises with the students at the Vietnam Memorial, located due West of the Wailoa Art Center. The students provided descriptions of the site's condition, took various points to provide measurements of the site's size, and photographed various features associated with the site.

## 2.8 Interview with Leslie Lang – June 16, 2016



Figure 8. Students practice conducting oral history interviews on one another.

On June 16<sup>th</sup>, the students shadowed program instructor Lokelani Brandt as she interviewed Leslie Lang, a descendant of Henry Benjamin Nālimu. Nālimu was an important figure in Hilo during the mid-19<sup>th</sup> to late-20<sup>th</sup> century. He also lived in Pi'opi'o for many decades. In preparation for the interview, the students were given a workshop on interviewing that was held on June 15<sup>th</sup>. During this workshop, the students learned about interviewing etiquette and indirect questioning. In order to practice these skills, the students

interviewed one another. The student conducting the interview then received critiques from his or her peers on how to improve their interviewing skills. The students also learned how to record interviews with a video recorder (Figure 8). When it was time to interview Leslie, each student had a kuleana to operate the camera, ensure that the

interviewee was comfortable during the interview, or take written notes.

## 2.9 Māhele 'Āina Workshop - June 16, 2016

On the same day that the students interviewed Leslie, the interns also participated in a workshop on the history of the Māhele. This workshop was led by No'ēau Peralto, a Wahi Kupuna instructor from last year's program in Hāmākua. No'ēau provided a baseline understanding of the history of land division in the islands and introduced the students to the Papakilo Database and AVA Konohiki, two digital databases that make land records easily accessible through the web.

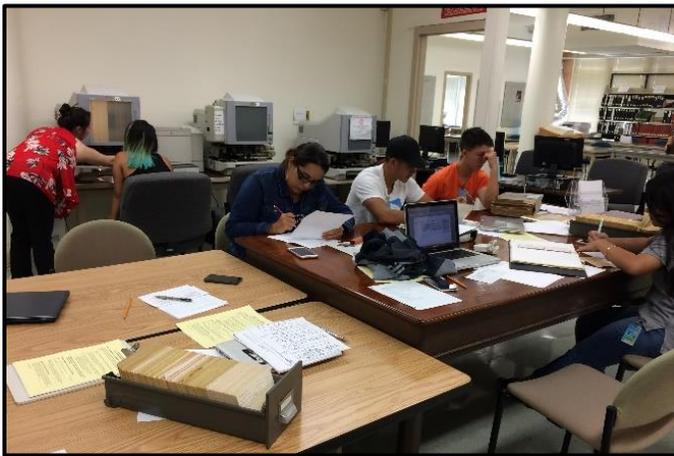


Figure 9. Interns conduct research at the Hawai'i State Archives.

## 2.10 Huaka'i to O'ahu - June 21-24, 2016

With the generous support from the Queen Lili'uokalani Children's Center, we took the interns to O'ahu. On our first day (June 21<sup>st</sup>), we were joined by 2015 Wahi Kupuna intern Alohilani Maiava and visited the Hawai'i State Archives. The interns learned how to access digital and physical records at this repository. Throughout the morning, they looked through various documents in print and on microfilm. The result of this exercise was a great deal of information on Pi'opi'opi (Figure 9).



Figure 10. Interns meet with staff of KS LAD at Kawaiha'o Plaza.

At noon on the same day, we met with Elaine "Muffet" Jourdane for lunch. Muffet is an archaeologist who works for T.S. Dye & Colleagues, Archaeologists Inc., a locally-based CRM company directed by Dr. Tom Dye. Muffet is also one of the first female archaeologists of Native Hawaiian-descent. Introducing our students to Muffet and providing her with the opportunity to talk story with our students allowed her to

describe her first-hand experiences as in the field of CRM.

Through Muffet, we met her colleague Toni Han, who gave us a tour of the King Kamehameha V Judiciary History Center. Toni took the students on a tour of the Center, which provides in depth exhibits on the Hawai'i's judiciary history.



Figure 11. Registrar of Conveyances Nicki Thompson shows the students grantor indexes that are curated at the Bureau of Conveyances. These indexes contain the records of land acquisition and exchange for all of Hawai'i.



Figure 12. Huaka'i to Kūkaniloko with Kepo'o Keli'ipa'akaua and 'Olu Campbell.

After our visit to the with Toni, we took the students to Kawaiha'o Plaza to meet with Sean McNamara, John Tulchin, and Lilia Marian of the Kamehameha Schools Land Assets Division (Figure 10). Here, the students were learned about KS' Wahi Kupuna Program. Sean and John also talked about the challenges of managing cultural resources on a land-base that is over 360,000 acres with a full-time staff of three. Meeting with the staff of KS LAD was important for not only the students, but for LAD; the students were given the opportunity to talk about the experiences at Pi'opi'io and the research project that they were working on.

On June 22nd, the students met with senior staff members of the Department of Land and Natural Resources (DLNR) to talk about their research projects and the future of Pi'opi'io. Those that were in attendance included DLNR Chairperson Suzanne Case, Deputy Sheriff Kekoa Kaluhiwa, Head of State Parks Kurt Cottrell, Assistant Director for State Parks Alan Carpenter, Director of SHPD Alan Downer, Registrar of Conveyances Nicki Thompson, and Archaeologist Holly McEldowny.

This meeting was an intimate encounter with the senior staff at DLNR—a first for the WKIP that allowed us the interns and staff to talk about current concerns and future efforts to revitalize Pi'opi'io. After our meeting, Nicki Thompson provided the students with a tour of the Bureau of Conveyances (BOC). The students learned about the daily



Figure 13. Huaka'i to Hōkūwelowelo Heiau with Mālama 'Āina Field School Director, Dr. Kekuewa Kikiloī.

operations at BOC, the process of land sale and acquisition in Hawai'i, and how to properly navigate through BOC archival records. For example, the students were able to search through grantor indexes to find land transactions that took place in the Pi'opi'o area (Figure 11). Grantor indexes preserve the transactional history, i.e. how land was purchased, gifted, or sold, of all of the lands in Hawai'i.

The last day of our O'ahu huaka'i was spent with the students and staff of the Mālama 'Āina Field School in Wāialua. Mālama 'Āina is the sister program to WKIP. On our way to Waiālua, the interns visited the ali'i birthing site of Kūkaniloko. Here, we met with Kepo'o Keli'ipa'akaua, one of the assistants of Mālama 'Āina, who taught the students about the cultural significance and history of Kūkaniloko (Figure 12).

The interns were also fortunate enough to meet with OHA Land Manager 'Olu Campbell, who provided the students with a synopsis of OHA's plans for the restoration and preservation of Kūkaniloko.

We arrived in Waiālua afterwards and met the interns of Mālama 'Āina. Dr. Kekuewa Kikiloī, Assistant Professor at Hawai'inuiākea School of Hawaiian Knowledge and President of Huliauapa'a, the non-profit which supports the WKIP, took our interns on a huaka'i to Hōkūwelowelo heiau to discuss the important work that the Mālama 'Āina interns did during their internship (Figure 13).

## 2.11 GIS Training with Dominique Cordy – June 28-30, 2016



Figure 14. Craig Okahara-Olsen works with Dominique Cordy (not pictured) to create a map using GIS.

From June 28th through the 30th, the students were joined by Geographic Information System (GIS) Specialist Dominique Cordy. Dominique worked with each student to produce maps for their individual research projects (Figure 14; see appendix A). She also overlaid an 1891 map of the Pi'opi'o area onto a 2013 satellite

image, which allowed the students to go out and locate some of the Land Commission Awards that were awarded in the Pi'opi'o area. Introducing the interns to GIS was important because it is a CRM-related skill that is currently in high demand, both within CRM and other professions. Thus, by introducing them sooner to this technology, the interns may consider taking GIS classes in college.

## 2.12 Meet and Greet with Waiākea High School Summer Program – June 30, 2016



Figure 15. Interns meet with Waiākea High School summer school students

On June 30th, our interns had the opportunity to talk about their research and knowledge of Pi'opi'o to their peers from Waiākea High School (Figure 15). A group of thirty incoming high school freshmen, sophomores, juniors, and seniors came to Pi'opi'o to learn from our students and to help do some rubbish pick-up in the area. One of the summer school program instructors, David (Kāwika) Urakami, also connected us with his father, Alan Urakami, who grew up mauka of Pi'opi'o in Villa Franca. When the Waiākea summer program students left, we interviewed Mr. Urakami.

## 2.13 Friday Lunches with Faculty – August 17, August 24, and July 1, 2016

During the internship, three UH Hilo faculty members joined the students for informal talk story sessions. These faculty members were Dr. Kerri Inglis (History, August 17<sup>th</sup>), Drew Kapp (Geography, August 24<sup>th</sup>), and Dr. Kathy Kawelu (Anthropology, July 1<sup>st</sup>). Each faculty member shared their personal journey of becoming an academic with the students, as well as how they ended up in the fields that they now teach in. The faculty members asked the students questions about their research projects for the internship and their future plans, which allowed the faculty to give them advice on planning for the future.

The purpose of these faculty lunches was to introduce the students to some of the faculty of UH Hilo and various CRM-related disciplines. By meeting faculty in an informal setting, we hoped to encourage the students to reach out to their

professors in future classes, and perhaps, to pursue some of these CRM-related fields in future studies.

## 2.14 Hō'ike Preparations – July 1 to July 6, 2016

From July 1<sup>st</sup> through July 6<sup>th</sup>, the students worked on their presentations and final research papers. Prior to any of the students creating a PowerPoint presentation for the hō'ike, program instructor Halena Kapuni-Reynolds gave a presentation to the students on how to create well-organized and visually compelling presentations. This workshop taught students the basic skills in creating exciting presentations. This workshop was held on Friday, July 1<sup>st</sup>.

July 5<sup>th</sup> was when the students did their first practice run. In addition to receiving feedback from the program instructors, Bobbie Camara, a staunch supporter of WKIP, also came in to provide students with suggestions on how to make their presentations better. On July 6<sup>th</sup>, Dana Desoto, a Communications instructor at HCC, joined us for our second practice run. Once again, the students were given ample feedback to improve their presentations. Having multiple practice runs ensured that the students had time to practice giving their presentations, but also allowed for adjustments to be made so that their presentations were visually effective.

## 2.15 Community Hō'ike – July 7, 2016



Figure 16. Caleb Akau presents his research at the community hō'ike. Caleb used the method of repeat photography to examine changes in the Pi'opi'o landscape after the 1946 tsunami.

On July 7<sup>th</sup>, we hosted a community hō'ike at the Wailoa Center. The hō'ike introduced community members to the important historical and cultural significance of Pi'opi'o through the student's presentations (Figure 16 and 17). A total of 25 community members showed up for the hō'ike, many of which later commented on how impressed they were with each student's research project and professionalism. Lynn and Jill of the Lyman Museum were both so impressed, that they invited the students to present their research findings at the Lyman Museum's Saigo Lecture Series, a weekly program where the museum brings in community

historians and academics to talk about various topics related to Hawaiian natural and cultural history. The interns will be presenting their research on September 26th, 2016.

## 2.16 Last Day of the Internship – July 8, 2016



Figure 17. Interns and kumu at the community hō'ike.

The day following the community hō'ike was the last day of the internship. It was at this time that the instructors and interns conducted closing ceremonies at Pi'opi'o, allowing students to reflect on their experiences and to bring the internship to a close. Other than filling out post-internship evaluations, the students also spent this time finishing up their research papers. Initially, the expectation was that the students would produce a minimum five page research paper. However, through their diligence and hard work, all of these students surpassed

that expectation, producing research papers that were similar in quality to papers written by junior and senior undergraduate students (see appendix A).

Overall, this year's Wahi Kupuna Internship Program was successful on numerous fronts, and has prompted us to further consider the possibility of working with more high school students in the future. In our Chapter titled "Nā Pua A Pauahi – Target Population", we will discuss further the benefits and challenges of working with high school/early college students.

### 3.0 HO'OMĀHUAHUA PILINA – EXPANDING PARTNERSHIPS

Since the inception of the Wahi Kupuna Internship Program in 2010, the program prides itself on the partnerships and collaborations that share the same values and principles in the arena of preservation and land management. Our relationships with other like-minded organizations are crucial to program success as it develops trust between various groups and stakeholders involved in the management of wahi kupuna as well as providing our students opportunities to network with agencies or groups responsible for significant decision making of these properties. This year we were extremely fortunate to work with the Department of Land and Natural Resources – State Parks Division, Queen Lili'uokalani Children's Center, the Pacific Tsunami Museum and the Lyman Museum.

#### 3.1 Department of Land and Natural Resources – State Parks Division

*“Our relationships with other like-minded organizations are crucial to program success as it develops trust between various groups and stakeholders involved in the management of wahi kupuna as well as providing our students opportunities to network with agencies or groups responsible for significant decision making of these properties.”*

Each year the program has been fortunate to work with Kamehameha Schools Land Assets and the 'Āina Based Education Division in their efforts to empower and train the next generation of cultural resource managers in Hawai'i. In years past, we worked directly on Kamehameha Schools (KS) lands, but this year, we had an opportunity to work outside of KS lands as part of their larger effort stated within their current recent Strategic Plan. Therefore, our project site this year was located on lands cared for by the Department of Land and Natural Resources (DLNR) – State Parks Division. This land-based collaboration was a key partnership to allow access to do studies in the area as well as allow our program and organization to speak on the specific issues for the Pi'opi'o area as well as the broader and larger issues that are relevant to other state properties.

During program planning the Department of Land and Natural Resources - Hawai'i Island District Office was contacted in order to obtain access to do work in the area. Hawai'i Island State Parks Superintendent, Dean Takebayashi, approved a Special Use Permit. This initial contact provided an opportunity to establish a relationship with the Department and with greater hopes to continue

future relationships in doing more work in the area following the program.

However, the most significant opportunity that was provided to program staff and students was during the third week of the program when we traveled to O'ahu and were able to meet and present to the head of the department, Suzanne Case, and various division heads and staff within the agency (Figure 18). Organized and arranged by staff member, Lokelani Brandt and First Deputy Director, Kekoa Kaluhiwa, the students had the extraordinary opportunity to speak with important decision makers on the State level. These leaders were fascinated with the students' research and the work that was being done in the area. There was interest in conducting a follow up presentation after the program and a deep concern with the issues that were brought up by the students on the maintenance and management of the park. The exchange between the agency and program was positive and the presentations were well received.



Figure 18. Student presentations to the Department of Land and Natural Resources, June 22, 2016. From left to right: Lokelani Brandt (instructor), Aoloa Santos (instructor), Pua Case (Head of DLNR), Kurt Cottrell (Head of State Parks Division), Alan Carpenter (Assistant Director for State Parks), Holly McEldowny, Alohalani Maiava (2015 WKIP intern), Tusie'ana Berrios, Halena Kapuni-Reynolds (instructor), Natalie Keawekane, Alan Downer (Director of SHPD), Caleb Akau, Kekoa Kaluhiwa (Deputy Sheriff of DLNR), Craig Okahara-Olsen.

Meeting with DLNR was a valuable experience to all involved. The students expressed their appreciation for meeting and networking with people who are key to the decision-making processes concerning wahi kupuna. Meeting with these key individuals impressed on the students that the work they are doing helps positively impact the larger community and to those in executive level positions. It also helped to further efforts for future partnerships and collaborations between organizations and/or community members to help in the management of Pi'opi'o.

### **3.2 Queen Lili'uokalani Children's Center**

This year we were also very fortunate to establish a new partnership with a major Hawaiian organization, the Queen Lili'uokalani Children's Center (QLCC). Their involvement came from their relationship with the early college program with Waiākea High School and Hawai'i Community College of which they target Waiākea High School students. This year was particularly unique in that this was the first year we worked with a large Hawaiian organization and which provided funding that would allow our students to travel to O'ahu to conduct more research.

In their effort to support the students in their education, QLCC was particularly interested in learning more about our program and how they could support our programmatic efforts. An initial meeting during pre-planning was held with Kahea Stocksdales, a Social Worker with QLCC, and with Waiākea High School teacher, David "Kawika" Urakami and VISTA Transition Coordinator, Andre Frias. Partnering with a large organization like QLCC has been a program and organizational goal for Huliauapa'a and definitely a highlight for this year's program.

### **3.3 Lyman Museum and Pacific Tsunami Museum**

The project site this year has such a rich history from pre-contact to the plantation era. Key partners to help provide additional resources to the project were the Lyman Memorial Museum and the Pacific Tsunami Museum.

The Lyman Museum and Pacific Tsunami was an important resource as they provided many of the photographs pre and

post tsunami. The photos served to assist our students with their projects and the overall research of the area. Many of the photos provided a glimpse into the utilization of the area and the significant changes in landscape over time. Developing relationships with these institutions are valuable and an important resource to the community of Hilo. The students and Huliauapa'a staff were able to uncover many unknowns through the information that was gathered and was able to shed light on questions that were unanswered during the initial research process.

In visiting with these institutions the students were able to network with individuals that value history and perpetuating the stories of places. In the field of Cultural Resource Management there are many options to consider when developing your interests and career options. The students learned that museums are such a valuable source of information and in understanding history and those that work within these institutions are helping to perpetuate these significant stories. In addition, through the relationship established with the program, the students have been given the opportunity to present their research projects during a lecture series with the Lyman Museum. As part of the dissemination process, having the students present to the Hilo community is a major outcome for the program and organization's goals. As well as developing long term partnerships with these local institutions to support each other in our efforts to perpetuate Hilo's culture and history.

## 4.0 NĀ PUA A PAUHI – TARGET POPULATION

### 4.1 Recruitment Method

*“Working with high school-aged students is part of the goals of Huliauapa’a as discussed during the 2015 company retreat.”*

As mentioned previously, this year’s Wahi Kupuna program targeted students who are currently enrolled at or recently graduated from Waiākea High school (WHS). This is due to the fact that WHS is located in the same ahupua’a as Pi’opi’o (Waiākea). Working with high school-aged students is part of the goals of Huliauapa’a as discussed during the 2015 company retreat. It was realized early on that working with high school aged students would require a recruitment method that would differ from year past.

Additionally, there are two other reasons that we worked exclusively with Waiākea High School (WHS) students. Firstly, Lokelani Brandt, Communications Director for Huliauapa’a and Lecturer at Hawai’i Community College has worked with the Early College program at WHS since fall 2014. She taught Hawaiian Studies 100 – Piko Hawai’i from Fall 2014 to Spring 2015. Having worked with WHS for over a year, she established a good working relationship with the faculty and staff that works specifically with the Early College program.

In addition to the established rapport with WHS, the Early College program requires students to be dually enrolled at WHS and Hawai’i Community College. Essentially, students enrolled in the Early College program can gain college experience and earn college credits while in high school. In order for high school students to earn the college level credit through WKIP, they must be a registered student at either Hawai’i Community College, UH Hilo, or UH Mānoa. Therefore, working specifically with Early College students allowed WKIP to grant three IS199V credits to students who successfully completed all requirements of the program.

This year’s recruitment process involved several steps. First, it was clear to the staff of the WKIP that not all Early College students are academically and or psychologically prepared for the rigor and demands of this program. Therefore, the first step in recruiting students this year involved identifying potential students who met the following eligibility criteria:

- (1) Student must be attending or recently graduated from Waiākea High School
- (2) Student must be actively participating in the Early College program at WHS.
- (3) Student must be enrolled at Hawai'i Community College
- (4) Student must be in good academic standing (passing/passed all EC classes with a C or higher)

Lokelani worked with the staff and instructors of the Early College program to identify potential students. A total of seventeen invitation were handed out on February 8th and 9th, 2016 to eligible students. The one-page "Invitation to Apply" letter briefly outlined the program, however, the main goal of this letter was to invite students and their families to an orientation session to learn more about the program before applying.

The orientation session was held on February 18th, 2016 at Waiākea High School, with five students and their families in attendance. A 20-minute presentation was given by both Aoloa Santos and Lokelani Brandt, followed by a question and answer session. The presentation detailed the history of the program, program partners, as well as specifics for this year's program. Applications were handed out to all in attendance and parents, guardian and students were able to have their questions answered. Both Lokelani and Aoloa handed out their contact information to all in attendance. A sign in sheet was utilized to collect contact information for all in attendance.

The students completed the same application packet as students in years past, with the addition of the Minor's Work Permit, which is available for free through the Department of Labor and Industrial Relations website. All students had to submit the following forms:

- (1) WKIP Application
- (2) Two letters of Recommendation – One from a teacher and one from a family member
- (3) STAR Transcript of all college courses (unofficial transcript)
- (4) Essay
- (5) Resume

(6) Minors Work Permit

(7) Birth Certificate

Once the application along with all supporting documents were received, we contacted the students and parents via email and phone to schedule an in-person interview with both Lokelani and Aoloa. Interviews were held on April 4th, 2016 at Waiākea High School between the hours of 4:30pm-5:40pm. Upon completion of the interviews, students were selected and an offer letter was sent via email to all students. The offer letter informed students that they had been selected to participate in this year's program in addition to requiring them to attend a 1-hour orientation/consent form meeting. The letter also informed parents and students on the appropriate forms to bring with them to the upcoming meeting.

The orientation/consent form meeting was held on April 25th, 2016 from 5:00 to 6:00pm at the Queen Lili'uokalani Children's Center (QLCC) conference room in Hilo. The purpose of the meeting was to allow all finalist and their families to meet each other as well as complete all the necessary waivers and forms for both Huliauapa'a and QLCC. This meeting allowed both agencies to hand out all required forms and collect all forms at the end of the meeting.

From start to finish, the intern application process took approximately two and a half months to complete, with a month dedicated to application submissions. Based on this process, we have found the meetings with the families to be important in establishing rapport and building trust with both the program alaka'i and the WKIP itself. These meetings allowed for the parents to get involved with their child's learning and to ask questions. This helped to create a sense of transparency between the families and program.

Communication was one of the main challenges that we faced, especially at the beginning of the application process. In the past, we have relied solely on email as the main form of communication between Wahi Kupuna staff and potential interns. Because most high school students are not actively checking emails on a regular basis, communicating

*"We have found the meetings with the families to be important in establishing rapport and building trust with both the program alaka'i and the WKIP itself."*

*"Text messaging was an effective way to receive immediate feedback from students. Often times, the text messages was used to inform students to check their email for information regarding the program."*

information with them via email was challenging. To overcome this challenge, we utilized both email and text messaging to the child and parent/guardians. Text messaging was an effective way to receive immediate feedback from students. Often times, the text messages were used to inform students to check their email for information regarding the program. Utilizing a sign in sheet at the initial orientation session was useful for gathering the preferred method of communication.

## **4.2 Assessment of Students**

Throughout the course of the internship, we utilized a range of evaluation tools to evaluate each student's progress. Listed below are some of our findings and recommendations for future programs.

## **4.3 Student Evaluations**

Two evaluations, one at the beginning of the program and another at the end, were filled out by the interns. The first evaluation was conducted on June 4th, 2016, and allowed the students to define Cultural Resource Management from their own perspective, in addition to describing their initial expectations of the program. The second evaluation was completed on July 8th, 2016. This latter evaluation focused on obtaining feedback from the students regarding their overall experience in the program. Both evaluations were administered through Google Forms. Students used their cellphones to fill out the pre-evaluation and their program laptops to fill out the post-evaluation. We found that Google Forms streamlined the evaluation process as a whole.

## **4.4 Student-Set Goals and Program Expectations**

Two questions were asked to assess the students' expectations coming into the program:

- (1) What do you hope to learn from this program?
- (2) What kind of skills or topics do you hope to learn in the weeks to come?

These questions allowed the WKIP kumu to assess what each student expected to gain from participating in the program.

*“The high school students who participated this year expected the Wahi Kupuna Internship Program to be a rigorous Hawaiian cultural-enrichment experience geared towards community engagement, professional development, and academic development.”*

Student responses to these question varied, from expecting to learn more about Hawai‘i’s history, to gaining professional skills, or figuring out whether or not they wanted to pursue studies in Cultural Resource Management in college. Specific professional skills that students wanted to learn included how to present in front of large groups and how to conduct better research in a professional manner.

Students were also asked to set three personal goals for themselves to accomplish during the internship. These goals also provided the kumu with an idea of other expectations that students had for the program. These goals included:

- (1) Professional development
- (2) Learning more about Hawai‘i’s history
- (3) Making new friends,
- (4) Developing a deeper understanding of Hawaiian culture
- (5) Staying motivated throughout the course of the internship.

Lastly, two of the students set personal goals to connect with or make an impact in the community. These community-oriented goals, in addition to other students’ responses to the skills that they hoped to learn throughout the course of the internship, provided the kumu with an idea of the each student’s initial impression of the Wahi Kupuna Internship Program. The high school students who participated this year expected the Wahi Kupuna Internship Program to be a rigorous Hawaiian cultural-enrichment experience geared towards community engagement, professional development, and academic development.

#### **4.5 Most Interesting Activities**

Using a scale from 1 to 4—1 being the most interesting and 4 being the least interesting—students were asked to rate each activity that they participated in throughout the internship. These seven activities received a “most interesting” rating from all of the students (Figure 19).

From these results, we know that the students highly valued the multiple presentations they gave throughout the internship. In the third week, students shared their research

project topics with the head personnel of the Department of Land and Natural Resources. In their evaluations, one of the students expressed the following sentiments regarding their DLNR visit:

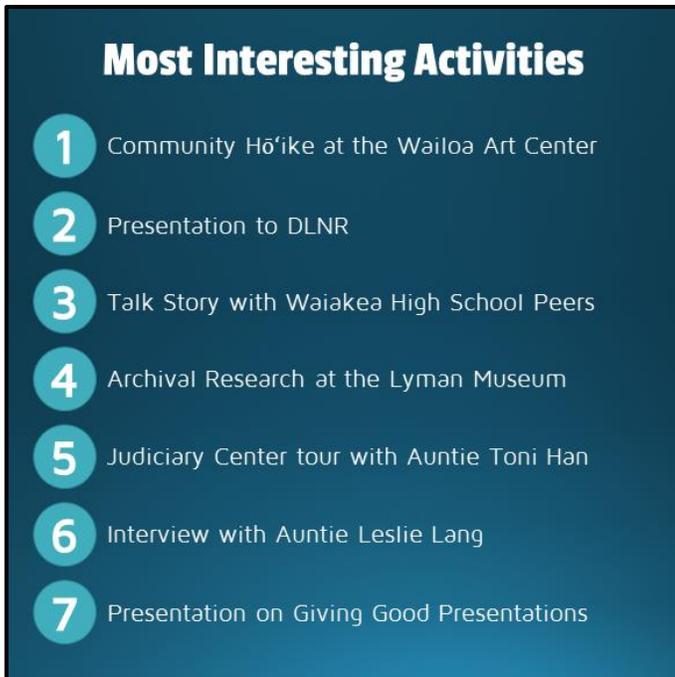


Figure 19. Infographic showcasing the seven most interesting activities.

*"I enjoyed the DLNR presentation because I believe that we made a difference and got our words and feelings heard by important people that can help us make a positive change for Pi'opi'o."*

In the fourth week, they were able to share the history of Pi'opi'o, and their experiences as WKIP interns, with their peers from Waiākea High School. Lastly, the students presented their final projects on the last week at the community hō'ike. Allowing the students to present on multiple occasions benefited the students because it allowed them the opportunity to articulate their thoughts and project ideas overtime. These presentations also informed the students as to how to organize and write their research papers.

Other activities that were highly valued by the students were our visits to various museums, such as our archival research day at the Lyman Museum with Lynn Elia and our guided tour of the Hawai'i Judiciary Center with Auntie Toni Han. We suspect that the students enjoyed these visits because they felt welcomed by the museum staff and were encouraged to access resources and information in each museum space.

#### 4.6 Least Interesting Activities

Determining which activities to include as "least interesting" was challenging because the students rated most of the activities as either "somewhat interesting", or "most interesting" (Figure 20). Of the three least interesting activities, the museum exhibit analysis worksheet was the only activity that was given a "not interesting" rating by three of the students. The other two activities, the Friday writing workshop and the oral history workshop, received three "somewhat interesting" ratings. The museum analysis

worksheet was meant to assist the students in becoming critical museum visitors. Students were required to fill out the worksheet at the Pacific Tsunami Museum and the Lyman Museum as they toured through the exhibits. In hindsight, this worksheet may have been more of a distraction for students; they had to fill out the worksheet rather than enjoy the exhibits.



Figure 20. Infographic showcasing the seven least interesting activities.

The second least interesting activity was the Friday writing workshops with HCC English Instructor Rebecca Jacobs. 2016 was the first year that a writing workshop series was incorporated into the program curriculum. The intent of the writing workshops was to assist the students in writing each section of their final paper.



Figure 21. Students demonstrate the he'i "A pō ē."

In another evaluation questions, the students were asked to explain whether or not they found the Friday writing workshops to be useful. Student responses to this question varied from "yes" to "somewhat helpful". Some of the students also noted that traditional language art instruction, i.e. when a kumu lectures students on how to write and organize their research papers, made the workshops mundane and repetitive. When asked how the writing workshops could be

improved, the students suggested that there be less writing workshops that are shorter in length. The Wahi Kupuna kumu also discussed developing section-specific worksheets for students to fill out each week as an alternative to traditional lecture-style teaching on language arts. These worksheets would allow the students to write one or more sections of their research papers every week, and would allow kumu to provide ample feedback to the students well before the research paper due date.

Note here that the writing workshops were also accompanied by lessons in he'i, or Hawaiian string figures. This activity was highly rated by the students (Figure 21). As Jacobs explained to the students, he'i is a way for students to

*"[Making he'i was]... very relaxing and I felt a strong connection with them. I hope to do them in the future as a means of doing better work."*

*- 2016 WKIP Intern*

center oneself and regain focus if they are feeling frustrated with their papers or presentations. The kumu also observed that the hei provided students with a refreshing break from their mundane (but necessary) task of research and writing on Fridays. One of the students also listed Hei as one of the activities that they enjoyed the most:

*"[Making hei was]... very relaxing and I felt a strong connection with them. I hope to do them in the future as a means of doing better work."*

#### **4.7 Producing Quality Research Papers with High School Students**

*"In my research project, the most crucial role beside mines, was my kumus. Without them I would have been lost, hungry, lazy, confused, and I would not have put as much quality and effort into my project."*

- 2016 WKIP Intern

Since our interns this year were just starting their career as college students, the low student to instructor ratio allowed the kumu to work intimately with each student to improve their writing, research, and presentation skills. In their post-program evaluations, the students noted their appreciation of being able to work one-on-one with their teachers. As expressed by one of the interns:

*"I had help with my archival research, understanding what was expected, finding historical photos, support, answers to all my questions, and also, a positive environment. In my research project, the most crucial role beside mines, was my kumus. Without them I would have been lost, hungry, lazy, confused, and I would not have put as much quality and effort into my project."*

Responses such as the one above reified the importance of working closely with each student on their presentation and research paper. Similar to previous years, the students also received ample feedback from their kumu prior to their community hō'ike. Presentation practice runs ensured that each presentation was conducted in a professional and cohesive manner.

However, the main difference between this year and previous years was that the 2016 interns were required to finish their research papers by the end of the internship. This accelerated timeline ensured that the students papers were completed on time under kumu supervision. Writing, editing, and submission of the students' research papers were facilitated through Google Docs. Using Google Docs proved

to be an effective tool because kumu could provide students with feedback on their papers, reduced paper waste, and allowed the kumu to access each student's papers at any time. For these reasons, we believe that students should continue utilizing Google Docs to write their research papers.

#### **4.8 Changing Definitions of Cultural Resource Management: Student Progress and Outcomes**

*"Cultural Resource Management is about informing people of an important place's history, and then taking care of that place because of what you know and learned."*

*- 2016 WKIP Intern*

At the beginning of the internship, students were asked to define Cultural Resource Management from their own perspective. Students generally defined CRM as the management of resources that is of value to one's culture—whether it be a specific place or thing. One of the students also defined CRM along the lines of natural resource management, as "caring for one's community resources like... rivers, forests, and oceans." Another student defined CRM as a field that ensured the wellbeing of natural and cultural resources for future generations.

When asked this same question at the end of the Wahi Kupuna Internship Program, student responses dramatically changed (see Table 2). Here, we see that the students' responses became less generalized, and more oriented towards personal commitment to cultural sites and community-engagement. For example, one student defined CRM in the following manner:

*"Cultural Resource Management is about informing people of an important place's history, and then taking care of that place because of what you know and learned."*

This definition demonstrates a sense of kuleana that the students developed to protect the cultural and natural resources of Pi'opi'o. By learning about Pi'opi'o's significant cultural landscape, the students now have kuleana to educate others and to protect the natural and cultural heritage of this Hilo landmark.

Another student specifically defined CRM in terms of kuleana to place, and provided the following passionate definition:

*"Cultural Resource Management is a field that everyone should consider joining because it's our land that were trying to preserve and manage. Our land shouldn't be sold, forgotten"*

*"Our land shouldn't be sold, forgotten or neglected. It should be cared for and protected and that's exactly what I feel Cultural Resource Management is. Taking care of the kuleana to your 'āina so that no one else or nothing else can take it from you."*

*- 2016 WKIP Intern*

*or neglected. It should be cared for and protected and that's exactly what I feel Cultural Resource Management is. Taking care of the kuleana to your 'āina so that no one else or nothing else can take it from you."*

The student who wrote this definition was the most challenging student to work with throughout the course of the internship. In the first four weeks of the internship, this student did not engage fully in the internship. Getting the student to proactively conduct research on their individual project also proved to be difficult. In their post-internship evaluation, the student expressed their lack of interest in their individual research project:

*"In the beginning of my research project, I felt lost. I didn't know what I was doing. I didn't wanna ask questions...It started to make me frustrated and angry because I didn't know what the point of my project was."*

The student's mindset changed when the student was given the opportunity to meet with Uncle Jerry Konanui, a specialist in kalo cultivation. Meeting with Uncle Jerry led the student to the realization that her project meant something to members in the community; it prompted her to work hard in the last week to produce a stellar research paper and presentation:

*"It wasn't until the last remaining week of the program that I realized what this project meant to me. This project was so important to our community, to my ancestors, and I didn't want to neglect it. I didn't even give myself a chance to try and work on the project. I gave up. But, with the help of my instructors, I was able to click and connect more with my project. And now, it's one of my biggest accomplishments that my family and I are proud of."*

Of all the interns in this year's program, this student demonstrated the most growth, producing a high quality 20-page research paper and a professional presentation on the historical use and potential revitalization of kanu kipi, a traditional taro cultivation method that was used in 19th-century Pi'opi'o.

The other three students also showed personal growth and development throughout the course of the internship. Their progress was fully demonstrated during the community hō'ike, when they presented their research projects to the public in a professional manner (Figure 16, see page 22). As previously mentioned in the program narrative, the intern's presentations were so well received, that they were invited to present their papers as special lecturers of the Lyman Museum's Saigo Lecture Series.

Each student's research paper also spoke to their professionalism and commitment to the program. At the start of the program, we initially planned for the students to produce 5-page research papers. However, each student surpassed this page maximum in order to write 10+ page college-level research papers with figures and references cited.

*From your mana 'o (perspective), what is Cultural Resource Management?*

	<u>Pre Internship</u>	<u>Post Internship</u>
<b>Haumāna 1</b>	I think Cultural Resource Management is being able to see what resources you have and manage them well.	Cultural Resource Management is a field that everyone should consider joining because it's our land that were trying to preserve and manage. Our land shouldn't be sold, forgotten or neglected. It should be cared for and protected and that's exactly what I feel Cultural Resource Management is. Taking care of the kuleana to your 'āina so that no one else or nothing else can take it from you.
<b>Haumāna 2</b>	Cultural resource management is when someone or a group of people want to maintain a place/thing that is of value in their culture.	Cultural Resource Management is about informing people of an important places history, and then taking care of that place because of what you know and learned.
<b>Haumāna 3</b>	In my opinion I think that cultural resource management is preserving and caring for ones community resources like it's rivers, forests, and oceans.	Cultural resource management is researching an area and finding out what it has to offer. It is then finding a way to protect that land and keep it intact.
<b>Haumāna 4</b>	Cultural resource management is taking care of the land and resources on the place we live in. It is also about making sure the next generations can experience the same or better than us. It is all about the future and what our generation will be remembered for.	In my opinion, cultural resource management is when one's culture and environment is preserved and improved with the help of the community. It also ties in with preserving and informing about the history of an area so that people can make a connection that will lead them to help preserve their culture and environment.

Table 2. Student definitions of Cultural Resource Management before and after the program.

## 4.8 Other Forms of Assessment

### Palapala loiloī haumāna

– Student behavioral assessment

In addition to the student evaluations and research papers, there were other forms of assessment that were implemented to track each student's progress. These assessments included a **palapala loiloī haumāna**, and the various opportunities for the students to share their research with others in both formal and informal settings. The latter form of assessment is based primarily on each instructor's observations on the development of each student throughout the course of the internship.

The palapala loiloī haumāna was a tool that we developed in order to track the development of each student in seven behavioral areas which included:

1. **Lawena** - Student demonstrates mannerisms that are conducive to learning
2. **Pilina** - Student demonstrates a desire to interact and work along side peers and teachers.
3. **Lu'u i ka hana** - Student demonstrates a willingness to learn and engage in different types of learning.
4. **'Imi Na'auao** - Student demonstrates a desire to seek knowledge from multiple sources.
5. **'Auamo Kuleana** - Student knows and fulfills responsibilities.
6. **No'ono'o i ka nui** - Student value what is good for the group as a whole, not just one's own personal interest.
7. **'Imi i ka ho'oikaika** - Student strives for improvement.

At the end of each week, the program instructors sat down and filled out a palapala loiloī haumāna for each student. A four-scale ranking system was used to determine if students did not meet, were developing, met, or exceeded in each of the seven behaviors.

**Mana'o**: Any thought or opinion.

One of the benefits of tracking each student's progress in this manner was that it allowed the program staff to share their **mana'o** about each student's development. By discussing student behaviors on a weekly basis, the instructors were able to adapt the program where needed in order to address concerns like lack of communication between the sexes, excessive cellphone use, and general laziness.



Figure 22. WKIP intern Craig Okahara-Olsen presenting his project on two environmental issues facing the Wailoa River Estuary.

In summary, we found that each student either met or exceeded in all seven behaviors by the end of the internship program. These observations were further supported by another form of assessment: The community hō'ike and other public speaking opportunities.

On two separate occasions, the students shared their research and experiences to their peers from Waiākea High School and to the larger community at the community hō'ike. At the community hō'ike, the students made evident their progress throughout the internship by demonstrating their articulateness and professionalism as they

talked about each of their research projects (Figure 22). After the hō'ike, many of the community members who were present expressed how impressed they were with each student's presentation.



Figure 23. Interns talking to students from Waiākea High School.

Lastly, through the student evaluations, we learned that the students highly valued the opportunity to speak with their peers about working in Pi'opi'o (Figure 23). This gathering served as a significant assessment of the students because it allowed the program staff to observe how the students interacted with their high school peers.

Our observations were that the students excelled in maintaining their professionalism with their peers. They thoroughly talked about their experiences in working at Pi'opi'o, but also demonstrated a willingness to take

on the role of **alaka'i** in taking groups of students throughout the park. We also observed how each student developed a sense of **kuleana** to tell their peers of the importance of the Pi'opi'o area to the community of Hilo.

## 4.9 Discussion

In conclusion, we found Google Forms to be a useful evaluation tool for gauging students' expectations coming into the program as well as their thoughts regarding their

experiences throughout the internship. We highly recommend utilizing Google Forms and other Google products for future programs.

**Alaka'i** - Leader

**Kuleana** - Responsibility

*"This program introduced me to the stress and amount of hard work college students go through but it also showed me the perks of being a college students, such as being able to meet amazing professors, having access to a vast amount of knowledge and creating a network of people to reach out to when in need of help."*

- 2016 WKIP Intern

Since this year was the first time that the internship was designed for early-college high school students, one of our program goals was to further encourage the students to pursue higher education, whether that be in the field of Cultural Resource Management or not. In their evaluations, some of the students did share how the internship prepared them for college. One student expressed interest in pursuing Archaeology as a major in their collegiate studies as a result of being a Wahi Kupuna intern. This student also explained how the WKIP better prepared him for college life:

*"...I gained so many crucial skills that will for sure help me in college. For instance, I have learned how to do more extensive research, put pride in my work, give better presentations, be more independent, network with people, and how to reach out for support. I also learned about different courses and subjects that I am now considering to take in the future."*

Another student also commented that the program better prepared her for conducting college-level research, a skill which most students going into college lack. Lastly, another student provided the following response:

*"This program introduced me to the stress and amount of hard work college students go through but it also showed me the perks of being a college students, such as being able to meet amazing professors, having access to a vast amount of knowledge and creating a network of people to reach out to when in need of help."*

Networking and reaching out to professors for advice and help were two things that we emphasized throughout the program, and we are glad to hear that the students were able to take this lesson, and many others, and apply them. These results speak to the Wahi Kupuna Internship Program's capabilities of providing students with quality training in CRM skills and techniques that are transmutable to other career fields, and preparing students for further collegiate studies.

## 5.0 HO 'OKAMA'ĀINA – SITE BACKGROUND

### 5.1 Project Location

Located on the east side of Hawai'i Island, in the ahupua'a of Waiākea, is the 'ili kūpono of Pi'opi'o (Figure 24). Waiākea is further located in the moku (district) of Hilo, bounded on the north by the ahupua'a of Kūkūau 1, and the south by both Kea'au and 'Ōla'a. Both Kea'au and 'Ōla'a are located in the moku of Puna with 'Ōla'a taking up the mauka (upland) portion, while Kea'au is situated makai (seaward) of 'Ōla'a. The name Waiākea can be literally defined as "broad or expansive waters" (Pukui *et al.* 1974, 219). Waiākea is also

the name of a kalo variety that also referred to as lehua ke'oke'o (Pukui & Elbert 1986, 377; Maly 1996, 4).

Other than the many ahupua'a of Hilo, the moku is also divided into three major regions. The first region is Hilo Palikū, which translates to "Hilo of the upright cliffs." This region is defined as the land north of the Wailuku River where the pali (cliffs) are the dominant feature on the landscape. The second region is Hilo One, which translates to "Sandy Hilo." This region describes the sandy coast of Hilo, which runs along the extent of Hilo Bay. The final region is Hilo Hanakahi or "Hilo of the [chief] Hanakahi." Hilo Hanakahi consists of all ahupua'a south of the Wailuku River. The project location is situated in both Hilo One and Hilo Hanakahi. Pi'opi'o is located along the western margins of the Wailoa River and consists of both land and aquatic resources.

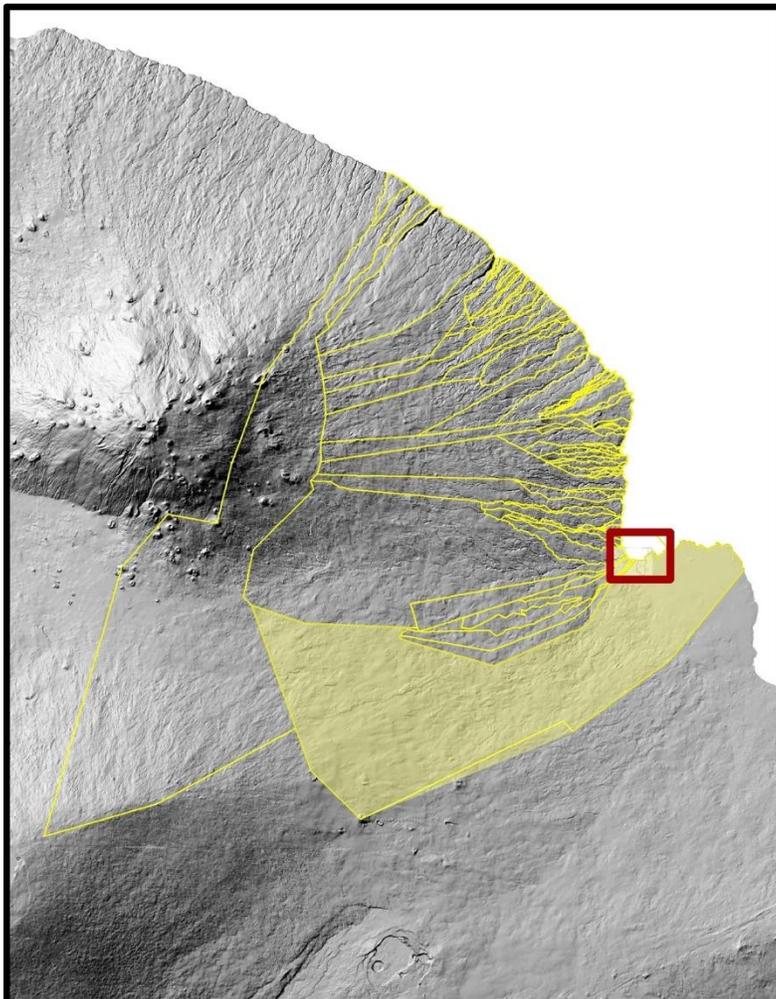


Figure 24. Ahupua'a boundaries with project area in red.

## 5.2 The Natural Landscape

### *Kai- Ocean*

Hilo Bay is a defining feature of Hilo and it also marks the northern boundary of Pi'opi'o (see Figure 24). Pukui and Elbert defines "hilo" as to twist, or braid (1986:70). Some mo'olelo (stories) suggest that Hilo got its name from an incident that occurred with the chief Kamehameha I. It is said that Kamehameha ordered his men to guard his canoe that was at the mouth of the Wailuku River until his return. After waiting for some time, the men began to worry about the king's whereabouts, and decided to search for him. As the mo'olelo goes, the men braided ti-leaves (hilo) and made cordage to moor the king's canoe (Reed 1987:11).

Pukui and Elbert also define Hilo as being derived from a famous navigator named Hiro as well as the name of the first moon to appear in the series of Hawaiian lunar phases. Reed also suggests that Hilo earned its name from the crescent shaped bay that resembles the physical shape of the first lunar phase.

Hilo Bay is a large crescent shaped beach with black sand and is connected directly to the Pacific Ocean. The extent of the beach is defined by the Wailuku River on the northwest end and on the southeast end by the Wailoa River. Nine watersheds drain directly into Hilo Bay, thus bringing with it rich nutrients and runoff that contribute to the bay's turbid nature (USDA 2015).

Hilo Bay is also partially protected by a large reef. The reef was named Blonde Reef in 1825 by Ka'ahumanu, in honor of the *HMS Blonde*, the vessel that returned the bodies of the mō'i (king), Liholiho (Kamehameha II) and his mō'i wahine (queen), Kamāmalu from London after both passing of measles (Clark 1985:22). Lord George Byron captained the *HMS Blonde*, thus, Hilo Bay was also nicknamed Byron's Bay.

Between 1908 and 1929, a breakwater measuring 10,070 ft. was built on Blonde Reef as a safety precaution to protect the Hilo harbor (ibid). Although the construction of the breakwater was important for maintaining the integrity of the harbor, it drastically altered the circulation and general

movement of water, nutrients and sediments in the bay. The breakwater not only protects Hilo town from large surf and disasters like tsunamis, but it also inhibits the bay from being thoroughly flushed out, resulting in the accumulation of sediment, nutrients and pollution. Under current state and federal water quality standards, the waters of Hilo Bay are considered to be “quality impaired” (Silvius *et al.* 2005:9). The major pollutants identified in a 2015 study are sediments, nutrients (primarily nitrogen), as well as fecal contamination (*ibid.*). Identification of these issues have resulted in a watershed-based restoration plan for Hilo Bay (see study by Silvius *et al.* 2005).

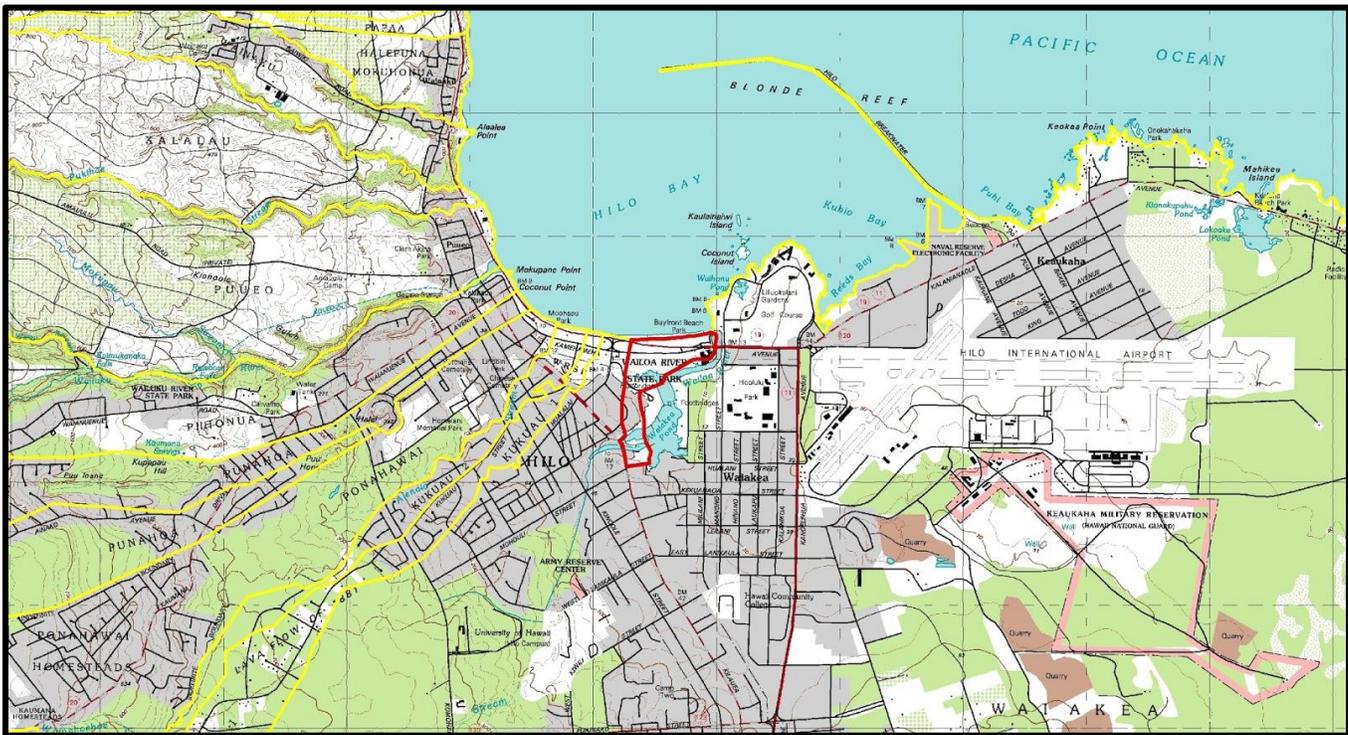


Figure 25. Portion of 1995 U.S. Geological Survey (USGS) 7.5' topographic map, Hilo Quadrant, with Pi'opi'o boundaries outlined in red.

### Wai- Water

Pi'opi'o is part of the Wailoa River Watershed, which is 255.4 square kilometers with a maximum elevation of 2964 meters. Wailoa River is one of the nine watersheds that empties into Hilo Bay. Pukui and Elbert's (1986:379) literal translation of Wailoa is “long water.” Wailoa is characterized as a perennial stream, meaning that water flows

continuously year round. The length of the Wailoa River is 40.6 kilometers with a terminal stream order of 3.

A total of four streams occur in the Wailoa River Watershed. They are: 1) flood channel, 2) Ka’ahakini, 3) Waiākea and 4) Wailoa. (Parham *et al.* 2008:1046). The Wailoa Stream feeds into the naturally formed pond known as Waiākea.

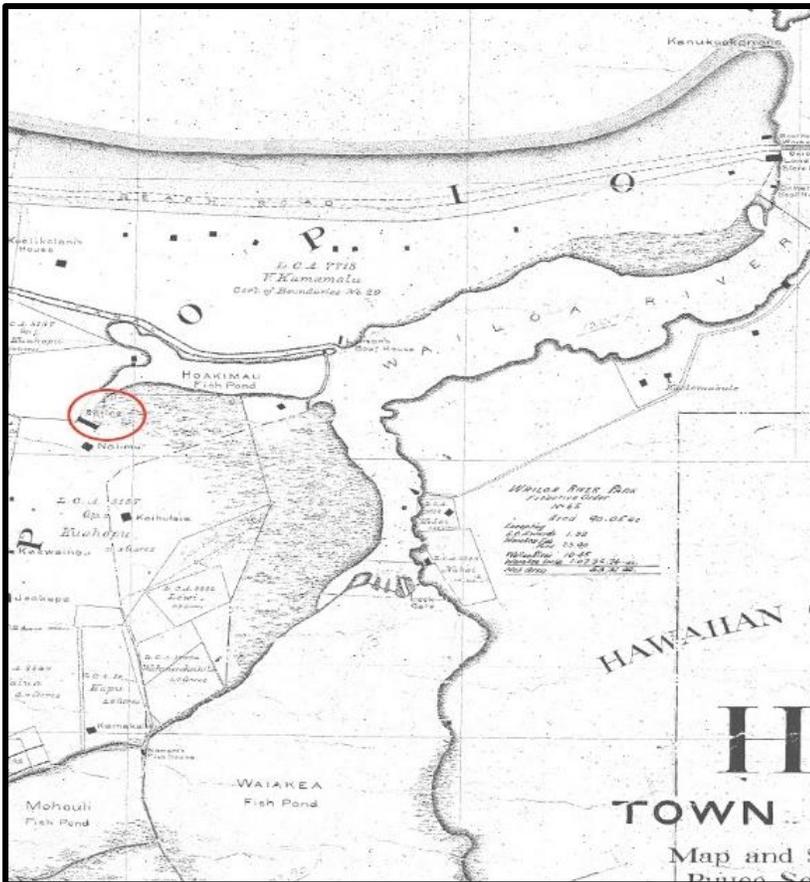


Figure 26. Registered map 1561 ca. 1891 showing the location of a spring in red circle.

The Waiākea Pond contains several smaller inlets that historically were converted and used as fishponds. Stone walls were constructed in the water and typically followed the natural curvature of the land. The walls extended from land to land to form an enclosure. A total of four additional fishponds were constructed in and around the Waiākea Pond and Wailoa River. Their names are Hoakimau, Mohouli, Waihole and Kalepolepo. Waiākea Pond was also used historically as a fishpond and it is the largest fishpond at 28 acres (Kikuchi 1973:263). The water from Waiākea Pond flows back into the Wailoa River, where it is then

deposited into Hilo Bay. Because the ponds are situated at sea

level, the water level in the ponds remains relatively stable, fluctuating with the tide. However, if there is an influx of freshwater input via heavy rains, the water level rises well above the high water mark.

Water in Pi’opi’o can be found both above and below ground. Several naturally occurring springs are found in and around the ponds. Figure 26 shows a recorded spring on an 1891 map by W.D. Alexander. Although the Wahi Kupuna team was not able to locate the origins of this particular spring, we did identify another spring that was not noted on the 1891

map. This finding will be discussed in greater detail in a subsequent section.

### ***Ua – Rain***

For long time Hilo residents, rain is much appreciated, honored, and celebrated in many songs, chants, and names. The following is a list of rain names specific to the Hilo One, Hilo Hanakahi and areas within Waiākea, including Mokuola and Paikākā (see table 3). The table below is not exhaustive, and does not include rain names that were classified as being specific to “Hilo.” Hilo is a very large land area, and it would be misleading to include all rain names for this moku. For a comprehensive list of rain names, refer to Gonzalez 2015. The information in the table has been derived from Akana and Gonzalez’s 2015 book *Hānau Ka Ua: Hawaiian Rain Names*.

### ***Huli Honua- Geology***

Pi’opi’o is situated between sea level and 10 meters above sea level. The ponds are situated below sea level, thereby creating a natural basin for both freshwater and saltwater to accumulate. A 1996 geologic report published by Wolfe and Morris for Hawai’i Island indicates two types of geologic deposits for Pi’opi’o. The northern margin of Pi’opi’o, sits along Hilo Bay, along black sand beach which is comprised of alluvium and colluvium (ac) deposits from the Holocene and Pleistocene eras. The alluvium and colluvium deposits are described as “sand and gravel distributed locally by running water and downslope movement; also includes local eolian deposits and coralline beach sand” (Wolfe and Morris, 1996, 16). A portion of the southwest end of Pi’opi’o is part of the Mauna Loa volcanic flows (k10) and date between 5,000-10,000 years old (11). This deposit has been described by Lipman and Swenson in their 1984 study as “basalt flows interlayered with discontinuous lenses of weathered Pahala-like basaltic ash” (cited in Wolfe and Morris 1996: 12).

Rain Name	Location	Description	Page
Hāleu'ole	Mokuola	Rain associated with Mokuola, Hawai'i, and with East Maui. "Hālau 'ole" means "without toilet paper" and refers to not having enough time to wipe because the rain is so sudden.	33
Hukihe'enehu	Huia, Paikākā, Pūnāhoa	Same as <i>He'enehu</i> . Rain associated with Hilo, Hawai'i. "Hukihe'e nehu" refers to a fine-meshed net for catching nehu fish...	43
Kēwai	Hilo Hanakahi	Misty rain. Also the name of a wind. "Kēwai" means "watery, misty, and dew-laden."	77
Kua'o'e	Hilo, Mokuola	Rain associated with Hawai'i and O'ahu. The rain name appears as "Kua-o-e" in an 1862 Hawaiian language newspaper (Pawai)	125
Kukupā'u	Hilo Hanakahi	Or Kūkūpa'ū or Kukupau. Rain associated with Hawai'i and Kaua'i. "Kukupā'u" means "to do with zest." "Kuku pa'ū" means "to beat overlaid kapa." "Kuku pau" means "to beat completely," as kapa.	131
Nāulu	Hilo Bay, Hilo Palikū, Kahelo, Kawaihae, Kona, Mauiola, Maunakea, Pana'ewa, Waipi'o,	Sudden shower; associated with Kawaihae, Hawai'i, and with Ni'ihau, and found in other areas. Also the name of a shower cloud and a wind.	187
Ulumano	Hilo Hanakahi, Pana'ewa	Rain associated with Hilo, Hawai'i. Also the name of a wind.	270

Table 3. Rain names associated with Hilo Hanakahi, Hilo one, and Waiākea.

### 5.3 Nā 'Ōlelo No'eau O Waiākea

'Ōlelo no'eau (Hawaiian proverbs) provide valuable insight into many aspects of Hawaiian culture. They can be utilized to learn about Hawaiian language, history, places, beliefs, and mannerisms. The following 'ōlelo no'eau were selected from Mary Kawena Pukui's book *'Ōlelo No'eau: Hawaiian Proverbs and Poetical Sayings* (1983). These 'ōlelo no'eau were included in this report as a way to gain an understanding of some of the traditions that are part of Waiākea's extensive history.

**Hanane'e ke kīkala o ko Hilo kini; ho'i lu'ulu'u i ke one o Hanakahi (463).**

*The hips of Hilo's multitude were sagging as they returned, laden, to Hanakahi.*

Used to express the weight of grief, or to mean that a person has a heavy load to carry. Lines from a chant entitled, "Hoe Puna i ka wa'a."

**Hanu'u ke kai i Mokuola (473).**

*The sea recedes at Mokuola.*

Now is the opportune time to venture forth. Mokuola, now known as Coconut Island, is a small island in Hilo Bay believed to have curative influences. The sick who swam around it recovered, and a person who could swim around it three times under water would have a long life. When the sea receded, one could swim part way around with little effort.

**He hālau loa na Ī (561).**

*A longhouse belonging to Ī.*

Ī was a wise and generous chief and because he was an ancestor of many, he was referred to as the owner of the longhouse in which all were sheltered. Ī also had a large longhouse in Hilo called Ī-hālau, and a fish station at sea called Ī-ko'a. It is said that when those of Ī-hālau closed their food bowls all at once after eating, the sound could be heard at Ī-ko'a.

**Hilo Hanakahi (999).**

*Hilo, land of Hanakahi.*

Hanakahi was the name of a chief of Hilo in ancient times.

**Hilo mahi ha'aheo (1003).**

*Hilo of the proud farmers.*

The climate makes the soil of Hilo very easy to till, so the farmers used to make a game of planting. They used long digging sticks to make the holes and wore *lei* to work. Working in unison, they made a handsome picture.

**Ka hālau a Ī (1292).**

*The house of Ī.*

The descendants of Ī, who extended through Hāmākua, Hilo, Puna and Ka'ū. One of these was Īmakakoloa, who was condemned to death by Kamehameha. According to the

historian Kamakau, Īmakakoloa was put to death in Kama'oa. But according to the people of Ka'ū, a junior kinsman of similar appearance was substituted at the execution.

**Ka ua he'e nehu o Hilo (1551).**

*The nehu-producing rain of Hilo.*

The people knew the season when the schools of *nehu* fish followed the rain.

**Ke kai leo nui o Paikaka (1728).**

*The loud-voiced sea of Paikaka.*

Paikaka is in Hilo.

**Ke one 'apana o Waiolama (1773).**

*The sparkling sand of Waiolama.*

This expression much used in chants of Hilo, Hawai'i. Waiolama is a place between and the town of Hilo. It was said to have sand that sparkled in the sunlight.

**Ke one wali o 'Ohele (1780).**

*The fine sands of 'Ohele.*

'Ohele is a place in Hilo on the town side of Waiākea, often mentioned in chants of that locality.

**Lei Hanakahi i ke 'ala me ke onaona o Pana'ewa (1969).**

*Hanakahi is adorned with the fragrance and perfume of Pana'ewa.*

The forest of Pana'ewa was famous for its *maile* vines and *hala* and *lehua* blossoms, well liked for making *lei*, so Hilo (Hanakahi) was said to be wreathed with fragrance.

**Like no i ka la'i o Hanakahi (1999).**

*All the same in the calm of Hanakahi.*

There is unity; all are as one. A play on *kāhi* (one) in the place name Hanakahi.

**Lu'ulu'u Hanakahi i ka ua nui (2033).**

*Weighted down is Hanakahi by the heavy rains.*

Hanakahi, Hilo, was named for a chief of ancient times. This expression was much used in dirges to express heaviness of the heart, as tears pour like rain.

**Me he makamaka la ka ua no Kona, ke hele la a kipa i Hanakahi (2154).**

*The rain is like a friend from Kona-- it goes and calls on Hanakahi.*

These are two lines from an old chant used to express a friendly visit with one who dwells in a distant place.

**Nā niu ulu ao'a o Mokuola (2281).**

*The tall, slim coconut trees of Mokuola.*

Mokuola (now called Coconut Island) in Hilo, is a place where pandanus and coconut trees were numerous.

**Ua malino ke kai o Paikaka (2826).**

*The sea of Paikaka is calm.*

All is peaceful now, for wrath is gone.

**Waiākea pepeiao pulu 'aha (2901).**

*Waiākea of the ears that hold coconut-fiber snares.*

Snares for small fish, shrimp, or crabs were made of coconut midrib and the fiber from the husk of the nut. When not in use the snare was sometimes placed behind the ear as one does a pencil. This saying is applied to one who will not heed-- he uses his ears only to hold his snare.

#### **5.4 Ka Wā Ka'ao- Mythological Accounts**

The following section details three mo'olelo that mention places near and around the Pi'opi'o area. The mo'olelo is presented first, followed by a table of place names that correspond to a place names map. It is important to note that these mo'olelo do not make direct reference to the name Pi'opi'o, however, a number of place names are mentioned. The place names mentioned in these mo'olelo refer mostly to natural land features such as promontories, traditional surf spots, as well as culturally defined spaces such as

ahupua'a and 'ili names. Such place names have been bolded to emphasize their importance. Analyzing the mo'olelo and ka'ao is useful in determining how the area of Pi'opi'o functioned prior to its official designation as 'ili kūpono.

Table 4 details each of the place names mentioned in the mo'olelo and its respective location. Nearly all the information for the place name tables are derived from Soehren's Catalog of Hawai'i Place Names website unless otherwise noted. Refer to Registered map 1561 for the locations of some of the place names listed below.

### ***Ka Mo'olelo O Hi'iakaikapoliopele***

One of the earliest accounts mentioned for the Pi'opi'o area appears in Ho'oulumāhie's version of *Ka Mo'olelo O Hi'iakaikapoliopele*. In this version, Hi'iaka arrives at '**Ohele**, a place located on the east end of the mouth of the **Wailoa** River. Here she encounters a young female named Papanuioleka and her father named 'Ohele. Papanuioleka hears about Hi'iaka's journey and desires to travel with her. Hi'iaka makes clear to Papanuioleka that this journey is unlike others, and should she commit to the journey, she cannot turn back and return home. In the story, Hi'iaka, with her companions Wahine'ōma'o, Pā'ūopala'ā, and Papanuioleka cross the mouth of Wailoa and reach the peninsula known as **Kanukuokamanu**. Here the women meet a man named **Paikaka**. Paikaka was known for wearing a malo that was dyed with different colors on either side. Upon seeing the women at Kanukuokamanu, Paikaka lifts his malo and exposes the underside to them. Paikaka's roguish act makes Papanuioleka reconsider her desire to travel with the women. Papanuioleka turns to Hi'iaka and informs her that she cannot proceed with the journey and will return home. Going against Hi'iaka's advice, Papanuioleka decides to return home and as she nears her home at 'Ohele, she transforms into a mound of pāhoehoe. Hi'iaka mourns the loss of her friend by offering the following chant:

*Nā maha pu'u o **Hala'i***

*Hoaka ka lae 'o Paikaka*

*Pā 'ia i ke i'e kuku kua, hua'i ka ipu wai 'alaea*

(Nogelmeier 2006:74).

Hi'iaka and her two companions proceed on with their journey, passing along the "kai o **Waiākea**" (coast of Waiākea) heading toward **Waiolama**. The women arrive at Waiolama and encounter the "po'e 'e'epa o Waiolama" (extraordinary people of Waiolama). Here Hi'iakaikapoliopole battles with the po'e 'e'epa who take the form of the makani puahiohio (whirlwind, gust). After defeating them, Hi'iaka and her companions continue on toward Hilo Palikū (ibid).

This snippet from *Ka Mo'olelo O Hi'iakaikapoliopole* suggests that for Hi'iaka and her companions to travel from 'Ohele toward Waiolama, via the coastal area of Waiākea, they would have passed through or near the area known today as Pi'opi'o.

Place Name	Ahupua'a	Feature	Map ID No.
'Ohele	Waiākea	'Ili, heiau	9
Wailoa	Waiākea	River	7
Kanukuokamanu	Waiākea	Place, surf spot	8
Paikaka	Waiākea	Name of the sea of Hilo (Lui 1862)	n/a
Hala'i	Punahoa	Hill, cone	5
Waiākea	Waiākea	Ahupua'a, stream, pond	10
Waiolama	Kukuau	Stream	6

Table 4. Pi'opi'o-related place names found in *Ka Mo'olelo O Hi'iakaikapoliopole*.

### *Ka Mo'olelo O Keaomelemele*

The mo'olelo of Keaomelemele also provides valuable insight into some of the place names located near the coastal area of Waiākea. In the context of this mo'olelo, the names are associated with particular characters; however, these names are also place names found in the Waiākea area. It is not unusual in Hawaiian mo'olelo to find names that are associated with both individuals and places.

In this mo'olelo, a lad by the name of Kukuluokahiki (a.k.a. Kahanaiakeakua) and his 'aikāne (friend) Waiola find themselves "enjoying the peace of Hilo Hanakahi" (Manu 2002:118). While in Hilo, these two men meet with several maidens. The first was named **Piikea**, and it is said that "the flat unstable rock of Wailuku River belonged to her." The second maiden was named **Mokupane**, and her place was **Waimalino**. It is said that this maiden was fond of lei made with lehua blossoms. The third maiden was **Punahoa**. She was known for surfing the waves of **Keahua** (ibid).

Word quickly spread throughout Hilo of the arrival of the two handsome men, Kukuluokahiki and Waiola. One person in particular who heard of this news was **Ohele**, "whose surf, **Kawili**, broke at **Kanukuokamanu**." In her desire to see Kukuluokahiki, Ohele made her way to **Kaipalaoa** where a multitude of people gathered to greet the handsome strangers. Ohele made her way through the crowd, and finally caught a glimpse of Kukuluokahiki. She was awestruck by his beauty. Ohele then left Kaipalaoa and made her way back to Waiākea in search of her brother Kanukuokamanu (ibid).

Ohele asked her brother if he would befriend the handsome strangers and invite them back to their home at Waiākea. Kanukuokamanu agreed to his sister's request and made his way to Kaipalaoa to befriend the two strangers. Kanukuokamanu went before the two strangers and requested their friendship. The two strangers consented to his request and they all departed Kaipalaoa and made their way back to Waiākea. As the men approached the home of Ohele and Kanukuokamanu, Ohele called out to the guest and was ready to receive them. After greeting each other, Ohele assumed she would have her fondest wishes fulfilled. However the two men, Kukuluokahiki and Waiola had no such thought of being with Ohele. The men eventually departed for Hilo Palikū, leaving Ohele with her unfulfilled desires (ibid: 119).

This mo'olelo mentioned several place names some located within the 'ili of Pi'opi'o and some not. The table below details each of the place names mentioned in the mo'olelo of Keaomelemele.

Place Name	Ahupua'a	Feature	Map ID No.
Piikea	Piihonua	Place, 'ili along the Wailuku River	1
Mokupane	Piihonua	Point, also known as Isabel or Isabelle Point	2
Waimalino	Puueo	'ili	n/a
Punahoa	Punahoa	Ahupua'a. At the time of the Māhele Punahoa was separated into Punahoa 1 and 2.	4
Keahua (Āhua)	Waiākea	Surf spot	n/a
Ohele	Waiākea	Name of a heiau and 'ili	9
Kawili	No data	No data	n/a
Kaipalaoa	Piihonua	Heiau, point, surf spot	3

Table 5. Pi'opi'o-related place names in the story of Keaomelemele.

### *Ka Mo'olelo O 'Umi & Kulukulu'a*

Samuel Manaiakalani Kamakau provides the earliest documented account of ruling chiefs arriving and settling in the vicinity of Pi'opi'o. In the first account, he describes the chiefs 'Umiāloa, Kulukulu'a and his daughter. After defeating his brother Hākau, 'Umi traveled to Hilo in secrecy and met with Kulukulu'a, the chief of Hilo. Kamakau describes a celebration taking place at **Kanukuokamanu** where 'Umi met and began courting the daughter of chief Kulukulu'a (1992:15). At Kanukuokamanu, 'Umi noticed the woman adorned in feathers and wearing a necklace. Later, 'Umi approached the woman and inquired about her necklace:

He ['Umi] asked for the necklace and when she gave it to him, he said, "Is this your necklace of chieftainship?" The woman answered, "Yes, it is. Commoners are not allowed to wear one." ['Umi replied] "This is commonly worn by children and from them up to old women. The pendants (*palaoa*) of our chiefs are made of ivory, the teeth of whales. They are fastened to strands of braided human hair." 'Umi then broke her *wiliwili* pendant (ibid).

Upset about the situation, the woman ran to her father, Kulukulu'a and told him about the incident. Chief Kulukulu'a ordered his men to capture and bound 'Umi and his men with ropes. Pi'imaiwa'a, a companion of 'Umi was sent to Waipi'o and ordered to secure a lei niho palaoa within a day, lest 'Umi and his men be murdered. That same day, Pi'imaiwa'a returned to Hilo with the lei niho palaoa named Nanikoki. It is said that this lei niho palaoa belonged to 'Umi's father, Līloa. Seeing his father's lei niho palaoa given to the chiefs of Hilo saddened 'Umi and he vowed to have Nanikoki once again (ibid:16). 'Umi and his men were released where they returned to Waipi'o and began plotting a war against the chiefs of Hilo. Prepared for battle, 'Umi and his men trekked from Waipi'o through the uplands on the slopes of Mauna Kea and made their way down to Hilo. 'Umi and his men arrived at the chief's residence and killed Kulukulu'a, but spared the life of his daughter. 'Umi managed to obtain his father's lei niho palaoa, and gain control over the moku of Hilo (ibid:17).

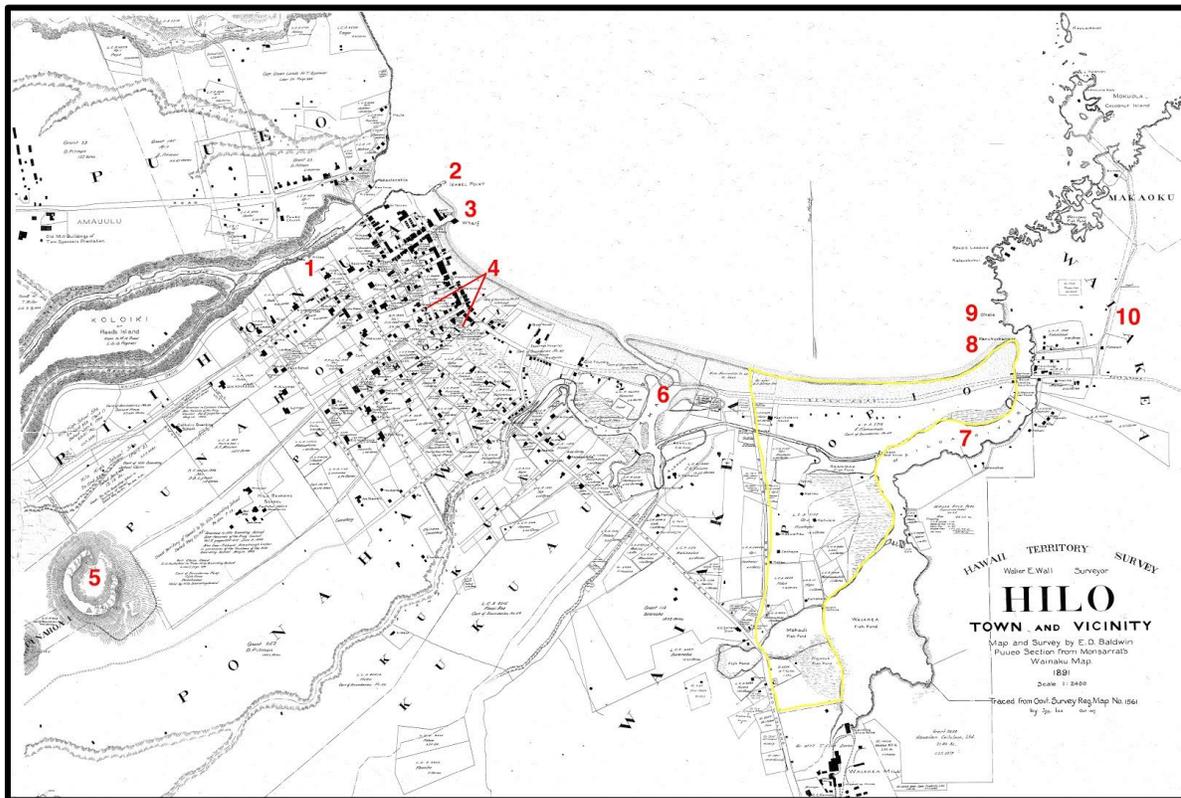


Figure 27. Registered map 1561 ca. 1891 shows several place names mentioned in both the legend of Hi'iakaikapoliopole and Keaomelemele. Boundaries of Pi'opi'o outlined in yellow.

The location of the initial meeting between 'Umi and chief Kulukulu'a's daughter is described as Kanukuokamanu. Kanukuokamanu is the western peninsula at the mouth of the Wailoa River, and is a part of the 'ili kūpono of Pi'opi'o. John Papa 'I'i also notes that Kanukuokamanu was a famous surf spot ('I'i 1959:134).

### *Ka'ao Summary*

The three preceding mo'olelo describe a time prior to the formalization of Pi'opi'o as a specific land division. These mo'olelo not only describe place names and their associated events, but it also serves as a proxy for the establishment of Pi'opi'o as an 'ili kūpono. Kamakau and other scholars also note that after gaining control over Hawai'i Island, 'Umi formalized the various land boundaries and separated the various classes of chiefs, priest, and laborers (Beamer 2014:35; Kamakau 1992:19; Kame'eleihiwa 1992:27). Based on this context, it may be suggested that the name Pi'opi'o would not appear in descriptions pre-dating 'Umi's reign. However, this does not suggest that chiefs were not present in this area prior to 'Umialiloa.

## **5.5 Inoa 'Āina- Place Names**

Inoa 'āina or place names are integral to understanding the history and mindset of the kānaka who dwelled in particular areas for generations. Decades of intimate interactions with the 'āina (land), kai (ocean), wai (freshwater), lani (heavens) and all of its resources resulted in countless number of place names and stories. In addition to the place names listed in the Ka'ao section, more place names were documented. In 1925, Theodore Kelsey traveled around the Wailoa River and Waiākea Pond area with Mrs. Kaouli Ka'ai to document the place names. Notes on the document indicate that Mr. Kelsey may have conducted a follow up interview with Henry Benjamin Nalimu to corroborate information.

Henry B. Nalimu was a Hawaiian man whose family resided at Pi'opi'o (Ke Alakai O Hawaii "Nuhou Maikai." December 17, 1931). Henry Nalimu also spent a great deal of time with Theodore Kelsey documenting place names and several mo'olelo of the Hilo area. Such detailed accounts of place names are not always available for all places, so there exists

a great deal of appreciation for the kūpuna (ancestors) that documented place names in such detail. The following is a transcript of the document titled “Hawaiian Land Names from trip with Mrs. Ka-ouli Ka-ai (Mrs. Pahio) to Wailoa River and Waiakea Pond, June 25, 1925” (Hawai‘i State Archives).

Table 5 lists the known inoa ‘āina of Pi‘opi‘o. All bracketed text have been inserted by the authors for clarification purposes. All italicized text indicates the handwritten notes, likely the accounts by Henry Nalimu. It is important to note that since the Pi‘opi‘o area has endured great change, the exact location of these places have only been speculated but not yet determined.

Place Name	Description
Kuahua	A stone in the river near the end of a sampan building shed. Kuahua was sometimes a woman and sometimes a shark. Her human body was buried between two coconut-trees on the opposite side of the sampan building shed. If anyone goes there with red clothes he faints and dreams of the woman. He will revive directly if someone chews up a bit of mau‘u ‘aki‘aki [ <i>‘aki‘aki grass</i> ], which may be obtained on the little promontory [ <i>promontory</i> ] of Ku‘ihili, just down stream. You mustn’t bath [ <i>bathe</i> ] in the river with red clothes until you are beyond Ku‘ihili. At low tide when the top of the stone was above water the shark’s feed [ <i>fed</i> ], awa, sugar-cane, bananas, etc. was set on top of the stone. This kupua shark woman was killed by Pele as were other akuas.
Ku‘ihili	<i>Ka Lae</i> Ku‘ihili, the first promontory [ <i>promontory</i> ] on Waiakea side below the sluice-gate (makaha) known as Umi, for King Umi a Liloa. Hili kukui for staining nets and kapa red was pounded there. There was a little pond there, now dug away. In the stream there are two unnamed holes filled with anae, aholehole and other fish on mauka side. <i>O ka makaha mua oia o Umi (2) Piikea (3) Hua-a (4) Halauwai (5) Ka Ohi‘a. [The first sluice gate is named Umi (2) Piikea (3) Hua-a (4) Halauwai (5) Ka Ohi‘a]</i>
Ka nukuokamanu	Ka nukuokamanu (the scolding of the woman? Same name as peninsula on Hilo side of mouth of Wailoa River), promontory across from Kuahua. The pond of Wai‘eli, dug for raising fish-fry is on the land of Kanukuokamanu. <i>Aole lohe o Nalimu. [Not heard by Nalimu]</i>
Laukapalili	Laukapalili was the next promontory [ <i>promontory</i> ]. (kapalili pili i ka uwe?) There is a hole in the water at the end of this point. By camp.
Kā-lahu	Kā-lahu, promontory [ <i>promontory</i> ] beyond Laukapalili. Stayed at camp and got names.
Paepae	(one meaning, to support as head with hands) <i>long</i> cove beyond.

Lae O Ka Ohe	Lae o ka ohe, pahoehoe promontory [promontory] beyond.
Lae O Nanahu	Lae o nanahu, rocky point-- pahoehoe.
Ka-lima-alae	Ka-lima-alae (the five alae birds), spring by Waiakea Warehouse. The stumps of ancient coconut trees may still be seen in the water there, showing how the land has sunk.
Ka-puna-kea	Ka-puna-kea, long pond of spring-water (also name of spring) by Waiakea Mill.
Wai-ahole	Wai-ahole, pond where we saw a little unpainted Chinese house from Camp.
Mohouli	Mohouli, pond. Ulu o Namu, bread-fruit grove at lower end of Mohouli pond where now are fig and banana trees seen from Camp.
Kano-kapa	Kane-kapa (hapai i ke kapa o na lii), land by big red house and two mango trees. <i>Kahi e pili ana i ke ka'e kai oia o Kanokapa a maluna aku oia wahi oia o Kaipalaoa kahi hoolulu kaaahi. Kano-kapa, he kanoa kahi e kapala i ai ke kapa. [Place adjoining the water's edge is Kanokapa, and above that place is Kaipalaoa, the meeting place for the trains. Kano-kapa is a hollow where tapa was stamped]</i>
Ka-puka-wai	Ka-puka-wai, mouth of Waiakea Pond. <i>Aia ke pili la ma waho o ka loko o Waiakea. Kanokapa aia i Hilo kahi hoolulu kaaahi. [Located adjacent to the outline of Waiakea. Kanokapa is located in Hilo where the trains meet]</i>
Hua'i-niu	Hua'i-niu (uncover cooked coconut?) a long lake that runs to Ka-ohi'a, the other mouth of Waiakea pond. Ka-ohi'a (hoomoo ia ka makaha me ke kua ohia) [makaha fitted with hewed 'ohi'a] is the fifth and last makaha, named for a wife of Umi as are the others, Piikea, the large second makaha, lock with a gate at each end, Hua-a (moho, bird; a, ua hoohalike ka u'i me ka a ana o ke ahi) [and whose beauty was compared to the blaze of a fire], Halau-wai (hale no ka lokomaika'i) [house for the generous], 4th makaha. Men were summoned to cut the timbers for these makaha's. When the timber were laid there was a feast.
Makole	Makole (red-eyed like old folks, where Umi and his son Maalo lived just on Makai side of Piikea. There is a fish box there called Umi.
Hau-maka-puu	Hau-maka-puu (stike (hahau) swollen eye) where red house by mango tree is a little below Dranga Camp on either side. The servants and lake guards (kia'i loko) lived here. There are some stones piles (puu pohaku) here.
Lu-'ae	Lu-'ae, a squid stone near three coconut trees and red house across from Dranga Camp.
Piko O Wakea	Piko O Wakea, spring in the middle of the upper part of Waiakea Pond.
Ka-imu-ki	Ka-imu-ki, a fish-house made of a pile of stones in a deep place in the river by Puka-wai, now filled with mud perhaps. When you dive for fish here you see a rainbow in the water.

Moho-uli Names	
Ka-imu-ki	Ka-imu-ki, a lua moo in from of La-la-kea's (formerly Wise's) house. <i>He pua'i wai loko o Mohouli. [A spring within Mohouli pond]</i>
Ka-lihi-wai	Ka-lihi-wai, a hole in the land by Korean shoemaker's, on opp. Side, from La-la-kea's, now filled perhaps.
Opae-nui	Opae-nui (opae, ma'i o ke kani kekahi), a large hole between Waiahole and Mohouli ponds.
Waiahole Names	
Ki'o-pua	Ki'o-pua, pond on E. side of Waiahole where Chinese raises gold-fish.
Lua-ko'a-ko'a	(ko'ako'a, change character?), where the shark Ku-hai-moana came into the pond. He was reared in Kalepolepo Pond, from which he made his way to toehr [other] ponds through underground passages and went to the island of Ka'ula.
Kalepolepo Names	
Ku-hai-moana	Ku-hai-moana, hole where the shark of that name was born in front of the two mango trees on the Puna side of Kalepolepo Pond.
Wailoa Cont.	
Ka-i'a-nui	<p>Ka-i'a-nui, cave of a black shark of this name has hale [house] on E. side of river across from Iron Works perhaps about 50 yards from RR [railroad] bridge beyond the landing. This shark was related to the Namau'u family who lived where Matson house is, south of tracks on Waiakea side of street.</p> <p><i>Aole lua mano ma Kalepolepo, he mau pua'i wai wale no. Nalimu. Aole paha hanai o Kuhaimoana malaila. Mai Keaau mai ka makuahine o Ka-ouli. [No shark pits exist at Kalepolepo, just springs. Nalimu. It is unlikely Kuhaimoana was raised there. Ka-ouli's mother was from Keaau]</i></p>

Table 6. Inoa 'āina of Pi'opi'o.

## 5.6 Defining 'Ili Kūpono

Pi'opi'o is one of three known 'ili kūpono located in the ahupua'a of Waiākea. The other two are Makaokū located near the present Lili'uokalani Gardens and Honohononui located in the area of Keaukaha. In order to understand the order and sequence of Hawaiian land divisions, the following section will provide a brief overview of the various land divisions with emphasis on the 'ili kūpono land division.

Traditionally, each island was divided into a series of land divisions with the largest being the moku (district). On Hawai'i Island, a total of six moku were established; Hilo, Puna, Ka'ū, Kona, Kohala and Hāmākua. Each moku was further divided into ahupua'a. Ahupua'a vary in shape and size however, on Hawai'i Island, most ahupua'a consisted of a vertical strip of land extending from the ocean up toward the mountains. However, not all ahupua'a can be defined according to these general descriptions, as some ahupua'a such as Kainehe in east Hāmākua are entirely landlocked and contained no coastal portion. Each ahupua'a was further divided into 'ili.

According to Kamana Beamer (2014:43), "'ili are possibly the most complex land division because they have the greatest range in size, function, and composition." As such, there are three types of 'ili that have been documented. The first is the 'ili of the ahupua'a, which was a named division traditionally inhabited by the maka'āinana (commoners). According to the Hawai'i Government Surveyor, Curtis J. Lyons (1875: 119), "the ili of the ahupuaa was a subdivision for the convenience of the chief holding the ahupuaa; *alii ai ahupuaa*." He further elaborate stating, "The *konohikis* of these divisions were only the agents of the said chief, all the revenues of the land, included going to him, and the said land." According to W.D. Alexander (1920:2), "the arable portions of which in turn were divided into small tracts, called "mo'os [mo'o]," or "mooainas [mo'o'āina]." These last subdivisions were for purposes of cultivation only. According Chinen (1958:5), "the smallest unit of land was call a "kihapai," and was cultivated by a tenant-farmer for himself and his family.

The other type of 'ili was the 'ili lele, which translates as the "jumping" or "flying" 'ili. According to Beamer (2014:44), the "'ili lele jump or fly across other boundaries to make up their entire composition. They would be composed of several distinct sections of land and fisheries grouped together to form one unit." The 'ili lele are even more mystifying and puzzling as they are not found on all islands, and their composition vary greatly.

As stated previously, Pi'opi'o is characterized as an 'ili kūpono. Descriptions provided by Lyons state:

The ili kūpono, on the contrary, was nearly independent. The transfer of the ahupuaa to a new chief did not carry with it the transfer of the ili kūpono contained within its limits. The chiefs previously holding the ili kūpono continued to hold them, whatever the change in the ahupuaa chief, having their own koeles (chiefs' parches) worked by their retainers. There was however a slight tribute of work due to the ahupuaa chief; sometimes one or two days in the month; sometimes even less, or only certain days in the year. The ilis which were used as places of refuge, and those of the god Kaili, did not render even this tribute. (1875:119).

Descriptions provided by Chinen (1958:4) goes on to state that "there has never been an *ili* within an *ili*. He further elaborate stating, "even when there were changes among the chiefs of the various *ahupuaas*, the chiefs of the *ili kūponos* within those ahupuaas were not affected. In some cases, the *ilis* within an *ahupuaa* absorbed the larger portion of the lands" (ibid).

According to Henry J. Parker, what makes these land divisions unique is that they were "nearly independent ili or division of land within an ahupuaa," and that taxes were paid "directly to the king and not, or only slightly, to the chief of the ahupua'a (1922:222). Elbert and Pukui further describe it stating "[t]ransfer of the ahupua'a from one chief to another did not include the 'ili kūpono located within its boundaries" (1986:98)."

## 5.7 Current Landowner

Although the lands of Pi'opi'o are no longer defined or managed in terms of the traditional boundaries, much of the land is under the jurisdiction of the Department of Land and Natural Resources- State Parks Division. After the devastating 1946 tsunami, the previous owners, Kamehameha Schools Bishop Estates deeded the land over to the State of Hawai'i thereby establishing a tsunami buffer zone. The park was established in 1954, but the 1960 tsunami delayed plans for development. By the late 1960s-1970s, the State of Hawai'i through several executive orders

began establishing portions of the Wailoa River State Park (Yent 1998:19). Seven separate executive orders were issued at different times to acquire various parcels to form what is now known as the Wailoa River State Recreational Area (Wailoa SRA; see Table 7).

Today the Wailoa SRA is designated as a conservation zone. The lands of Pi’opi’o are now a part of the following following Tax Map Key numbers: [3] 2-2-01, 02, 03, 13, 14, 29.

Executive Order No.	Year Signed	Notes
65	August 12, 1919	Establishment of public park to be known as the “Wailoa River Park,” at Waiākea-Kai, South Hilo, Hawai‘i.
1656	November 1, 1954	Establishment of Wailoa River Park and Hawaiian Village Site
2125	June 22, 1964	To set aside the Wailoa River and its tributaries flood control project under the control and management of the Board of Supervisors of the County of Hawaii.
2201	May 6, 1965	For additions to Wailoa River Park, to be under the control and management of the Department of Land and Natural Resources, Division of State Parks.
2658	March 20, 1973	Inclusion of all lands situated at Pi’opi’o, known as the Mohouli Fish Pond, and all lands situated at Waiākea being portions of Grant 10355 to Waiākea Mill Co. and Grant 4777 to T. Clive Davies for inclusion in the Wailoa River Park.
2921	June 27, 1978	For State Park purposes, to be under the control and management of the DLNR, Division of State Parks, outdoor recreation and historic sites, and being designated as Wailoa River State Park, parcels 1 and 2, situated at Piopio, Waiakea, Kukuan 1st and 2nd and Ponahawai, South Hilo.
3561	July 28, 1992	Withdrawing certain lands situated at Piopio, Waiākea, Kukuau 1st and 2nd and Ponahawai, South Hilo for a bait fish and fisheries facility.

Table 7. Executive Orders issued for the establishment of the Wailoa State Recreational Area.

### 5.8 Nā Ali’i- Chiefly Association

Between the years 1920-1924, Stephen L. Desha published a series of articles in the *Ka Hoku O Hawaii*, a Hawaiian language newspaper about the life of a famous warrior named Kekūhaupi’o. Not only did Desha provide detailed accounts of Kekūhaupi’o's life and the life of other ali’i, he wrote extensively about a number of places and the historic events that occurred in those places. In describing the lands of Pi’opi’o, Desha writes, "...Pi’opi’o, a he wahi i noho ‘ia nō ho’i e nā ali’i mai kahiko mai." *Pi’opi’o, a dwelling place of*

*chiefs since ancient times* (1996:114). This section will focus specifically on the ali'i (chief and chiefesses) associated with the Pi'opi'o area.

### ***Keli'iokāloaa'umi & Keawenuia'umi***

After 'Umialīloa's death, Hawai'i Island was divided into two kingdoms with each of his sons ruling from different sides of the island. Both of his sons followed in their father's footsteps and organized their kingdom based on what 'Umi previously established. The chiefs and priestly classes were separated and expert laborers were sought out. Keli'iokāloaa'umi was the eldest and he controlled the Kona side of the Island, whereby his younger brother Keawenuia'umi controlled the Hilo side of the island (Kamakau 1992:34).

Although Keli'iokāloaa'umi cared for his gods, priest and prophets, his reign is often characterized by his mistreatment of the lesser chiefs, and commoners, something his father had advised against. His cruel acts were the main reason his people began rebelling against him and they sought the help of his younger brother Keawenuia'umi (ibid:35). Oral history accounts note that Keawenuia'umi established Hilo as his chiefly residence (ibid:34).

Showing compassion for the people of Kona, Keawenuia'umi rallied his armies and chiefs from Ka'ū, Puna and Hilo and prepared to wage war with his brother. Keawenuia'umi's men approached Keli'iokāloa's men from both land and water, and Keli'iokāloa was eventually killed at a place known today as Pu'uokāloa located in Kona (ibid:36). The death of Keli'iokāloa allowed his younger brother to rise in power, and become the sole ruler of Hawai'i Island. It is unclear from the account by Kamakau where in Hilo Keawenuia'umi established his residence. However, this account establishes that Hilo served as an important center for the chiefs and chiefesses that ruled after 'Umialīloa.

### ***Lonoma'aikanaka***

Kamakau mentions another brief account of the chiefess Lonoma'aikanaka visiting the Kanukuokamanu area.

Lonoma'aikanaka was the wife of ali'i nui, Keaweikekahiali'iokamoku. To them was born the high chief Kalaninui'iāmamao, for whom the Kumulipo chant was composed. According to Kamakau, Lonoma'aikanaka lived in secrecy for a short time in the uplands of 'Ōla'a, Puna. She had been living off of pohole, kikawaiō (native varieties of ferns) and greens from the pōpolo plant. Although she had been living off of ferns and greens, she craved the taste of fish.

Having heard an abundance of fish was available at the coast of Hilo, she and her companions traveled to Waiākea and "passed close to Ka-nuku-o-ka-manō, where the royal residences of Moku and his chiefs were." Kamakau continues " ... Lono-ma'a-i-kānaka, had been living in Hilo together with most of the chiefs who had the *kapu pūlo'ulo'u* (1991:155). The spelling of the name Kanukuokamanu varies on maps and in written documents. In some instances, the name is spelled Kanukuokamanu (lit. the-beak-of-the-bird) and Kanukuokamanō (lit. the-snout-of-the-shark). In either case, the descriptions that accompany both place names matches that of the area where Wailoa River meets Hilo Bay.

### ***Alapa'i, Keōua, Kalani'ōpu'u & Keawemauihili***

The lands of Pi'opi'o become an important political center during the reign of the high chief Alapa'i down to Kamehameha I, approximately 4-5 generations (Abad 2000:168). It is during this era that we see the name Pi'opi'o being used to describe this area. Following the death of the ali'i nui, Keaweikekahiali'iokamoku, it is said the island of Hawai'i was in a state of warfare. Within a generation after the death of Keawe, the island of Hawai'i eventually fell under the control of the ali'i nui Alapa'i. Alapa'i also requested to have a young Kalani'ōpu'u and Keōuakalanikupuapāikalaninui join his royal court.

Alapa'i began training his two nephews in warfare and leadership, however, his nephews knew that Alapa'i held little regard for them (Tī 1959:3; Kamakau 1992:66). Although Alapa'i continuously shifted locations for his royal residence, he did establish Waiolama as the main center for his retinue,

which is located less than a half a mile to the west of the Waiākea Fishponds (Cordy 2000:278).

It is said that during this time (ca. 1736) Pai'ea (Kamehameha I) was born in Kohala to his mother Keku'iapōiwa II. There are varying accounts of who Kamehameha's biological father is, as it was believed that both Kahekili, chief of Maui and Keōuakalanikupuapāikalaninui were his fathers (Fornander 1880,136; Hawaiian Historical Society 1912:6; Kamakau 1992:66).

The term po'olua (lit. two heads) is often used to describe Kamehameha's paternal lineage (Elbert & Pukui 1986:342). Keawema'uhili, chief of Hilo did not react kindly to the birth of Kamehameha, and it is said that he uttered the words, "[e] 'ō'ū i ka maka o ka wauke oi 'ōpiopio." *Nip off the leaf bud of the wauke plant while it is tender*, which suggested killing the infant, lest he grows to overpower the older chiefs. Keawema'uhili then ordered his warriors to seek out the newborn and destroy him, however, their plans were unsuccessful (Desha 1996:44; Pukui 1983:37). As a child, Kamehameha remained in the protection of his guardians, and later he joined the army of Alapa'i.

Some time later, while Alapa'i was stationed at Waiolama, a sick Keōuakalanikupuapāikalaninui was taken to Pi'opio where he fell ill (ca. 1752). Prior to his death, he requested for his half-brother Kalani'ōpu'u to join him to discuss the political affairs of the island (Kamakau 1992:75). Keōua warned Kalani'ōpu'u about their uncle Alapa'i, saying "[t]ake heed, for Alapa'i has no regard for you or for me, whom he has reared". Aware of the political standing, Keōua advised Kalani'ōpu'u to take Kamehameha from Alapa'i's court and continue his training, for he "would have no father to care for him" and that Kalani'ōpu'u "would prosper through Kamehameha's great strength" (T̄ 1959:3). Keōua eventually passed at Pi'opio, and many chiefs were present at this death including, Keawe'ōpala, son of Alapa'i, Kame'eiamoku, Kamanawa, Ke'eaumoku and Keaweaeulu.

Shortly after Keōua's passing, Kalani'ōpu'u situated a war canoe "at a place between Pi'opio and Kalepolepo", where he

then attempted to get Kamehameha from Alapa'i (Kamakau 1922:72). Kalani'ōpu'u's attempt to get Kamehameha was unsuccessful, and he barely escaped had it not been for the canoe that was made ready by a chief and warrior named Puna. Although Kalani'ōpu'u escaped, this was seen as an act of rebellion against Alapa'i (Kamakau 1992:76). It wasn't until the end of Alapa'i's reign that Kalani'ōpu'u gained control over the districts of Ka'ū and Puna (Abad 2000:168).

Upon Alapa'i's passing, his son Keawe'ōpala reigned as ali'i nui of Hawai'i Island along with Kamehameha. Keawe'ōpala's rule was brief, as he was killed in a battle with Kalani'ōpu'u's army (T̄ 1959:6). This left the island of Hawai'i under the sole leadership of Kalani'ōpu'u. Kamehameha was then sent to live with his uncle Kalani'ōpu'u and his cousin Kīwala'ō, son of Kalani'ōpu'u in Ka'ū. Upon Kalani'ōpu'u's passing, his chiefdom was split between his sons Kīwala'ō, Keōuakū'ahu'ula and his nephew Kamehameha. In following the traditional kālai'āina process (redistribution of the land), Kīwala'ō redistributed the lands down to his chiefs, however not all of the chiefs were satisfied with the redistribution.

In addition to other lands, Keōuakū'ahu'ula, requested to have the ahupua'a of Waiākea and Kea'au as these ahupua'a are described to be places abundant with food (T̄ 1959:14; Kamakau 1992:120). However, Keōuaku'ahu'ula's request was denied, and he returned home to Ka'ū to prepare for battle. Kīwala'ō was eventually killed in the battle of Moku'ōhai in Ke'ei, Kona, which left Kamehameha, Keawema'uhili and Keōuakū'ahu'ula as the last standing chiefs of the island. It has also been recorded that Keawema'uhili and his wife Ululani established themselves at Pi'opi'o (Desha 2000:76).

### ***Kamehameha I***

Keōuakū'ahu'ula and Keawema'uhili would be the last ali'i standing on Hawai'i Island next to Kamehameha. Kamehameha managed to gain the support of the Kona and Kohala chiefs, however, he sought to expand his kingdom to include all of Hawai'i Island and beyond. Kamehameha started his war campaign on the outer islands and had even

received support from Keawema'uhili during a raid on Maui against Kahekili. Sensing a potentially dangerous alliance, Keōuakū'ahu'ula made war on Keawema'uhili and killed him at Alae in Hilo. Keōua's victory allowed him to gain control over Hilo and all of its resources (Kamakau 1992:151).

Hearing the news of Keawema'uhili's death, Kamehameha returned to Hawai'i Island to make war with Keōua. This resulted in the arduous battle known as Koapāpa'a, which took place in east Hāmākua. Neither was victorious in this battle, and both sides retreated back to their lands. It is said that Keōua returned to Hilo and that "the fat mullet of Waiākea and Pi'opi'o became theirs". While en-route to Ka'ū, Keōua and his men were nearing Kapāpala when Maunaloa erupted, leaving much of his army decimated from the ash. After this incident, a prophet told Keōua that Pele decimated his army because he had failed to give the mullet from Waiākea as offerings to Pele and her sister Hi'iakaikapoliopole (Kamakau 1992:152).

Kamehameha would meet his cousin in their final battle at Kawaihae. Upon the completion of Pu'u Koholā heiau (ca. 1791), Kamehameha invites his cousin Keōua to the dedication of the heiau. Upon reaching the shores of Pelekāne Bay, Keōua is killed and offered up on the heiau of Pu'u Koholā (Kamakau 1992:157). The victory over Keōua left Kamehameha as the sole ruler of Hawai'i Island (Ūi 1959:15). After 1791, Kamehameha establishes Hilo as his capital and claimed Pi'opi'o for himself, where he thereby gave Pi'opi'o to his wife Ka'ahumanu who was the acting Kuhina Nui (regent) (Cordy 2000:355).

On January 9, 1794, while on their third visit to Hawai'i, Captain George Vancouver arrive at Waiakea Bay to examine whether the bay was suitable for a harbor. Although Vancouver's men found the bay to be unsuitable for their desires, they did meet up with Kamehameha and several other kanaka who shared "a little bread fruit and taro, but no hogs or poultry" (Menzies 1920:138). Although they were not able to land their vessels on shore, they did provide some general descriptions of the landscape stating "the bottom of this bay was a track of low land that extended a considerable distance to the eastward and presented the most exuberant

appearance, being well cultivated and adorned with beautiful groves of cocoa nut palms and bread fruit trees, amongst which were scattered the habitations of the natives” (ibid:141).

With each successive battle, (not all have been mentioned here) Kamehameha continued to refine his war tactics, strategies, and equipment. Realizing the power of the being well equipped, especially with canoes, Kamehameha sought the chiefess Ululani, who was his aunt, and widow of Keawema’uhili. Kamehameha requested her permission to utilize the resources of Hilo to help with the construction of his fleet of war canoes, known as the Peleleu (Desha 2000:301). It has been said that Kamehameha stationed himself at Waiākea while some 800 canoes were under construction (Yent 1998:6).

## 5.9 Māhele ‘Āina

Between the years 1848-1852, under the reign of Kauikeaouli (Kamehameha III), the traditional Hawaiian land tenure system underwent drastic changes, from a feudal type land holding to one of fee simple. This transformation in land tenure is more commonly known as the Māhele ‘Āina (lit. dividing land). According to Chinen (1958:preface) “this event separated and defined the undivided land interest of King Kamehameha III and the high-ranking chiefs and *konohikis*.” The Kuleana Act of 1850 would allow the *maka‘āinana* (commoners) to make a claim to lands, which they were actively using, thus “protecting the rights of the native tenants” (ibid 29).

In 1840 Kauikeaouli would be the first to establish a constitution for the Kingdom of Hawai‘i (ibid:7). A series of Organic Acts issued between 1845 and 1846 established the infrastructure that would facilitate the process of dividing out all of the lands in Hawai‘i. One such entity that was established as a result of the 1845 Organic Act is the Land Commission (also known as the Board of Commissioners to Quiet Land Titles), made up of five appointed commissioners. The primary responsibility of the Land Commission was to investigate all claims and oversee the

ascertainment or rejection of all claims, whether they were claims from native citizens or foreigners (ibid:8).

In recent years, efforts to digitize copies of the various Māhele documents have resulted in an ease of accessibility. The ease of accessibility to these documents, have prompted more researchers to utilize these resources as a way to gain insight into the Māhele process itself as well as land use, place names, boundaries and more. A large majority of the Māhele documents are available through several online repositories such as:

1. AVA Konohiki (<http://www.avakonohiki.org/>)
2. Papakilo Database (<http://www.papakilodatabase.com/main/main.php>).

The following section will detail information about the various kānaka that were awarded lands in the Māhele 'Āina. Information was pulled primarily from the Native Registers, Native and Foreign Testimonies and the Land Claim Award. It is important to note that the map listed below reflects the land that was awarded, and not necessarily the lands that were utilized and described by the tenants in their Native Register and Native and Foreign Testimonies.

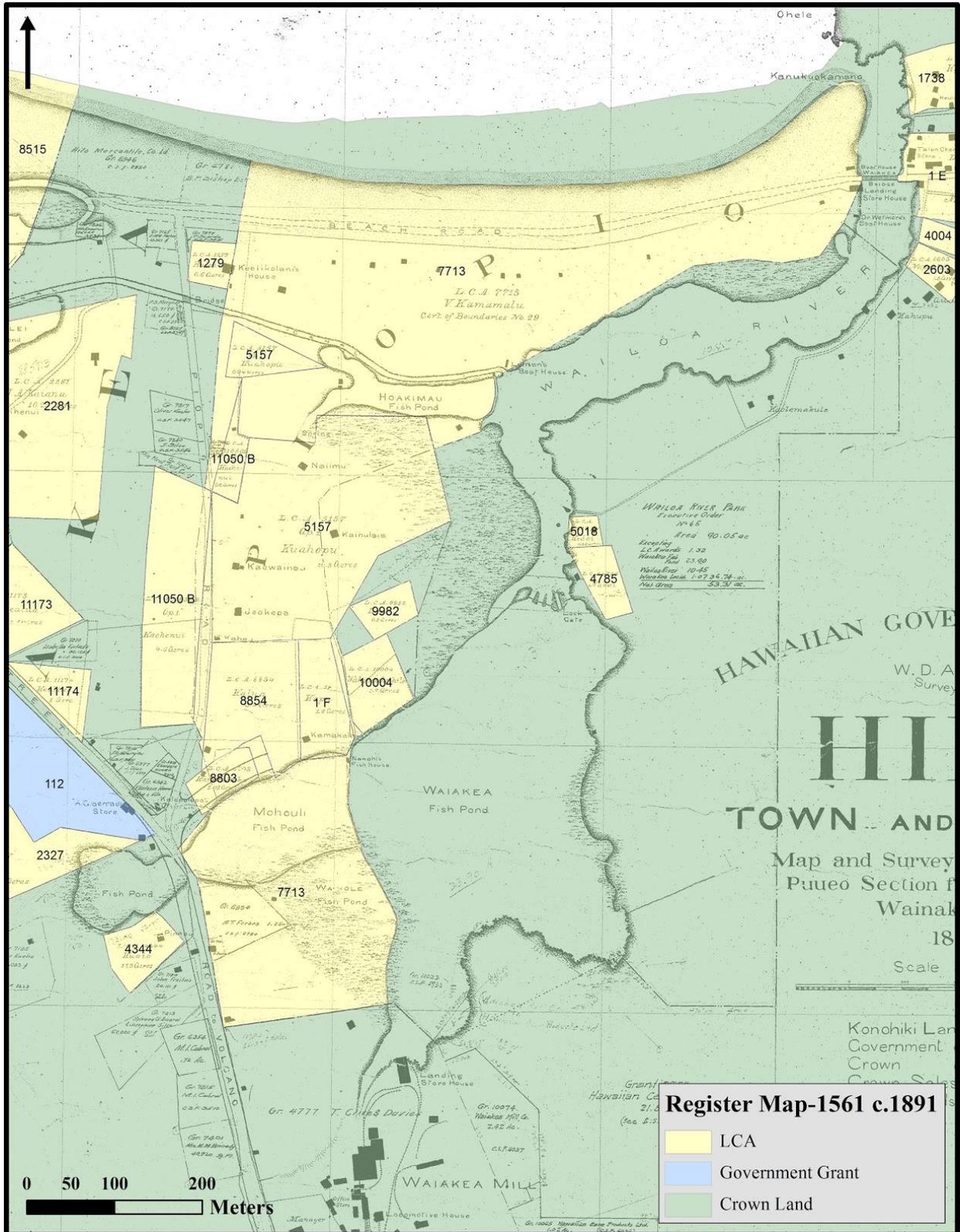


Figure 28. Registered map 1561 ca. 1891 shows the land claim awards issued for Pi'opi'o and the surrounding lands.

Awardee	Land Claim Award No.	Royal Patent Grant No.	Acres	Status	'Ili Name	No. of Lots	Land Use- derived from Native and Foreign Testimony	Received lands from
Halai, L.K.	1279	8191	0.6	Hoa'aina	Kolea	1	Agriculture (mahi'ai), no house, fenced	Kapuaakuni in 1847
Kaihenui	11050B	4365	5.19	Hoa'aina	Kolea	2	1st- no fence, 1 house 2nd- 1 cultivated field, 2 houses	Kapapa in 1843
Kalua	8854	1908	3.4	Hoa'aina	Piopio	5	1st- 1 house, partly enclosed 2nd- cultivated, not enclosed, no house 3rd- three cultivated fields 4th- 4 cultivated fields	No specific name listed. Held since the time of Kamehameha I, no date listed.
Kamāmalu, V.	7713	4475	n/a	Ali'i	Piopio	n/a	n/a	n/a
Kamanuhaka	8803	1927	1.02	Hoa'aina	Piopio	1	Three fields, no houses and not enclosed.	Mother in 1843
Kapu	1F	2769	1.6	Hoa'aina	Piopio	1	1 field, no house	Ancestors, no date listed

Kuahopu	5157	n/a	12.3	Hoa'aina	Piopio Kolea	6	1st- not enclosed, two houses, four partly cultivated lots  2nd- 1 cultivated field and no houses.  3rd- kipi, 1 field  4th- kipi, 6 cultivated fields  5th- no house, uncultivated  6th- 2 cultivated fields, no house	Lots 1,2,3,4 received from his ancestor, no date listed.  Lots 5 and 6 received from Pea in 1840 .
Leoi/Lewi	9982	1874	0.8	Hoa'aina	Paeaa hu	4	1st- 1 partly cultivated field, no house.  2nd- 1 partly cultivated field.  3rd- 1 partly cultivated field  4th- 1 uncultivated field, no houses.	Kawahinen o-hoihilo, no date listed.
Wahinenohoihi lo	10004	2768	1.69	Hoa'aina	Paeaa hu	1	3 partly cultivated fields, not enclosed, 1 house.	Ancestors, no date listed.

Table 8. Tabulation of Māhele Land Claim Awards.

## 6.0 NĀ NOI'I HULIKOEHANA I HALA – PREVIOUS ARCHAEOLOGICAL STUDIES

Archaeological and historical reports for the Hilo area were reviewed as part of the background section for Pi'opi'o. The purpose of this research is to determine if cultural resources were previously identified near or in Pi'opi'o, as well as the type and condition of those resources. Archaeological studies for the Hilo area are numerous, yet widely distributed. Of the reports, the following were determined to be the most relevant and useful for understanding the history of Pi'opi'o (Table 8).

Author	Year of research	Title
Stokes, John F.G	1906	Heiau of the Island of Hawaii: A historic survey of native Hawaiian temple sites (1991)
Thrum, Thomas G.	1907-1908	"Tales from the Temple" Hawaiian Almanac and Annual for 1908:48-78 (1908)
Hudson, Alfred	1930-1932	The archaeology of east Hawaii (1932)
Wright, John	1974	Statewide Inventory of Historic Places
Kelly, M., B. Nakamura, and D.B. Barrere	1981	Hilo Bay: A Chronological History -- Land and Water Use in the Hilo Bay Area, Island of Hawaii.
Rosendahl, Paul	1988	Archaeological reconnaissance survey for EIS, Hilo Judiciary Complex Sites, Hilo, District of South Hilo, Island of Hawaii.
Smith M. and P. Tourtellotte	1988	Wailoa Bridge Renovation Project, Site No. 50-10-11115. Burial Removal
Pietrusewsky, Michael	1989	Human Remains found at Wailoa Bridge Renovation Project, Waiakea, South Hilo. Department of Anthropology, University of Hawai'i
DMH, Inc.	1989	Hawaiian Fishpond Study Island of Hawai'i, Maui, Lana'i and Kaua'i.
Walker, Alan and Paul Rosendahl	1996	Archaeological Assessment Study Hilo Judiciary Complex Project.
PHRI (Paul H. Rosendahl, Ph.D., Inc.)	2004	Archaeological Assessment and Monitoring Plan Hilo Judiciary Complex-- Kaiko'o Mall Site. Land of Waiākea, South Hilo District, Island of Hawai'i.
Retchman, Robert B.	2009	Archaeological Assessment Survey for the Proposed Hilo

		Bayfront Trails Project, Pi'ihonua, Punahoa, Pōnāhawai, Kūkūau, and Waiākea Ahupua'a, South Hilo District, Island of Hawai'i.
Wilkinson, Sarah, Aulii Mitchell and Hallett H. Hammatt	2012	Archaeological Monitoring Plan for the Kamehameha Avenue Reconstruction Project, Pōnahawai, Kūkūau 1 & 2, and Waiākea Ahupua'a, South Hilo District, Island of Hawai'i TMK [3] 2-2-002,003,004, and 006.
Yent, Martha	2015	Archaeological Monitoring Plan Wailoa River State Recreational Area

Table 9. Previous archaeological studies and reports of or related to Pi 'opi 'o.

John F.G. Stokes was one of the first archaeologist to document cultural sites on Hawai'i Island and particularly the coastal Waiākea area. Between 1906 and 1907, Stokes was sent out by William Brigham, Director of the Bishop Museum, to document heiau on Hawai'i Island. Stokes started in Kona and circuited the island in a counterclockwise direction. He initially relied on the Kanaka and foreigners to provide him with information regarding the whereabouts and history of these heiau (Stokes & Dye 1991:10). By the time Stokes arrived in Hilo he had dismissed his native interpreters and was relying primarily on Caucasian sugar workers to provide him with information about heiau sites (ibid:12). Only twelve heiau were documented for the entire moku of Hilo, and of the twelve only one was located in the ahupua'a of Waiākea. Stokes noted the heiau of 'Ohele stating:

*Heiau of Ohele. Situated above the old Pitman store at Waiākea. A luakini class heiau measuring 60 feet square. It was destroyed before Pitman's time. [Stokes obtained this information from Thrum (1907a:40)] (ibid:155).*

Around the same time as Stokes, Thomas G. Thrum also noted several heiau in the Waiākea area. In his 1908 publication he noted three heiau in the Waiākea ahupua'a:

**Kapaieie:** Near Honokawailani, Waiakea, famed in the Hilo-Puna wards. In existence at the time of Byron's visit in the "Blonde." Size and class uncertain. Its ruins still to be seen.

**Makaoku:** On the shore opposite of Cocoanut Island, Hilo of luakini class, connected with the noted Mokuola place of refuge; dimensions unknown, though it is said to have had a pyramid of stones as if for a place of observation. The

stones of this heiau were taken by Capt. Spencer in the sixties [1860s] for a boat landing.

**Ohele:** Site above the old Pitman store, at Waiakea; a small heiau of luakini class, about 60 ft. square: destroyed before Pitman's time. (40)

Of the three heiau noted above, Makaokū and 'Ōhele are the closest to the project area. 'Ōhele is less than a mile away and Makaokū less than two miles away from the Waiākea fishpond area.

Between 1930 and 1932 Alfred Hudson conducted a regional archaeological study of East Hawai'i with a focus on the moku of Hāmākua, Hilo, and Puna. Hudson made similar notes about the heiau of Makaokū (sometimes referred to as Mokuola or Coconut Island), but added:

... Coconut Island was also a puuhonua. There is some reason to think that the island itself was the place of refuge and that the heiau was situated on the mainland opposite (Hudson 1930-1932:236).

Hudson also adds to Thrum's description of Mokuola:

Occasional reference is made to Coconut Island (Mokuola) as a place of refuge of the Hilo district, hence its name, "Life Island." Careful inquiry shows that the area of this puuhonua included also a portion of the mainland adjoining. The heiau connected with it, named Mokuola, was of the luakini class (ibid).

At the time of Hudson observations, he notes that only a few stones from the heiau were remaining. In a conversation with Mr. Levi Lyman, it was discovered that the stones had been moved to make way for the park. Hudson, therefore did not document the remaining stones assuming they were no longer in their original location (ibid).

The next archaeological study for the Hilo area would not be until the late 1970s. It is important to mention some of the major events that has tremendously influenced the Pi'opi'io and greater Hilo area. In 1946 and again in 1960 Hilo was devastated by two tsunamis. The 1960 tsunami resulted in the death of 61 people and an estimated damage worth \$22-

50 million. Two-hundred eighty-eight structures were demolished and another 291 was damaged (Hawaii Redevelopment Agency 1971:3). The County of Hawai'i sought to rehabilitate the areas that received the most damage, one area being Pi'opi'o and the coastal Waiākea area. The tsunami itself created a lot of ground disturbance, and ultimately shaped future development for the coastal portion of Waiākea.

The Hawai'i Redevelopment Agency (HRA) was charged with devising a plan that would "pump life back into the devastated area" (ibid:11). Revitalizing the area located inland of Pi'opi'o required extensive bulldozing and backfilling. One of the products of this task force is the report known as Project Kaiko'o (1971). This report details how the task force was formed and the projects that were undertaken as a result of the devastating tsunamis. Although this report is not archaeological in nature, it helps to explain the lack of studies for the Hilo area between the 1940s through the 1970s and also establishes some fundamental reasons for the lack of surface cultural remains in the area.

In 1974, John Wright conducted an inventory survey as part of a statewide inventory to identify properties eligible for nomination to the National and State Register of Historic Places. A total of five sites were documented in his survey, two of which are located in Pi'opi'o.

- (1) Site 50-10-35-7452- Tsunami clock located on Kamehameha Ave.
- (2) Site 50-10-35-7461- Waiakea Mill Warehouse and Landing located at the south end of the Waiākea fishpond (Pi'opi'o).
- (3) Site 50-10-35-7484- Wailoa River Bridge located partially in Pi'opi'o
- (4) Site 50-10-35-7485- Suisan Fish Market located at the mouth of Wailoa River
- (5) Site 50-10-35-7486- Lili'uokalani Gradens located on Lihikai St.

The next most comprehensive study for the Hilo area was published in 1981 by Marion Kelly, Barry Nakamura and Dorothy B. Barrère in their report titled *Hilo Bay: A*

*Chronological History.* Although this study is not focused specifically on archaeological finds, it does provide a comprehensive overview of “changes in land use in and around the bay area and their effect on the water quality and the coastline of the bay” (1981:iii). This report contains an extensive historical background section, which provides a wealth of information regarding the cultural context of the area. Nearly all subsequent studies of the Hilo area are project specific archaeological studies.

In 1988, Paul H. Rosendahl conducted an archaeological reconnaissance survey for the Hilo Judiciary Complex Sites project. Five sites, totalling 26.3 acres were investigated by Rosendahl as these sites were under consideration as possible locations for the Hilo Judiciary Complex. As Rosendahl writes, “the primary objectives of the reconnaissance survey were to make a general assessment, in conjunction with the preparation of an Environmental Impact Statement (EIS)...” (Rosendahl 1988:1). All sites were inspected using the pedestrian survey method. No archaeological sites were identified within the five project areas. It is speculated that all five sites have “undergone profound transformation as the city of Hilo has evolved; no traces of prehistoric or early historic land use patterns were present on the ground surface of the sites” (ibid:8).

In 1988, Marc Smith and Perry Tourtellotte responded to a call from the County of Hawai'i Planning Department regarding the unearthing of a human burial during the Wailoa Bridge Realignment Project. The bones were exposed during a cable trench excavation along Lihikai Street and was taken to the Hilo Medical Center for analysis (Smith and Tourtellotte 1988:1). The bones were sorted and identified as mandible fragments, cranium fragments and a fragment of a small long bone, possibly a tibia (ibid:3). Non-human bones likely from a large mammal was also found the same trench. The human bones were taken to the University of Hawai'i at Hilo for further analysis (ibid:3).

In 1989, Mike Pietrusewsky conducted a follow up study on the human remains found by Smith and Tourtellotte. The bones fragments were reconstructed which allowed for a more detailed analysis and partial identification.

Pietrusewsky determined that the bones were male and the “rocker jaw” suggest Polynesian ancestry. The condition of the bones indicated the remains were ancient (Pietrusewsky:2).

In 1989, DHM Planners, Inc. completed an inventory of fishponds on the islands of O’ahu, Moloka’i and Hawai’i Island for the Department of Land and Natural Resources. The purpose of the study was to identify potential fishponds for inclusion on the State and National Register of Historic Places. Although fishponds were inventoried on all three islands, only fishponds on O’ahu and Moloka’i were analyzed in depth and recommended for nomination to the State and National Register (DHM Planners, Inc. 1989: 2).

In all, twenty-two fishponds were identified in the South Hilo district all of which are located in the ahupua’a of Waiākea. From the list of twenty-two, only three fishponds were documented in the Pi’opi’o area. Hoakimau, Mohouli and Waiākea fishponds were inventoried and classified as type III fishponds based on Kikuchi’s (1973) fishpond typology (DHM Planners, Inc. 1989:29). Type III fishponds are classified as loko wai type ponds that are “an inland freshwater fishpond which is usually either a natural lake or swamp, which can contain ditches connected to a river, stream, or the sea, and which can contain sluice gates (ibid:1).” All three fishponds were noted as being State owned (ibid:29).

The condition of Hoakimau and Waiākea was classified as “I”, meaning the “wall [is] in generally good to excellent condition, and retaining much of the traditional construction technique, [with] minimum siltation [and] minimum encroachment by vegetation.” These fishponds were also determined to meet “at least 3 National Register criteria.” Only Mohouli fishpond was classified as a “IIA,” meaning the “wall [is] in fair to good condition, [with] no more than moderate siltation [and] no more than moderate encroachment by vegetation.” Mohouli fishpond met “three (3) or less National Register criteria” (ibid:3).

In 1996, Paul H. Rosendahl conducted a pedestrian ground survey for seven proposed sire for the Hilo Judiciary

Complex Project. Of the seven sites, one was the old Kaiko'o Mall, located less than a mile inland from Pi'opi'o. The purpose of the survey was to "evaluate, from a historical and archaeological perspectives, the feasibility of constructing the judiciary complex at various sites" (Rosendahl 1996:1). The Kaiko'o Mall site consists of 6.5 acres. Most of the site was paved over and developed to accommodate the existing shopping mall. No sites were documented during the pedestrian survey and Rosendahl stated the following as to why that was the case: "...because the Kaiko'o Mall and the parking lot are built on this lot and substantial ground work was associated with construction, it is highly unlikely that any earlier residential sites or archaeological data is present" (ibid:13).

In 2004, Paul H. Rosendahl completed an archaeological assessment and monitoring plan for the Hilo Judiciary building. The monitoring plan was prepared as part of the historic preservation review process to support applications to County and State agencies for various permits relating to the demolition and construction of the building (Rosendahl 2004:ii). Rosendahl found no surface finds, attributing this lack of material evidence to the "area having been completely developed and occupied by a large commercial structure" (ibid:10). In addition, no subsurface archaeological testing was conducted. According to Rosendahl:

[T]he past land use history and commercial development--i.e., the impact of the 1960 tsunami and the subsequent creation of the elevated landfill plateau, and the later construction of a shopping center in 1969-- it is considered highly unlikely that any physical evidence of prehistoric or early historic period occupation of the area has survived (ibid:10).

In 2009, Rechtman Consulting, LLC. prepared an archaeological assessment for the Hilo Bay Front Trails Project. This report contains an extensive historical background section which provides a wealth of information regarding the cultural context of the Wailoa State Park area. A crew from Rechtman Consulting, LLC. walked the proposed trail alignment to identify surface archaeological finds. No specific archaeological features were identified in

their study. However it was recommended that there is potential for subsurface buried features to be encountered during subsurface development activities (Rechtman 2009:30).

In 2012, Wilkinson *et al.* prepared an archaeological monitoring plan for the Kamehameha Avenue Reconstruction Project. This project extended over several ahupua'a including Pōnahawai, Kūkūau 1 & 2 and Waiākea. The Waiākea portion of the project area is located between Hilo Bay and the Wailoa River, thereby situating it in the middle of Pi'opi'o. It was suggested in the report that "the project area has the potential, however low, for pre-contact and historic cultural deposits, as well as human burials" (ibid:52). Keala Pono Archaeological Consulting completed the archaeological monitoring between 2014-2015. The findings from this report are not yet available and are awaiting approval from the State Historic Preservation Division (Windy McElroy, pers. comm.).

In 2015, Martha Yent prepared an Archaeological Monitoring Plan for the Wailoa River State Recreation Area as part of the Hilo Bayfront Trails Project. This monitoring plan focuses specifically on lands located to the west of the Wailoa and Waiākea Fishpond. Although this project is not situated directly in Pi'opi'o, its close proximity to the area is worthy of inclusion in this report. In addition to a cultural-historical overview, Yent provides an inventory of historic properties, some of which lie in the boundaries of Pi'opi'o. Yent lists seven historic sites in the project area (Yent 2015:19). The sites are:

- (1) Waiolama Canal and Kumu Street Bridge (50-10-35-30106)
- (2) Hō'akimau Fishpond (50-10-35-18894)
- (3) Mohouli Fishpond (50-10-35-18898)
- (4) Waiākea Fishpond Complex (50-10-35-18899)
- (5) Kuaka'ananu'u Heiau Boulders (50-10-35-30108)
- (6) Shinmachi (50-10-35-30107)

Yent also provides the descriptions below for the previously listed sites:

**Hō'akimau Fishpond:** Hō'akimau Pond links Waiolama Canal and Waiākea Pond but was altered by dredging and the deposition of fill in the 1960s. Today, the pond is about 400 feet long (E-W) by almost 250 feet wide at the widest point. The 1891 map (Fig. 7) indicates a wall that separates the pond from Wailoa River but this wall is no longer evident.

**Mohouli Fishpond:** Mohouli Pond consists of 5.9 acres on the western side of Waiākea Pond. A wall may have separated Mohouli and Waiākea Ponds but the wall is no longer visible and there is no evidence of a sluice gate. Today, this pond is a wildlife sanctuary. A modern concrete drainage channel now feeds into Mohouli Pond.

**Waiākea Fishpond Complex:** Feature A-1. Waiākea Pond encompasses 25 acres. There was a former stacked rock fishpond wall with mākāhā that separated the pond from the Wailoa River (Photo 5a). It was modified in the late 1870s or early 1880s to accommodate barges carrying sugar down the Wailoa River. There is a small island in the pond where the fishpond wall and barge lock gate were located that now supports a footbridge across the pond.

FEATURE A-2. There are remnants of the barge lock gate on the eastern edge of the Waiākea Pond (Photo 5). It consists of a relatively straight concrete retaining wall that measures 34.5 meters in length. The wall is 46cm high on the interior face, 210cm on the pond side to the current pond floor, and 110cm to the top of the water. The width of the wall varies from 113cm wide at both ends and 45cm in the center (Fig. 10). The ends of the wall are rounded and the north end is just under the footbridge. At each of the wall on the surface is an indentation that measures 110cm long, 16cm wide and 21cm deep. A metal ring is associated with this feature on the pond side of the north end. There are also 2 metal posts (17cm in diameter and 68cm high) on both ends. On the island to the west of

this retaining wall are other concrete and metal remnants of the lock gate (Fig. 9, Photo 5b).

FEATURE A-3. The barge basin consists of a 3-sided concrete wall that extends below water level (Photo 6). It measures 60 feet by 30 feet with a wall width of 100cm. A metal railing has been added for public safety. There is a distance of about 4 meters from the railing to the asphalt path (Photo 6d).

**Waiolama Canal and Kumu Street Bridge:** The Waiolama Canal was constructed between 1915 and 1917, and involved the dredging of the 20-foot wide canal and infilling of the marshy areas around Waiolama Stream using the excavated material from the canal and sand from Hilo Bay. When it was initially built, the canal ran from the area of Pōnahawai Street to Waiākea Pond, a distance of at least 0.5 mile. The walls of the canal are of basalt boulder and mortar construction and the floor is rock lined (Kelly et al. 1981: 220).

A site inspection was conducted by State Parks archaeologists in February 2014. The 1,400-foot long section of the canal within the Hilo Bayfront Soccer Fields is in good condition with the canal averaging 23 feet (7.2 meters) in width and the rock and mortar walls averaging 5 feet (1.5m) in height (Photo 4). The walls are one boulder wide with a thin concrete cap on some sections. The rock used ranges from subrounded to subangular (Photo 4d). The mortar is within the wall with limited visibility on the wall face. The floor of the canal is lined with 2" x 6" wooden planks laid across the width of the canal (Photo 4e). It is believed that these planks were laid to allow the use of machinery in the maintenance of the canal. The concrete bridge over the canal at Kumu Street has a date of 1935 on one of the posts. There are two concrete pillars at one point along the canal which formerly supported the Hilo sewer line, ca. 1935-1937 (Photo 4c). A 50cm high and 25cm wide concrete "wall" atop the canal walls is found on the western

side of the bridge which is believed to be a later addition.

The 650-foot long section of the canal in Wailoa River SRA and to the east of the Pauahi Street bridge is in poor condition with only small sections of the canal wall remaining intact (Photo 4b). There is a 200-foot (60m) section on the north (makai) side of the canal by the Kamehameha Statue, a 55-foot long remnant associated with the Pi'opi'o Street bridge that was rebuilt in 1988, and a 25-foot long section associated with the Pauahi Street bridge. The canal between Pauahi Street and Hō'akimau and Waiākea Ponds has been altered such that only remnants of the rock wall remain and the earthen banks tend to curve rather than run straight

**Kuaka'ananu'u Heiau Boulders:** There is a grouping of 23 basalt boulders under the 2 large Banyan trees off Manono Street and within the Wailoa Sampan and Small Boat Harbor area (Photo 7). The mound measures about 5 meters in diameter and is located 13.5 meters from the edge of Manono Road. The boulders average 70cm to 100cm in length with 8 of rocks being rounded while the others are subangular. Terri Napeahi and Don Pakele shared that these rocks are from the luakini heiau named Kuaka'ananu'u that was originally located in the area of Maka'oku along the eastern side of Hilo Bay by Mokuola (Coconut Island) (pers. com.). The heiau was dismantled in the 1860s by Captain Thomas Spencer of 'Amauulu Sugar Plantation to build a wharf at Ohele. At this time, Napeahi moved 23 boulders from the middle chamber of the heiau to this current location where 1.3 acre was under his ownership as LCA 2603 (refer to Fig. 7). In 1923, Matson acquired the property and developed the harbor at the mouth of the Wailoa River for sampans and barges (ibid).

It was noted in October 2015 that the boulder had been moved from their location under the Banyan trees and were used to line the parking lot of the Wailoa Sampan Basin and Boat Harbor (Photo 8).

When the Division of Boating and Ocean Recreation (DOBOR) was notified of the cultural significance of the boulders, they moved the boulders back to under the Banyan trees. When a site visit was made on November 18, 2015, it was confirmed that 23 boulders were present under the Banyan trees. A grouping of 22 boulders are located within an area measuring 3.4m (N-S) by 5.2m (E-W) and the 23rd boulder being located about 8m to the NE and adjacent to the northern Banyan tree. The boulders are now 18 meters from the curb of Manono Street so they are closer to the Banyan trees than previously, about 4 meters from the base of the tree.

In addition, new piles of black sand were noted in the area during a site inspection on November 18 (Photo 9). About 8 meters south of the boulders is a linear pile of sand that runs from the parking lot to Manono Street. There are 2 other piles of sand about 17.5 meters north of the boulders at the entry road into the harbor parking lot.

**Shinmachi:** In about 1900, Shinmachi, which means “New Town” in Japanese, was established along the mauka side of Kamehameha Avenue, from Pi’opi’o Street to where the Hilo Iron Works building now stands. What had been low-lying swampland was filled with sand from Hilo Bay, and became a close-knit, primarily Japanese community until 1946, when many of its buildings were destroyed by a tsunami and more than 100 people died (Lang 2007:36). It was not rebuilt and much of the area of Shinmachi is now part of Wailoa River SRA.

## 6.1 Summary

With all the previous archaeological studies conducted near and around the Pi’opi’o are, there have been no major surface or subsurface finds to date. With the exception of the Kuaka’ananu’u heiau boulders and the fishponds, most of the sites that have been recorded as associated with the historical era.

## 7.0 NĀ KĀHUA HULIKOEHANA – SITE DESCRIPTIONS

### 7.1 Objectives and Methods

The following section will detail the site documented during the 2016 fieldwork. The purpose of the survey is two-fold: 1) to train students in conducting archaeological surveys and 2) document cultural sites in Pi'opi'o. Both terrestrial and aquatic surveys were conducted. A pedestrian survey was conducted at several points throughout the five-week program. The survey was only conducted on the Pi'opi'o portion of the Wailoa State Recreational Area. Survey of the coastline was not conducted. Since majority of the park is now a grassy field, with a few trees that dot the landscape, each individual was spaced approximately 6-8m apart. More time was spent investigating the pond margins for evidence of occupation. All identified features were documented with a Nohopapa LLC. feature form, GPS, and photographed.

One day was spent completing the aquatic survey. The main objective of the aquatic survey was to document any cultural sites located in the pond and along the pond margins, and to investigate the extent of the invasive para grass. We were particularly interested in investigating Mohouli Fishpond to see if the fishpond walls are present and their condition. Lokelani Brandt and Kalā Mossman accompanied three interns during the aquatic survey. Three kayaks and one paddle board was used to conduct the aquatic survey. Due to severe rain, stormy conditions and limited space on the kayaks, we were not able to take all surveying equipment with us. Only a GPS unit was taken along with two GoPro waterproof cameras to document the survey. The rain certainly impacted the quality of the survey as it made the water extremely dark and difficult to see below the surface. Thus our attempt to locate walls underwater was thwarted; nonetheless, we were able to locate the fishpond wall by simply pulling back the invasive grasses.

**Site #:** 1

**Feature Letter:** A

**Feature Type:** Bridge

**GPS Coordinates:** Easting: 0282231 Northing: 2181915, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Cement

**Possible Age:** Historic

**Possible Function:** Transportation

**Condition:** Fair

**Association with Other Features:** Bridge is built over a canal and is associated with Site 1B.

**Description of Location:** A banyan tree and palms are located on the sides of the canal

**Description of Feature:** The bridge is constructed of concrete and measures 13.15m x 8.9m x 1.8m with a rectangular plan view. The bridge is mostly covered in moss and has taro growing on the bluffs of the bridge. An engraving on the northeast end of bridge read "Piopio 1988" There are pedestrian walking paths located on the interior of the bridge walls measuring 1.6m wide. There are ramps built on each side of the bridge measuring 3.4m wide. The bridge railings are designed with vertical cement bar with spacing approximately 17cm wide and 11cm high. From the top of the bridge railing to the bottom of the canal measured 4.65 meters.



Figure 29. East side of Piopio Bridge with engraving on North end of bridge railing.



Figure 30. West side of Pi'opi'o Bridge

**Site #:** 1

**Feature Letter:** B

**Feature Type:** Wall

**GPS Coordinates:** Easting: 0282231 Northing: 0282231, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil and pāhoehoe

**Possible Age:** Historic and modern

**Possible Function:** Retaining wall

**Condition:** Fair

**Association with other Features:** Located on each side of Site 1A

**Description of Location:** Parallel to canal. Autograph tree located on the highest end of wall.

**Description of Feature:** Bridge is sitting on a huge concrete foundation and measures 3.1m x .6m x 2.1m and is of rectangular plan view shape. The feature is constructed of stones and is stacked 3-7 courses high. The feature is connected to feature 1A. Rock wall may have extended further out but shows evidence of disruption associated with bridge construction in 1988. The extension measures 8.4m long and is about three courses high on farthest end. On the surface of west wall there is no visible concrete and has rock fall into the water. South west bridge has a metal pole in ground near SW rockwall, which is approximately seven courses high. The north retaining wall runs parallel of canal and measures 3.55 meters long. The end of closest to the bridge is heavily impacted.



Figure 31. Retaining wall adjacent to Pi'opi'o bridge. View to South.



Figure 32. Retaining wall on north end of Pi'opi'o Bridge. View to north.

Site #: 1

Feature Letter: C

Feature Type: C-Shape

GPS Coordinates: Easting: 0282231, Northing: 2181915, Accuracy: 3m

Artifacts: None Observed

Midden: None Observed

Historic Material: None Observed

Skeletal Remains: None Observed

Substrate: Canal sediment

Possible Age: Historic

Possible Function: Unknown

Condition: Poor

Association with Other Features: Located North and adjacent to feature 1A and 1B

Description of Location: In the canal

Description of Feature: Feature is underwater and so measurements could not be taken but was visible from the bridge. It was of piled construction and constructed of cobbles and stones. Possible length and width is 3 meters long x 3 meters wide.



Figure 33. C-shape underwater in canal. Plan view.

**Site #:** 2

**Feature Letter:** A

**Feature Type:** Monument

**GPS Coordinates:** Easting: 0282336, Northing 2181925, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil

**Possible Age:** Modern

**Possible Function:** Ceremonial and Monument

**Condition:** Excellent

**Association with Other Features:** Located on North side of Hoakimau fishpond and canal.

**Description of Location:** Grassy area and eight royal palms mauka/South of statue and is spaced evenly and located parallel to canal.

**Description of Feature:** Feature is the Kamehameha Statue. This feature is situated on a grassy platform with retaining walls on the makai side of the monument. Platform is on an oval raised enclosure and measures 25.4 meters long x 15.8 meters wide with an average height of 1.1 meters high. Opening entrance on south side of statue and is the only opening in enclosure. The opening measures 2.2 meters wide and .6 meters high on both walls. There is a sidewalk that wraps around the stone enclosure with a grassy lawn on the exterior side of sidewalk. Located near the statue are two lamps and interpretative signs and handicap signs.



Figure 34. Plaque of Kamehameha Statue located on the northeast end of feature. Profile view.



Figure 35. Kamehameha Statue and monument. View to South.

**Site #:** 3

**Feature Letter:** A

**Feature Type:** Alignment

**GPS Coordinates:** Easting: 0282380, Northing 2181890, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil

**Possible Age:** Historic

**Possible Function:** Old canal wall

**Condition:** Poor

**Association with Other Features:** 3B is adjacent to feature on west end

**Description of Location:**

**Description of Feature:** Feature is of rectangular plan view and is in poor condition. Is constructed of boulders. Concrete slab measures 35.8 meters long x .6 meters wide.



Figure 36. Alignment with canal in the background. View to South.

**Site #:** 3

**Feature Letter:** B

**Feature Type:** Wall

**GPS Coordinates:** Easting: 0282376, Northing 2181889, Accuracy: 2m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil

**Possible Age:** Modern

**Possible Function:** Retaining Wall

**Condition:** Fair

**Description of Location:** Located near Hoakimau fishpond

**Description of Feature:** Feature is an L-shaped wall that measures 25.8 meters long x .6m wide. It is of stacked construction and is one to four courses high. Feature is constructed of boulders and stones and has a crack in the center.



Figure 37. Retaining wall adjacent to Hoakimau Fishpond.



Figure 38. Retaining wall with Hoakimau fishpond in foreground. View to the northeast.

**Site #:** 4

**Feature Letter:** A

**Feature Type:** Bridge

**GPS Coordinates:** Easting: 0282501, Northing 2181830, Accuracy: 2m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Other

**Possible Age:** Historic

**Possible Function:** Transportation

**Condition:** Good

**Association with Other Features:** Hoakimau fishpond

**Description of Location:** Located at the junction of Hoakimau fishpond and Wailoa River. Autograph tree and hala trees are located on the southeast corner of south end of bridge.

**Description of Feature:** Feature is constructed over Hoakimau fishpond and connects the east end of parking lot/roadway near Kamehameha Statue to Pi'opi'o. Feature has three arches and measures 60.7 meters long. There are two pillars that reinforce bridge to the bottom of the pond and has seven lamp posts situated on the bridge. Moss and lichen are growing on railings and are rusty. The walkways are heavily used and the light posts are no longer functional. The widest point on bridge measures 2.3 meters, measurement was taken on the south end of feature.



Figure 39. Working shot of students conducting pedestrian survey.



Figure 40. Hoakimau bridge. View to northeast.

**Site #:** 4

**Feature Letter:** B

**Feature Type:** Bridge

**GPS Coordinates:** Easting: 0282438, Northing 2181831, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Other

**Possible Age:** Modern

**Possible Function:** Transportation

**Condition:** Good

**Association with Other Features:** Features 4A and 4C

**Description of Location:** Feature connects to island and connects Pi'opi'o to small island in Wailoa. Located 143 meters from Wailoa Art Center.

**Description of Feature:** Feature has similar architectural features and design as feature 4A, two arches and railings. Feature connects to a small island and measures 40.7 meters long and 1.85 meters wide. Mango tree on south end of bridge. Beginning of bridge is located west of Wailoa.



Figure 41. Northwest end of the Wailoa Bridge. View to the east.

**Site #:** 5

**Feature Letter:** A

**Feature Type:** Walkway or Path

**GPS Coordinates:** Easting: 0282363, Northing 2181818, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Asphalt

**Possible Age:** Modern

**Possible Function:** Transportation

**Condition:** Fair

**Association with Other Features:** 4A and connected to 7A

**Description of Location:** Grassy area on both sides of walkway

**Description of Feature:** Feature is of irregular plan view and is approximately 2.5 meters wide along entire path. Is made of asphalt curves enroute to and from Feature 4B to the Wailoa Art Center. There are lamp posts along the path that no longer works. Various sections of the feature are overgrown with grass and other areas heavily obscure.



Figure 42. Walking path to Hoakimau bridge. View to northeast.

**Site #:** 6

**Feature Letter:** A

**Feature Type:** Ditch

**GPS Coordinates:** Easting: 0282296, Northing: 2181804, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil

**Possible Age:** Modern

**Possible Function:** Unknown

**Condition:** Poor

**Association with Other Features:** Connects to Wailoa Art Center and Wailoa River. Crosses through feature 5A

**Description of Location:** Overgrown with grass and marshy in surrounding area. Three palms are located on the west end between feature 5A and the Wailoa Art Center.

**Description of Feature:** Feature is of rectangular plan view, constructed of stone and measures 67.3 meters long and 3.4 meters wide. It originates from the Wailoa Art Center and empties into the river. The trench is stone lined and acts as a drainage for water. The feature is orientated from northwest to east and the land slopes downward with the highest point at the Wailoa Art Center. The feature utilizes natural gravity to direct water. The entire feature is overgrown and is not maintained. The origin of water is unknown. The ditch gets narrower towards the east end.



Figure 43. Stones along ditch.



Figure 44. Ditch with natural spring. Facing east.



Figure 45. Wailoa Art Center. View east.

**Site #:** 7

**Feature Letter:** A

**Feature Type:** Tsunami Memorial

**GPS Coordinates:** Easting: 0282293, Northing 2181799, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Cement

**Possible Age:** Modern

**Possible Function:** Memorial

**Condition:** Good

**Association with Other Features:** In close proximity of Wailoa Art Center, Feature 5A and 6A

**Description of Location:** Surrounded by grassy area, near Wailoa Art Center parking lot and Wailoa River.

**Description of Feature:** This feature is of a circular plan view and is a stone and concrete structure. An art mural is situated on the floor of the memorial and is constructed of tile. The tile art measures with a diameter of 10.85 meters. The interior of monument measures with a diameter of 23.9 meters. On the exterior of the monument there are two large crescent shaped structures that are filled with cobbles and stones and outlined with a cement ledge that measure .62 meters wide. These crescent shaped structures are designed with a gradual incline as it moves towards the interior of the feature. The west crescent measures 4.8 meters wide. The Shinmachi plaque is situated on the interior face of the East crescent and measures one meter in diameter. Granite slab below slab is situated below plaque and measures 5.2 meters wide.



Figure 46. Tsunami memorial. Facing southwest.



Figure 47. Tsunami memorial. Facing east.

**Site #:** 8

**Feature Letter:** A

**Feature Type:** Modern Building- Wailoa Center

**GPS Coordinates:** Easting: 0282336, Northing 2181772, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Cement

**Possible Age:** Modern

**Possible Function:** Art Center

**Condition:** Excellent

**Association with Other Features:** 6A is located on the East end of structure. 7A is located southeast of feature.

**Description of Location:** Outlined with native and non-native foliage.

**Description of Feature:** This feature is the Wailoa Art Center and is a main feature of the Pi'opi'o area. It is of circular plan view and is constructed of cement and lined with rock walls. The east end of the feature is outlined walls that have an irregular shaped plan view. There are light posts situated around the feature. Exterior has copper gutters and shingle siding. Sections of the structure have jealousies. There is a water feature on the East end of the bottom floor near the stairs and reaches to the second floor of feature. The bottom floor near the water feature has benches and smaller rooms for offices or art gallery displays. The bottom floor also has three caged gate near the water feature and rooms. On the Southwest end there are ramp driveways that begin on the bottom floor on east and west end of feature and gradually wrap to the second floor. The circumference of feature is approximately 160 meters. The area is still heavily used. Parking lots located on the south and west end of feature.



Figure 48. Wailoa Art Center. Facing west.



Figure 49. Wailoa Art Center. Facing north.

**Site #:** 9

**Feature Letter:** A

**Feature Type:** Wall Segment

**GPS Coordinates:** Easting: 0282508, Northing 2181543, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil

**Possible Age:** Modern

**Possible Function:** Habitation

**Condition:** Poor

**Association with Other Features:** Connects to 9B

**Description of Location:** Autograph trees and ponds on both ends. Small grove of coconut trees on northeast end of feature. Migrating waterfowl are resting in the area.

**Description of Feature:** Feature is a wall segment that measures 9.1 meters long x 3 meters wide. Measurement was taken from edge of pond to chainlink fence. Feature is a possible habitation and juts out to the Waiākea Fishpond.

**Site #:** 10

**Feature Letter:** A

**Feature Type:** Construction Materials

**GPS Coordinates:** Easting: 0282493, Northing 2181414, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil

**Possible Age:** Modern

**Possible Function:** Building Construction Materials

**Condition:** Poor

**Association with Other Features:**

**Description of Location:** Located behind the Hilo Lagoon building on the southeast end.

**Description of Feature:** This feature is a pile of boulders located behind the Hilo Lagoon.

**Site #:** 11

**Feature Letter:** A

**Feature Type:** Water Drain

**GPS Coordinates:** Easting:, Northing, Accuracy:

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil

**Possible Age:** Modern

**Possible Function:** Drainage

**Condition:** Poor

**Association with Other Features:** Near Mohouli fishbond and Hilo Lagoon. Southeast of Feature 10A

**Description of Location:** Autograph tree located on east end. Small fish inhabiting water from drainage.

**Description of Feature:** Feature is of a rectangular plan view shape and measures 2.6 meters long and 1.35 meters wide. It is constructed of concrete and has walls along the side of the drain. The drain measures 1.43 meters high at the highest point of the drain. The drain opening is shaped like a half hexagon and the water drains into a small oval shaped pool near the edge of the fishpond with small brown fish. The drain is orientated east, the water visibility is poor is heavily impacted by guinea grass. Fish seemed attracted to drain opening, possible food source near the drain opening.

**Site #:** 12

**Feature Letter:** A

**Feature Type:** Walkway/Path

**GPS Coordinates:** Easting: 0282343, Northing 2181776, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil and Concrete

**Possible Age:** Modern

**Possible Function:** Memorial/Monument

**Condition:** Good

**Association with Other Features:** FE 12B, 12C, 12D, 12E

**Description of Location:** Northwest of Wailoa Art Center and adjacent to NW parking lot

**Description of Feature:** Feature is a path constructed of concrete that connects NW parking lot to Feature 12C. The path measures 31 meters long x 1.3 meters wide and is lined with palm trees, wood chips and plaques honoring fallen Vietnam soldiers.



Figure 50. Overview of Site 12 and feature 12A. View to northwest.

**Site #:** 12

**Feature Letter:** B

**Feature Type:** Memorial Plaque

**GPS Coordinates:** Easting: 0282303, Northing 2181789, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil

**Possible Age:** Modern

**Possible Function:** Memorial/Monument

**Condition:** Good

**Association with Other Features:** FE 12A, 12C, 12D, 12E

**Description of Location:** Grassy area with large mango tree located SE of feature.

**Description of Feature:** Feature spans between three separate locations that serve the function of displaying plaques of names of fallen Vietnam soldiers. There are 30 plaques in total and are spaced approximately 1.8 meters apart.



Figure 51. Southwest mound with veteran soldier plaque. View to northwest.

**Site #:** 12

**Feature Letter:** C

**Feature Type:** Memorial

**GPS Coordinates:** Easting: 0282380, Northing 2181890, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil

**Possible Age:** Modern

**Possible Function:** Memorial

**Condition:** Good

**Association with Other Features:** 12A, 12B, 12D, 12E

**Description of Location:** Grassy area with large mango tree located SE of feature

**Description of Feature:** Feature is constructed of granite and is of square plan view. The structure is of multi level and has plaques on all four sides of names of Vietnam soldiers. The first level and base of the memorial measures 4.3m x 4.3m with the second level measuring 2.3m x 2.3m. A hearth and eternity flame is located at the top of the tier and is fueled by propane. Modern offerings are present on the memorial. The memorial is surrounded by benches on all four sides measuring approximately 3.7m x 0.6m. There are stone walls three courses high situated behind each benches and measures 4.5m x 0.65m x 0.45m. Small hedges of hydrangeas are situated behind the walls.



Figure 52. Overview of feature 12C. View to southwest.

**Site #:** 12

**Feature Letter:** D

**Feature Type:** Walkway/Path

**GPS Coordinates:** Easting: 0282296, Northing 2181786, Accuracy: 2m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil

**Possible Age:** Modern

**Possible Function:**

**Condition:** Good

**Association with Other Features:** 12A, 12B, 12C, 12E

**Description of Location:** Grassy area with large mango tree located SE of feature

**Description of Feature:** Feature is a cemented path that measures 14.5m x 1.3m. Small plaques and palm trees line the path on both sides. Path connects to memorial and west parking lot.



Figure 53. Feature 12D with site 12 in background. View to southeast.

**Site #:** 12

**Feature Letter:** E

**Feature Type:** Memorial Plaque

**GPS Coordinates:** Easting 0282303, Northing 2181789, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil

**Possible Age:** Historic

**Possible Function:** Memorial and Sign

**Condition:** Good

**Association with Other Features:** 12A, 12B, 12C, 12D

**Description of Location:** Grassy area with large mango tree located SE of feature

**Description of Feature:** Feature is a large rock with a plaque attached to the top. It is situated southwest of Feature 12C and connected to the memorial site. The plaque is bronze and measures 0.4m x 0.36m. Plaque was imbedded to the rock and rock is situated on asphalt connected to the memorial. It has a trapezoid plan view and is eight courses high.



Figure 54. Overview of feature 12E. View to east.



Figure 55. Plaque embedded on feature 12E. Plan view.

Site #: 13

Feature Letter: A

Feature Type: Platform

GPS Coordinates: Easting: 0282380, Northing 2181890, Accuracy: 3m

Artifacts: None Observed

Midden: None Observed

Historic Material: None Observed

Skeletal Remains: None Observed

Substrate: Soil

Possible Age: Historic

Possible Function: Unknown

Condition: Good

Association with Other Features:

Description of Location:

Description of Feature: Feature is of rectangular plan view and is in poor condition. Is constructed of boulders. Concrete slab measures 35.8 meters long x .6 meters wide.

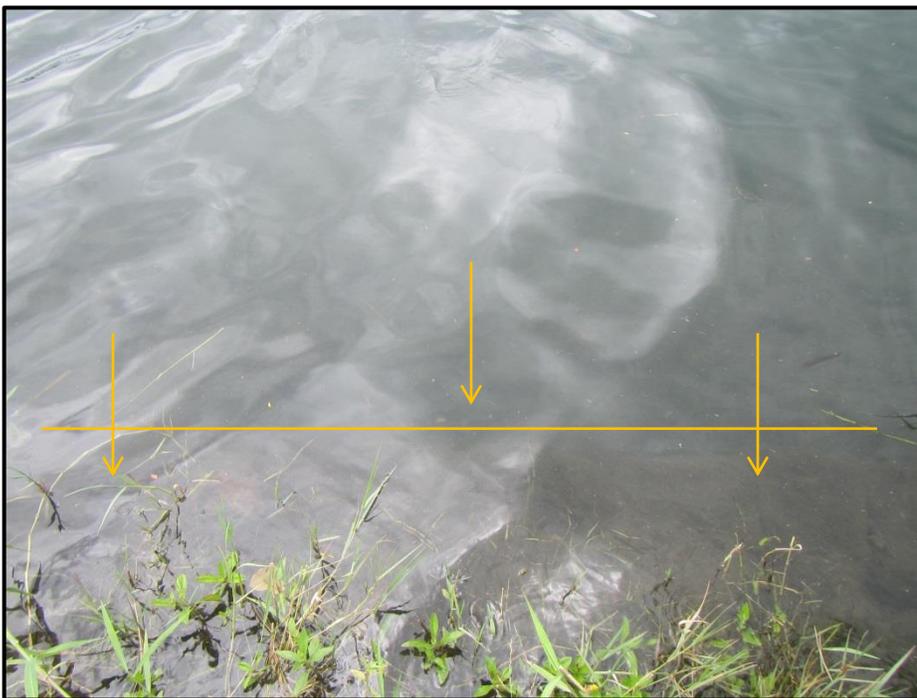


Figure 56. Platform located underwater. Plan view.

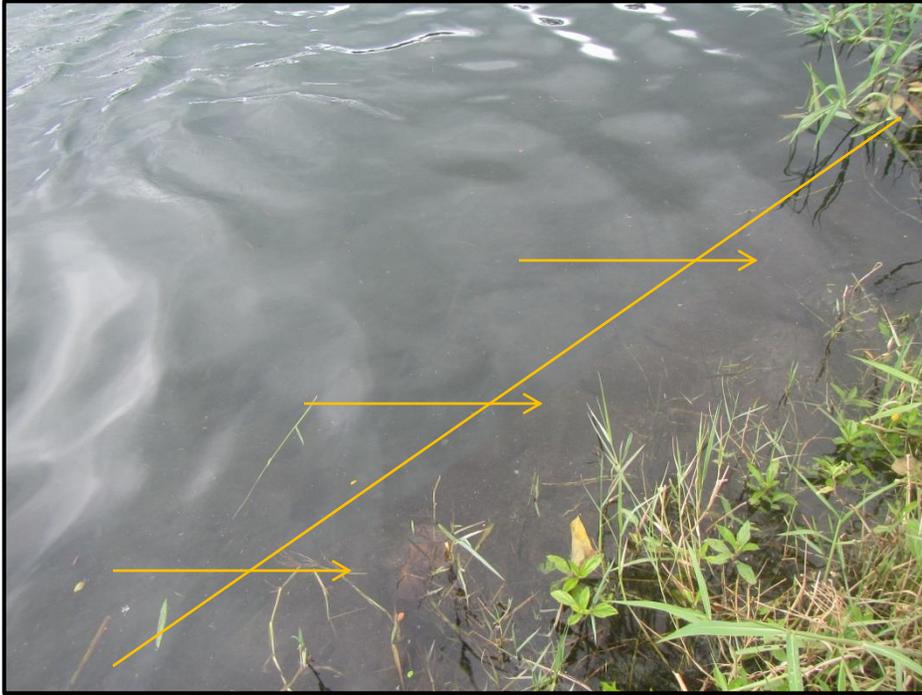


Figure 57. Plan view of platform underwater.

**Site #:** 14

**Feature Letter:** A

**Feature Type:** U-Shape

**GPS Coordinates:** Easting: 0282658, Northing 2181668, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil

**Possible Age:** Historic

**Possible Function:** Sugar Plantation

**Condition:** Fair

**Association with Other Features:** Wailoa River

**Description of Location:** Adjacent to Wailoa River and kamani present on west end of site. Vegetation and grass in surrounding area.

**Description of Feature:** This feature is a U-shaped feature that measures 18.05 meters long x 11.95 meters wide constructed of cement. The opening is in Wailoa River and the individual wall measures 1.27 meters wide. There is cracking on the front long axis with fallen branches in the water, with a depth of 2.7 meters. A large submerged beam with square headed nails. Located near northwest wall are rusted metal railings that have been warped and is in poor condition. Two boat horn cleat anchors are located at the head of the U-shape on the south end.



Figure 58. Northwest corner of lock gate. View to northwest.



Figure 59. Interior segment of lock gate. View to southeast.



Figure 60. West wall of lock gate with crack in wall. View to southwest.

**Site #:** 15

**Feature Letter:** A

**Feature Type:** Platform

**GPS Coordinates:** Easting: 0282684, Northing 2181776, Accuracy: 3m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil

**Possible Age:** Historic

**Possible Function:** Habitation

**Condition:** Fair

**Association with Other Features:** N/A

**Description of Location:** Located to the northeast of large pavilion

**Description of Feature:** Feature is of square plan view and is in fair condition. Measuring at 6.16 meters long x 4.35 meters wide x 0.4 meters high, this feature is constructed of cobbles and stones and is stacked 2 courses high. Located on the north side of feature are stairs that are constructed of waterworn cobbles and stones. Evidence of small waterworns removed from stairs. The platform interior is constructed of concrete and exterior is constructed of cobbles. The feature is situated in the middle of a grassy area the stairs width is 0.66 meters with a length of 2.4 meters.



Figure 61. Overview of kauhale platform with stairs and large Wailoa Park pavillion in background.

View to south.



Figure 62. Overview of rear section of platform. View to east.



**Site #:** 16

**Feature Letter:** A

**Feature Type:** Wall

**GPS Coordinates:** Easting: 0282656, Northing 2181637, Accuracy: 2m

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Soil

**Possible Age:** Unknown

**Possible Function:** Retaining wall

**Condition:** Good

**Association with Other Features:** FE 14A

**Description of Location:** Located at the intersection of Wailoa River and Waiakea fishpond, on the eastern end of embankment

**Description of Feature:** Feature measures 33.4 meters long and is of rectangular plan view shape. The width of feature varies with 0.9 meters wide on the north end and 0.45 meters wide on south end. The orientation of the wall is north to south. There are metal pipes that protrude out of the wall on the south and north end of the feature. The pipes average 0.17 meters in diameter. Large boulders are situated at the south end of feature near the river edge and along embankment.



Figure 63. View of northwest end of retaining wall with metal pipe protruding. View to northwest.



Figure 64. Overview of northwest segment of retaining wall with arched bridge and Wailoa river/Waiākea Fishpond in background. View to southwest.

**Site #:** 17

**Feature Letter:** A

**Feature Type:** Wall

**GPS Coordinates:** N/A

**Artifacts:** None Observed

**Midden:** None Observed

**Historic Material:** None Observed

**Skeletal Remains:** None Observed

**Substrate:** Other

**Possible Age:** Traditional and/or Historic

**Possible Function:** Aquaculture

**Condition:** Poor

**Association with Other Features:** None

**Description of Location:** Located on the southwest portion of Pi'opi'o, adjacent to Kilauea Avenue. Mango and African Tulip can be found on western pond margins. Royal palms, milo, hilo grass, honohono grass growing on pond wall.

**Description of Feature:** Feature is a wall and located in the Mohouli fishpond. The surrounding area is overgrown with grass, thus making access to walls very difficult. Wall is crescent shaped plan view and connects to Waiakea fishpond. There is a flood control wall to the south and extends out towards the Waiakea Fishpond then toward the west near Hilo Lagoon. A break in the wall is located on the western edge. The walls are inundated and overgrown with a grass like plant. The tops of the walls are also overgrown and contains plants like Milo and Royal Palm. The top of the wall is approximately one meter wide and it is the narrowest section. The base of the wall is wider, causing feature to resemble a trapezoid. The wall is constructed of cobbles and stones and is of piled construction. Feature was accessed by kayak and due to poor weather conditions visibility was limited.



Figure 65. Kalā Mossman pulls back para and honohono grass to reveal Mohouli fishpond walls.

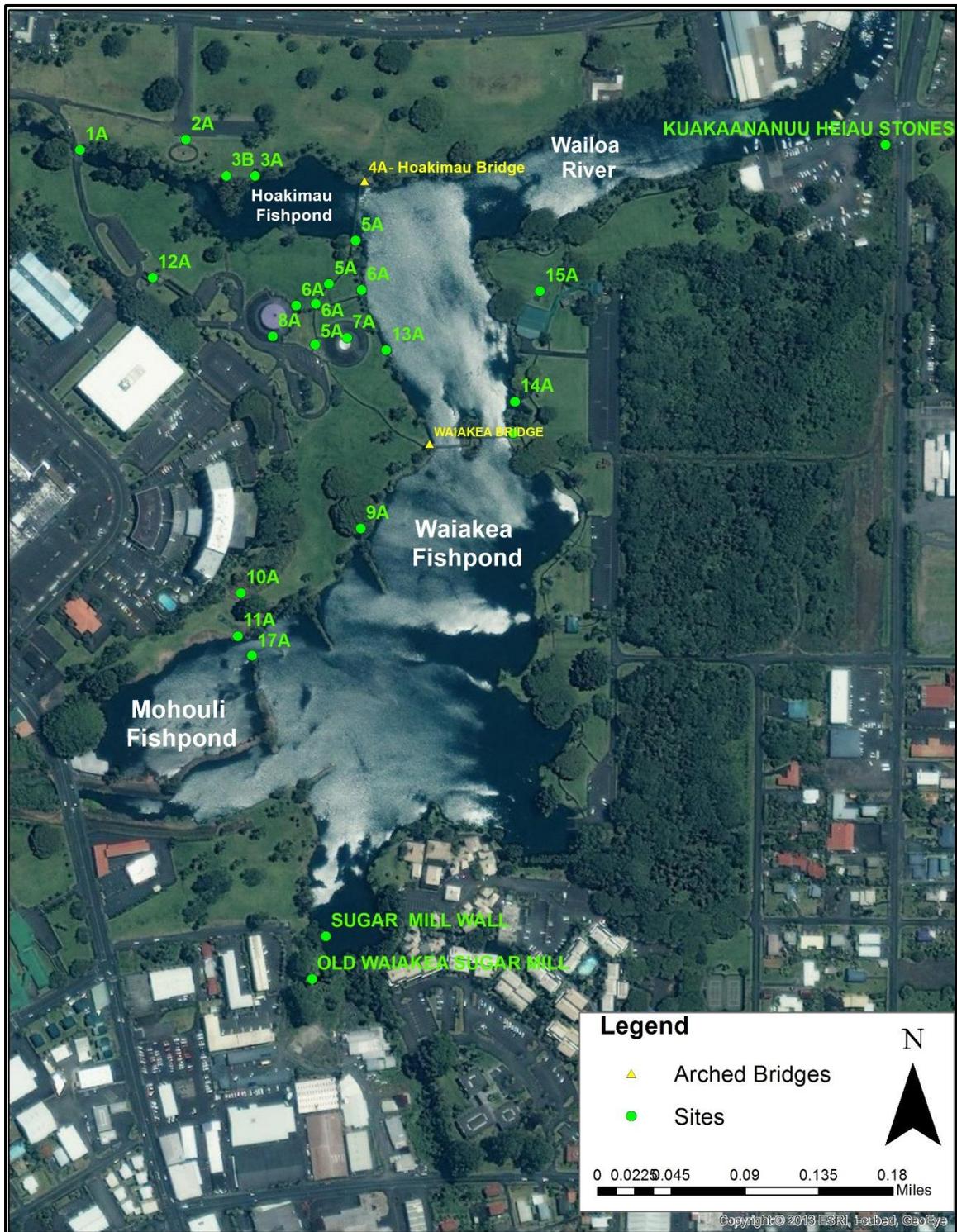


Figure 66. Sites throughout the Pi'opi'o and Wailoa area.

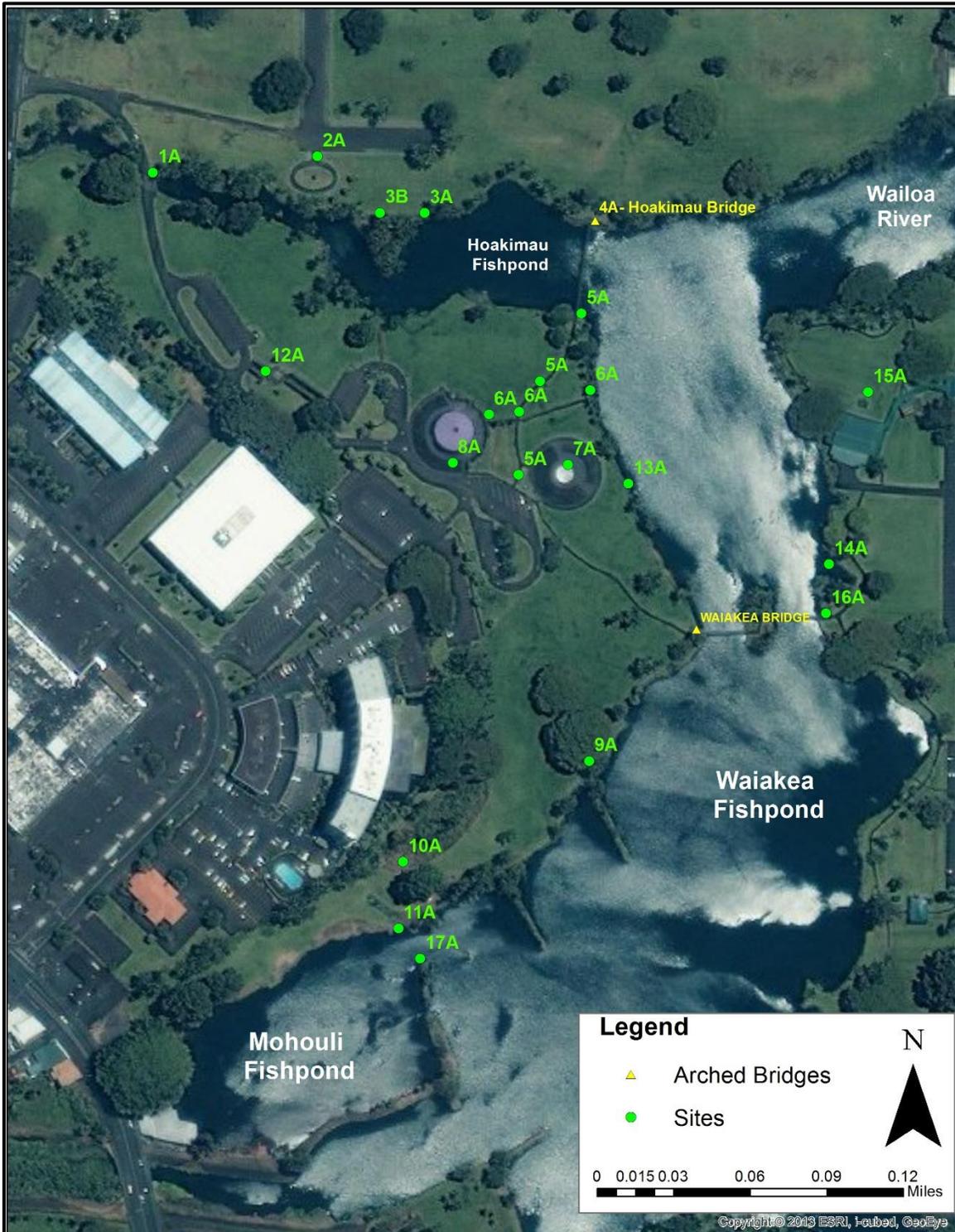


Figure 67. Sites in the Pi'opi'o area.

## 8.0 KŪKĀKŪKĀ – CONCLUSION AND RECOMMENDATIONS

*"[The Wahi Kupuna Internship Program] was stressful and hard but well worth it. I'm so glad I was chosen to be in this program. I've definitely come out with a whole new set of skills as well as new friends...This internship is more than just a program. It's a family."*

– 2016 WKIP Intern

In conclusion, our experiences in working with high school students off KS-lands for this year's Wahi Kupuna Internship Program have been rewarding and thought-provoking (Figure 49). Our emphasis of quality and quantity, of working with a small group of high school students to provide them with a positive, one-on-one learning environment, has resulted in their impressive presentations and research papers and the development of their critical understanding and appreciation that goes into the work of Cultural Resource Management.

Whereas in past year's the program's goal was solely to increase the number of Native Hawaiians and kama'āina working within CRM, this year's experimental shift in working with high school students has provided a catalyst for considering ways that the program can work towards new, multiple programmatic goals for engaging with more high school students in the future. These goals included:

- (1) To increase interest in early college students to pursue CRM-related disciplines.
- (2) To engage Native Hawaiian and kama'āina young adults in the rich cultural history of their local wahi kupuna.
- (3) To utilize CRM as a means to provide students with professional and technical skills that will prepare them for further collegiate studies and their future careers.



Figure 68. WKIP students and staff at the community hō'ike, July 7th, 2016.

Through the course of this year's program, we also witnessed how the program became the impetus for bringing multiple stakeholders, organizations, and community members together towards the common goal of preserving the rich history of Pi'opi'o by supporting our young adults in their post-secondary education. In the coming years, we hope to continue working with partners like Kamehameha Schools – Land Assets Division, the Department of Land and Natural Resources, and the Queen Lili'uokalani Children's Center, to provide further

*“In consulting with the Kūhanauna 2015-2020 Kamehameha Schools Strategic Plan, we see multiple areas where the WKIP can help to achieve Kamehameha School’s objective to ‘significantly increase the success rate of Native Hawaiians in college, career, and leadership pursuits.’”*

opportunities like the WKIP for our ‘ōpio.

Furthermore, we believe that this year’s program has allowed us to further determine ways that the WKIP can align with both Huliauapa’a’s and KS-LAD’s mission and goals. In consulting with the Kūhanauna 2015-2020 Kamehameha Schools Strategic Plan, we see multiple areas where the WKIP can help to achieve Kamehameha Schools’ objective to “significantly increase the success rate of Native Hawaiians in college, career, and leadership pursuits.” In particular, the WKIP is effective for working towards the following goals:

**Goal 2: Improved Educational System – Contribute to communities’ collective efforts to improve our education systems for Native Hawaiian learners to achieve the Educational Pathway Milestones.**

The Wahi Kupuna Internship Program improves our education systems for Native Hawaiian learners by providing high school interns with a broad professional skill set that they can utilize in college and their future careers. Such skills, include writing research papers, public speaking, Geographical Information Systems (GIS), and networking with other professionals. These skills, and many others, are fundamental for successfully achieving Educational Pathway Milestone 6, Completed postsecondary education/training, and 7, demonstrated local and global servant leadership and cultural engagement.

**Goal 3: Native Hawaiian Identity – Cultivate a strong Native Hawaiian identity to instill confidence and resiliency in our learned and to inform decision making and actions within our organization, for the improvement of the well-being of the lāhui.**

The Wahi Kupuna Internship Program cultivates a Native Hawaiian identity by providing students with the opportunity to intimately connect with the culture, history, and landscape of our wahi kupuna. Through lessons in conducting oral histories, locating information on land commission awards, and research in archives, the students are empowered to reconnect with places and people in new and meaningful

ways. These connection in turn foster the development of their own identity as a Native Hawaiian.

## **8.1 Recommendations**

Lastly, we end this report with a set of recommendations for KS and other agencies regarding the future of the WKIP and the management of Pi'opi'o. The recommendations are divided for each organization.

### **8.2 Recommendations for KS**

**Recommendation 1: Continue to fund the Wahi Kupuna Internship Program on both KS and non-KS land.** In order to properly operate the Wahi Kupuna Internship Program, funding through KS – LAD is crucial. We recommended continuing to fund the Wahi Kupuna Internship Program so that we may continue the work of introducing high school students to the field of CRM and increasing the number of Native Hawaiians and kama'āina working in the field.

**Recommendation 2: Support future 'āina-based initiatives in Pi'opi'o.** Although the immediate area of Pi'opi'o is not KS-owned, there are parcels of land around Pi'opi'o's boundaries that are. In addition, the East Hawai'i regional office of KS is located in Pi'opi'o in the Hilo Iron Works Building. Through this report, we have shown the significant cultural history and landscape of Pi'opi'o, and recommend supporting future 'āina-based initiatives in the area. This may include educational or restoration efforts aimed to revitalize Pi'opi'o.

### **8.3 Recommendations for DLNR**

**Recommendation 1: Seek community partners in the management of Pi'opi'o.** Currently, the Wailoa State Recreational Area which includes the majority of Pi'opi'o lands is poorly managed. Existing facilities, like the walkways, lamp posts, arch bridges, and pavillions, need to undergo major renovations so that they are safe for public use. Additionally, there are areas in the park that are overgrown with invasive grass such as para grass. These grasses, if allowed to spread even further throughout the park, will eventually fill in significant areas like Mohouli fishpond with a thick carpet of grass. Additionally, the use of herbicides along the water's edge is alarming and needs to

be addressed. In documenting the current challenges of managing Pi'opi'o, our first recommendation to DLNR is to seek community partners to assist in the maintenance of the park.

**Recommendation 2: Support efforts to revitalize the area of Pi'opi'o.** As a partner recommendation to recommendation 1, we encourage DLNR to support efforts like the Wahi Kupuna Internship Program to revitalize areas like Pi'opi'o. Although the outcome of revitalization is to revive particular areas in terms of being used by and for the community, it also includes efforts to reclaim and reintroduce the significant histories of our wahi kupuna.

**Recommendation 3: Conduct sediment quality testing throughout the park.** We recommend that DLNR conduct extensive testing of Pi'opi'o to determine areas with the highest amounts of arsenic. During our community hō'ike, we learned that the Wailoa Art Center is planning to develop a community garden adjacent to the Center's main headquarters. However, dredged sand from Hilo Bay has been used in the past to fill in marshy areas around the Center. Since previous research has shown trace levels of arsenic in and around Pi'opi'o, extensive testing is needed to determine which areas can be safely cultivated. Testing would also provide information for archaeologists on whether or not protective material is needed for excavations.

#### **8.4 Recommendations for QLCC**

**Recommendation 1: Continue collaborating with the Wahi Kupuna Internship Program.** We hope in future years to continue working with high school students in the Wahi Kupuna Internship Program. With this in mind, we hope that QLCC continue supporting the program yearly by assisting us to secure resources to take the students to O'ahu and to Pi'opi'o.

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## Appendix A: Student Research Papers

### Kanu Kipi: Revitalizing Agricultural Practices in Pi 'opi 'o Research Paper by Natalie Keawekane

What type of agricultural practices were utilized by Native Hawaiians living in Pi 'opi 'o during the 19th-century? Is it possible to still use these agricultural practices today? The intent of this project is to learn about traditional agricultural practices that were once utilized in Pi 'opi 'o during the 19th century. To do this, historic records, like native and foreign testimonies from the Māhele, were used. Additionally, the second intent of this paper is to teach others about these methods, in hopes that the present generations, young and old, can learn about the resources that were once abundant in Pi 'opi 'o and bring life back to the area.

#### **Background**

Pi 'opi 'o is a 'ili kūpono (also known as a 'ili kū), located in the 'ahupua 'a of Waiākea on Hawai 'i Island. The Extension Education Division of Kamehameha Schools defines a 'ili kūpono as “sections of the ahupua 'a allotted to individuals in return for produce and labor” that was “given to the paramount chief of the island” (Kamehameha Schools 1987). Pi 'opi 'o is more commonly known as Wailoa because the river that runs alongside it is named Wailoa. The name Wailoa also applies to the state park where the Pi 'opi 'o area is today.

The environment of Pi'opi'o is marshy-wetland surrounded by bluish green water. Common trees that can be found in the area are mango trees (*Mangifera indica*), banyans (*Ficus benghalensis*), shower trees (*Cassia fistula*), hala (*Pandanus amaryllifolius*), coconut trees (*Cocos nucifera*) and african tulip (*Spathodea campanulata*). There is also a large variety of grass that grows in Pi 'opi 'o like para grass (*Brachiaria mutica*) (Figure 1), guinea grass (*Megathyrsus maximus*), and Wainaku grass (*Panicum repens*) (Figure 2).



Figure 1. Dense patch of para grass (*Brachiaria mutica*) located near fishpond. Photograph taken by Halena Kapuni-Reynolds.



Figure 2. Dense patch of Wainaku (*Panicum repens*) grass in Pi 'opi 'o area. Photograph taken by Halena Kapuni-Reynolds.

Pi 'opi 'o is also home to many fish and bird species that include the Muscovy ducks (*Cairina moschata*), Mallard Ducks (*Anas platyrhynchos*), and Milkfish (*Chanos chanos*), known as awa by Hawaiians. In the 19th-century, Mallard and Muscovy ducks did not live in the area of Pi 'opi 'o. The Mallard and Muscovy ducks were brought to the area by the Waiākea Villas hotel and have since been living in the area (Urakami).

Because Pi 'opi 'o is full of life in current times, one wonders what life was like for the Native Hawaiians that lived in the area and what type of traditional agricultural practices were utilized in the area during the 19th-century. One may ask: How was the Pi 'opi 'o's landscape cultivated? What methods were used to grow resources in this area?

One of the agricultural methods that was practiced in Pi 'opi 'o was the "Kipi" method of growing kalo, which is when kalo is planted on the sides of large mounds that rose two to three feet above the water. This method was particularly used along the banks of marshy ponds and rivers. (Handy and Pukui 1972:538) in *Native Planters in Old Hawaii: Their Life, Lore and Environment*, briefly describes how the method was used: "[The kanu kipi method] reportedly consisted of heaping up, above the surface of the water, long mounds (kipi or kipi kipi) of soil

upon the tops and sides of which the cuttings were planted.” Handy and Pukui then add that “this method of planting is now abandoned at Hilo” (Handy and Pukui 1972:91). This agricultural practice was studied and mentioned by Handy and Pukui in the 1930 ‘s to be sustainable against floods because it preserved the crops that were being grown.

However, another plant was noted to be growing on top of the Kipi mounds in Waiālua on the island of Moloka ‘i (Handy and Pukui 1972: 91). It was the sweet potato plant also known as ‘uala (Konanui July 2). In Figure 3, a historical picture provided by the Lyman museum provides an idea of what the Kanu Kipi planting could have looked like in Pi ‘opi ‘o. This picture is of somewhere in Waiolama but we are unable to pinpoint where the area is exactly. In Figure 4, a close up of the kalo being planted in mounds is shown to portray what the Kipi method would possibly look like. Learning about this agricultural practice is very important because our kūpuna went through much trial and error in the 19th century to create a method that could be useful even today. It is also important to our native identity because our kūpuna worked hard to perfect this agricultural practice so that it could be used today in current times.



Figure 3. Historical photo of Waiolama Canal with kalo growing in background, possibly using kipi method to grow. Photography courtesy of Lyman House Memorial Museum.



Figure 4. Close up of possible Kipi method used for planting kalo in Waiolama Canal. Photography courtesy of Lyman House Memorial Museum.

## Methods

In order to learn more about Kanu Kipi, the following methods were utilized. During the first week of the internship, from June 6th through June 10th, we walked around the Pi 'opi 'o area to observe and describe what sort of landscape it was. Walking around Pi 'opi 'o helped to

determine that the environment was a marshy wetland. It was also during the first week that we were given the opportunity to meet Professor Peter Mills from the Anthropology Department at the University of Hawai 'i Hilo (UHH). He showed us how to map with the tape and compass method, which was useful for seeing what sort of changes occurred in the area from the 19th century to the present.

Next, from June 16th through the 20th, I retrieved a small selection of books on the Kanu Kipi method from the Mo 'okini Library, located at UHH. One selection was Handy and Pukui 's "Native Planters in Old Hawai 'i: Their Life, Lore, and Environment" (1972). With this source, I was able to pull together a description on the Kanu Kipi method, and agriculture in 19th century Hilo.

During the research process, I was able to discover two Land Commission Awardees during the Māhele that practiced the Kanu Kipi method in and around Pi 'opi 'o; their names were Kuahopu and Nakai. Thus, I decided to find out more about the Māhele by using sources such as Māhele documents and Jon J Chinen 's "The Great Mahele: Hawai 'i's Land Division of 1848" (1958).

In the third week, from June 20th through the 24th, I flew to O 'ahu to visit various archives. These archives included the Hawai 'i State Archives and the Bureau of Conveyance, which is located within the Department of Land and Natural Resources. We went to these places to find more information about Pi 'opi 'o and to determine if there were any other information on the agricultural practices that were used in Pi 'opi 'o and if they had records on the people who had used these practices.

In the fourth week, from June 27th through July 1st, I determined where Nakai and Kuahopu's parcels were located through the use of Geographical Information System (GIS).

With the help of GIS Specialist Dominique Cordy, I was able to pinpoint the locations of their parcels. Next, I took pictures of the areas where Nakai and Kuahopu's land parcels were located.

On July 2nd, I was given the opportunity to interview Jerry Konanui, a local Hawaiian man who is an expert in the community on taro cultivation here in Hawai 'i. The interview took place at the Wailoa Art Center where my two instructors, Lokelani Brandt and Halena Kapuni-Reynolds, and I had met with him. Jerry Konanui has a lot of knowledge on kalo planting and was able to describe the Kanu Kipi method. The interview was only an hour long but he was able to provide much needed information on the Kipi method.

### **Analysis**

Hawaiians cultivated the land in the 19th century using many agricultural practices in Pi'opi'o. The Kipi method was said to be used by Land Commission awards Kuahopu and Nakai in the 1840s and was very useful in the wet marshy lands of Waiākea.

As mentioned earlier, the kipi method is not practiced in Pi 'opi 'o today but it was recorded in the foreign testimonies of Land Commission Awards that are found in the Māhele documents. The Māhele was established in 1848 as a chance for Native Hawaiians to claim land that they could potentially cultivate and live on. Kamehameha III, also known as Kauikeaouli, was in charge of distributing land amongst Hawai 'i's people at the time. Hawaiian land was divided into three parts: first to the Mō 'ī, the head of the Māhele, then to the chiefs or konohiki, and lastly to the maka 'āinana or commoners. Kauikeaouli kept 1,500,000 acres and gave his heirs and successors 1,000,000 acres (Alexander 1920). In "Native Hawaiian Land Rights," Levy states, that the Kuleana Act of 1850 "directed that portions of government land be set aside in lots of one to fifty acres for purchase by natives who did not qualify for kuleana." The kuleana was the land that Hawaiians applied for and it also came after the Mō 'ī and Konohiki had

claimed their lands from the Māhele. Levy adds that “the kuleana could come from the Crown lands, from the Government lands created by the king, or from the other 1,500,000 acres of the kingdom, and could only include land which a tenant had ‘really cultivated’ plus a house lot of not more than a quarter of an acre” (Levy 1975:855). “Really cultivated” in this sentence means that the tenants were actually using the land, as compared to fallow land. Fallow land is land that was not actively being used for labor or produce.

In order to claim land, Native Hawaiians and foreigners needed to submit a claim to land that consisted of a Native Register, Native Testimony and Foreign Testimony. The Board of Commissioners to Quiet Land Titles were responsible for looking at these claims; they determined whether or not land would be granted to the Hawaiians who applied.

Native and foreign testimonies provide a great deal of information about the people who applied for land claims and the lands that they used. For example, in Kuahopu’s foreign testimony, it is noted that he was awarded 6 lots. Unfortunately, we were unable to identify where these kipi lots were today, but we knew they were in the area of Pi ‘opi ‘o. Two (lot 2 and 3) of these lots were places where Kuahopu practiced kanu kipi. Lot 3 was a marsh that involved the kipi method and was located near a water stream on “the West and East of Kane’s kipi on the North and South by Nihau’s kipi.” While in Lot 4 his kipi was another marsh located “on the East by Kane’s kipi on the South by Kaihe’s marsh” In Figure 6, a Register Map called 1561, created in 1891, was used to show where Kuahopu ‘s LCA lots were.

In Figure 7, an aerial image taken of Pi ‘opi ‘o in 2013 was overlaid on Register Map 1561 to show how Kuahopu ‘s lots looks like today. The maps shown below presents a few changes in the Pi ‘opi ‘o area. For example, Kuahopu ‘s triangular shaped lot was situated below the Waiolama canal but would be on the canal today. This is the result of the canal widening that

occurred in 1915 and 1917 (Rechtman et al.:18). The names Kane and Nihau are mentioned in the foreign testimony to have been other people who used the Kipi method, but there is nothing in the Māhele documents to provide evidence on who these people were.

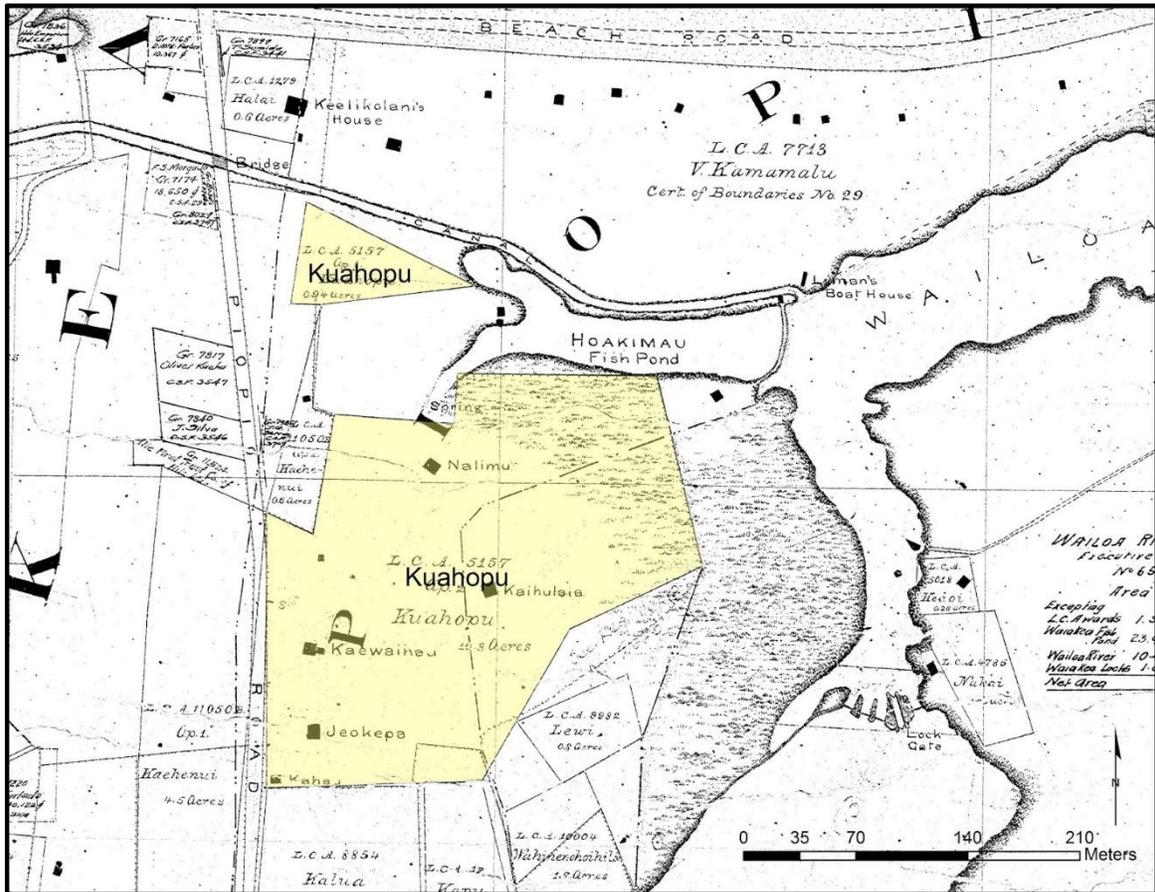


Figure 6. Registered Map 1561 of Pi'opi'o area created in 1891 showing Kuahopu's LCA lots.

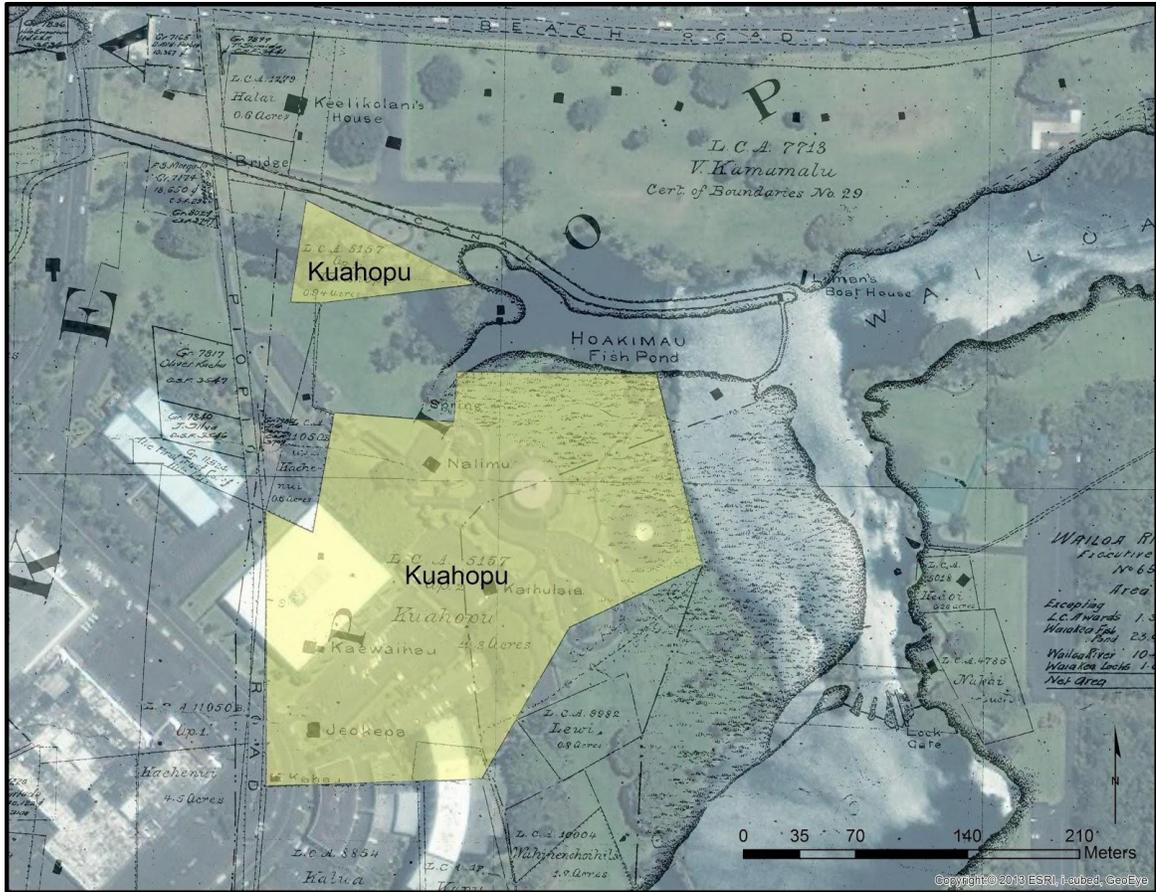


Figure 7. Overlay of 2013 Aerial Image over Registered Map 1561 showing Kuahopu 's lots.

In Nakai 's foreign testimony, he is described to have only one lot with three kipi marshes (Figure 8). This lot was located south of the Wailoa big pavilion.

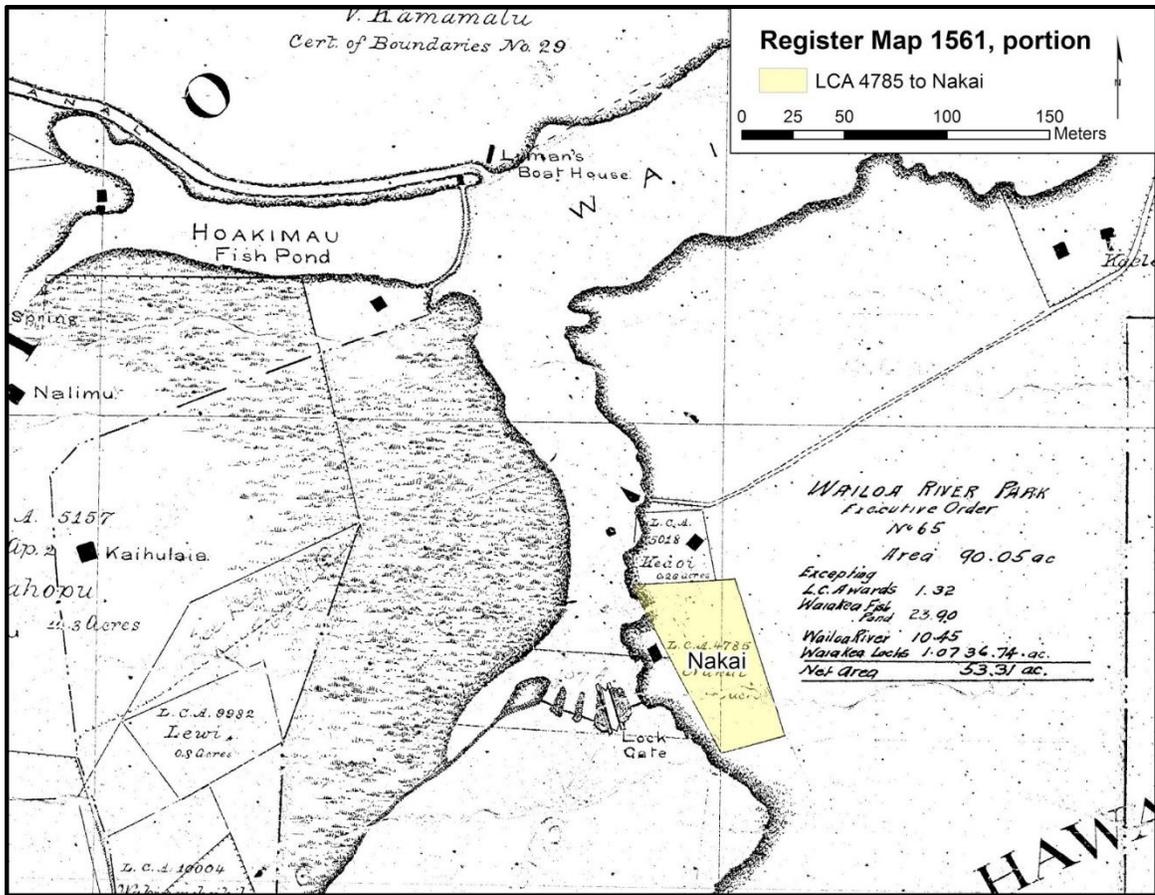


Figure 8. Registered Map 1561 of Pi 'opi 'o area created in 1891 showing Nakai 's LCA lot

By looking at Figure 8, you can see that Nakai was in fact, located outside of Pi 'opi 'o's boundaries and across from Kuahopu. But, it still goes to show that the Kipi method was practiced by Land Commission Awardees who did not reside in the Pi 'opi 'o area but lived near it (Figure 9).

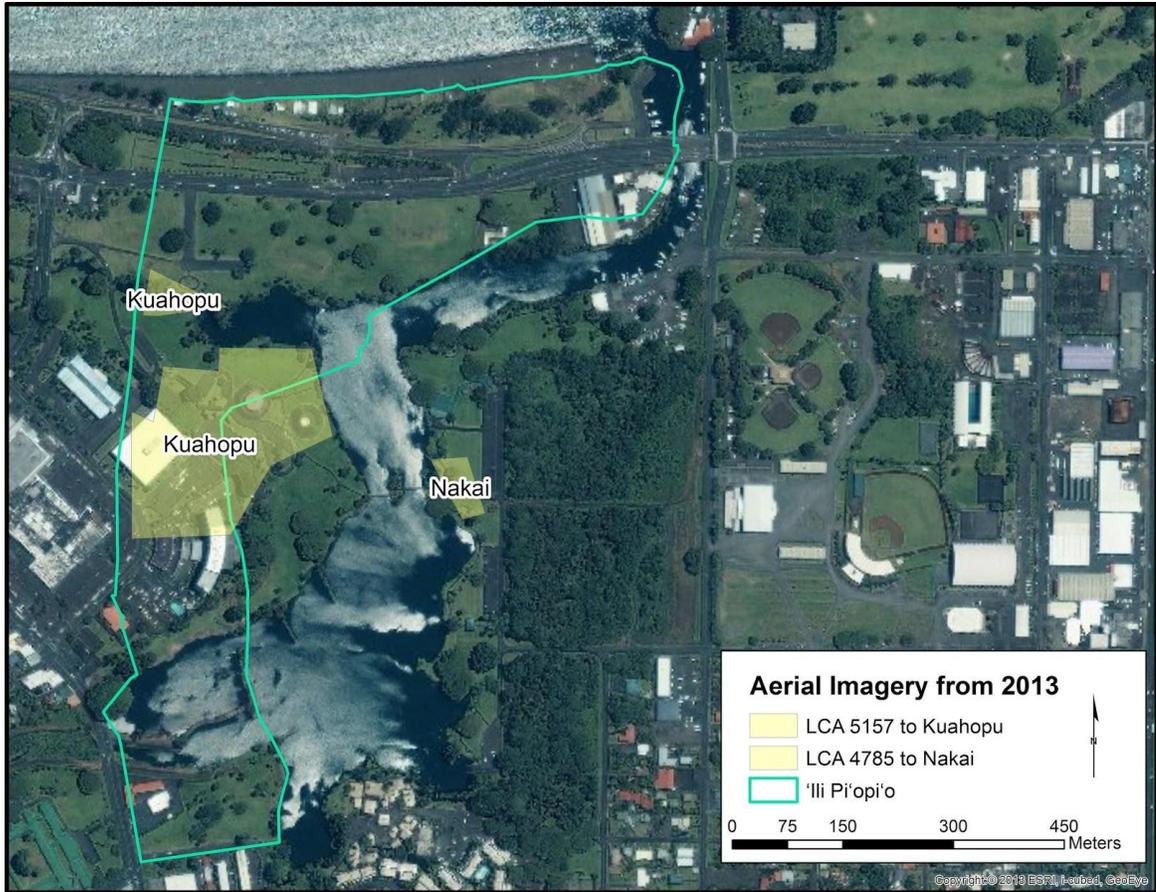


Figure 9. Aerial Image of Pi 'opi 'o from 2013 showing Kuahopu 's and Nakai 's LCA lots.

During the first week of Pi 'opi 'o, we knew the environment was a marshy wetland because of the signs of dampness in the area. In Kuahopu 's lot, it was especially damp because there was a small patch of uncut Wainaku grass (*Panicum repens*) with water still inside of it. There was also a spring running from under the Wailoa Art Center through the patch of Wainaku grass and into the Waiākea fishpond. This piece of information helped us understand why Pi 'opi 'o was the perfect place for planting Kalo with the Kipi method in the 19th century (Figure 10 & 11).



Figure 10. Dense Wainaku grass (*Panicum repens*) growing near the Wailoa Art Center. Photography by Halena Kapuni-Reynolds



Figure 11. Dense Wainaku grass (*Panicum repens*) growing near the Wailoa Art Center. Photography by Halena Kapuni-Reynolds.

The kipi method was better for swampy waters. With the help of Jerry Konanui we determined whether or not it was possible to grow kalo with the kipi method in Pi 'opi 'o. He mentioned a few things to consider while growing kalo in this area. Although the kipi method was not being practiced in Pi 'opi 'o today, he identified other places that still used similar methods in Puna on the island of Hawai 'i and Moloka 'i.

### **Discussion/Conclusion**

As mentioned before, one could wonder what type of agricultural practices were utilized by Native Hawaiians living in Pi 'opi 'o during the 19th-century, and whether or not it is possible to still use these agricultural practices today. Looking at the Pi 'opi 'o area today, the kipi method could potentially be used to cultivate the land. Pi 'opi 'o remains a wet and marshy environment, just like it was in the 19th century, so the method can still be practiced. However, during my interview with Uncle Jerry Konanui, he explained that all types of kalo could grow in Pi 'opi 'o, but it depends on climate change and water salinity. Salinity gauges would need to be used to measure the salt concentration in the ponds (Konanui July 2). Water would need to be circulated in the area as well because stagnated water causes the kalo to rot. Also, the kipi

mounds would need to be large enough for the lepo, or nutrients, to act like a filter to prevent water from stagnating.

Lastly, another thing to consider is that the kalo could absorb the arsenic from the fishponds because of the bagasse that the Sugar Mill had dumped into it. In a recent study done by Rajib Kundu called “Response of Taro to Arsenic Contamination in the Ganga Basin of Eastern India”, he claims that the “the maximum accumulation was observed in the leaves (55%) as compared to other plant parts.” He also adds that “arsenic accumulation in small taro cormels is relatively lower than the other plant parts.” A cormel is a smaller corm in the taro plant (Kundu *et al*, 2011; 172). Additionally, if Kalo was to be grown with the kipi method in Pi ‘opi ‘o, security patrol would be needed to prevent anyone from tampering with the kalo. Lastly, the kalo would have a harder time growing in the area because of all the invasive grasses such as the Wainaku grass, which can penetrate through the taro being grown.

In conclusion, I believe that revitalizing the Pi’opi’o area with kanu kipi is possible. Though there are some challenges, I have hope that this agricultural practice can be perpetuated once again and can show the young and old generations just how important this practice is to our community and native identity. By reviving this practice, our kūpuna will be proud because they had to go through many obstacles in order to perfect it. This method could teach the present generations, young and old, about the resources that were once abundant in the Pi ‘opi ‘o area, and about the resources that can be added to bring live back to the area.

## **Reflection**

During the five weeks of the Wahi Kupuna Internship Program, I learned a variety of skills that could not be taught in high school. These include how to map and survey an area with a measuring tape and compass, how to interview someone for research, how to present

effectively and efficiently as well as how to expand more on my ideas and ask meaningful questions. All of these skills I have acquired has helped me grow as a student and I know it will help me immensely in the future. I enjoyed this program because I was able to meet a lot of new people and learn of their past experiences that could potentially make me a better researcher for my project. I also enjoyed it because it offered many opportunities such as meeting the people in charge of the Department of Land and Natural Resources (DLNR) in O 'ahu, and the professors who could offer more internships if I was interested in the fields of Archaeology and Anthropology. I feel like this program prepared me for what college would be like and also prompted me to think harder at times. The hours spent researching and writing was stressful but in the end it helped me so much. I will be able to apply the knowledge I've learned, in school, work, or everyday life. The people I have met will also be able to help me with future projects because they have experiences and recommendations that could help branch out to other people who can help too. I am grateful for being chosen to participate in the Wahi Kupuna Internship program and hope that this program will continue to be offered to high school students because it could benefit them greatly.

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## **Repeat Photography Research Paper By Caleb Akau**

“Nānā ka maka, ho'olohe ka pepeiao, pa'a ka waha, hana ka lima,” look with the eyes, listen with the ears, close the mouth, and work with the hands. This 'ōlelo no 'eau, or Hawaiian proverb, has multiple meanings. But for my topic, it pertains greatly because it demonstrates the importance of observation in the process of examining our local environment and landscape, whether it be in the past or the present. In my research paper, I use repeat photography as a tool to understand changes in the Pi'opi'o landscape. Through repeat photography observation becomes a crucial part in finding changes in landscapes, homes, businesses, and communities of Pi'opi'o.

### **Background**

Pi'opi'o is an 'ili kūpono (otherwise known as 'ili kū) in the 'ahupua'a of Waiākea, in the moku (district) of Hilo, on the island of Hawai'i. Mary Kawena Pukui and Samuel H. Elbert define an 'ili kūpono as “a nearly independent 'ili land division within an 'ahupua'a, paying tribute to the ruling chief and not the chief of the 'ahupua'a” (Pukui, Elbert 1986:98). A 'ili kūpono is a unique land division that is usually reserved for the mō'ī (ruling chief) because the land provides good resources, and in some cases, strategic advantages. Pi'opi'o, being a 'ili kūpono, is a lush and resourceful environment because of the plentiful amount of water resources, from the Wailoa River to Hilo bay.

Shinmachi, or new town, was a thriving Japanese community on the river's edge of the Wailoa River in Pi'opi'o. But sadly, because of the 1946 and 1960 tsunamis, many homes and businesses were wiped out, along with the thriving community of Pi'opi'o. Pi'opi'o has rich history that needs to be shared, but since the landscape has been altered so much due to the

tsunamis, it's difficult to imagine the landscape 60 years ago. By utilizing repeat photography as a tool, we can see the visual changes of Pi 'opi 'o's environment.

## **Method**

Alton Byers shares that “repeat photography provides a valuable tool to the geographer, forester, or land manager interested in the visual assessment of landscape change over a period of time” (Alton 1987:77). Knowing that repeat photography has to do with change over time through visual assessment, I then began my research. In my research, I had to go through a process that consisted of many steps. My first objective was to obtain as many historical photographs of the Pi 'opi 'o area as I could. In this process I had to do archival searches at the Lyman museum, state archives, and online. I retrieved scanned copies of historical photographs from the Lyman museum on June 9th and 10th.

My second objective was to select my top three photographs to use in my project. In selecting these photos, I followed a specific criteria. First, I determined if the photo was taken before the 1946 tsunami. Second, I checked to make sure that the resolution of the picture was high enough for me to identify land features. Lastly I made sure that there was enough visual information for me to reference where the photo was taken.

I then needed to find the location of where the original photo was taken from. This consisted of using landmarks from the historical photos that still are at Pi 'opi 'o today. For instance, in one of my photos, I used the Hilo Iron Works building to reference where the photo was taken from because the building still stands today. When taking new photographs on June 29th and 30th, I had to make sure that the quality was up to par, so I used a Canon EOS Rebel T3i to take the pictures.

My final step in this process was to do my examinations of the photographs. I put both the historical and repeated photographs side by side in order to find the changes that happened to that specific area in Pi 'opi 'o from before the 1946 tsunami till now. While looking at each photograph closely, I tried to look for the significant features such as buildings, houses, agricultural features, and landmarks. This method also allowed me to see changes in the physical landscape. For instance, while examining these photographs, I noticed that the width of the Wailoa River looked like it had been widened. With this new information, I then looked at a map from 1891 and I saw that the river was narrow and somehow it got widened. Realizing this, I had to add another step in my research process. I ended up working with Kumu Dominique Cordy and found out how I could measure how much land has been lost using GIS, otherwise known as Geographical Information Systems.

### **Analysis**

Using GIS I was able to georeference the 1891 map with a map from 2013 and I found that the Wailoa River had been widened by about 58 meters. I also found out that around 3.7 acres was lost from the land on the west side of the river (Figure 1).



Figure 1. GIS overlay of 1891 map of Pi 'opi 'o (Registered Map 651) on 2013 aerial image of Pi 'opi 'o.

Photo Set 1



Figure 2: Historical Photograph East view Wailoa River Courtesy Of Lyman House Memorial Museum



Figure 3: Modern, East view of the Wailoa River. Photography by Halena Kapuni-Reynolds

Photo set 1 shows the Wailoa River. The photographs were taken from the Hilo (West) side of Wailoa River looking towards Puna (East). In examining the historical and modern photographs, I found visual evidence of change with the landscape, buildings, and structures.

The first thing that caught my eye is the Hilo Iron Works building in the background of Figure 2 and 3. This building is significant because it survived both the 1946 and 1960 tsunami and is still standing today. This is the perfect referencing point for the two photographs because that's the most original stationary object in both pictures. After establishing my control, I then looked at the canoe that's in Figure 2. The canoe proves that people did utilize the Wailoa estuary in that time period. People still use the estuary to this day. The house in Figure 2 is also significant because it shows the architecture and also gives an example of what houses looked like in during this time period.

When looking for changes between both photos, I mostly see changes in the landscape. For instance, in Figure 3 there is an abundance of trees, as compared to Figure 2, where there are less trees and marshy grass. Another change from both photos is the house in Figure 2 that is not present in Figure 3. This is an obvious change but the reasoning behind it could have been because of multiple situations. It could have been destroyed in the 1946 or 1960 tsunami, or it also could have been relocated out of the tsunami buffering zone, or the owner decided to relocate. The final change that I found is the modern art sculpture in Figure 3. This object was created in 1983 and is the Shinmachi tsunami memorial. This modern art sculpture is significant not just because it shows how the area changed over time, but also because it ties into the idea of the destruction of the area from the 1946 tsunami.

Photo Set 2

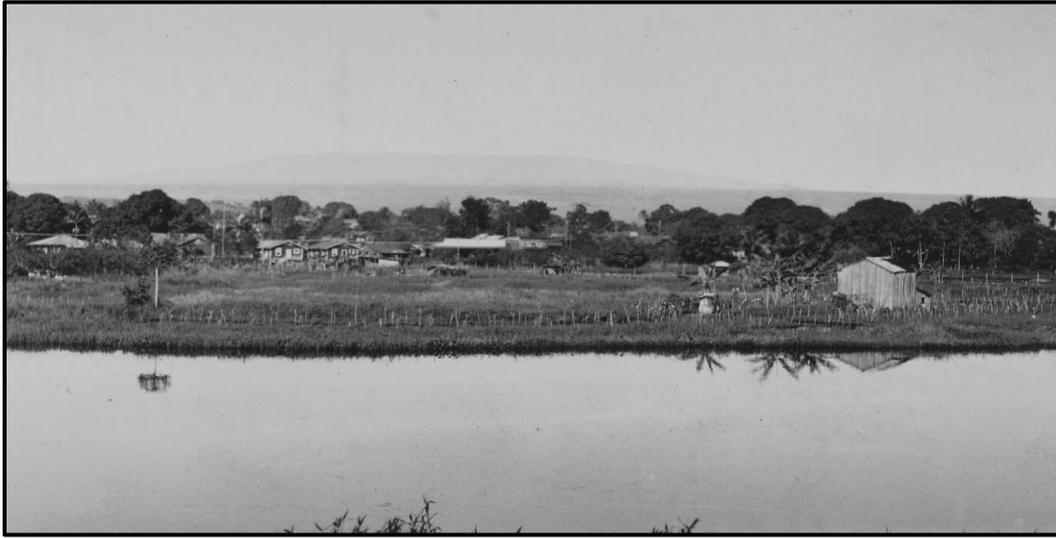


Figure 4: Historical photograph, west view the Wailoa River. Photo courtesy of the Lyman House Memorial Museum.



Figure 5: Modern, West view of the Wailoa River. Photograph by author.

Photo set 2 shows the Wailoa River. The photographs were taken from the Puna side of Wailoa River looking towards Mauna Kea. In examining these two photographs of the Pi 'opi 'o area, the visual evidence shows changes in the buildings, agriculture, and landscape. In both photographs, I used Mauna Kea (mountain in the background) as a controlled reference point.

The most significant factor in the landscape change is the widening of the Wailoa River itself. Like I mentioned earlier in my background, the river was widened about 58 meters, which equates to about 13.7 acres of lost land on the west side of the river. This is shown in Figure 4.

In Figure 4, there are houses close to the Wailoa River that were part of the Pi 'opi 'o community. This whole community was relocated and their houses and property were condemned because of the 1946 and 1960 tsunami. Now this area has no houses or community because it is now the tsunami buffering zone. The only building in this area is the Wailoa Art Center. Another change has to do with the landscape and agriculture. In Figure 4 it shows banana, papaya, and mango trees. There are also stocks of some sort sticking out of the ground in an alignment. This shows how the land was utilized in this time period. The mango trees are interesting because it was abundant in that time period just like it still is today in the Pi 'opi 'o area.

Photo Set 3

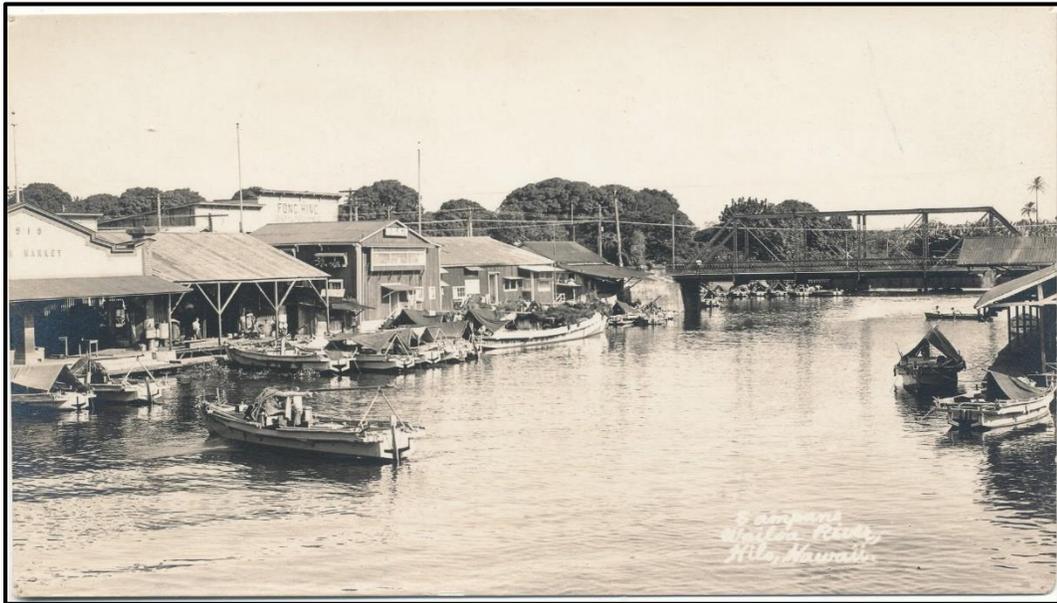


Figure 6: Historical Photograph of Wailoa bridge and riverbank businesses. Photo courtesy of the Lyman House Memorial Museum.



Figure 7: Modern photograph of Wailoa Bridge. Photograph by Caleb Akau.

This set of photographs is interesting because of the changes in the buildings and use of the area. In Figure 6 it shows all the businesses and buildings along the bank of the Wailoa River. In the photo a business called “Fong Hing General Merchandise” is shown next to a fish

market. This is very interesting because it proves that this area was well utilized and that there were businesses that provided resources for the community of Pi 'opi 'o. Interestingly, the location of the fish market in the historical photo, is close to where the Suisan fish market is today. In Figure 6 it also shows the type of boats that the people used in this time period. With research I found that these boats are called "sampan," which are Chinese style boats usually with a small shelter that provides a temporary or permanent habitation. In Figure 7, it shows that there still are boats being utilized in this area. Also in Figure 7, the Wailoa Bridge was actually reconstructed since the historic photograph was taken.

## **Conclusion**

Nānā ka maka or look with your eyes is a reflection of how I tie visual learning into my project. It was no surprise for me to use repeat photography in order to study the changes in the Pi 'opi 'o area. Using photographs provides solid evidence that allows the viewer to identify changes through their own eyes and perspective.

The only challenges of using repeat photography was finding the original location of where the historical photographs were taken from. In this process I had to use landmarks in the photo that was still present today. Sometimes, it was hard locating a point of reference. Also, another challenge was obtaining photographs from before 1946 with high enough resolutions to identify land features. I had photographs that had better visual evidence but did not have a high enough resolution so I ended up not being able to use it. Besides these limitations, the visual evidence from all of the historical photographs allowed me to identify multiple changes in the Pi 'opi 'o area from pre-1946 to the present day.

## **Reflection**

This research project really opened up my eyes. I have learned so much through my research process, from doing extensive research to discovering a connection to my project. Doing archival research also gave me experience in the State Archive and the Lyman Museum, two resources that I can utilize in my future research. Because I spent so much time mapping the area and learning the rich history, I built a connection to Pi 'opi 'o. I also felt like I was doing something meaningful to me rather than just doing work for school. I also enjoyed using repeat photography because I never knew about this method and how it can be used as a tool to conduct research.

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## **Signage and Interpretation at Pi‘opi‘o Research Paper by Tusie ‘ana Berrios**

Walking, or rather, running around as a child and feeding the ducks along the river. Going to parties in the big pavilion and walking over all of the arch bridges. These are some of the things that come back to me when I think of the Wailoa State Park. Back then, I would go there with my grandmother frequently. But over the years, we have gone less and less because the paths are too hard for my grandma to walk on. I never really knew any history on the area while visiting either; all I knew was Wailoa State Park. Today though, I know more about Pi ‘opi ‘o, and I want to use signage as a way for others to learn more about the area as well.

This project focuses on the development and design process of outdoor signage. The intent is to make people more aware of what signage can do. Signage can be used in various ways to enhance one's experience of a park or museum. When typically going to Pi‘opi‘o there is not much signage at all. By providing stationary signs, visitors will be able to learn more about the natural and cultural history of the area. The most important elements to consider in developing interpretive signage at Pi‘opi‘o are aesthetics, information and management of the signs.

### **Background**

The ‘ili kūpono of Pi‘opi‘o is located in the middle of the Pacific Ocean, on the island of Hawai‘i, in the city of Hilo, in the ‘ahupua ‘a (land division) of Waiākea. A “‘Ili kūpono” is a smaller land division in a ‘ahupua ‘a that stands by itself and is reserved for the mō ‘ī (high chief).

There are also multiple bodies of water in Pi ‘opi ‘o, which include Hoakimau fishpond, Waiākea pond, Mohouli fishpond, Waihole fishpond and Wailoa River. Today, most of

Pi 'opi 'o is managed as Wailoa State Park by the State Parks Division under the Department of Land and Natural Resources.

In the 2014 Section 106 Consultation for the Proposed Hilo Bayfront Trails Project, which proposes plans for a bike trail to be installed in the Bayfront area, it was found that people in the Hilo community want signage in Pi 'opi 'o. These signs could talk about the history of the area. From an 1890 map we can see that Pi 'opi 'o had permanent and semi-permanent residences living there, including Ruth Ke 'elikōlani, who was the Governor of Hawai 'i from 1885 to 1874, and Henry Benjamin Nalimu, a very active member of the community who was heavily involved with Haili Church and shared his stories of Hawai'i with others (Figure 1).

Then there was also the town of Shinmachi. The people of that community lived in Pi 'opi 'o before and after the 1946 and 1960 tsunami. Because of these tsunami, which caused loss of life, land in Pi 'opi 'o was rezoned as a buffer zone and became a state park with state buildings because the state did not want any more loss.

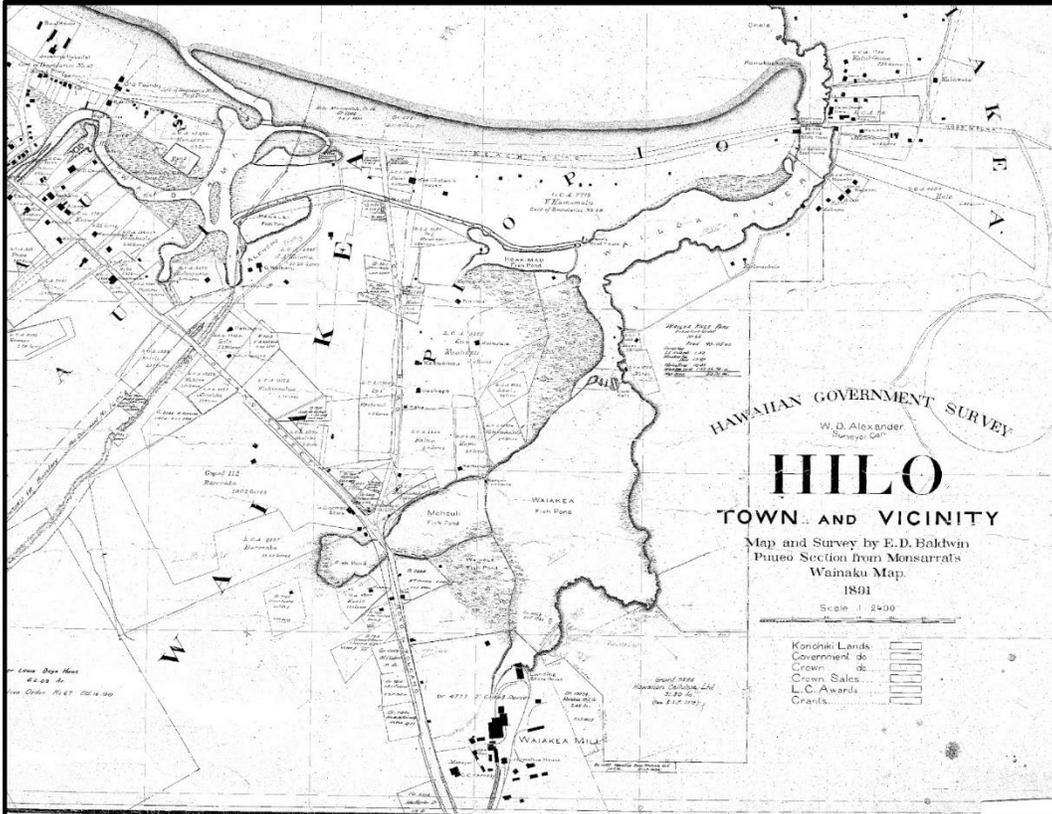


Figure 1. Registered map 1561, ca. 1891.

Since Pi‘opi‘o has such an abundant history it provides an ideal opportunity to create interpretive signage. Interpretive signage displays specific content on an area or object. Signs are important to tell the history of an area; they convey information, evoke emotion, are placed in visible areas, and are constructed of different materials depending on where they are located.

Two existing interpretive signs in Pi ‘opi ‘o are located by the King Kamehameha statue. One sign talks about the ‘ahupua ‘a connected to Hilo Bay and some other land features. The second sign gives a brief history on Kamehameha in the Hilo Bayfront area. Some good aspects of these signs are that they have big visuals so you can have something colorful to look at, and that they are well organized which makes them easy to comprehend and follow.

In a chapter on interpretive signage from the US Forest Service (n.d), they explain why signage is important. They get a lot of attention from visitors, can be worth the cost based on

how many people go to them, and they are available anytime of the day. This give people the chance to come look at interpretive signage at any time. Signage is also free to look at and people like free things, so if they can learn from it too that is also great. Signs are also a different way of learning information, it is somewhat more interactive than just reading information off a textbook; with signs the reader can be in the area that they are being informed of.

## **Methods**

### Location of existing signage

On June 13th, 2016, we conducted a pedestrian survey to record some of the monuments at Pi‘opi‘o such as the old bridge and the Kamehameha statue. While there, I got the chance to locate existing interpretive signs in Pi ‘opi ‘o. Locating the existing signage is important because we wanted to know: 1) what kind of content is already on the sign so that we do not repeat the existing information given; 2) where existing signs are so there are not five signs in one area; 3) the style of existing signs to keep consecutiveness so the visitor is not on a rollercoaster of different styles; and 4) how existing signage is managed so we know how the signs are cared for.

### Determining the location and content for new signage

Throughout the fieldwork, I thought about where to install new signage based on the four following criteria: accessibility, human movement, viewpoint, existing resources.

1. Accessibility - It was very important for the signs to be accessible for the public.

One of the original ideas for the sign placement was on the bridges because of the vantage point they provide. I quickly realized that this was not a good idea because the elderly and people with wheelchairs would have a hard time getting to the top of the bridges.

2. Human movement - I had to observe where people went the most at Pi 'opi 'o during the first two weeks of field work (June 6-17). This was to see if the sign would be placed in a convenient area for people to get to.
3. Viewpoint - It is important for the visitors to be able to see what you want them to see. The viewpoint affects how the visitors would feel about the information. When matching up what someone sees with what they read, the person is more likely to make connections.
4. Existing Resources - Gather information from archives about the area or can be placed on the signs. First, on June 9th, 2016, I visited the Lyman Museum and looked at old tax maps and pictures related to Pi'opi'o. Then, on June 20th, 2016, I visited the Hawai 'i State Archives and got to look at their resources on Pi'opi'o. I then began to research some history about the area and how to produce a quality sign to inform people. I rough sketched some possible signs I would like to see in Pi 'opi 'o and thought of two types of signs. Considering what people would like to see is interesting as well. Many of the interpretive signage examples I looked at were outside of Hawai'i, and it is interesting to see how the concept is basically the same wherever you go.
5. Creating a Map- Lastly, on Wednesday June 29th, 2016, I made a map showing the proposed location of new signage, with the help of Dominique Cordy (Figure 2). The map was made with Geographic Information System (GIS) program.

## **Analysis**

The existing signs do not really give a great history of the previous communities that lived in Pi 'opi 'o, other than Shinmachi. They also do not convey much information of the land

itself. The area near the King Kamehameha statue has the most signage with three signs. The first gives an explanation on the 'ahupua'a connected to Hilo Bay and a little information on some noticeable places in the area. The second focuses on Kamehameha in the area and how he utilized it. The last sign by the statute explains the Shinmachi town and its people.

As one approach to developing signage, matching up old photos to a specific area would make the signs more understandable and easier for the readers to make connections about the history of Pi 'opi 'o. This information could also be displayed on wayside low profile signs, which have big pictures based on the area and content of the sign. The justification for these types of signs is that they are simple, accessible, and consistent (National Park Service: 2009). Wayside low profile signs also would match the existing signs super well. My reasoning on the chosen placement of the signs is based on the viewpoint and accessibility of the signs. The information on the signs should relate to what the reader would view because that would add to the experience of the area.

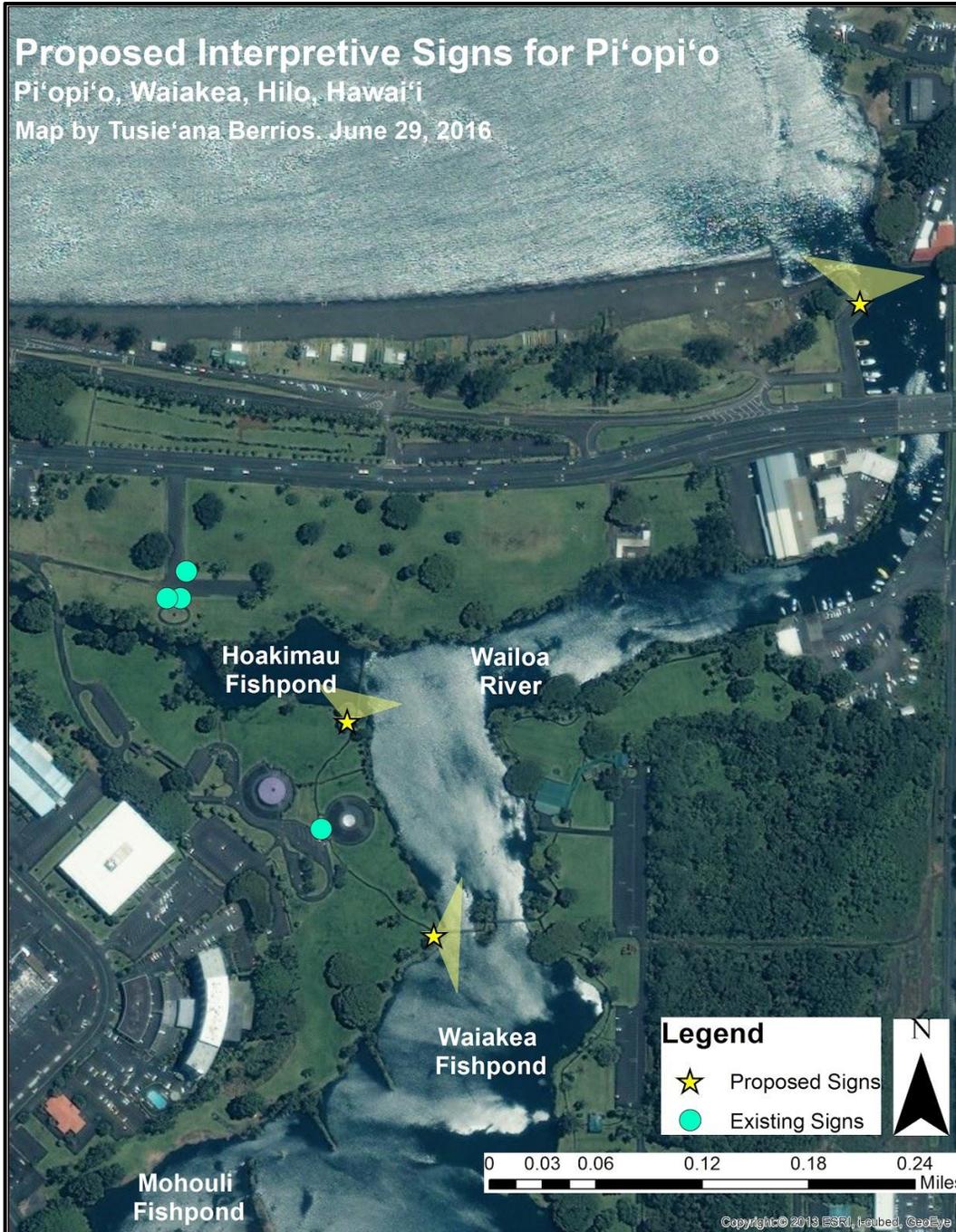


Figure 2. Proposed Sign Location. Map created by Tusie'ana Berrios.

**Location 1**

The first proposed location to install new interpretive signage would be situated by the beginning of the foot bridge by Waiākea fishpond on the side of the Wailoa Art Center (Figure 1). The possible information to go on the sign would be a little history around the Waiākea,

Mohouli and Waihole fishponds. Other information to include would be the names of the ponds because in Hawaiian, words have multiple meanings and names.

### **Location 2**

Location 2 would display some information about Hoakimau fishpond, Wailoa River, and the community that used to live there. This sign could also include some of the historic photos of the area with the harbor. The sign would be at the footbridge by Hoakimau fishpond from the Wailoa art center side as well (Figure 1).

### **Location 3**

Lastly at location 3, the area has a mythical story at the point called Kanukuokamanu (the beak of the bird), located at the mouth of the Wailoa River. It speaks of Hi 'iakaikapoliopele and Papanuioleka who joins them on their journey to get Pele's lover Lohi 'au from Kaua 'i. This myth shows us that Pi 'opi 'o has been in use for a long time. This sign would be located by Suisan and the boat harbor on that side by the bay front (Figure 1).

### **Discussion**

Overall, adding signage to the Pi 'opi 'o area would add to the history of the area by telling more stories about Pi 'opi 'o beyond Shinmachi. Signs can be around for a long time, and it is especially great to have them in areas that have been changed like Pi 'opi 'o. Also, people probably do not know the fishponds names in the area; the area is just called Wailoa. Some might think of signs as a waste of space and money (Portella: 2014). But how can one say that when they are a publicly accessible piece of free knowledge about an area that might inspire a reader to take action to possibly want to do some volunteer work.

Signage is a way to teach people and inspire them when done tastefully. In Laura Westrups article, "Educating Trail Users- Advice for Planning Interpretive Trail Signs and

Exhibits”, she states: “to have a good sign it must be focused, and do not overwhelm readers with information” (Westrup: 2002). You also have a care taker to care for the signs. Signs need to be visually pleasing and informative so people will visit a place and read them (Westrup 2002).

The maintenance of a sign is a crucial part of a sign's life. They need to be cleaned regularly so they are readable and pleasing to the eyes. If they are not up kept, no one will want to come and look at them, which is a loss because they could learn something. Vandalism must also be cleaned regularly off signs (Figure 4). A solution could be to add a protective layer on the signs to make it easier to wipe off spray paint. The current signs at Pi‘opi‘o are in fair condition (I believe they might have been recently changed), with the exception of the Shinmachi sign next to the Kamehameha statue. On this sign, there are two wasps nest on the underside of the sign. (Figure 3). This safety hazard makes me question how often the state comes to check on the condition of the signs. This is not only displeasing but may be harmful to visitors.



Figure 3. Wasp nest under Shinmachi sign. Photograph by Tusie 'ana Berrios.

Right now the park and recreation division is in charge of maintaining the signage, so my guess is that they will have someone come down to the park annually. Since Parks and Recreation are having a hard time keeping up with sign maintenance, we could have community clean ups where the signs are cleaned regularly. Another solution would be to have one person go down there every week to wipe the signs down, or check on them monthly.

Having signage in an area is really important because of the benefits they provide. They tell the histories and stories of an area without having someone physically having to be there. Knowing what happened before us is essential when we want to do new things with the land or

community. We have a lot to learn from what came before us. For that reason it is also crucial we care for these learning instruments and take the time to share what we know.



Figure 4. Vandalism on Shinmachi sign. Photograph by Tusie 'ana Berrios.

## Reflection

This internship has been a great experience. Throughout the five weeks I have gained many new skills. These skills include tape and compass mapping, compass reading, how to be a critical museum visitor, how signage is critical in a community, and how to articulate my thoughts. Being in the Wahi Kupuna Internship Program broadened my mind in the field of archaeology. I never knew that there are so many different occupations you can go into with these skills. On our O'ahu huaka 'i, we met a lawyer that was in work clothes working in the field with other workers. That was very interesting to me. I never would have thought that a lawyer could be outdoors like that.

I appreciate being able to have the opportunity as a high schooler to learn, and I enjoyed learning the qualities of a good sign and the opportunity to be creative with designs. I believe the community will enjoy having signage to be able to look at in the park. Being aware of the community is an important part of working to improve an area, and the community's involvement with development plans. I deeply enjoyed working with the Wahi Kupuna Internship program and would recommend it to anyone willing to learn more about archaeology.

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Pictures courtesy of Wahi Kupuna Internship Program 2016

## Environmental Problems Affecting the Wailoa River Estuary Research Paper by Craig Okahara-Olsen

### Introduction

Wailoa River is located in downtown Hilo in the 'ili kūpono of Pi 'opi 'o. It is currently a state park and was designated as such in 1919 by the Hawaii Central Government. Today it is viewed, by both locals and tourists alike, as poorly maintained. There are overgrown weeds, both on land and in the river ecosystem, and other potential serious health issues such as arsenic in the sediment at the bottom of the Wailoa River (Figure 1). Older members of the community though can still remember how Pi 'opi 'o was once a place where the community wanted to go; these community members would love to see Wailoa restored.



Figure 1. View of Mohouli fishpond. Photograph by Halena Kapuni-Reynolds.

This project investigates the environmental issues of arsenic contamination in the sediment of Wailoa River, and the invasive grass species in fishponds found in Pi 'opi 'o. In my research, I discuss the extent of these problems and how each affects the Wailoa River today. Subsequently, I discuss possible solutions to mitigate these issues.

## Background

Wailoa River is a body of water that feeds into Hilo Bay. The public today sees it as poorly maintained. It is an eyesore to many. Despite these deplorable conditions there are various biological lifeforms in the area from towering trees to tiny 'ōpae. The trees in the area include, mango trees (*Mangifera indica*), banyans (*Ficus benghalensis*), coconut palms (*Cocos nucifera*), and 'ōhi 'a (*Metrosideros polymorpha*), just to name a few. The various grasses that are there include centipede grass (*Eremochloa ophiuroides*), Bermuda grass (*Cynodon dactylon*), and para grass (*Brachiaria mutica*). The aquatic lifeforms in the area include awa (*Chanos chanos*), ulua (*Caranx ignobilis*), mullet (*Mugilidae*), 'ōpae (*Atyoida bisulcata*) and mosquito fish (*Gambusia affinis*).

Wailoa also has a rich cultural history. It has been a significant site throughout early Hawaiian history and has seen many events such as the devastating 1946 and 1960 tsunami that completely cleared the landscape. Pi 'opi 'o has been the place for both cultural sustainability and recreational activity. The beginning of modern day Pi 'opi 'o begins at the time of the Māhele, when Kamehameha III divided the Hawaiian land amongst the various chiefs and the central government in the mid-19th century. This led to the sharing of land amongst the chiefs and people began to own property. This is when things slowly changed to more Western ideals, such as industrialization.



Figure 2. View of Shinmachi homes. Photo courtesy of Lyman mission house museum

Then at about the turn of the twentieth century, a community was built there called Shinmachi. Shinmachi was a fishing community built upon the shores of Pi 'opi 'o and has had many stories told about it (Figure 2). My grandma and grandpa can remember how it was built on the river and how popular it was, and they said it was devastating seeing it permanently destroyed in the 1960 tsunami. Rather than rebuild Shinmachi, the County of Hawai 'i instead prepared a buffer zone so to prevent the loss of human life and property. The buffer zone includes Wailoa State Park and the Bayfront Soccer Fields. The County tore down all the buildings and relocated the community living in Pi'opi'o.

The County had a lot of good intentions for Wailoa after the total devastation from the 1960 tsunami. In their development plan, they proposed to install lamps, new sidewalks, and even plant Hilo grass to prevent soil erosion. With these good intentions the County failed to maintain the improvements it implemented, whether it be from lack of funding or effort (Department of Land and Natural Resources, Appendix D, Page 1.). With this failure it caused

Wailoa to spiral down To where it is today: overgrown weeds, homeless issues, and just an overall state of neglect.

Very few things survived the two tsunamis and a few of them were the fishponds around the Wailoa River. There were three different fishponds in Wailoa and they were Hoakimau, Waiākea and Mohouli. These ponds were used to raise local fish species such as mullet and moi around Wailoa and were quite successful. After both tsunamis and years of mistreatment these great sustainable resources are being used less and they are slowly being overrun by weeds and the effects of poor maintenance. These fishponds are both a great resource and a part of Wailoa that must be cared for. They are a key part of Wailoa's history and hold a major lesson in sustainability.

Wailoa River has many health issues and the water quality can be dangerous to human health. This idea is held by many Hilo locals, but many think it is sewage runoff. The real danger in Wailoa is arsenic, which is at the bottom of the river in the soil. The arsenic in Wailoa originated from the old Flintkote canec plant that operated in the 1940 's-1960 's. Arsenic is very serious and people must be educated on this life threatening issue.

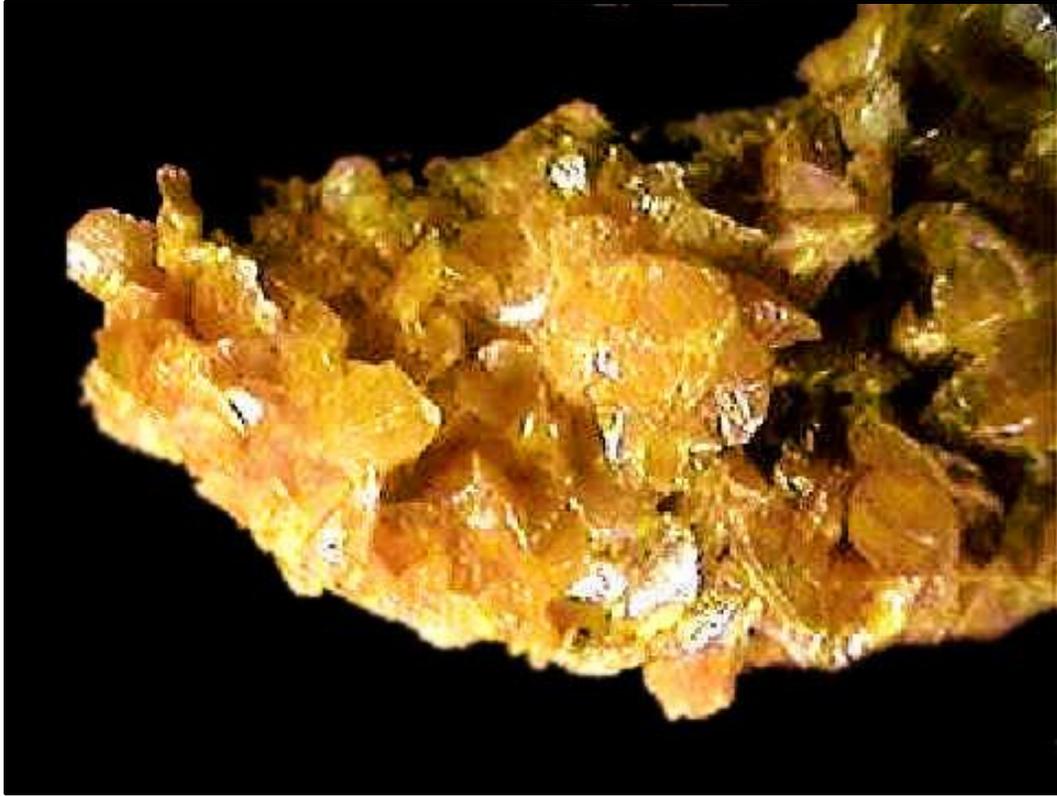


Fig 3. Image of arsenic trifluoride. Photo courtesy of the Mineral Information Institute, USGS.

Arsenic is a metalloid element and has the number thirty-three on the periodic table (Figure 3). It was discovered in 1250 by Albertus Magnus. There are two kinds of arsenic: organic arsenic and inorganic arsenic. Organic arsenic has been treated by a biological life form (usually fish or plant) with special chemicals and is safe for human consumption. Inorganic arsenic is toxic to humans and is often associated with other dangerous chemicals, such as lead and mercury. Inorganic arsenic started to be used around 400 AD to about the Middle Ages as a poison. It is tasteless to humans and affects humans by disrupting Adenosine triphosphate (ATP) which are cells that transport energy. Lack of ATP cells can cause multiple organ failure and death. When arsenic could finally be detected in the 1500's, it was no longer used as a poison and was put to different uses. As time passed, arsenic began to be used as a pesticide and polluted many agricultural goods which people were unaware of. For example, there was a recent scare with apple juice that the U.S. Food and Drug Administration (FDA) had to investigate.

However, it was confirmed that arsenic in apple seeds did not cause serious harm because apple trees could transformed inorganic arsenic into organic arsenic. After coming to a realization the EPA (Environmental Protection Agency) made a decision to only allow 24 milligrams per kilogram of arsenic, thus protecting human lives. Today arsenic is used in many electro magnets and is a key to many modern appliances. It came a long way from killer to important resource.

Arsenic is present in Wailoa because of the canec plant in Hilo that was developed by the various sugar mills across the Big Island (Figure 4). Around the mid 1940's it was bought out by a company called Flintkote. It was located on the southwest side of the Wailoa River and it produced canec for many plantation era homes (Figure 5).

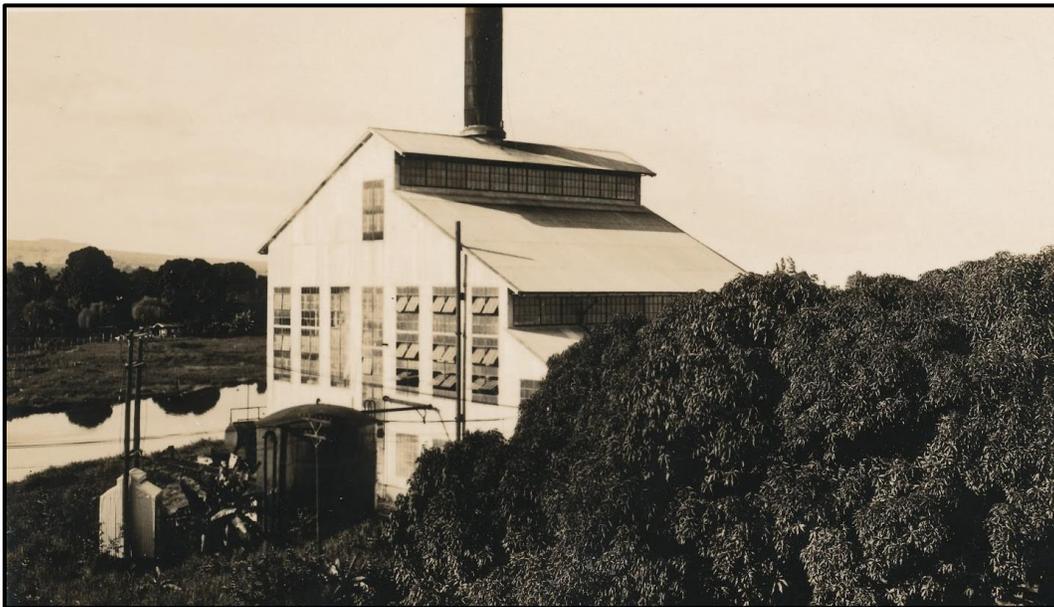


Figure 4. Image of canec plant. Photo courtesy of the Lyman House Memorial Museum.

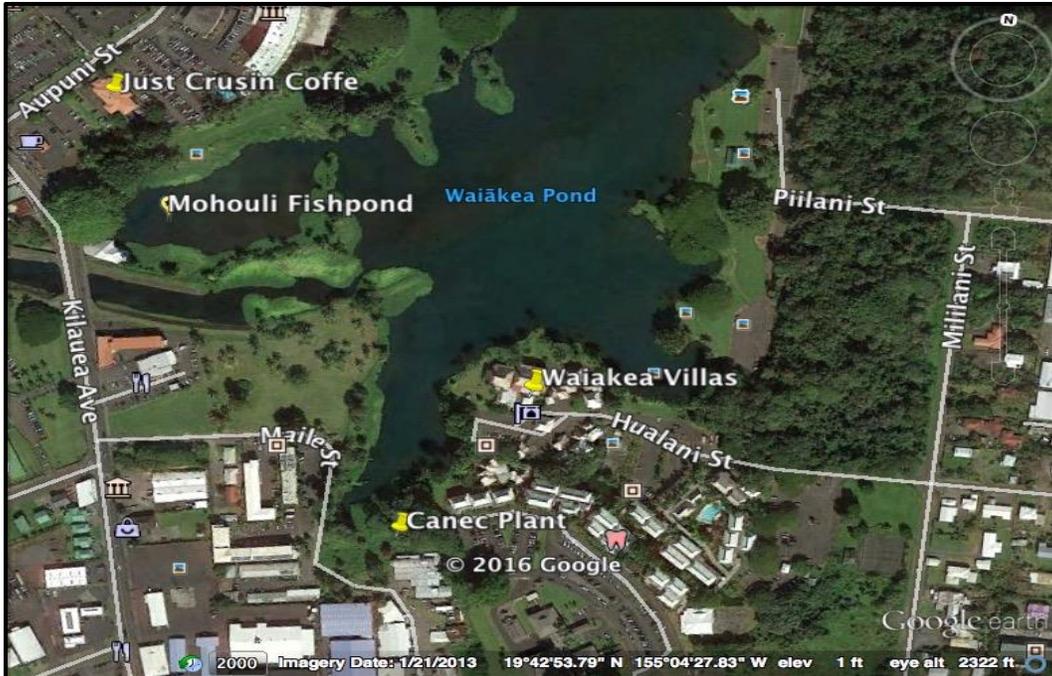


Figure 5. Image of location of canec plant/sugar mill. Photo provided by Google Earth

Canec is made by pressing bagasse, the byproduct of sugarcane after being juiced, into boards. The resulting panels were then treated with arsenic to prevent termite damage. Canec was often used like drywall in plantation-era homes. The environmental concern was not the canec, but the leftover arsenic and other dangerous chemicals that were used to treat the canec. These materials were dumped into sewage pipes and into the mouth of the Wailoa River. It then washed back in and contaminated all of Wailoa River, which is where our community utilizes today (Hawaii Evaluation and Emergency Response Office (HEER)).



Figure 6. Photo of Mohouli fishpond with grass. Photograph by Halena Kapuni-Reynolds.

The other environmental concern is one of the various grass species at Pi'opi'o: para grass (Figure 6). Para grass is a species of grass from Africa that grows in marshy environments. It has been reported as an environmentally devastating weed in many Pacific islands, including Hawai'i. The ideal climate for this grass is in warm climates where standing water is present, which perfectly matches Wailoa's climate. This grass is devastating and prevents other plants from growing, and grows in large clusters making it nearly impossible for competing plants to grow. It transmits seeds by breaking into segments and going with water to grow in new areas. This plant is very hard to terminate and will take time and effort to eradicate from Wailoa.

## **Methods**

In my project I used a lot of materials to test for arsenic, the first and most important would be an Arsenic Quick II test kit. The next material I used was a golf ball retriever and sterile sample cup in order to collect sediment and water. With these materials I was able to test for arsenic in the sediment of Wailoa. I started by using the golf ball collector and sterile sample

cup. Then, I attached the sample cup to the collector and scooped sediment from various parts of Wailoa. After collecting all the samples on one day, I used the test kit to test the samples for inorganic arsenic. I logged down the information and formed a report.

To collect the grass at Wailoa, I needed less materials than the arsenic. All I needed was gloves and a book discussing various tropical grass species. At Wailoa, I went near the river shore where the Para grass was located and put on gloves and collected the grass. After I collected the grass I brought it home and logged down the features of it. I then matched up all the features to one plant. The information was collected and I was able to identify the grass.

The final step I needed to finish my research project was to make my maps using GIS (Global Information System). In order to do this I worked with Dominique Cordy. With the GIS program, we found pictures of Wailoa and mapped out portions where the grass was. I made the maps and put them into this paper, demonstrating visually the effects of para grass in the Wailoa River.

### **Analysis/Results**

Based on past research and the science fair experiment I conducted in the seventh grade, I can say there is arsenic in the Wailoa River and it is a problem that must be addressed. The arsenic did in fact come from the canec plant's pollution. Arsenic was dumped into Wailoa and based on past experiments such as Baclig (2007), to now the arsenic is still prominent and a danger to human health. The EPA standard for arsenic is 24 milligram per kilogram and the arsenic level in Wailoa is much higher. This problem is very serious and must be addressed by our community.

After careful research and an analysis of the grass I can conclude the grass infesting the Wailoa River is Para grass. It is perfectly suited for this environment and with years of neglect it

has taken a stronghold in Wailoa's fishponds. Without treatment it could spread to all of Wailoa. In the 2013 map you can see almost no grass in the Mohouli fishpond and it is all in the canal (Figure 7). As you move forward to 2016, vast changes can be seen. Based on measurements using GIS, the grass takes up nearly 50% of the fishpond. This happened in the span of three years (Figure 8). Based on my prediction, in the next 3 years, the grass could take over the fish pond and harm plant life. The grass grows quickly and could possible spread to new bodies of water around Wailoa.



Figure 7. Map of Mohouli fishpond and canal. Photo courtesy of Google Earth 2013.



Figure 8. Map of Mohouli fishpond and canal. Photo courtesy of Lokelani Brandt

## Conclusion

People can remember how pristine Wailoa was, and with my research, I hope to combat a few of the issues present in Wailoa now. I am looking to address both the arsenic in the sediment and the para grass in the outlying fishponds. This will be a difficult and expensive job, but I think if people are passionate enough about the place and can sympathize with this cause, then we can make a difference. To complete this project we would need both support from the state and volunteers looking to make a change. In this project we would need to find a way to counteract the arsenic completely so no health issues can affect people, and we also need to eradicate para grass so that no remaining plants can come back and take over the fishponds.

This project will take a lot of money and support from people, the project itself could be in the hundreds of thousands. With proper outreach though more people will be aware of the problem and it would draw support. In the Wahi Kupuna Internship Program we presented our research project to different people of Hawai 'i including students in high school, various community members and even the DLNR (Department of Land and Natural Resources). With these types of outreach opportunities, we hope to draw more support. People do seem to have an

interest in the area, so there is a large possibility of repairing Wailoa and improving it. We try to educate the community in hopes it will influence their decision to help Pi 'opi 'o and fix the problems of neglect that is so widely known for.

### **Reflection**

This project was an eye opener for me and it showed me what it takes to research something and that anyone can make a difference. This project made me connect to Wailoa and I feel a need to protect it and make it a better place now. I am thankful for the wonderful experiences Wailoa taught me and I will continue learning from this sacred place. This project opened the door to new opportunity as well. It showed me what I would like to be when I get older. I would love to work at a museum as an archivist. This program is a great educational opportunity and I am glad I participated in it.

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## APPENDIX B: SITE DESCRIPTION SUMMARY TABLE

Site #	Feature Letter	GPS Coordinates	GPS Accuracy	Condition	Possible Age	Possible Function	Dimensions	Association with other sites	Modern Debris	Historic Material	Human Remains	Artifacts
1	A	Easting 0282231 Northing 2181915	3m	Fair	Historic	Transportation	13.5m x 8.9m x 1.8m x .02m	1B, 1C	Yes	None	None	None
1	B	Easting: 0282231 Northing: 0282231	3m	Fair	Historic and Modern	Retaining wall	3.1m x .6m x 2.1m	1A, 1C	Yes	None	None	None
1	C	Easting: 0282231, Northing: 2181915	3m	Poor	Historic	Unknown	Unknown	1A, 1B	No	None	None	None
2	A	Easting: 0282336, Northing 2181925	3m	Excellent	Modern	Ceremonial	25.4m x 15.8m x 1.1m	3A, 3B	No	None	None	None
3	A	Easting: 0282380, Northing 2181890	3m	Poor	Historic	Old Canal Wall	35.8m x 0.6m	2A, 3B	No	None	None	None
3	B	Easting: 0282376, Northing 2181889	2m	Fair	Modern	Retaining wall	25.8 x 0.6m	3A, 2A	No	None	None	None
4	A	Easting: 0282501, Northing 2181830	2m	Good	Historic	Transportation	60.7m x 2.3m	4B	Yes	None	None	None
4	B	Easting: 0282438, Northing 2181831	3m	Good	Modern	Transportation	40.7m x 1.85m	4A and 4C	Yes	None	None	None
5	A	Easting: 0282363, Northing 2181818	3m	Fair	Modern	Transportation	GPS track, 2.5m wide	4a and 7A	Yes	None	None	None
6	A	Easting: 0282296, Northing: 2181804	3m	Poor	Modern	Unknown	67.3m x 3.4m	5A, 7A, 8B	No	None	None	None
7	A	Easting: 0282293, Northing 2181799	3m	Good	Modern	Memorial	23.9m interior diameter	5A, 6A, 4B, 8B	Yes	None	None	None
8	A	Easting: 0282336, Northing 2181772	3m	Excellent	Modern	Art Center	160m circumference	6A, 7A	No	None	None	None
9	A	Easting: 0282508, Northing 2181543	3m	Poor	Modern	Habitation	9.1m x 3.0m	9B	No	None	None	None
10	A	Easting: 0282493, Northing 2181414	3m	Poor	Modern	Building Materials	GPS Track	11A	No	None	None	None
11	A	N/A	N/A	Poor	Modern	Drainage	2.6m x 1.35m x 1.43m	10A	Yes	None	None	None
12	A	Easting 0282343, Northing 2181776	3m	Good	Modern	Memorial	31m x 1.3m	12B, 12C, 12D, 12E	Yes	None	None	None
12	B	Easting: 0282303, Northing 2181789	3m	Good	Modern	Memorial	15cm x 15cm	12A, 12C, 12D, 12E	Yes	None	None	None
12	C	NA	3m	Good	Modern	Memorial	3.8m x 0.83m x	12A, 12C, 12D, 12E	Yes	None	None	None
12	D	Easting: 0282296, Northing 2181786	2m	Good	Modern	Memorial	14.5m x 1.3m	12A, 12B, 12C, 12E	Yes	None	None	None
12	E	Easting 0282303, Northing 2181789	3m	Good	Modern	Memorial	0.4m x 0.36m	12A, 12B, 12C, 12D	Yes	None	None	None
13	A	Easting: 0282380, Northing 2181890	3m	Good	Historic	Unknown	3.6m (subject underwater)	NA	No	None	None	None
14	A	Easting: 0282658, Northing 2181668	3m	Fair	Historic	Sugar Plantation and Canec Plant	18.05m x 11.95m	N/A	Yes	None	None	None
15	A	Easting: 0282684, Northing 2181776	3m	Fair	Historic	Habitation	6.16m x 4.35m x 0.4m	N/A	Yes	None	None	None
16	A	Easting: 0282656, Northing 2181637	2m	Good	Unknown	Retaining Wall	33.4m x 0.9m	14A	Yes	None	None	None
17	A	Easting: 0282400, Northing: 2181419	N/A	Poor	Traditional and/or Historic	Aquaculture	N/A	N/A	Yes	Yes	None	None

## Appendix C: Detailed Timeline of Internship Activities

	<b>Lā (Dates)</b>	<b>Initial Selection of Students</b>
February	2/18	Informational open house at Waiākea High School
March	3/11	Student application packets due
April	4/4	Interview with program applicants at Waiākea High School
	4/16	Letters of invitation to participate in the WKIP sent out to students
	4/25	Mandatory program orientation/consent form workshop meeting at the Queen Lili 'uokalani's Children Center
		<b>WKIP Program</b>
<b>JUNE</b>		
Week 1	6/6	<ul style="list-style-type: none"> <li>• Program introduction and expectations</li> <li>• Icebreaker activity and formal introductions</li> <li>• Conduct student pre-evaluations</li> <li>• First site visit to Pi 'opi 'o</li> <li>• Compass and Flagging activity</li> </ul> <b>Evening Assignment: Read Kawelu (2013), Native Hawaiian Perspectives on Archaeology</b>
	6/7	<ul style="list-style-type: none"> <li>• Lesson on tape and compass mapping with Dr. Peter Mills</li> <li>• Lunch meeting with Codie King, Director of the Wailoa Art Center</li> </ul> <b>Evening Assignment: Read Kekahuna (n.d.), The Knowledge of our Native Sons and Daughters</b>
	6/8	Tape and compass mapping continued WKIP introduction and history with Kelley Uyeoka
	6/9	<ul style="list-style-type: none"> <li>• Introduction to museums, repositories, and archives</li> <li>• Visit to the Pacific Tsunami Museum</li> <li>• Visit/Archival research at the Lyman House Memorial Museum</li> </ul>
	6/10	<ul style="list-style-type: none"> <li>• Student project roundtable discussion</li> <li>• Friday writing workshop – developing a strong research question</li> <li>• Introduction to Mo 'okini Library and library research activity</li> </ul> <b>Weekend Assignment: Develop one (1) research question to guide your research and paper.</b>
Week 2	6/13	<ul style="list-style-type: none"> <li>• Pedestrian survey and site recordation</li> </ul>
	6/14	<ul style="list-style-type: none"> <li>• Introduction to aquatic surveys with Kālā Mossman</li> <li>• Aquatic survey of fishpond margins and walls</li> </ul>
	6/15	<ul style="list-style-type: none"> <li>• Individual site mapping</li> <li>• Meet with Bill Sewell</li> <li>• Crash course conducting oral history interviews</li> </ul>

Week 3	6/16	<ul style="list-style-type: none"> <li>• Māhele 'āina workshop with No 'eau Peralto</li> <li>• Introduction to Hawaiian Resource Databases: Papakilo, Waihona 'Āina AVA Konohiki</li> <li>• Interview with Leslie Lang at Wailoa Art Center</li> </ul>
	6/17	<ul style="list-style-type: none"> <li>• Friday writing workshop – Developing a thesis statement and supporting details</li> <li>• Classroom time: Research and writing</li> <li>• Faculty member lunch with Dr. Kerri Inglis</li> </ul> <p><b>Weekend assignment: Work on thesis statement and paper outline.</b></p>
	6/20	<ul style="list-style-type: none"> <li>• Preparations for O 'ahu huaka 'i.</li> <li>• Introduction to Hawai 'i State Archives</li> </ul>
	6/21	<ul style="list-style-type: none"> <li>• Research at the Hawai 'i State Archives</li> <li>• Lunch Meeting with Muffet Jourdane</li> <li>• Visit to Kawaiaha 'o Plaza to meet with the staff of KS LAD</li> </ul>
	6/22	<ul style="list-style-type: none"> <li>• DLNR Stakeholder Forum</li> <li>• Research at the Bureau of Conveyances</li> </ul>
	6/23	<ul style="list-style-type: none"> <li>• Huaka 'i to Kūkaniloko</li> <li>• Meet with Mālama 'Āina Field School</li> <li>• Huaka 'i to Hōkūwelowelo</li> </ul>
Week 4	6/24	<ul style="list-style-type: none"> <li>• Friday writing workshop</li> <li>• Faculty member lunch with Drew Kapp</li> <li>• Classroom time: Research and writing</li> </ul> <p><b>Weekend Assignment: Work on introduction and background sections of research paper.</b></p>
	6/27	<ul style="list-style-type: none"> <li>• Oral history training – Workshop on developing interview guides and the consent process</li> <li>• Interview with Bobby Camara</li> <li>• Research and writing day</li> </ul>
	6/28	<ul style="list-style-type: none"> <li>• GIS introductory workshop with Dominique Cordy, M.A.</li> <li>• Pi 'opi 'o site visit and ground truthing</li> </ul>
	6/29	<ul style="list-style-type: none"> <li>• GIS mapmaking</li> <li>• Research and writing day</li> </ul>
	6/30	<ul style="list-style-type: none"> <li>• Meet up with Waiākea High School summer school students at Pi 'opi 'o.</li> <li>• Trash pick-up at Pi 'opi 'o</li> <li>• Interview with Alan Urakami</li> <li>• Data collection for student projects</li> </ul> <p><b>Evening Assignment: Write up summary of interview with Alan Urakami.</b></p>
	7/1	<ul style="list-style-type: none"> <li>• Presentation on creating a good presentation by Halena Kapuni-Reynolds</li> <li>• Faculty member lunch with Dr. Kathy Kawelu</li> </ul>

Week 5		<b>Weekend Assignment: Work on powerpoint presentations for hō 'ike. Continue research and writing.</b>
	7/4	<ul style="list-style-type: none"> <li>• Work on presentations for community hō 'ike</li> <li>• Work on research papers</li> </ul>
	7/5	<ul style="list-style-type: none"> <li>• Work on research papers</li> <li>• Practice presentation run with Bobby Camara</li> </ul>
	7/6	<ul style="list-style-type: none"> <li>• Work on research papers</li> <li>• Practice presentation run with Dana Desoto</li> </ul>
	7/7	<ul style="list-style-type: none"> <li>• Community Hō 'ike at the Wailoa Arts &amp; Cultural Center</li> </ul>
	7/8	<ul style="list-style-type: none"> <li>• Closing Ceremonies at Pi 'opi 'o</li> <li>• Program Wrap-up</li> <li>• Student roundtable discussion</li> <li>• Program evaluations</li> <li>• Submit research papers</li> </ul>

## Appendix D: Library Research Worksheet

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Hunting Down Library Resources

Knowing how to do research in libraries and to find the materials you need to finish a project is an important skill to have as you go through high school, college, and later on in your chosen career path. This worksheet will get you started in searching through different library databases in order to find the books, articles, and periodicals that you will need for your research.

#### **Task #1- Find a book**

Go to the main webpage of the Mo 'okini library (<http://guides.library.uhh.hawaii.edu/home>) and click on the Voyager Catalog tab. Next, search for a book that you think will be useful for your research. Find the *physical* copy of the book that is in the UH Hilo library and answer the following questions:

1. Provide the citation of your book below. Be sure to write it in MLA style (*Last name, first name. Title of Book. City of Publication: Publisher, Year of Publication. Medium of Publication*):

2. What is this book about? (*You should be able to get an idea of what the book is about in the first paragraph or chapter*):

3. Describe why this book is relevant to your research:

#### **Task #2- Find an article**

Return to the main library page for the Mo 'okini Library. Go down to the Databases, Journals, and Research Guides tab and click on Hawaii 'i Community College (HCC) Students, Faculty and Staff. Sign in to your HCC account and search for an article. Answer the following questions:

1. Provide the citation of your article below. Be sure to write it in MLA style (*Last name, first name. Title of Article. Name of Journal, Year of Publication. Page numbers. Medium of Publication*):

2. What is this article about? (*You should be able to get an idea of what the book is about in the first paragraph or chapter*):

3. Describe why this article is relevant to your research:

**Task # 3- Find another source using another database:**

Return to the main library page for the Mo 'okini Library. Go down to the Specialized Resources tab and click on Hawai 'i Resources. Next, click on the "eVols - UHM" tab. Search through this database for another resource and answer the following questions:

1. Provide the citation of your article below. Be sure to write it in MLA style (*Last name, first name. Title of article. City of Publication: Publisher, Year of Publication. Medium of Publication*):

2. What is this article about? (*You should be able to get an idea of what the article is about in the first paragraph or chapter*):

3. Describe why this article is relevant to your research:

**Comments and suggestions (Filled out by Kumu):**

# APPENDIX E- TAPE AND COMPASS MAP OF A PORTION OF PI'OPi'O

