

Module #7

Hawaiian Place-based Identities

Learning Objectives (slide 2)

- To understand the connection between people and the elements of reference, i.e., the Moon Phases.
- To understand the solar system with the different phases of the moon.
- To connect the different moon phases with weather disturbances, traditional practices, and people
- To develop an understanding of an oral culture through ancestral knowledge.

There are several questions driving the learning objectives of Module #7. These questions are important to keep in mind as you work through the module.



Driving Questions (slide 3)

- How do place-based identities connect to climate change?
- How does knowledge of the moon phases connect to climate change?
- How does the knowledge of moon phases connect to emergency management planning?

Outline (slide 4)

- Cultural protocol
- Introductions
- The Moon Phases
- King Tides
- Case study #1: Nā Pō O Ka Malama: The “Nights” of the Hawaiian Month
- Mosaic Art Reflection & Creative Theater activity
- Case study #2: How King Tides became Hawaii’s Climate Change Wake-up Call
- Reflection for class

Cultural Protocol (slide 5)

The start of the module opens in traditional protocol with the *E Hō Mai* chant, which talks about bringing everyone together, both student and educator, with everyone learning from each other. The class and educator chant together, repeating the chant three times, becoming louder each time. The chant is by Edith Kanaka'ole Kanahale and can be played for the class to learn and chant together, <https://youtu.be/32vcntOp0i4>.

Introductions (slide 6)

After the chant, explain that when doing this in Hawai'i, each student would introduce themselves and where they are from in the Hawaiian language, and explain what connects them to this place. Introductions would be shared in the following way:

Aloha.
'O (first & last name) ko'u inoa.
No (place of residence) mai au.
What makes me pili to Hawaii?

Explain that by doing introductions in the Hawaiian language, the student is being connected to another worldview. Have each student introduce themselves in the Hawaiian language and explain how they connect to the place they come from. This activity allows the students to have a connection to place and creates relationships with communities.

The Moon Phases (slides 7-19)

Mo'olelo of Hina (slide 7)

The teacher will connect the moon phases through oral history in storytelling. The story talks about the Goddess Hina that is connected to the moon and fishermen. This story is used as another source in learning how to remember stories that can connect the student to the lesson. In learning this story, the student will remember that the moon phases are related to what fishermen do on a daily basis, the connection between deities and people, and the tools of oral culture in remembering stories to help with understanding the solar system and its moon phases.

Anahulu Ho'onui: (Day 1-10) (slides 9-11)

Western Pacific Regional Fishery Management Council. Hawaiian Lunar Calendar. Published December 16, 2019. The teacher will break up the days of the month in to ten day periods and go in to what happens in those days for the moon phases. The teacher will connect the moon phases to the size of the moon and explain what native people see and use when they fish and plant. The teacher will show the connectedness between moon phases and how men use those phases. Picture from Archive.hokulea.com @ <https://images.app.goo.gl/ss9m67jGd>.

Day 1-2: (Beginning of the Moon Phases) The teacher will go through each day of the moon phases to show a pattern, shows the moon gradually increase/decrease in size, and what is associated with each moon phases/day for fishermen and farmers. The key days of the month are the full moon in which the moon connects to the ocean and that is a time of increased tides. In order to understand when this happens, an understanding of the moon phases are necessary so that when the full moon is upon us there will be knowledge of an increase in tide before it occurs.

Day 3-6: (Kū Moon Phases) The teacher will show the different phases in the moon phases. The Kū phases is seen as important days for fishermen and farmers because of the size of moon. This means that when the moon is a certain size there are many intangible perceptions involved as to how to best fish and farm.

Day 7-10 (‘Ole Moon Phases) The moon phases for these days show the moon phase in a position that does not show a visible moon and therefore these days are used for rest and preparation.

Anahulu Poepoe: (Day 11-20) (slides 12-15)

Western Pacific Regional Fishery Management Council. Hawaiian Lunar Calendar. Published December 16, 2019. Picture from Archive.hokulea.com @ <https://images.app.goo.gl/ss9m67jGd>.

Day 11-13: The teacher will highlight these days that lead to the full moon. By learning these days and what size the moon will be the student will know before hand when the full moon will be in the sky.

Day 14-16: (Full Moons) The teacher will highlight the full moons because during these days there are different phenomena that occur each month that are related between the moon and the ocean.

Day 17-20: (Lā‘au Moon) Teacher will highlight these days and show a pattern between the size of the moon and what to do during those days with fishing and farming.

Anahulu Emi: (Day 21-30) (slides 16-19)

Western Pacific Regional Fishery Management Council. Hawaiian Lunar Calendar. Published December 16, 2019. Picture from Archive.hokulea.com @ <https://images.app.goo.gl/ss9m67jGd>.

Day 21-23: (‘Ole Moon) The teacher will show how the moon size decreases and what happens in this stage of the ‘ole moon.

Day 24-26: (Kaloa Moon) The teacher will highlight these days as being good for fishing and farming. Also, highlight the size of the moon as it decreases.

Day 27-30: The teacher will show that each day has a different moon size and there are specific traditions to follow when understanding each day and their moon size.

King Tides (Perigean Spring Tide) (slide 20)

The teacher will put the information of the moon phases together with King Tides and show that when the full moon occurs at the same time as the King Tides that there will be a natural phenomena with the ocean and tides in which the ocean level rises and creates flooding in areas that are low lying. The teacher will show the importance of knowing this dynamic so that the student will know beforehand when there will be flooding in certain low-lying areas.

King Tides & Full Moons Occurring Simultaneously (slide 21)

A discussion for communities to know when to do the following:

- Prepare for shoreline flooding in low-lying areas
- Will know beforehand the phenomena will occur based on ‘ike Hawai‘i (Hawaiian knowledge).
- Prepare for emergency management if home and business is along the shoreline.
- Prepare for family to stay at home and/or relocate to safe area ahead of time instead of in an emergency situation.

Understanding this dynamic will help in finding solutions to the flooding and help to create management plans that are mindful of this dynamic while using Indigenous knowledge of the moon phases.

Case Study #1 (slide 22)

Read Langlas, Charles M. “Nā Pō O Ka Malama: The “Nights” of the Hawaiian Month.” Palapala, 1: 2017. 101-112.

Discuss as a group the following sections:

- Four opinions regarding pō.
- Primary Hawaiian language sources.
- Secondary sources & Tsuha’a Master’s thesis proposal.
- Polynesian comparisons.

The teacher will use this case study to discuss pō or the beginning of time, to discuss how Hawaiian language sources have answers from the past for the present, a Master’s thesis proposal including Indigenous knowledge to modern knowledge, and what to look for when discussing the Polynesian worldview.

Group Activity: Mosaic Art Reflection and Creative Theater (slides 23-24)

- The teacher will put the students in groups of 4 or 5 to discuss the connection between place-based identities and climate change. Each student will receive a 5-inch x 5-inch canvas to draw their vision of how place-based identity helps with a disaster and/or emergency plans. Each group will development the skill of story-telling by creating a mo‘olelo or story of how they created an emergency plan by using art and story-telling for the presentation in developing a place-based management plan.
- End Product: Each group will put together an art reflection on a poster board to present to stakeholders and government officials in presentations discussing how to be informed by Indigenous knowledge for solutions in climate change. The student will emphasize using art and storytelling to explain the process of why and how to create emergency management plans for climate change solutions.

Case Study #2 (slide 25)

Read Tucker, Keahi. 2017 in Review: How King Tides became Hawaii’s Climate Change Wake-up Call. Hawaii News Now. December 27, 2017.

Discuss as a group the following sections:

- What are the main ideas from this article?
- What is missing from this dialogue?
- What would you add to this dialogue?

The teacher will direct the student to read the article and answer the questions. This will be a group discussion and everyone is made to give at least one answer/reflection/concern of the article. The purpose of case studies is to understand what has been done before and see where to be informed by the failures and successes of the project they are reading about. This dynamic will help to create an emergency plan that is informed by what has been done prior yet including place-base to be more appropriate in active solutions.

Reflection For All (slide 26)

The teacher will want the class to come together and share about what they thought of the class. These questions will guide them in discussion.

Oli Mahalo (slide 27)

COVID-19 and Climate Change: Understanding Place, History, and Indigenous Sovereignty in Emergency Response

At the end of this instruction, the teacher will start off oli mahalo as a way to say ‘thank you’ for the instruction. The class starts with tradition and ends with tradition. Chant by Kehau Camara. Blogs.ksbe.edu.

References (slide 28)

Ke Kā o Makali‘i (The Canoe-Bailer of Makali‘i). Webpage at: archive.hokulea.com/ike/hookele/hawaiian_star_lines. Last seen December 09, 2018.

Kilselka, Will. Polynesian Stars and Men: The Puzzle of the Ancient Navigation of the Polynesians. Bishop Museum Science Center. Honolulu, HI. 1969.

Makemson, Maud W. American Anthropologist. New Series. Journal Article, Vol. 40, No.3. 1938. 370-383.

Papakū Makawalu (Kanahele, P. K., Kanahele-Mossman, H., Nuuhiwa, K., and Kanahele, K. H.). (2011). Mahina. Hilo, HI: Edith K. Kanaka‘ole Foundation. Retrieved from http://edithkanakaolefoundation.org/wp-content/uploads/2012/06/Mahina_BookDigital_v2.pdf.

Mahalo nui!

Module #8

Hawaiian Wind Names and Emergency Management

The learning objectives for Module #8 will introduce the student to an Indigenous worldview that uses names to the wind to tell a story of conservation plans, management plans, and different worldviews that are used to understanding weather disturbances and dynamics but to also give solutions that were used from the past.

Learning Objectives (slide 2)

- Participate in an activity that is inclusive and collaborative.
- Show how each member of your group is contributing to the team and community.
- Reclaim Hawaiian identity through understanding winds and directional points through 'ike ku'una (Hawaiian knowledge, belief system, philosophy, and practices).
- Perpetuate 'ike ku'una in order to form a Hawaiian foundation for the lāhui (Nation).
- Understanding how winds can contribute to emergency management planning.

The following needs-to-know list will be discussed in class to give the students guidance of what will be learned in the class.

Needs-to-know (slide 3)

- Where does the sun rise and set?
- Where is the East and West?
- What are the names of the winds in that area and/or family Ahupua'a?
- What is the 'ike ku'una and 'ike kūpuna about the significance of the winds?
- How is the wind connected to Emergency Management?
- How did my kupuna show appreciation to this 'ike?
- How is the wind important in the bigger picture of climate change?

Module #8 will cover the following: (slide 4)

- Cultural protocol
- Introductions

Outline (slide 4)

- Cultural protocol
- Introductions
- Mo‘olelo of La‘amaomao
- Group Activity: Winds of Maui
- Group Activity: Gather to Share
- Case Study
- Additional references
- Oli Mahalo

Cultural Protocol (slide 5)

The beginning of class will start with traditional protocol by chanting E Hō Mai by Edith Kanaka‘ole Kanahale. The teacher will handout a copy of the words and explain the chant and start the chant for the students. The students will chant along with the teacher together. To listen to the chant, <https://youtu.be/32vcntOp0i4>.

Introductions (slide 6)

After the chant, the teacher will change the class dynamic by getting the students to introduce themselves and connection to place in the Hawaiian language. This allows the student to see that another worldview will be practices and learned by speaking Hawaiian language in the introduction. Follow below:

*Aloha.
'O (first & last name) ko 'u inoa.
No (place of residence) mai au.
What makes me pili to Hawaii?*

Explain that by doing introductions in the Hawaiian language, the student is being connected to another worldview. Have each student introduce themselves in the Hawaiian language and explain how they connect to the place they come from. This activity allows the students to have a connection to place and creates relationships with communities.

Mo‘olelo of La‘amaomao (slides 7-10)

The teacher will get the students to read the story of La‘amaomao. In Indigenous cultures, mo‘olelo or stories discuss a storyline to remember certain key aspects of a dynamic. The wind names exist throughout the Hawaiian islands and for every island. These names discuss their respective areas and talks about who lived there, different winds brings different weather dynamics to the area, farming, fishing, when to go to ocean and when not to go there, and other dynamics that becomes useful in everyday life. These stories help to remember these dynamics.

The teacher will also discuss the history of the wind gourd, where the students can find it, and show how the gourd can be used depending on where you are in the Hawaiian islands.

Re-tell the Mo‘olelo

The teacher will have the class retell the story, include who the key players were, and see if they can remember the beginning, middle, and end of the story. This activity shows how to remember a dynamic through storytelling by using the key references.

- Where does the story take place?
- Who are the people involved?
- What was one thing from the mo‘olelo that you remembered in the:
 - Beginning
 - Middle
 - End

Mo‘olelo & Critical Dialogue

The teacher will direct the class with the questions above and write the answers on the board. At the end of this activity, the teacher will ask the class which answer stood out in each question and/or which answer was given more than once. Those answers will be circled per question and placed on another sheet and/or chalkboard for deeper discussion by the class.

- Why is the mo‘olelo important to Hawaiian people?
- How does this mo‘olelo connect to Emergency Management?
- Is it important to understand the elements of reference in Emergency Management? In this case, referring to the winds.
- What are other examples from other native cultures that are similar?
- How does mo‘olelo help to understand another worldview?
- What are other dynamics to note regarding mo‘olelo of a native culture and modern day

management plans?

Group Activity (slides 11-18)

The teacher will give a group activity for the class by having 4 or 5 students in each group. Each group will go through the three stations and highlight the key dynamics.

- Each group will have 4 or 5 people.
- Each group to go through Station 1, 2, & 3 together. (The stations are outlined in following slides).
- Look for the common denominator in each group.
- Each name and/or description has a mo‘olelo and/or directional marker of each wind. Why is this important? How does this connect to Emergency Management?

Winds of Maui

This map highlights the names to the winds on the Island of Maui, Hawaii. Map is from the Hawaii State Geographic Information System. Produced by Kapomakai Stone, Lindsey Spencer, and Meona Elmwood for Kahua A‘o.

Station 1: Wind Descriptions

Teacher will describe the wind directions and connect the name of the wind with the strength of the wind:

- A‘e – northeast tradewind.
- Kaiāulu – pleasant, gentle tradewind breeze.
- Kaumuku – wind squall.
- Kiu – strong, cold northwesterly wind.
- Kū – strong Moa‘e tradewind.
- Kualau – shower accompanied by seawind.
- Moa‘ea‘e – tradewind.
- Pu‘ewai – a cold wind.

Station 2: Wind Characteristics

The teacher will show the name of the winds and the definitions of the wind to show how the winds are describing the area.

Station 3: Wind Names

The teacher will show the name of the winds and the definitions of the wind to show how the winds are describing the area.

Benefits of Knowing the Wind

The teacher will discuss the connection between Indigenous knowledge and wind directions/strength.

- Connection to ‘ike Hawai‘i (Hawaiian Knowledge).
- Connection to ‘āina (land).
- Connection to a different worldview that is in sync with nature.
- During times of Emergency Management, understanding the wind is crucial in putting together a management plan for safety, disaster relief, & eco-friendly options.
- Wind directions in the Hawaiian mo‘olelo and language is informed from centuries of ancestral knowledge that has experienced some type of disaster event. Through mo‘olelo the solutions at that time are given and passed down through these stories to allow for a continuation of ‘ike Hawai‘i (Hawaiian knowledge) to emergency situations.

Group Activity: Gather to Share (slide 19)

The teacher will start a group activity in which the students will discuss what they have learned. These questions will guide them in discussion which will be presented to the rest of the class at the end of the session.

- What are some things that stood out to you or questions you have about what you shared?
- How is Hawaiian knowledge beneficial to Emergency Management through examples of knowing about the winds?
- What does this mean for your work?
- What changes might you need to make this example?
- What kinds of support might you need?
- How can all of us here today ensure that the information shared is used and refined to have a positive impact on your emergency management system?
- Each name and/or description has a mo‘olelo and/or directional marker of each wind. Why is this important? How does this connect to Emergency Management?

Case Study (slide 20)

The teacher will have the class read the article below and discuss the questions together in a group setting. The discussion will be presented at the end of the session in front of the class.

- Yeng, Yeng & Yi-Leng Chen. "Circulations and Rainfall on the Lee Side of the Island of Hawaii during HaRP." American Meteorological Society. Volume 131, Issue 10. October 01, 2003. 1-18.

Read the article and discuss the following questions as a group.

- How does Hawaiian knowledge of the winds prepare a person/group/organization for disaster/emergency/management?
- How can Hawaiian knowledge be added to this research in the case study for a more thorough conclusion?

Oli Mahalo

A gratitude chant from the student to teacher to say 'Thank you' for the instruction in class. The day start in protocol and ends in protocol. Chant by Kehau Camara.

References

- Kawaharada, Dennis. "Introduction to The Wind Gourd of La'amaomao." 1992. Retrieved October 02, 2018 from website: www.2.hawaii.edu/~dennisk.
- Nakuina, Moses Kuaea. The Wind Gourd of Laamaomao. CreateSpace Independent Publishing Platform, 2016.
- Kirch, Patrick. On the Road of the Winds: an Archaeological History of the Pacific Islands before European Contact. University of California Press, 2017.
- Fornander, Abraham. "Hawaiian Antiquities and Folk-Lore; The Hawaiians' Account of the Formation of their Islands and Origin of their Race, with the Traditions of their Migrations, Etc., as Gathered From Original Sources. Kamahualele's chant. Mo'ikeha story." Bishop Museum Press, vol. IV, 1918, pp. 12-128. doi: 10.1038/107391c0.

Mahalo nui !

Module #9

Traditional, Sustainability Practices and Emergency Management

The learning objectives for Module #9 will introduce the student to an Indigenous worldview that uses names to the wind to tell a story of conservation plans, management plans, and different worldviews that are used to understanding weather disturbances and dynamics but to also give solutions that were used from the past.

Learning Objectives (slide 2)

- To gain appreciation for the Hawaiian worldview.
- To develop an appreciation for ‘āina (land).
- To develop a deeper understanding of ‘ike hawai‘i (Hawaiian knowledge).
- To understand the connection between man and land.
- To identify the cyclical connection through story & traditions.
- To be aware of traditions that can aid in sustainability practices during times of emergencies and non-emergencies.

Outline (slide 3)

- Cultural Protocol
- Introductions
- Connecting to Mo‘olelo
- Group Activity: Kalo (Taro) Plant
- Group Activity: Gather to share
- Case Study: connecting different worldviews
- Mahalo Oli
- References

Cultural Protocol (slide 4)

The start of the module opens in traditional protocol with the *E Hō Mai* chant, which talks about bringing everyone together, both student and educator, with everyone learning from each other. The class and educator chant together, repeating the chant three times, becoming louder each time. The chant is by Edith Kanaka'ole Kanahale and can be played for the class to learn and chant together, <https://youtu.be/32vcntOp0i4>.

Introductions (slide 5)

After the chant, explain that when doing this in Hawai'i, each student would introduce themselves and where they are from in the Hawaiian language, and explain what connects them to this place. Introductions would be shared in the following way:

*Aloha.
'O (first & last name) ko 'u inoa.
No (place of residence) mai au.
What makes me pili to Hawaii?*

Explain that by doing introductions in the Hawaiian language, the student is being connected to another worldview. Have each student introduce themselves in the Hawaiian language and explain how they connect to the place they come from. This activity allows the students to have a connection to place and creates relationships with communities.

Connecting to Mo'olelo (slides 6-10)

Mo'olelo O Hāloa

The teacher will have the class read the Mo'olelo of Hāloa and prepare for a discuss in a group setting after the reading is finish. Mo'olelo Hawaii Kahiko, Mokuna III, Ka Na'i Aupuni, Volume II, Number 18, 22 June 1906.

Page two of the Mo'olelo O Haloa for the students to read. Moolelo Hawaii Kahiko, Mokuna III, Ka Na'i Aupuni, Volume II, Number 18, 22 June 1906.

Retell the Mo'olelo

The teacher will have the class retell the story, include who the key players were, and see if they can remember the beginning, middle, and end of the story. This activity shows how to remember a dynamic through storytelling by using the key references.

- Where does the story take place?

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- Who are the people involved?
- What was one thing from the mo‘olelo that you remembered in the:
 - Beginning
 - Middle
 - End

Mo‘olelo and Critical dialogue

The teacher will have the class discuss the following questions.

- Why is the mo‘olelo important to Hawaiian people?
- How does this mo‘olelo connect to sustainability?
- What are other examples from other native cultures that are similar?
- How does mo‘olelo help to understand another worldview?
- What are other dynamics to note regarding mo‘olelo of a native culture and modern day management plans?

Group Activity (slides 11-20)

The teacher will put 4 or 5 students in a group. The groups will go through the following three stations as a team and follow the directions above. The above instructions will guide the team for the end of class presentation.

- Get in groups of 4 or 5 people.
- Learn each section of the station.
- Present in front of the group
- Each person will offer information on at least part of the kalo plant.
- In the presentation to include: (1) The Hawaiian name; (2) Where it is located; (3) What are the uses for it; (4) How it connects to the bigger picture of the culture.
- As a group, discuss how this plant can be used during times of disaster.

Station 1: Kalo (Taro) Plant

The teacher will discuss the kalo plant and name the different areas and uses of the plant.

- Learn about the kalo plant: The Hawaiian name to the parts; where the part of the plant is located; what the uses are for.
- Fill-in a blank space picture of names of the parts of the kalo plant.

Part of the Kalo (Taro)

The teacher will go over the Hawaiian names and connect the students to the definitions in English. Those definitions will be linked to the plant and cultural traditions.

- Lau: leaf, cook food inside
- Piko: middle, belly button, center of man
- Hā: stalk, breath of man
- ‘ohā: baby shoots, regeneration
- Kalo: taro, sustenance for mind/body/spirit
- Huluhulu: roots, genealogy/cosmology
- Huli: baby roots replanted, future generations

The teacher will have the students fill in the numbers as to what part of the plant it is. Each member in the group will pick one item to introduce to the class and talk about what they learned.

Station 2: Information & Benefits of Kalo (Taro)

The teacher will discuss the kalo and the benefits that come from the many different parts of the plant.

- Learn the information & benefits of Kalo: Understand the different varieties of kalo; understand the location that the kalo plant can be found in.
- Learn the many different uses for the kalo plant: Learn at least one use for each section of the kalo plant.

Information & Benefits of Kalo (Taro)

The teacher will discuss the many different reasons for using the kalo plant.

- 300+ varieties of kalo known to early Hawaiians: Wet/dry varieties; found in lowland/upland
- Used for many different reasons: Medicine: stem of the leaf can be rubbed on an insect bite; Raw rootstock stops bleeding; mashed poi used as a bandage; Paste: glue pieces of kapa together; Fishing: Used as bait; Dye: juice can be used to dye material. Many different colors; Food: poi to eat now, pa‘i‘ai to eat in 2-4 weeks, dried kalo to eat past 4 weeks, kulolo to eat as dessert.

Station 3: Tour of the Kahawai (Stream)

The teacher will discuss the water/stream in the lo‘i and discuss the importance to knowing the waterways.

- Understand the water system surrounding the lo‘i.
- Trace the water system from the mountains to the sea.
- Understand the use of each section and the benefits that goes along with it.

The Stream Surrounding the Lo‘i

The teacher will give a worksheet to the students and go over each area for the quiz at the end of this session.

- Po‘owai: The head of the water leading into irrigated ditches that flow into the lo‘i. The water is control from the po‘owai.
- Mānowai: Rocks slow the water down to help channel it to different areas.
- Makawai: Water enters and exits from each lo‘i.
- ‘Auwai: Carries the water from the stream to the lo‘i.
- Kahawai: The source of water begins in the mountains and provides water for the lo‘i.
- Ho‘i: Water leaves the lo‘i and returns to the kahawai.

Group Activity: Gather to Share (slide 20)

The teacher will bring in all of the students to present and share what each group worked on together.

- **What are some things that stood out to you or questions you have about what you shared?**
- **What does this mean for your work?**
- **What changes might you need to make this example?**
- **What kinds of support might you need?**
- **How can all of us here today ensure that the information shared is used and refined to have a positive impact on your emergency management system?**

Case Study (slide 21)

The teacher will introduce this case study and have the groups be directed by and answer the questions below.

Read the following article and answer the questions as a group.

- Cho, John J., Roy A. Yamakawa, & James Hollyer. "Hawaiian Kalo, Past and Future." Sustainable Agriculture, SA-1. Feb 2007, 1-8.

Questions to answer:

- What are the key ideas of this article?
- What examples can be incorporated in to possible solutions for sustainability practices and climate change agricultural stability? Please use examples from this article.
- How does Indigenous knowledge speak to sustainable practices?

Oli Mahalo

A gratitude chant from the students to the teacher to say 'Thank you' for the instruction in class. The day starts in protocol and ends in protocol. Chant by Kehau Camara.. Blogs.ksbe.edu.

References

Cho, John J., Roy A. Yamakawa, & James Hollyer. "Hawaiian Kalo, Past and Future." *Sustainable Agriculture, SA-1*. Feb 2007, 1-8.

Ka'ōpua-Goodyear, Noelani. "Rebuilding the 'Auwai: Connecting Ecology, Economy and Education in Hawaiian Schools." *Alternative*, Volume 5, Number 2. 2009, 46-77.

Kirch, P. V. and D. Lepofsky. "Polynesian Irrigation: Archaeological and Linguistic Evidence for Origins and Development." *Asian Perspectives* 32, no. 2. 1993, 183-204.

Teves, Glenn I. "Growing Upland Taro." *Molokai Native Hawaiian Beginning Farmer Quarterly* – July to September 2015. 1-14.

Mahalo nui !