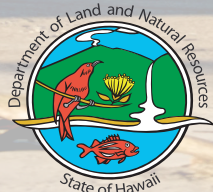
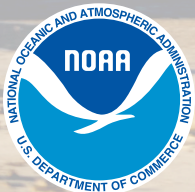
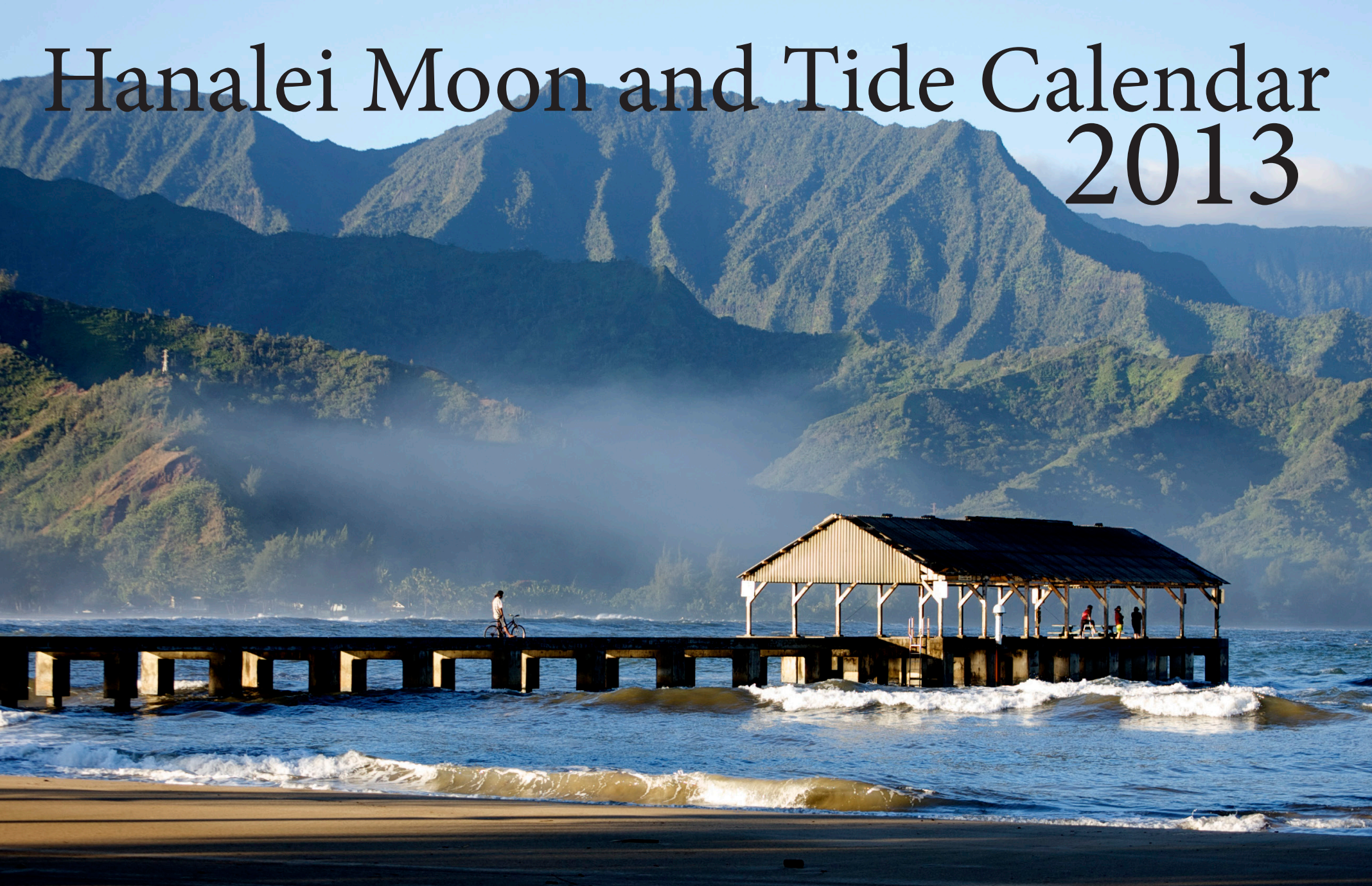


Hanalei Moon and Tide Calendar 2013



Hanalei Watershed Hui



This calendar was developed through a partnership between the Hanalei Watershed Hui, Papahānaumokuākea Marine National Monument, the Hawaiian Islands Humpback Whale National Marine Sanctuary, and the Hanalei community, to raise awareness about the connections between different environmental processes in Hanalei. The calendar demonstrates the lunar cycle and the tides which follow the moon. Traditional Hawaiian knowledge about fish spawning was often based on lunar cycles and seasonal changes, so a portion of the calendar also explains how to observe and determine the spawning season for fish.



This box will appear for every month, and it displays both the Hawaiian months and Gregorian months. The Hawaiian months coincide with the 30 phases of the moon. Each month begins with the moon phase named Hilo (new moon) and finishes with Maui or Muku. The Gregorian months are the standard months that are most widely accepted and used internationally.

Terms Used In the Calendar

In each month, there is a summary of seasonal fishing regulations administered by the State of Hawai'i through the Department of Land and Natural Resources, Division of Aquatic Resources (DAR). There are additional regulations which apply year-round, such as size or gear restrictions. These year-round regulations are not displayed in the calendar, so for more information, see the DAR website at <http://hawaii.gov/dlnr/dar/index.html>

Closed Season

These periods are based on current seasonal regulations administered by the State of Hawai'i through the Department of Land and Natural Resources, Division of Aquatic Resources (rules can be found at <http://hawaii.gov/dlnr/dar/rules/ch95.pdf>). During a closed season for a given species, there is a ban on taking, possessing, or selling that species. For example, there is a closed season for mullet (*Mugil cephalus*) from December through March.

Limited Harvest

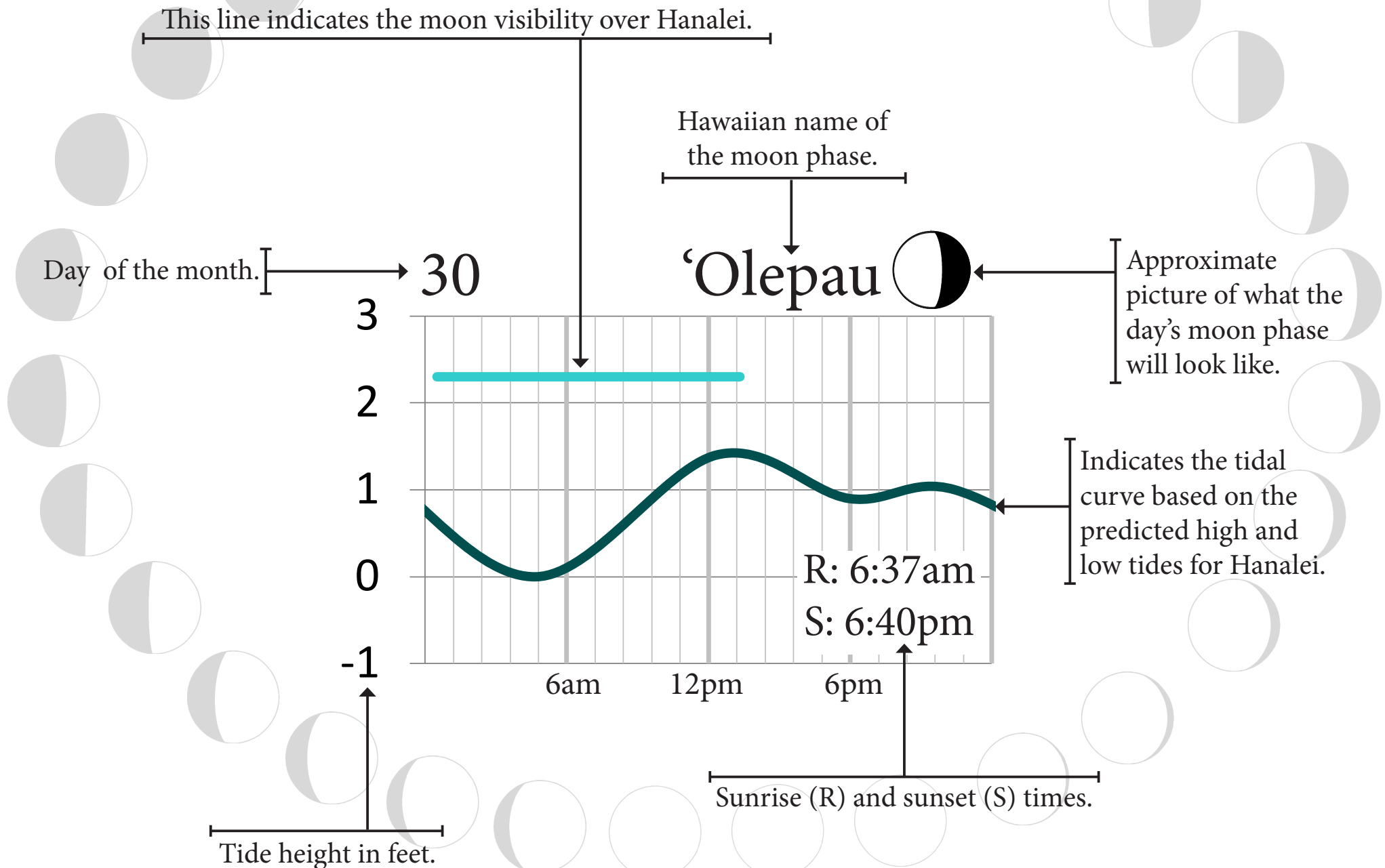
While a closed season is a complete harvest restriction during certain months, some species have limited harvest periods alone, or in addition to, closed season periods. Limited harvest can regulate fishing technique (e.g., use of net), number of fish harvested, size of fish harvested, or total weight of harvest. For example, there is a closed season for moi (*Polydactylus sexfilis*) from June through August, but from September through May there is a limited harvest of fifteen moi per day.

Suggested Limited Harvest

These periods are based upon observations and gonad data of fish that were caught in the Hanalei area. Limited harvest is suggested during the peak spawning months so fish may reproduce undisturbed. Suggested Limited Harvest is not a part of any State of Hawai'i or Federal regulations, see January page for more information.

January	February	March	April	May	June	July	August	September	October	November	December
Jan. 11 - Feb. 9	Feb. 10 - Mar. 10	Mar. 11 - Apr. 9	Apr. 10 - May 9	May 10 - Jun. 7	Jun. 8 - Jul. 7	Jul. 8 - Aug. 5	Aug. 6 - Sept. 4	Sept. 5 - Oct. 4	Oct. 4 - Nov. 2	Nov. 3 - Dec. 2	Dec. 3 - Dec. 31
Hilioholo	Hilionalu	Hukipau	ʻIkuwā	Welehu	Kāelo	Ikiiki	Hinaiaʻeleʻele	Māhoe Mua	Māhoe Hope	Hilinamā	Hilinehu

Many calendars today are based upon the synodic month, which is the average orbital period of the moon. A synodic month is 29.53 days. However, there are 30 moon phases. In this calendar, the moon phase Hilo was aligned with the astronomical new moon according to the US Naval Observatory (http://aa.usno.navy.mil/cgi-bin/aa_moonphases.pl?year=2013&ZZZ=END). The days and times are based on Universal Time which was converted to Hawai'i Standard Time for this calendar. The rest of the moon phases are laid out accordingly. The moon phase Muku is omitted for months where the next new moon occurs 29 days after the current months' new moon.



What does

Suggested Limited Harvest is not a part of any Hawai'i State fishing regulations. The species listed under SLH in this calendar are based on spawning data collected in the Hanalei area.

An important part to harvesting fish sustainably is leaving them undisturbed during peak spawning periods. This is often over several months and was traditionally regulated by a kapu on that species.

Information on the peak spawning periods for several fish are provided in this calendar. These periods were determined by gonad research on fish harvested in Hanalei Bay, as well as other research projects that documented the lifecycle and spawning periods of these fish in Hawai'i.



Manini: March - June



Āholehole: January - April



'Ōpelu: April - August



Akule: April - October



'Ōmilu: April - July

Want to help restore your “backyard” reefs to the days of plenty, the days of ‘āina momona? Do your part by harvesting only the fish you need for immediate use, follow size and bag limits, and only harvest fish while they are not spawning.

Closed Season



'Ama'ama (Mullet)

Limited Harvest



Moi (15 per day)

Suggested Limited Harvest



Āholehole

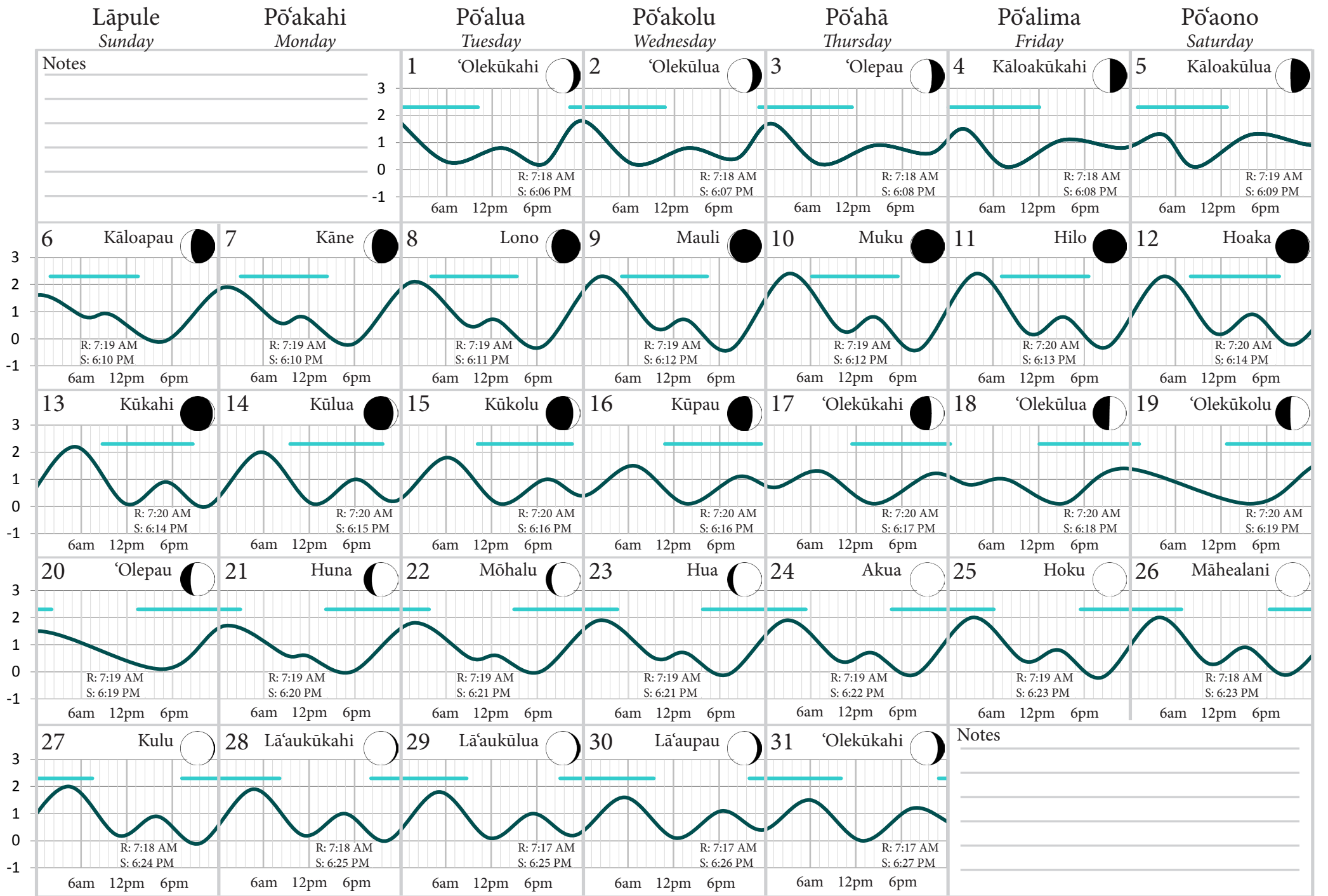
Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins or other markings on the paper.

December	January	February	March	April	May	June	July	August	September	October	November
<i>Dec. 13 - Jan. 10</i>	<i>Jan. 11 - Feb. 9</i>										
Hilinehu	Hilioholo	Hilionalu	Hukipau	ʻIkuwā	Welehu	Kāʻelo	Ikiiki	Hinaiāʻeleʻele	Māhoe Mua	Māhoe Hope	Hilinamā

Ianuali

January



Harvest wisely to ensure future catches!

Slot limit catches: recognizing the importance of leaving very large individuals

Small fish = no take.

Allow them to reach reproductive size!

Medium fish = go for it.
Good choice to fish sustainably!

Large fish = no take.

Larger fish in every species produce MANY more eggs than fish that have just reached their reproductive size. The yolk reserves in eggs from large fish are also larger, offering a better chance of survival for the hatchlings.

Closed Season



‘Ama‘ama (Mullet)

Limited Harvest



Moi (15 per day)

Suggested Limited Harvest



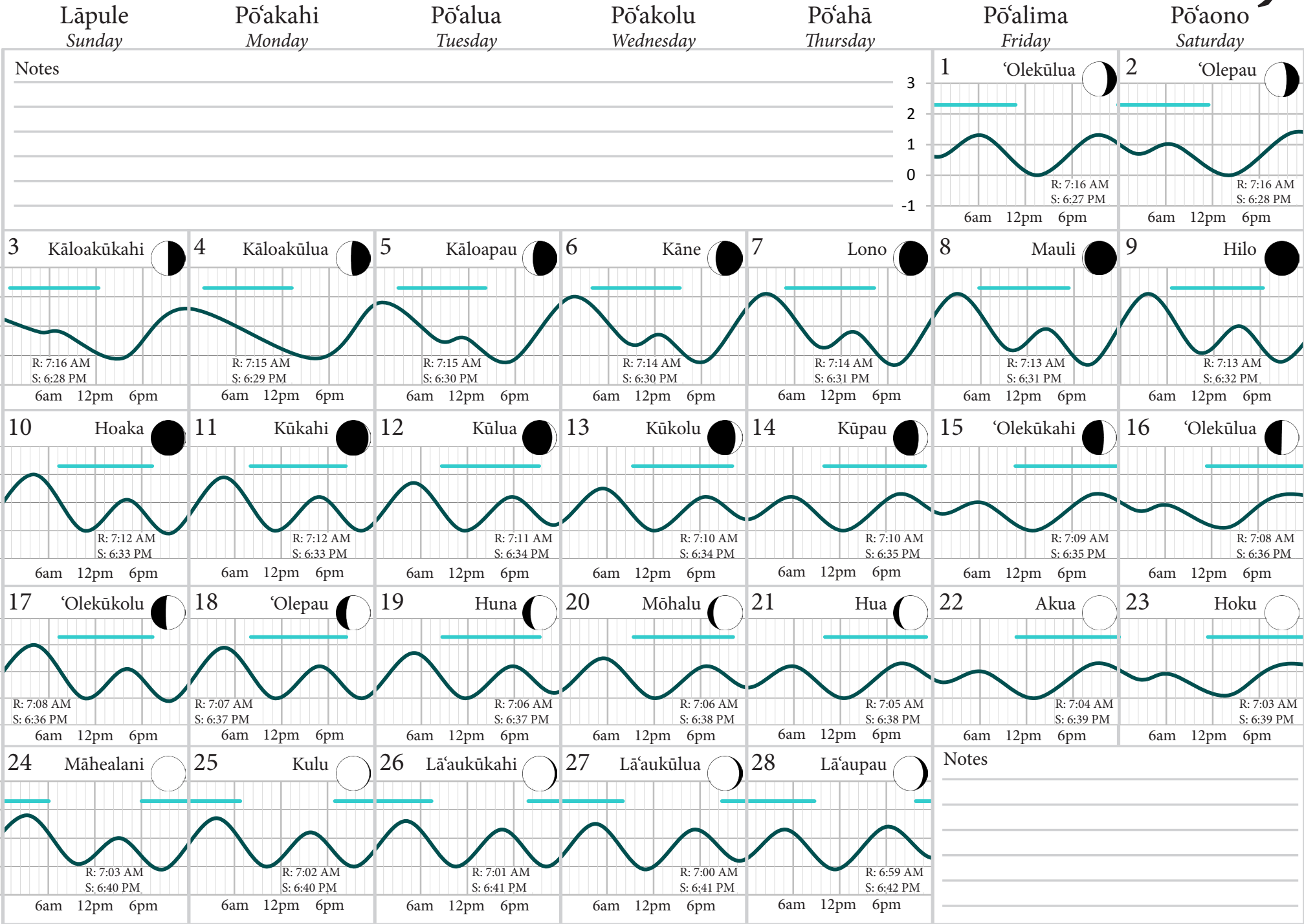
Āholehole

Notes

January	February	March	April	May	June	July	August	September	October	November	December
Hilioholo	Feb. 10 - Mar. 10 Hilionalu	Hukipau	‘Ikuwā	Welehu	Kā‘elo	Ikiiki	Hinaia‘ele‘ele	Māhoe Mua	Māhoe Hope	Hilina mā	Hilinehu

Pepeluali

February



Determining Spawning Cycles

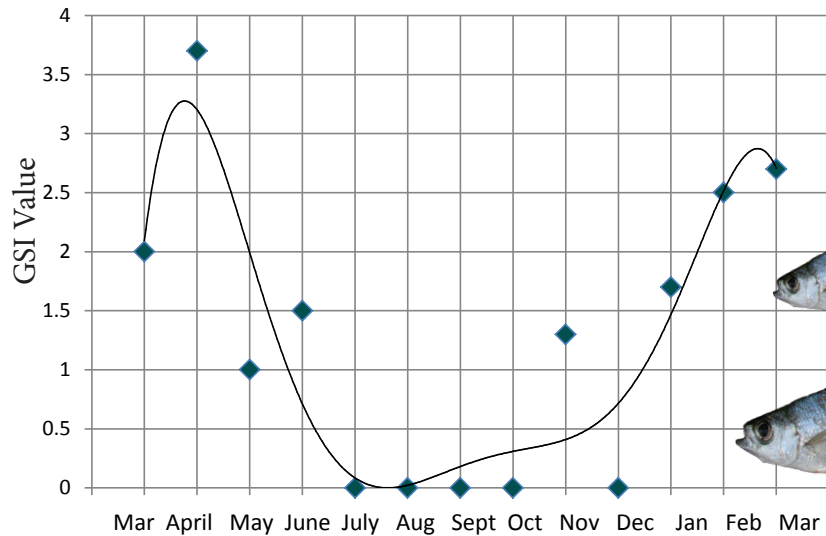
Each month, data on fork length, weight, and gonad weight was recorded from several adult fish in Hanalei. The gonadosomatic index (GSI) is a ratio of the gonad weight to the weight of the fish. This value provides a way to compare the amount of sperm or eggs in fishes during different months.

$$\text{GSI} = \frac{\text{Gonad Weight}}{\text{Somatic Weight}} \times 100$$

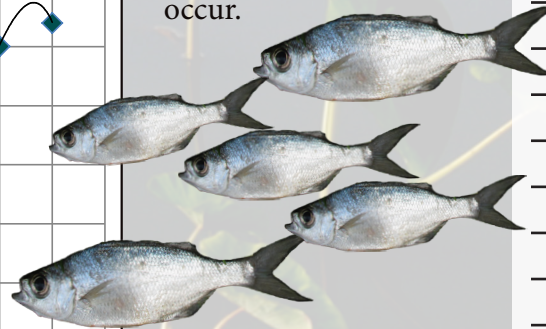
Somatic Weight = Total Weight - Gonad Weight

The resulting GSI data is then plotted on a graph to show when gonad weight, and therefore spawning, has reached its peak for each species. The following is the GSI graph produced for āholehole (*Kuhlia xenura*).

Mean GSI Values for Aholehole in Hanalei Bay From March 2011 - March 2012



Based on GSI data, predictions can be made for 2013, although variations in the peak spawning months are likely to occur.



Closed Season



'Ama'ama (Mullet)

Limited Harvest



Moi (15 per day)

Suggested Limited Harvest

Āholehole



Manini



Notes

January	February	March	April	May	June	July	August	September	October	November	December
Hilioholo	Feb. 10 - Mar. 10 Hilionalu	Mar. 11 - Apr. 9 Hukipau	'Ikuwā	Welehu	Kā'elo	Ikiiki	Hinaiā'ele'ele	Māhoe Mua	Māhoe Hope	Hilinamā	Hilinehu

Malaki

March

Lāpule
Sunday

Pō'akahi
Monday

Pō‘alua
Tuesday

Pō'akolu
Wednesday

Pō'ahā
Thursday

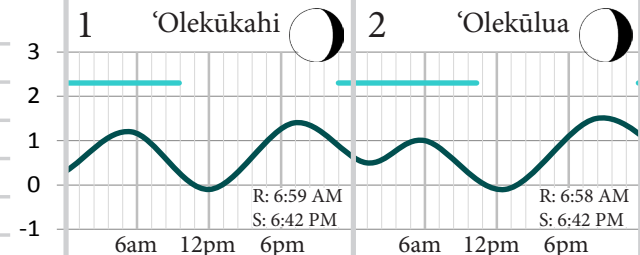
Pō‘alima
Friday

Pō'aono
Saturday

Notes

1 'Olekūkahi

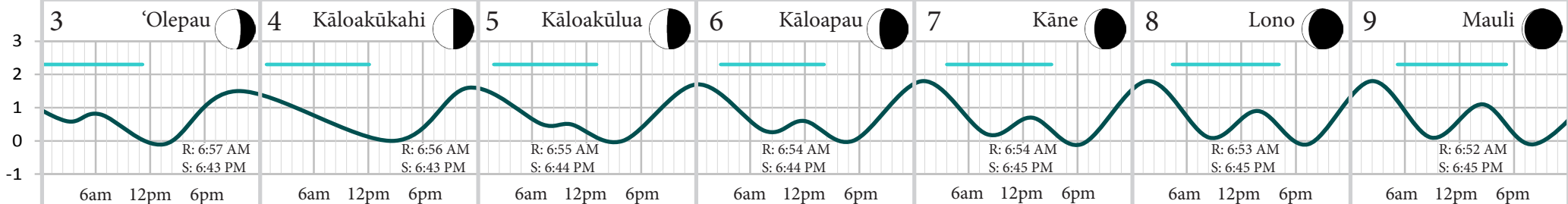
2 'Olekūlua

3 'Olepau 4 Kāloakūkahi 

5 Kāloakūlua 

6 Kāloapau 7 Kāne 8 Lono

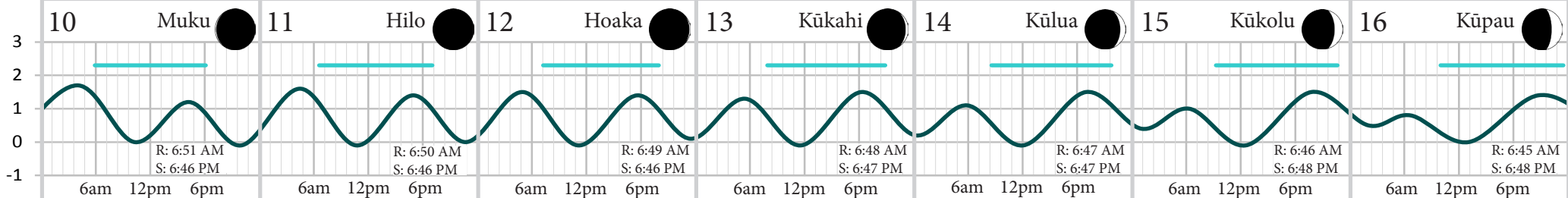

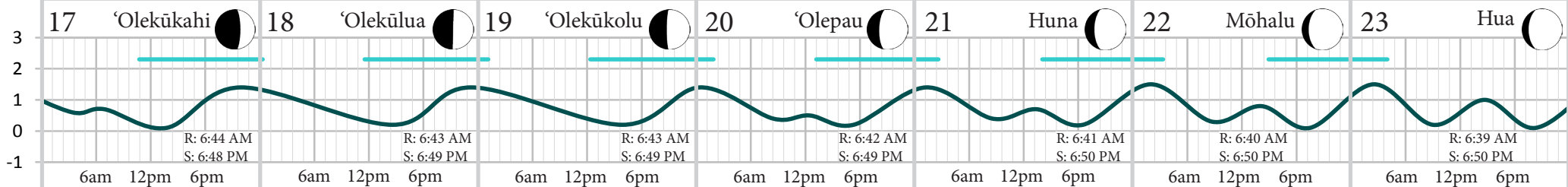
9 Mauli 

10 Muku 

11 Hilo ●

12 Hoaka ●

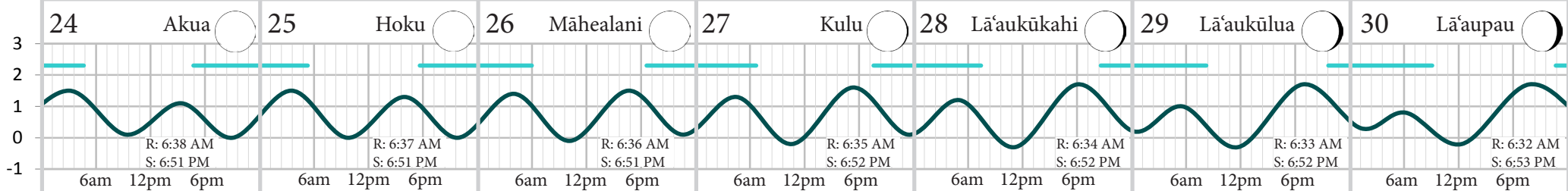
13 Kūkahi ●

14 Kūlua 15 Kūkolū 16 Kūpau 17 'Olekūkahi 18 'Olekūlua 19 'Olekūkolu 20 'Olepau 21 Huna 22 Mōhalu 23 Hua 24 Akua 25 Hoku 26 Māhealani 27 Kulu 

28 Lā'aukūkahi ○

29 Lā'aukūlua ○

30 Lā'aupau ○



Names of Hanalei

Kaualoku o Hanalei is the soaking rain of Hanalei.

Kauahā'ao is a gentle rain that falls over **Hihīmanu**, and its showers follow one another in a way that is similar to the divisions in a chief's procession.

The **Hehipuahala** (stepping upon hala) rain is associated with Po'okū because the plains were once covered with hala.

Lena is a yellow-tinted rain, describing its occurrence in sunshine.

Kū'ula o 'Anini (red Kū of 'Anini) is a rain favored by fishermen.

Waikoko, Waipā, Wai'oli, and Hanalei are the four ahupua'a in the Hanalei Bay area.

The dominant peak in Hanalei is named **Māmalahoa**, named after the wife of Kāne.

Hihīmanu is the double-peaked mountain, named for the abundant rays along the Nāpali Coast.

The massif between Māmalahoa and Hihīmanu is named **Nāmolokama** (interweaving bound fast), where over twenty waterfalls cascade down its face after heavy rains.

Hauka'e'e o Hanaleiiki (dried up dews of Hanaleiiki) is the name of the wind that blows just above the river mouth.

Haumu (silent dew), **Hau'ōma'ō** (green dew), and **Lūhau o Hanaleiuka** (scattered dews of upland Hanalei) are also winds in Hanalei.

There are also rougher winds of Hanalei; **'Ōauniu o Pu'upoa** (coconut leaf piercing wind of Pu'upoa) and **Paehahiokaiholena** (row of trampled iholena banana trees).

Wichman, Frederick B. 1998. Kauai: Ancient place-names and their stories. University of Hawaii Press, Honolulu.
Wichman, Frederick B. 2006. Touring the legends of the North Shore. Kauai Historical Society, Lihue.

Limited Harvest



Moi (15 per day)

Suggested Limited Harvest



Manini

Āholehole



Akule

'Ōmilu



'Ōpelu

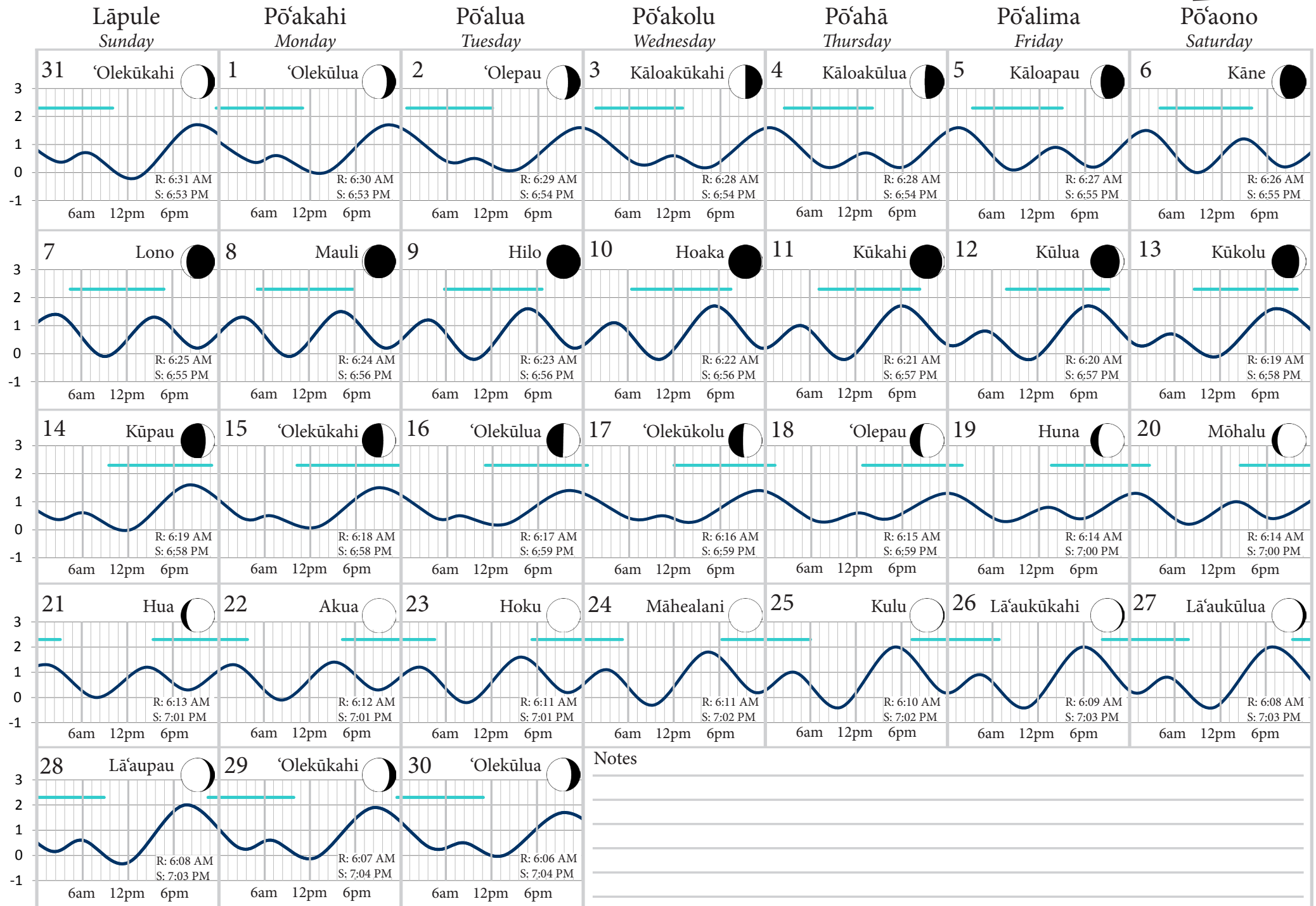


Notes

January	February	March	April	May	June	July	August	September	October	November	December
Hilioholo	Hilionalu	Mar. 11 - Apr. 9 Hukipau	Apr. 10 - May 9 'Ikuwā	Welehu	Kā'elo	Ikiiki	Hinaiā'ele'ele	Māhoe Mua	Māhoe Hope	Hilinamā	Hilinehu

‘Apelila

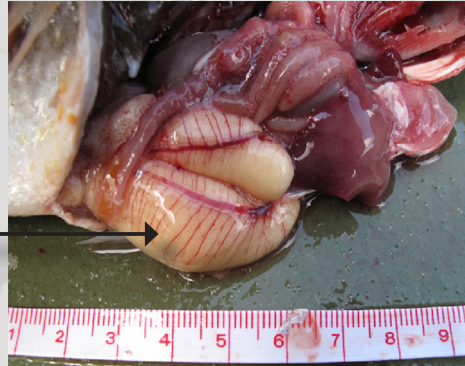
April



3 Steps to Track Fish Gonad Development

Observe: When cleaning your fish, pay attention to the presence and size of gonads (eggs or sperm).

Developed eggs are usually yellowish in color with bright red blood vessels very apparent.



Measure: Weighing gonads on a digital scale is the best way to track their development, however, if you don't have access to a good scale, you can measure the length of the gonads.

Remove gonads and weigh in appropriate units.



Record: Keep track of gonad development over the months to find the peak spawning period of the fish you routinely harvest. Avoid catching them when gonads are developed.

Fish	Date of Catch (M/DD/YY)	Weight (Ounces)	Fork Length (Inches)	Sex (M/F)	State of Gonads (Ripe, Developed, Under Developed, Not Present)	Weight of Gonads (Grams)	Picture (file name)
Aholehole	3/22/12	6.2	8.75	F	Developed	5	
		6.2	8.75	M	Developed	6	
		6.5	9.0	F	Developed	3	
		5.2	8.25	M	Developed	5	
		6.0	8.5	F	Ripe	7	IM6_1029
		5.6	8.25	F	Developed	3	

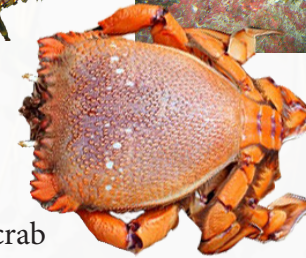
Closed Season



Ula Papapa (slipper lobster)



Ula (spiny lobster)



Kona crab

Limited Harvest



Moi (15 per day)

Suggested Limited Harvest



Manini



'Ōmilu



Akule



'Ōpelu

January	February	March	April	May	June	July	August	September	October	November	December
Hiliohola	Hilionalu	Hukipau	Apr. 10 - May 9 'Ikuwā	May 10 - Jun. 7 Welehu	Kāelo	Ikiiki	Hinaia'ele'ele	Māhoe Mua	Māhoe Hope	Hilinamā	Hilinehu

Mei

May

Lāpule
Sunday

Pō'akahi
Monday

Pō'alua
Tuesday

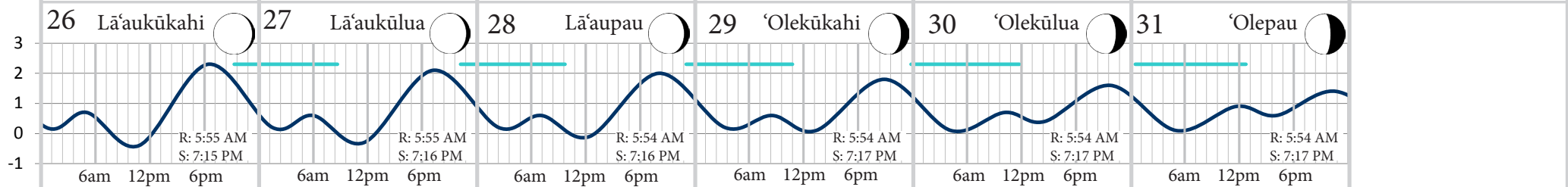
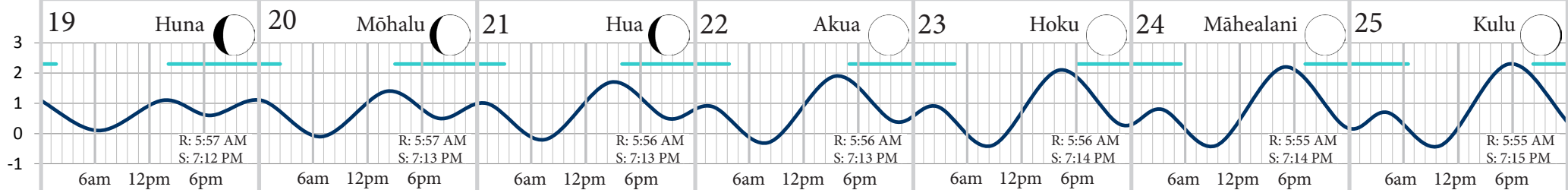
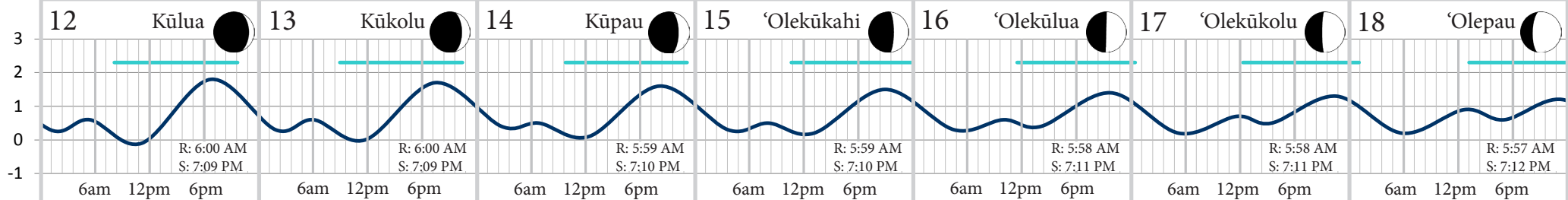
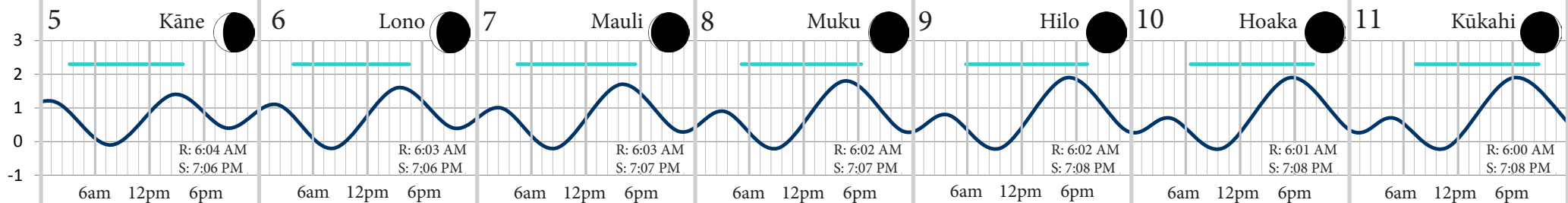
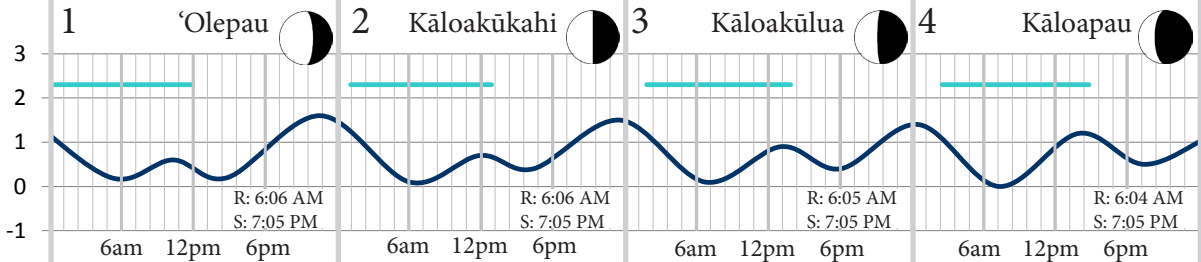
Pō'akolu
Wednesday

Pō'ahā
Thursday

Pō'alima
Friday

Pō'aono
Saturday

Notes



Divisions of the Year

The Hawaiian names and seasons of the year can differ from island to island and also within one island. The year was divided into either two or three seasons (Kau, **Hō'ailo**, **Makali'i**), and twelve months. Below are some of the recorded names and seasons. The months are numbered from 1 through 12; these numbers also represent the approximate Gregorian calendar months (Jan. Feb. Mar., etc) when the Hawaiian month occurs.

Hawai'i

1. Kā'elo
2. Kaulua
3. Nana
4. Welo
5. Ikiiki
6. Ka'aona
7. Hinaiāleele
8. Māhoe Mua
9. Māhoe Hope
10. 'Ikuwā
11. Welehu
12. Makali'i

Moloka'i

1. 'Ikuwā
2. Hinaiā eleele
3. Welo
4. Makali'i

5. Kā'elo
6. Kaulua
7. Nana
8. Ikiiki

Maui

1. 'Ikuwā
2. Welehu
3. Makali'i
4. Kā'elo
5. Kaulua
6. Nana
7. Welo
8. Ikiiki
9. Ka'aona
10. Hinaiāleele
11. Hilinehu
12. Hilinamā

O'ahu

1. Nana
2. Welo
3. Ikiiki
4. Ka'aona
5. Hinaiāleele
6. Māhoe Mua
7. Māhoe Hope
8. 'Ikuwā
9. Welehu
10. Makali'i
11. Kā'elo
12. Kaulua

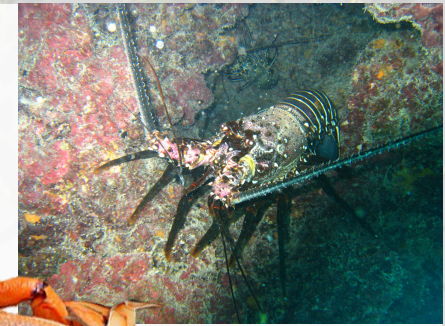
Kaua'i

1. Hilioholo
2. Hilionalu
3. Hukipau
4. 'Ikuwā
5. Welehu
6. Kā'elo
7. Ikiiki
8. Hinaiāleele
9. Māhoe Mua
10. Māhoe Hope
11. Hilinamā
12. Hilinaehu

Closed Season



Ula Papapa
(slipper lobster)



Ula (spiny lobster)



Kona crab



Moi

Suggested Limited Harvest



Manini



'Ōmilu



Akule



'Ōpelu

Malo, D., and N. B. Emerson. Hawaiian Antiquities. Honolulu: Bishop Museum, 1951. Print.

January	February	March	April	May	June	July	August	September	October	November	December
Hilioholo	Hilionalu	Hukipau	'Ikuwā	May 10 - Jun. 7 Welehu	Jun. 8 - Jul. 7 Kā'elo	Ikiiki	Hinaiā'ele'ele	Māhoe Mua	Māhoe Hope	Hilinamā	Hilinehu

June

June

Lāpule
Sunday

Pō'akahi
Monday

Pō'aluā
Tuesday

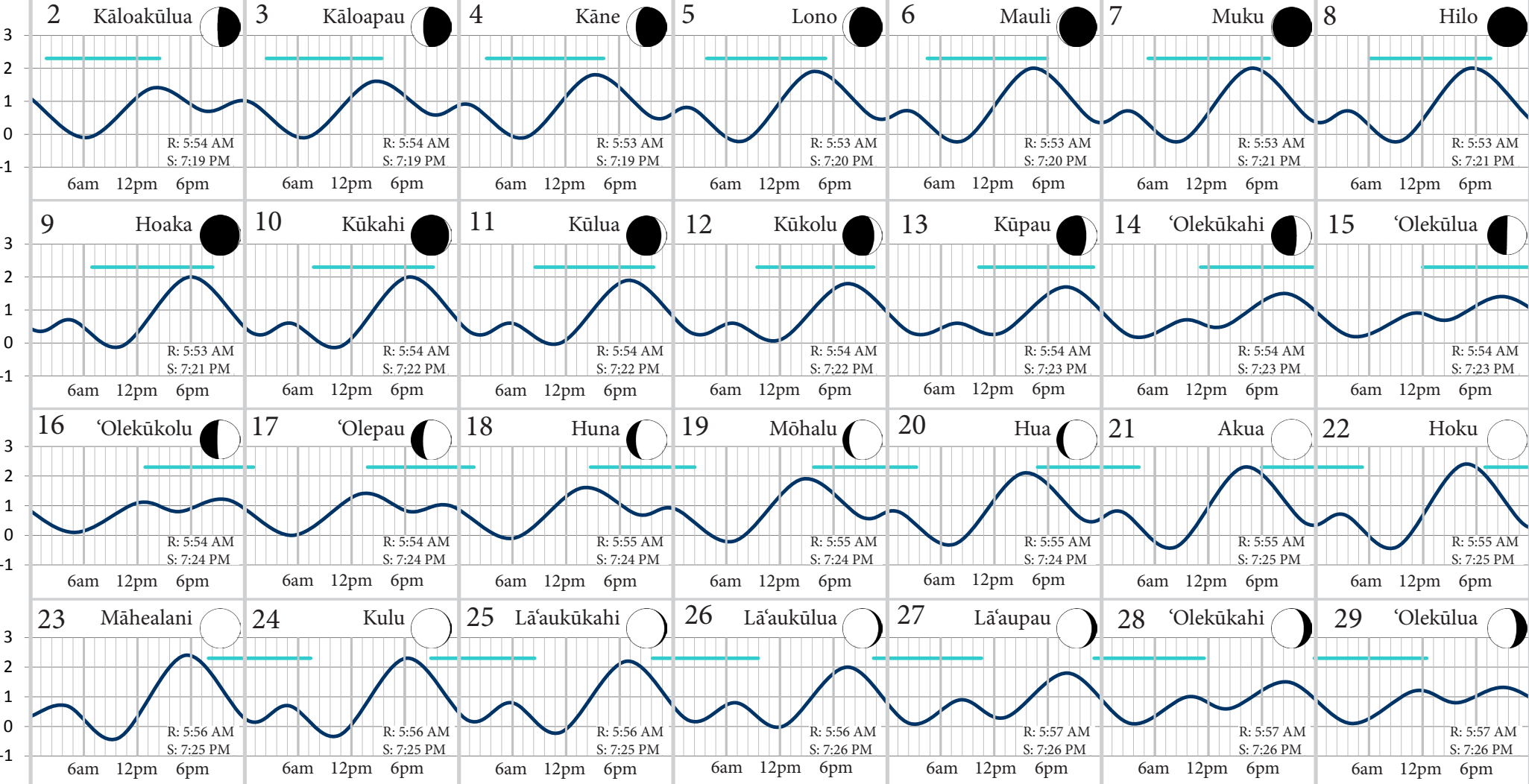
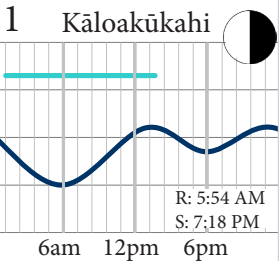
Pō'akolu
Wednesday

Pō'ahā
Thursday

Pō'alima
Friday

Pō'aono
Saturday

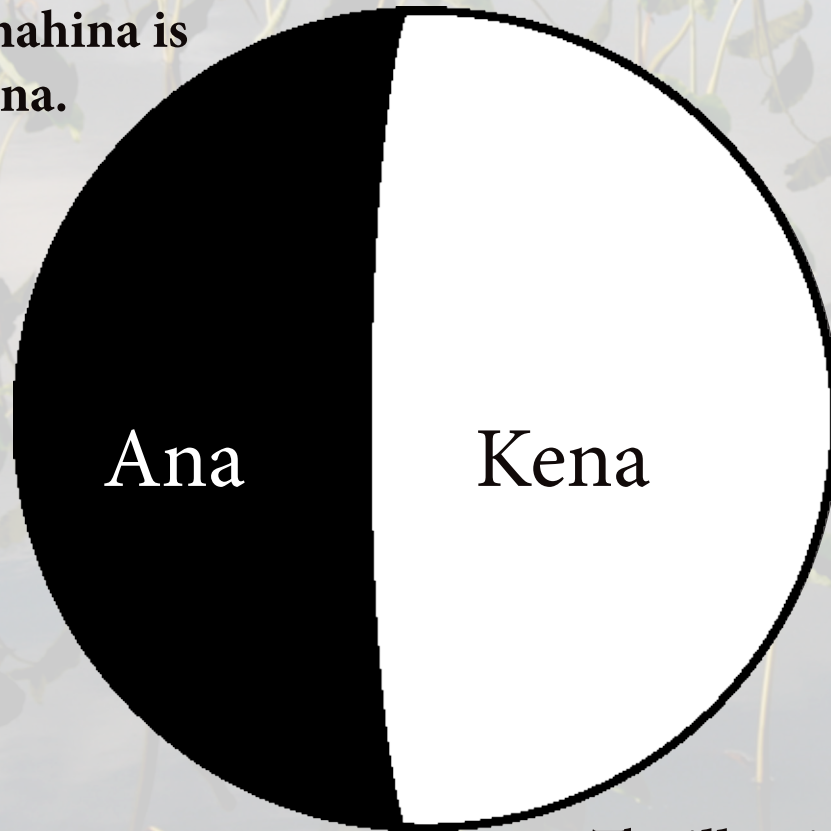
Notes



He Ana a he Kena

Dark and Light

The dark part
of the mahina is
called ana.

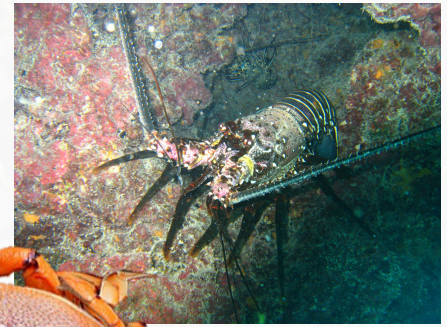


The illuminated side
of the mahina is
called kena.

Closed Season



Ula Papapa
(slipper lobster)



Ula (spiny lobster)

Kona crab



Moi



Limited Harvest

Halalū



Suggested Limited Harvest

‘Ōmilu



‘Ōpelu

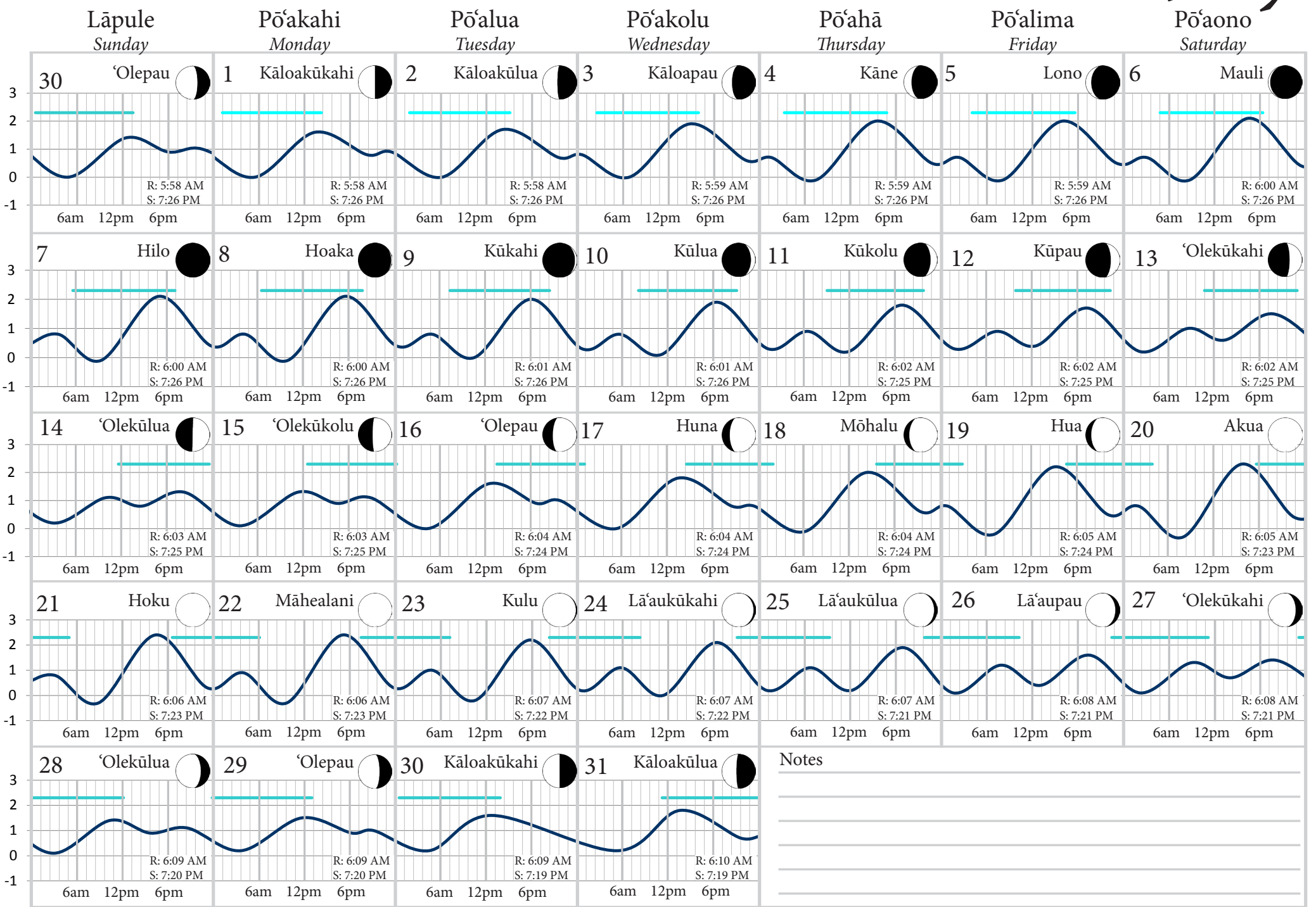


Akule



Kanaka’ole Kanahale, Pualani, Huihui Kanahale-Mossman, Kalei Nu’uhiwa, and Ku’ulei Higashi Kanahale. Mahina. Hawai’i: Edith K. Kanaka’ole Foundation, 2011. Print

January	February	March	April	May	June	July	August	September	October	November	December
Hilioholo	Hilionalu	Hukipau	‘Ikuwā	Welehu	Jun. 8 - Jul. 7 Kā’elo	Jul. 8 - Aug. 5 Ikiiki	Hinaiā’ele’ele	Māhoe Mua	Māhoe Hope	Hilinalamā	Hilinehu



Hanalei Bay Ocean Rules

There are some boating and recreation rules that are specific to Hanalei Bay. There are some state boating and recreation rules that are specific to Hanalei Bay ocean waters (confined by the straight line between the northernmost tip of Makahoa Point and Pu'u Poa Point).

THIS LIST IS A SIMPLE SUMMARY AND NOT A LEGAL DOCUMENT. The complete version of these rules can be found at <http://hawaii.gov/dlnr/dbor/rules/Amendment%2013-256.pdf>

- Operate at “slow-no-wake” within 500 feet of the shoreline, Ingress/Egress zones (described below), designated mooring areas (described below), or on the Hanalei River.
- No motorboat operation within 300 feet of a diver's flag or designated swimming area.
- No anchoring or mooring except within the designated mooring area.
- On vessels 30 feet or longer, no fishing except by pole and line.
- Commercial vessels cannot load or unload passengers without a permit.
- Guided kayak tours, launching from Hanalei ramp, require a permit.
- Commercial uses in Hanalei Bay generally require permits from DLNR.
- Swimming zones include the water 300 feet seaward of the low water mark and 300 feet on each side of Hanalei Pier (Zone B-1) and 300 feet seaward of the low water mark and between the county park extended boundary containing the beach pavilion (Zone B-2). These zones are designated for bathing and swimming, but Hawaiian outrigger canoes, small-scale surround net fishing without motors, fishing, or crabbing from shore are allowed.
- The designated mooring area is described in detail and on a map at <http://hawaii.gov/dlnr/dbor/rules/Amendment%2013-256.pdf>. All watercraft should only moor or anchor in the designated area. No permanent mooring should be installed except with a permit.
- Both commercial and recreational vessels should access the beach solely in these two Ingress/Egress zones: (1) southern boundary of County Park pavilion parcel, 300 feet southwest along the shoreline, then seaward to the designated mooring area, (2) north bank of Hanalei River, cross the river mouth to the northern boundary of Black Pot Park, then seaward to the designated mooring area.

Closed Season



Ula Papapa
(slipper lobster)



Ula (spiny lobster)

Kona crab



Moi



Limited Harvest

Halalū



Suggested Limited Harvest

‘Ōpelu



Akule



January	February	March	April	May	June	July	August	September	October	November	December
Hiliohola	Hilionalu	Hukipau	‘Ikuwā	Welehu	Kāelo	Ikiiki	Hinaia‘ele‘ele	Māhoe Mua	Māhoe Hope	Hilina mā	Hilinehu

Jul. 8 - Aug. 5

Aug. 6 - Sept. 4

'Aukake

August

Lāpule
Sunday

Pō'akahi
Monday

Pō'alua
Tuesday

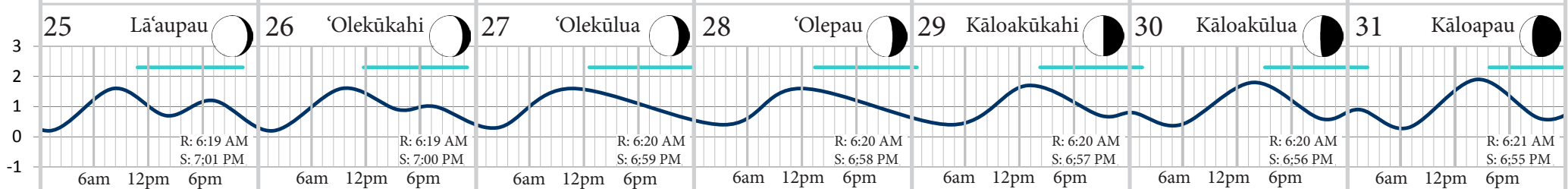
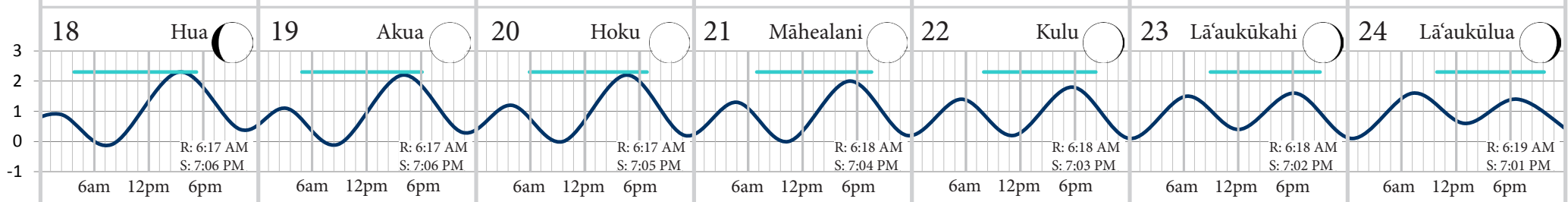
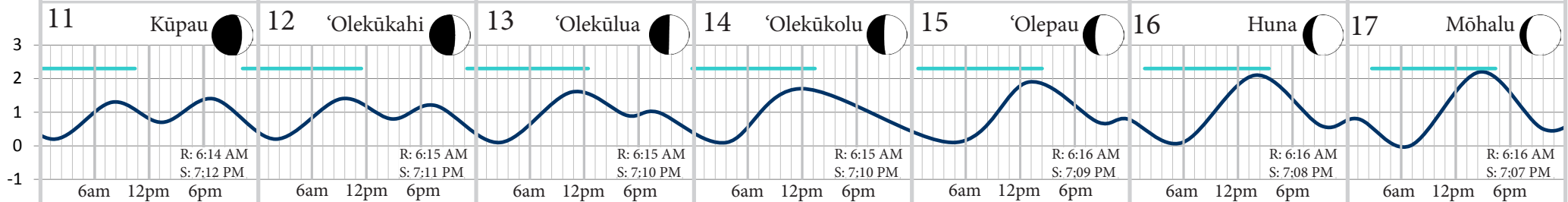
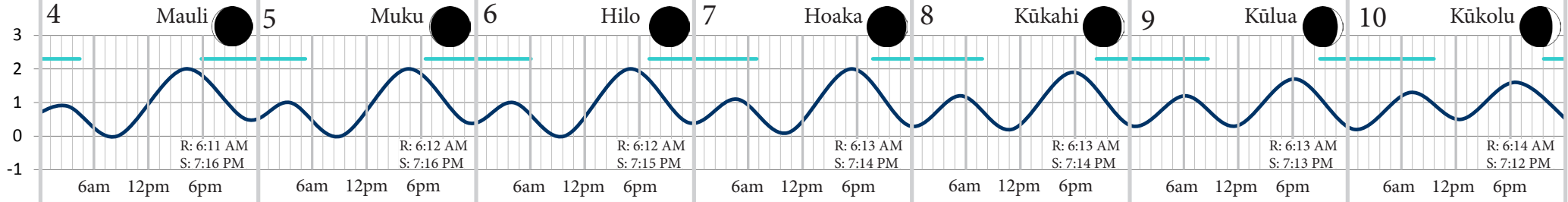
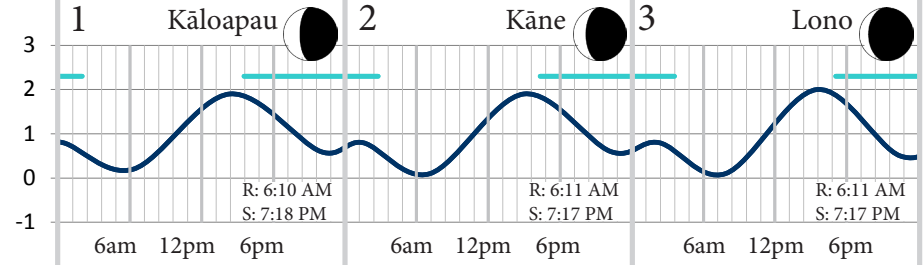
Pō'akolu
Wednesday

Pō'ahā
Thursday

Pō'alima
Friday

Pō'aono
Saturday

Notes



Harvest wisely to ensure future catches!

Know your fish before you harvest.

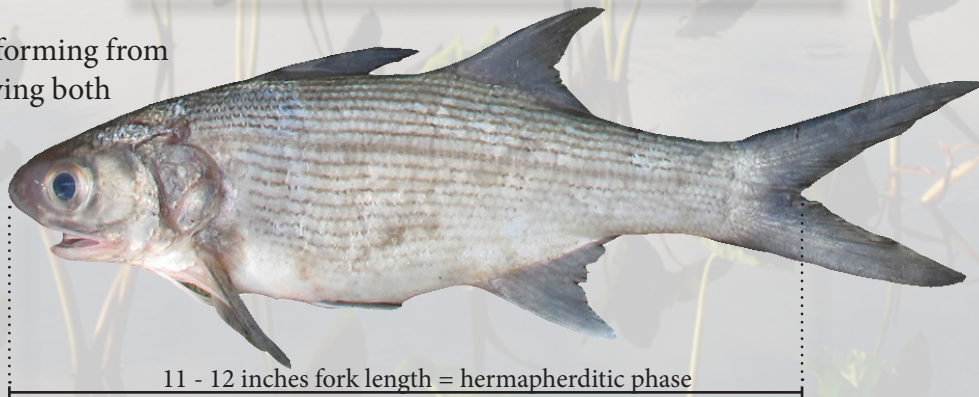
Moi: male or female?

Young moi are all males which eventually turn into females when they reach about 13 inches (fork length).



10 inches fork length and smaller = male

Pālāmoi are transforming from male to female, having both eggs and sperm.



11 - 12 inches fork length = hermaphroditic phase

Releasing very large moi helps to ensure females will survive to spawn successfully.



13 inches fork length and larger = female

Limited Harvest

Halalū



Moi (15 per day)



Suggested Limited Harvest

Akule

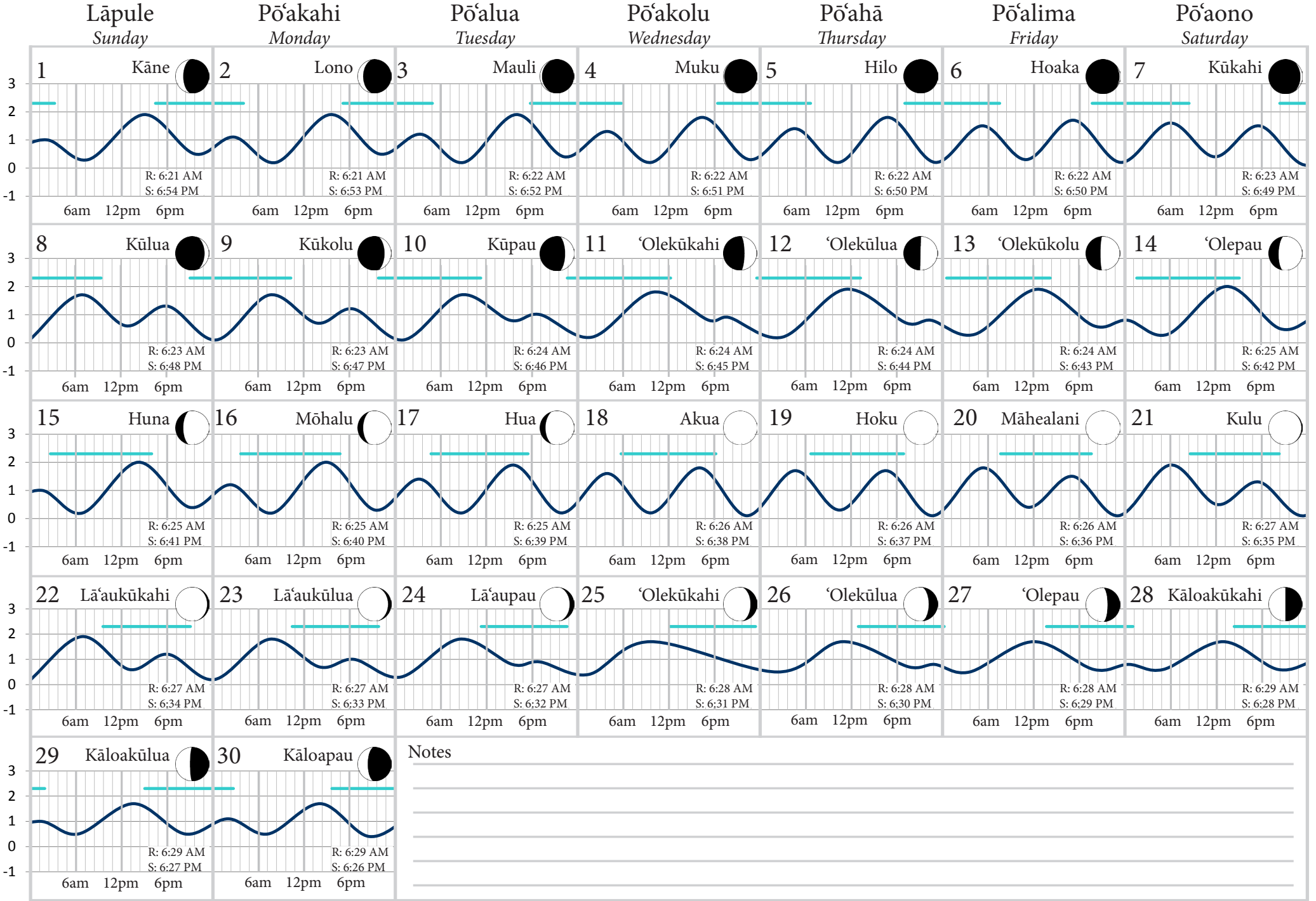


Notes

January	February	March	April	May	June	July	August	September	October	November	December
Hilioholo	Hilionalu	Hukipau	ʻIkuwā	Welehu	Kāʻelo	Ikiiki	Aug. 6 - Sept. 4 Hinaiaʻeleʻele	Sept. 5 - Oct. 4 Māhoe Mua	Māhoe Hope	Hilinamā	Hilinehu

Kepakemapa

September



Seabirds of Kauaʻi

Kauaʻi is home to several native seabirds that demonstrate the connection between all areas mauka to makai.



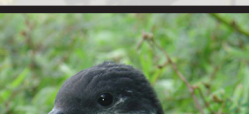
'A'o_____
Newell's shearwater



‘Ua‘u —
Hawaiian petrel



‘A‘o (Newell’s shearwaters) and ‘Ua‘u (Hawaiian petrels) fledge from late September to early December, which means that adults and their young leave their nests in the mountains after the breeding season and head to sea.



These seabirds forage in the ocean and are excellent at finding fish, so they are also important indicators for fishing.

Limited Harvest



Halalū



Moi (15 per day)

Suggested Limited Harvest



Akule

Notes

This image shows a single sheet of white paper with horizontal blue or grey ruling lines, typical of notebook paper. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

January	February	March	April	May	June	July	August	September	October	November	December
								Sept. 5 - Oct. 4	Oct. 4 - Nov. 2		
Hilioholo	Hilionalu	Hukipau	ʻIkuwā	Welehu	Kāʻelo	Ikiiki	Hinaiāʻeleʻele	Māhoe Mua	Māhoe Hope	Hilinamā	Hilinehu

‘Okakopa

October

Lāpule
Sunday

Pō‘akahi
Monday

Pō‘alua
Tuesday

Pō‘akolu
Wednesday

Pō‘ahā
Thursday

Pō‘alima
Friday

Pō‘aono
Saturday

Notes

1

Kāne

2

Lono

3

Mauli

4

Hilo

5

Hoaka

6

Kūkahi

7

Kūlua

8

Kūkolu

9

Kūpau

10

‘Olekūkahi

11

‘Olekūlua

12

‘Olekūkolu

13

‘Olepau

14

Huna

15

Mōhalu

16

Hua

17

Akua

18

Hoku

19

Māhealani

20

Kulu

21

Lā‘aukūkahi

22

Lā‘aukūlua

23

Lā‘aupau

24

‘Olekūkahi

25

‘Olekūlua

26

‘Olepau

27

Kāloakūkahi

28

Kāloakūlua

29

Kāloapau

30

Kāne

31

Lono

Notes

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Nā Ao - Clouds

Local weather conditions can influence fish movement and behavior, and even spawning, so fishermen should always be observant of patterns in their areas. Cloud observation is one way to predict conditions in the weather, which sometimes indicate good or bad times to fish.

**Noho nō ke kanaka a ka lā mālie,
kau ka ipu hōkeo a ka lawai'a, nānā ana i ka 'ōpua**

A person waits for a clear day, sets up the gourd that holds the fisherman's paraphernalia, and observes the clouds (to a fisherman, a clear day, his tools, and the signs and omens seen in the clouds are important).

Kūkulu ka 'ike i ka 'ōpua

Knowledge is set up in the clouds.
Clouds are observed for signs and
omens.

Nā maka o ka makani

Eyes of the wind. Clouds,
which show the direction of
the wind.

Kaka'i ka puapua'a i ka mālīe, he 'ino

When the piglets follow one after the other in the calm, it is a sign of bad weather. When the clouds called ao puapua'a, or pua'a, "pig" clouds, follow one after the other on the mountaintops in calm weather, bad weather is to be expected.

Limited Harvest



Moi (15 per day)

Notes

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January	February	March	April	May	June	July	August	September	October	November	December
									<i>Oct. 4 - Nov. 2</i>	<i>Nov. 3 - Dec. 2</i>	
Hilioholo	Hilionalu	Hukipau	ʻIkuwā	Welehu	Kāʻelo	Ikiiki	Hinaiāʻeleʻele	Māhoe Mui	Māhoe Hope	Hilina mā	Hilinehu

Nowemapa

November

Lāpule
Sunday

Pōākahi
Monday

Pōʻalua
Tuesday

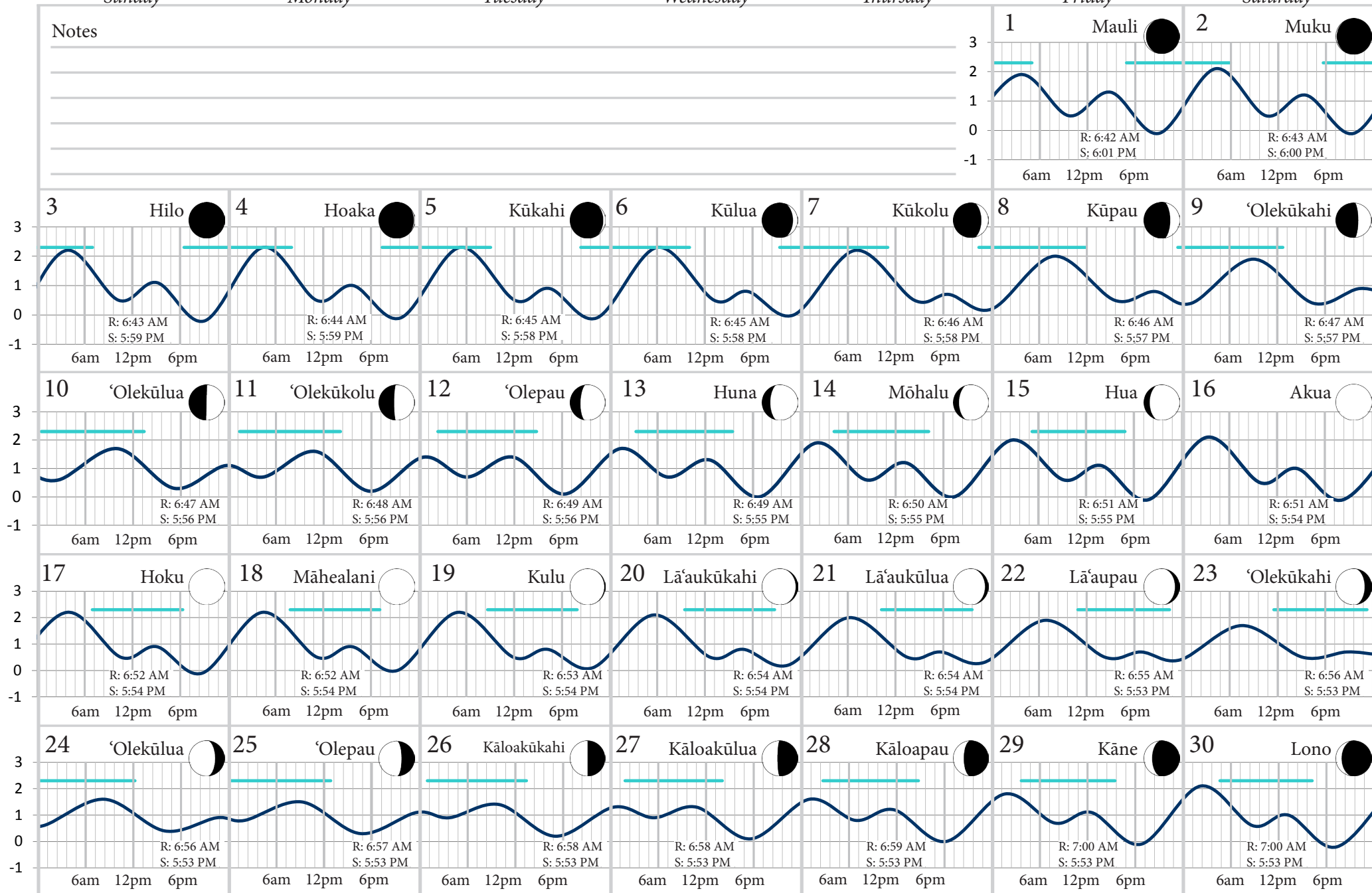
Pōʻakolu
Wednesday

Pōʻahā
Thursday

Pōʻalima
Friday

Pōʻaono
Saturday

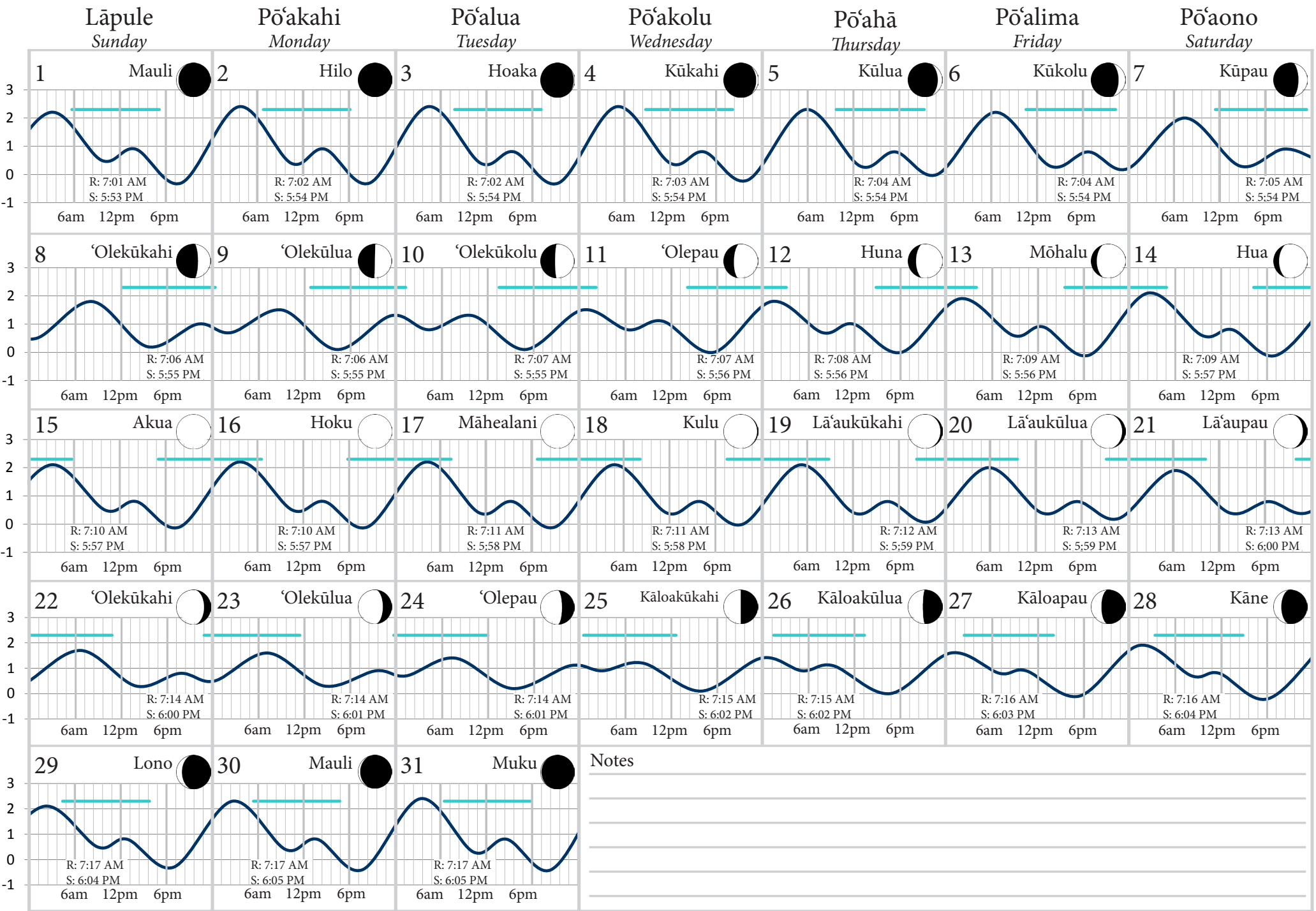
Notes



January	February	March	April	May	June	July	August	September	October	November	December
										<i>Nov. 3 - Dec. 2</i>	<i>Dec. 3 - Dec. 31</i>
Hilioholo	Hilionalu	Hukipau	‘Ikuwā	Welehu	Kā‘elo	Ikiiki	Hinaiā‘ele‘ele	Māhoe Mua	Māhoe Hope	Hilinamā	Hilinehu

Kekemapa

December



The proceeds from this calendar
will directly support activities of the
Hanalei Watershed Hui

www.hanaleiwatershedhui.org

If you are interested in learning how you can help
contribute information to this and other projects,
please contact the Hanalei Watershed Hui.
(808) 826-1985 or hanaleiriver@hawaiian.net

References

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was made possible through the following
partnerships and supporters.
Mahalo!

Dr. Alan Friedlander, University of Hawai'i at Mānoa

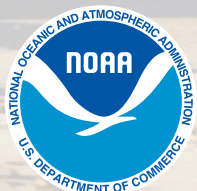
Brenda Zaun, USFWS ('A'o and 'Ua'u photos)

Ben Nyberg (background photo)

Hanalei Watershed Hui

Joel Guy (cover photo)

Hawaiian Islands Humpback Whale National Marine Sanctuary
Papahānaumokuākea Marine National Monument



Hanalei Watershed Hui

