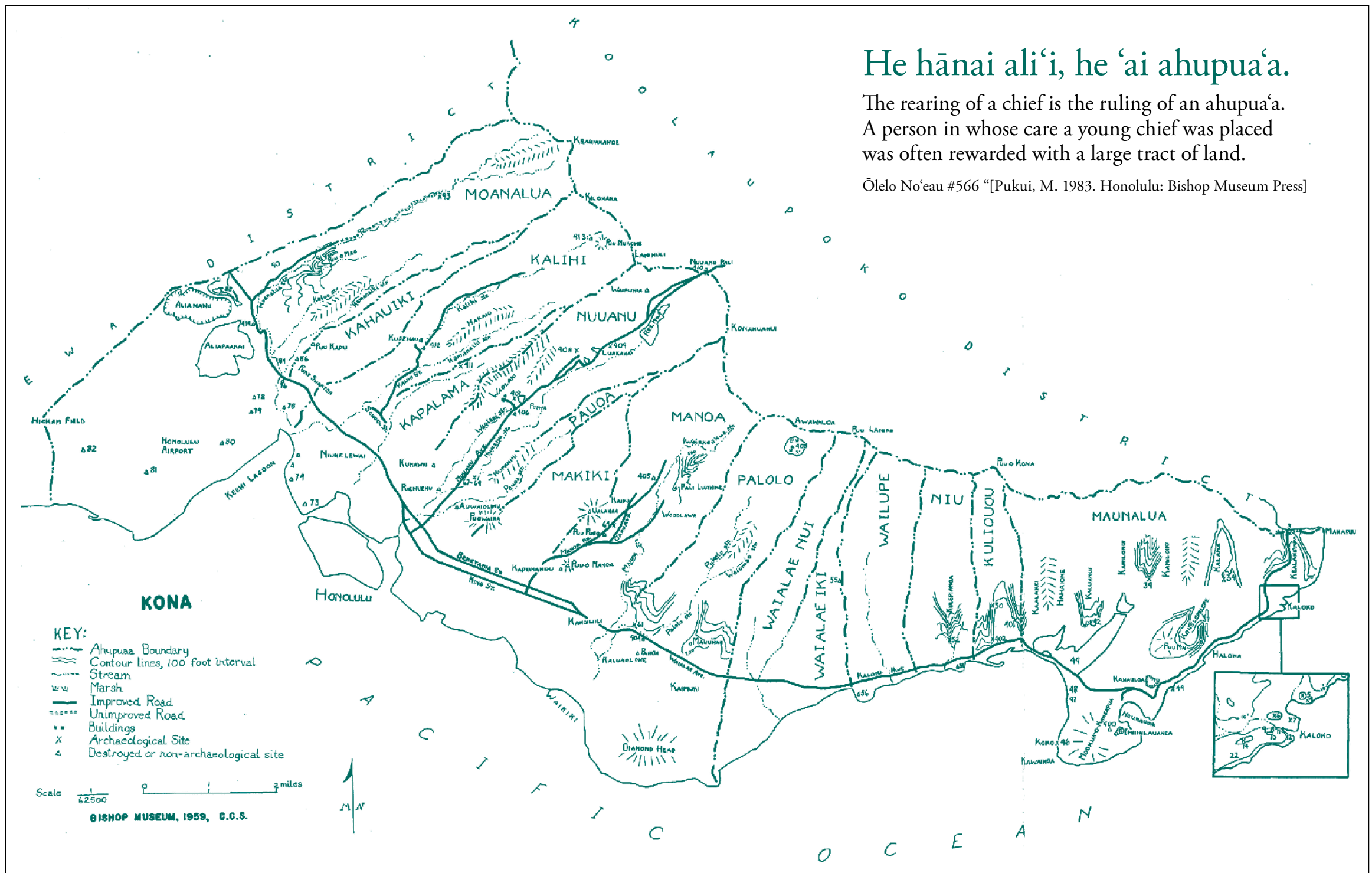


2014 Hawaiian Lunar Calendar  
Moku o Kona, Mokupuni o O'ahu

## He hānai ali‘i, he ‘ai ahupua‘a.

The rearing of a chief is the ruling of an ahupua‘a.  
A person in whose care a young chief was placed  
was often rewarded with a large tract of land.

Ōlelo No‘eau #566 “[Pukui, M. 1983. Honolulu: Bishop Museum Press]



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Cover image depicting the Hawaiian lunar cycle, © 2010, Western Pacific Regional Fishery Management Council  
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Back cover photo by Eleventh Photo Section, A.C. Luke Field, Territory of Hawai‘i

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# About This Calendar

This Hawaiian lunar calendar features the *Moku o Kona* (District of Kona) on the island of O'ahu (*Mokupuni o O'ahu*) and the *ahupua'a* (smaller geographical and political subdivisions) within it. The calendar provides information on cultural places and contemporary stewardship and educational initiatives related to the *ahupua'a*. The traditional system of natural resource management in the Hawai'i archipelago prior to Western contact was based on management at the *moku* level. It is said that Mā'ilikūhahi, a great chief on O'ahu, divided the lands into *moku* in about the 13th century. High chiefs were assigned to each of the six *moku* of O'ahu and lesser chiefs to each of the *ahupua'a*.<sup>1</sup> On July, 9, 2012, Gov. Neil Abercrombie signed into law Act 288, which formally recognizes the 'Aha Moku (Moku Council) system of natural resource management.

The 1959 Bishop Museum map of the Kona Moku was used as guidance for selecting the featured *ahupua'a* in this calendar. This map depicts 15 *ahupua'a*. It is unclear if Kapalama was an *'ili* (smaller division within an *ahupua'a*) or an *ahupua'a*, and it is not included in the calendar. Historically, Pauoa was believed to be an *'ili* of Nu'uano<sup>2</sup> so it is not included on the calendar. There is also reference to a Lihu'e *ahupua'a* in Kona, but it is not on the reference map and is not included in the calendar. Wai'ālae nui and Wai'ālae iki seem to have been drawn from an older *ahupua'a* called Wiliwilinui. Wai'ālae is included on the calendar. An historical reference says Maunalua was an *'ili* of Waimanalo though there was no indication of how or why. Maunalua is included in the calendar.

The HM Nautical Almanac Office (HMNAO at [astro.ukho.gov.uk/websurf](http://astro.ukho.gov.uk/websurf)) and the QuickPhase Pro version 3.3.5 program were used as guidance for calculating the moon phases. Traditionally, each day (the night before and the following day) was named for the lunar phase visible by the naked eye the night before. Those wishing to participate in a worldwide project to better predict sightings of the first crescent moon, which determines the start of a lunar month, are encouraged to go to <http://astro.ukho.gov.uk/> and click on Crescent Moon Watch. A space for observations is provided for each month where you can record the date you saw the first crescent moon and other features of the lunar month.

Moon phase and moon month names may vary by island. This calendar uses the moon phases for O'ahu listed in the *Hawaiian Almanac* by Clarice Taylor (1995. Honolulu: Mutual Publishing).

In the traditional Hawaiian calendar, the lunar month was determined by the 29.5-day cycles of *mahina* (moon). The moon cycle was divided into three 10-day periods known as *anahulu*. The first 10-day period was called *ho'onui* (growing bigger), beginning on the first crescent. The second *anahulu* was *poepoe* (round or full). The nights of the bright moon (*Akua*, *Hoku* and *Mahealani*) were referred to as *nā pō mahina kōnane* (bright moonlight nights).<sup>3</sup> The last *anahulu* was *emi* (decreasing).

Traditionally, lunar phases are used to determine when specific activities should take place. Daniel Kaha'ulelio in *Ka 'Oi Hana Lawai'a: Hawaiian Fishing Traditions* explained the relationship between the moon phases and fishing:

The days that are good for going to sea to fish are the three *La'au* days; for the fish will take the bait continuously in all kinds of fishing; *Akua* too, for the fish had voracious appetites. They ate like *akua*, supernatural beings. On the day named *Mohalu* the fish open their mouths wide for food; on *Mahealani* the fish eat one after the other and on *'Olepau*, the fish consume all, *pau*, taking, *ho'olawe*, like Kaho'olawe, which has been fished all around by your writer; that was with my parents and grandparents. On the three Kū nights the fish ate greedily. This my grandfolks taught me; it is useless to go fishing on any other time.<sup>4</sup>

This 2014 Hawaiian lunar calendar was produced by the Western Pacific Regional Fishery Management Council with special thanks to Erron Yoshioka (Moanalua High School), Al Keali'i Chock, Joni Bagood and Kahaulani Kupihea (Mokauea Fishermen's Association), Mahina Duarte (Halau Ku Mana Charter School), Lucas Moxey (NOAA OceanWatch Central Pacific), Alia Thompson (Kaimuki Middle School), Randy Jackson (Wai'ālae Elementary Public Charter School), Darrah Brown (Niu Valley Middle School), Rae DeCoito (Mālama Maunalua), John Thompson (Shrimp Mart), Tia Reber (Bishop Museum), Dore Minatodani (Hawaiian Collection, University of Hawai'i at Mānoa Library), Melissa Shimonishi (Hawai'i State Archives), Dennis Drake and Kenneth Hays (US Army Garrison Hawai'i), Gavin Hirano (State Survey Office, DAGS Land Survey Division), David Robinson and Anne Grant (OceanFun Publishing), and Eric Woo, Miho Owada and Randall Chun (Eric Woo Design, Inc.).

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<sup>1</sup> [http://www.kumukahi.org/units/ka\\_honua/onaepuni/ahupuaa](http://www.kumukahi.org/units/ka_honua/onaepuni/ahupuaa)

<sup>2</sup> Elihu Root collection of United States documents: Ser. A.-F., Vol. 1, Foreign Relations of the United States Affairs in Hawaii. 1894. Washington, DC: GPO. p. 889

<sup>3</sup> Kamakau, SM. Works of the People of Old (Na Hana a ka Poe Kahiko) 17; Malo, D. Hawaiian Antiquities 31-32; in Hawaiian Voyaging Traditions ([http://pvs.kcc.hawaii.edu/ike/hookele/hawaiian\\_lunar\\_month.html](http://pvs.kcc.hawaii.edu/ike/hookele/hawaiian_lunar_month.html)).

<sup>4</sup> Translated by Mary Kawena Puku'i. Edited by M. Puakea Nogelmeier. 2006. Honolulu: Bishop Museum Press. pp. 67-69. Note: The reference is for Maui, so there might be some differences on O'ahu.

# Ahupua'a o Moanalua

## High School Summer Course on Marine Science and Fisheries

Moanalua High School has partnered with the Western Pacific Regional Fishery Management Council over the last seven years to provide an annual high school summer course on marine science and fisheries open to Hawai'i students. Led by science teacher Erron Yoshioka, students receive a mixture of classroom lessons and hands-on experiences on topics ranging from the Hawai'i seafood industry to traditional fishponds and resource management practices. During the last two years, the classes have included field trips to the island of Moloka'i to learn about traditional practices at Mo'omomi Bay with Mac Poepoe. The course concludes with an outreach activity involving the community, such as running a catch-and-release fishing tournament for youth, providing water quality assessments or publishing an article in a local magazine.



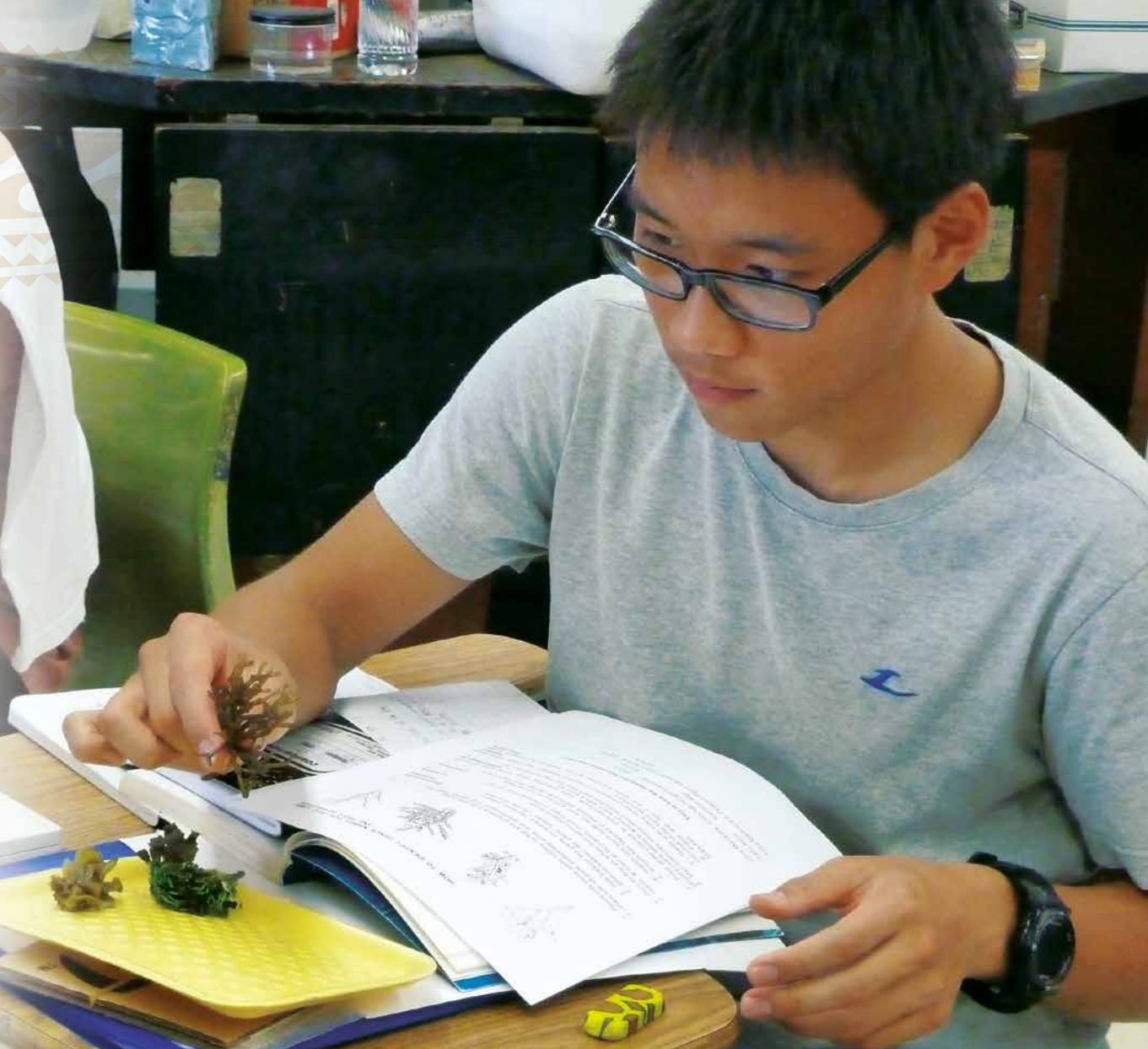
Learning firsthand what lives in anchialine ponds, landlocked bodies of water that have a subterranean connection to the ocean.



Hands-on experience with *kalo* (taro) at the Loko Ea Fishpond. *Kalo* was the primary food for Hawaiians and, according to myth, is their ancestor. The *ahupua'a* of Moanalua is said to have been named for two encampments (*moana lua*) at *kalo* patches where travelers bound for Honolulu from 'Ewa rested.



All indigenous *limu* are important to Hawaiians for various uses. *Limu kala* is an edible seaweed and important forage for many sea species. Chop the young leaves and add it to soups or stews or deep fry the leaves whole. It can be chewed and applied as a poultice to open coral cuts. It is woven into *lei* (garland) and used in *hula* (dance) and *lawai'a* (fishing) practices. It is very important in *ho'oponopono* (forgiveness ceremony). *Kala* means to forgive.



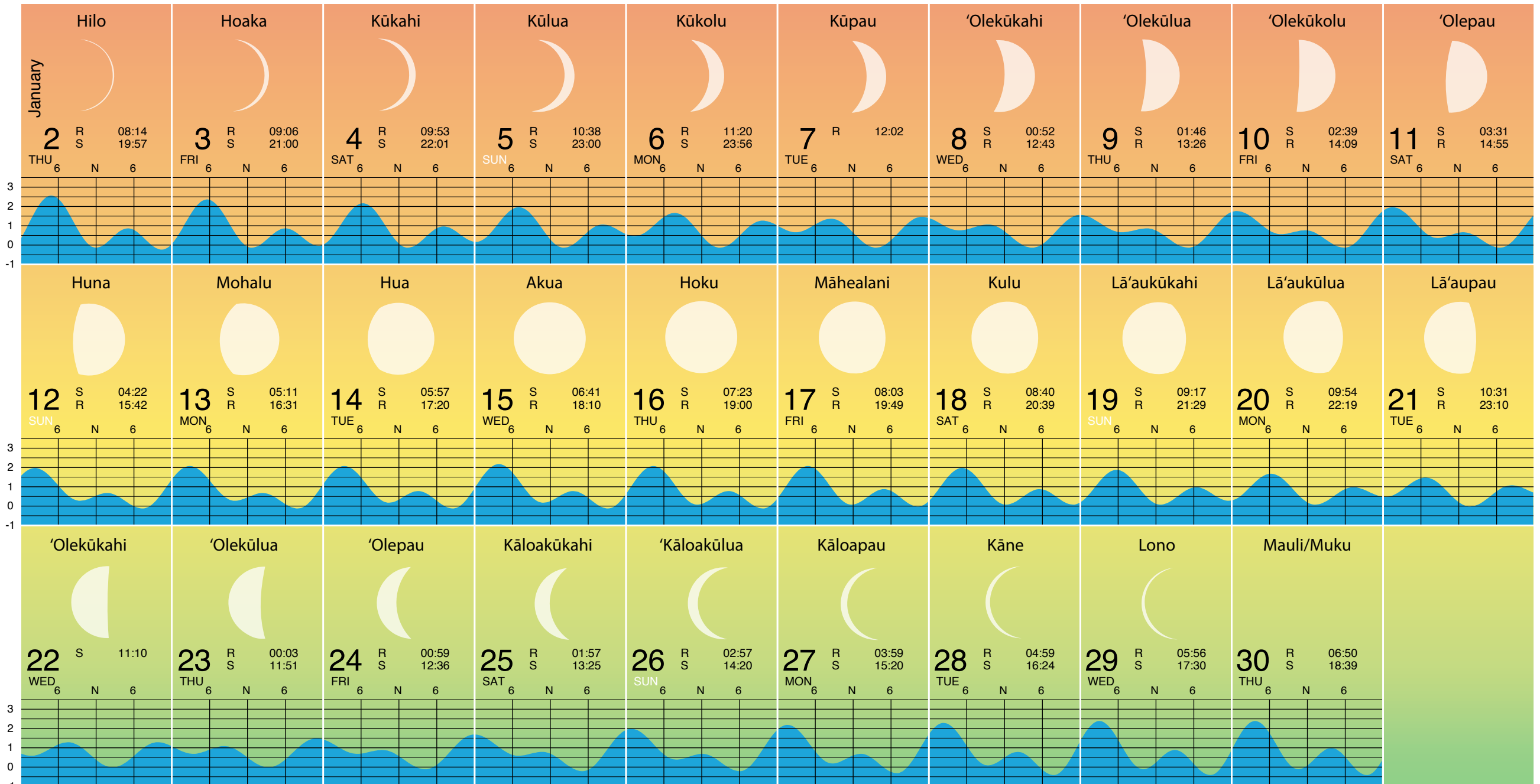
Class lesson on identifying *limu* (seaweed).



'*Opae ula* (red shrimp) are an endemic species found in the brackish anchialine ponds. The shrimp grow to about ½ inch, eat algae and today are raised as pets. [Photo courtesy of Shrimp Mart.]

# Kā'alo

January 2-30, 2014



Observations \_\_\_\_\_

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# Ahupua'a o Kahawiki

## Loko Weli



Local fisherman with Samoan crab. This species was introduced to Hawai'i in 1926 at Kāne'ohe Bay and the 1930s elsewhere. [Source: Eldredge, LG and CM Smith, coordinators, Guidebook to the Introduced Marine Species in Hawaiian Waters. Bishop Museum Technical Report 21.]

I remember going there about every other Sunday afternoon and often putting scraps of meat (usually ham) on a circular net (sort of like a hoop) and finding nice big Samoan crabs a couple of hours later. Lots of mullet. Our family physician went there often for peace and quiet on Sunday afternoons, and the result was free medical service (even after my father's death!). Once I slipped on the wooden "bridge" over the outlet to the sea, and my father (who was dressed in a suit) jumped in to rescue me.

The fish harvested from the pond were served at the Post restaurants (Ft. Shafter, Ft. Armstrong, Luke Field on Ford Island where the Army Air Corps was first located before it moved to Hickam, and Hickam Field) of which my father was proprietor. The post restaurants were later replaced by the officer, non-commissioned officer and enlisted men clubs.

Located between Kahawiki and the island of Mokumoa, Loko Weli (Weli Fishpond) encompassed approximately 30 acres. The area, now dredged coral fill and known as the Lower Fort Shafter flats, is currently located at the mouth of the Maunaloa and Kalihi Streams, 'ewa-mauka (west-mountainside) of the Middle St. and Dillingham Blvd. intersections.

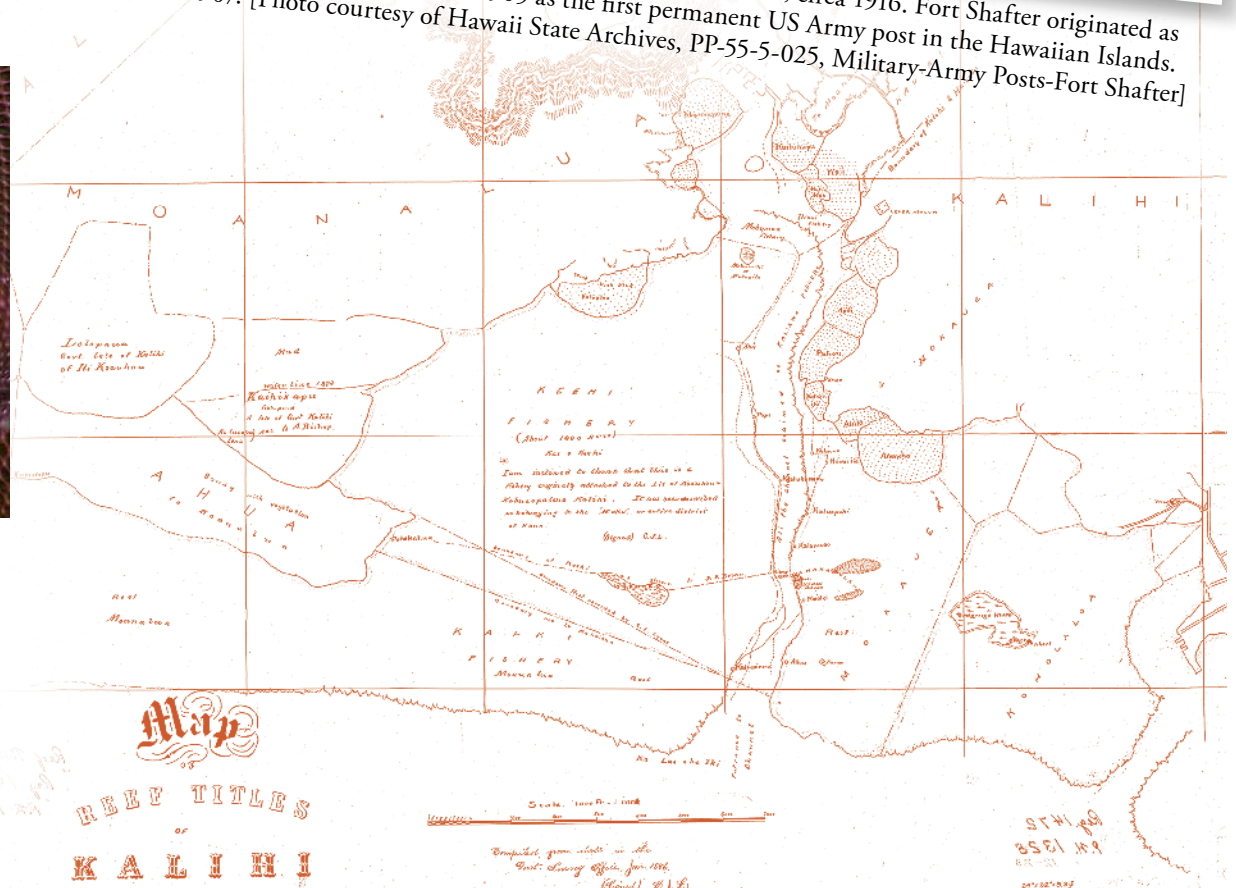
Al Keali'i Chock, ethnobotanist at the University of Hawai'i at Mānoa, frequented Loko Weli as a child (about 1935–1940), as it was leased by his father Chock Hon. The adjacent rice fields were leased by his father's uncle, Chock Look.



'Ama'ama (mullet) were a very choice indigenous fish. Stages are (finger length) *pua 'ama*, *pua 'ama'ama*, *pua pō'ola*, *ō'olā*; (hand-length) *kahaha* (or *pahaha*); (20 cm) *'ama'ama*; (30 cm or more) *'anae*.



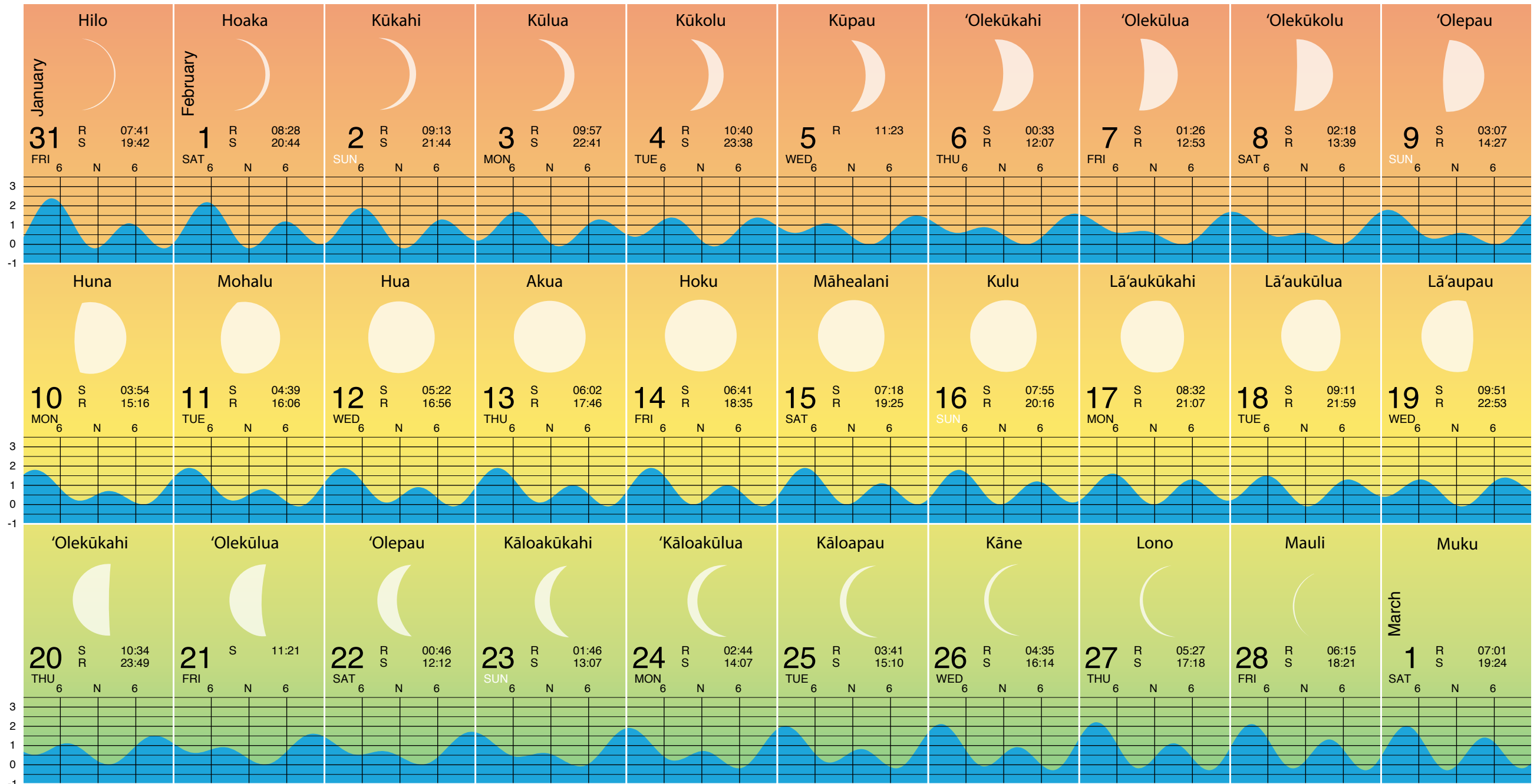
View of island, fish ponds and fields from Fort Shafter, Territory of Hawai'i, circa 1916. Fort Shafter originated as Kahawiki Military Reservation, established in 1905 as the first permanent US Army post in the Hawaiian Islands. It was renamed in 1907. [Photo courtesy of Hawaii State Archives, PP-55-5-025, Military-Army Posts-Fort Shafter]



Registered map #1472 (circa 1886). [Courtesy of the State Survey Office (DAGS Land Survey Division)]

# Kaula

'Ianuāli 31 - Malaki 1, 2014



Observations \_\_\_\_\_

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# Ahupua'a o Kalihi

## Mokauea

***I ka wa mamua, I ka wa mahope. The future is in the past.***



Mililani High School student cleans the Mokauea reef flat of old bottles.

In 1972, plans for the Honolulu Airport expansion led to attempts to evict the fishing families from Mokauea island for future dredging and filling. In 1975 fishermen were arrested for trespassing and five fishermen's homes were burned. The event was filmed and broadcast, and the populace rallied to the fishermen's cause. The State ordered a historic study to establish the importance of the island and area to Hawai'i history.

In 1978, after three years of negotiation, a 65-year lease arrangement was signed with the Mokauea Fishermen's Association. The Association is restoring the fishing village and using the island as a cultural placed-based education learning center offering educational activities for various schools and community groups. Efforts include planting native species to protect the existing coastline, removing invasive species, repairing and revitalizing the fishpond, monitoring water quality, conducting plankton tows, identifying inner-tidal reef organisms and removing marine debris. Perpetuating an understanding of *wahi pana* (storied places) is part of the foundation of the restoration efforts. The vision is to plant seeds to be realized in the next generations, in hopes that their fortitude to *malama honua* (care for the Earth) will protect and save the natural resources indefinitely.



Waipahu High School class learns about the *mo'olelo* (stories) of the Mokauea.



Farrington High School students use GPS to map coral at Mokauea island.



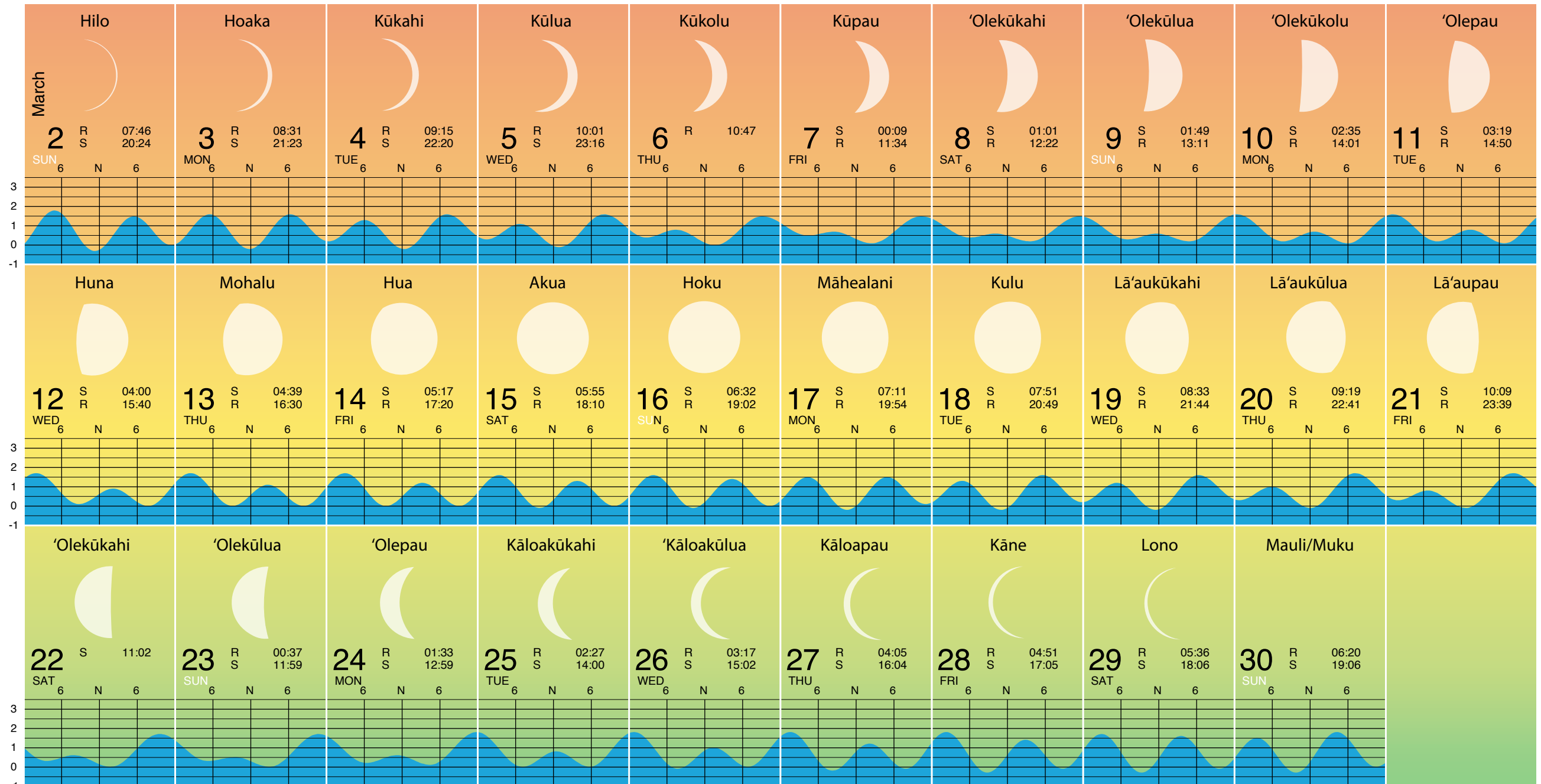
Kamehameha Schools chemistry class cleans the reef of invasive "gorilla ogo" for a class experiment on biofuel and removes all the living animals found in the *limu*.



Students learn the history of Mokauea, which has escaped the dredging and filling that has been the fate of most of the nearby islands and fishponds.

# Nana

Malaki 2-30, 2014



Observations \_\_\_\_\_

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# Ahupua'a o Nu'uuanu

## Kanoi, the Magic Aku Hook

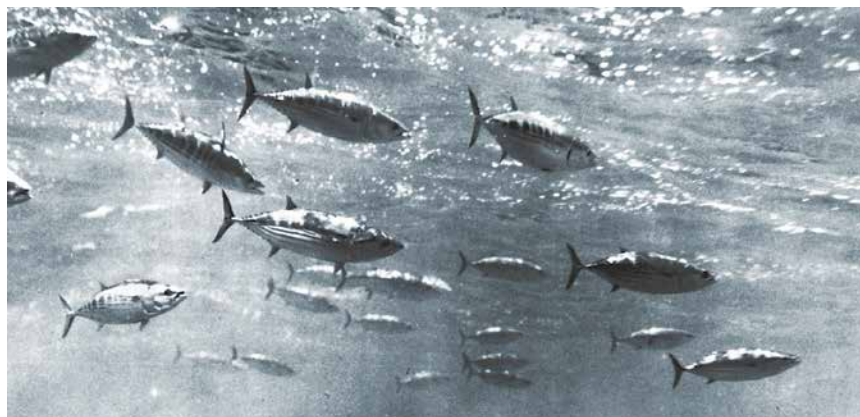


*A* (brown boobies) depend upon larger ocean predators, such as skipjack tuna, that forces prey fish near the ocean surface for them to feed upon. [Photo: Mark MacDonald (USFWS)]

In some stories Ku'ula, the Hawaiian fishing god, lives in Hāna on Maui. On O'ahu, Kū'ula lives at Niolopa, a section of Nu'uuanu valley currently in the neighborhood near Wylie Street.

**Kū'ula and Hina live at Niolopa, Nu'uuanu. They**

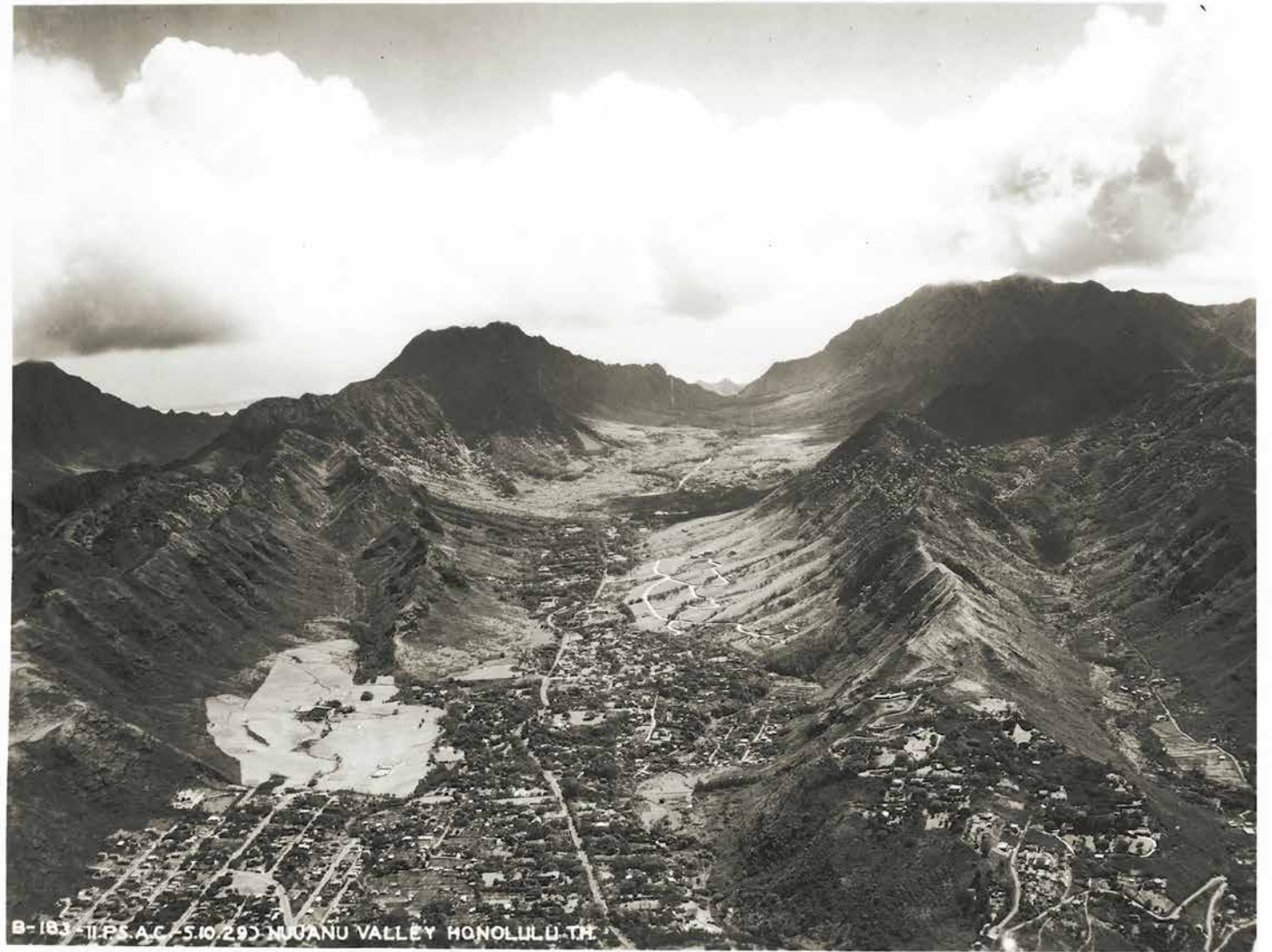
possess a pearl fish hook called Kanoi, guarded by the bird Kamanuwai, who lives upon the *aku* fish [skipjack tuna] caught by the magic hook. When Kipapalaulu, King of Honolulu, steals the hook, the bird sleeps from hunger, hence the name of the locality, *Kaumakapili* (perching with closed eyes). Hina bears an abortive child which she throws into the water. It drifts to a rock below the Ho'olilimanu



*Aku* (skipjack tuna). [Photo courtesy of NOAA (Wikipedia Commons)]

bridge and floats there. This child is Aiai. The king's daughter discovers it, brings up the child, and when he becomes a handsome youth, she marries him. One day she craves *aku* fish. Her husband, Aiai, persuades her to beg the stolen hook of her father. Thus he secures the hook and returns it to its bird guardian.

[Beckwith, MW. The Hawaiian Romance of Laieikawai, pp. 91–95, in the 33rd Annual Report of the Bureau of American Ethnology. 1911–1912. Washington: GPO.]



Nu'uuanu Valley, circa 1929. [Photo courtesy of Hawaii State Archives, PP-60-4-028, O'ahu-Nu'uuanu Valley 1929.]

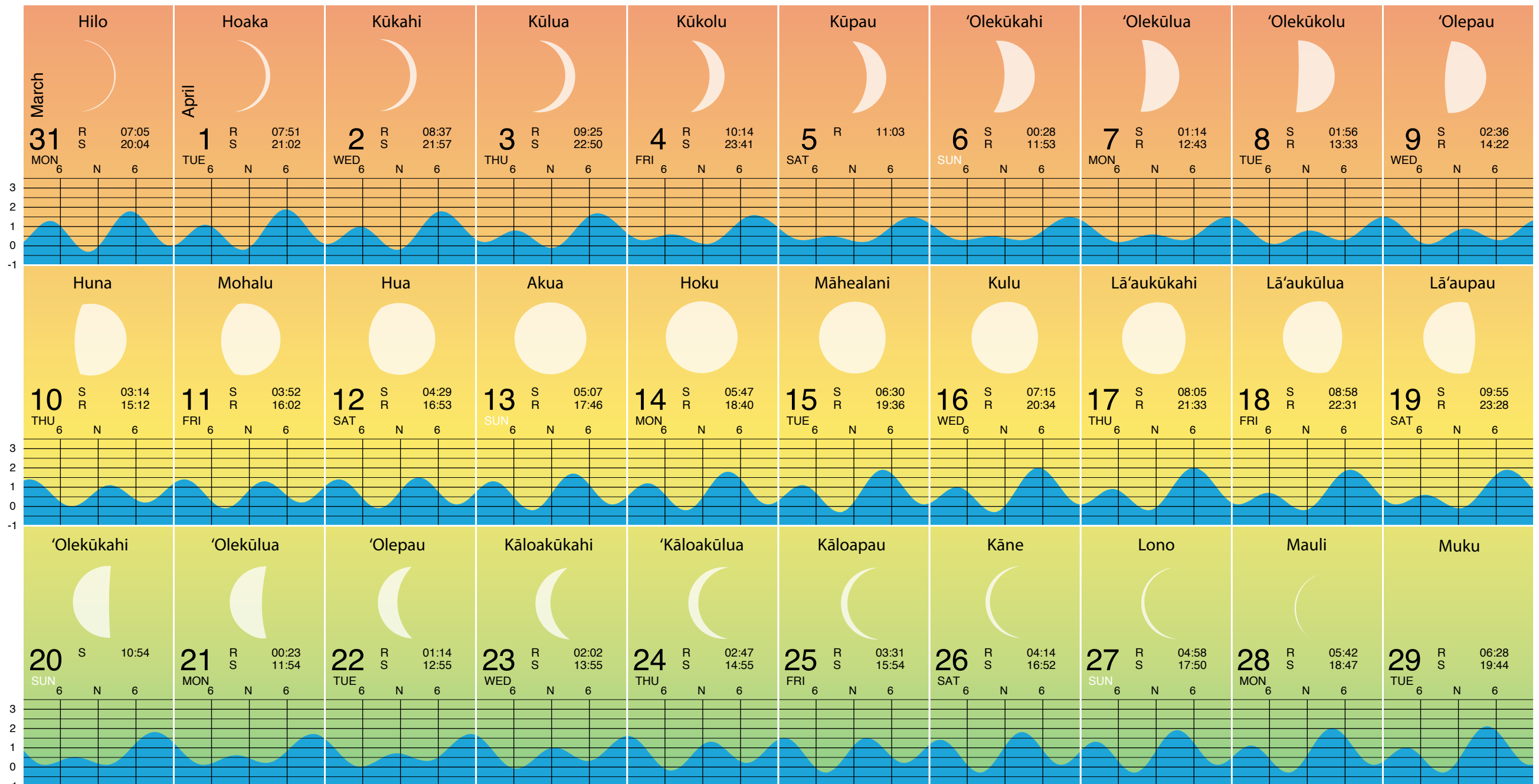


**Above:** *Ua'u kani* (wedge-tailed shearwaters) consume larval forms of goat fish, '*opelu* (mackerel scad) and flying squid driven to the surface by schools of predatory fish. [Photo: Mark MacDonald (USFWS)]

**Left:** *Ma ka'u pa ubi* (pearl shell fish hook).

# Welo

Malaki 31 - Apelila 29, 2014



Observations \_\_\_\_\_

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# Ahupua'a o Makiki

## Mele Helu Pō

### Hawaiian Moon Chant & Hand Game

#### *Kamali'i 'ike 'ole i na helu pō*

Little children who do not know the moon phases

#### *Muku nei, Muku, ka malama*

Muku is here, Muku the dark moon

#### *Hilo nei, kau ka Hoaka*

Hilo is here, followed by Hoaka

#### *'Eha Ku, 'Eha 'Ole*

Four Ku, Four 'Ole

#### *Huna, Mohalu, Hua, Akua*

Huna, Mohala, Hua, Akua

#### *Hoku, Mahealani, Kulu*

Hoku, Mahealani, Kulu

#### *'Ekolu Lā'au, ekolu 'Ole, 'ekolu Kāloa*

Three Lā'au, three 'Ole, three Kāloa

#### *Kāne, Lono, Maui, Pau!*

Kāne, Lono, Maui, Done!

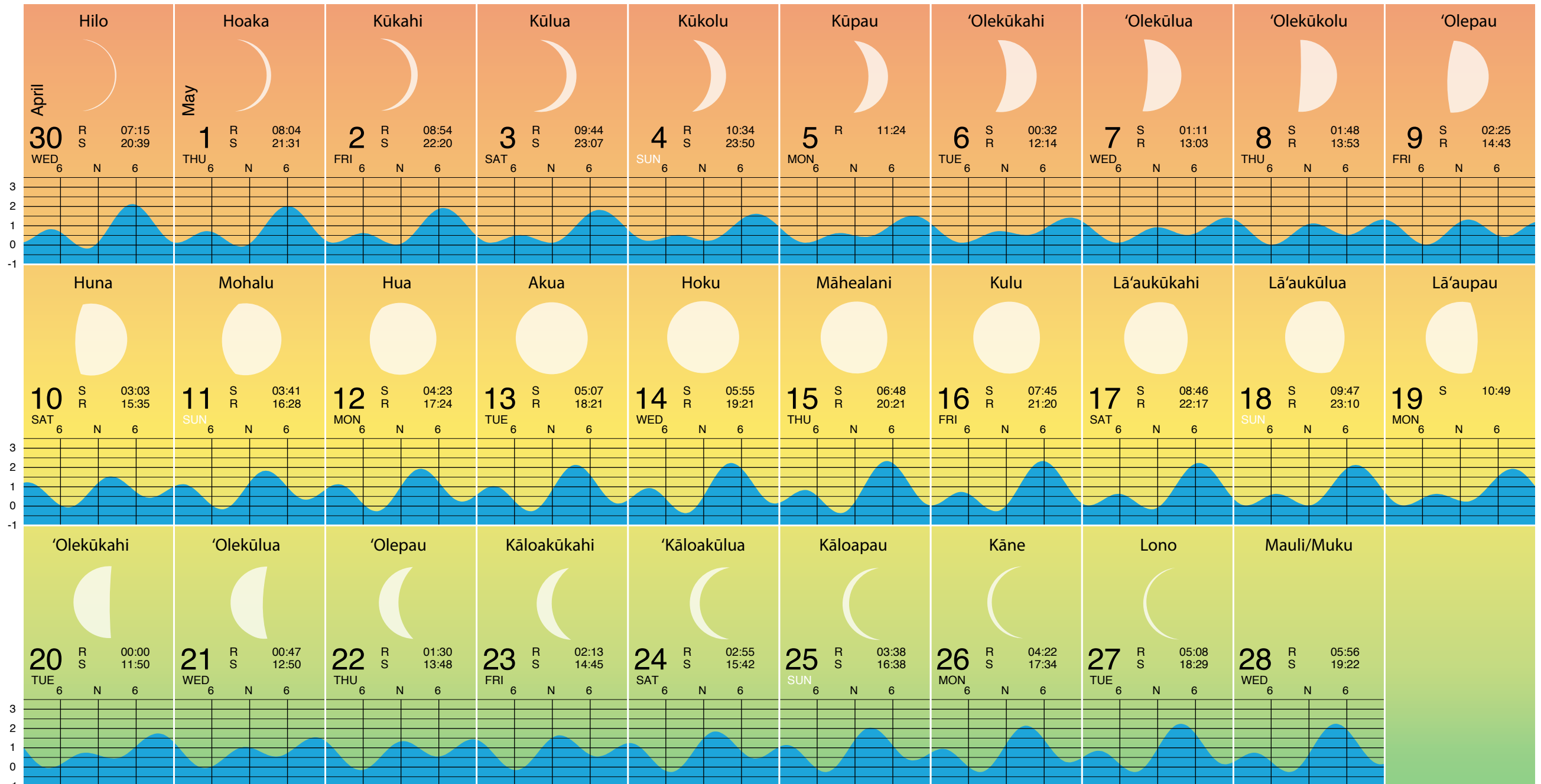
To learn the hand movements, search for Mele Helu Pō on YouTube.



Students from Halau Ku Mana Charter School perform the *Mele Helu Pō*. Halau Ku Mana is located in Maunalaha valley of Makiki. The school seeks to instill Hawaiian values in their students with curricula that support Hawaiian ways of learning. Its vision is to facilitate individual and community healing and empowerment by fostering lifelong learners who think, feel and act in ways that are *pono* (righteous) and recognize strengths and address challenges as they seek positive, systemic change in their local, regional and global communities.

# Ikūiki

ʻApelila 30 - Mei 28, 2014



Observations \_\_\_\_\_

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# Ahupua'a o Mānoa

## Mālama Ke Ahupua'a Watershed Project

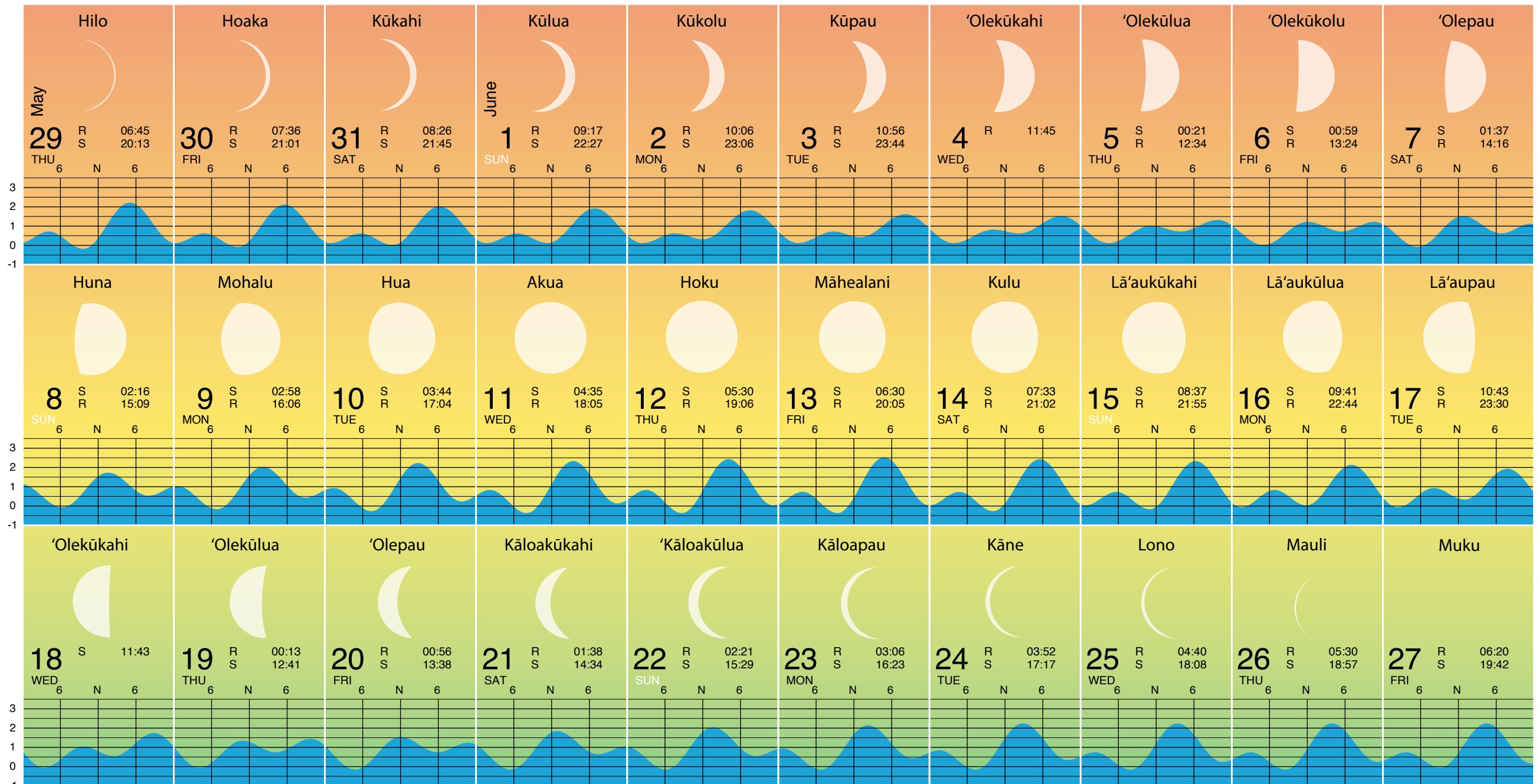
As part of the *Mālama Ke Ahupua'a* program, students from Farrington High School explored the Mānoa Valley watershed by following Mānoa Stream from the mountain (*mauka*) to the ocean (*makai*). They learned about the cultural significance of this area, as well as its unique natural environment. During this hands-on program, students collected water samples at different locations along the stream and conducted chemical analyses in their classroom to find out about the stream's water quality and gain a better understanding of the overall health of the *ahupua'a*.

Based on their findings, the students noticed changes in nutrients and bacteria levels along the stream and observed how the water quality of the stream decreased as they traveled *mauka* to *makai*. With this information, the students learned about the relationship that exists between decreasing water quality levels with increasing urbanization and the importance of carefully managing our natural environment in a responsible and sustainable way.



# Ka'aona

Mei 29 - June 27, 2014



Observations \_\_\_\_\_

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# Ahupua'a o Pālolo

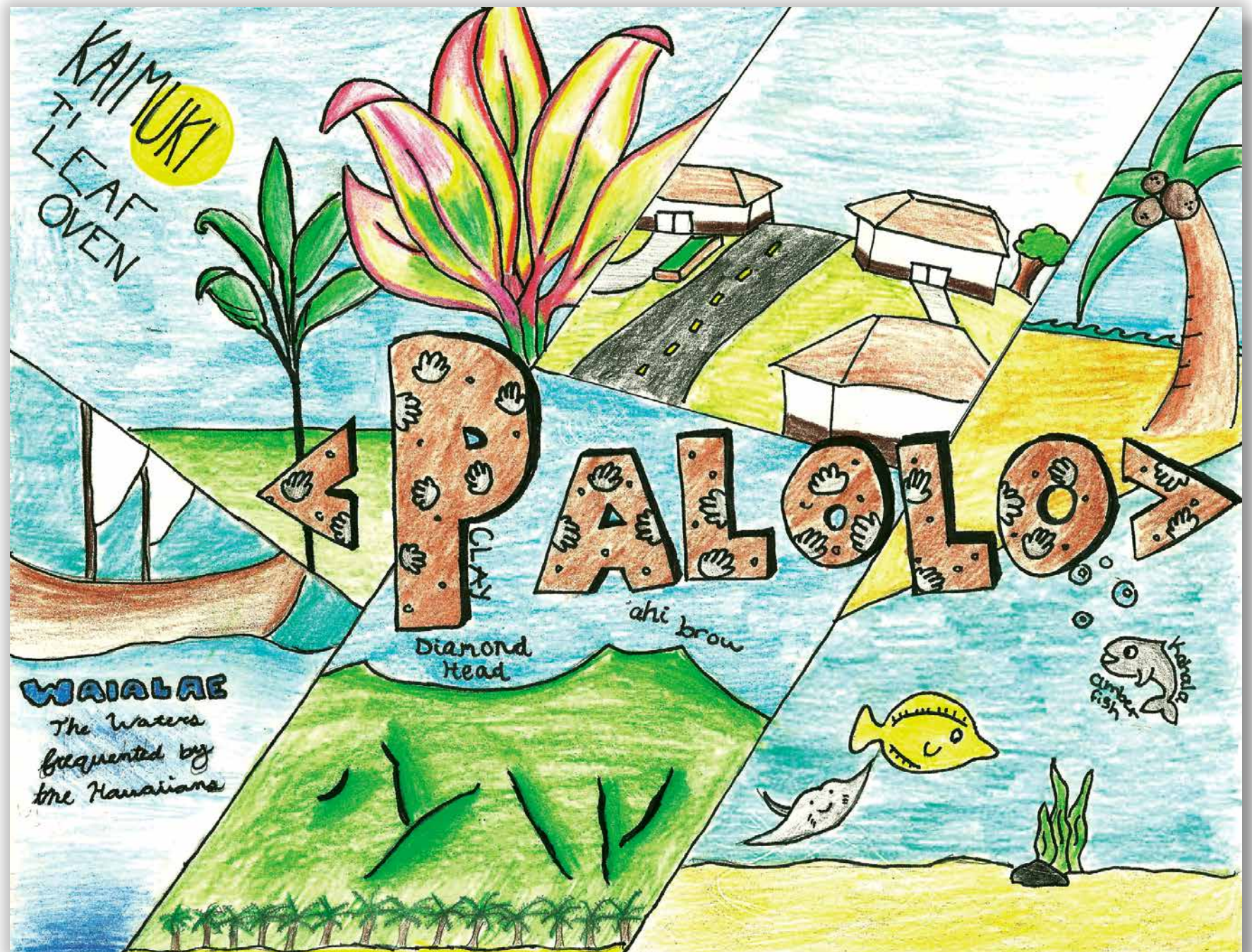
The 7th Grade Gifted and Talented Life Science Class at Kaimukī Middle School, taught by Ms. Aila Thompson, created this visual representation of the Pālolo *ahupua'a* and the meanings of its landmarks. The class provided the following explanation of the art:

Within the letters of “Pālolo” are handprints, which show what type of community we have here in Pālolo. The hands represent the children of Pālolo, and Pālolo means “clay” in Hawaiian, thus the muddy-like color. *Kaimukī* means “ti leaf oven” in Hawaiian, so a picture of ti leaves on the left of the word Pālolo is shown. Under the word Pālolo is Diamond Head because that is a major landmark in our *ahupua'a*. In Hawaiian, it is *Kaimana* (Diamond) *Hila* (Head). Diamond Head’s other name is *Lae'ahi*, meaning back or brow, because it looks like the dorsal fin of a tuna. The picture next to Diamond Head is an ocean because *kāhala* means “amberfish,” which is a type of fish that lives in the waters off Kāhala. On the bottom left corner, there is a picture of a canoe and the ocean. This represents *Wai'alae*, which means “the waters frequented by the Hawaiians.” Overall we tried to grab the natural beauty of Pālolo and its local hotspots into a picture.

Pālolo was the last valley with extensive wet-taro lands. The stream was large and capable of irrigating terraces along its course on both sides and below the end of the valley on land now covered by houses. There were terraces, some on steep slopes, all along Wai'ōma'o and Pūkele

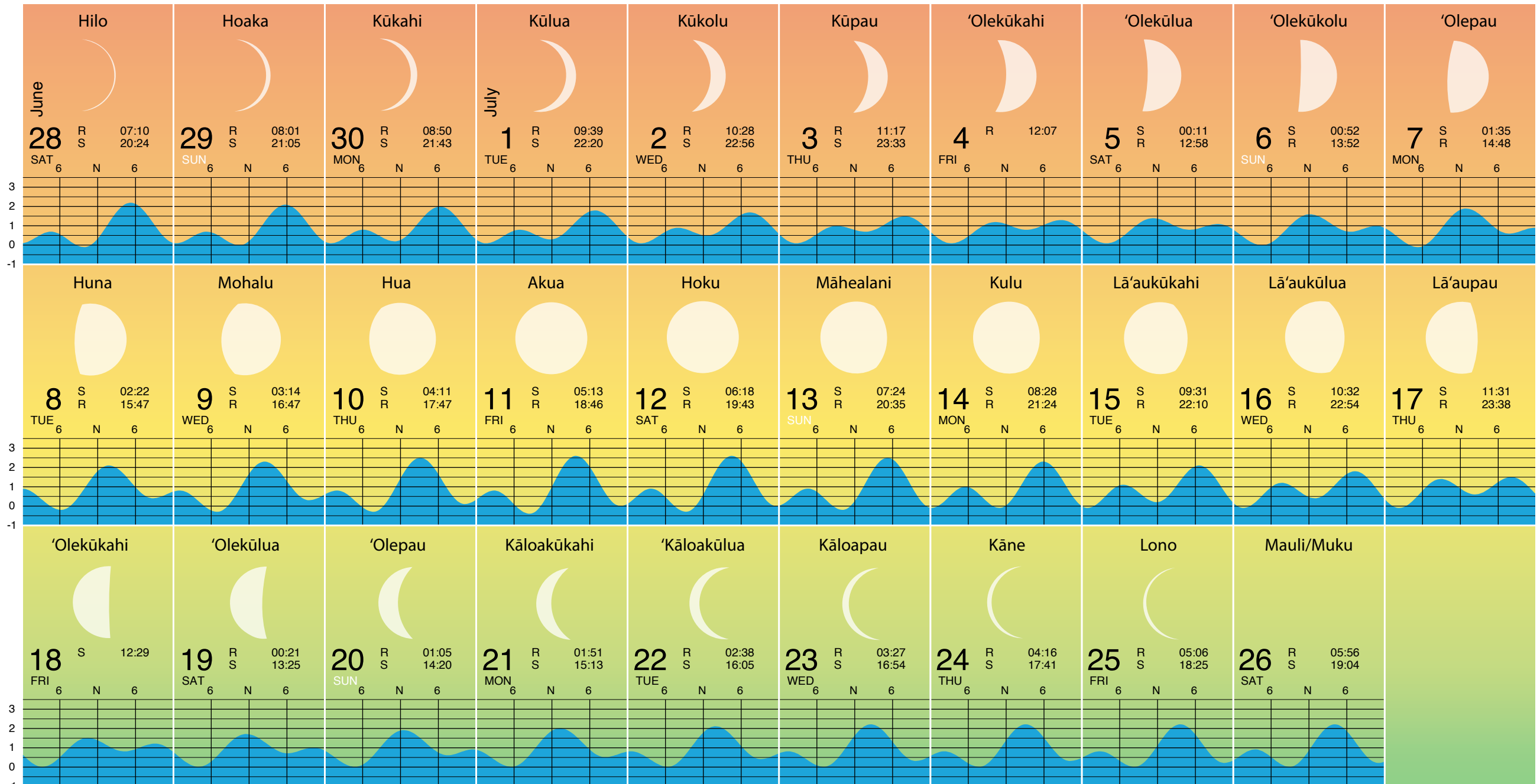
streams, which join to form Pālolo Stream. Far back in these little valleys wild taro was found in abundance in 1935.

[Source: Handy, ES Craighill and EG Handy, 1978. *Native Planters in Old Hawaii, Their Life, Lore and Environment*. Honolulu: Bishop Museum Press. p.483.]



# Himani'ele'ele

June 28 - July 26, 2014



Observations \_\_\_\_\_

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# Ahupua'a o Wai'ālae

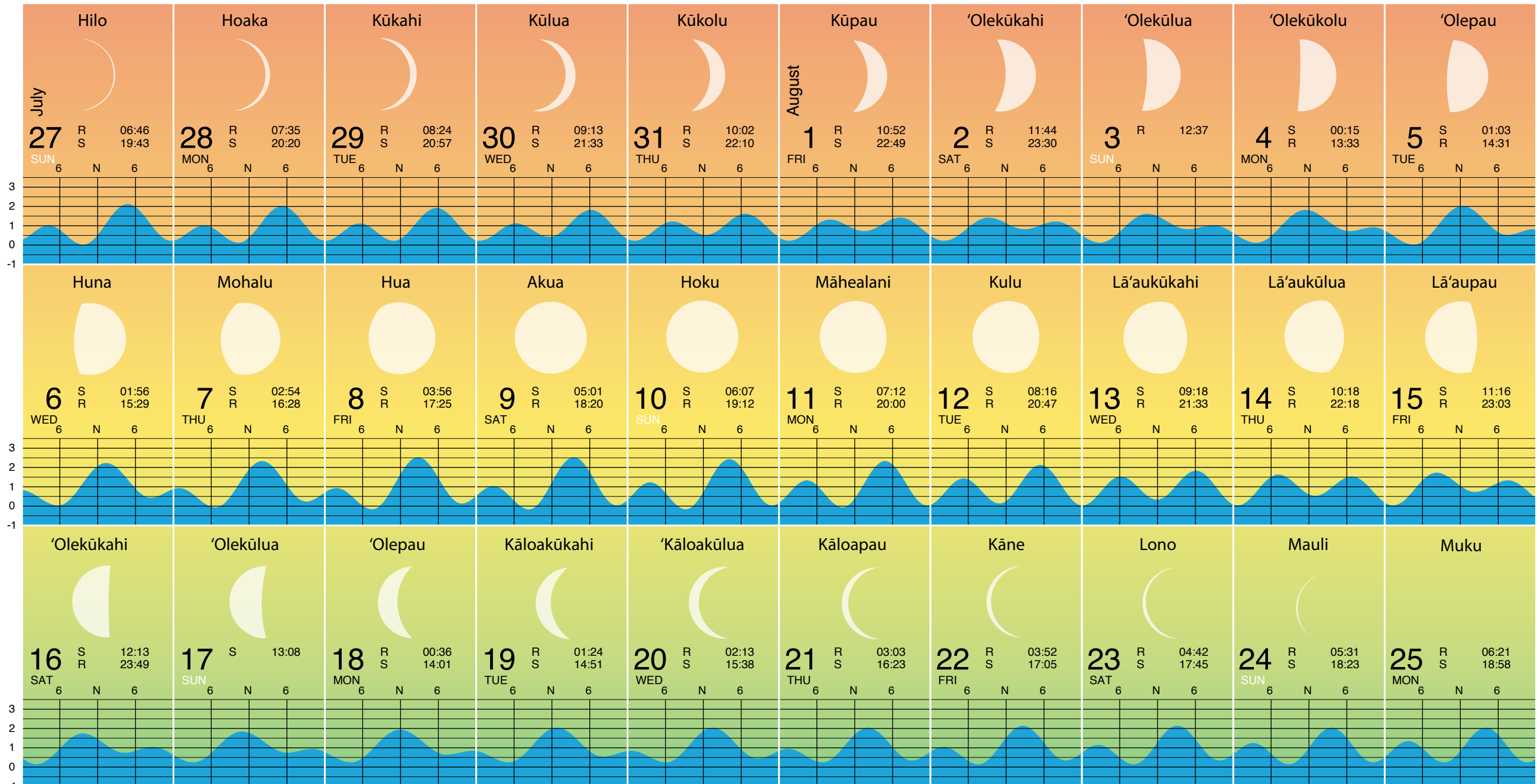
## Limu Huki and Rain Gardens

Wai'ālae Elementary Public Charter School is a student-centered school that honors the whole child. It is committed to nurturing a community of learners who strive for excellence and innovation, empowering all members of the community to actively engage in a democratic society. Fourth graders from the school have worked with Mālama Maunaloa to learn about watersheds and *ahupua'a* and how they are affected by run-off, channelized streams, sediment and pollution. Students learn about native and invasive *limu* (seaweed) and then work to remove invasive *limu* at Paikō lagoon near Kuli'ou'ou Beach Park. The students previously have done the same work at Wai'ālae Beach Park. The school has plans to develop rain gardens on its campus using native Hawaiian plants. Students will be involved in the planning of the gardens, propagating and purchasing the plants, some of the installation and then maintenance.



# Mahoe Mua

Iulai 27 - Aukake 25, 2014



Observations \_\_\_\_\_

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# Ahupua'a o Wailupe

## Maunalua Hawaiian Civic Club

The Maunalua Hawaiian Civic Club is based in `Āina Haina in Wailupe, one of the half-dozen *ahupua'a* surrounding Maunalua Bay. The club's motto is '*Ōpelu ha'alili i ke kai* (the '*ōpelu* that make the sea ripple), said of active quick moving people. The club is engaged in outreach, promoting the Aha Moku system, addressing invasive alien algae (such as gorilla ogo), reviving traditional relationships with the *honu* (Hawaiian green sea turtle) and enhancing public awareness of the cultural sites of Maunalua.

Traditionally, '*ōpelu* (Pacific mackerel scad) and *aku* (skipjack tuna) were *kapu* (tabu) at different times of the year.

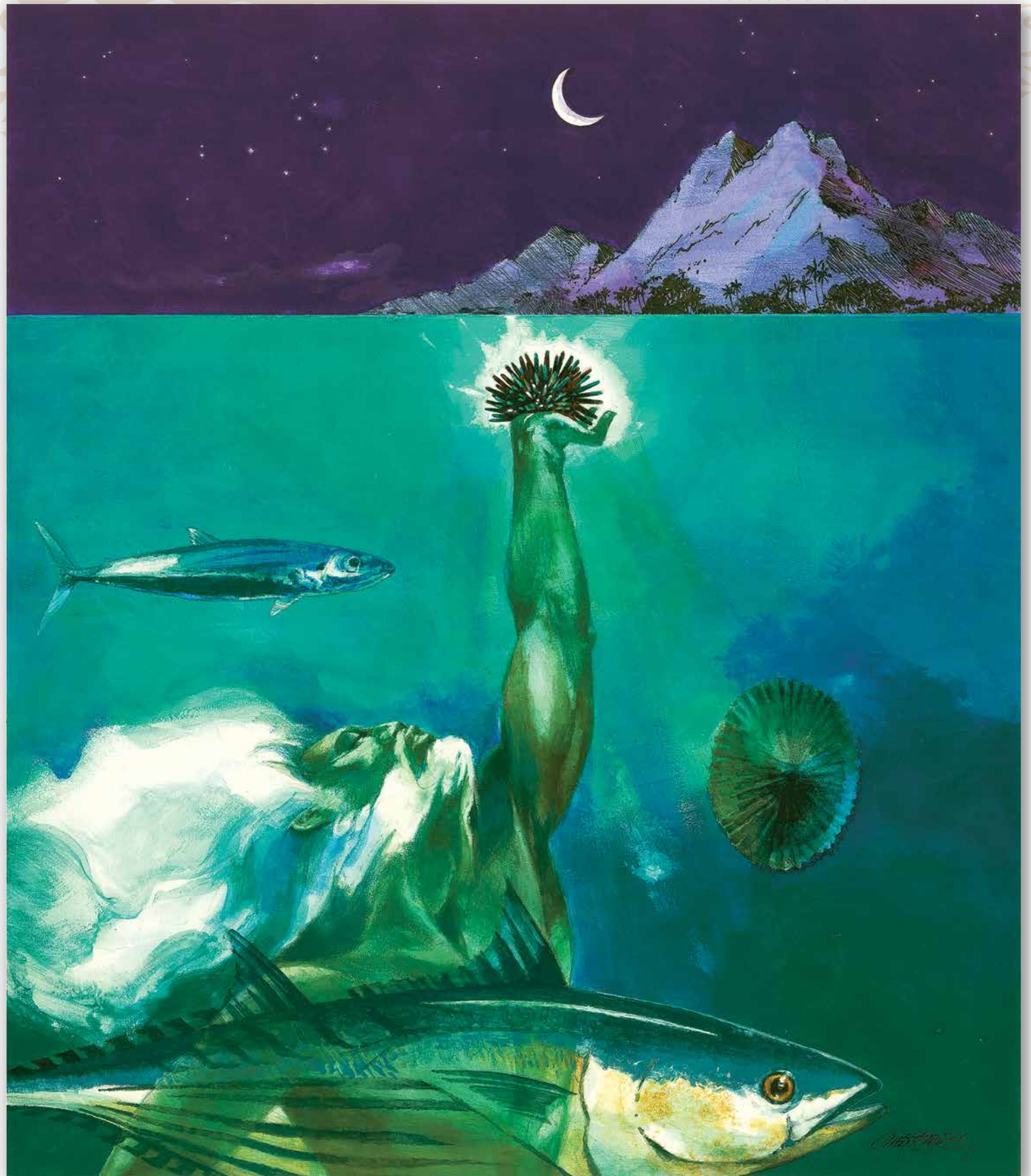
At the *kapu hua*, i.e., the 13th day of Kā'elo, in January, a human sacrifice was offered, together with the fish *aku*, at which it is said that the Kahoalii, a man personifying the god, plucked out and ate an eye of each. By this ceremony the tabu was taken off from the *aku*, and the '*ōpelu* became tabu for the next six months, not to be eaten on pain of death.

In the month of Hinaia'ele'ele, or July, the tabu was taken off the '*ōpelu* and reimposed on the *aku*. The first night, Hilo, of this month was *kapu loa*. No fire could be kindled, and no sound of man or beast or fowl must be heard.

Toward morning the high-priest, accompanied by another priest, went to the '*ōpelu* house of Kū'ula, the god of fishermen, where he sacrificed a pig, and recited the great '*aha* as during a dedication. ...

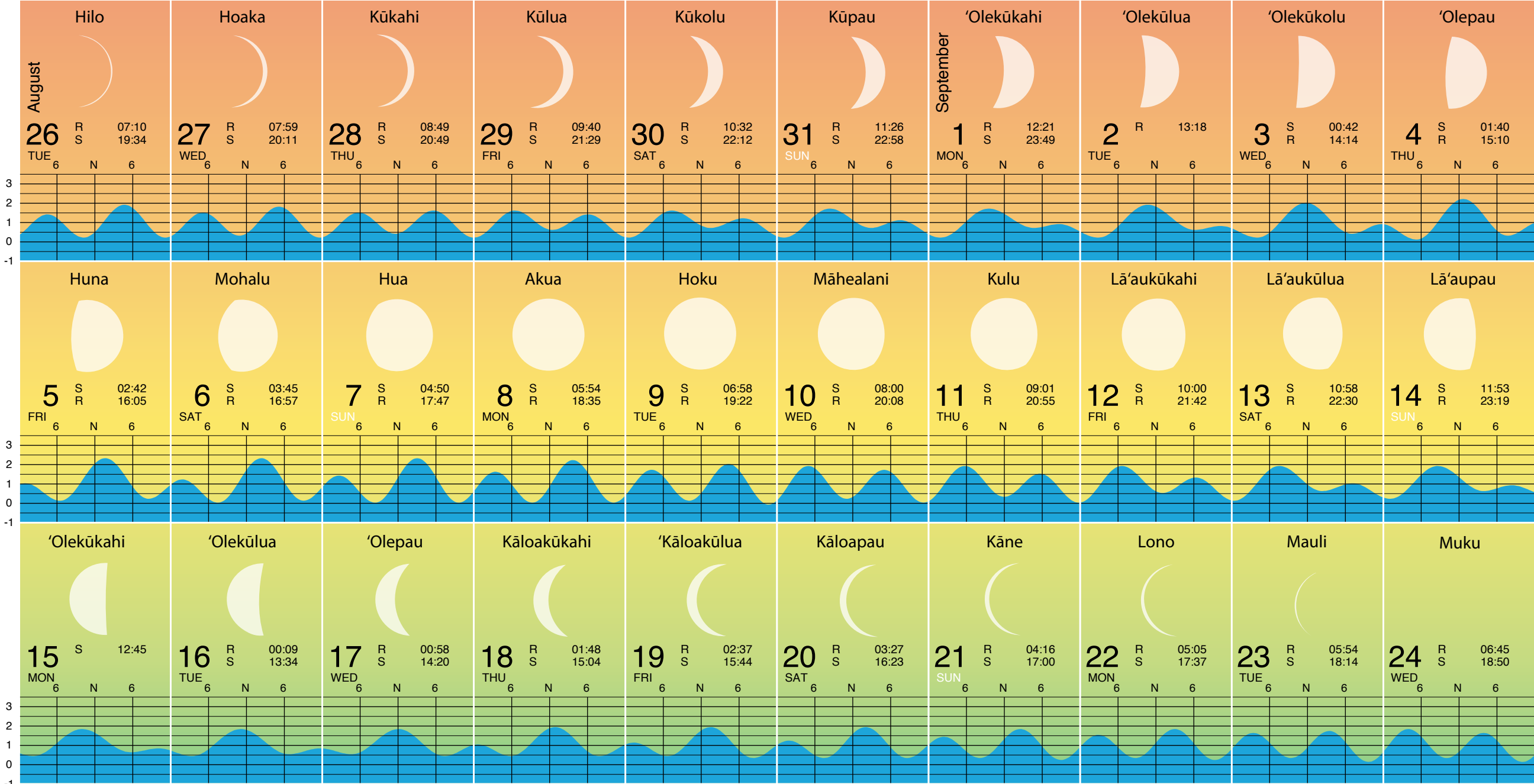
The chief also proceeded to the *heiau*, where he offered his '*ōpelu* to the gods, plucking out and eating the right eye of the fish. Next day the sea was free, and the '*ōpelu* was *noa*, or free to all, but the *aku* in its turn was tabu for the next six months.

[Alexander, William DeWitt. 1891. *A Brief History of the Hawaiian People*. New York: American Book Co.]



The central figure of this painting by Oliver Kinney is Kū'ula, the son of Kāne and Hina. Kū'ula was the premier fishing deity worshipped by Hawaiian fishermen. As Kū'ula rises, he swims through the larger fish, the *aku*, which represents the season of *kauwela* (the hot season) and '*ōpelu*, the smaller fish, which represents *ho'ōilo* (the wet season). © 2006, Western Pacific Regional Fishery Management Council.

# Mahoe Hope Aukake 26 - Kepakemapa 24, 2014



Observations \_\_\_\_\_

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# Ahupua'a o Niu

## Pūlama Wai Cherished Waters



Eighth-grade students at Niu Valley Middle School have teamed with Waldorf School (Niu campus) to regularly clean the Niu stream mouth, and the Niu Valley Community Association and residents are working the deeper main canal behind Niu shopping

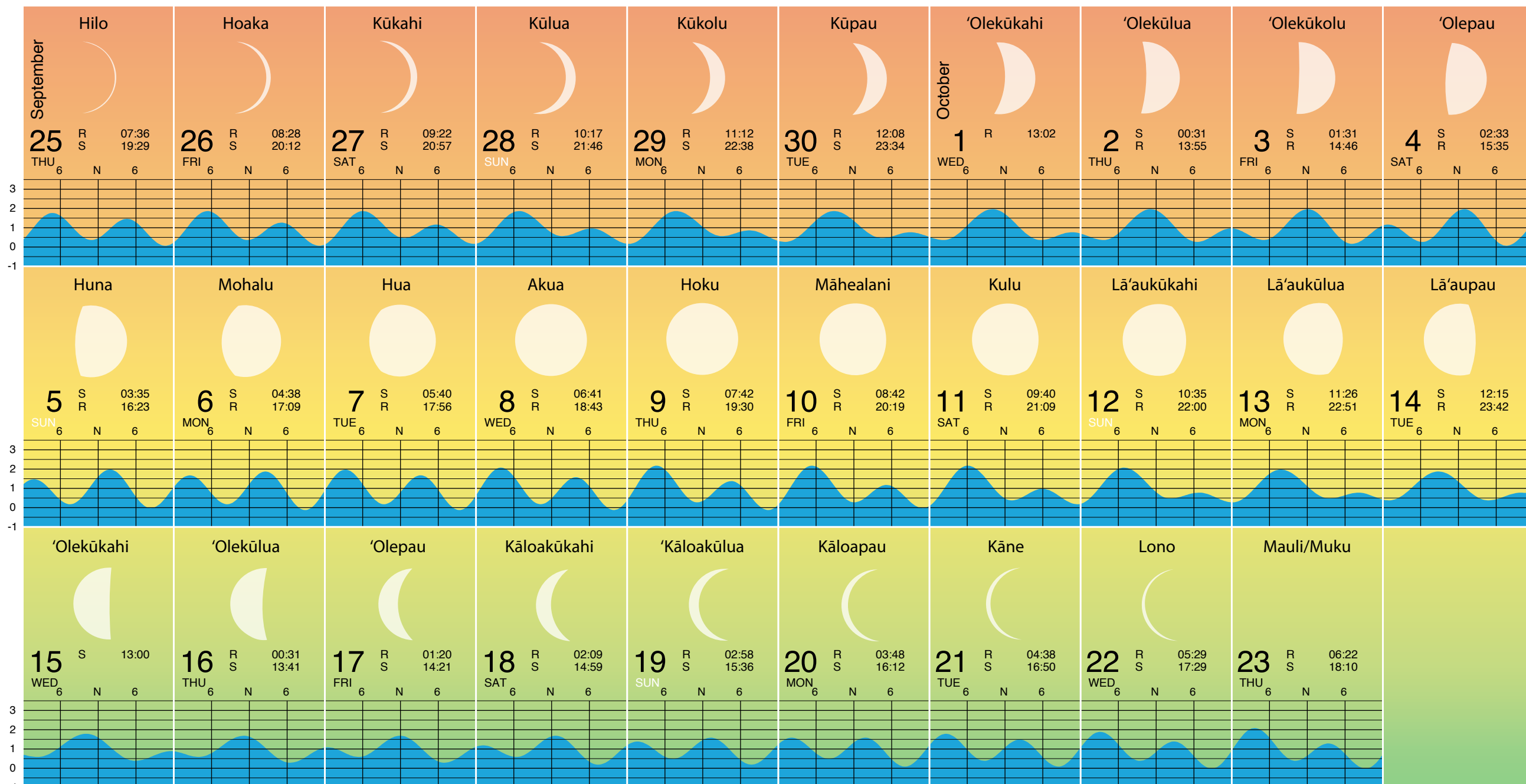
center several times per year. This could be the first valley in Hawai'i where schools and residents are working together and teaming with a community organization (Mālama Maunalua) and the City & County of Honolulu to keep its entire ditch/canal network clean through community *kuleana* (responsibility). Their work is making a beneficial impact on Maunalua Bay.

Niu Valley Middle School students have also teamed up with Mālama Maunalua to participate in *limu huki* at Maunalua Bay. Removal of the invasive algae helps to contribute to an increase in the population of native sea grass, restoring the Bay's natural ecosystem balance. By participating in both activities, students were able to see the impact of their work at the level of the mountain and the ocean. The work helps students develop a sense of *kuleana* for the environment and perpetuates Niu Valley Middle School's mission of becoming "stewards of our world and its people."



# 'Ikuwā

*Kepakemapa 25 - 'Okakopa 23, 2014*



Observations \_\_\_\_\_

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[www.wpcouncil.org](http://www.wpcouncil.org)

# Ahupua'a o Kuli'ou'ou

## Paikō

Paikō is named for Manuel De Pico (the name in time Hawaiianized into Paikō), a whaler from the Portuguese group of the Azore islands, who arrived in Hawai'i in the 1840s. He eventually acquired half of the *ahupua'a* of Kuli'ou'ou. Following the custom of the time, his property extended offshore to the edge of the reef and included the "fishery," or fishing rights, within its boundaries.

[Clark, J. 2005. *Beaches of O'ahu*. Honolulu: University of Hawaii Press. pp 35–36.]

According to *Lawai'a* magazine, the traditional *konohiki* management system was intact at Paikō and other fisheries in Manunalua Bay as late as the 1950s and 1960s. Traditionally, the *konohiki* was a steward who had an intimate understanding of and the responsibility to manage the water, land, agricultural and/or fishing resources of a particular area. The *konohiki* at Maunalua Bay placed seasonal and locational *kapu* (closures) on the *'anae* (mature mullet) and *akule* (bigeye scad) to ensure their survival.



Akule school

*Lawai'a* magazine quotes *kūpuna* (elders) who recalled that "the fish pond known as Paikō Lagoon served as a natural hatchery for mullet and *nehu* [a bait fish]. ... Most of the mullet in Kuapa Pond were taken from the mud flats in front of Kuli'ou'ou Park and put into the pond. The *nehu* and *'iao* [a bait fish] fed the *akule* fishery off of Portlock. Paikō enforced its *Ahupua'a Konohiki* fishing rights until after Statehood [1959]."

[Cramer, Chris. 2010. "Konohiki Days of Maunalua Bay." *Lawaia.Net*. [www.lawaia.net/blogs/lawaia/2010/3/15/issue4-2010-konohikidays](http://www.lawaia.net/blogs/lawaia/2010/3/15/issue4-2010-konohikidays)]



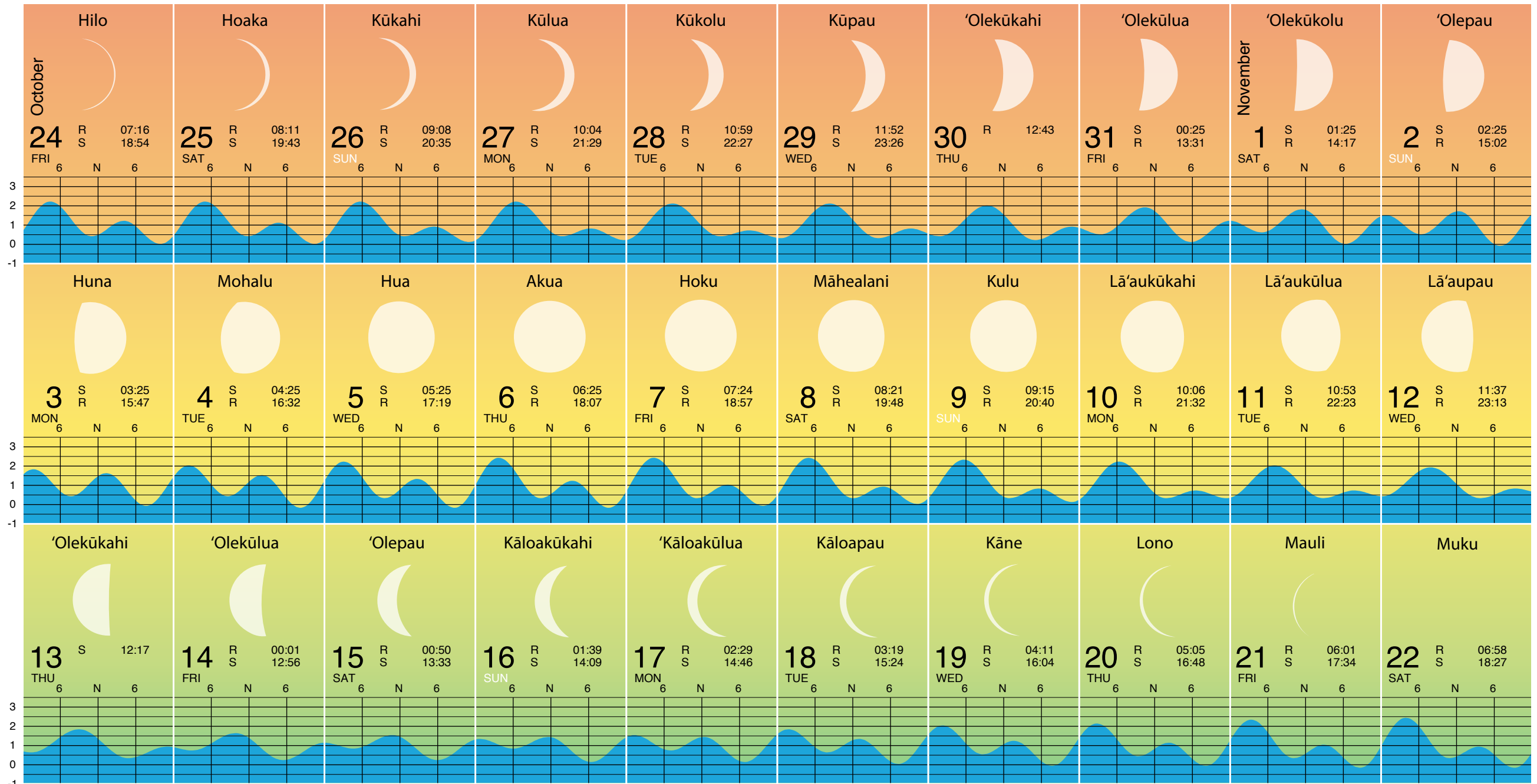
Kuapā fishpond with Koko Crater in background, O'ahu, Hawai'i, ca. 1955. The traditional name of Kuapā Fishpond is Keahupua'a o Maunalua. It was once the largest fishpond in the archipelago of Hawai'i, covering 523 acres. It was believed to have been partly constructed by *Menehune*. [Photo courtesy of Bishop Museum.]



Mullet school

# Welehu

'Okakopa 24 - Nowemapa 22, 2014



Observations \_\_\_\_\_

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# Ahupua'a o Maunalua

## Restoring Maunalua Bay

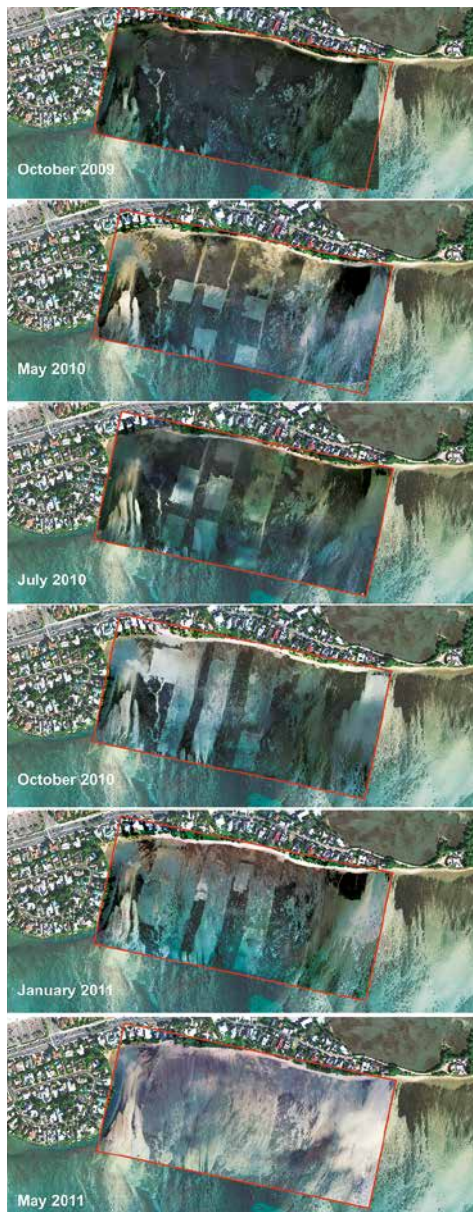
Mālama Maunalua is dedicated to the restoration of Maunalua Bay by removing invasive alien algae, reducing run-off of sediment and pollutants from the land into the Bay and increasing the marine life. Volunteer-based *huki* events are organized to bring the community together to remove invasive alien algae. With the ongoing effort, more than 3 million pounds have been removed from Paikō Beach. The alien algae are disposed at Otsuji Farms in Hawai'i Kai, where it supplies the

soil with rich nutrients and aids in the production of healthy crops.

Maintenance of the Paikō region is achieved through a combination of community *huki* events and a group of community volunteers known as Kuahui who pull on a daily basis and increase the chances of natural reestablishment of native species such as the native endemic *nenue* sea grass.

Educational *huki* are offered to help grade school students understand the importance of a healthy watershed, identify invasive and native species of *limu*, become informed on the connection between the mountains and sea (*mauka* to *makai*) and participate in a small *huki*.

**Left:** Time series showing progress of alien algae removal at Maunalua Bay.



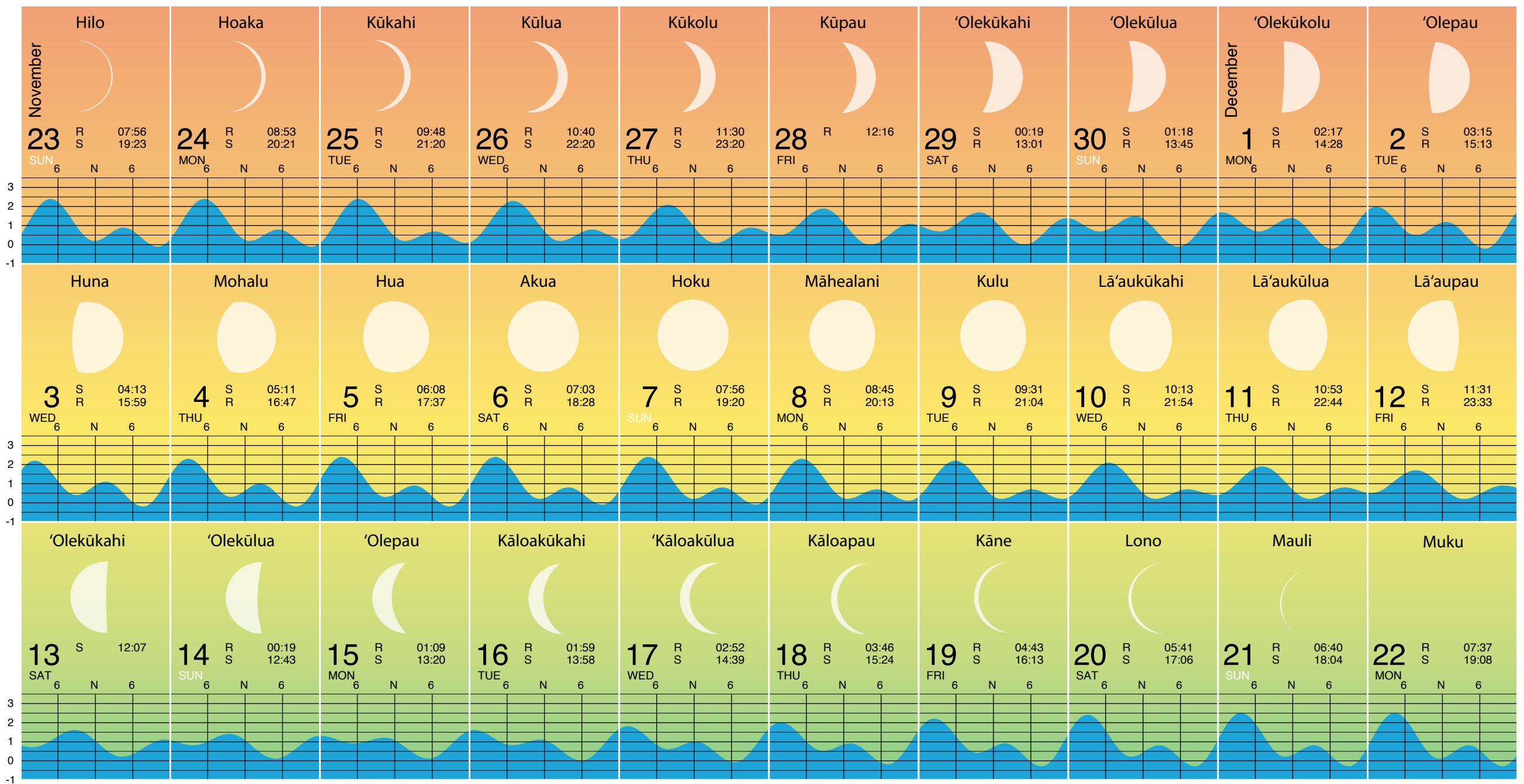
**Top:** Native endemic *nenue* sea grass.

**Above:** 4,000 lbs of invasive algae removed from Kuli'ou'ou.

**Left:** Alien algae at Paikō during low tide.

# Makali'i

November 23 - Kēkēmapa 22, 2014



Observations \_\_\_\_\_

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### About the Kona Moku

"This area is subject to the cyclonic southerly (*kona*) storms in winter months, but through most of the year is cooled by trade winds sweeping through low gaps in the Ko'olau range at the top of Moanalua, Kalihi, Nu'uuanu and Mānoa valleys. There were abundant rain, ever flowing streams, springs, pools, verdant interior valleys, broad slopes and well-watered lowlands, fishpond areas, harbors, beaches, and lagoons. Altogether Kona was, for O'ahu, the area richest in natural resources and most pleasant for abundant and comfortable living."

[Handy, ESC and EG Handy. 1978. Native Planters in Old Hawaii, Their Life, Lore and Environment. Honolulu: Bishop Museum Press.]

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### About the Western Pacific Regional Fishery Management Council

The Western Pacific Regional Fishery Management Council is a federal instrumentality created by Congress in 1976 to manage federal fisheries in Hawai'i and other US Pacific Islands. The Council has worked with communities in Hawai'i, American Samoa, Guam and the Commonwealth of the Northern Mariana Islands since 2006 to produce traditional lunar calendars to promote ecosystem-based fisheries management, support indigenous fishing and management practices, and enhance community involvement in the fisheries management decision-making process. If your *moku* is interested in working with the Council on a calendar, please contact us at [info.wpcouncil@noaa.gov](mailto:info.wpcouncil@noaa.gov).



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