DEPARTMENT OF MARINE & WILDLIFE RESOURCES

AMERICAN SAMOA GOVERNMENT
P.O. BOX 3730
PAGO PAGO, AMERICAN SAMOA96799

PHONE: (684) 633-4456
FAX: (684) 633-5944

LEMANU PELETI MAUGA
Governor

TALAUEGA ELEASALO ALE
Lt. Governor

Taotasi Archie Soliai
Director

Selaina Vaitautolu-Tuimavave
Deputy Director

DMWR Report for 194th Council Meeting

1. **Shore-based creel program:**

   The Shore-based Creel Survey completed a total of 130 runs, accomplished 49 sampled day surveys within 65 Weekdays and 14 Weekend/Holiday for this first quarter. The monitoring team recorded 23 Participation counts and 17 Interview data not including opportunistic interviews that will calculate an estimate of catch and effort data from October to December. Information collected accumulates and generates expansion totals that express the estimated catch landings by gear type of the near shore fishery.

Below are the results generated from Shorebased creel survey data collection efforts and data summaries from this quarter. Total expanded catch with pooling is estimated at 1,306lbs; the total expansion for Gear/Hr totals to 1,286lbs; and the expansion total for Catch/ Gear-Hr is 1.02lbs.

The expanded catch/ effort summary by gear methods:

2022	Rod and Reel	Gleaning	Spear-Snorkel	GillNet(A)
October - December	54lbs	573lbs	647lbs	32lbs

The catch summary also provides a list of species composition in total landings with pooling. The three dominant species for this quarter are listed below.

1. Octopus/ *Octopuses cynea*/ Fe'e 573lbs
2. Blue-banded surgeonfish/*Acanthurus lineatus*/Alogo 253lbs
3. Orangespine unicornfish/*Naso lituratus*/Ume 196lbs

Remarks: The months of October and November consists of mostly team meetings on project progress and improvements from year end results. Collaborative efforts with Western Pacific Fishery Management Council and Pacific Island Fisheries Science Center on BMUS and Creel data with fishermen workshops in both Manu'a islands and Tutuila parties were concluded.

2. Boat-based creel program

The pelagic fisheries report for longline vessels and purse seine are covered by the Pelagic Fisheries Ecosystem Report by the Western Pacific Fisheries Management Council and the Pacific Islands Fisheries Science Center. The pelagic fisheries reported here are from alia longline, bottomfishing, trolling, and mix bottomfishing/trolling in American Samoa.

There were 7 active alias that contributed to the landings from longline, bottomfishing, trolling, mix bottomfishing/trolling and spearfishing activities from October 2022 to December 2022. Throughout this quarter, these vessels have landed a total of 5,630 expanded pounds of fish. Surveys were conducted randomly throughout the month for at least 3 weekdays a week and 2 weekends per month. Throughout this quarter, there were 65 fishing trips with fishing effort recorded from 16 interviews. Species landed by the local alias are reflected in the port sampling through Boat-based Creel Surveys.
The market sales of pelagic, bottomfish and nearshore species are found in the Commercial Invoice System. Registered vendors in the Commercial Invoice System are local businesses that purchase fresh and/or frozen local fish. In accordance to A.S.A.C 24.0905, Dealers Records need to reflect all this pertinent information on the invoices provided by the department. Purchase transactions such as Resold (purchase from another business) and Imports are also reflected in these commercial invoices. In accordance to A.S.C.A 24.0305, vendors need to submit their invoices on or before the 16th of every month. The department sends a team on a courtesy visit to all vendors to assure data quality and control. Invoices collect do not always reflect purchases made during the collection. Some invoices are collected or submitted to the department at a later date which will alter present numbers reflected in this report. There are currently 72 vendors in the Commercial Invoice System and all businesses have been visited this quarter.

The objectives of the project and corresponding activities for this reporting period are:

1. **Monitor catches of highly migratory, species harvested within American Samoa's EEZ by means of port sampling of commercial vessels and continue documentation of market sales.**

Three active fishing vessels caught 4,221 expanded pounds of pelagic fish species this quarter. The most dominant fish caught was the Skipjack tuna (*Katsuwonus pelamis*). Table 1. Lists the pelagic species caught from alia boats this quarter.

Table 1. ***Pelagic catches from alia boats throughout October 2022 to December 2022:***

Species	*Scientific Name*	Longline	Trolling	Total (lbs)
Albacore tuna	*Thunnus alalunga*	1,586.0	-	1,586.0
Black jack	*Caranx lugubris*	-	15.4	15.4
Dogtooth tuna	*Gymnosarda unicolor*	-	37.4	37.4
Kawakawa	*Euthynnis affinis*	-	3.3	3.3
Mahimahi	*Coryphaena hippurus*	527.9	148.6	676.5
Skipjack tuna	*Katsuwonus pelamis*	-	1,902.6	1,902.6
	Total (lbs)	***2,113.9***	***2,107.3***	***4,221.2***

Market sales of pelagic species are recorded in the Commercial Invoice System and the following table reflects the purchase made this quarter:

Table 2. ***Market sales of pelagic species recorded in invoices for this quarter:***

Species	Local	Resold	Total (lbs.)
Black marlin	1,132.0	5,436.0	6,568.0
Mahimahi	-	571.9	571.9
Sailfish	-	315.0	315.0
Skipjack tuna		89.0	89.0
Swordfish	503.2	1,076.2	1,579.4
Wahoo	198.0	2,219.8	2,417.8
Yellowfin tuna	570.4	112.0	682.4
Total (lbs.)	***2,403.6***	***9,819.8***	***12,223.4***

2. Monitor catches of Bottomfish species harvested within American Samoa's EEZ by means of documenting market sales and port sampling.

There were two alias that contributed to the total landings of 519 expanded pounds of bottomfish species this quarter. Humpback snapper (*Lutjanus gibbus*) was the dominant species caught this reporting period with an estimated 338 pounds which accounts for 65% of the bottomfish species caught. The following table lists the species caught this quarter.

Table 3. ***Total bottomfish landings by species/group from October 2022 to December 2022***

Species	*Scientific Name*	Total (lbs.)
Bigeye trevallay	*Caranx sexfasciatus*	30.6
Bluelined snapper	*Lutjanus kasmira*	17.3
Gray jobfish	*Aprion virescens*	110.8
Humpback snapper	*Lutjanus gibbus*	338.1
Redgill emperor	*Lethrinus rubrioperculatus*	21.8
	Total (lbs.)	***518.6***

Commercial invoices this quarter reported the purchase of 51 lbs. of the Ruby snapper (*Etelis carbunculus*) from a local fisherman at the value of $204.00. This is the only record in regards to bottomfish purchases this quarter.

3. Monitor catches of Spearfishing activities within American Samoa's EEZ by means of documenting market sales and port sampling.

There were four alias actively spearfishing this quarter with a recorded catch of 772 expanded pounds of nearshore marine species. Spearfishing activities are conducted at least 4 days a week and 8 interviews collected this quarter and reported the following statistics. The most dominant species caught is the Bridled parrotfish (*Scarus frenatus*) which accounts for 29% of total landing of nearshore fisheries caught. The following table lists the most common species caught this quarter.

Table 4. ***Total of nearshore fish species landed by boat-based spearfishing activities.***

Species	Scientific Name	Total (lbs.)
Elongate surgeonfish	*Acanthurus mata*	26
Bridled parrotfish	*Scarus frenatus*	225
Redlipped parrotfish	*Chlorurus rubroviolaceus*	80
Stareye parrotfish	*Calotomus carolinus*	60
Spiny Lobster	*Panulirus sp.*	256
	Others	125
	Total (lbs.)	***772***

Market sales of nearshore species this quarter are valued at $3,131.60. Commercial invoices show 312 lbs. of the Bluebanded surgeonfish (*Acanthurus lineatus*) this quarter as the most popular purchase.

Table 5. ***Nearshore species reported in the commercial invoice system from October 2022 to December 2022*****:**

Species	Local	Resold	Total (lbs)
Bluebanded surgeonfish	297.0	15.0	312.0
Inshore groupers	4.0	-	4.0
Parrotfish	117.0	-	117.0
Squirrelfish	43.0	-	43.0
Striped bristletooth	111.0	-	111.0
Unicornfish	115.0	-	115.0
Spiny lobster	43.0	-	43.0
	730.0	***15.0***	***745.0***

4. Disseminate information of American Samoa's Fisheries and Data Collection efforts

a. Posters on local fish species caught by Spearfishing, Longline, Troll and Bottomfishing were distributed to all 72 vendors in the Commercial Invoice System.

s. Fund Enforcement activities related to interjurisdictional fish species.

a. The department issued 16 commercial fishing licenses for local fishermen this quarter. Eleven were renewals and five newly issued fishing licenses.
b. Commercial Invoice Collection is scheduled on/or before the 16th of every month. The team was able to collect commercial invoices from 57 vendors this quarter.
c. When applying for a Commercial Fishing License, applicants will need to sign an Acknowledgement Form that verifies their participation in a Regulations Briefing by the Enforcement Division. This form also informs applicant(s) of their responsibility to participate in all data collection efforts by the department. Copies of the forms are given to the (1) applicant; (2) Enforcement Division and (3) Boat-based Creel Survey Program for records and as supporting documents in future citations.

3. **Key Reef Species Program**: Staff completed 6 reef slope sites and 4 reef flat sites for this quarter. Staff also assisted other programs: a) community visits in the Community-Based Fisheries Management Program; and b) in regular inspections of FADs C, B and E since the FAD program has only one staff. One of its staff is on workman's compensation leave. Staff are also involved in maintaining Division boats, dive shop and FAD storage facilities.

4. **Sportfish Life History Program**: Staff are coordinating with the Australian Genome Research to develop population genetic markers for model species in the Samoan Archipelago. The microsatellite markers of *Acanthurus lineatus* and *Myripristis berndti* tissues from Manua Islands and Rose Atoll were developed for the last quarter. These will be additional data to those already collected from Tutuila, Upolu and Savaii. Staff just recently collected bottomfish samples of two species, *Lutjanus kasmira* and *Lethrinus rubrioperculatus*, in Tutuila, Savaii and Upolu. These species will be used as shallow bottomfish species models for population genetic studies.

5. **Fish Aggregation Device Program**: There were two fishing tournaments between Sept and Dec. 2022: the Coastweek Fishing Tournament on Sept 30 and the Buds and Suds Fishing Tournament on Nov 25 and 26.

   These are the data collected by staff for the Coastweek Fishing Tournament:

Boats
Anita Pier (Tim)
Deep Calling(Dave)
Douple Trouble
Mumua (Will Sword)
Paepae Simi
South Wind (Eo)
Tava'e Ula (Brian Beck)

Species Landings	Sum of Weight (lbs)
Blue Marlin	432.6
Mahimahi	360.4
Yellowfin tuna	171.0
Dogtooth tuna	115.6
Skipjack Tuna	87.6
Indo- Pacific sailfish	59.2
Great barracuda	23.8
Grand Total	1250.2

   These are the data collected by staff for the Buds n Suds Fishing Tournament:

Boats/Owners
Anita Pier
Double Hooked
Double Trouble
Easy Rider
Free Spirit (Doug)
Fu'a 2
Happy Hooka
Harley Rose (William Thomas)
Lady Taiaopo
Reel Cat
Sail Fish
Willie Sword
Yellow Fin (Roy Lee)

Fish landings	Sum of Weight (lbs)
Yellowfin tuna	455.4
Mahimahi	311.4
Dogtooth tuna	154.0
Wahoo	45.2
Skipjack Tuna	39.0
Great barracuda	38.6
Rainbow Runner	16.4
Grand Total	1060.0

6. **<u>Giant Clam Restoration Planning</u>**: The grant supported recent giant clam surveys in Manua and update giant clam density analyses conducted by UH Manoa graduate student Paolo Marra-Biggs in Nov 2022. The excerpts of his report are included in this quarter report.

   Observed in previous surveys, conducted by Green & Craig 1999, and follow up reports conducted by Dr. Green and the American Samoa Coral Reef Advisory Group (CRAG) in subsequent years, a declining population trend was observed in giant clams across much of the archipelago. Surveys were concluded across the following years: 1999, 2002, 2018, and resurveyed on this trip during October – November 2022. Five additional sites were opportunistically surveyed to gather a more geographically comprehensive distribution around each island in Manu'a (see figures 2 & 3).

   Additionally, we gathered non-lethal tissue biopsy samples from 38 clams: 7 from Ofu, 5 from Olosega, and 26 from Ta'u. These will supplement our previously collected samples from our 2017 efforts, which will be used in an archipelago-wide population connectivity study. Ta'u and Northern Ofu/Olosega were data gaps in our genetic sampling efforts, and this trip allowed us to attain a broad geographic distribution of clams to deliver higher-resolution results for future population connectivity questions.

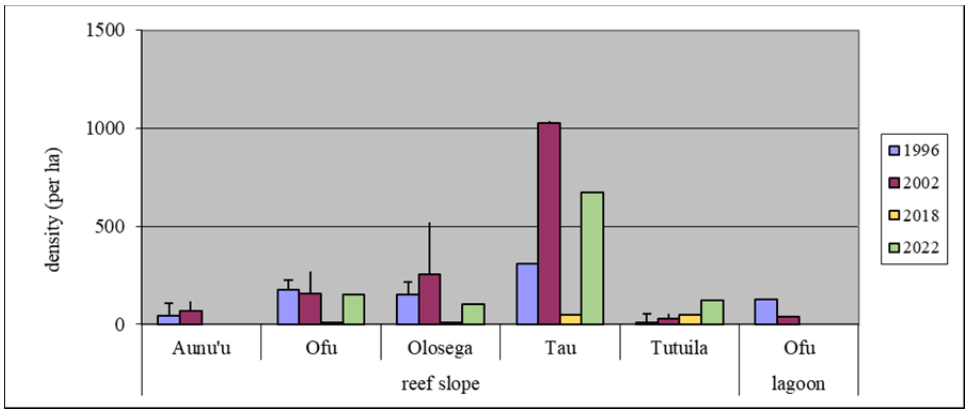

Figure 1: Mean density (number of individual ha-1) of live giant clams surveyed on reef slopes (10 m) on six islands in American Samoa by Green et al. in 1994/95, 2002, 2018, and 2022 in this study.

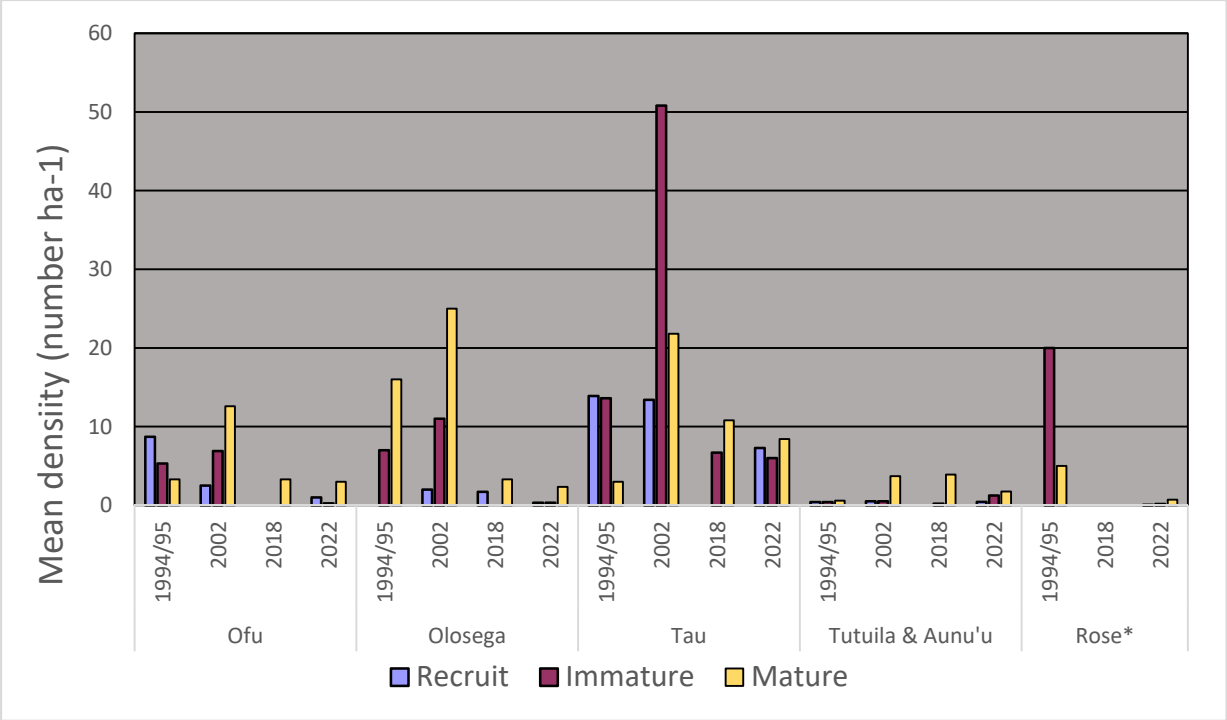

Figure 2: Mean density (number of individual ha-1) of live giant clams in each size category surveyed on reef slopes (10m) on six islands in American Samoa in 1994/95, 2002 and 2018. Asterisk represents methodology change between Green et al. studies and our 2022 surveys.

Out of the 406 clams surveyed across all islands, 97% have been identified as T. maxima. There have been six *T. noae* and two *T. squamosa* seen on or off transects on all our dives/snorkels. *T. squamosa* is known to inhabit at deeper depths than other Chametrachea tridacnids, but they were not abundant on our transects, possibly due to the shallow depths of our surveys.

7. COMMUNITY-BASED FISHERIES MANAGEMENT PROGRAM SUMMARY OF ACTIVITIES

DMWR CFMP team in coordination with Education section, visited Tafuna High School on October 17th 2022 for outreach and awareness day. The senior science class was taken through the program's main goals for marine conservation and food sustainability. The day also included fun games and activities for the kids to enjoy. Wildlife team also joined the day for awareness on their projects, specifically with the flying foxes of American Samoa.

Figure 1: Tafuna high school outreach

CFMP staff had a meeting with the Micronesia Conservation Trust (MCT) on the 24th of October 2022. The main objective of the meeting was to explore avenues that MCT could assist on for future funding. Some of the possibilities explored included capacity building trainings for staff on development of management plans and further strategic planning. Work is ongoing on this matter.

Figure 3: Meeting with MCT

Mr. Gerry Davis of the Pacific Islands Regional Office of NOAA met with the Fisheries Division team on November 4th 2022. The meeting followed a series of virtual discussions on the Fisheries component development of the American Samoa jurisdictional coral reef fisheries management plan. Amongst work to be completed for the next step forward includes the selection of the top 5 priority reef species for management. This is an ongoing work with the goal to have it completed by the end of this fiscal year.

Figure 2: Meeting with Dr. Gerry Davis

CFMP joined the coral restoration meeting on November 9th 2023, led by the Coral Reef Advisory Group (CRAG). The meeting highlighted the coral restoration pilot project in Aua and overview of the Action Plan including priorities moving forward with

project activities. The coral restoration project is currently spearheaded by the coral fellow under the National Coral Reef Management Fellowship Project with CRAG.
The coral fellow also attended the Reef Futures conference together with CFMP staff in September-October (as highlighted in last quarter's report). Work is ongoing for further collaboration with CRAG for coral restoration in the Marine Protected Area (MPA) sites.
CFMP and the rest of the Fisheries team attended the bottom fishing planning workshop at Tradewinds for Tutuila fishermen on November 9th and 10th 2023, led by the Boat and Shore-based creel teams.

Figure 5: Bottom fish/cluster analyses PIFSC

The day included management priorities on several bottom-fish species in Tutuila Island. In addition, there was a presentation from the Pacific Islands Fisheries Science Centre on a framework/guidance to identify priority coral reef fish species for management in American Samoa, consisting of cluster analyses of various species caught from different gears analysed with life history variables.

Figure 4: Coral restoration meeting

DMWR office hosted an exposition on the 23rd November 2022, attended by 1 high school and 2 elementary schools for information and engagement. CFMP presented on the use and benefits of the program for the community and marine environment, including showcasing its new information materials as shown below:

Figure 6: Expo at DMWR office

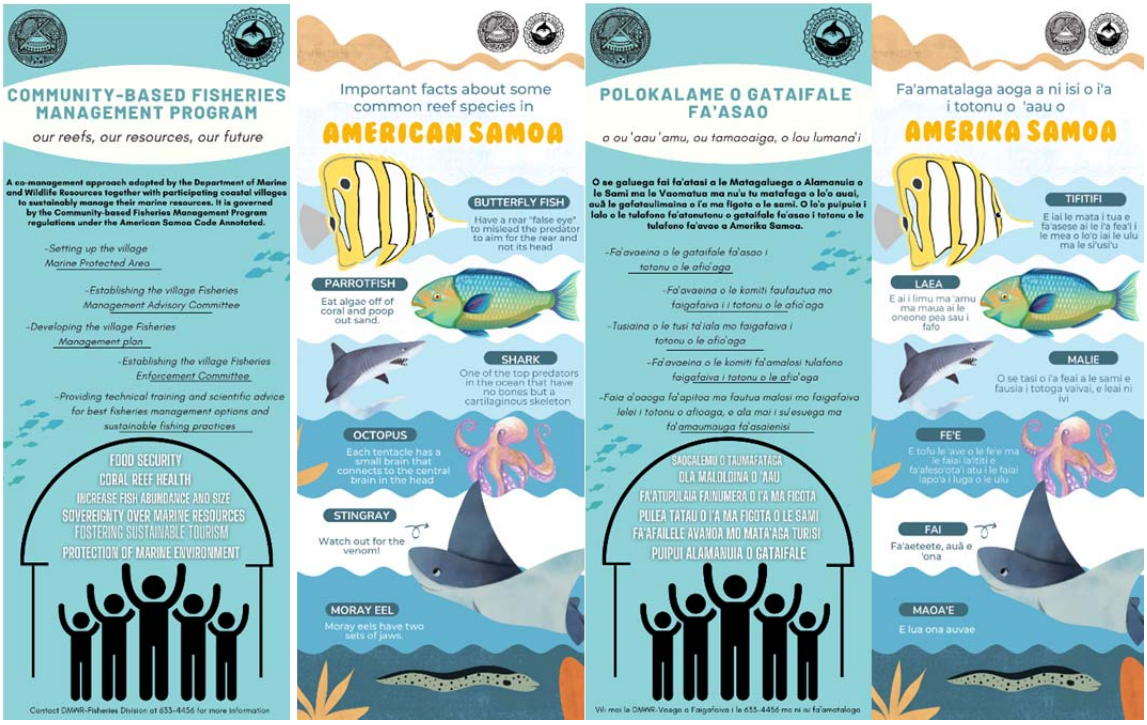

Figure 7: CFMP new information sheets

Figure 8: CFMP internal training

CFMP staff conducted an internal Fish monitoring survey training on the 2nd of December 2023. Four (4) of the CFMP staff were lectured and reminded of the different survey methods and several fish IDs used over the years in the reef flats and reef slopes monitoring surveys. This team training will continue from time to time for staff capacity building, in reference to the DMWR/CRAG draft dive manual and dive protocols.

As at end of 2022, CFMP staff have 3 certified divers (open water level) able to carry out monitoring surveys on the reef slopes. Monitoring activities are planned out accordingly with Key Reef and CRAG dive team based on weather and fair conditions for safety. Scientific data collected over time are analyzed for better management decisions within the communities MPAs.

As part of sharing knowledge from work, CFMP and Wildlife staff participated as judges in the Manumalo science fair competition on December 9th 2023. The day was filled with information exchange on some interesting scientific projects related to terrestrial and marine environments, where staff were respectfully placed for insight and fair advice to both Elementary and High school students.

CFMP and Key Reef staff conducted a skill proficiency dive in the reef slope of Faga'alu on the

Figure 9: Science fair competition Manumalo Academy

15th December 2023. Joined by CRAG staff, the day included constant depth swim control (30 ft from surface trials), equalizing, safety stops, dive watch monitoring, buoyance control and generally staying comfortable in the water. Biological monitoring surveys will start and continue in the 2nd quarter of this fiscal year.

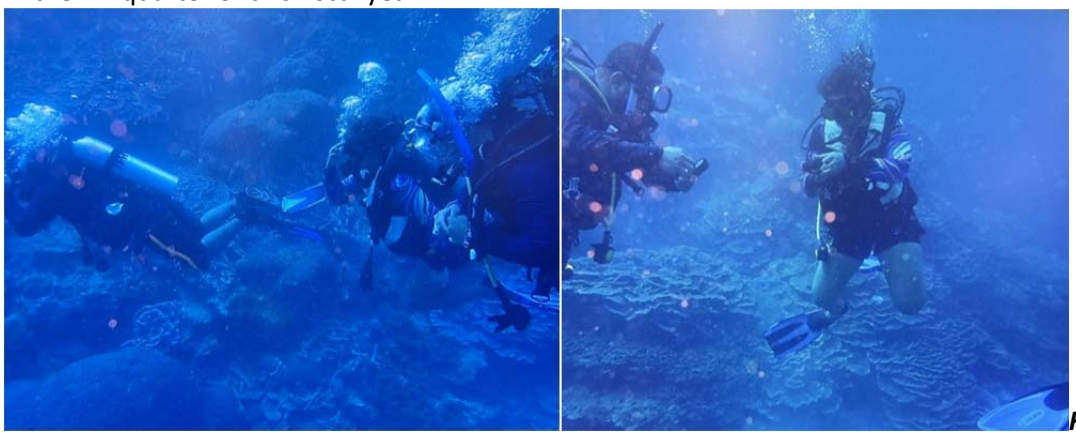

Figure 10: Proficiency dive at Fagaalu (CRAG, CFMP, Key Reef)

Following the signed MPA cooperative agreement with DMWR on June 29th 2022, consulations were in place with the village council of Amanave to have a "no fishing" sign installed for awareness to the public. The sign was successfully installed by All Star company on the 29th December 2022. The picture with the village council was later taken on the 19th January 2023, following the availabiliy and election of the new mayor of Amanave.

Figure 11: Amanave village newly installed MPA sign