

Kaulana Mahina

Hawaiian Lunar Calendar

November 2, 2024 - February 17, 2026



Western Pacific Regional
Fishery Management Council

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LAND: 'Ae'ae (Water hyssop, *Bacopa monnieri*)

INDIGENOUS

'Ae'ae is a ground cover plant that flourishes in wet environments like mud flats, marshes, and brackish stream shores. Characterized by its light green leaves and delicate bluish-white flower, the roots of 'ae'ae help prevent erosion by stabilizing the sand.

The plant attracts o'io because its buoyancy creates hiding spots for its food, invertebrates like crabs and lobsters, and provides ideal conditions for spawning.



OCEAN: O'io (Bonefish, *Albula* spp.)

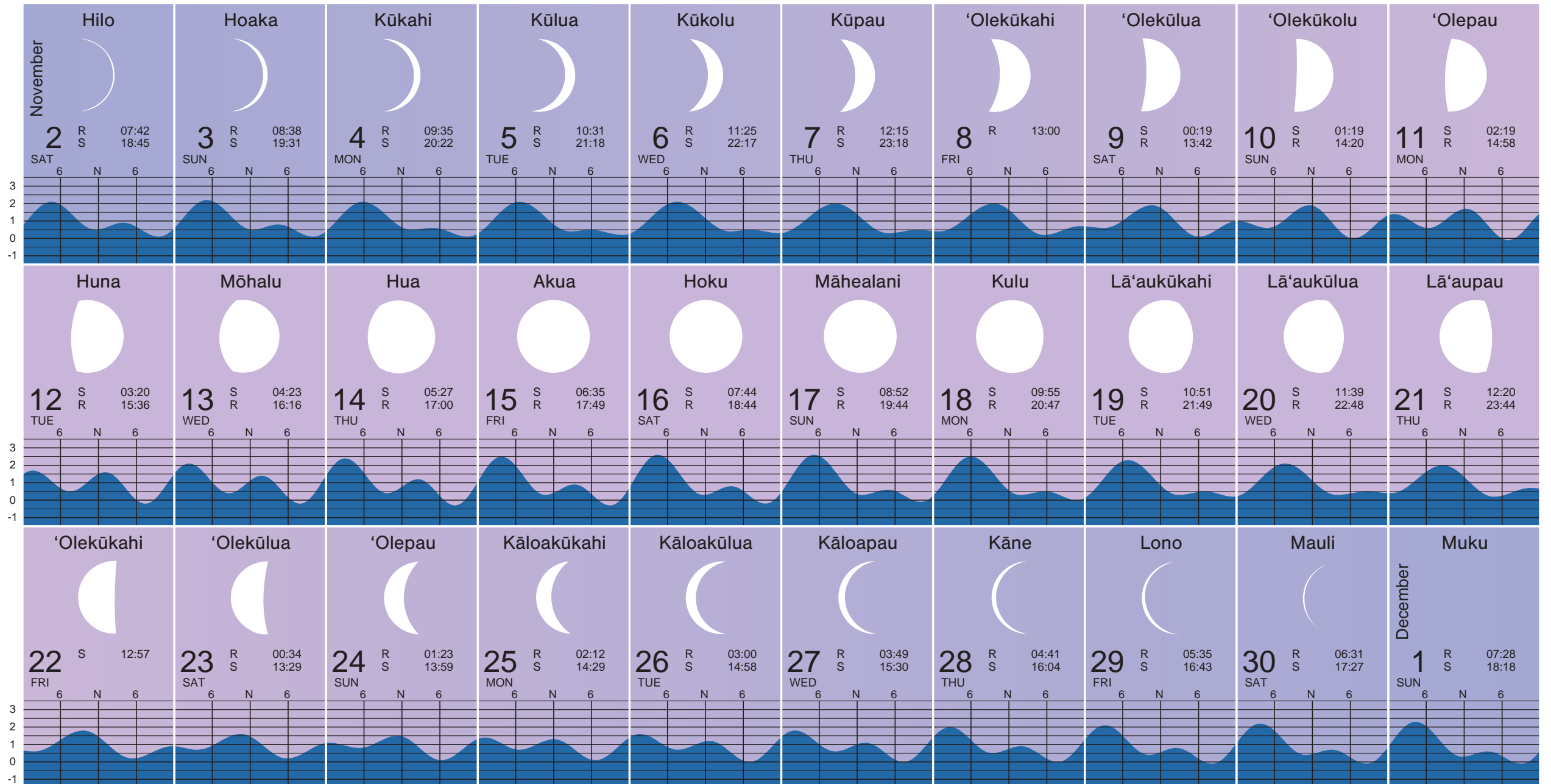
O'io is bright iridescent silver, with a greenish tinge on its dorsal side and an elongated upper jaw.

Together, o'io and 'ae'ae contribute to the ecological balance and biodiversity of coastal areas, supporting plant and fish life. Traditionally, 'ae'ae was used to prepare fishing areas and enhance fish habitats in shallow waters.



Welehu

November 2 - December 1
Nowemapa 2 - Kēkēmapa 1, 2024



OBSERVATIONS

ho'onui (waxing) _____
 poepoe (full moon) _____
 hō'emi (waning) _____



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LAND: 'Ākia ENDEMIC (Fish poison plant, *Wikstroemia uva-ursi*)

'Ākia is a resilient, low-sprawling shrub that thrives in Hawaiian landscapes. Its small, oval leaves form a lush green backdrop for clusters of vibrant yellow to yellow-green flowers that bloom year-round. These blossoms eventually give way to orange-red berries, which enhance the plant's visual appeal and attract various birds and wildlife. Once the thorny edges are removed, its leaves can be woven into mats, baskets, and hats and used to make ropes, braids, and 'auamo (carrying sticks).

OCEAN: Āholehole (Hawaiian flagtail, *Kuhlia sandvicensis*)

Traditionally, certain species of 'ākia are used in the fishing method known as *hola* (poison fishing). *Lawai'a* (fishermen) pound the bark and roots of 'ākia, mix them with *palu* (bait/chum), and throw the mixture into the water to attract and temporarily stun fish. This method is used in small areas to prevent fish from escaping before the toxin takes effect.

While the effects of the poison are typically short-lived, prolonged exposure can cause more severe harm or even death to the fish.

However, since the toxin filters quickly through the fish, those affected but not captured can swim away unharmed.

Among the fish collected using the 'upena (net) *hola* method, *āholehole* is especially prized. The schooling behavior of this fish allows *lawai'a* to catch large numbers in one setting. *Āholehole* is known for its silvery coloration with blue tones on its back. It can grow up to 12 inches long and generally weighs up to one pound.



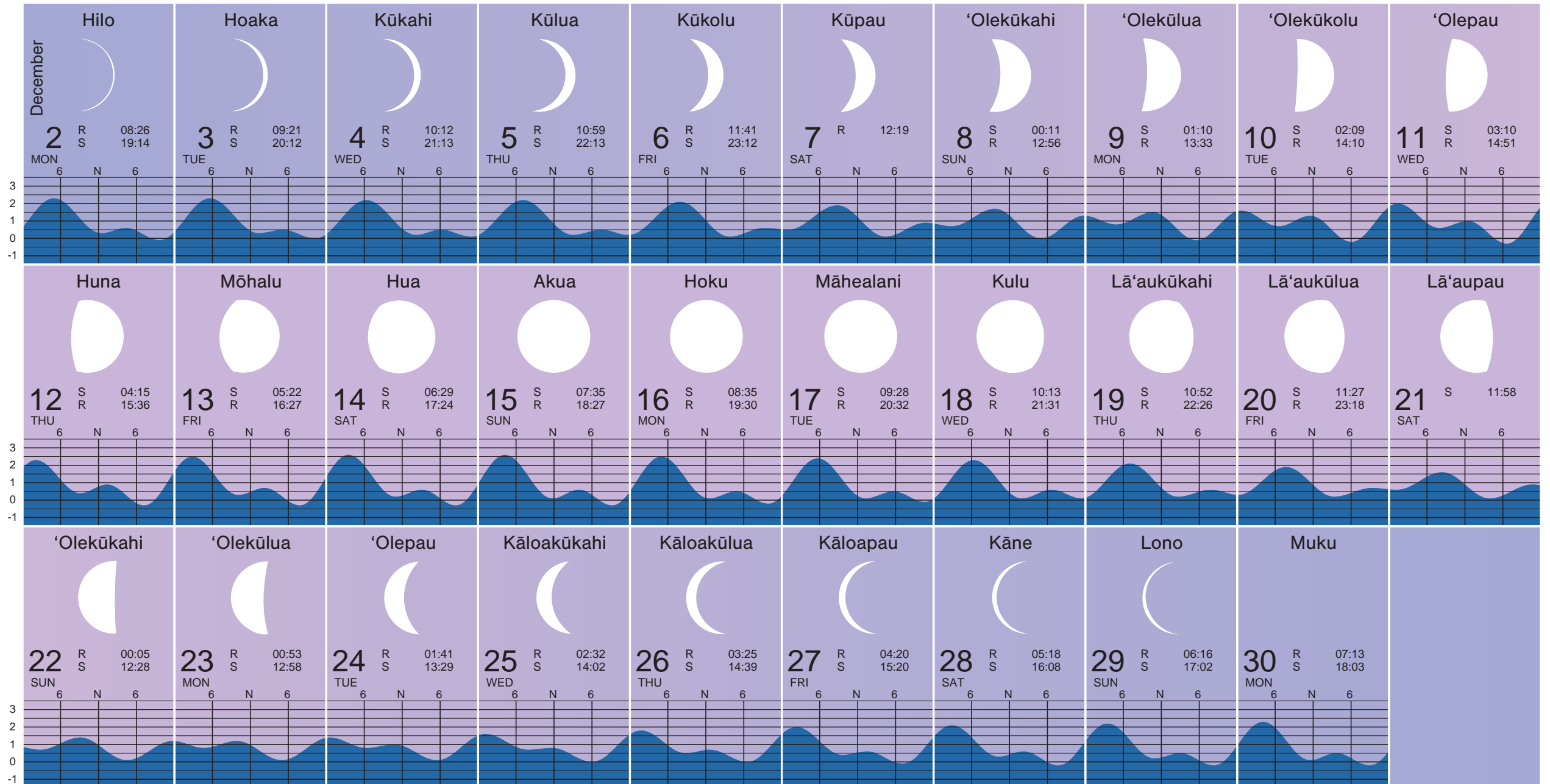
'Ākia. PHOTO: Forest & Kim Starr

Āholehole. PHOTO: Paul Asman & Jill Lenoble/flickr (CC BY-NC)

Mortar & pestle. PHOTO: Gary Goodhue, No'eau Designers

Makali'i

December 2 - 30
Kēkēmapa 2 - 30, 2024



OBSERVATIONS

ho'onui (waxing) _____

poepoe (full moon) _____

hō'emi (waning) _____



Western Pacific Regional
Fishery Management Council

LAND: 'Ākulikuli INDIGENOUS (Sea purslane, *Sesuvium portulacastrum*)

'Ākulikuli thrives in sandy coastal environments, playing a crucial role in stabilizing shorelines and preventing erosion. Known for its remarkable salt tolerance, it thrives in challenging coastal conditions. This resilient ground cover features succulent edible leaves (though very salty) and bright purple, pink, or white flowers that add beauty to the shoreline. The dense mats of 'ākulikuli absorb sediment runoff and filter excess nutrients and toxins before they reach the ocean and suffocate coral reefs.



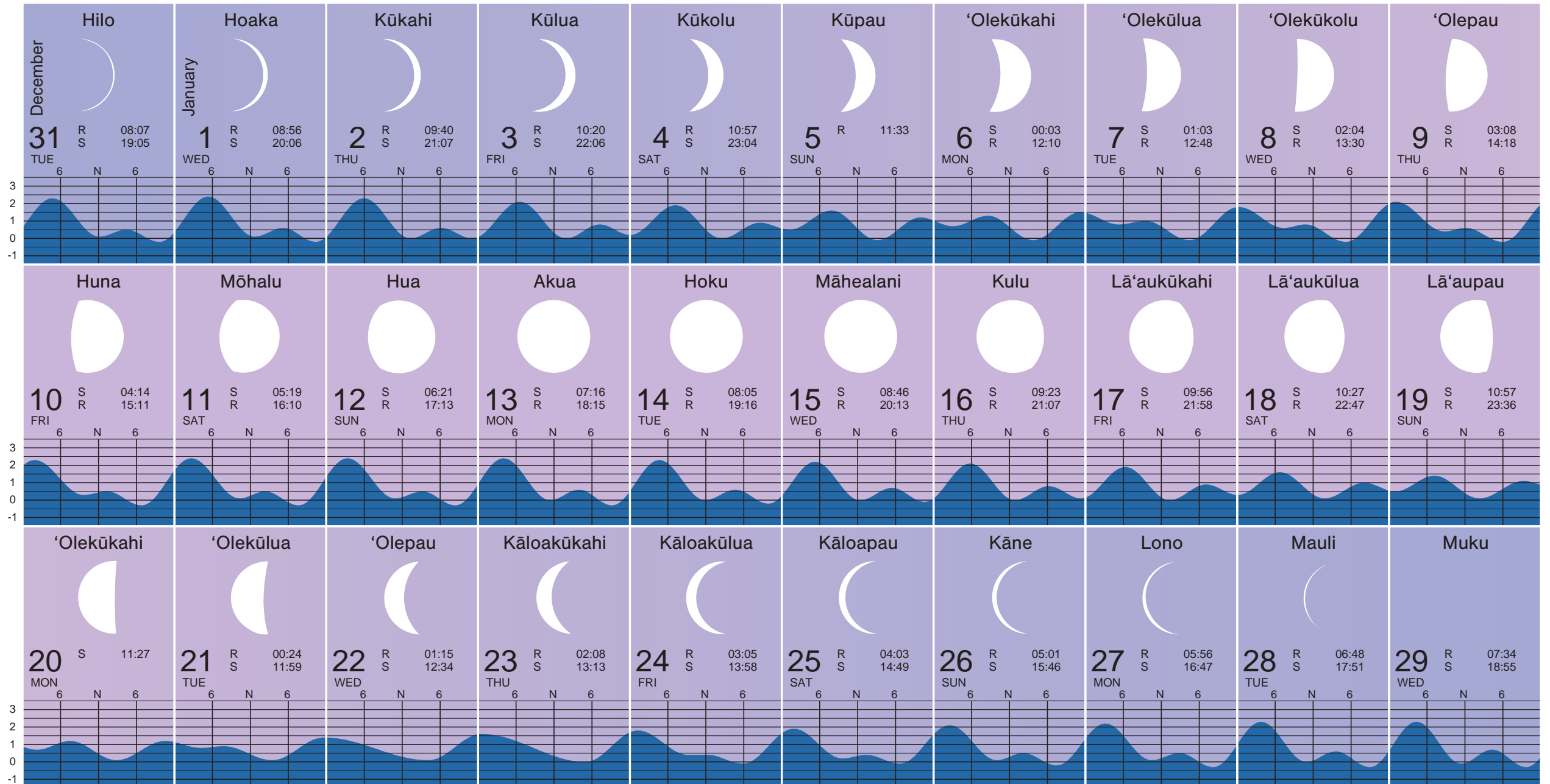
OCEAN: Mahimahi (Dolphinfish, *Coryphaena spp.*)

Coral reefs provide an essential habitat for juvenile fish, which serve as prey for larger species like *mahimahi*. Recognizable by its vibrant greenish-blue back and shimmering gold or silver underside, *mahimahi* doesn't feed directly on 'ākulikuli, but benefit from the overall health of the coastal ecosystem it supports.

This interconnected relationship highlights the importance of preserving coastal vegetation like 'ākulikuli, which fosters biodiversity and maintains the balance of marine ecosystems, ensuring that species like *mahimahi* continue to thrive.

Kā'elo

December 31, 2024 - January 29, 2025
 Kēkēmapa 31, 2024 - 'Ianuali 29, 2025



OBSERVATIONS

ho'onui (waxing) _____

poepoe (full moon) _____

hō'emi (waning) _____



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LAND: 'Āweoweo (Hawaiian goosefoot, *Chenopodium oahuense*) ENDEMIC

The plant 'āweoweo shares its name with the fish 'āweoweo, both associated with the term 'ā, meaning “flaming” or “burning,” and weoweo, meaning “very red.” This is reflected in the bright red streaks on the plant’s older stems, which resemble the fish's coloration.

'Āweoweo is drought, salt, and wind-tolerant. In times of famine, the young leaves and stems were steamed in *kī* (ti) leaves for food.

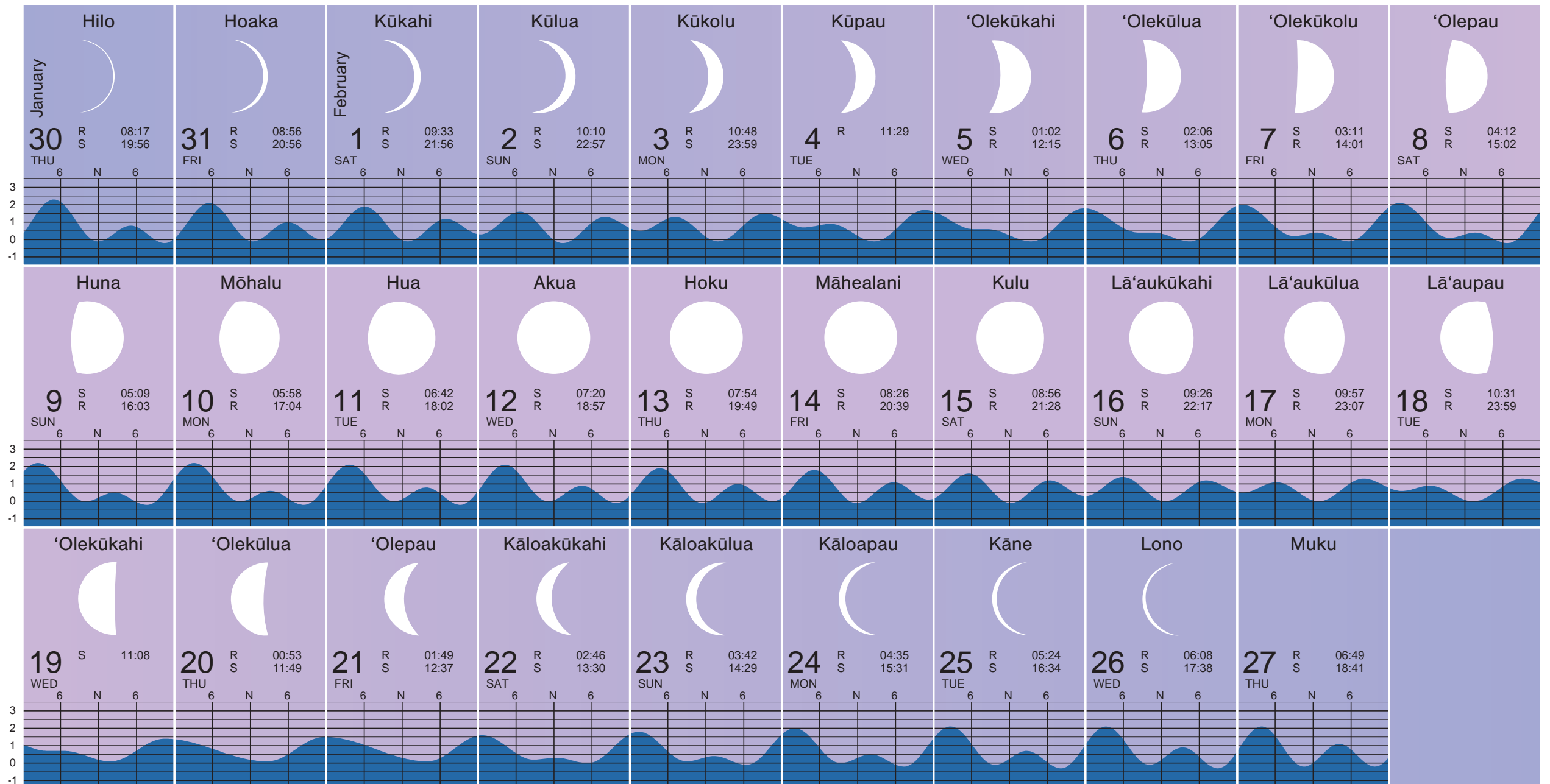
OCEAN: 'Āweoweo (Hawaiian bigeye, *Priacanthus meeki*)

Crushing the 'āweoweo leaves releases a fishy odor known to attract fish, possibly signaling the presence of food. *Lawai*'a use this trait to enhance bait or fish traps. Additionally, fishing hooks are made from the harder wood at the base of the plant. These hooks, baited with small fish or invertebrates, are lowered into waters where 'āweoweo fish are abundant, allowing *lawai*'a to catch 'āweoweo using parts of the 'āweoweo plant.



Kaulua

January 30 - February 27
 'Ianuali 30 - Pepeluali 27, 2025



OBSERVATIONS

ho'onui (waxing) _____
 poepoe (full moon) _____
 hō'emi (waning) _____



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LAND: *Hala*

(Hawaiian screwpine, *Pandanus tectorius*)

INDIGENOUS

Hala holds great cultural significance for Hawaiians. Weavers use *lau hala* (*hala* leaves) to create mats, hats, roof thatching, canoe sails, baskets, sandals, fans, and more. Although not commonly eaten, the fruit is edible and may be used for making paintbrushes and lei.

Lawai‘a regard *hala* as a natural calendar for optimal fishing conditions. Its flowering and fruiting cycle indicates the peak season for harvesting *hā‘uke‘uke* (helmet sea urchin), which is known to be rich with eggs during this time. An *‘Ōlelo No‘eau* (Hawaiian proverb) says “*Pala ka hala, momona ka hā‘uke‘uke*,” or “When the *hala* ripens, the *hā‘uke‘uke* [sea urchin] is fat.”

OCEAN: *Hā‘uke‘uke*
(Helmet urchin, *Colobocentrotus atratus*)

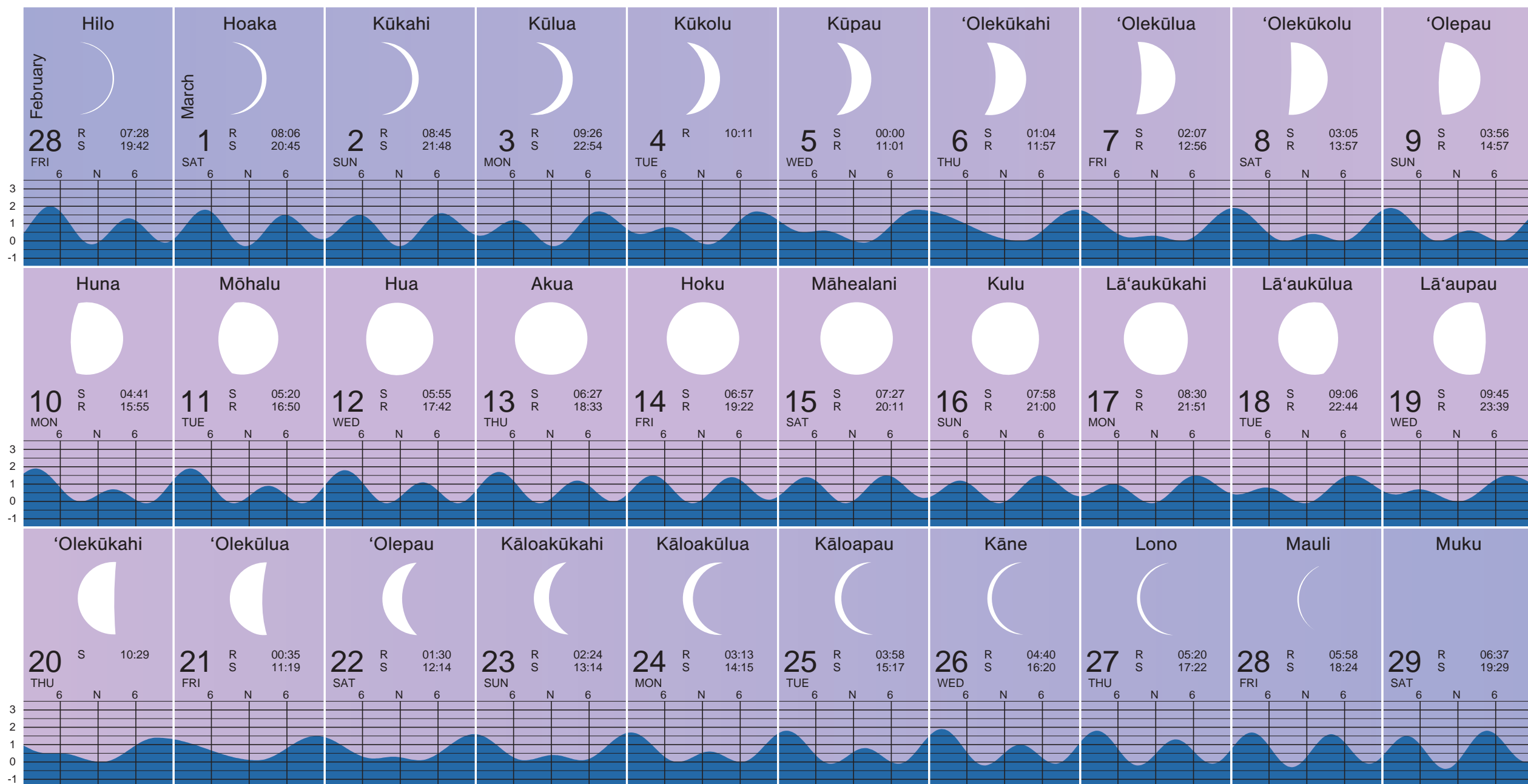
Uhu (Parrotfish,
Family Scaridae)

Although an herbivore, *uhu* is known to feed on *hā‘uke‘uke*. Another *‘Ōlelo No‘eau* says “*Pala ka hala, momona ka uhu*,” or “When the *hala* ripens, the *uhu* [parrotfish] is fat.” This proverb illustrates the relationship between these species in the ecosystem. As the *hala* tree produces ripe fruit, the *hā‘uke‘uke* becomes more nutritious and abundant. Consequently, the *uhu* also thrives during this period, gaining weight and *momona* (fatness) from its diet. This seasonal cycle signals an ideal time to catch *uhu* as it becomes more plentiful and nutritious.



Nana

February 28 - March 29
 Pepeluali 28 - Malaki 29, 2025



OBSERVATIONS

ho'onui (waxing) _____

poepoe (full moon) _____

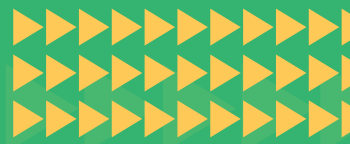
hō'emi (waning) _____



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LAND: *Hau* POLYNESIAN-INTRODUCED (Sea hibiscus, *Hibiscus tiliaceus*)



The *hau* is a spreading tree of the lowlands with tough, lightweight wood that creates windbreaks to help stabilize the soil. *Hau* is integral to Native Hawaiian fishing culture, serving both practical and cultural purposes. The wood of the *hau* is used to craft outriggers for *‘iako* (outrigger canoe booms) and *ama* (canoe floats). Its flexible branches can be twisted and braided into rope for various uses, including slings, canoe lashing, strings for bows, net bags, carrying handles for water gourds, fasteners for *lauhala* baskets, shark nooses, strands for lei making, strainers for coconut cream and *‘awa* (Polynesian root drink), and sewing material for *tapa* cloth used in clothing and bedding. Smaller branches are crafted into *‘au ko‘i* (adze handles), *la‘au lomi* (massage sticks), *‘aunaki* (fire plows), and *ihe* (lightweight spears) for battle practice, as well as for *pīkoi* (fish net floats) and *lupe* (kite) frameworks. *Hau* bark is also fashioned into hula skirts and sandals. The slimy sap under the bark and the base of the flowers acts as a mild laxative.

OCEAN:

Kapu fishing practice

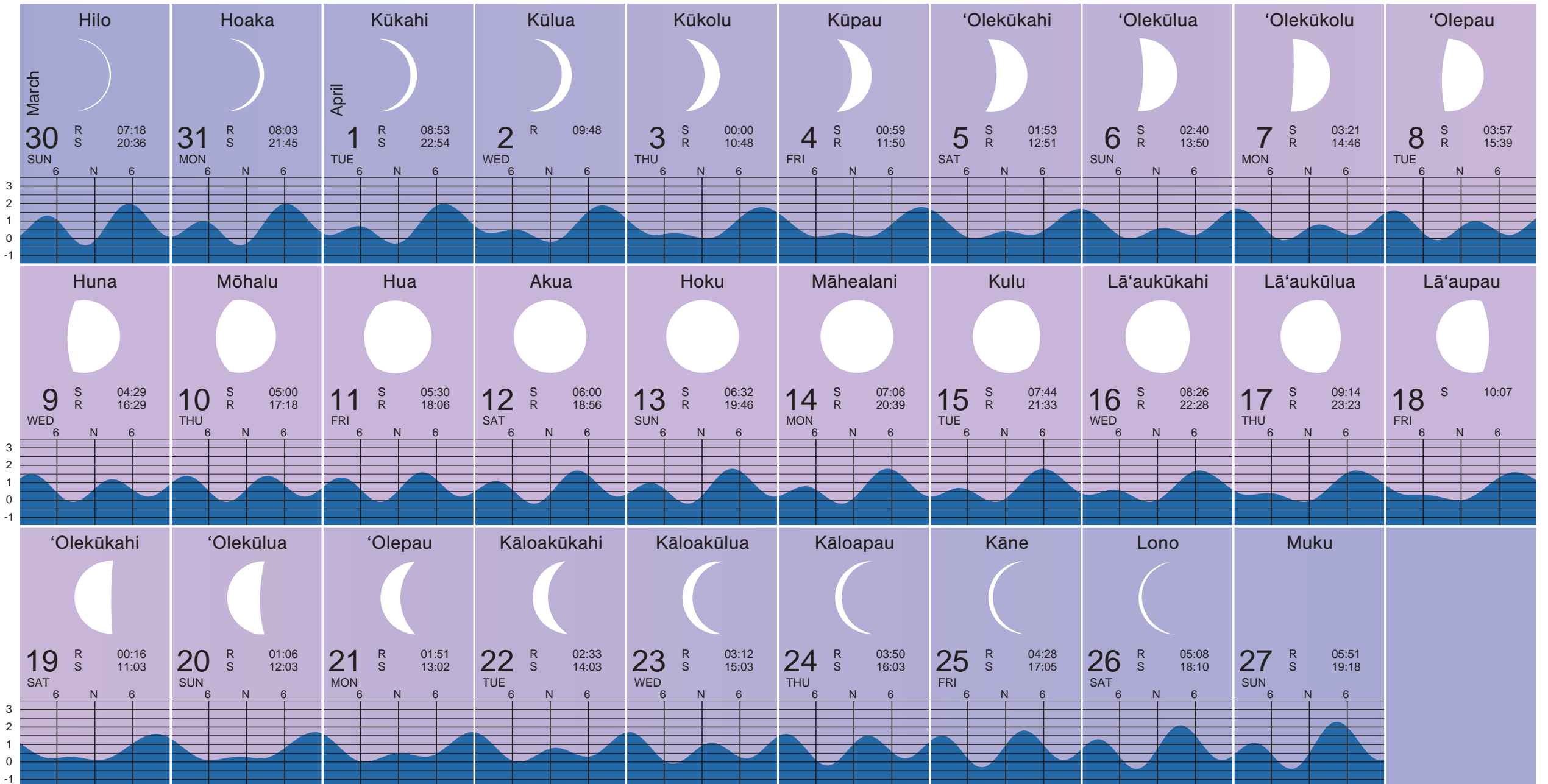
I ka wa kahiko (in the olden days), the *ali‘i* (chiefs) and *konohiki* (stewards) observed and implemented *kapu* (prohibitions) to prevent overfishing and protect spawning fish populations. *Hau* branches placed along the shoreline served as indicators of restricted fishing areas, reflecting a profound understanding of ecological balance as the community recognized the need to preserve marine resources for future generations. The significance of *hau* extended beyond its practical uses; it symbolized a deep respect for nature and was woven into spiritual beliefs and practices. Thus, *hau* was not merely a resource but a vital component of a holistic relationship with the ocean and its abundant life.



Hau. PHOTO: Forest & Kim Starr | *Hau* is often used to make cordage and adze handles. PHOTO (cordage): KauaiShellsandMore | PHOTO (adze): WPRFMC

Welo

March 30 - April 27
 Malaki 30 - 'Apelila 27, 2025



OBSERVATIONS

ho'onui (waxing) _____

poepoe (full moon) _____

hō'emi (waning) _____



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OCEAN: Canoe building

The dense and strong wood of 'ōhi 'a lehua makes it an excellent material for crafting canoes, fishing poles, spears, and hooks. The exceptionally hard wood can also be fashioned into *kapa* (bark cloth) beaters. *Kapa* making is a traditional practice for Native Hawaiians and served as their primary fabric in the past. Made from the bast fibers of certain species of trees and shrubs, the bark is beaten and felted to achieve a soft texture and dye stamped with geometric patterns. These patterns and colors indicate families or clans, making them easily recognizable to others.

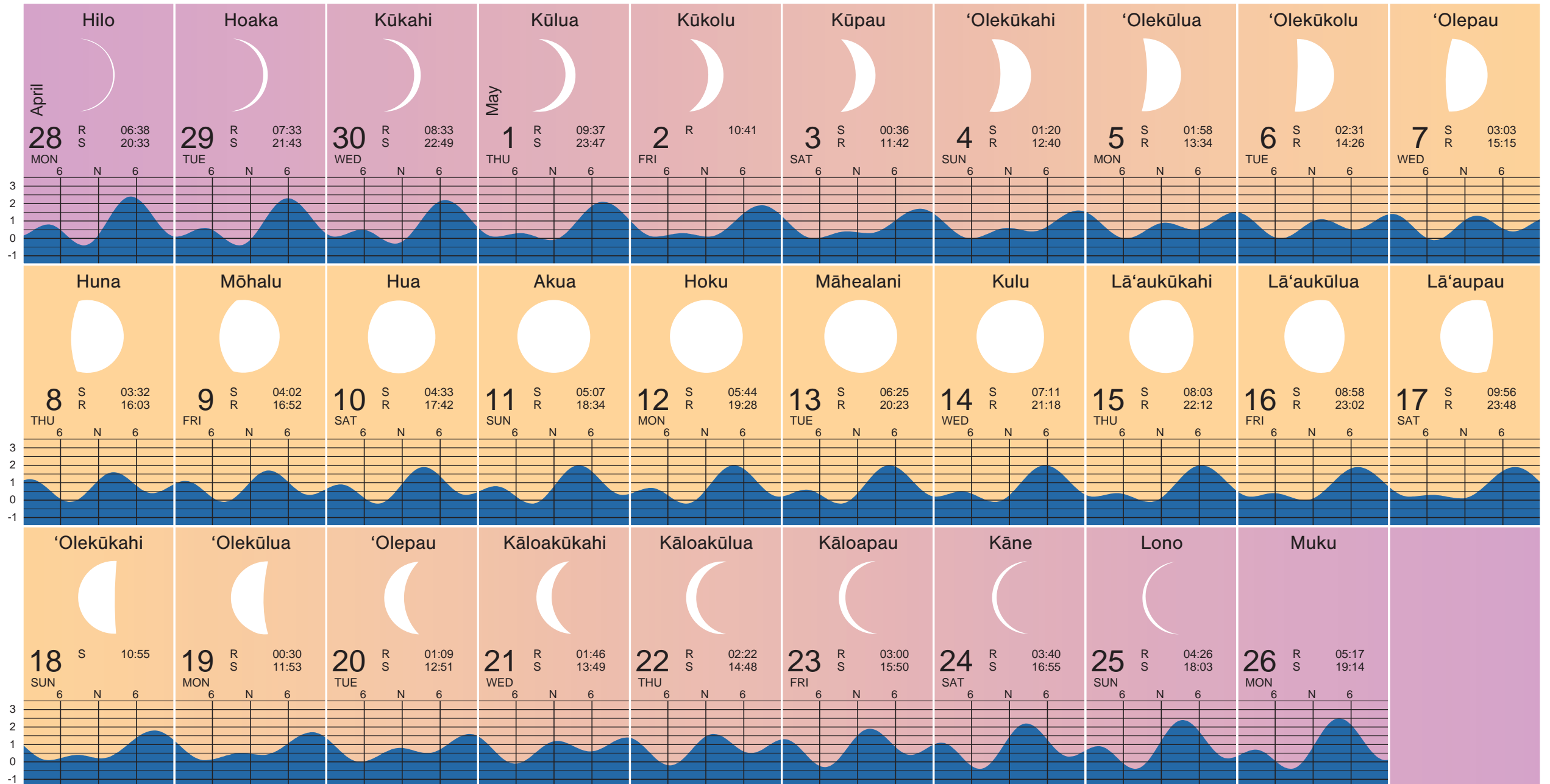
LAND: 'Ōhi'a lehua ENDEMIC (Lehua tree, *Metrosideros polymorpha*)

'Ōhi'a lehua plays a key role in watershed protection and conservation by retaining moisture after storms, preventing erosion and flooding. It is the most common endemic tree in Hawai'i, growing from sea level to 8,000 feet of elevation. 'Ōhi'a lehua is a pioneer species and has even adapted to grow directly in lava rock. The trees exhibit distinctive flowers that range from bright red to yellow.



'Iki'iki

April 28 - May 26
'Apelila 28 - Mei 26, 2025



OBSERVATIONS

ho'onui (waxing) _____

poepoe (full moon) _____

hō'emi (waning) _____



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LAND: *Naupaka kahakai* (Beach naupaka, *Scaevola taccada*) INDIGENOUS

Naupaka kahakai is deeply valued in Native Hawaiian culture for its ecological importance and practical uses. This large shrub is common along hot, dry coastlines and is known for its white “half-flower,” with all five petals on one side. The wind-breaking effect of *naupaka* plays a crucial role in coastal ecosystems by trapping sand at its roots, which over time, forms protective sand dunes. These dunes are vital for stabilizing shorelines and preventing erosion, contributing to the health of coastal habitats.

Traditionally, *naupaka* is also used for medicinal purposes, showcasing its importance in the holistic health practices of Native Hawaiians. The plant’s attractive flowers are commonly crafted into lei, symbolizing beauty and cultural heritage.



OCEAN:

Fishing/diving practice

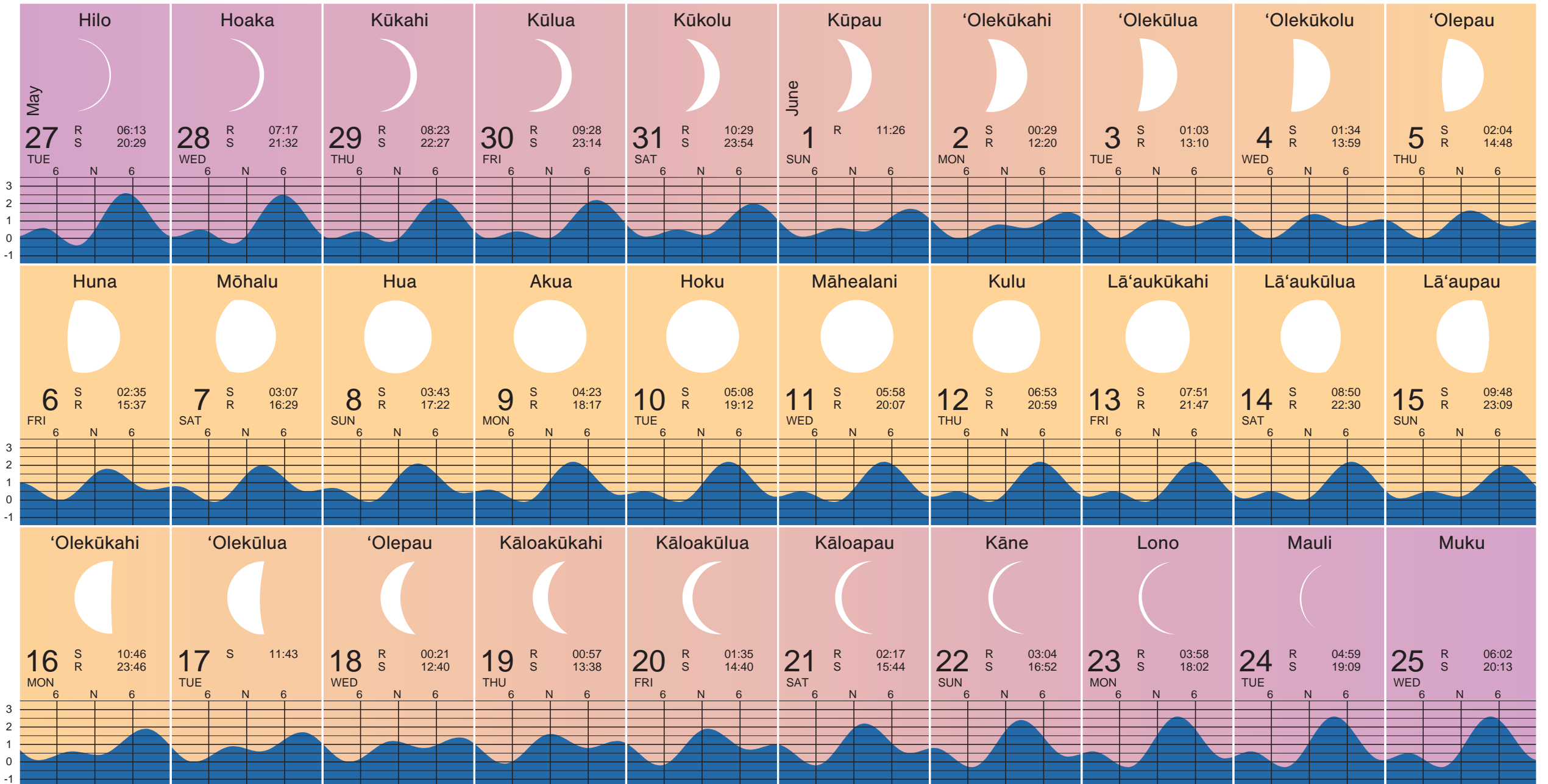
Green dye made from the flower and fruit of *naupaka* can also be used to dye cordage, making it less visible in the water. Its strong fibers can be woven into fishing nets.

In modern times, divers use the *naupaka* leaves to prevent fogging on their masks, demonstrating the plant’s versatility in enhancing fishing experiences. Before jumping in the water, they break the leaf in two and wipe sap on their masks.



Ka'aona

May 27 - June 25
Mei 27 - Iune 25, 2025



OBSERVATIONS

ho'onui (waxing) _____

poepoe (full moon) _____

hō'emi (waning) _____



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OCEAN: *Aku*

(Skipjack tuna, *Katsuwonus pelamis*)

Traditionally, *lawai'a* use various parts of the *niu* to enhance their fishing practices. The buoyant husks create floats and buoys for fishing nets and lines, while the husk fibers serve as cordage for making nets or 'aha (lashing). The thickness of *niu* fibers, combined with their relative water resistance, make 'aha an excellent material to use on canoes. The fronds can also be fashioned into fish-wrapped lures or traps, and oils extracted from *niu* are sometimes used to prepare bait, attracting *aku* to fishing lures.

Beyond these practical applications, *niu* symbolizes nourishment and sustenance, as both the *niu* and the *aku* are vital food resources in Hawaiian diets. 'Ōlelo Noe'au #416 "He *niu* no ka wai i ka lani" can be translated as "A coconut is water from the sky." This proverb emphasizes the tree's importance in providing sustenance and its deep connection to the natural cycles of water and life in Hawai'i.

LAND: *Niu*

(Coconut tree, *Cocos nucifera*) INDIGENOUS

Niu holds immense significance in Native Hawaiian culture, particularly for its connection to *aku*. *Niu* is often found in coastal areas where *aku* are commonly caught, signifying a productive fishing environment. For centuries, fishing has been central to Hawaiian identity, sustaining communities and fostering a deep connection to the land and sea. *Aku* holds a revered place in traditional Hawaiian cuisine, serving as a symbol of abundance, prosperity, and cultural heritage.

Niu has nearly countless uses, ranging from its fronds to its roots, and the fruit can float in the sea for months and still be able to germinate. As a result, they are the perfect tree to prevent erosion along the beach. *Niu* thrive even with salt spray, floods, and hurricanes.

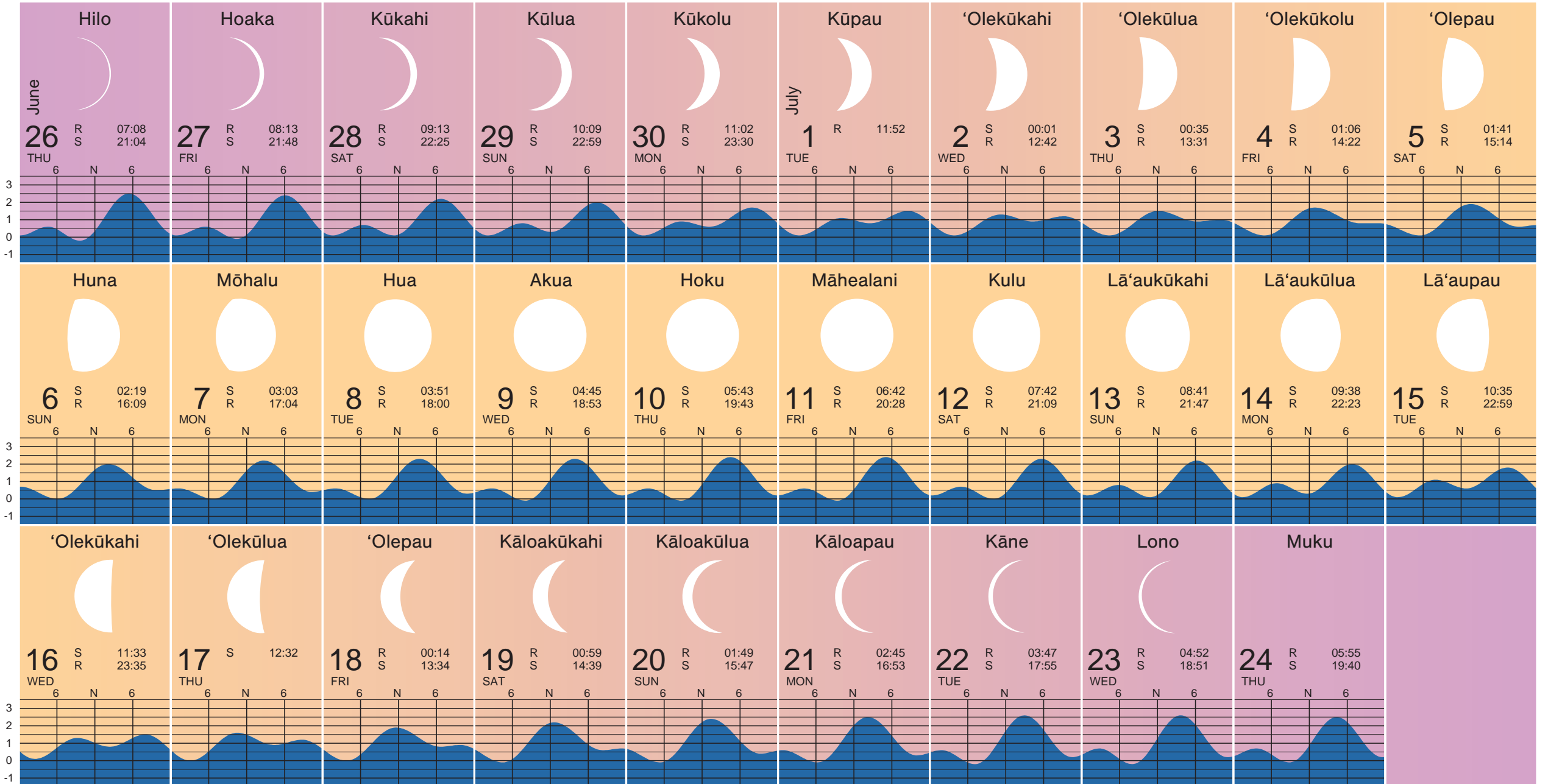
The coconut rhinoceros beetle (CRB), an invasive species in Hawai'i, threatens *niu* and other important plants such as the endemic lulu palm. The beetle bores into the tree crown and emerging fronds to feed on the sap. Check for CRB damage on trees by looking for 'V'-shaped cuts and bore holes on the palm fronds. Prevent the spread of CRB and their larvae by regularly inspecting mulch piles, compost, and bags of soil.

Niu. PHOTO: Colton Jones/unsplash.com
Aku. PHOTO: Yinan Li/iNaturalist (CC BY-NC)
Coconut sennit rope. PHOTO: WPRFMC



Hinaia‘ele‘ele

June 26 - July 24
June 26 - Iulai 24, 2025



OBSERVATIONS

ho‘onui (waxing) _____

poepoe (full moon) _____

hō‘emi (waning) _____



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LAND: *Limu kala*

(Brown algae, *Sargassum echinocarpum*) ENDEMIC

Limu encompass a diverse range of marine algae that form the foundation of the food web in reef and rocky shore ecosystems. In Hawai'i, *limu* is found in various marine environments, from tide pools to deep reef slopes. Most seaweeds require a hard substrate, such as rock or coral, for growth, with few thriving in sandy areas.

Limu is particularly significant along the shoreline, where the ocean meets the land, serving as the *hānau* (birthplace) for new life. In this coastal zone, nutrients like nitrogen and phosphorus from the land nourish its growth. As *limu* flourishes, it provides food, shelter, and a clean environment for marine life. Due to its essential role in the shoreline ecosystem, the health of *limu* serves as an important indicator of environmental well-being.



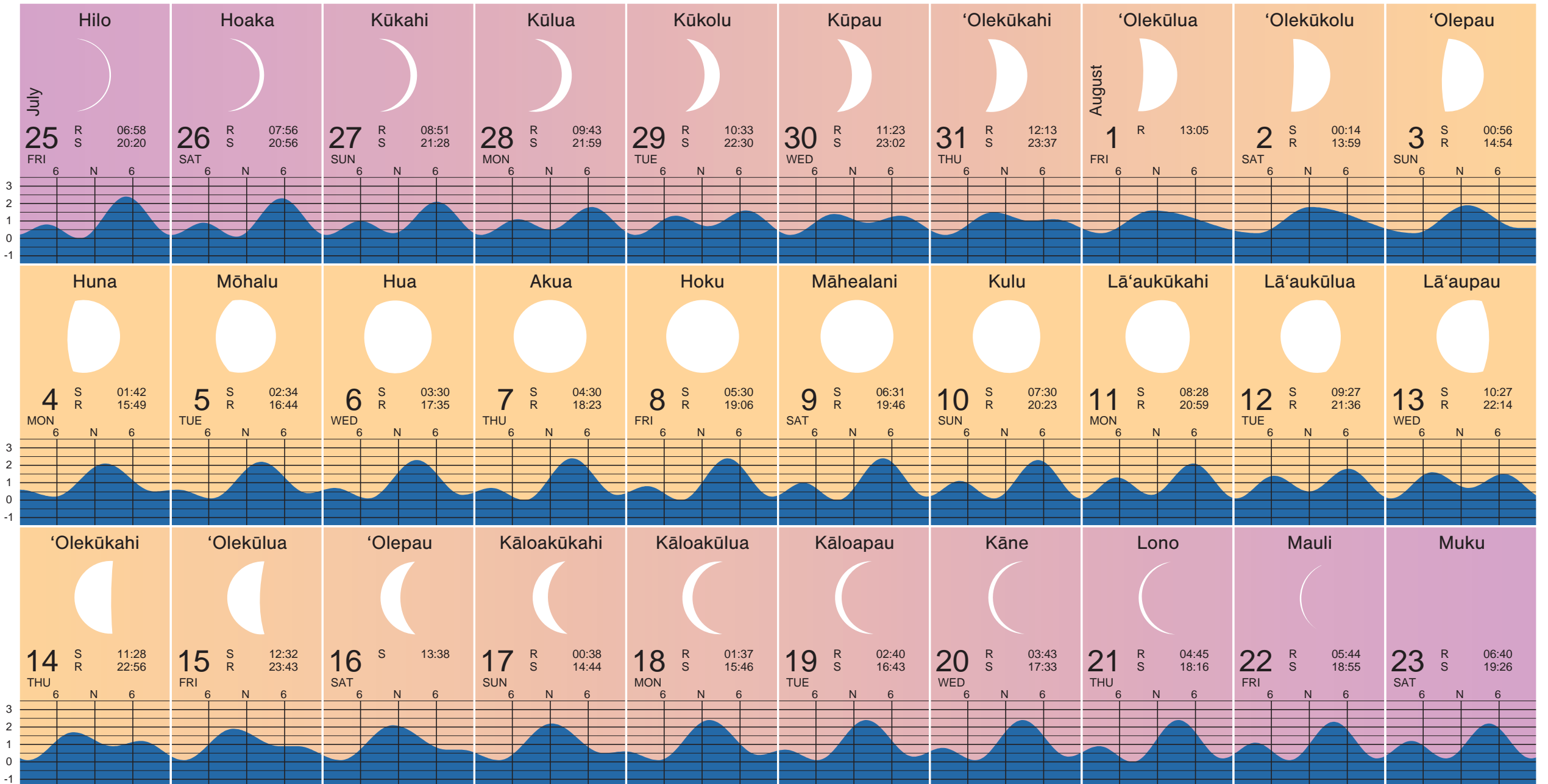
OCEAN: *Kala** (Bluespine unicornfish, *Naso unicornis*)

Limu kala is a specific type of seaweed that *lawai'a* use as bait to attract *kala* and is one of the most important algae in cultural practices. It plays a role in *ho'oponopono* (forgiveness) ceremonies, where participants receive a piece of *limu kala*, pray, and then consume it at the end. Additionally, it is used for cleansing by a *kahu* (priest), who purifies a person, object, or place by mixing it with *'ōlena* (turmeric) and salt water.

*Note: *Kala* is the Hawaiian name for several species of unicornfish, including Bluespine and three species of horned unicornfish.

Māhoe Mua

July 25 - August 23
Iulai 25 - 'Akukake 23, 2025



OBSERVATIONS

ho'onui (waxing) _____

poepoe (full moon) _____

hō'emi (waning) _____



Western Pacific Regional
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LAND: *Olonā* (*Touchardia latifolia*) ENDEMIC

The most prized cordage for Native Hawaiians, known for its remarkable strength and lightweight properties, is crafted from *olonā*. Traditionally, the process begins with carefully stripping the bark, which is then hung to drain before being placed in running water for a day or two. After this, the strips are fastened securely to a narrow board and scraped with a tool called the *uhi*, made from turtle shell, to remove the outer bark. The resulting fine white fibers are dried in the sun and sorted by width. Then, *wahine* (women) bleach and twist these fibers into strong cordage of varying thicknesses.

Olonā. PHOTO: Forest & Kim Starr | 'Ahi. PHOTO: Shutterstock
Olonā cordage. PHOTO: Peter T. Young, imagesofoldhawaii.com

OCEAN: 'Ahi (Yellowfin tuna, *Thunnus albacares*)

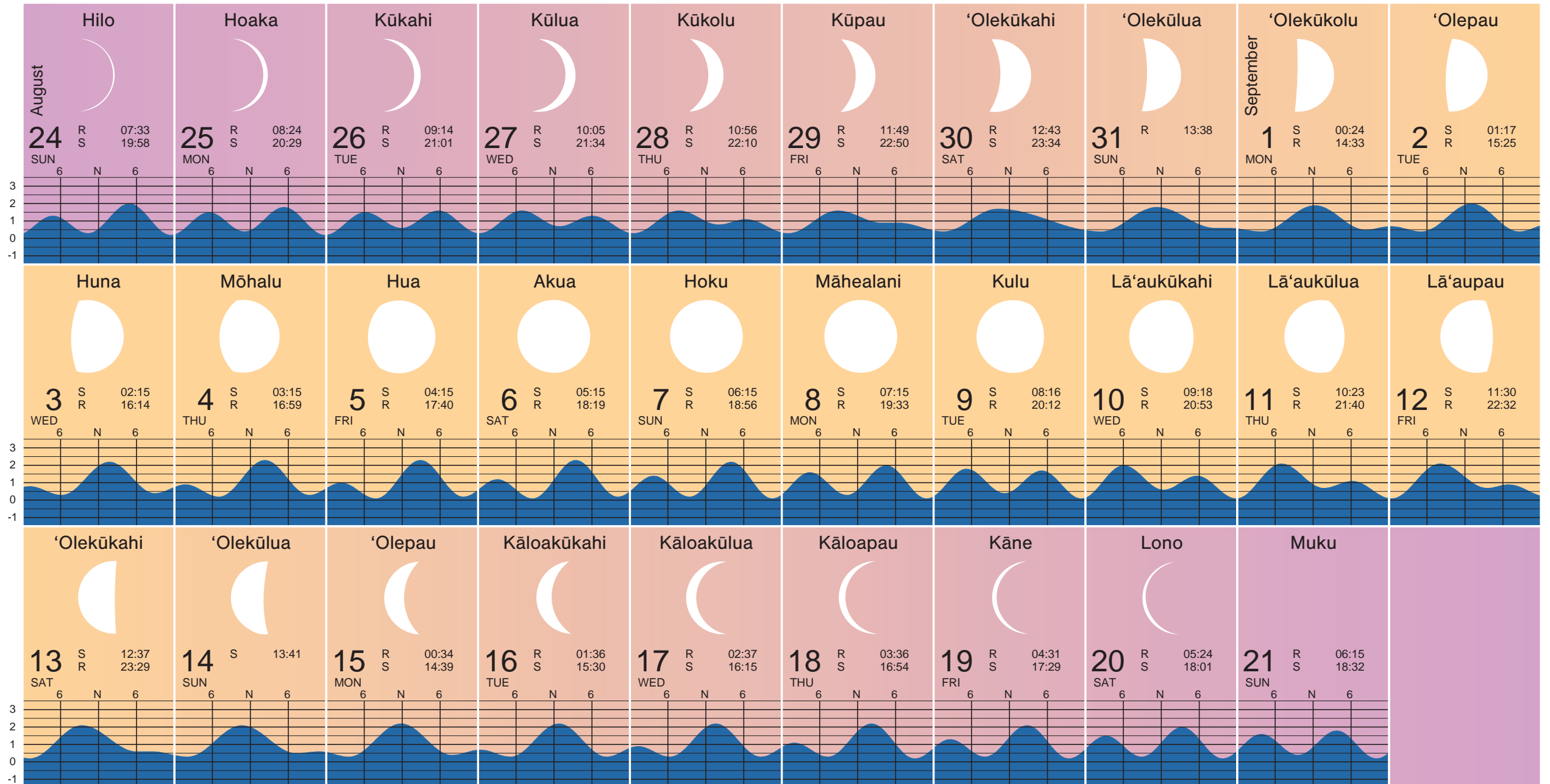
Olonā cordage is used to create various fishing gear, including *aho* (fishing lines), *'upena* (large-mesh fish nets), *nae* (fine-meshed nets), and *kōkō* (carrying nets). *Lawai'a* weave these fibers into durable nets that effectively capture 'ahi, which swim near the ocean's surface. These nets can be strategically set in areas known for 'ahi gatherings, characterized by their dark metallic blue backs and light dusky blue undersides. The finest *aho*, made from *olonā* fibers, are crafted into three-ply lines designed to resist stretching under the weight of large 'ahi. *Lawai'a* cast from outrigger canoes, using bamboo poles and hooks carved from bones of large fish or sharks to haul in their catch.

Feathers and *kī* (ti) leaves can also be tied to the *olonā* nets to create 'ahu'ula (cloaks), *kīpuka* (capes), and *mahiolo* (helmets).



Māhoe Hope

August 24 - September 21
‘Akukake 24 - Kepakemapa 21, 2025



OBSERVATIONS

ho‘onui (waxing) _____

poepoe (full moon) _____

hō‘emi (waning) _____



Western Pacific Regional
Fishery Management Council



LAND: Pā'ū o hi'iaka (Oval-leaf clustervine, *Jacquemontia sandwicensis*) ENDEMIC

The vining ground cover *pā'ū o hi'iaka* thrives in sandy or salty soil and produces pale blue to white flowers year-round. In Native Hawaiian culture, 'opihi (limpets) from rocky shorelines serve as both a food resource and a tool for preparing plant fibers like those from *pā'ū o hi'iaka*.

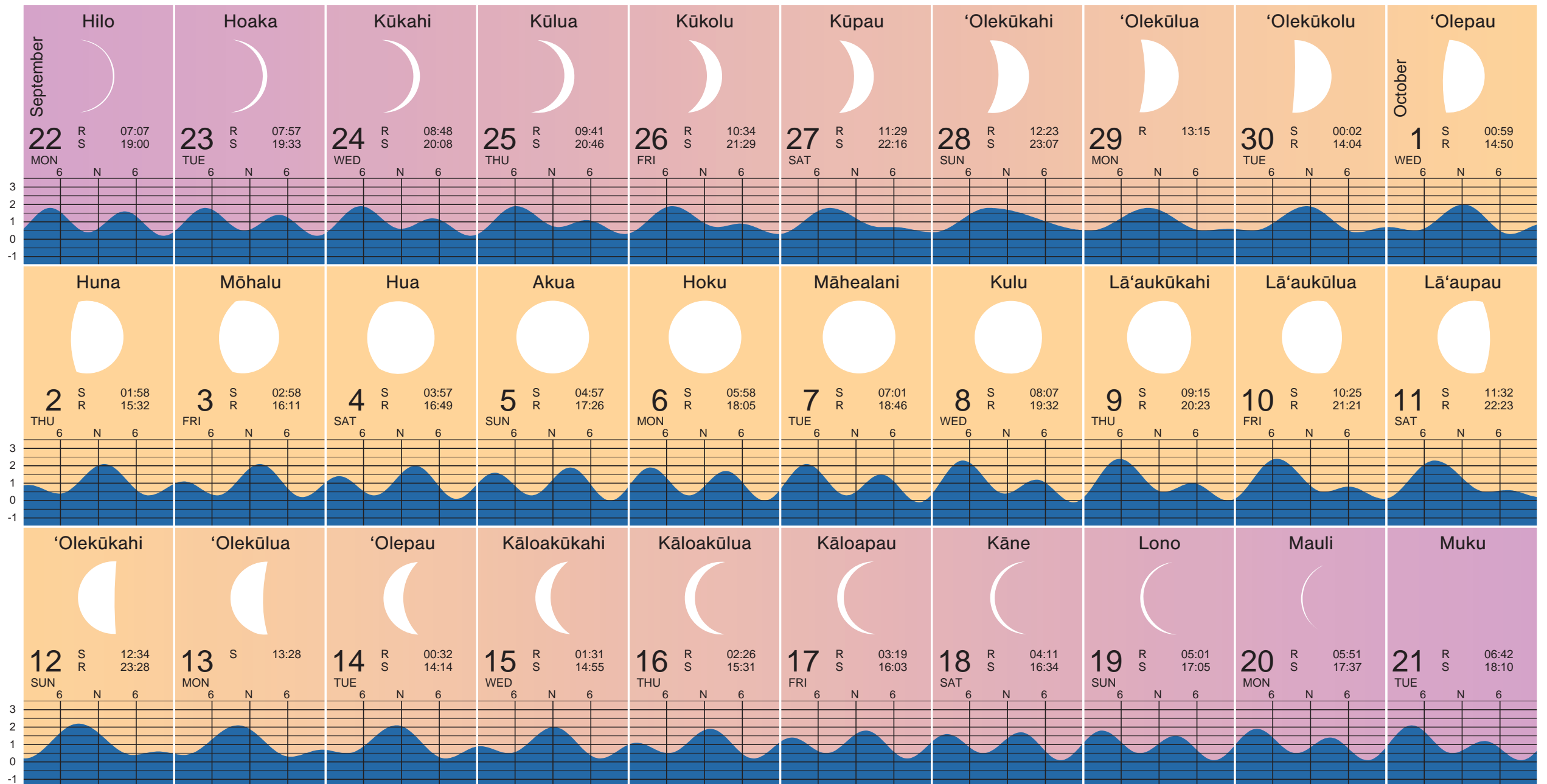
OCEAN: 'Opihi (Blackfoot limpet, *Cellana exarata*)

'Opihi shells are used to scrape and cut *pā'ū o hi'iaka* into fibers suitable for braiding and twisting into rope when other materials are scarce. These fibers, once prepared, provide the strength and flexibility needed for fishing lines and nets, invaluable for traditional fishing practices. Pairing the *pā'ū o hi'iaka* fibers with 'opihi meat as bait, *lawai'a* effectively attract and catch fish. The sweet, salty flavor of 'opihi makes it ideal for bait, and its coastal abundance allows *lawai'a* to easily incorporate it into their fishing techniques.



'Ikuwā

September 22 - October 21
Kepakemapa 22 - 'Okakopa 21, 2025



OBSERVATIONS

ho'onui (waxing) _____

poepoe (full moon) _____

hō'emi (waning) _____



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LAND: *Kī*

(Ti, *Cordyline minalis*) POLYNESIAN-INTRODUCED

Kī typically grows as a shrub or small tree, with long, narrow leaves ranging in color from green to red, purple, or a mix of these hues. In coastal areas, *kī* is sometimes used in erosion control, as it thrives in sandy soils and tolerates salt spray. Its root systems stabilize coastal dunes, preventing sand from blowing away or washing out.

Traditionally, *kī* leaves are considered sacred in Hawaiian culture, with their stems used in divining rituals on *hula kūahu* (altars). The *‘ula‘ula kōa‘e* is similarly revered and often used in blessings and rituals. *Kī* leaves can also serve many practical purposes, from cordage and footwear to thatch, rain capes, symbols of status, plates, instruments, and cups. In healing practices, *kī* leaves are wrapped around warm stones to make hot packs, used in poultices, or applied to fevered brows—not as medicine, but as a tool for healing.

Kī. PHOTO: Forest & Kim Starr | *‘Ula‘ula kōa‘e*. PHOTO: Amanda Padilla
‘Ula‘ula kōa‘e and *kī* leaves. PHOTO: Abraham Apilado, Jr.

OCEAN:

‘Ula‘ula kōa‘e

(Longtail red snapper/ruby snapper, *Etelis coruscans*)

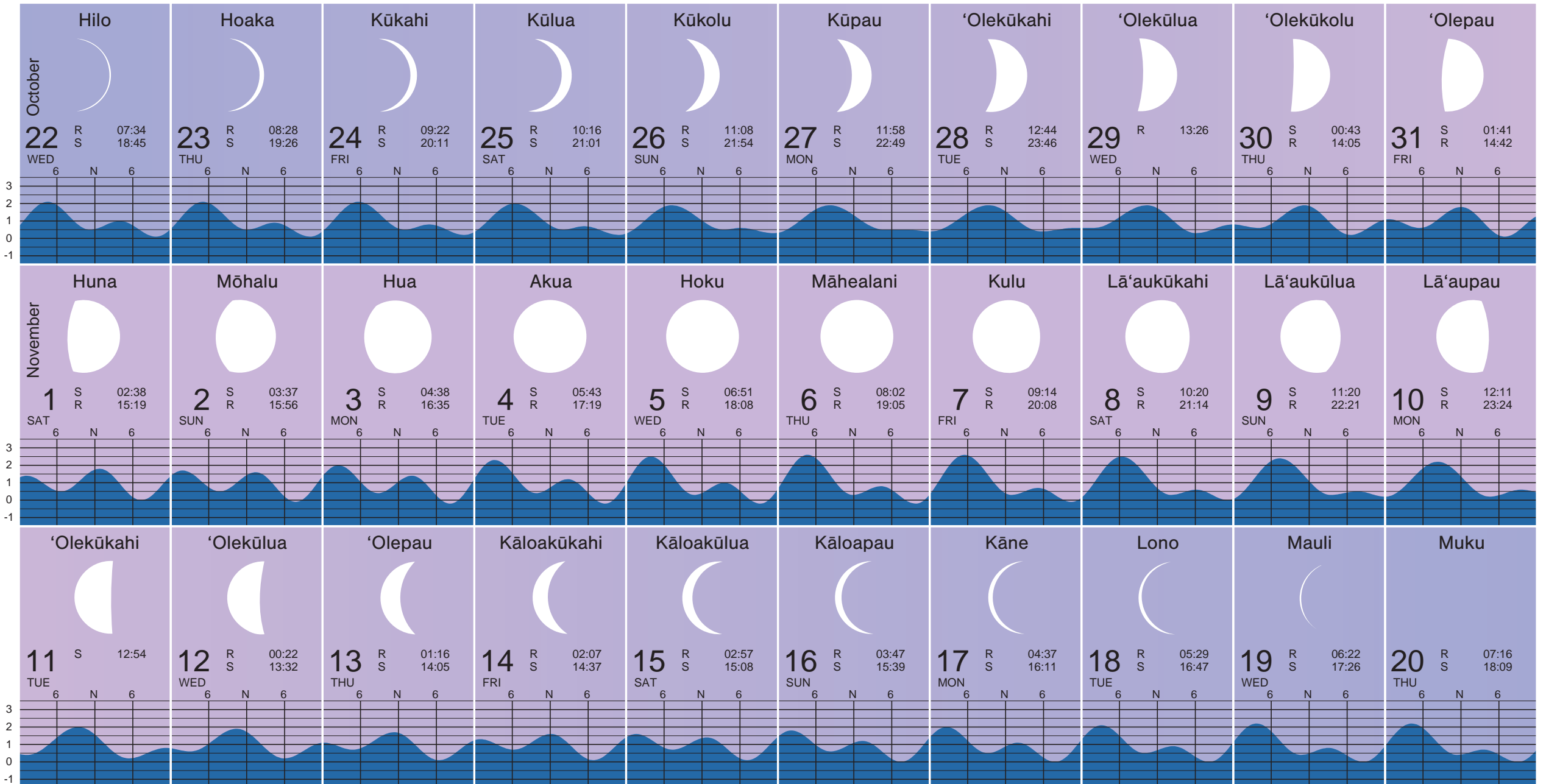
Kī leaves are also used in cooking, particularly for wrapping *‘ula‘ula kōa‘e*. This method enhances the fish’s flavor and locks in moisture during the cooking process. The leaves protect the fish from direct heat while adding a subtle fragrance.

More than just a culinary technique, wrapping *‘ula‘ula kōa‘e* in *kī* leaves is a way to honor both the fish and the fishing tradition, symbolizing protection and respect for the ocean’s resources. *Lawai‘a* may incorporate *kī* leaves in their practices to show reverence for the sea and the life it sustains.



Welehu

October 22 - November 20
 'Okakopa 22 - Nowemapa 20, 2025



OBSERVATIONS

ho'onui (waxing) _____

poepoe (full moon) _____

hō'emi (waning) _____



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LAND: 'Inalua

(Queen coralbead, *Nephroia orbiculata*) INDIGENOUS

'Inalua is a versatile plant that grows as a vine or small shrub, and is easily recognized by its rounded or heart-shaped leaves and small dark blue, grape-like fruits. Traditionally, its fibrous stems are processed into strong lines and nets for fishing, using the plant's natural buoyancy. Basket traps woven from 'inalua vary in size to catch both small and large saltwater fish, opening from the top for easy removal, while a flat stone at the bottom anchors them to the seafloor.



OCEAN:

Hīnālea (Saddle wrasse, *Thalassoma duperrey*)

Hīnālea is a distinctive reef fish, known for its green body with vertical purple-red bars, a purplish-blue head, and a wide orange saddle behind the head. It is often caught in 'inalua traps when set in tide pools or coral reefs. Lawai'a optimize their catch by following lunar cycles; during the new moon, fish tend to be more active and feed aggressively, making it an ideal time to catch them. The days leading up to the full moon are also considered favorable, as increasing light levels encourage fish to forage closer to the surface. Additionally, lawai'a look for strong tides, particularly incoming tides, which stir up the bottom and prompt fish to feed.

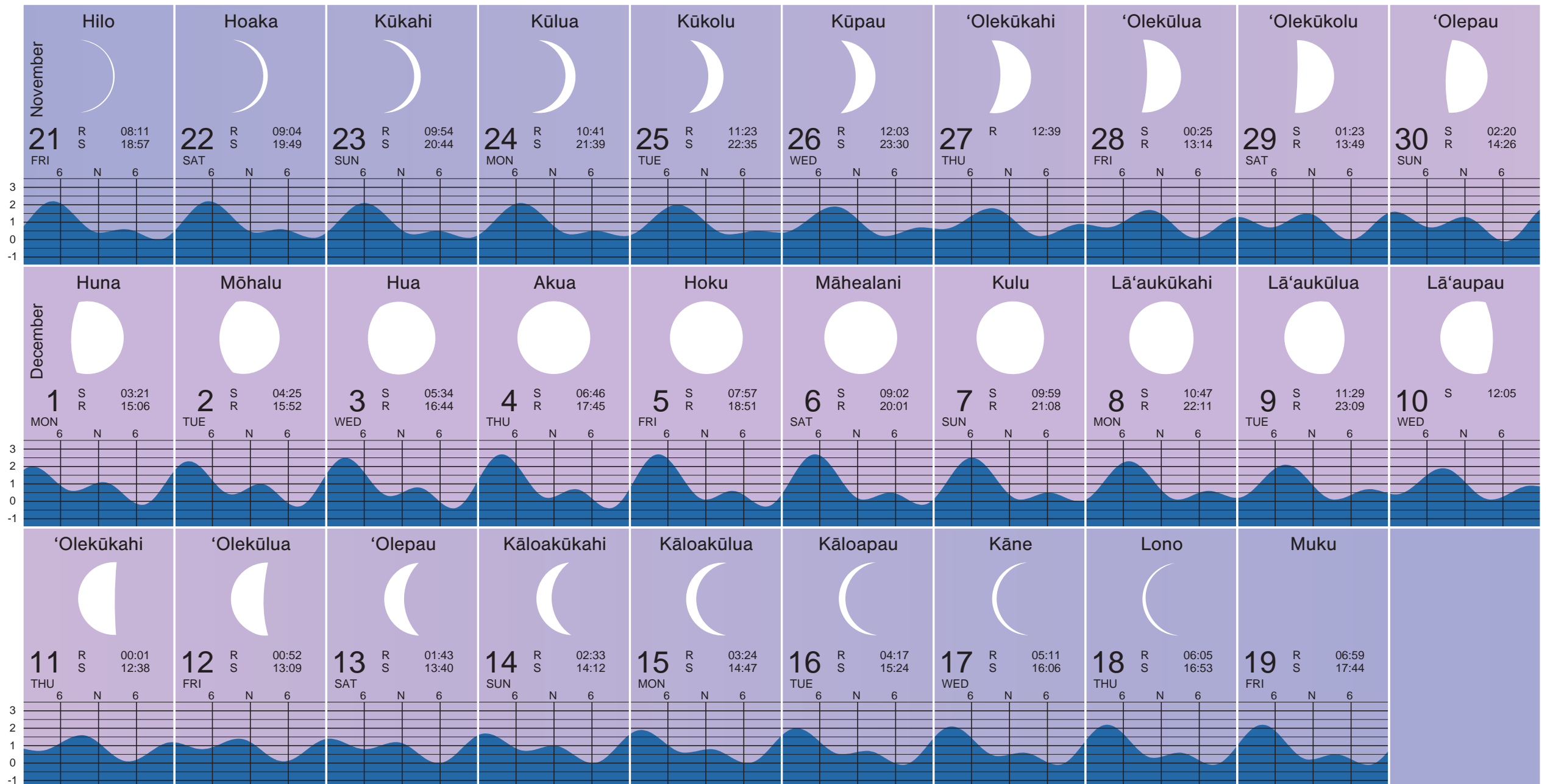


'Inalua. PHOTO: Hawai'i Dept. of Land & Natural Resources
Hīnālea. PHOTO: Klaus Stiefel/Flickr (CC BY-NC)
'Inalua traps. PHOTO: oahuauctions.com



Makali'i

November 21 - December 19
 Nowemapa 21 - Kēkēmapa 19, 2025



OBSERVATIONS

ho'onui (waxing) _____

poepoe (full moon) _____

hō'emi (waning) _____



Western Pacific Regional
 Fishery Management Council



LAND: Olopuia ENDEMIC

(Hawaiian olive, *Nestegis sandwicensis*)

Olopuia is endemic to Hawai'i and can be found on all major islands. A member of the olive family, it produces a fruit similar to olives, though not edible. The tree's glossy leaves with pale ribs, and its beautiful heartwood—light reddish to yellowish brown with black streaks—are sometimes used in woodworking.

Traditionally, Hawaiians have found many uses for the durable, hard olopuia wood. Despite being difficult to work with, it is crafted into essential tools such as the *ihe* (spear), 'ō'ō (digging stick), 'au ko'i (adze handle), pāhoa (dagger), and rasp for making fish hooks. Its strength also makes it ideal for constructing a *hale* (house), where it is used for posts, rafters, and thatching frames.



Olopuia. PHOTO: Forest & Kim Starr | 'Ōpelu. PHOTO: Keoki Stender
Melomelo stick. PHOTO: The Trustees of the British Museum

OCEAN: 'Ōpelu

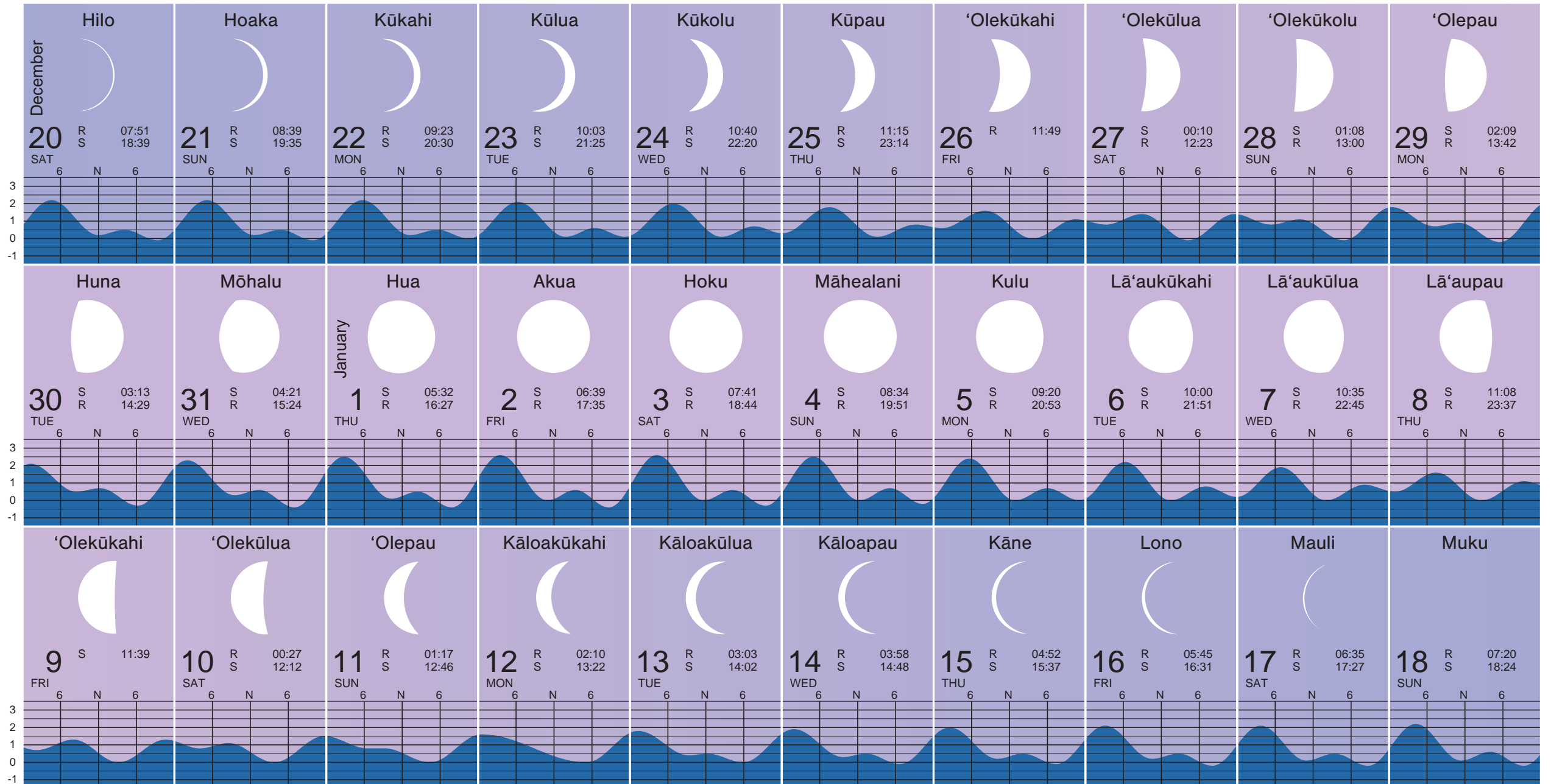
(Mackerel scad, *Decapterus macarellus*)

Olopuia is also an excellent firewood, burning with a hot flame even when green. The wood is used in a unique fishing method called *melomelo* stick fishing. By tossing the *olo*puia stick over a fire, rubbing it with dried *niu* oil, and dragging it in the water behind a canoe, the fragrant scent attracts fish. 'Ōpelu, bluish or greenish yellow on its back and silvery white below, is commonly drawn in by this technique. During the day, it is captured using lift nets, and at night, *lawai'a* use tie or handlines.



Kā'elo

December 20, 2025 - January 18, 2026
 Kēkēmapa 20, 2025 - 'Ianuali 18, 2026



OBSERVATIONS

ho'onui (waxing) _____

poepoe (full moon) _____

hō'emi (waning) _____



Western Pacific Regional
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LAND: Loulu

(Fan palm, *Pritchardia hillebrandii*)

ENDEMIC

Loulu holds a significant place in Native Hawaiian culture. The *lau hāwane* (frond) is traditionally used for thatching roofs and, more recently, for crafting items like a *papale* (hat) and fan. The leaves provide essential protection from rain and sun, showcasing the plant's versatility and importance in daily life. Its hard wood is skillfully fashioned into spears, a testament to its strength and utility.



OCEAN: Spearfishing



Traditionally, Hawaiians practice spearfishing both onshore and underwater, catching fish such as *nenuē* (chub), *kala* (unicornfish), and *palani* (surgeonfish). In open-sea spearfishing, *lawai‘a* carry a line to string their catch. One stringer can feed a family for days, but this method—known as “*Ka Lawaia O Me Ke Kui*”—also carries risks, as the blood from the fish can attract sharks, making it a high-risk, high-reward technique.

Shoreline spearfishing, generally safer, is often practiced at night. *Lamakū* (torch) fishing is used in shallow waters during low tides, where light attracts marine life, making it easier to catch fish with a quick stab. In Native Hawaiian culture, *lamakū* fishing is a foundational practice, often serving as an entry point into other types of fishing due to its safety and simplicity, allowing almost anyone to participate.

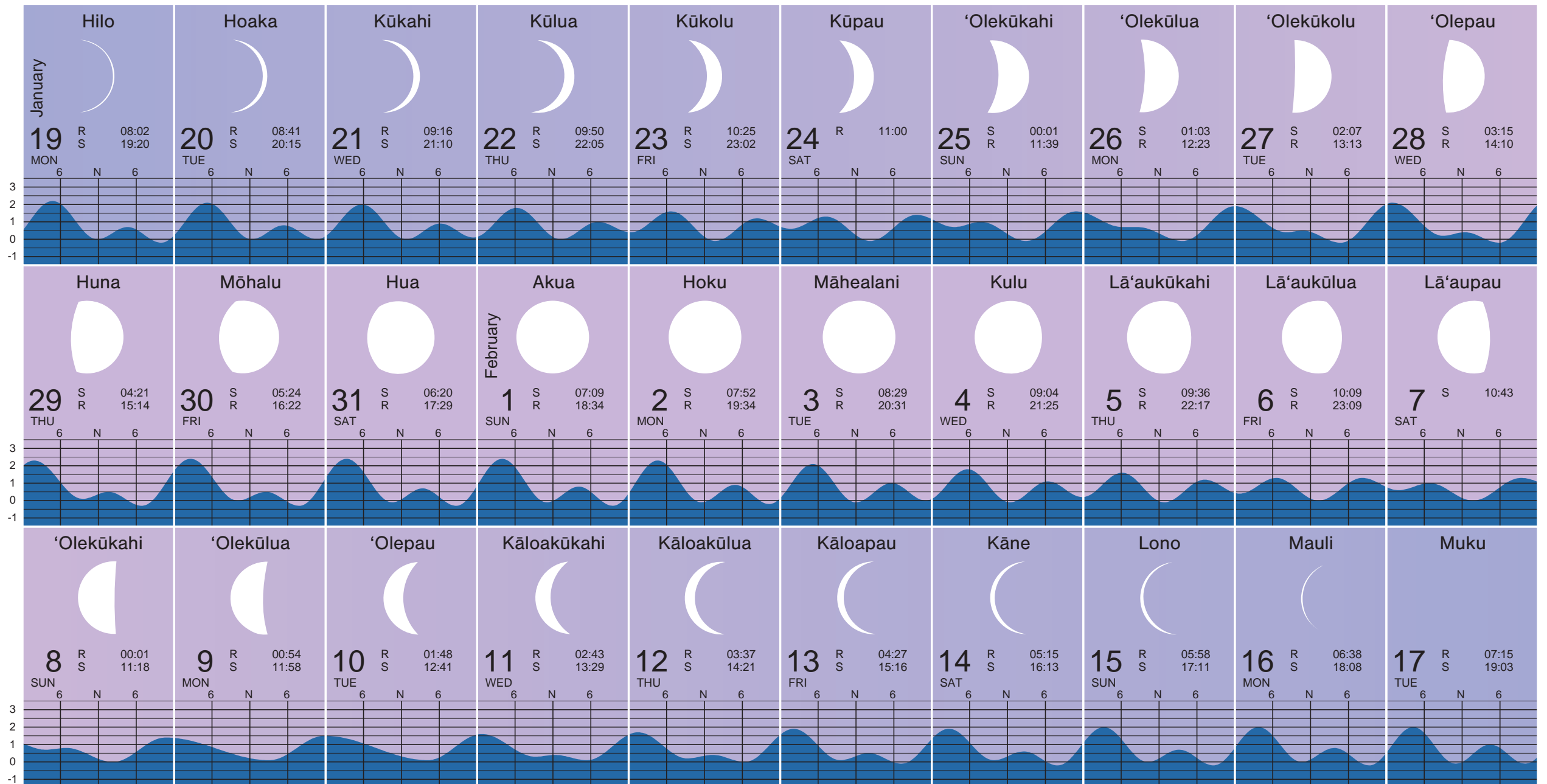
Loulu. PHOTO: Forest & Kim Starr

Torch fishing. PHOTO: banyan.life/culture/night-lights-lamaku-tower



Kaulua

January 19 - February 17
 'Ianuali 19 - Pepeluali 17, 2026



OBSERVATIONS

ho'onui (waxing) _____

poepoe (full moon) _____

hō'emi (waning) _____



Western Pacific Regional
 Fishery Management Council

Plants

Hawai'i's diverse ecosystems have contributed to specialization, and some native plants only grow in a few very isolated locations. This calendar features native and Polynesian-introduced plants that grow on most or all of the main Hawaiian islands, thrive in coastal habitats, and have played an important role in traditional Hawaiian fishing practices. There are examples of ground covers, shrubs, and trees, all of which contribute to a thriving watershed.

Some of the benefits of protecting and restoring native plants in Hawai'i include water conservation, soil and slope stabilization, dune and marsh restoration, carbon

sequestration, weed suppression, enhanced habitat for native wildlife, and strengthened cultural connections to materials traditionally used for building, fishing, medicine, cultural arts, and more.

Most coastal plants are resilient to salt and wind, and many are heat tolerant. However, some plants prefer more or less water and sun. When choosing what to plant, it is important to gather knowledge about the location (e.g., sun, water, soil, wind) to identify which species will grow best there. Observe or research which native plants naturally occur in the area or are adapted to the local conditions by visiting plantpono.org.

ENDEMIC: Occurs naturally only in Hawai'i

INDIGENOUS: Occurs naturally in Hawai'i and beyond

POLYNESIAN-INTRODUCED: Brought to Hawai'i by early Polynesian settlers



When to plant

(CANOE CROPS)

Ka'aona

Lono

Ipu

Mauli

Plant dark greens

Muku

Mai'a, kō and trees (kukui)

Kū Kahi, Kū Lua, Kū Kolo

'Uala, mai'a, and kalo

Kū Pa

'Uala and kalo

Huna

Ipu and root plants ('awa or pia)

Mōhalu

Ipu, kalo, and flowering plants ('awapuhi kuahiwi)

Hua

'uala, ipu, and fruit plants (niu, noni, 'ohi'a 'ai)

Akua

Mai'a, kalo, and 'uala

Hoku

Kalo, 'uala, mai'a, and root plants ('olena or uhi)

Māhealani

Good for planting everything

Kulu

'Uala

Lā'au Kū Kahi, Lā'au Kū Lua, Lā'au Pau

Mai'a, 'ulu, and other trees (kou, hau, or milo)

Kāloa Kū Kahi

Mai'a, ohe, kō, and vined plants

Kāloa Kū Lua

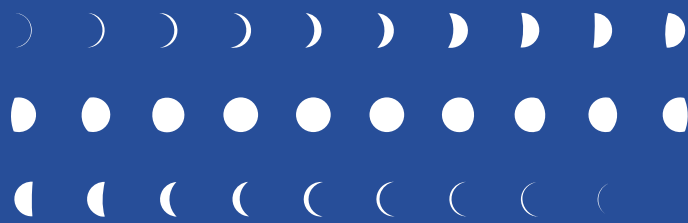
Mai'a, ohe, kō, and wauke

Moon phases

The literal meaning of *kaulana mahina* is position of the moon. In the traditional Hawaiian calendar, each *malama* (month) was determined by the 29.5-day cycle of the *mahina* and divided into three *anahulu* (traditional 10-day period). The first period was called *ho'onui* (growing bigger), beginning when the first crescent moon was visible to the naked eye. The second *anahulu* was *poepoe* (round or full). The last *anahulu* was *emi* (decreasing).

Traditionally, *nā pō mahina* (lunar phases) are used to determine when specific activities should take place, such as fishing times and spawning times when harvesting of some species was limited. This calendar includes a space to record your observations each month. Send us an email at info@wpcouncil.org to let us know how you use our calendar!

Moon phase and lunar month names may vary by island and *moku* (district). This calendar uses the moon phases for O'ahu listed in the *Hawaiian Almanac* by Clarice Taylor (1995. Honolulu: Mutual Publishing). Data to discern the first day of the lunar month are used with permission from HM Nautical Almanac Office, UKHO and the Keeper of Public Records, UK. The tide charts with moon rise and set times are in Hawai'i Standard Time for Pearl Harbor and were provided by OceanFun Publishing, NZ. The lunar months, moon phases, and traditional calendar months are given in Hawaiian.



Ho'oilo (wet season)

Ho'oilo is the wet season beginning with *Welehu* on the first new moon after 'Ikuwā, the second month of the four month *makahiki* season when war was suspended. Activities were given over to recreation, sport and spectator activities and the god *Lono* was honored. Nights grow longer, and days and nights are cooler. The wet season runs from November to May on the Gregorian calendar.

During *Ho'oilo*, the lowest tides during the *Poepoe* full moon phases occur at night.

WELEHU – First new moon after 'Ikuwā, ending with Muku. *Makali'i*, the constellation Pleiades rises over the horizon this month. The star Antares rises. Southerly storms and murky water. O'io spawn nearshore. *Uouoa* and *kole* fat. Generally, few fresh fish for the community.

MAKALI'I – First new moon after Welehu, ending with Muku. The name of this month is the same as the Hawaiian name for the Pleiades but is also the name of a legendary voyager and navigator. Wet month with Kona winds. Turtles come ashore to lay eggs. Pleiades is high in the sky.

KĀ'ELO – First new moon after Makali'i, ending with Muku. Thunder, lightning, wind and rain. *Kapu* placed on *aku*, *kapu* on 'opelu lifted. 'Ama'ama run. 'Ula walk on the reef at night at high tide during *Poepoe*.

KAULUA – First new moon after Kā'elo, ending with Muku. Stormy weather, fishing on reef and inshore. *Kumu*, *manini*, *uouoa*, *manini*, and *ulua la'uli* caught. *Malolo* nets prepared for *Nana*.

NANA – First new moon after Kaulua, ending with Muku. Sunny but showery. *Malolo* caught at sea. A'u in the deep sea. O'io, *ulua la'uli*, *kumu*, *manini*, *aweoweo* and 'ula caught.

WELO – First new moon after Nana, ending with Muku. End of the wet season. *Kawakawa* plentiful in the deep sea, a'u are caught in the deep sea. O'opu are fat. *Akule*, *weke*, *moi*, and *ula* caught along with a variety of reef fish.

Kauwela (dry season)

Kauwela is the dry season beginning with 'Iki'iki on the first new moon in May. Sand moves inshore and fills holes in the reef. Days and nights are warm, and tradewinds blow. Lack of rain means little freshwater flows to the sea. The sun is directly overhead at midday. The days are long, and plants grow quickly. The dry season runs for six lunar months to November on the Gregorian calendar.

During *Kauwela*, low minus tides occur during the daylight hours, including the lowest tides during the *Poepoe* full moon phases.

'IKI'IKI – First new moon after Welo, ending with Muku. Warm and humid, time to prepare nets for 'opelu. *Malolo* are fat and delicious, good fishing for *papio*, *weke*, *moi*, *uhu*, and *akule*.

KA'AONA – First new moon after 'Iki'iki, ending with Muku. Great harvests of 'opelu to be salted and dried. *Moi* spawn after the full moon. Women hand harvest near shore. Men fish at sea. *Kapu* started on 'opelu, *kapu* lifted on *aku*.

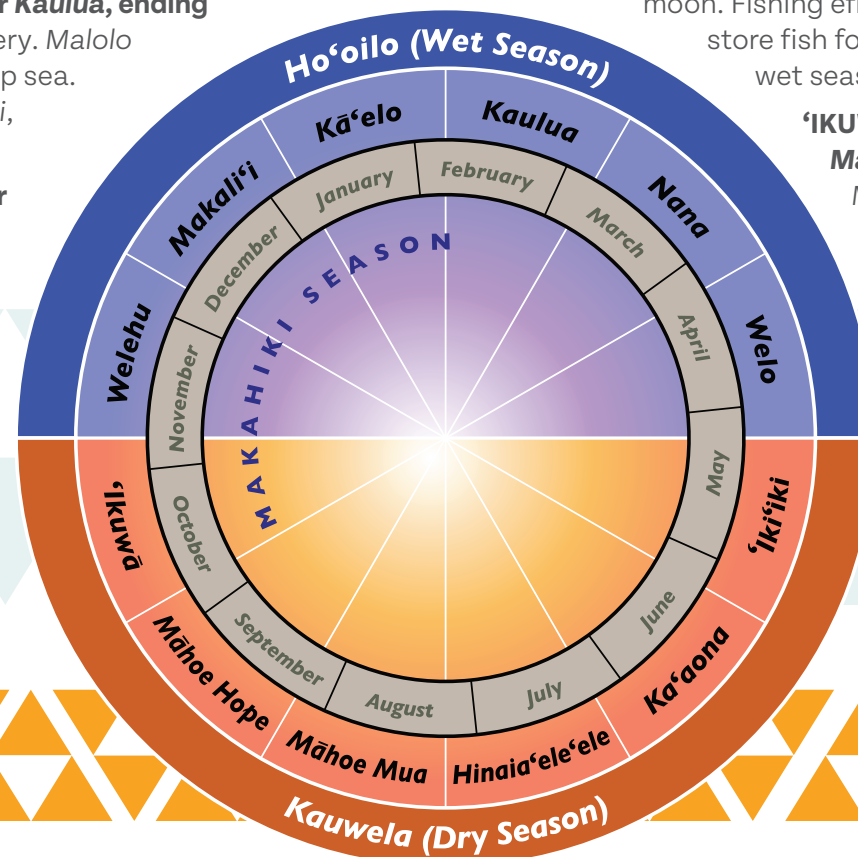
HINAIA'ELE'ELE – First new moon after Ka'aona, ending with Muku. Hot, with the possibility of sudden storms, dark clouds over the mountains. Last seasonal spawning of *moi* after the full moon. Good fishing for many species. *Moili'i* appear nearshore.

MĀHOE MUA – The first twin - First new moon after Hinaia'ele'ele, ending with Muku. *Mahoe mua* is the name of one of the twin stars Castor and Pollux, probably Pollux because Pollux rises first. Rain and wind alternate with sun. Seas are rough and alternately smooth. Fishermen alert for storms. Good fishing, *maiko* and a'u plentiful.

MĀHOE HOPE – The last twin - First new moon after Māhoe Mua, ending with Muku. Increasing showers and rough seas alternating with good days. Excellent deep sea fishing. A'u run with the full moon. Fishing effort increases to harvest, prepare and store fish for the coming *makahiki* season and the wet season.

'IKUWĀ ('IKUĀ) – First new moon after Māhoe Hope, ending with Muku.

Makahiki season will begin this month. Rain, thunder and lightning and high winds. Preparation for *makahiki* that starts when Pleiades, *makali'i* rises and is visible over the Eastern horizon. *Makali'i* remains visible for the next six months. Women and children take over the fishing activities in 'Ikuwā, and *Welehu*, the following month, fishing for o'opu, *hinana*, *hihiwai* and 'opae.



About This Calendar

This 2025 *Kaulana Mahina* (Hawaiian Lunar Calendar) is a partnership between the Western Pacific Regional Fisheries Management Council and Jennifer Ryan at the Hawai'i State Department of Education. The calendar is grounded in the theme, "I Ola 'Oe, I Ola Mākou Nei: When You Thrive, We Thrive." It includes information about the plants of Hawai'i that help to maintain the health of our local ecosystem and their connections to traditional fishing practices. Much like our Hawaiian ancestors used the *kaluana mahina* to guide fishing, farming, navigation, and healing, we must observe the patterns occurring in the natural world and take care of our resources so that they will be available for future generations. As the threat of climate change increases, the restoration and protection of native species could help mitigate the effects of rising sea levels, increased drought, and severe weather events.

Native species originated in Hawai'i or arrived here without human assistance. Native species arrived here by water, wind, and animals, such as birds. Native species are categorized as endemic or indigenous. **Endemic** species only live in a specific geographic area and cannot be found anywhere else. Due to its unique and varied topography, and relative isolation from other land masses, there are many rare and endangered endemic species that live in or near the Hawaiian islands. **Indigenous** species may be found in Hawai'i and other locations, such as throughout the Indo-Pacific.

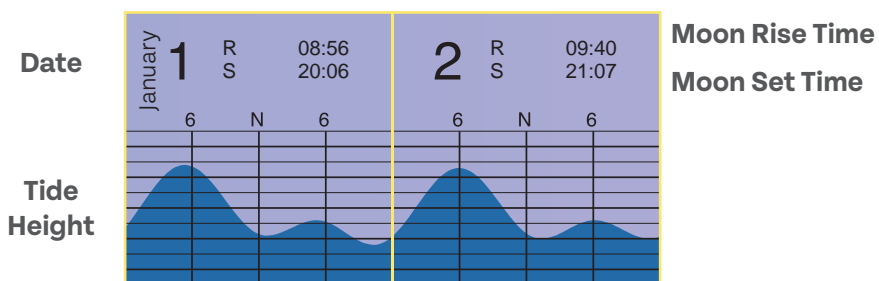
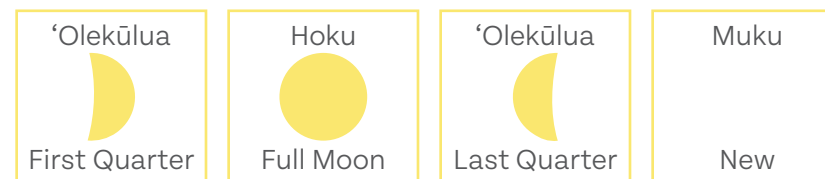
Non-native species were introduced to the *pae'āina* (island group) with the assistance of people. There are three main categories of introduced species in Hawai'i: *wa'a*, exotic, and invasive. *Wa'a* or canoe species, were brought by Polynesians

to sustain them on their voyages and create a thriving and sustainable society. These plants and animals were used for food, medicine, clothing, building materials, fishing, and more.

In more recent times, many new plants and animals have been brought to Hawai'i, both intentionally and accidentally. Exotic species originated outside of Hawai'i and were imported by humans since 1778. Some of these species have become invasive, meaning that they are harming the environment, economy, or human health and are not native to Hawai'i. The spread of invasive species in Hawai'i has negatively impacted a web of interconnected plants and animals, waterways, and even our climate and weather patterns.

SAMPLE DAYS

Moon Phase



Purple-Lavender = **Wet Season** / Pink-Orange = **Dry Season**

Special mahalo to calendar contributors including Abraham Apilado, Jr., Gary Goodhue/No'eau Designers, Keith Kamikawa, Amanda Padilla, Matt Ramsey, Jennifer Ryan and Keoki Stender. Also to Council intern Mattias Namur for his help in gathering and organizing much of the content.

RESOURCES:

tinyurl.com/HILunarCalLesson, bishopmuseum.org/online-learning-center/plants-of-hawaii, cms.ctahr.hawaii.edu/uhmprogram/Tropical-Topics, dlnr.hawaii.gov/forestry/plants, hawaii.edu/climate-data-portal/hawaiian-lunar-calendar, kohalacenter.org/spawning-guide/culture-and-history/hawaiian-moon-phases, kuleanahawaii.org, nativeplants.hawaii.edu, plantsofhawaii.org, tinyurl.com/EcoZoneNativePlants

DATA SOURCES:

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Kahā'ulelio, D., Pukui, M. K., & Nogelmeier, M. P. (2006). *Ka 'Oihana lawai'a Hawaiian fishing traditions* by Daniel Kahā'ulelio ; translated by Mary Kawena Pukui ; edited by M. Puakea Nogelmeier. Bishop Museum Press.

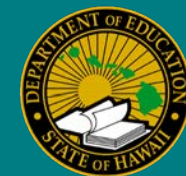
For an electronic version of this calendar, go to wpcouncil.org/educational-resources/lunar-calendars.

About the Council

The **Western Pacific Regional Fishery Management 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. In Hawai'i, the Council strongly supports the traditional *'aha moku* system of natural resource management, which recognizes the traditional *moku* as a basis for cultural and community consultation, adaptive management, education, general knowledge and a code of conduct. More information and the *'aha moku* system can be found at wpcouncil.org and ahamoku.org.

Western Pacific Regional Fishery Management Council
1164 Bishop Street, Suite 1400
Honolulu, Hawai'i 96813
PHONE: (808) 522-8220
EMAIL: info@wpcouncil.org
WEB: www.wpcouncil.org

Hawai'i State Department of Education
Jennifer Ryan
School Garden Program
475 22nd Avenue
Honolulu, HI 96816
PHONE: (808) 784-6426
EMAIL: jennifer.ryan@k12.hi.us
WEB: hawaiipublicschools.org



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Front cover: *Hinālea* (saddle wrasse) can be caught in traps made from *'inalua* (Queen coralbead) when set in tide pools or coral reefs.

Photos: Forest & Kim Starr, Klaus Stiefel/Flickr (CC BY-NC), and WPRFMC

