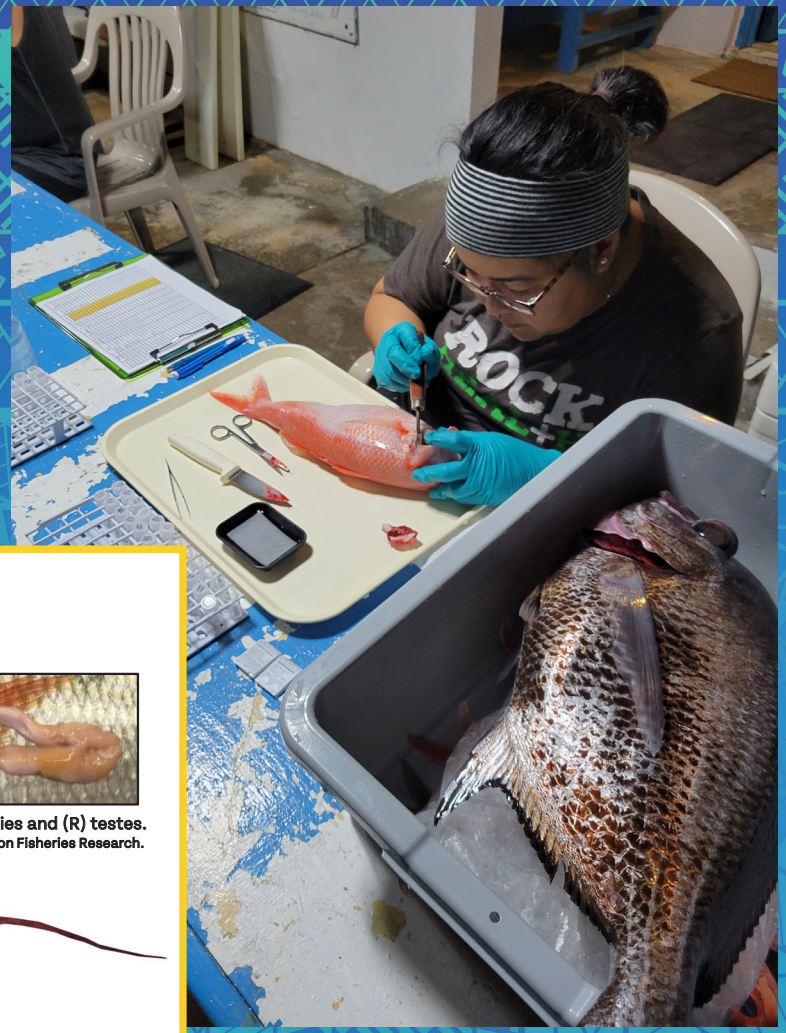
Eskaleran Pulan Chamorro

Refaluwasch Pápáál Maram

January 23, 2023 - February 10, 2024



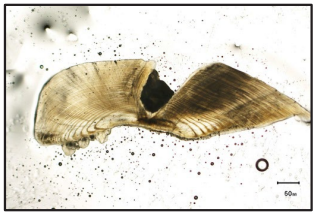
The Micronesian Environmental Services (MES) Biosampling Program was initiated in 2008 to collect and analyze biological samples to support sustainable management of federal and insular fisheries under the Magnuson-Stevens Act in the U.S. Pacific Islands Region. Starting with commercially important species, MES uses fish biosamples to determine detailed information about different fish species, which increases the accuracy of stock assessments. Fishing locations and trip-level effort data (e.g., number of hours fished by gear type) are also collected for fish caught and sold commercially.



MES's Shirley T. Deleon Guerrero takes gonad samples of a ruby snapper *(Etelis carbunculus)*.

Photo: John Gourley

Fish Life History Biosamples

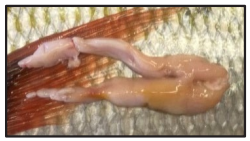


Section of a snapper otolith.
Photo: NMFS/Joe O'Malley.

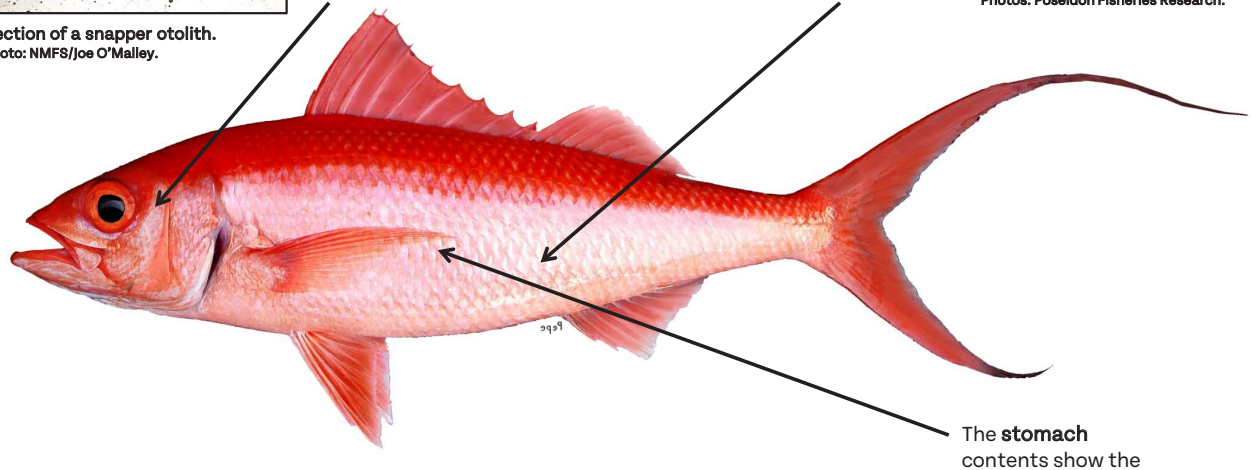
An **otolith** (ear bone) forms annual lines, similar to the rings in a tree trunk. The distance between lines indicates fish relative growth each year.



Gonads tell scientists information about reproductive development.



(L) Fish ovaries and (R) testes.
Photos: Poseidon Fisheries Research.



The **stomach** contents show the fish's diet.

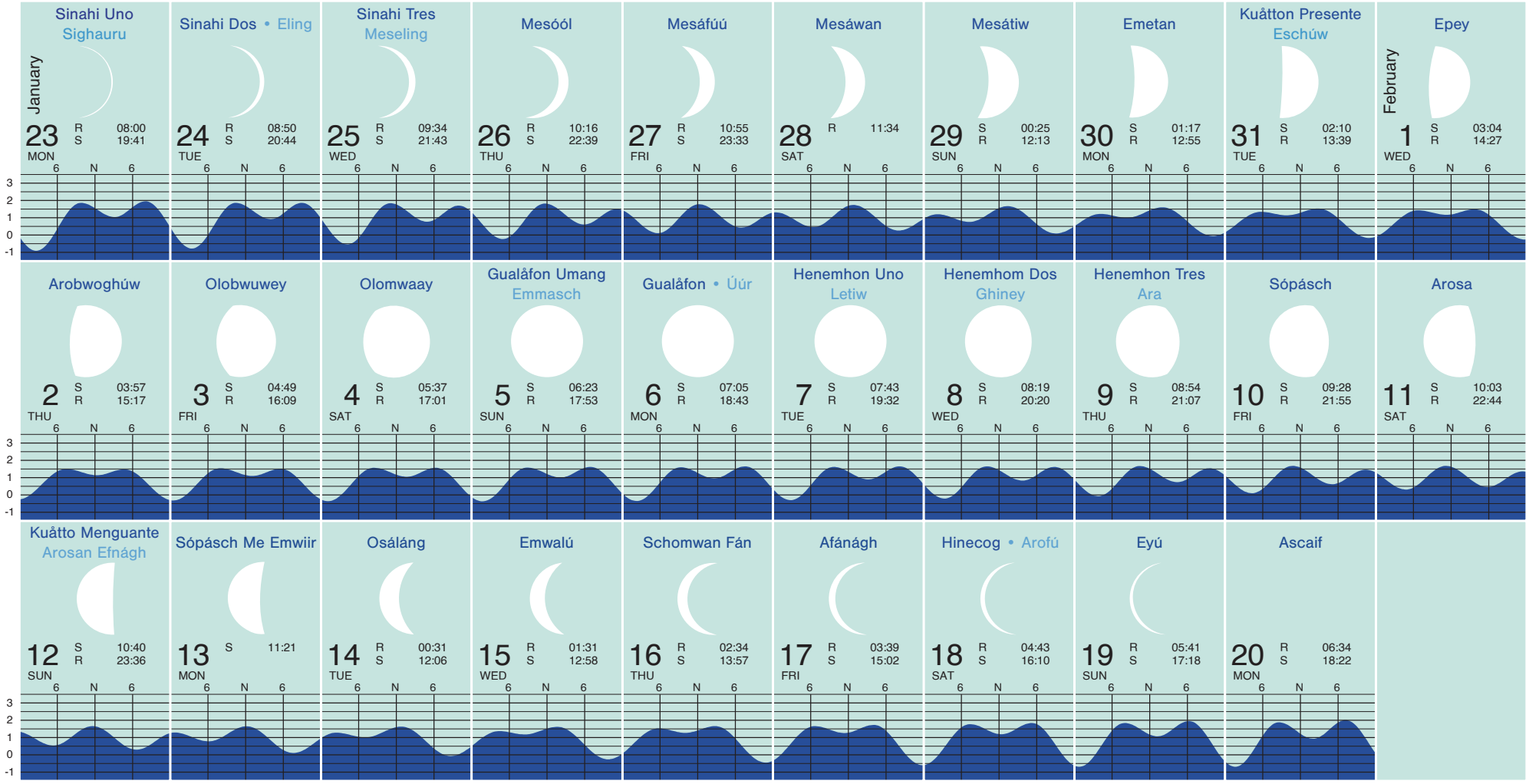
Fork length, along with **weight**, can be used for fish population assessments.

Umayangan » Schoowl

2023

January 23 - February 20

Sinahi Uno Sighauru	Sinahi Dos • Eling	Sinahi Tres Meseling	Mesóól	Mesáfúú	Mesáwan	Mesátiw	Emetan	Kuåtton Presente Eschúw	Epey
January 23 MON R 08:00 S 19:41	24 TUE R 08:50 S 20:44	25 WED R 09:34 S 21:43	26 THU R 10:16 S 22:39	27 FRI R 10:55 S 23:33	28 SAT R 11:34	29 SUN S 00:25 R 12:13	30 MON S 01:17 R 12:55	31 TUE S 02:10 R 13:39	February 1 WED S 03:04 R 14:27
Arobwoghúw	Olobwuwey	Olomwaay	Gualåfon Umang Emmasch	Gualåfon • Úúr	Henemhon Uno Letiw	Henemhom Dos Ghiney	Henemhon Tres Ara	Sópásch	Arosa
2 THU S 03:57 R 15:17	3 FRI S 04:49 R 16:09	4 SAT S 05:37 R 17:01	5 SUN S 06:23 R 17:53	6 MON S 07:05 R 18:43	7 TUE S 07:43 R 19:32	8 WED S 08:19 R 20:20	9 THU S 08:54 R 21:07	10 FRI S 09:28 R 21:55	11 SAT S 10:03 R 22:44
Kuåtto Menguante Arosan Efnágh	Sópásch Me Emwiir	Osáláng	Emwalú	Schomwan Fán	Afánágh	Hinecog • Arofú	Eyú	Ascaif	
12 SUN S 10:40 R 23:36	13 MON S 11:21	14 TUE R 00:31 S 12:06	15 WED R 01:31 S 12:58	16 THU R 02:34 S 13:57	17 FRI R 03:39 S 15:02	18 SAT R 04:43 S 16:10	19 SUN R 05:41 S 17:18	20 MON R 06:34 S 18:22	



MOON-RELATED OBSERVATIONS AND ACTIVITIES

Western Pacific Regional Fishery Management Council



DFW Data Technician Kelsey Lizama collects commercial purchase invoices from M&M Fish Mart owner Manny Corpuz. Photo: Floyd Masga

The Division of Fish and Wildlife (DFW) has collected commercial invoices from fish vendors, hotels and restaurants since the 1980s. The invoices include the number of fish purchased by type, price and weight from fishermen. Reporting commercial catch to DFW has been required since 2012 with the passage of Public Law No. 17-89. http://dfwcnmi.com/fisheries.php

Tumaiguini Méél

2023

February 21 - March 22

Sinahi Uno Sighauru	Sinahi Dos • Eling	Sinahi Tres Meseling	Mesóól	Mesáfúú	Mesáwan	Mesátiw	Emetan	Kuåtton Presente Eschúw	Epey
February								March	
21 TUE R 07:22 S 19:24	22 WED R 08:06 S 20:23	23 THU R 08:47 S 21:19	24 FRI R 09:27 S 22:14	25 SAT R 10:08 S 23:08	26 SUN R 10:50	27 MON S 00:03 R 11:34	28 TUE S 00:57 R 12:22	1 WED S 01:52 R 13:11	2 THU S 02:44 R 14:03
6 N 6	6 N 6	6 N 6	6 N 6	6 N 6	6 N 6	6 N 6	6 N 6	6 N 6	6 N 6
3 2 1 0 -1									

Arobwoghúw	Olobwuwey	Olomwaay	Gualåfon Umang Emmasch	Gualåfon • Úúr	Henemhon Uno Letiw	Henemhom Dos Ghiney	Henemhon Tres Ara	Sópásch	Arosa
3 FRI S 03:34 R 14:55	4 SAT S 04:20 R 15:47	5 SUN S 05:03 R 16:38	6 MON S 05:43 R 17:28	7 TUE S 06:20 R 18:16	8 WED S 06:55 R 19:04	9 THU S 07:30 R 19:52	10 FRI S 08:04 R 20:41	11 SAT S 08:41 R 21:32	12 SUN S 09:20 R 22:26
6 N 6	6 N 6	6 N 6	6 N 6	6 N 6	6 N 6	6 N 6	6 N 6	6 N 6	6 N 6
3 2 1 0 -1									

Kuåtto Menguante Arosan Efnágh	Sópásch Me Emwiir	Osáláng	Emwalú	Schomwan Fán	Afánágh	Hinecog • Arofú	Eyú	Efeng	Ascaif
13 MON S 10:04 R 23:24	14 TUE S 10:53	15 WED R 00:25 S 11:48	16 THU R 01:28 S 12:49	17 FRI R 02:29 S 13:53	18 SAT R 03:28 S 14:59	19 SUN R 04:22 S 16:03	20 MON R 05:11 S 17:05	21 TUE R 05:55 S 18:04	22 WED R 06:37 S 19:01
6 N 6	6 N 6	6 N 6	6 N 6	6 N 6	6 N 6	6 N 6	6 N 6	6 N 6	6 N 6
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MOON-RELATED OBSERVATIONS AND ACTIVITIES

Western Pacific Regional Fishery Management Council



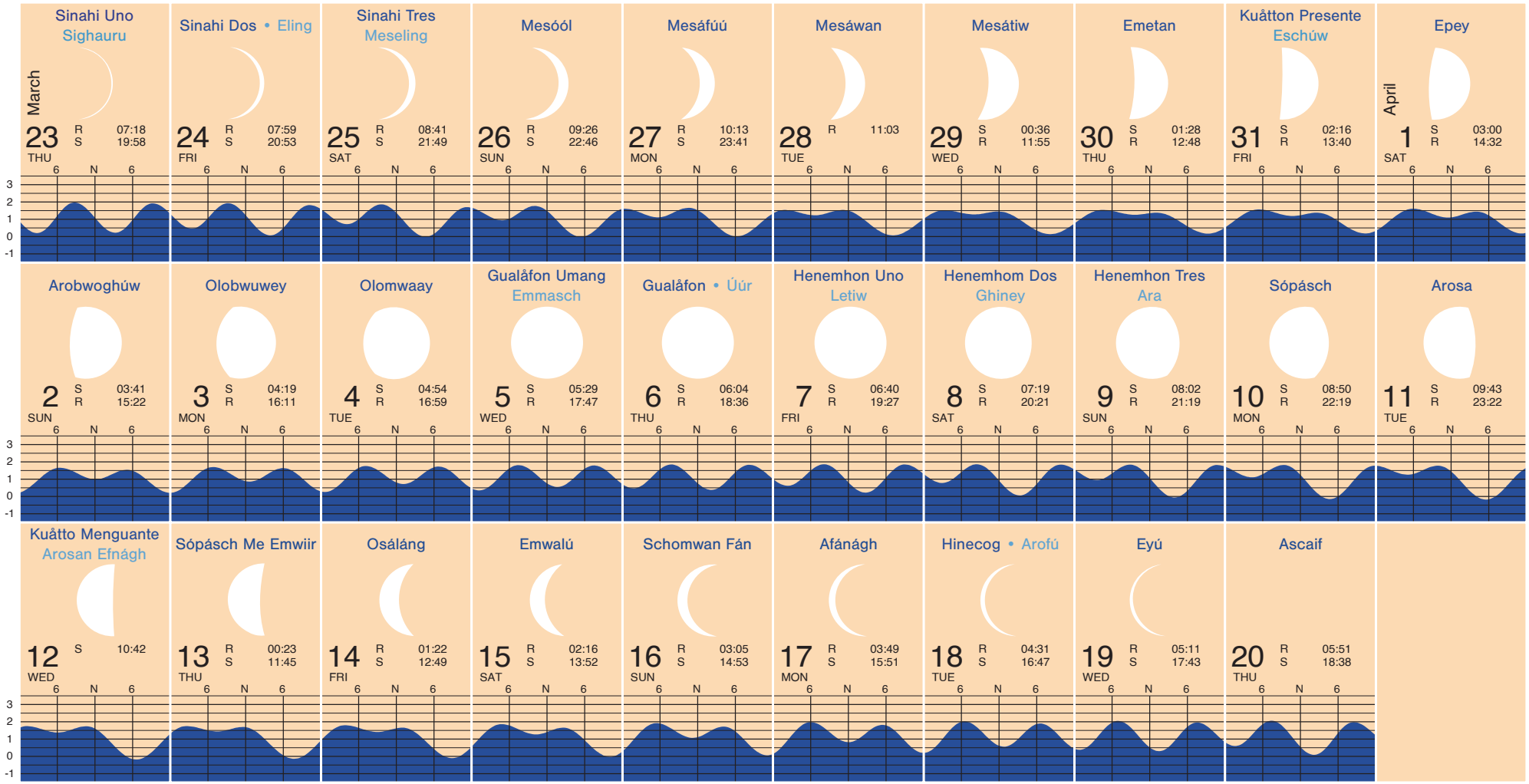
I'e' caught at the Smiling Cove Marina.
Photo: Floyd Masga

The *i'e'* (juvenile trevally) is a relatively small fish, but it can grow up to 120 cm (almost 4 feet). In the Mariana Archipelago, they are usually caught for subsistence from April to June. Fishermen know that when small shrimp are abundant, there will be more *i'e'* and other fish nearing the shores. *I'e'* are usually caught by shoreline casting or with a throw net and are mainly eaten by first brining or preserving in vinegar.

Maimo Máilap

2023

March 23 - April 20



MOON-RELATED OBSERVATIONS AND ACTIVITIES

Western Pacific Regional Fishery Management Council

Accurate and reliable fishery catch data is important to make sound fisheries management decisions. For this reason, in 2019 the Division of Fish and Wildlife (DFW) adopted a mandatory catch recording and reporting system for the commercial harvest, purchase and/or sale of marine life products that are caught within CNMI waters. This enables DFW to effectively monitor catch harvest, purchase and sale on a biweekly basis and to report annual catch trends.

Do your part to help future generations enjoy our abundant and diverse marine resources. Report your catch!





On Rota in early 2019, Department of Lands and Natural Resources Secretary Anthony T. Benavente shares information about the proposed mandatory data reporting regulation. Similar events were held on Saipan and Tinian.

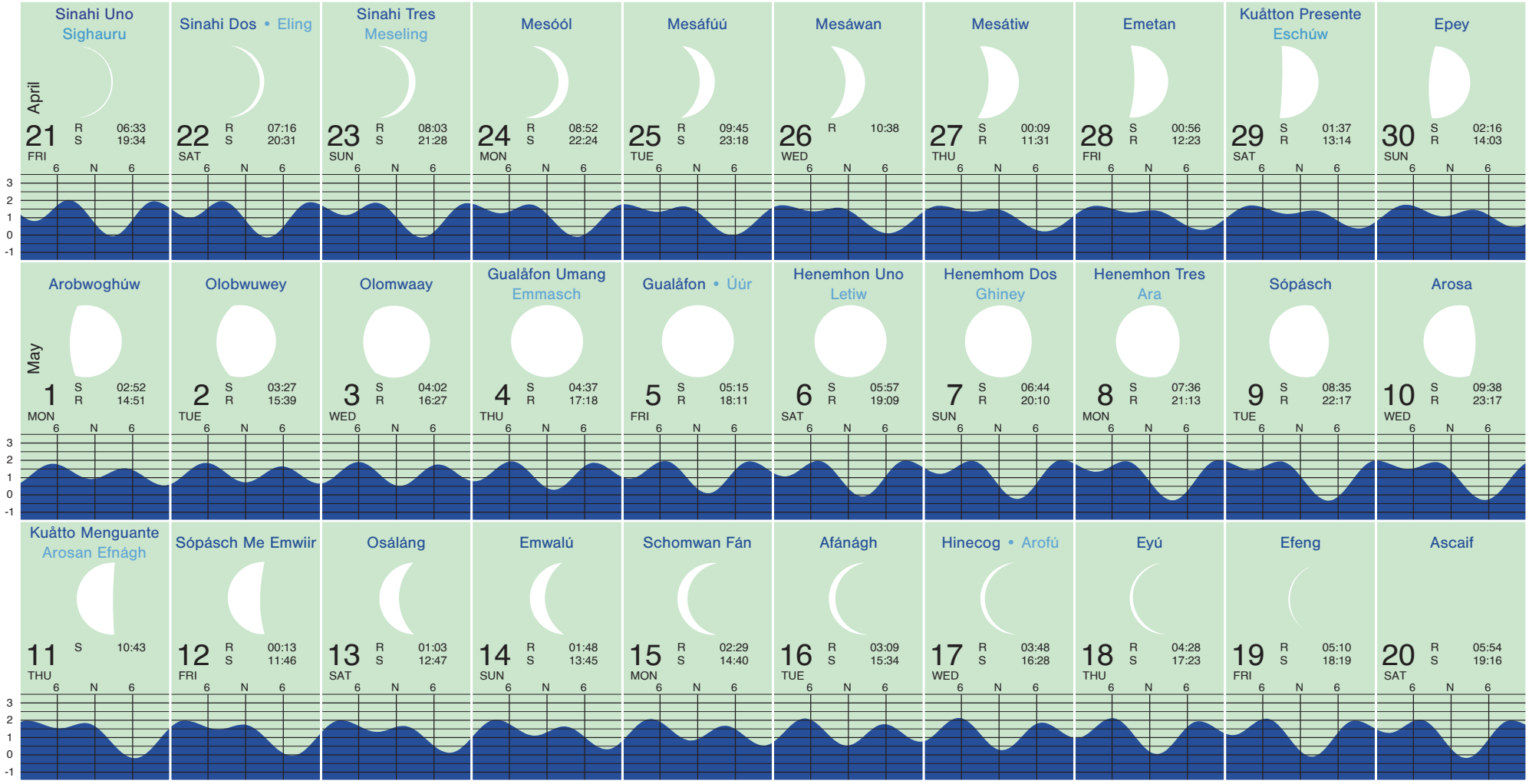
Photos: Floyd Masga

Umatalaf ⇝ Séétá

2023

April 21 - May 20

	Sinahi Uno Sighauru	Sinahi Dos • Eling	Sinahi Tres Meseling	Mesóól	Mesáfúú	Mesáwan	Mesátiw	Emetan	Kuåtton Presente Eschúw	Epey
April	21 FRI R 06:33 S 19:34	22 SAT R 07:16 S 20:31	23 SUN R 08:03 S 21:28	24 MON R 08:52 S 22:24	25 TUE R 09:45 S 23:18	26 WED R 10:38	27 THU S 00:09 R 11:31	28 FRI S 00:56 R 12:23	29 SAT S 01:37 R 13:14	30 SUN S 02:16 R 14:03
	Arobwoghúw	Olobwuwey	Olomwaay	Gualåfon Umang Emmasch	Gualåfon • Úúr	Henemhon Uno Letiw	Henemhom Dos Ghiney	Henemhon Tres Ara	Sópásch	Arosa
May	1 MON S 02:52 R 14:51	2 TUE S 03:27 R 15:39	3 WED S 04:02 R 16:27	4 THU S 04:37 R 17:18	5 FRI S 05:15 R 18:11	6 SAT S 05:57 R 19:09	7 SUN S 06:44 R 20:10	8 MON S 07:36 R 21:13	9 TUE S 08:35 R 22:17	10 WED S 09:38 R 23:17
	Kuåtto Menguante Arosan Efnágh	Sópásch Me Emwiir	Osáláng	Emwalú	Schomwan Fán	Afánágh	Hinecog • Arofú	Eyú	Efeng	Ascaif
	11 THU S 10:43	12 FRI R 00:13 S 11:46	13 SAT R 01:03 S 12:47	14 SUN R 01:48 S 13:45	15 MON R 02:29 S 14:40	16 TUE R 03:09 S 15:34	17 WED R 03:48 S 16:28	18 THU R 04:28 S 17:23	19 FRI R 05:10 S 18:19	20 SAT R 05:54 S 19:16



MOON-RELATED OBSERVATIONS AND ACTIVITIES

Western Pacific Regional Fishery Management Council



Adult *mañåhak* are called *sesyun*.
Photo: Floyd Masga

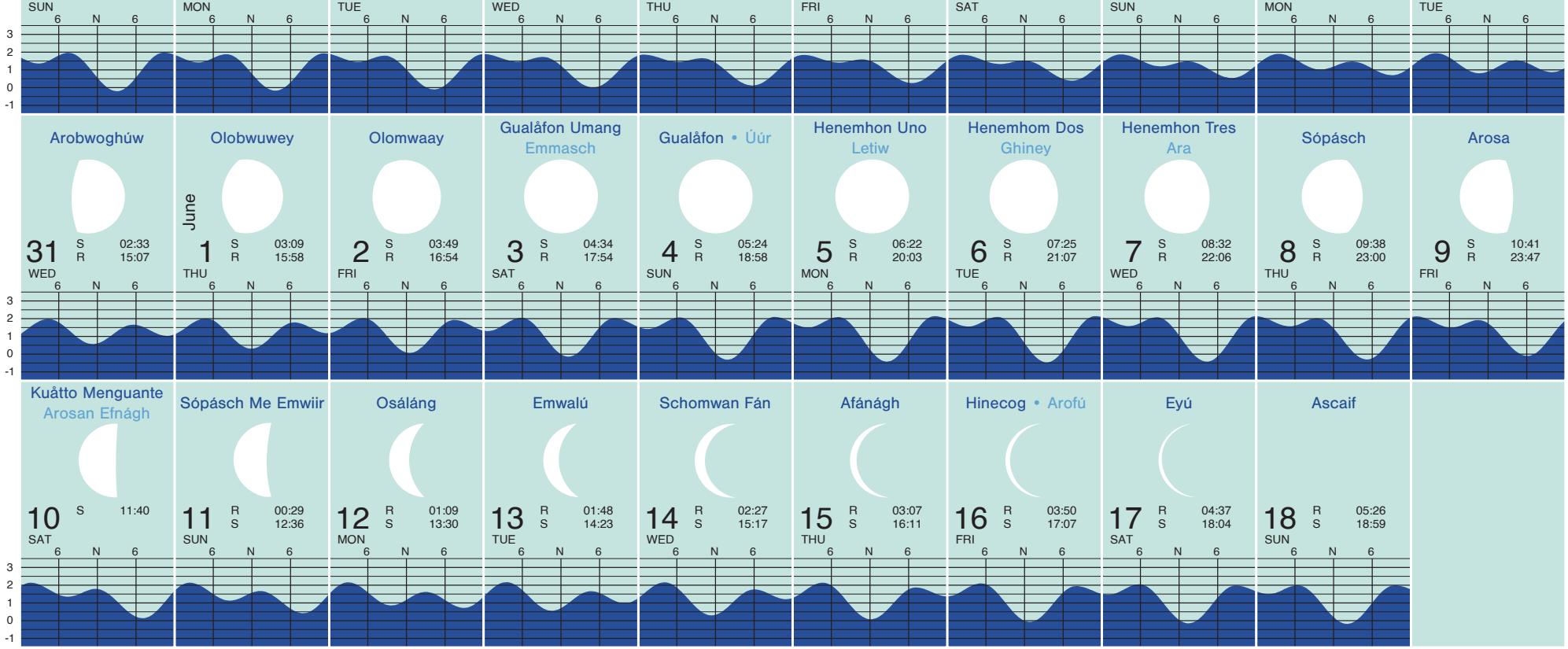
Fishers typically catch 2 types of *mañåhak* (juvenile rabbitfish) in the Mariana Archipelago - the Forktail and Scribbled rabbitfish - for subsistence usually from April to June. *Mañåhak* taste better before they have fed after crossing into the lagoons. After they eat, they pop when fried, making them less desirable.

Lumuhu Naa

2023

May 21 - June 18

Sinahi Uno Sighauru	Sinahi Dos • Eling	Sinahi Tres Meseling	Mesóól	Mesáfúú	Mesáwan	Mesátiw	Emetan	Kuåtton Presente Eschúw	Epey
May 21 SUN R 06:43 S 20:12	22 MON R 07:34 S 21:08	23 TUE R 08:27 S 22:00	24 WED R 09:21 S 22:49	25 THU R 10:14 S 23:33	26 FRI R 11:06	27 SAT S 00:14 R 11:55	28 SUN S 00:51 R 12:43	29 MON S 01:24 R 13:30	30 TUE S 01:58 R 14:18
Arobwoghúw	Olobwuwey	Olomwaay	Gualåfon Umang Emmasch	Gualåfon • Úúr	Henemhon Uno Letiw	Henemhom Dos Ghiney	Henemhon Tres Ara	Sópásch	Arosa
31 WED S 02:33 R 15:07	June 1 THU S 03:09 R 15:58	2 FRI S 03:49 R 16:54	3 SAT S 04:34 R 17:54	4 SUN S 05:24 R 18:58	5 MON S 06:22 R 20:03	6 TUE S 07:25 R 21:07	7 WED S 08:32 R 22:06	8 THU S 09:38 R 23:00	9 FRI S 10:41 R 23:47
Kuåtto Menguante Arosan Efnágh	Sópásch Me Emwiir	Osáláng	Emwalú	Schomwan Fán	Afánágh	Hinecog • Arofú	Eyú	Ascaif	
10 SAT S 11:40	11 SUN R 00:29 S 12:36	12 MON R 01:09 S 13:30	13 TUE R 01:48 S 14:23	14 WED R 02:27 S 15:17	15 THU R 03:07 S 16:11	16 FRI R 03:50 S 17:07	17 SAT R 04:37 S 18:04	18 SUN R 05:26 S 18:59	



MOON-RELATED OBSERVATIONS AND ACTIVITIES

Western Pacific Regional Fishery Management Council

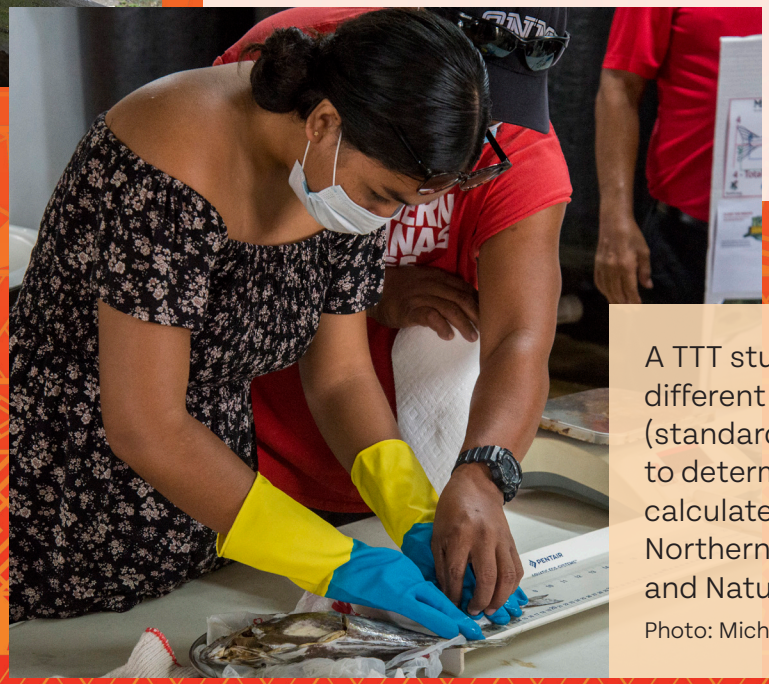


(above) Division of Fish and Wildlife Data Technician Ed Ogo goes over fish identification with TTT participants.

Photo: Floyd Masga

Tasi to Table (TTT) is a nonprofit organization established in 2020 to build capacity for sustainable fishing practices, environmental protection and preservation, while teaching safe boating practices, safety precautions and reel maintenance. Aside from the varied fishing methodologies offered in the program, like shoreline casting, shallow bottom, deep drop and trolling, the program also shares information about career pathways and mental health. TTT has around 200 students from all public high schools on Saipan, Tinian and Rota, who are eligible to receive extra credit for participating in the year-long program.

The Western Pacific Regional Fishery Management Council partners with TTT to share our activities in the community like the university scholarship program, and about fishery regulations like the Magnuson-Stevens Act. The Council encourages members to use the Catchit Logit e-reporting app to fill out fishing trip reports that will improve fishery management in the region. John Gourley (Council vice chair for the CNMI) at Micronesian Environmental Services taught TTT students to dissect fish to learn about their life history. Students have also been very active in organizing and coordinating fishing tournaments, including collecting fish biosamples.



A TTT student from Saipan learns different methods of measuring fish (standard, fork and total lengths) to determine growth rates and to calculate feeding amounts at the Northern Marianas College Aquaculture and Natural Resources facility.

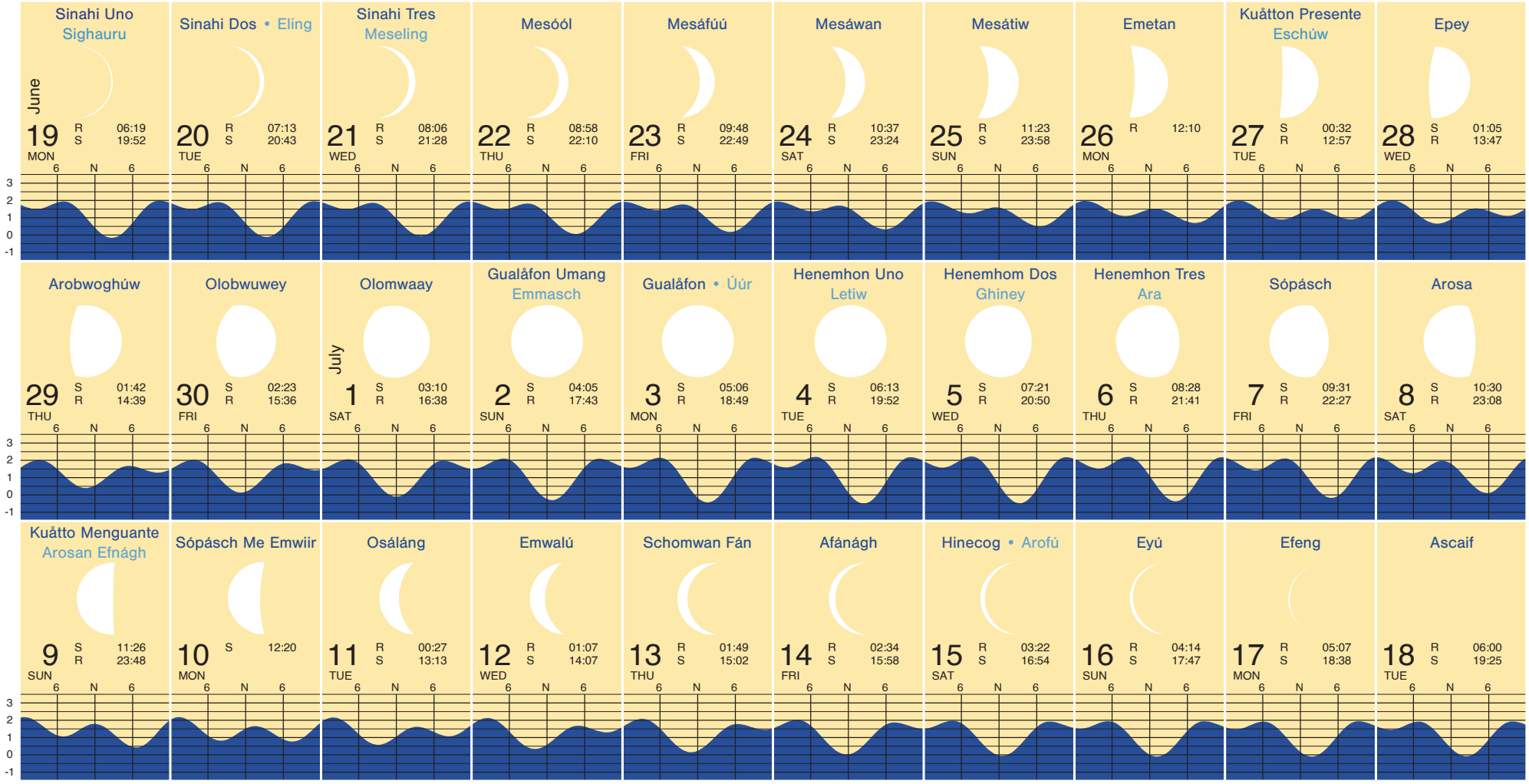
Photo: Michael Ogo

Makmamao ⇝ Ghúúw

2023

June 19 - July 18

Sinahi Uno Sighauru	Sinahi Dos • Eling	Sinahi Tres Meseling	Mesóól	Mesáfúú	Mesáwan	Mesátiw	Emetan	Kuåtton Presente Eschúw	Epey
June 19 MON R 06:19 S 19:52	20 TUE R 07:13 S 20:43	21 WED R 08:06 S 21:28	22 THU R 08:58 S 22:10	23 FRI R 09:48 S 22:49	24 SAT R 10:37 S 23:24	25 SUN R 11:23 S 23:58	26 MON R 12:10	27 TUE S 00:32 R 12:57	28 WED S 01:05 R 13:47
Arobwoghúw	Olobwuwey	Olomwaay	Gualåfon Umang Emmasch	Gualåfon • Úúr	Henemhon Uno Letiw	Henemhom Dos Ghiney	Henemhon Tres Ara	Sópásch	Arosa
29 THU S 01:42 R 14:39	30 FRI S 02:23 R 15:36	July 1 SAT S 03:10 R 16:38	2 SUN S 04:05 R 17:43	3 MON S 05:06 R 18:49	4 TUE S 06:13 R 19:52	5 WED S 07:21 R 20:50	6 THU S 08:28 R 21:41	7 FRI S 09:31 R 22:27	8 SAT S 10:30 R 23:08
Kuåtto Menguante Arosan Efnágh	Sópásch Me Emwiir	Osáláng	Emwalú	Schomwan Fán	Afánágh	Hinecog • Arofú	Eyú	Efeng	Ascaif
9 SUN S 11:26 R 23:48	10 MON S 12:20	11 TUE R 00:27 S 13:13	12 WED R 01:07 S 14:07	13 THU R 01:49 S 15:02	14 FRI R 02:34 S 15:58	15 SAT R 03:22 S 16:54	16 SUN R 04:14 S 17:47	17 MON R 05:07 S 18:38	18 TUE R 06:00 S 19:25



MOON-RELATED OBSERVATIONS AND ACTIVITIES

Western Pacific Regional Fishery Management Council



M&M Fish Mart owner Manny Corpuz waits for customers with coolers full of fresh fish.

Photo: Floyd Masga

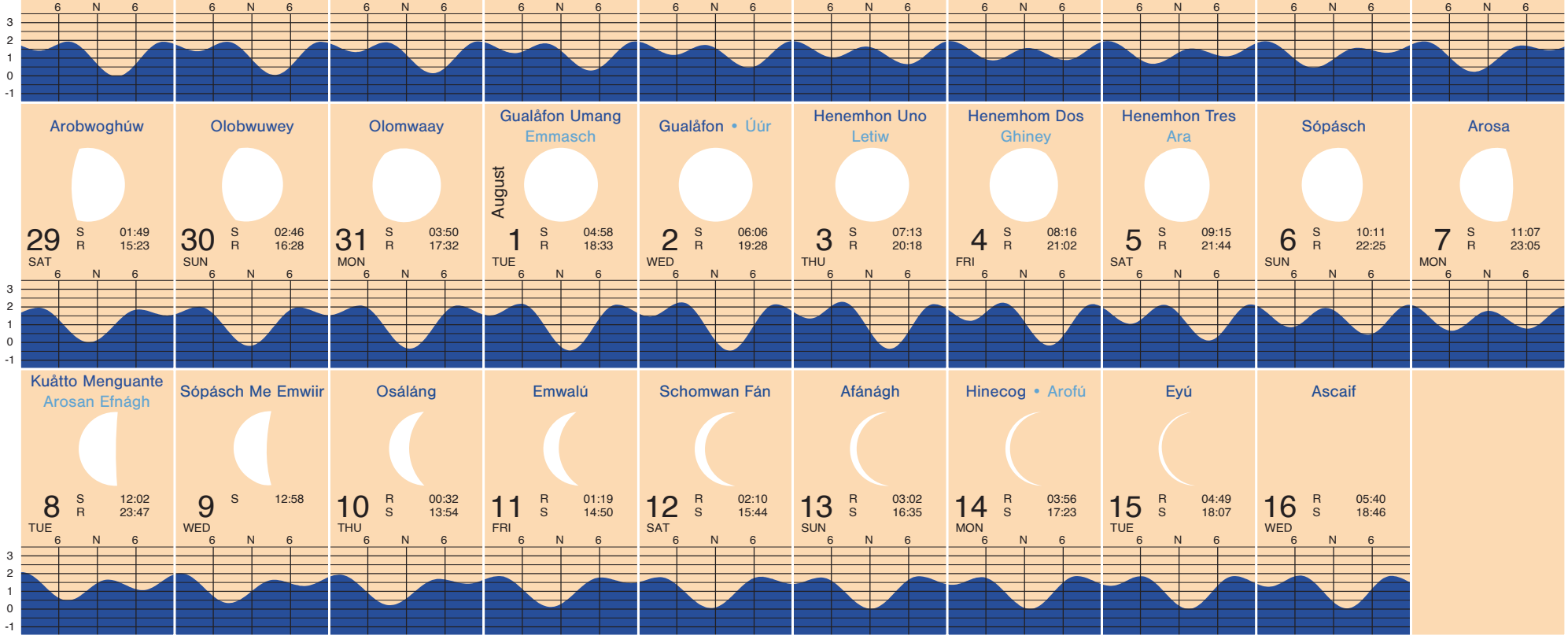
From natural disasters to COVID-19 to increasing fuel prices, roadside fish vendors is the CNMI have struggled for several years. Fish vendors have their finger on the pulse of the market and report that fishing has been good, and catch rates for pelagics, reef fish, crustaceans and bottomfish have been excellent. However, it has been difficult to move their product due to stagnant markets caused by COVID-19-related restrictions.

Mananaf Uul

2023

July 19 - August 16

Sinahi Uno Sighauru	Sinahi Dos • Eling	Sinahi Tres Meseling	Mesóól	Mesáfúú	Mesáwan	Mesátiw	Emetan	Kuåtton Presente Eschúw	Epey
July 19 WED R 06:53 S 20:08	20 THU R 07:44 S 20:47	21 FRI R 08:32 S 21:24	22 SAT R 09:19 S 21:58	23 SUN R 10:05 S 22:31	24 MON R 10:51 S 23:05	25 TUE R 11:39 S 23:40	26 WED R 12:29	27 THU S 00:17 R 13:22	28 FRI S 00:59 R 14:20
Arobwoghúw	Olobwuwey	Olomwaay	Gualåfon Umang Emmasch	Gualåfon • Úúr	Henemhon Uno Letiw	Henemhom Dos Ghiney	Henemhon Tres Ara	Sópásch	Arosa
29 SAT S 01:49 R 15:23	30 SUN S 02:46 R 16:28	31 MON S 03:50 R 17:32	August 1 TUE S 04:58 R 18:33	2 WED S 06:06 R 19:28	3 THU S 07:13 R 20:18	4 FRI S 08:16 R 21:02	5 SAT S 09:15 R 21:44	6 SUN S 10:11 R 22:25	7 MON S 11:07 R 23:05
Kuåtto Menguante Arosan Efnágh	Sópásch Me Emwiir	Osáláng	Emwalú	Schomwan Fán	Afánágh	Hinecog • Arofú	Eyú	Ascaif	
8 TUE S 12:02 R 23:47	9 WED S 12:58	10 THU R 00:32 S 13:54	11 FRI R 01:19 S 14:50	12 SAT R 02:10 S 15:44	13 SUN R 03:02 S 16:35	14 MON R 03:56 S 17:23	15 TUE R 04:49 S 18:07	16 WED R 05:40 S 18:46	



MOON-RELATED OBSERVATIONS AND ACTIVITIES

Western Pacific Regional Fishery Management Council



Tasi Watch Rangers Laurina Sebaklim and Jether Yobech conduct site visits and collect data on recycled fishing gear.

Photos: Jolly Ann Cruz, MINA



In 2021, the Mariana Islands Nature Alliance (MINA) installed 10 monofilament recycling bins at 3 popular fishing sites on Saipan: Garapan Fishing Base, Smiling Cove Marina and Sugar Dock. The goal of the pilot project funded by the National Marine Fisheries Service (NMFS) is to reduce the environmental damage caused by improperly discarded fishing lines. MINA's Tasi (Ocean) Watch Rangers routinely collect the bin contents and record data to monitor and evaluate the program's efficacy.

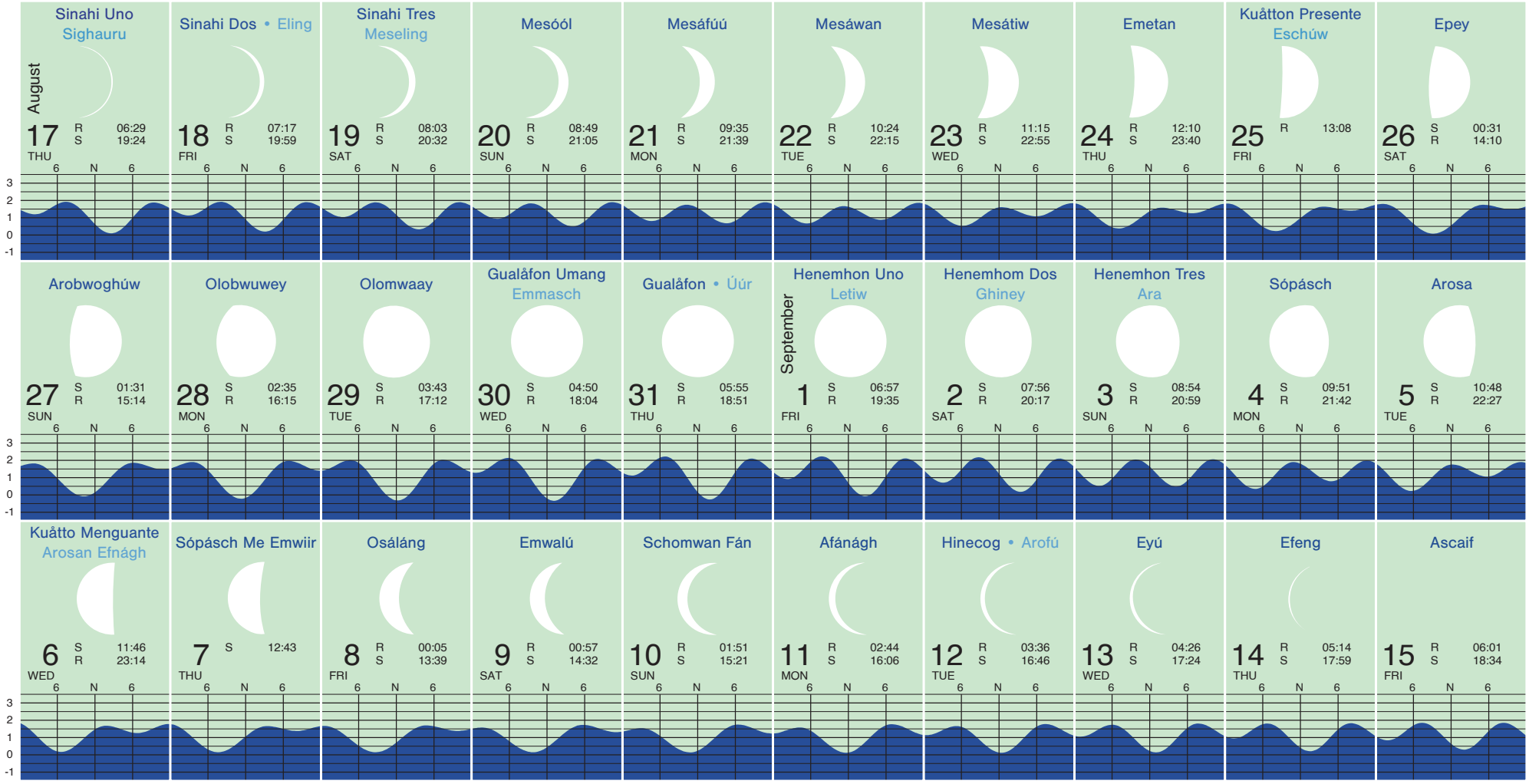
Additional NMFS funding enabled MINA to ship 21 bins to the islands of Tinian and Rota. Working together with the Tinian Department of Fire and Emergency Management Services and Rota Division of Fish and Wildlife, the bins were strategically installed at fishing sites across the islands. The agencies will also help with bin maintenance and data collection. www.minapacific.org

Semo Ehiyél

2023

August 17 - September 15

Sinahi Uno Sighauru	Sinahi Dos • Eling	Sinahi Tres Meseling	Mesóól	Mesáfúú	Mesáwan	Mesátiw	Emetan	Kuåtton Presente Eschúw	Epey
August 17 THU R 06:29 S 19:24	18 FRI R 07:17 S 19:59	19 SAT R 08:03 S 20:32	20 SUN R 08:49 S 21:05	21 MON R 09:35 S 21:39	22 TUE R 10:24 S 22:15	23 WED R 11:15 S 22:55	24 THU R 12:10 S 23:40	25 FRI R 13:08	26 SAT S 00:31 R 14:10
Arobwoghúw	Olobwuwey	Olomwaay	Gualåfon Umang Emmasch	Gualåfon • Úúr	Henemhon Uno Letiw	Henemhom Dos Ghiney	Henemhon Tres Ara	Sópásch	Arosa
27 SUN S 01:31 R 15:14	28 MON S 02:35 R 16:15	29 TUE S 03:43 R 17:12	30 WED S 04:50 R 18:04	31 THU S 05:55 R 18:51	September 1 FRI S 06:57 R 19:35	2 SAT S 07:56 R 20:17	3 SUN S 08:54 R 20:59	4 MON S 09:51 R 21:42	5 TUE S 10:48 R 22:27
Kuåtto Menguante Arosan Efnágh	Sópásch Me Emwiir	Osáláng	Emwalú	Schomwan Fán	Afánágh	Hinecog • Arofú	Eyú	Efeng	Ascaif
6 WED S 11:46 R 23:14	7 THU S 12:43	8 FRI R 00:05 S 13:39	9 SAT R 00:57 S 14:32	10 SUN R 01:51 S 15:21	11 MON R 02:44 S 16:06	12 TUE R 03:36 S 16:46	13 WED R 04:26 S 17:24	14 THU R 05:14 S 17:59	15 FRI R 06:01 S 18:34



MOON-RELATED OBSERVATIONS AND ACTIVITIES

Western Pacific Regional Fishery Management Council



DFW staff collects otoliths from a black-tipped grouper *(Epinephelus hexagonatus)*.

Photo: DFW

The Fisheries Research Section of the Division of Fish and Wildlife collects biosamples from popular food fishes in the CNMI to determine their life history characteristics. Data gathered from these fish include length, weight, sex and gonad weight. Scientists also collect the fish ear bones or otiliths, which are formed through the accumulation of calcium layers. These layers create annual patterns that can be used as a proxy for aging fish.

DFW use fish size, sex and age to determine how old a certain species is when it reproduces, which helps to improve management measures. Some fish reproduce very early in life while others are later. Different life history strategies affects how fish populations react to fishing pressure.

http://dfwcnmi.com/fisheries.php

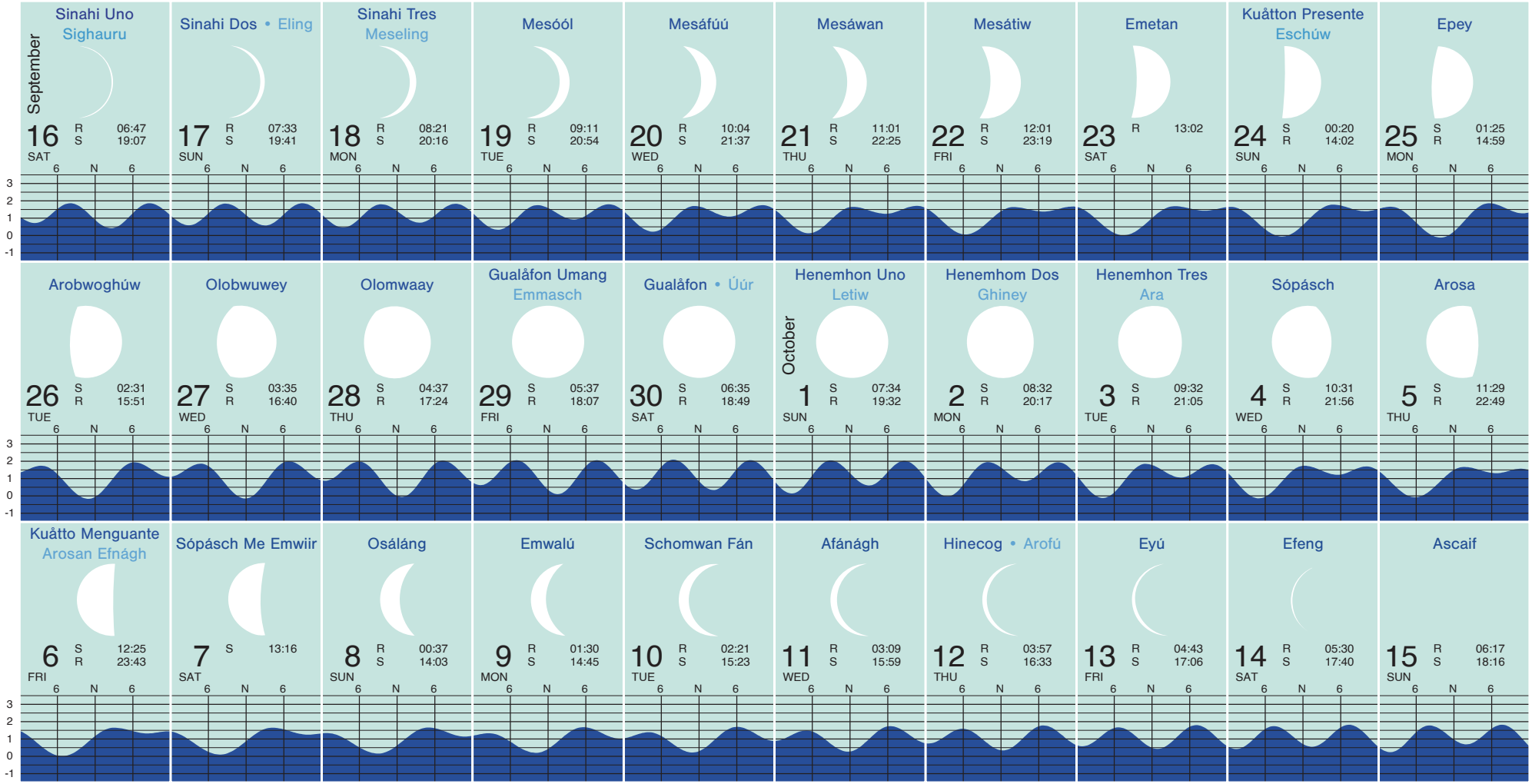


Photo: WPRFMC

Tenhos ⋙ Maal

2023

September 16 - October 15



MOON-RELATED OBSERVATIONS AND ACTIVITIES

Western Pacific Regional Fishery Management Council



(left) DFW Data Technicians Kelsey Lizama and Edward Ogo conduct an opportunistic creel survey at Garapan Fishing Base, Saipan.

(below) DFW's Data Section staff Lawrence Concepcion talks to fishers about their catch at the Garapan Fishing Base on Saipan.

Photos: Floyd Masga



The Division of Fish and Wildlife (DFW) gathers data on fishing in the CNMI to inform fisheries management decisions. Staff uses angler creel surveys to estimate fishing effort and catch, which involves interviews and inspection of individual catches. The name comes from the woven wooden basket, or creel, that anglers sometimes use to hold captured fish while they continue fishing.

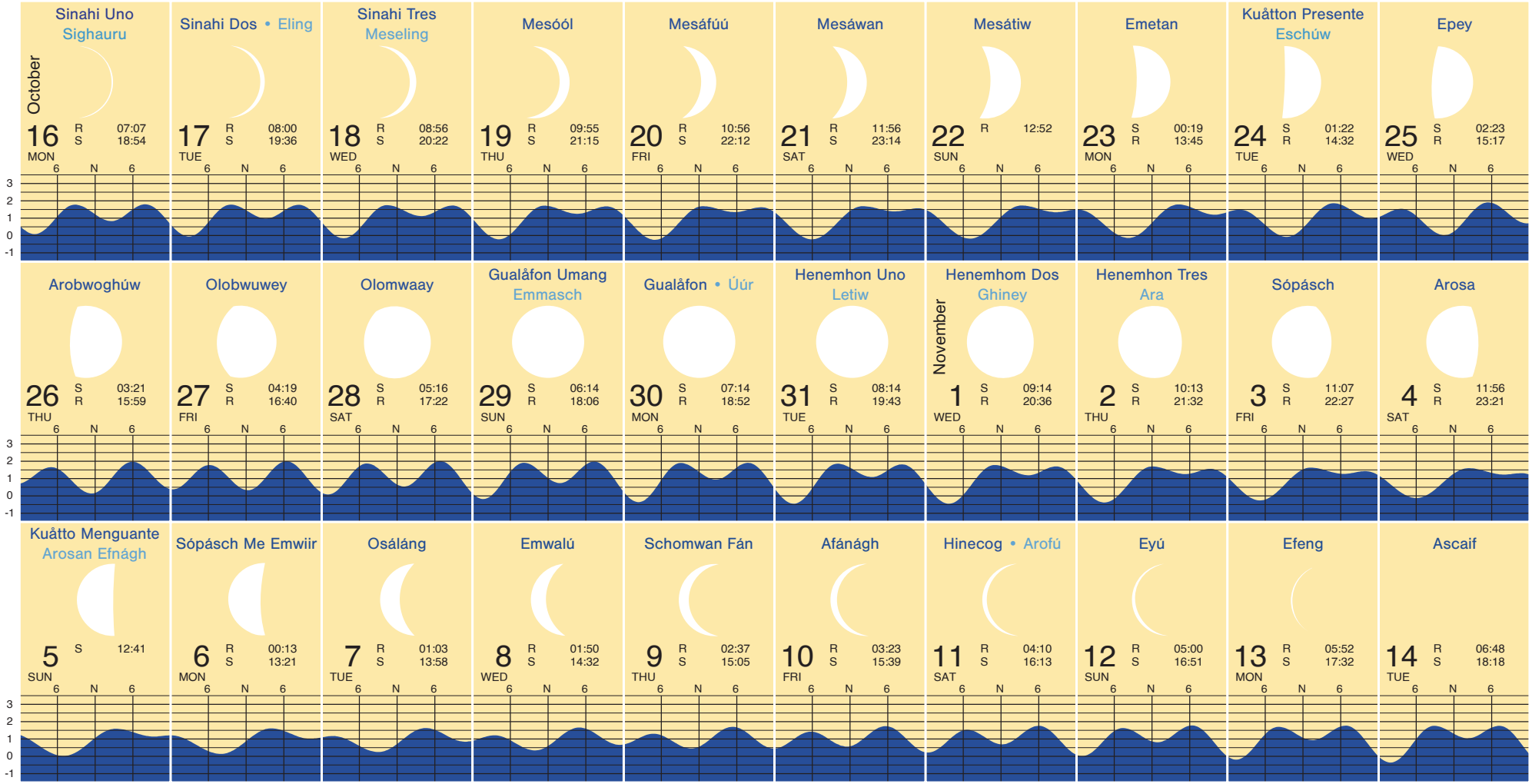
DFW staff members conduct boat- and shore-based surveys for both commercial and recreational fish catches. They record the quantity, kinds of fish, length and weight measurements as well as the locations, dates and times that fish were caught. Offshore fishing is surveyed via randomly scheduled take counts at various docks and access points. Shore-based surveys are conducted by interviewing fisherman at random times and locations.

http://dfwcnmi.com/fisheries.php

Lumamlam Itch

2023

October 16 - November 14



MOON-RELATED OBSERVATIONS AND ACTIVITIES

Western Pacific Regional Fishery Management Council



DFW scientist Trey Dunn tags and releases a *mafute'* (emperor).

Photo: Trey Dunn, DFW

The Fisheries Research Section of the Division of Fish and Wildlife (DFW) conducts tagging studies to gather data on fish including movement, growth and population size.

DFW uses 2 types of tags: 1) a plastic barb holds a **conventional tag** under the skin and a small plastic tag with an ID number and DFW phone number stays on the outside of the fish; 2) **ultrasonic tags** are inserted into a fish and emit an ultra high frequency sound picked up by underwater microphones, or hydrophones.

Obtaining good information from conventional tags requires large amounts of tagged fish and a large sampling effort to recapture tagged fish. Habitat and area information is only collected each time a fish is recaptured. DFW asks if fishermen see any of these tagged fish to notify them at 670-664-6044 and to consider not taking them so the agency can get more movement data.

Tagging fish with ultrasonic transmitters and monitoring them with an array of hydrophones allows fish to be recorded frequently at multiple locations with minimal influence from the recording process. It only requires periodic downloading of data to monitor the fish.

Local movement data is important because it gives the agency information that it can use when making management decisions regarding CNMI fisheries.

http://dfwcnmi.com/fisheries.php

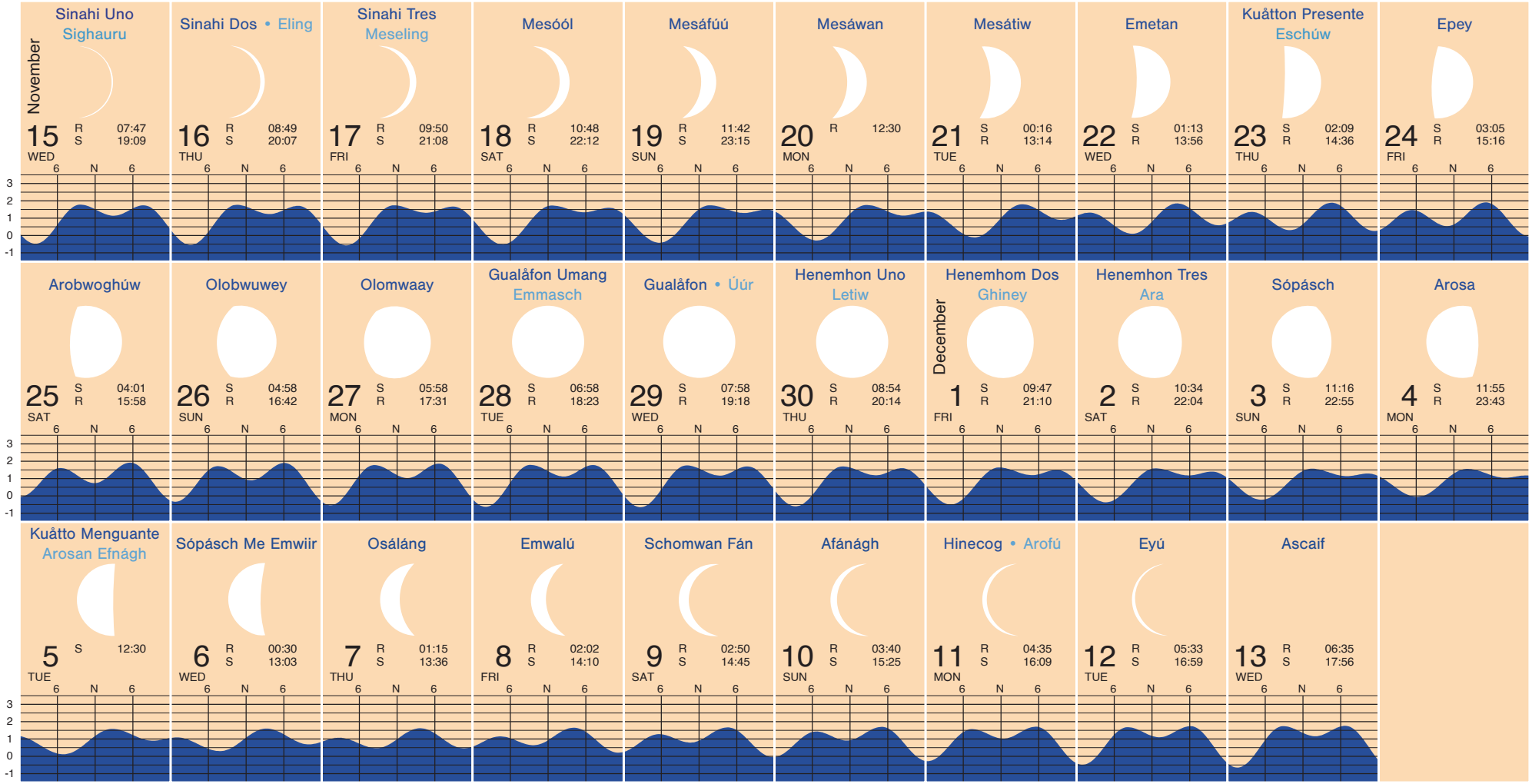
Fangualo' ⇝ Sarobwél

2023

November 15 - December 13

November

Sinahi Uno Sighauru	Sinahi Dos • Eling	Sinahi Tres Meseling	Mesóól	Mesáfúú	Mesáwan	Mesátiw	Emetan	Kuåtton Presente Eschúw	Epey
15 WED R 07:47 S 19:09	16 THU R 08:49 S 20:07	17 FRI R 09:50 S 21:08	18 SAT R 10:48 S 22:12	19 SUN R 11:42 S 23:15	20 MON R 12:30	21 TUE S 00:16 R 13:14	22 WED S 01:13 R 13:56	23 THU S 02:09 R 14:36	24 FRI S 03:05 R 15:16
Arobwoghúw	Olobwuwey	Olomwaay	Gualåfon Umang Emmasch	Gualåfon • Úúr	Henemhon Uno Letiw	Henemhom Dos Ghiney	Henemhon Tres Ara	Sópásch	Arosa
25 SAT S 04:01 R 15:58	26 SUN S 04:58 R 16:42	27 MON S 05:58 R 17:31	28 TUE S 06:58 R 18:23	29 WED S 07:58 R 19:18	30 THU S 08:54 R 20:14	December 1 FRI S 09:47 R 21:10	2 SAT S 10:34 R 22:04	3 SUN S 11:16 R 22:55	4 MON S 11:55 R 23:43
Kuåtto Menguante Arosan Efnágh	Sópásch Me Emwiir	Osáláng	Emwalú	Schomwan Fán	Afánágh	Hinecog • Arofú	Eyú	Ascaif	
5 TUE S 12:30	6 WED R 00:30 S 13:03	7 THU R 01:15 S 13:36	8 FRI R 02:02 S 14:10	9 SAT R 02:50 S 14:45	10 SUN R 03:40 S 15:25	11 MON R 04:35 S 16:09	12 TUE R 05:33 S 16:59	13 WED R 06:35 S 17:56	



MOON-RELATED OBSERVATIONS AND ACTIVITIES

Western Pacific Regional Fishery Management Council



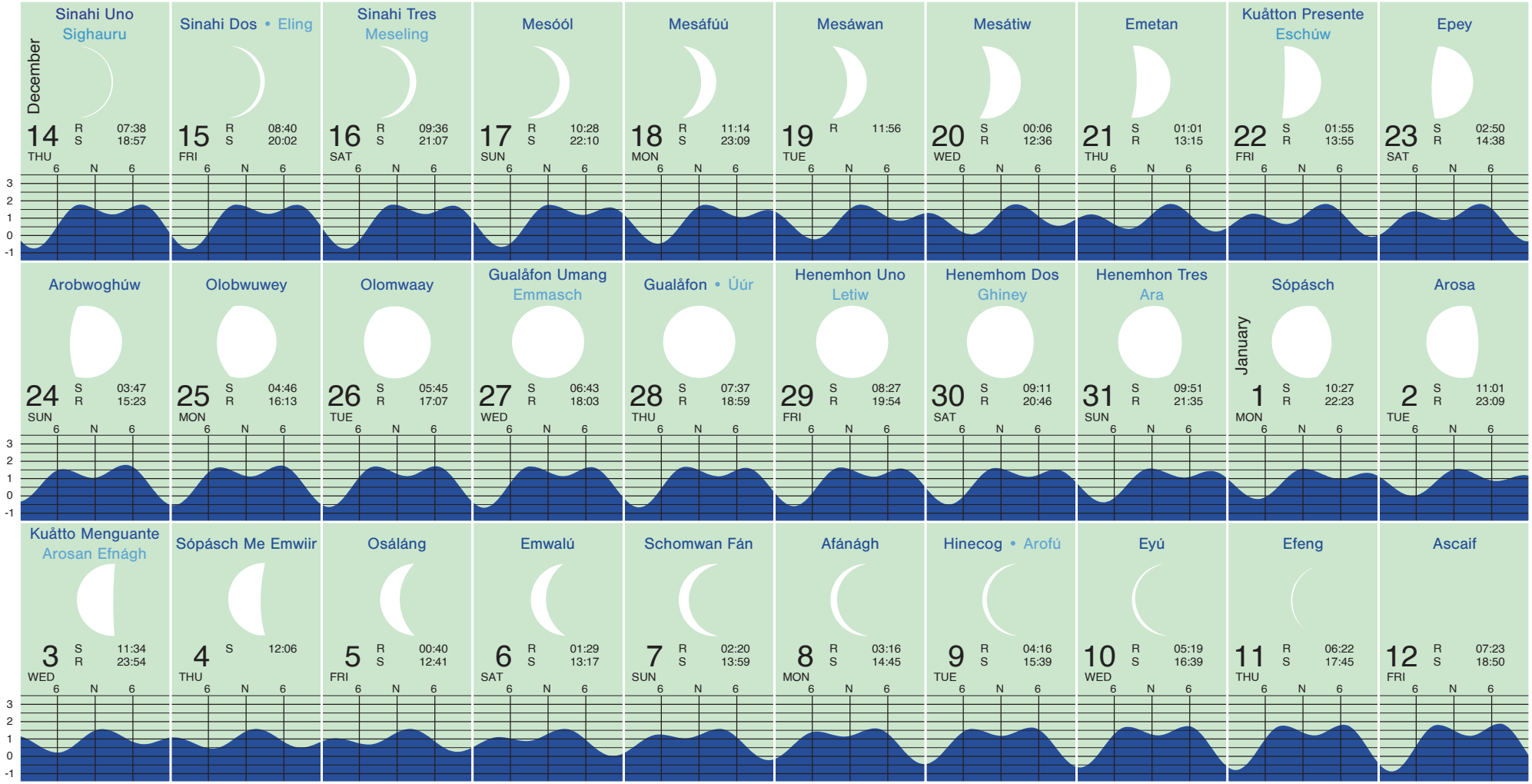
Atulai on ice at the MJ Roadside Fish Vendor, Chalan Kanoa, Saipan.

Photo: Floyd Masga

Atulai (bigeye scad, *Selar crumenophthalmus*) is an oceanic fish found in tropical regions around the world. In the Mariana Archipelago, *atulai* is fished mainly for subsistence, but is is also caught commercially and sold to residents at roadside fish vendors. Fishers usually catch *atulai* year round from Saipan to Rota by boat using underwater lights or in well-lit areas that attract the fish.

Sumongsong Oromoi

December 14, 2023 - January 12, 2024



MOON-RELATED OBSERVATIONS AND ACTIVITIES

Western Pacific Regional Fishery Management Council



Coral Restoration Specialist Kylie Hasegawa and Lead Biologist Rodney Camacho attach coral fragments to “trees.”

Photo: Pheona David, Division of Coastal Resources Management

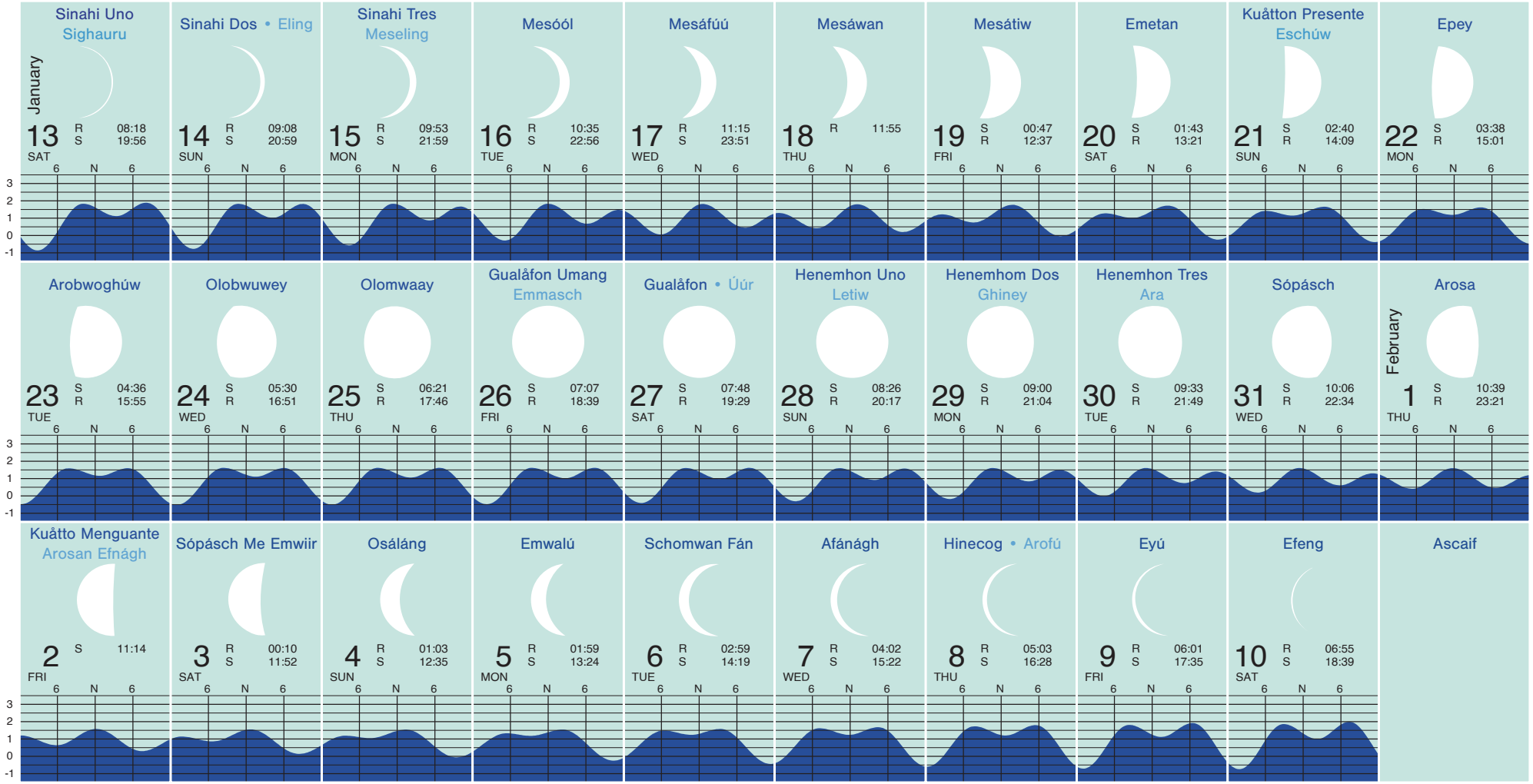
The goal of CNMI’s long-term coral reef monitoring program is to provide the information necessary for the wise use and management of our precious coastal resources. The program documents how reef communities change in response to natural environmental fluctuations as well as those caused by people. Following changes over time allows managers to assess the impacts of land-based pollution and whether regulations are needed or, when implemented, if they are working. The marine monitoring team conducts monthly scientific surveys throughout the Mariana Archipelago, gathering data on coral species diversity and colony populations, benthic (seafloor) cover, and species abundances of fish and macroinvertebrates.

https://dcrm.gov.mp/our-programs/marine-monitoring-program/about-the-marine-monitoring-program

Umayangan » Schoowl

2024

January 13 - February 10



MOON-RELATED OBSERVATIONS AND ACTIVITIES

Western Pacific Regional Fishery Management Council

About This Calendar

The Western Pacific Regional Fishery Management Council has produced traditional lunar calendars for the Commonwealth of the Northern Mariana Islands (CNMI) since 2007. The intent is to raise awareness about traditional ecological knowledge and enhance community involvement in fishery management. The *2023 Eskaleran Pulan Chamorro/2023 Refaluwasch Pápáál Maram* (Chamorro/Refaluwasch Lunar Calendar) shares information about different ways that fisheries are monitored, assessed and kept healthy.

The CNMI is a 300-mile archipelago consisting of 14 main islands, with a total land area of 183.5 square miles. The principal inhabited islands are Saipan, Rota and Tinian, with the uninhabited Island of Aguiguan (Goat Island) located southeast of Tinian. The northern, largely uninhabited islands are Farallon de Medinilla, Anatahan, Sariguan, Guguan, Alamagan, Pagan, Agrihan, Asuncion, Maug Islands and Farallon de Pajaro (Uracas).

Chamorro and Refaluwasch are the indigenous people of the Mariana Archipelago. Chamorro and Refaluwasch, along with English, are the official languages of the CNMI. The Chamorro names for the lunar months and moon phases are in dark blue, and the Refaluwasch names are in light blue. Words in italics throughout are in Chamorro. The moon phases in this calendar are for Saipan as calculated by the HM Nautical Almanac (www.astro.ukho.gov.uk/websurf). The tide charts with moon rise and set times are in Chamorro time for Saipan and were provided by OceanFun Publishing, NZ.

A special *un dangkulu na si Yu'us ma'ase* (Chamorro) and *ghilisou tumo'o'gh* (Refaluwash) to calendar contributors including Council family members Anthony T. Benavente, Richard Farrell, Michael Fleming, John Gourley, Cecilio Raiukiulipiy, Raymond Tebuteb, Lino Tenorio, Michael Tenorio; Council staff Joshua DeMello, Floyd Masga, Amy Vandehey, Zach Yamada; Maylynn Aldan, Jolly Ann Cruz, Pheona David, Trey Dunn, Kylie Hasegawa, Polly Masga, Richard Salas.

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

Send us an email at info@wpcouncil.org to let us know how you use our calendar!

About the Council

The Western Pacific Regional Fishery Management Council was established by Congress in 1976 to manage fisheries in the offshore waters surrounding Guam, the CNMI, American Samoa, Hawai'i and the U.S. Pacific Remote Island Areas. The fisheries in federal waters surrounding Guam are managed under the Mariana Archipelago and Pacific Pelagic Fishery Ecosystem Plans. Traditional knowledge and wide community involvement are integral parts of the ecosystem-based approach to fishery management.

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Front cover photo: A Tasi to Table student from Saipan learns different methods of measuring fish (standard, fork and total lengths) to determine growth rates and to calculate feeding amounts at the Northern Marianas College Aquaculture and Natural Resources facility.

Photo: Michael Ogo