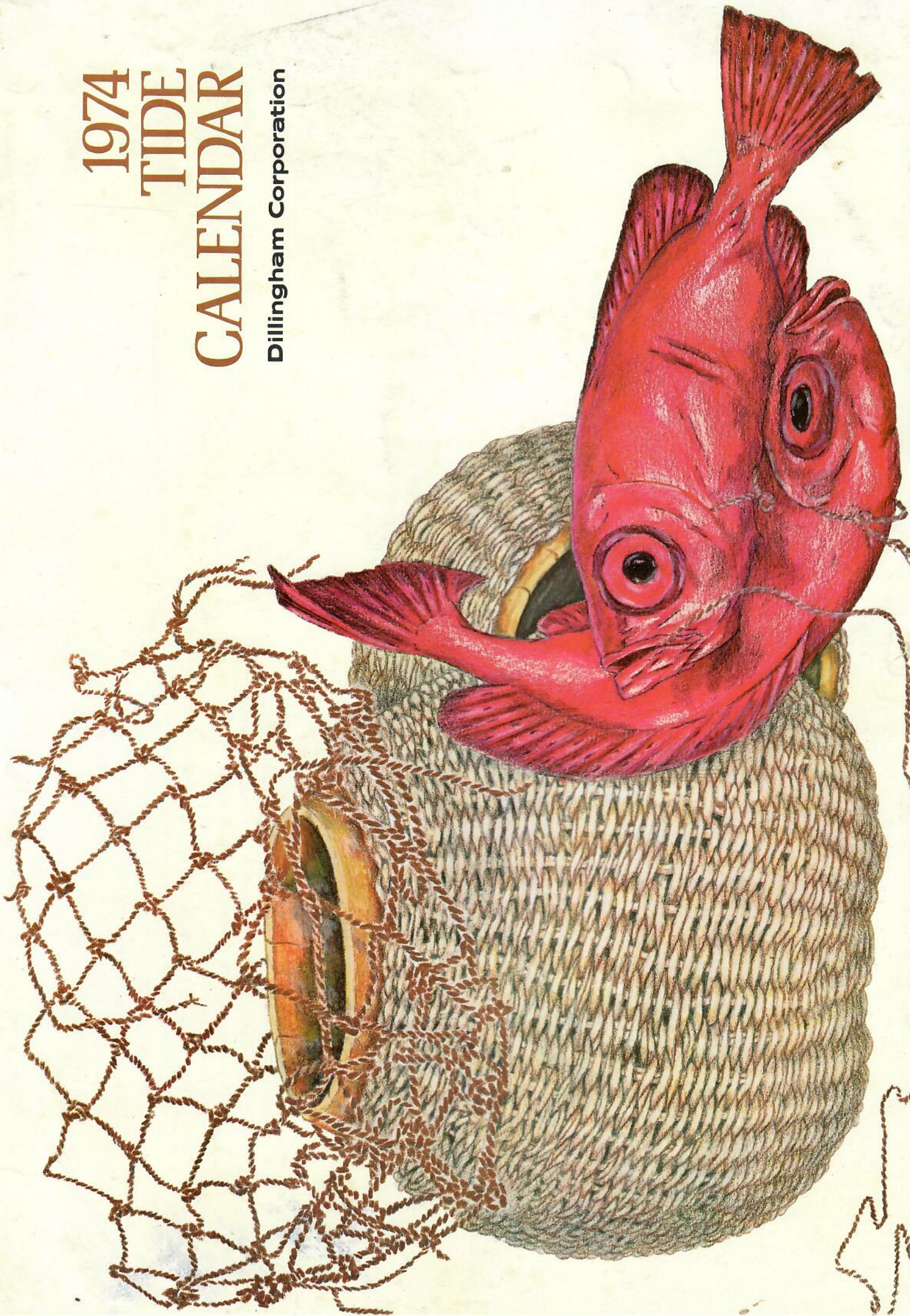


1974
TIDE
CALENDAR

Dillingham Corporation



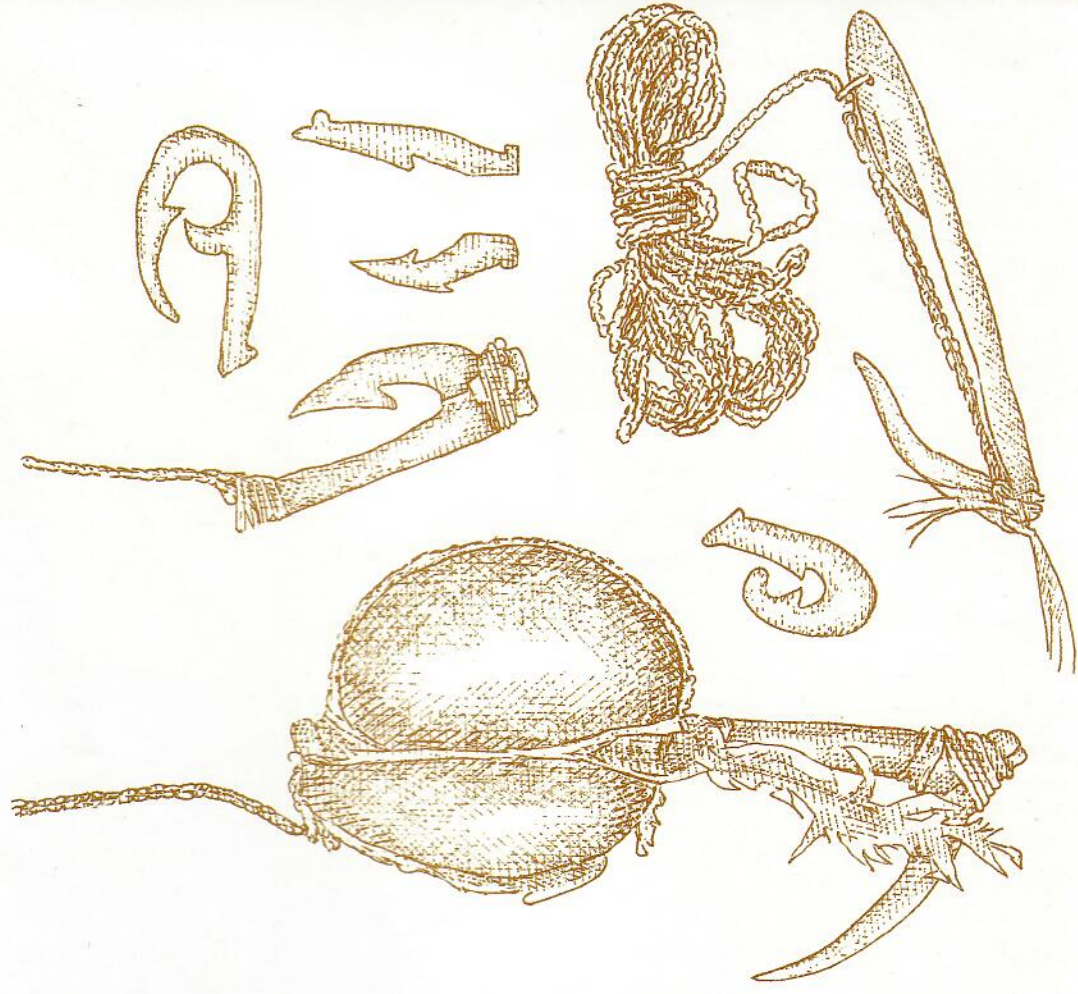
FISHING IN OLD HAWAII

In the old days, fish was a major source of protein for Hawaiians. For everyone but the highest chiefs, pork and dog meat were reserved for festive occasions. The importance of fish and fishing is reflected in the extensive knowledge the people had of the names and feeding habits of fish, as well as the number of fish names given to plants. Everyone fished in Hawaii — men, women, and children of all ranks — but only the men went deep-sea fishing. Women and children could use lines, nets, traps, and spears as far out to sea as they could swim.

Netting was the most efficient of all the fishing methods used by the Hawaiians. The nets ranged in size from small hand nets, which were used primarily by women, to gill nets 250 feet long. When fish were running in particularly large schools, a number of nets were joined. Most of the nets were made of *olona*, a strong vegetable fiber. The making of the nets began with the harvesting of the *olona* and was accompanied by prayers. After the bark was stripped, soaked, and scraped, it was rolled and braided into cordage. If the net was treated periodically with a potion made from *kukui* bark, it could be expected to last the lifetime of its maker, despite the ravages of frequent use in salt water.

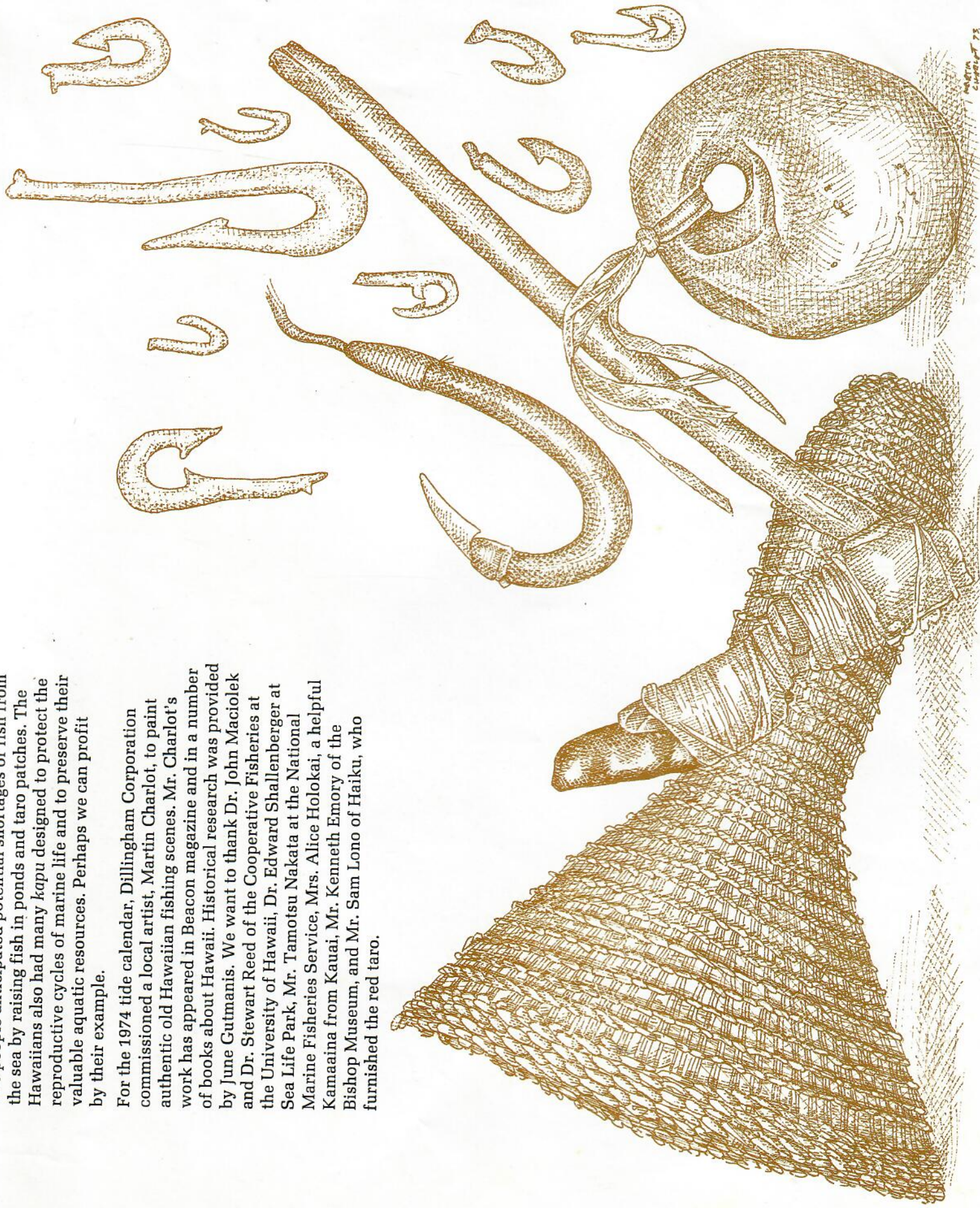
The same *olona* fiber was used for fishing lines. There were no reels, so fishing with hook and line was done by hand to depths of 1200 feet. The hooks were made of wood, shell, and bone, with the bones of great fishermen considered the most desirable of all.

Traps and fish-stupefying plants were common, along with spear-fishing, a method requiring great skill. Hawaiian spears were six to seven feet long and made from a variety of local hardwoods.



The people anticipated potential shortages of fish from the sea by raising fish in ponds and taro patches. The Hawaiians also had many *kapu* designed to protect the reproductive cycles of marine life and to preserve their valuable aquatic resources. Perhaps we can profit by their example.

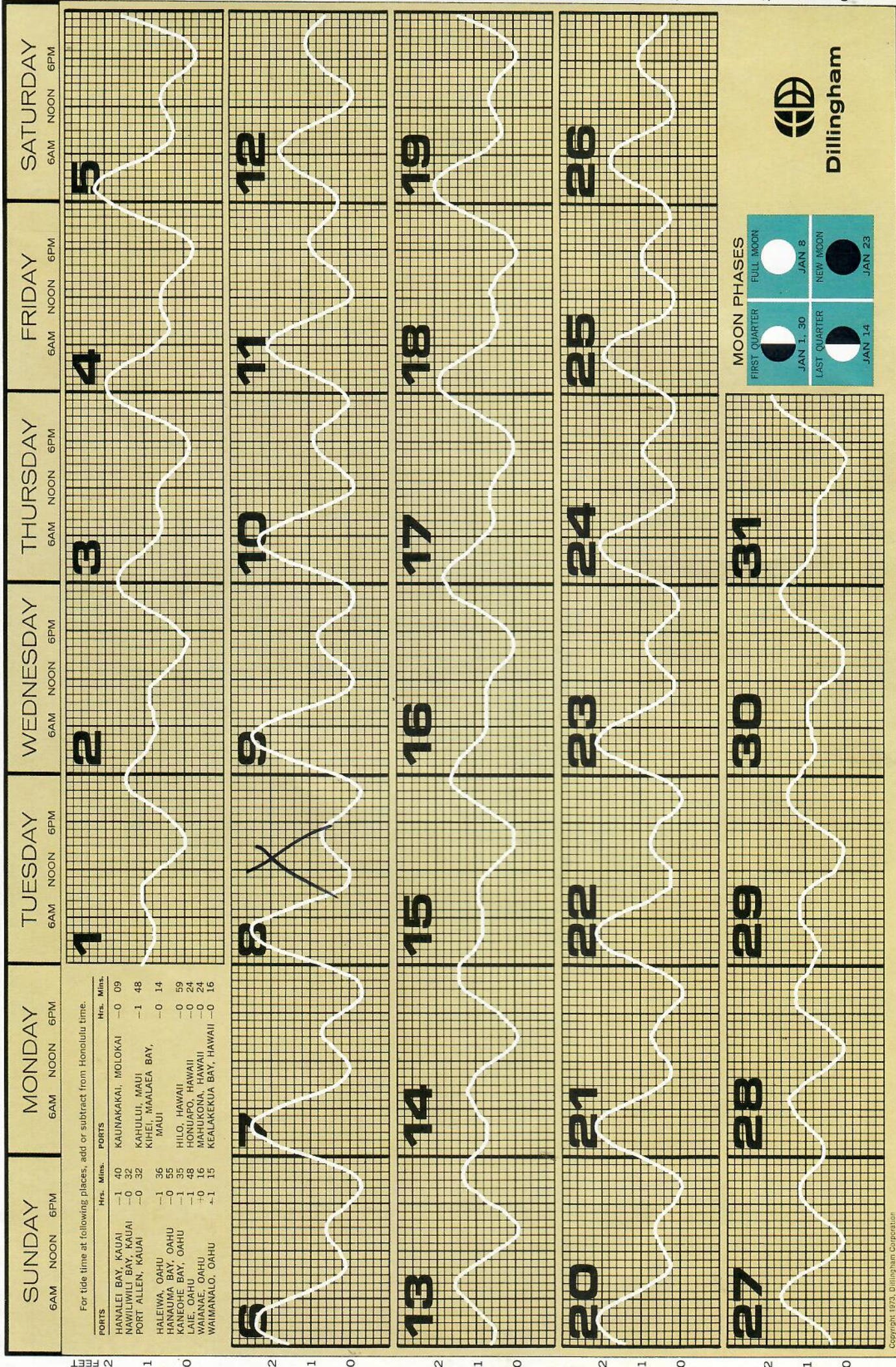
For the 1974 tide calendar, Dillingham Corporation commissioned a local artist, Martin Charlot, to paint authentic old Hawaiian fishing scenes. Mr. Charlot's work has appeared in *Beacon* magazine and in a number of books about Hawaii. Historical research was provided by June Gutmanis. We want to thank Dr. John Maciolek and Dr. Stewart Reed of the Cooperative Fisheries at the University of Hawaii, Dr. Edward Shallenberger at Sea Life Park, Mr. Tamotsu Nakata at the National Marine Fisheries Service, Mrs. Alice Holokai, a helpful Kamaaina from Kauai, Mr. Kenneth Emory of the Bishop Museum, and Mr. Sam Lono of Haiku, who furnished the red taro.





Kaka was the multiple-hook technique for deep-sea fishing. Bringing these red snappers to the surface quickly from depths of up to 1200 feet would cause their stomachs to pop out of their mouths. The hooks shown are rotating hooks, a style developed in Polynesia.

January 1974 Tide Chart

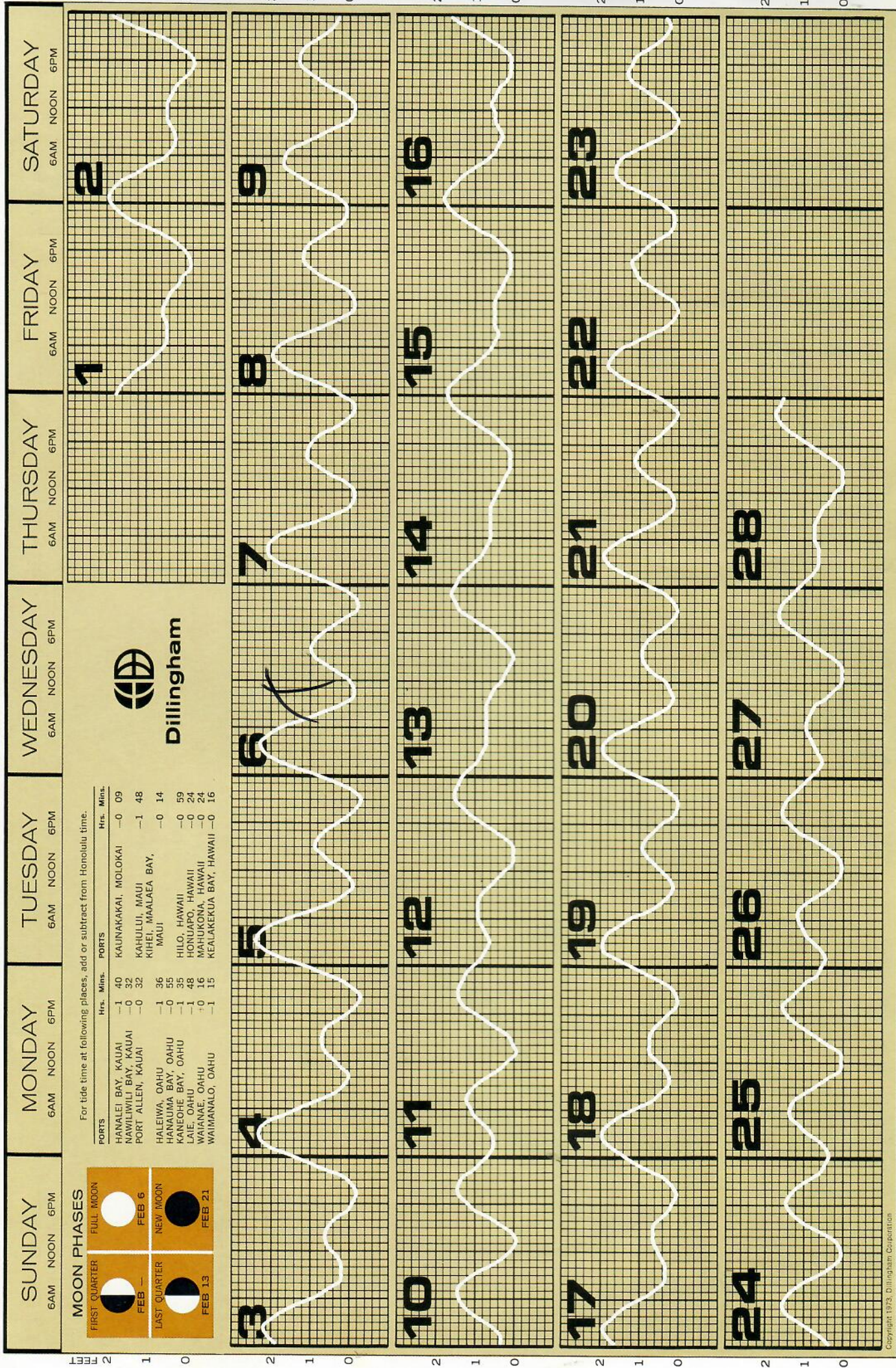


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The *akia* plant shown in this painting, along with the *auhuhu* plant, were used to stupefy fish found in shallow water. The *kihi kihi*, or Moorish idol, is delicious, but it has so little flesh that it is no longer eaten.

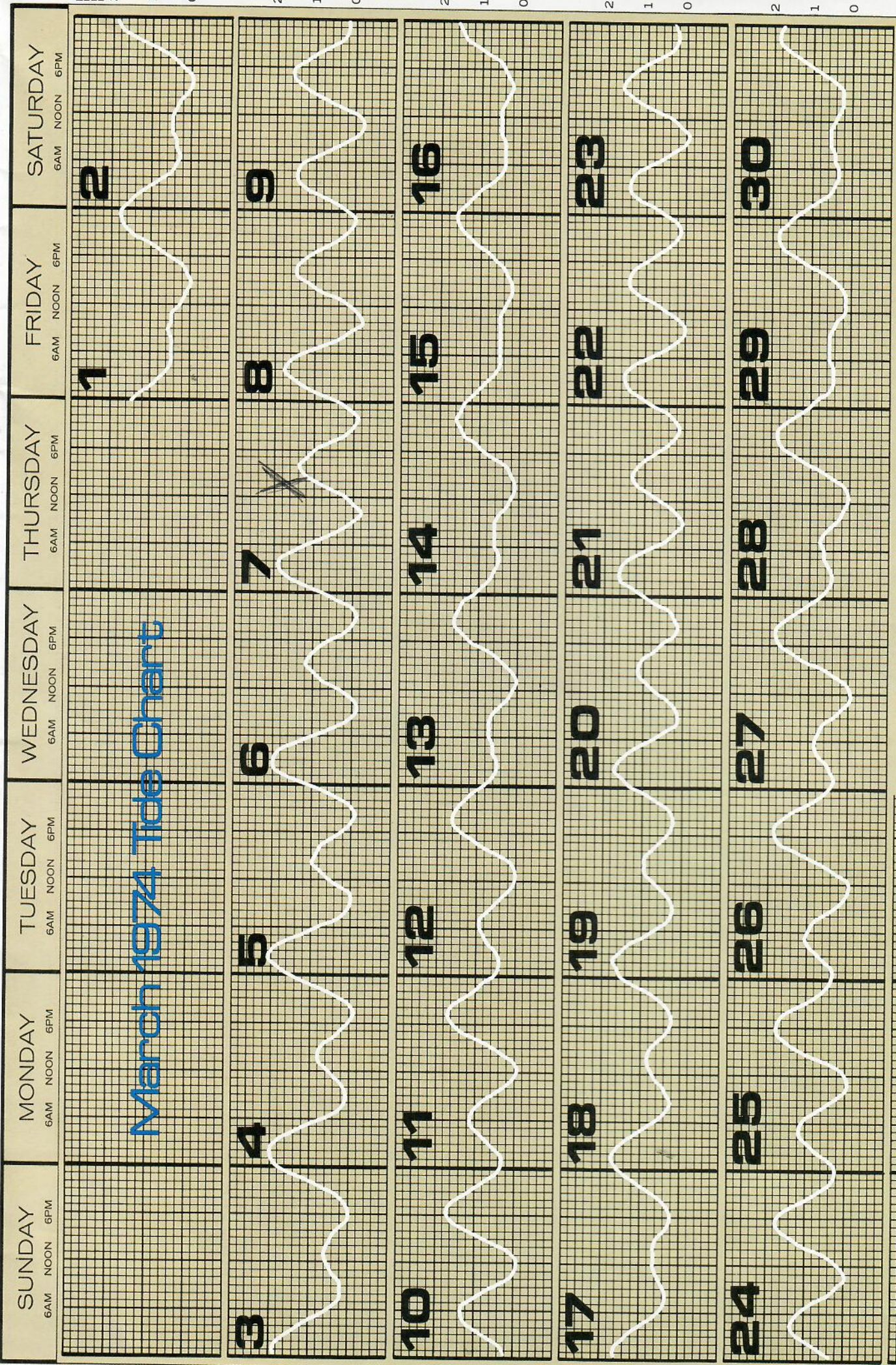


February 1974 Tide Chart



The o'opu in this taro patch are of two varieties. The one in the net was called akupa and the other nakea. This red-stemmed taro is a rare variety.





MOON PHASES

FIRST QUARTER MAR 1, 30	FULL MOON MAR 8
LAST QUARTER MAR 15	NEW MOON MAR 23

For tide time at following places, add or subtract from Honolulu time.

PORTS	Hrs.	Mins.	PORTS	Hrs.	Mins.
HANAIEI BAY, KAUAI	-1	40	KAUNAKAKAI, MOLOKAI	-0	09
NAWILI'I BAY, KAUAI	-0	32	KAHULUI, MAUI	-1	48
PORT ALLEN, KAUAI	-0	32	KIHEI, MAALAEA BAY, MAUI	-0	14
HALEIWA, OAHU	-1	36	HILO, HAWAII	-0	59
HANAUWA BAY, OAHU	-0	55	HONUAPOO, HAWAII	-0	24
KANEHOE BAY, OAHU	-1	35	MAHUKONA, HAWAII	-0	24
KANE, OAHU	-1	48	KEALAKEUA BAY, HAWAII	-0	16
WAIANAE, OAHU	-0	16			
WAIANALO, OAHU	-1	15			

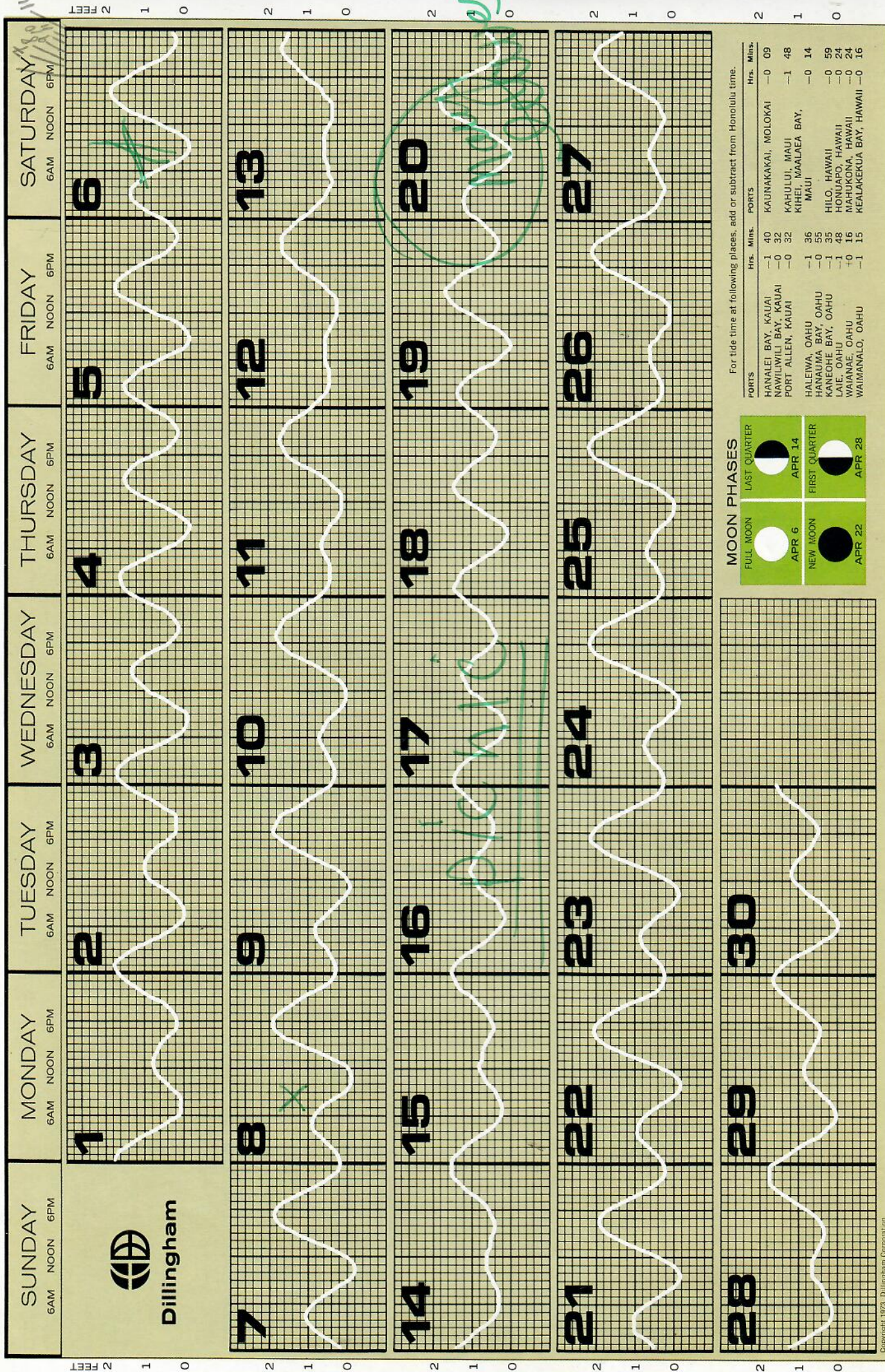


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The largest hook used by the Hawaiians was the *makau mano*, up to 11 inches long and with a point of sharpened bone. Sharks were caught for sport and for food, except by those who considered the shark their *aumakua*, or family guardian.



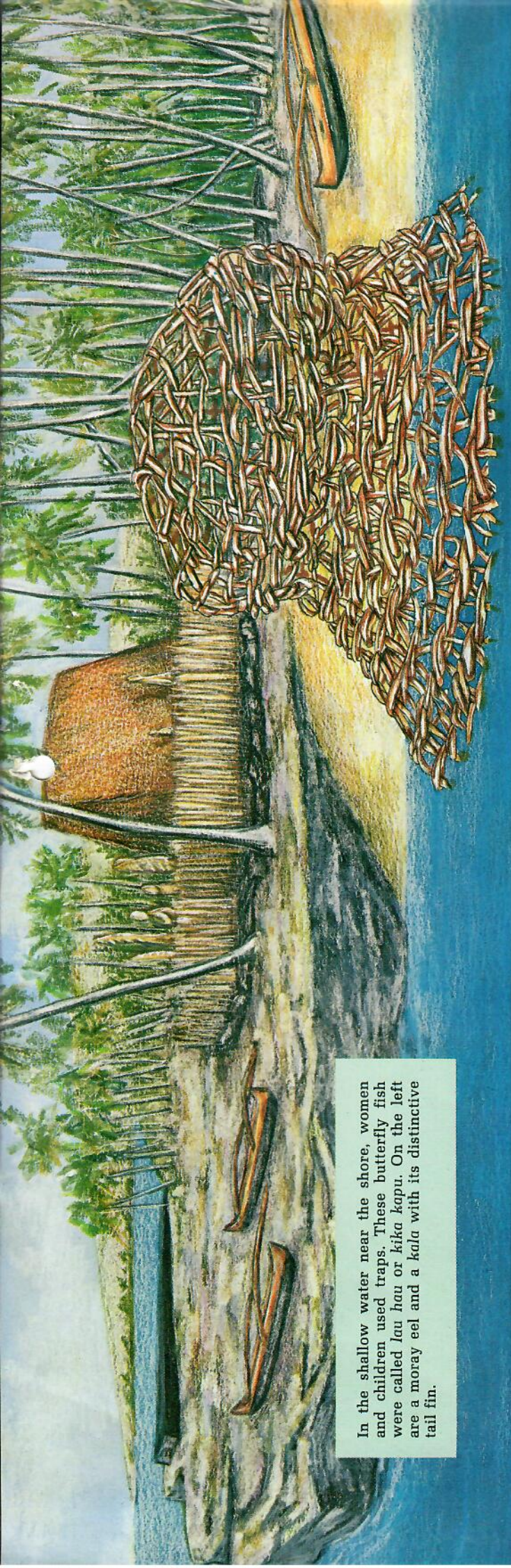
April 1974 Tide Chart



For tide time at following places, add or subtract from Honolulu time.

PORTS	Hrs.	Min.
HANALEI BAY, KAUAI	-1	40
NAWILIWILI BAY, KAUAI	-0	32
PORT ALLEN, KAUAI	-0	32
HALEWA, OAHU	-1	36
HANAUMA BAY, OAHU	-0	55
KANEHOHE BAY, OAHU	-1	35
LAIE, OAHU	-1	48
WAIANAE, OAHU	+0	16
WAIMANALO, OAHU	-1	15
KAUNAKAKAI, MOLOKAI	-0	09
KAHULUI, MAUI	-1	48
KIHEI, MAALAE BAY, MAUI	-0	14
HILO, HAWAII	-0	59
HONUAPO, HAWAII	-0	24
MAHUKONA, HAWAII	-0	24
KEALAKEKUA BAY, HAWAII	-0	16

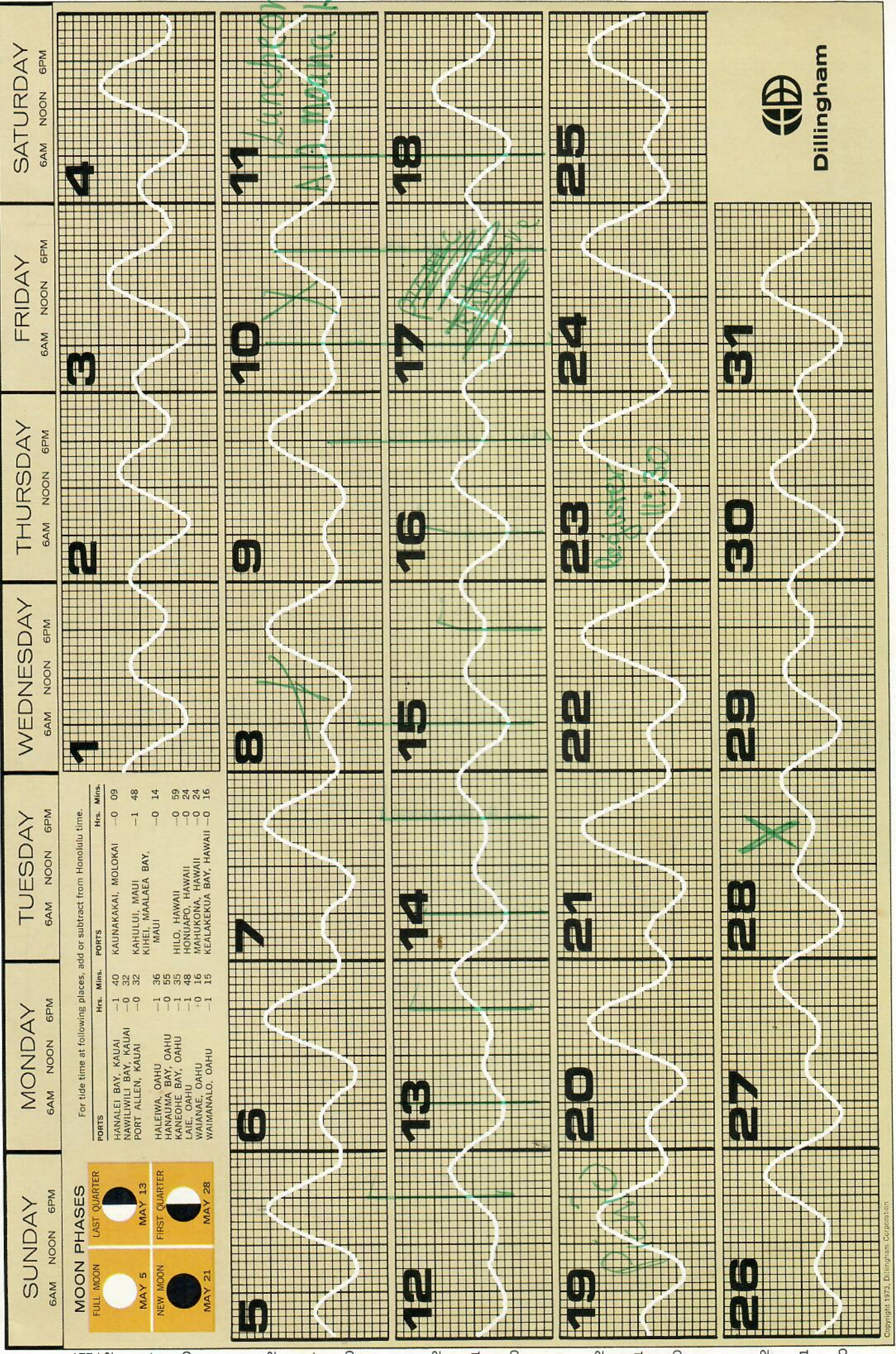




In the shallow water near the shore, women and children used traps. These butterfly fish were called *lau hau* or *kika kapu*. On the left are a moray eel and a *kala* with its distinctive tail fin.



May 1974 Tide Chart



SUNDAY
6AM NOON 6PM

MONDAY
6AM NOON 6PM

TUESDAY
6AM NOON 6PM

WEDNESDAY
6AM NOON 6PM

THURSDAY
6AM NOON 6PM

FRIDAY
6AM NOON 6PM

SATURDAY
6AM NOON 6PM

MOON PHASES
FULL MOON MAY 5
LAST QUARTER MAY 13
NEW MOON MAY 21
FIRST QUARTER MAY 28

For tide time at following places, add or subtract from Honolulu time.

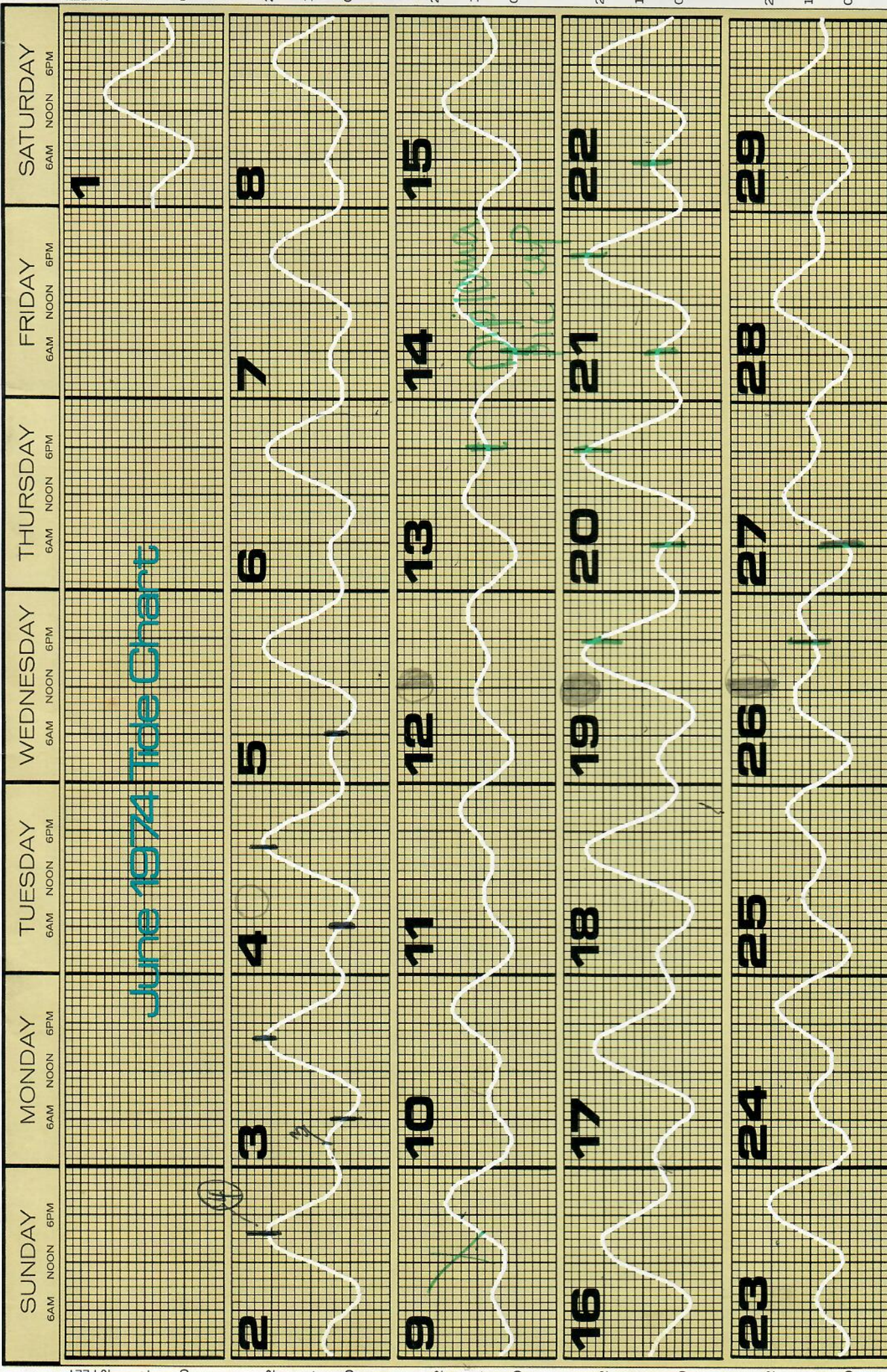
PORTS	Hrs.	Mins.
HANALEI BAY, KAUAI	-1	40
NAILIWI BAY, KAUAI	-0	32
PORT ALLEN, KAUAI	-0	32
KAHULUI, MAUI	-1	48
KIHEI, MAALAE BAY, MAUI	-0	14
HALEIWA, OAHU	-1	36
HAKUNA BAY, OAHU	-0	55
KANEIHE BAY, OAHU	-1	35
AIE, OAHU	-1	48
WAIKANE, OAHU	-0	16
WAIMANALO, OAHU	-1	15
KALINAKAKAI, MOLOKAI	-0	09
HILO, HAWAII	-0	59
HONIUAPO, HAWAII	-0	24
MAHUKONA, HAWAII	-0	24
KEALAKEKUA BAY, HAWAII	-0	16



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After the catch, everyone made offerings to the gods, usually consisting of a part of the catch, or a fish hook, a bundle with bits of *kapu*, or other items. This fish is a *palani*, or surgeonfish.





June 1974 Tide Chart

For tide time at following places, add or subtract from Honolulu time.

PORTS	Hrs.	Mins.	PORTS	Hrs.	Mins.
HANALEI BAY, KAUAI	-1	40	KAUNAKAKAI, MOLOKAI	-0	09
NAWILIWILI BAY, KAUAI	-0	32	KAHULUI, MAUI	-1	48
PORT ALLEN, KAUAI	-0	32	KIHEI, MAALAE BAY, MAUI	-0	14
HALEIWA, OAHU	-1	36	HILO, HAWAII	-0	59
HANAUMA BAY, OAHU	-0	55	HONUAPO, HAWAII	-0	24
KANEHOE BAY, OAHU	-1	35	MAHUKONA, HAWAII	-0	24
LAIE, OAHU	-1	48	KEALAKEKUA BAY, HAWAII	-0	16
WAIKANE, OAHU	-1	16			
WAIMANALO, OAHU	-1	15			

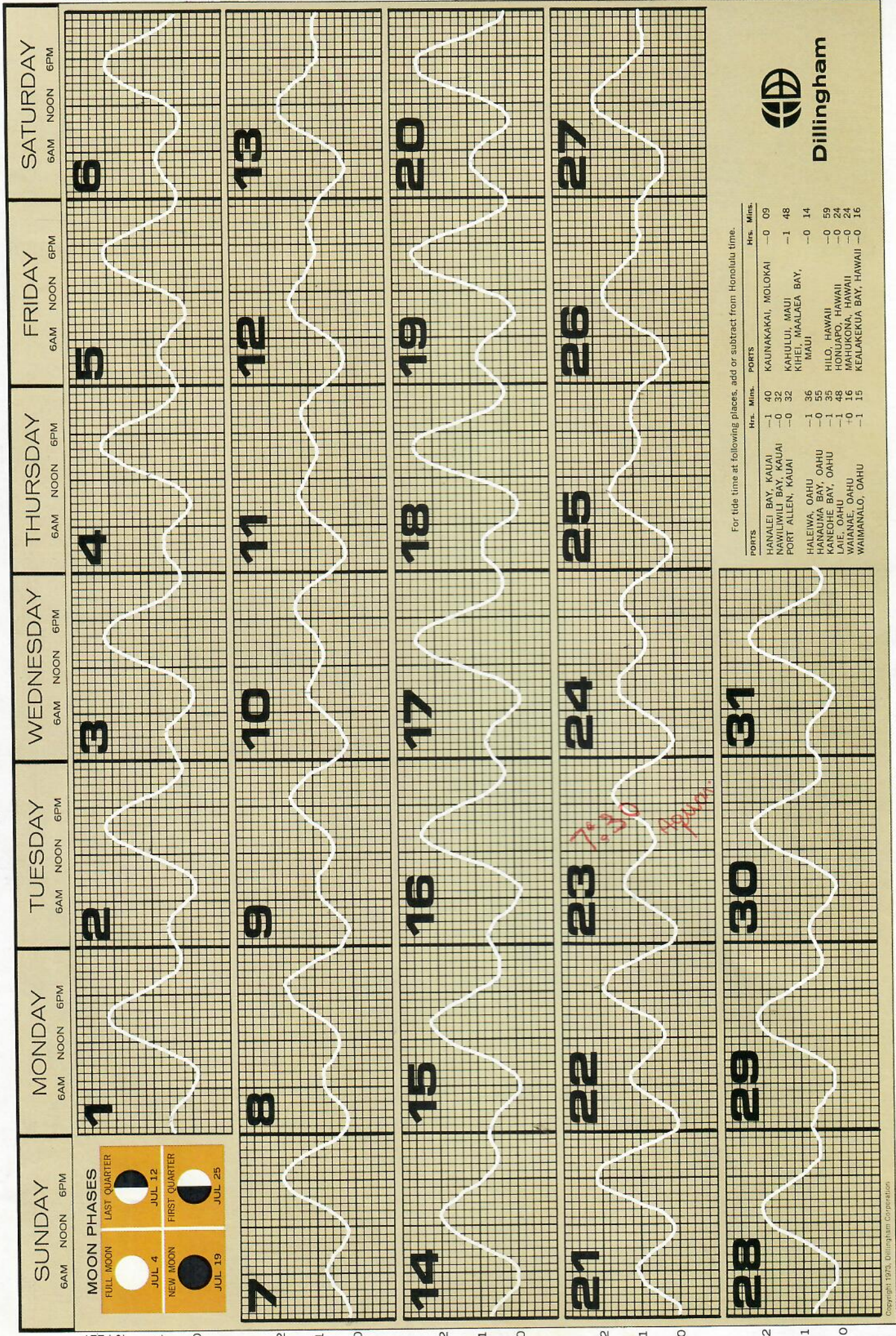


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Spear fishers diving from canoes used carved spear holders on the arm of the outrigger canoes, such as the one shown in this painting. Although poisonous, the 'o'opu hue, or puffer fish, was safe to eat and considered a delicacy if properly cleaned.

July 1974 Tide Chart



For tide time at following places, add or subtract from Honolulu time.

PORTS	Hrs.	Mins.
HANAIE BAY, KAUAI	-1	40
NAWILIWILI BAY, KAUAI	-0	32
PORT ALLEN, KAUAI	-0	32
HALEIWA, OAHU	-1	36
HANAUMA BAY, OAHU	-0	55
KANEHOE BAY, OAHU	-1	35
LAIE, OAHU	-1	48
WAIANAE, OAHU	+0	16
WAIMANALO, OAHU	-1	15
KAUNAKAKAI, MOLOKAI	-0	09
KAHULUI, MAUI	-1	48
KIHEI, MAALAECA BAY, MAUI	-0	14
HILO, HAWAII	-0	59
HONUKOO, HAWAII	-0	24
MAHUKONA, HAWAII	-0	24
KENAKAKUA BAY, HAWAII	-0	16



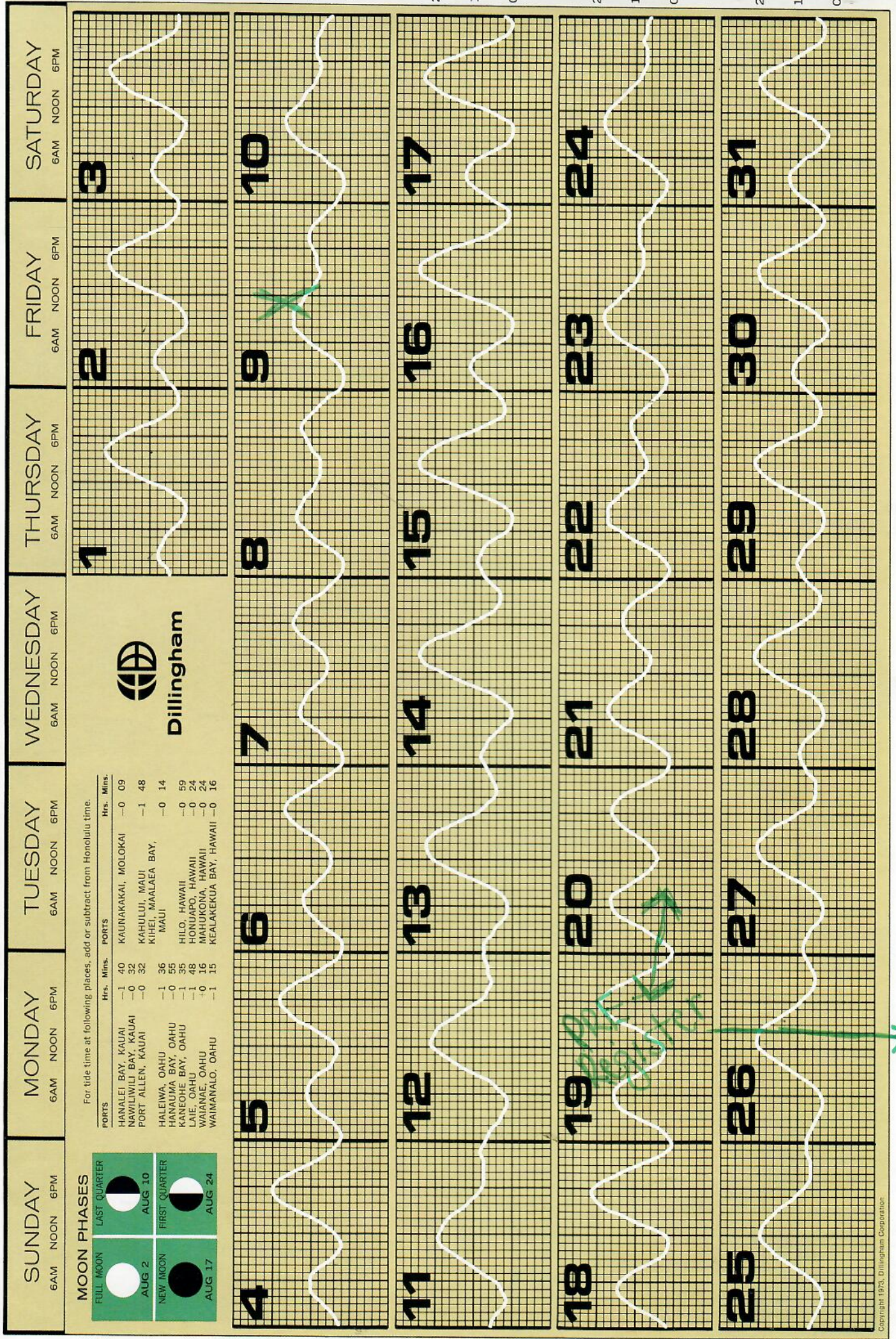
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Aku, now known as bonito or skipjack tuna, was attracted to the shiny pearl shell on the hook's shank as it was played across the surface of the water. Schools of aku were found by observing the nojo birds above. The flying fish was called matoto.

MARTIN CHARLOT

August 1974 Tide Chart



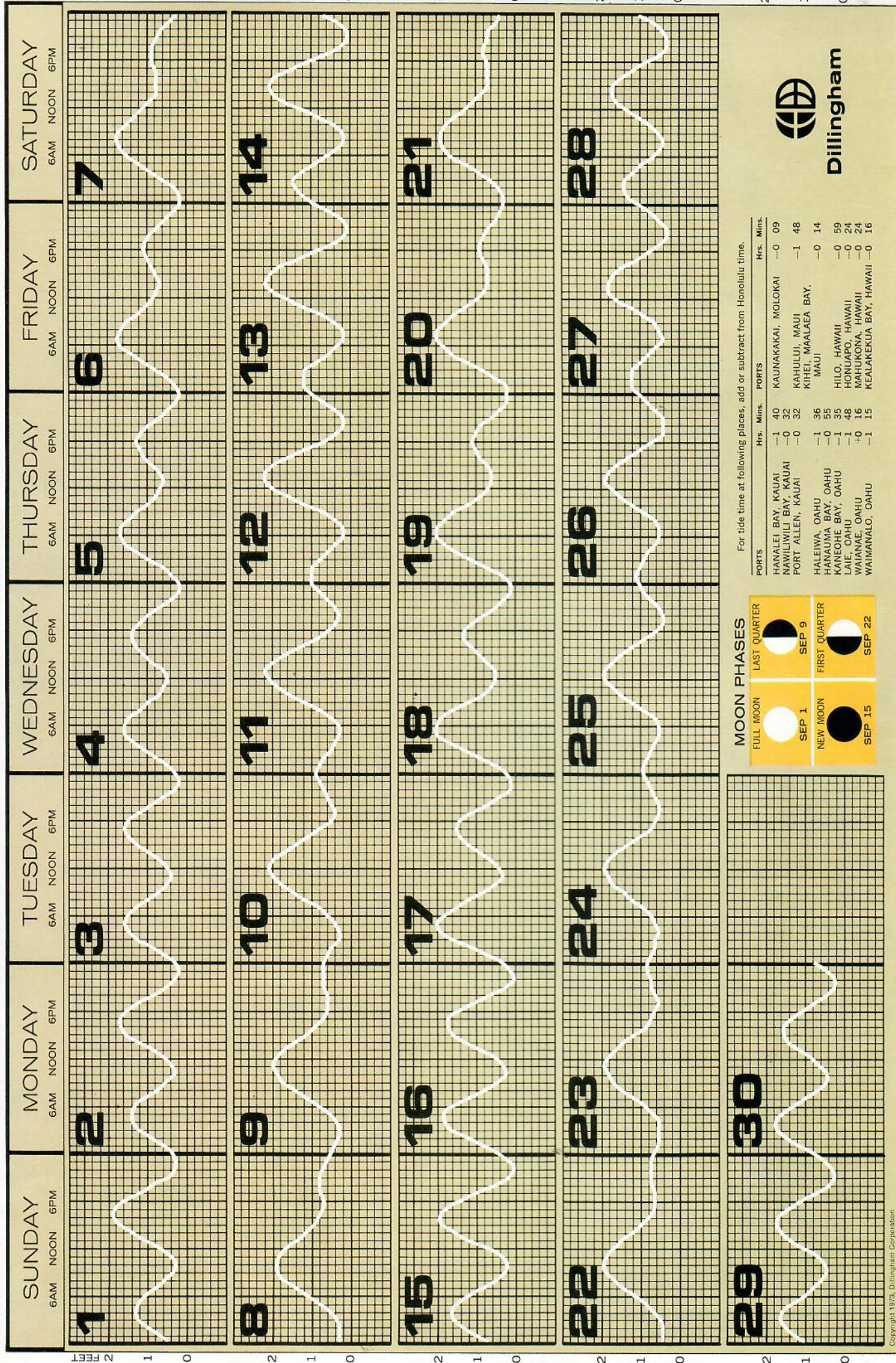
vs. HD only = 1.00 - 4.00 PA Miller 110 also Area 10th

He'e, octopus, is often mistakenly identified as a squid. It was a delicacy and was caught by spearing or by use of a hook. Cowrie shells were used as lures, with the color of the selected shell depending on the time of day.



MARTIN CHARLOT

September 1974 Tide Chart



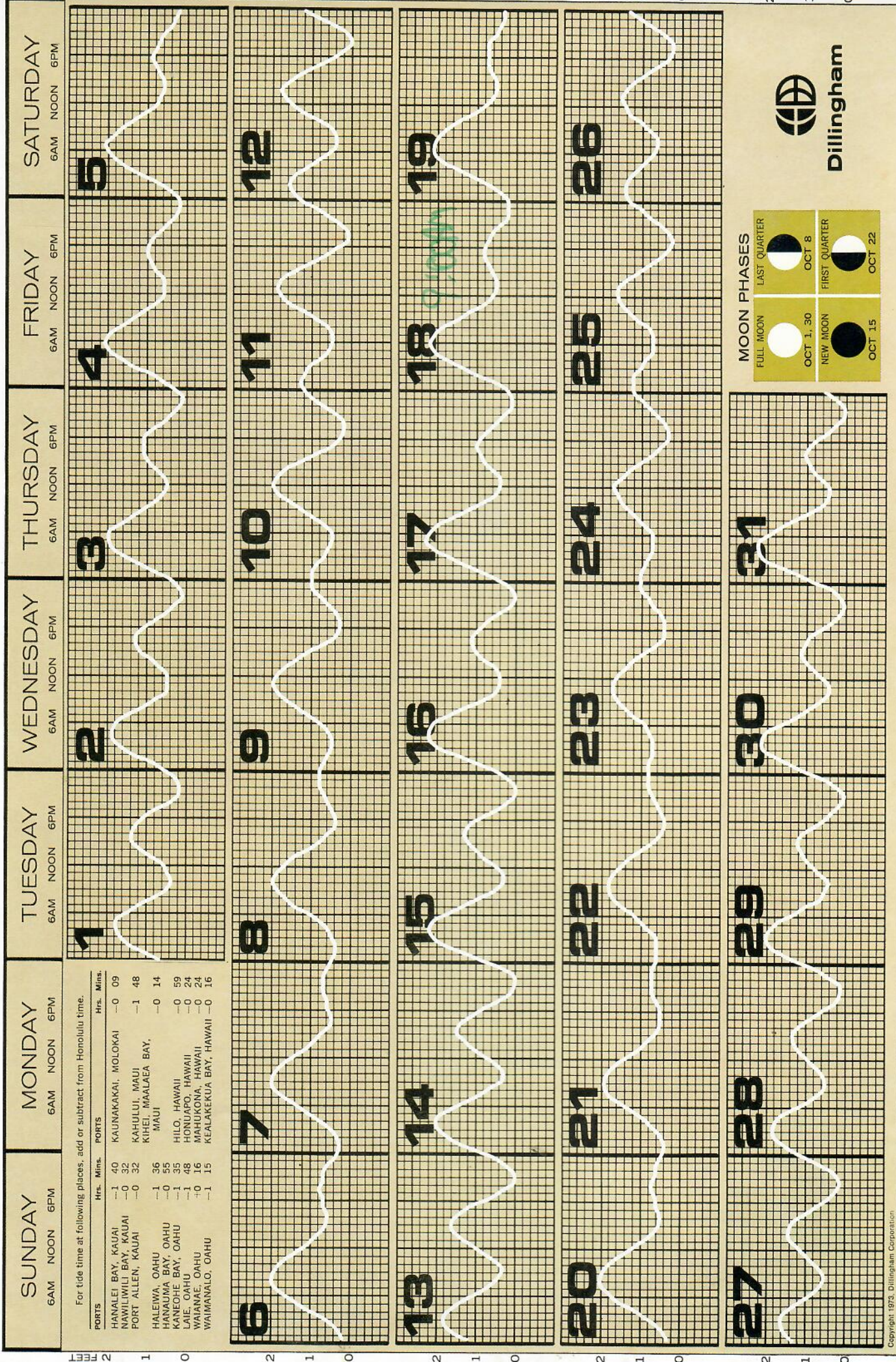
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This 'uama crab is about to be snaggled by a simple device known as a *kao*, made from three mid-ribs from coconut fronds. The crab's eye will catch on the string, which is a fiber of the coconut blossom sheath.

MARTIN CHARLOT

October 1974 Tide Chart



MOON PHASES

FULL MOON	LAST QUARTER
OCT 1, 30	OCT 8
NEW MOON	FIRST QUARTER
OCT 15	OCT 22

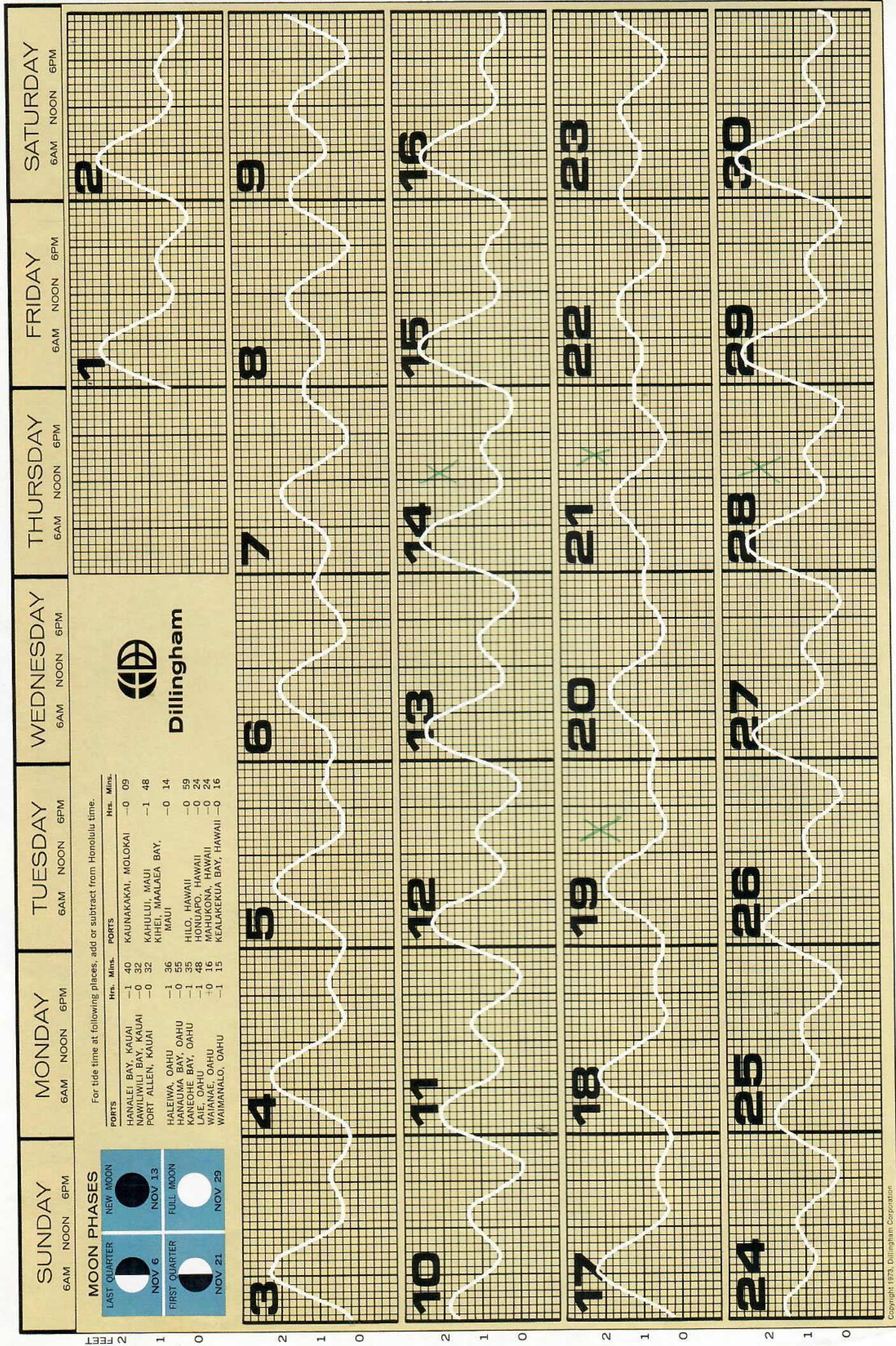


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Fishing by hand took great patience and was done in tidal pools, from which fish could not escape. The Hawaiians caught many fish this way along the shore, as well as eels, shrimp, and crustaceans. This is an *ala ihi*, or squirrel fish.



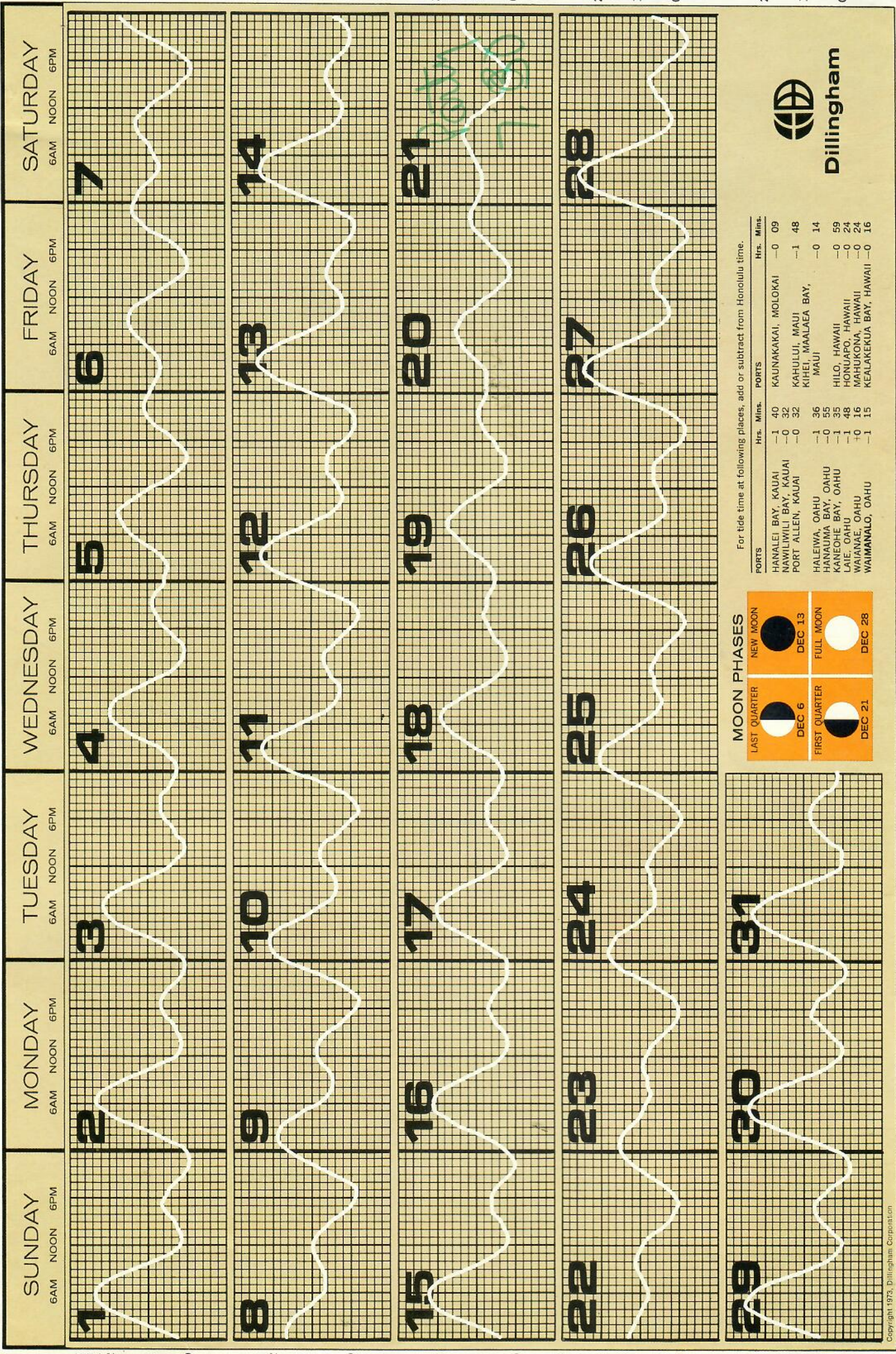
November 1974 Tide Chart



Fish was eaten raw, dried, and cooked. These food dishes belonging to a person of chiefly rank include a platter for fish, a gourd for water, and a candle consisting of a string of kukui nut. The bowl on the left is for scraps of food that must be disposed of carefully so that the chief cannot be prayed against.



December 1974 Tide Chart



For tide time at following places, add or subtract from Honolulu time.

PORTS	Hrs. Mins.	
	Hrs.	Mins.
HANALEI BAY, KAUAI	-1	40
NAWILIWILI BAY, KAUAI	-0	32
PORT ALLEN, KAUAI	-0	32
HALEIWA, OAHU	-1	36
HANAUMA BAY, OAHU	-0	55
KANEOHE BAY, OAHU	-1	35
LAIE, OAHU	-1	48
WAIANAE, OAHU	+0	16
WAIMANALO, OAHU	-1	15
KAUNAKAKAI, MOLOKAI	-0	09
KAHULUI, MAUI	-1	48
KIHEI, MAALAE BAY, MAUI	-0	14
HILO, HAWAII	-0	59
HONULUO, HAWAII	-0	24
MAHUKONA, HAWAII	-0	24
KEALAKEKUA BAY, HAWAII	-0	16

MOON PHASES

LAST QUARTER DEC 6	NEW MOON DEC 13
FIRST QUARTER DEC 21	FULL MOON DEC 28

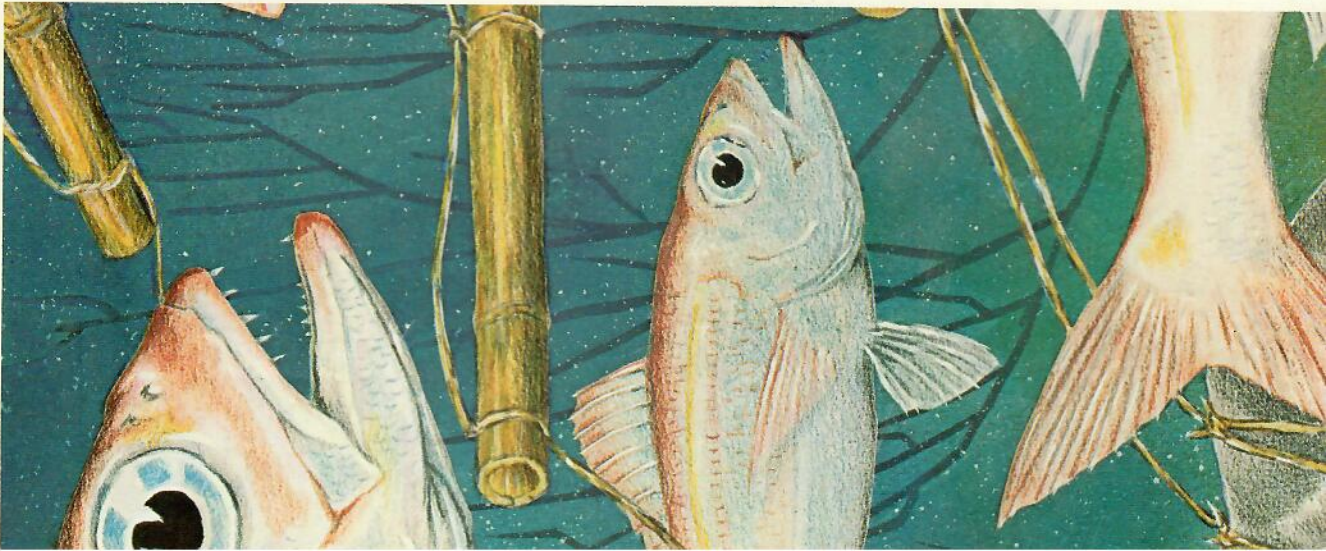


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1974 TIDE CALENDAR