

# 2024 Annual Fisher Observations Data Summary and Analysis for the U.S. Pacific Islands Region: American Samoa, CNMI, Guam, and Hawai‘i

September 2025



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**FISHERIES**



# 2024 Annual Fisher Observations Data Summary and Analysis for the U.S. Pacific Islands Region: American Samoa, CNMI, Guam, and Hawai‘i

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NOAA Data Report DR-25-12  
September 2025



## **Acknowledgements**

The authors would like to thank the fishermen and fisherwomen across the U.S. Pacific Islands region for sharing their knowledge and observations with us.

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Edited by Jill Coyle

## **Recommended citation**

Ayers, A., Leong, K., Hospital, J., & Tam, C. (2025). *2024 annual fisher observations data summary and analysis for the U.S. Pacific Islands Region: American Samoa, CNMI, Guam, and Hawai'i* (Data Report Series, DR-25-12). Pacific Islands Fisheries Science Center.

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National Marine Fisheries Service  
National Oceanic and Atmospheric Administration  
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## Executive Summary

Knowledge and insights from people who fish can provide detailed ecological insights, help fill data gaps, and offer insights into the human dimensions of fisheries. Building lasting relationships with people who fish can lead to better informed scientific models and management decisions that are grounded in daily observations made on the water. Thus Hawai'i fishermen Clay Tam and Roy Morioka created the Fisher Observations Initiative to add voices from the fishing community and their ecological knowledge and observations to the Western Pacific Regional Fishery Management Council's annual stock assessment and fishery evaluation (SAFE) reports. Similar to previous years, this report summarizes data on social, economic, ecological, and management (SEEM) aspects of archipelagic and pelagic fisheries collected from fishers across the region during annual summit meetings held in January 2024, for American Samoa, the CNMI and Guam, and Hawai'i.

Unlike previous years, where American Samoa, the CNMI and Guam, and Hawai'i each had their own respective data reports, this year, all of the areas are combined. This report also includes a short consideration of 'common themes' across the U.S. Pacific Islands region that should illuminate some of the issues fishers face inside their collective 1.7 million square nautical miles of United States Exclusive Economic Zones. This information combined represents a snapshot of issues fishers in the U.S. Pacific Islands region faced in 2024. While it may not be comprehensive or necessarily representative of every fisher's narrative, it does reflect the thoughts and observations of 42 experienced fishers. By documenting their lived experience on the water, it is our hope that scientists and managers can develop a more holistic picture of fisheries and ecosystems in our region.

This data report begins with a short description of previous fisher observations, efforts, and data reports, followed by an overview of methods of data collection and analysis. We share results from the different island areas—first with American Samoa, then the CNMI, Guam, and finally, Hawai'i.

Authors Ayers and Leong attended all of the annual summit meetings virtually and took detailed, near verbatim notes. Council and Pacific Islands Fisheries Group staff also took detailed notes. Ayers combined and proofed all meetings notes into one document, then thematically coded the notes using the SEEM categories, along with subcategories to capture main ideas. Ayers further tagged coded sections of text using management unit species categories such as pelagic, bottomfish, ecosystem component species—and individual species—where applicable. These unedited thematically coded strings of text were organized into tables for each of the various jurisdictions with counts of mentions by meeting participants. Collectively, these tables represent the 'data' in this data report.

Across all island areas, fishers described challenges related to fishing access and improvements needed to address fishing infrastructure. Market conditions remain challenging for fishers across the region due to excess supply of fish during good runs and the difficulty of timing markets. These trips are further beset by high fuel prices and other fishing costs. Fishers noted an abundance of small marlin across all areas, perhaps due to changes in currents. Shark depredation continued in all areas, from small boats to longline fishing operations, with no obvious solutions. In 2024, the third and final year of the most recent La Niña, westerly winds, swells, and currents were felt more acutely in the CNMI, Guam, and American Samoa. No consistent themes emerged related to management issues, but American Samoa fishers voiced concerns with regulatory compliance, Guam fishers continue to be impacted by military operations, and Hawai'i fishers reported a surplus of green sea turtles and questioned their endangered status.

## **American Samoa**

### **Social**

- Fishers recalled issues with FADs such as reduced productivity, potentially siting them in different areas, and applauded boat ramp repairs prior to a fishing tournament.

### **Economic**

- Fishers described high costs associated with boat fishing and difficult market conditions.

### **Ecological**

- Fishers mentioned that 2024 was perhaps weaker for fish recruitment, with fewer wahoo, smaller billfish, and less palolo on the nearshore reefs.
- Fishers did observe good recruitment of several reef fish species.
- Albacore fishing remained productive for American Samoa longline fishing vessels, and shark depredation continues to affect small boat fishing landings.
- Westerly winds persisted during the third year of La Niña, which also pushed large amounts of sargassum towards American Samoa.
- More calm weather days with greater rainfall were observed later in the year than usual, resulting in more sediment on coastal roads which also made its way onto shorelines and reefs.
- Fishers reported stronger currents and warmer water temperatures even in the middle of the winter.

### **Management**

- Fishers discussed the effectiveness of locally-managed marine areas and the importance of following cultural protocols following funerals.
- Fishers mentioned regulatory compliance issues, from nighttime spearfishing, to lack of enforcement of foreign fish sales.

## **CNMI**

### **Social**

- Fishers detailed repairs needed at the Rota boat ramp and a lack of local fish in markets.

### **Economic**

- Since the onset of the Covid-19 pandemic, fish prices have remained stable as fuel prices have increased.

### **Ecological**

- It was an average year for pelagic recruitment and a slow year for bottomfishing, with reports of smaller than normal bottomfish caught.
- The ti'ao run occurred later than normal, there was no mañahak run on Saipan or Tinian, and spearfishers reported an abundance of grey reef sharks on the reefs.
- Fishers sighted humpback whales close to shore and noted a potential decrease in shark depredation overall on fishing trips.
- An abundance of earthquakes may have affected fishing operations.
- Weather and earthquakes affected fishing productiveness, and currents were moving west to east with La Niña along with stronger than usual westerly winds.

### **Management**

- (no comments)

## **Guam**

### **Social**

- Fishers discussed the high cost of replacing lost FADs.
- Overcrowding at boat ramps from tourism operations has become the norm.
- Guam fishers debated the value of social media for fishing. Some acknowledged its utility for selling fish while others expressed frustration that posting catches leads to increased fishing effort and results in excess fish in markets.
- Several small vessels were observed fishing at night without navigational lights, which is a safety issue.

### **Economic**

- Fish prices remained steady, but excess supply still easily flooded markets.
- Fishers described the need to be resourceful and pursue different market channels such as social media or flea markets to sell their catch.
- Tourism on Guam is increasing, and local chefs are marketing locally caught fish, which is good for commercial fishers.
- The costs of fishing remain high.

## **Ecological**

- Fishers noted smaller runs of mañahak and ti’ao, and the i’e run was later than normal.
- Pelagic fishing was good earlier in the year, perhaps due to an abundance of debris in the water acting as FADs.
- Fishers noted an abundance of small marlin caught in the 50–100 lb range.
- Depredation continued on small boat fishing trips, making it difficult to land tunas and onaga.
- Fishers reported seeing a lot of humpback whales and dolphins at the end of 2024.
- Fishers noted abnormal weather conditions, with large westerly swells and rough ocean conditions preventing some bottomfishing trips.
- Wet weather, tropical systems, strange currents persisted, perhaps fueled by La Niña.
- Like the CNMI, fishing and recruitment—including the mañahak run—may have also been affected by earthquakes.

## **Management**

- Military operations and regulations continued to affect fishing activity, fishing trips, and navigational safety.

## **Hawai‘i**

### **Social**

- Fishers described fishing infrastructure issues on Hawai‘i Island which reduced fishing trips.
- The Wailoa boat harbor dredging project continued throughout the year and with the Pohoiki boat ramp filled in by lava since 2017, fishing access has been difficult for many small boat fishing operations on the windward side of Hawai‘i Island.
- On Kaua‘i, boat ramps are often crowded with tourist operations and tourists that occupy space set aside for boat trailers.
- Kaua‘i fishers noted fewer people fishing for bottomfish.

### **Economic**

- Fishers across Hawai‘i noted marketing challenges, changing consumer preferences, and difficult market conditions, particularly for outer island fishers.
- However, market conditions were good for bottomfish during the end of year holidays. Hawai‘i island fishers reported low prices for tombo when landings were up.
- Hilo fishers described challenges associated with timing markets for pelagic fish landings.

## **Ecological**

- 2024 was a good year for uku, with an abundance of bottomfish, particularly juvenile opakapaka.
- Fishers also detailed a good year for forage fish like ‘ōpelu, moana, ‘oama, halalu, and akule.
- Fishers caught numerous tombo off of Hawai‘i Island.
- Fishers also reported strong catches of marlin and striped marlin, with 2 granders caught off of Kailua-Kona.
- There appeared to be a shift in the timing of the arrival of forage fish and uku, and depredation continued on bottomfishing trips.
- Strange currents were observed off of Kailua-Kona at the beginning of the year, with ka‘u currents giving way to kohala currents later in the year.
- These currents may have driven tombo abundance on Hawai‘i Island.
- Warmer water temperatures coincided with greater yellowfin tuna catches for the Hawai‘i longline fleet.
- Increased westerly swell events in Kailua-Kona were reported, and a late south swell corresponded with an uku run on the Penguin Banks.
- Overall, windy days and heavy rainfall affected or prevented many small boat fishing trips.

## **Management**

- Fishers brought up green sea turtle overpopulation, seeing large numbers of them in water, on beaches, and observing depleted limu beds.
- Fishers felt that revised Kona crab regulations may have improved compliance and that the state of Hawai‘i should announce spawning seasons for reef fish and develop regulations for those species based upon this information.
- With increased shark interactions and depredation during fishing trips, fishers pondered how to address the seemingly intractable problem.

## Background

### ***History and purpose***

The fisher observations initiative was started by Hawai‘i fishermen Clay Tam and Roy Morioka to document on-the-water observations for fisheries across the U.S. Pacific Islands Region. Their goal was to provide context to fisheries-dependent data presented in the Annual Stock Assessment and Fishery Evaluation (SAFE) reports and add local and traditional ecological knowledge to scientific and management processes in the region. By publishing these data reports and documenting fisher observations over time, we hope to better understand fishery and ecosystem linkages, uncover trends, and validate observations made by people who fish in the U.S. Pacific Islands Region. Previous meetings, data collected, and reports published are summarized in [Table 1](#).

### ***Previous work***

**Table 1.** Previous fisher observations meetings, data collection, and published reports.

Year of data collection	Jurisdiction and type of meetings held	Published reports
2020	Quarterly Advisory Panel meetings for American Samoa, CNMI, Guam, and Hawai‘i	Archipelagic and Pelagic SAFE reports: WPRFMC, 2021a: 196; WPRFMC, 2021b: 77; WPRFMC, 2021c: 85;
2021	Quarterly Advisory Panel meetings for American Samoa, CNMI, Guam, and Hawai‘i; Fisher observations Annual Summit meeting for CNMI and Guam, and Hawai‘i	Archipelagic and pelagic SAFE reports: WPRFMC, 2022b: 160; WPRFMC, 2022c: 70; WPRFMC, 2022d: 159; WPRFMC, 2022a: 159  Annual Summit meetings published as PIFSC Data Reports: Ayers et al., 2022a; Ayers et al., 2022b
2022	Quarterly Advisory Panel meetings for American Samoa, CNMI, Guam, and Hawai‘i  Fisher observations Annual Summit meeting for American Samoa, CNMI, Guam, and Hawai‘i	Archipelagic and pelagic SAFE reports: WPRFMC, 2023b: 36; WPRFMC, 2023c: 159; WPRFMC, 2023c: 160; WPRFMC, 2023d: 160

Year of data collection	Jurisdiction and type of meetings held	Published reports
2023	Quarterly Advisory Panel meetings for American Samoa, CNMI, Guam, and Hawai'i	Archipelagic and pelagic SAFE reports: WPRFMC, 2024a: 87–89; WPRFMC, 2024b: 75–78; WPRFMC, 2024c: 41–42; WPRFMC, 2023a: 155–162
	Fisher observations Annual Summit meeting for American Samoa, CNMI, Guam, and Hawai'i	Annual Summit meetings published as PIFSC Data Reports: Ayers et al., 2024a; Ayers et al., 2024b; Ayers et al., 2024c
2024	Quarterly Advisory Panel meetings for American Samoa, CNMI, Guam, and Hawai'i	Archipelagic and pelagic SAFE reports: (forthcoming)
	Fisher observations Annual Summit meeting for American Samoa, CNMI, Guam, and Hawai'i	Annual Summit meetings combined and published into one single PIFSC Data Report

In a departure from previous years, 2024 fisher observations from American Samoa, CNMI, Guam, and Hawai'i are combined together in this report.

### ***2025 fisher observations annual summit meetings for the U.S. Pacific Islands Region***

Similar to previous years, the 2025 annual summit meetings covering observations from 2024 were *hybrid*, with both in-person and virtual attendance for the three meetings (American Samoa, CNMI and Guam, and Hawai'i). These meetings were held at the end of January 2025 (see [Table 2](#) for meeting dates and times and attendance by jurisdiction). All meetings were convened by Clay Tam (Pacific Islands Fisheries Group) and Zach Yamada (Western Pacific Regional Fishery Management Council Staff) and facilitated by Clay Tam. Annual Summit meeting attendance was up, with the exception of the CNMI, but no regional meeting was attended by more than 50% of people who attended the previous year. This indicates turnover among attendees as well as consistency of voices (see [Table 2](#)).

**Table 2.** Fisher observations annual summit meeting date, time, attendance, by jurisdiction, number of advisory panel members, and percentage of attendees that attended the previous year.

Jurisdiction	Meeting Date & Time	Attendees	Percentage that also attended 2024 meeting
American Samoa	5:00–7:00pm Samoa Standard Time, January 28, 2025	9–(4 AP)	50%
CNMI	6:00–8:00pm Chamorro Standard Time, January 29, 2025	2–(1 AP)	-
Guam		10–(3 AP)	22%
Hawai‘i	5:00–8:00 PM, Hawai‘i Standard time January 29, 2025	21–(5 AP)	39%

**Total: 42**

## **Data collection and data analysis**

### **Sampling protocol**

Using their social networks, Advisory Panel (AP) members invited participants in their respective island's fishing community to attend the annual meeting and contribute on-the-water observations from 2024. AP members are often proficient using one or more gear types, have many years of fishing experience, and are aware of changes occurring in the fishery. As in previous years, AP tried to secure participation and gather data from current or past 'highliners' from their respective island region with different fishery specializations for the 2024 annual fisher observations summit meetings. They included individuals that target archipelagic species using shoreline or spearfishing gear, venture from shore to fish from kayaks, or target pelagic species from small boats. (See [Table 3](#) for types of management unit species frequently targeted by fishers in each jurisdiction.) Highliners have more fishery knowledge and have fished for more years than less experienced fishers and thus may offer deeper insights about unusual events and trends.

**Table 3.** Ecosystem component (ECS), Bottomfish (BMUS), and Pelagic management unit species (PMUS) frequently targeted by jurisdiction across the U.S. Pacific Islands Region.

Jurisdiction	ECS	BMUS	PMUS
American Samoa	redlip parrotfish, bluespine unicornfish, blue-banded surgeonfish, redtail parrotfish, spiny lobster, orangspine unicornfish, bridled parrotfish, dark-capped parrotfish, bigeye bream, yellowlip emperor, and others	bluelined squirrelfish, fringelip mullet, green spiny lobster, clams, day octopus, and one-blotch grouper	albacore tuna, yellowfin tuna, skipjack tuna, bigeye tuna, blue marlin, wahoo, swordfish, spearfish, moonfish, barracudas, pomfret, and oilfish
CNMI	surgeonfish, parrotfish, goatfish, grouper, wrasse, soldier/squirrelfish, jacks, scad, and others	shallow water bottomfish such as redgill emperor, black jack, matai, sas, lunartail grouper, and others; and deepwater bottomfish including onaga, ehu, yellowtail kalekale, amberjack, blueline gindai, gindai,	mahi-mahi, wahoo, billfish, and tunas—skipjack, yellowfin

Jurisdiction	ECS	BMUS	PMUS
		opakapaka, and eightbanded grouper	
Guam	bigeye scad, juvenile rabbitfish, juvenile jacks, juvenile goatfish, bluespine unicornfish, orange spine unicornfish, parrotfish, tan-faced parrotfish, assorted shallow bottomfish, bluebanded surgeonfish, and bulletheaded parrotfish	shallow water species such as reef-dwelling snappers, groupers, jacks, holocentrids, emperors, and dogtooth tuna; and deep-water species including groupers, jacks, and snappers	mahi mahi, wahoo, blue marlin, other billfish, skipjack tuna, yellowfin tuna, and other pelagic species
Hawai‘i	akule (bigeye scad), ‘ōpelu (mackerel scad); ta‘ape (blueline snapper), menpachi (soldierfish), uhu (parrotfish), palani (eyestripe surgeonfish), kala, (horned unicornfish), kāhala (greater amberjack), ‘opihi (limpet)	‘ōpakapaka (pink snapper); onaga (longtail snapper), ehu (ruby snapper), hapu‘upu‘u (Hawaiian grouper), kalekale (Von Siebold’s snapper), gindai (oblique-banded snapper), and lehi (silverjaw snapper), uku (green jobfish)	tunas—albacore, bigeye, bluefin, skipjack, yellowfin and others billfish—swordfish, blue marlin, hebi (spearfish), striped marlin, and others mahi mahi (dolphinfish), ono (wahoo), opah (moonfish), walu (oilfish), pomfrets, PMUS sharks

### **Data collection**

CIMAR and PIFSC staff attended the meetings virtually and took detailed notes, as did Pacific Islands Fisheries Group and Council staff. These notes captured direct quotes when possible. Like previous years, the meeting was not audio- or video-recorded because we felt that recording might inhibit participation or candor of meeting participants. If notetakers were unable to capture direct quotations, then main ideas were still collected from meeting attendees. All meeting note versions were combined and proofed into a main document, taking care to remove any identifying information.

## **Data analysis**

Using the main notes document, we coded responses using thematic categories, starting with the SEEM categories: Social, Economic, Ecological, and Management Uncertainty (Hospital et al., 2019). We also used subthemes (devised topically or thematically to succinctly describe main ideas) from the main SEEM categories to add detail. Using themes and subthemes to organize and analyze qualitative data is often referred to as qualitative data analysis (Miles & Huberman, 1994). This process was also used in previous fisher observations data reports (Ayers et al., 2022b, 2022a, 2023c, 2023b, 2023a). Findings from the annual meetings are organized using the SEEM categories and additional subthemes, including management unit species categories, in tables below. Management unit species (MUS) categories include pelagic (PMUS), bottomfish (BMUS), and ecosystem components (ECS).

## **Results**

### **Common themes across the U.S. Pacific Islands region**

Below, we present a few common themes noted across the region, separated by SEEM categories.

**Social:** Fishers noted issues related to fishing infrastructure and its impact on fishing access across the region. Fishers described boat ramp crowding, conflicts with tourist operations, and repairs or dredging needed to make docks or ramps usable and channels navigable again. Fishers also mentioned issues with FADs: lower productivity at FADs in American Samoa and a loss of FADs in Guam, where replacement costs are high.

**Economics:** Fishers across the region brought up challenging market conditions. Some of these challenges were associated with excess supply of fish and the difficulty of timing markets. High fuel prices were noted in all areas, highest in the CNMI, but opinions were mixed on the degree to which high fuel prices changed fisher behavior: in other words, whether or not it reduced fishing trips.

### **Ecological:**

**Biological:** Fishers noted an abundance of smaller marlin across the region, in all areas. Some fishers felt that this was due to changing currents, but others did not identify any causes. Shark depredation continues to be widespread, which made landing fish difficult for fishing operations of all sizes, from small boats to commercial longliners.

**Physical/Oceanographic:** 2024 represented the third and final year of La Niña. The effects of La Niña were observed more acutely in CNMI, Guam, and American Samoa. Stronger westerly winds/swells brought rough ocean conditions to CNMI and Guam and an abundance of seaweed to American Samoa.

**Management:** There were no consistent themes on management issues across the region. American Samoa fishers voiced concerns about compliance with regulations, while Guam fishers continue to deal with military impacts on fishing activities. Hawai'i fishers reported an excess of green sea turtles and questioned their endangered status.

## American Samoa

### Social

When discussing the 2024 topics affecting American Samoa fisheries, meeting attendees mentioned several issues with fishing infrastructure. Foremost were Fish Aggregating Devices (FADs), and several fishers referenced lower productivity at FAD locations. Others described how FADs might improve fishing on the outer banks and ways to potentially recover FADs that had become unmoored to test in different locations. Another comment dealt with marina repairs that were needed at Pago Pago Harbor and praised the DMWR for fixing piers prior to a fishing tournament. (See [Table 4](#) for fisher comments related to social aspects of American Samoa fisheries.)

**Table 4.** Social aspects of American Samoa fisher observations.

Themes/subthemes (counts)	Quote(s)
Fishing infrastructure (5) <ul style="list-style-type: none"><li>- FADs (4)<ul style="list-style-type: none"><li>● Lower productivity at FAD locations</li><li>● Lower productivity at FAD locations (PMUS, yellowfin tuna, barracuda)</li><li>● FADs on outer banks</li><li>● FAD retrieval</li></ul></li><li>- Marina repairs</li></ul>	<p>“A few thoughts on infrastructure, with the FADs, DMWR is doing a good job at getting them back out when they’re down. The B FAD is just outside the harbor, generally in a good location, but for some reason I don’t catch fish out there anymore. Previously it was in a different spot, and it was productive, you’d catch marlin or masi or whatever. I still go by it on occasion, occasionally I’ll get something, but now I’m losing hope of getting something. Productivity has gone way down over the years. Same thing with C FAD. I think it had been a little further out a few miles. From now with the new design, B and C FADs are not as productive as they used to be.” (<b><i>fishing infrastructure, FADs, lower productivity at FAD locations</i></b>)</p> <p>“Wanted to add on to what [another fisherman] was saying about the FADs. You’re absolutely right. Why do you think we go out further on the banks? We’re not big fans of the FADs anymore. Let’s just say in the last 2–3 years the B and C FADs, the level of productivity, they used to be the go-to spots. Not anymore. The most you can pick up there now is a barracuda, small. Used to be big yellowfins, 30 pounders, but they’re not there anymore. We’re big on following those yellowfin schools on the banks. We were around the south bank and east bank and they’re not there anymore. According to the guys in neighboring [Independent] Samoa they are catching yellows 15–20 miles straight north. They’re not</p>

Themes/subthemes (counts)	Quote(s)
	<p>hanging out where we used to catch them. The FADs aren't working like they used to. Good job [names friend] and those guys always replenishing them when they break off, but they're not working. I'm praying for a miracle, hopefully it'll pick up, something changes with this cycle." (<b><i>fishering infrastructure, FADs, lower productivity at FAD locations, PMUS, yellowfin tuna, barracuda</i></b>)</p> <p>"I wanted to touch base on the FADs and how it's been the last 2–3 years not providing as much. We do have data sheets that says a lot of the fishing activity has moved out to the banks the last 2-3 years. Honestly, I don't know what's going on. Maybe it's a cycle? I had an idea. We are coming up on the FAD permits. I brought up the idea of bringing back the FADs at the outer banks. I'm trying to gather information from folks that used to fish FADs when they were on the outer banks. I was thinking about trying to put them farther out, with advancement with GPS. Something to try to revive our local sport fishery. We've been passing FADs here and there and hardly any strikes. You're right, there has been a change. I wanted to see if there was any support with bringing it back. What do you guys think about bringing it back?" (<b><i>social, fishing infrastructure, FADs, FADs on outer banks</i></b>)</p> <p>"We had a program that came in for FAD stranding, for these FADs that are discarded by purse seiners and longliners. Program for abandoned FADs: when it enters in the zone [unmoored FADs that drift into the American Samoa EEZ], the department is interested in receiving live GPS data for those buoys so we can track if it goes onto the banks if they're passing through, maybe fish it, but try to avoid it from going on our reefs. It's one of the avenues we're working on. Trying to figure out how we're going to do it. The abandoned FADs aggregate a lot of fish. If you get those GPS locations, spread the word out to the local fisheries group. Just call it in, then maybe we can retrieve it. We're trying to work together with this FAD stranding program. Something to look forward to." (<b><i>fishering infrastructure, FADs</i></b>)</p>

Themes/subthemes (counts)	Quote(s)
	<p>“The boat ramp in Pago harbor can only launch or retrieve a boat at mid tide. If too high it'll be 8" of water for 100' or so. At low tide you risk sliding down the algae ramp down into the water. It would be a great project to improve. Got to give compliments to [names friend], he spearheaded repairs to the marina prior to the Buds and Suds [fishing] tournament. Before the King tides and swells was tearing the finger piers apart, but they did a good repair job so hopefully that can continue.” (<b><i>fishing infrastructure, marina repairs</i></b>)</p>

## **Economic**

When referencing economic aspects of their fisheries, American Samoa fishers primarily discussed costs of fishing and market conditions. For costs of fishing, one fisher explained that they will sometimes sell excess catch to recoup costs. Another fisher described challenges that the American Samoa longline (ASLL) fleet faces with low prices paid for their fish and high prices for bait and fuel. Another comment related to the ASLL fleet referenced a jigging pilot project whereby a vessel was equipped with jigging gear to fish in southern waters but determined that jigging was not effective or profitable when considering trip costs and catch rates. On market conditions, one fisher reported a decline of fish for sale in roadside markets and on social media; another decried the lack of labels on seafood available in local markets. Fish consumers may know if the fish was caught locally or in Independent Samoa, but are unaware of the origin of other fish found in their markets. Full results are available in [Table 5](#).

**Table 5.** Economic aspects of American Samoa fisher observations

Themes/subthemes (counts)	Quote(s)
Costs of fishing (3) <ul style="list-style-type: none"><li>- Expense fishing</li><li>- Maintenance, Bait prices (PMUS, albacore)</li><li>- Fuel, bait<ul style="list-style-type: none"><li>● Jigging is not commercially viable</li></ul></li></ul>	<p>“In general, fishing, I bottomfish and troll, but I’ll also jig and cast. I am a recreational fisherman, but I also have a commercial license. On 2–3 trips per year if I have excess yellowfin going out to the banks, I’ll sell a few large yellowfin [tuna] to recuperate some fuel costs.” <b>(costs of fishing, expense fishing)</b></p> <p>“So, I was able to talk to a couple of owners as well as one of the boat captains. Also talked to a friend and they all kind of echoed the same thing for the longline fishery. They continue to experience low prices for their albacore catch, but high prices for their bait. Really slow catch rates for the past few months that they’ve been out. The biggest challenges are high costs of maintenance and when you put that up against the low prices and lower catch rates that they’re experiencing lately, it’s been a rough go for our American Samoa longline fleet. [Names two longline fishing captains] said while the conditions have been kind of rough near the islands, nearshore areas, it hasn’t affected their fleet as much.” <b>(costs of fishing, maintenance, bait prices, PMUS, albacore)</b></p> <p>“A few years ago, using some of that Sustainable Fisheries money we had helped the local longline boats develop some diversification. One of them was to outfit some of the boats to do jigging in southern waters.”</p>

Themes/subthemes (counts)	Quote(s)
	<p>Some of the boats had been outfitted to do trolling went jigging and I asked them if they would continue. They noted the distance is a big issue, it's greater to get to the fishing grounds. Cost is greater, smaller boats don't have the capacity to carry fuel, and also, they didn't get the kind of catch that they were hoping for. So, they indicated that they would probably not be doing jigging going forward, but that's not 100% certainty. So that's what I have for the commercial longline side." <b>(costs of fishing, fuel, bait, jigging is not commercially viable)</b></p>
Market conditions (2) <ul style="list-style-type: none"> <li>- Lack of fish for sale in roadside markets, on social media</li> <li>- Lack of seafood labeling</li> </ul>	<p>"Over the past decade I've seen a decline in roadside, on social media I've really seen a decline in amounts." <b>(market conditions, lack of fish for sale in roadside markets, on social media)</b></p> <p>"I was just thinking of the fish that is selling in our stores, even the oka or the poke, the fish steak, the asi, I haven't seen any labeling telling where that fish came from, where it was landed. Almost 99% of the outlets that's selling fish is all Asian places. A few local, but fish coming in is U.S. flagged or foreign, I have not seen any labeling of where that fish was landed at, maybe it was frozen for a long time before it was turned into poke or oka. The fish coming from our brothers in the west we know, but otherwise we don't know where the fish is coming from. Was it transshipped and ended up here? I don't know if there is a rule or law that requires a label. We have to know where this fish is coming from and what we are eating. The US fisheries are highly regulated. And we have rules that limit the catch, the area where they're supposed to fish. If this fish is coming from outside the Pacific Ocean and ended up on our shores, the public and the consumers have a right to know where that fish was landed at, that is coming in. Some people use the carbon monoxide to make that fish look fresh and red. There's no labelling on the fish, on the source. That's something we may have to look at." <b>(market conditions, lack of seafood labelling)</b></p>

## *Ecological*

### *Biological*

In general, American Samoa fishers felt that fish recruitment in 2024 was not as strong as observed in previous years or past decades. Fishers saw fewer wahoo on the banks in 2024, smaller billfish, and less palolo on the reefs. Some noted fewer bird aggregations offshore and posited that even small-scale commercial alia vessels may be impacting the abundance of fish. Some fishers did note good recruitment of certain reef-associated fish like giant trevally, napoleon wrasse, bottomfish, and parrotfish. Another reported that albacore fishing was still productive for one longline operation. Fishers also reported continued shark depredation, which happens when targeting deep bottomfish species while fishing on FADs or trolling. Their frustration is worsened by the lack of options available to deal with the problem, since harvesting sharks is illegal. For full results, see [Table 6](#).

**Table 6.** Biological aspects of American Samoa fisher observations.

Themes/subthemes (counts)	Quote(s)
Juvenile and Adult recruitment (22) <ul style="list-style-type: none"><li>- Amount of fish (16)<ul style="list-style-type: none"><li>• PMUS (skipjack tuna) (3)</li><li>• ECS (palolo) (3)</li><li>• PMUS (albacore tuna) (2)</li><li>• ECS (giant trevally)</li><li>• ECS (napoleon wrasse)</li><li>• PMUS (marlin, yellowfin tuna)</li><li>• BMUS (goldeneye)</li></ul></li></ul>	<p>“I think the palolo run was pretty low on the Tutuila islands. A lot of the surges occurred on the Manu'a islands. Manu'a islands got a pretty good harvest last year.” (<b><i>juvenile and adult recruitment, amount of fish, ECS, palolo</i></b>)</p> <p>“I can second what [another fisher] is saying. The abundance wasn’t that strong. It was only hitting the outer islands for both. I would go as far as to say the palolo was the weakest for the past several years. Didn’t really see the [palolo] runs as much on the outer islands.” (<b><i>juvenile and adult recruitment, amount of fish, ECS, palolo</i></b>)</p> <p>“Palolo used to come around four times a year. I lost my logbook, but I did catch palolo 6:30, 7 o’clock in the evening until 9, then they disintegrated. The first moon that comes up, the palolo is crazy, there were so many. Now every once in a while, you run into it. I don’t dive at night, but the divers I talk to run into them at night once in a while and scoop them up with their t-shirt. Just something to make the scientists aware of. It has something to do with the moon and the tide. Set it aside and think about it.” (<b><i>juvenile and adult recruitment, amount of fish, ECS, palolo</i></b>)</p>

Themes/subthemes (counts)	Quote(s)
<ul style="list-style-type: none"> <li>snapper, jobfish)</li> <li>• PMUS (marlin, yellowfin tuna, wahoo)</li> <li>• PMUS (yellowfin, wahoo)</li> <li>• PMUS (wahoo)</li> <li>• Fewer birds (PMUS, BMUS)</li> <li>- Forage items (4) <ul style="list-style-type: none"> <li>• ECS (atule) (4)</li> </ul> </li> <li>- Size of fish (2) <ul style="list-style-type: none"> <li>• PMUS (marlin)</li> <li>• ECS (parrotfish), crustaceans (lobster)</li> </ul> </li> </ul>	<p>“A lot of trevallies showing up here and there, GTs [giant trevallys], not schools, but big females. Sportfishermen catching a lot of uluas, females, not giants, but 30–40 lb.” (<b><i>juvenile and adult recruitment, amount of fish, ECS, giant trevally</i></b>)</p> <p>“Been doing some surveys on the reef flats, we’ve noticed initial phases of small recruitments, which is good. I’ve been noticing a lot of recruitment for napoleon wrasse, looks like numbers are coming back from flats and sand banks. A lot of high numbers I’ve seen in the past two years. Hoping that the federal regulation on the napoleon wrasses is bringing back the giants.” (<b><i>juvenile and adult recruitment, amount of fish, ECS, napolean wrasse</i></b>)</p> <p>“Fishing, not so much. A lot of small marlins came up. We were blessed to have 4–5 yellowfins around the 100 lb mark. Most of the marlins that were tagged and released were in the 80–150 lb zones. Not so much yellows. Mostly from the main island, Tutuila side. We didn’t make it to Manu‘a, bad weather, some things happened. We will try to make it this year.” (<b><i>juvenile and adult recruitment, amount of fish, PMUS, marlin, yellowfin tuna</i></b>)</p> <p>“Trolling, nothing too outstanding in my mind with the exception of skipjack tuna schools. When I first moved here 13–14 years ago, I remember schools of skipjack near the harbor, 1–2 miles long, bird flocks, occasionally you get some schools of skipjack coming through now, but nothing like it was years ago. Definitely a lack of skipjack, which I believe the predators are going to be following and impacting them as well.” (<b><i>juvenile and adult recruitment, amount of fish, PMUS, skipjack tuna</i></b>)</p> <p>“For bottomfishing, I fish typically fish in the mid-depth—500–750 feet deep. In the past year or two, there were large fish, goldeneye snapper, jobfish, starting maybe 10 months or a year ago, on occasion at the spots I go to, there’s alia boats. I only see them once out of every 10 trips or so. They know about these spots. They’re the small-scale local alia boats, but they’re commercial fishing. Even with that level of impact, I’ve noticed a</p>

Themes/subthemes (counts)	Quote(s)
	<p>significant decrease in size. It is interesting that even that small of a commercial fishing pressure can have an impact on our bottomfish here. Which makes me concerned about our super alia program and ramping up commercial fishing. It's such a small habitat zone where these fish reside. They're not everywhere, they're in certain areas. Fish size is decreasing in these bottomfish spots with relatively light fishing pressure.” <b>(juvenile and adult recruitment, amount of fish, BMUS, goldeneye snapper, jobfish)</b></p> <p>“I want to second what [another fisher] was saying. We've noticed a huge difference, we have just a 20-foot boat, we're one of the few recreational fishermen on the north side of the island. It's a lot more rare to see the large school of birds flocking around with the large schools of skipjack all over the surface. [In] 2011 we used to go 50–100 times a year. It was easy for us to say just find the birds and then you can find the skipjacks and everything. Then, you were guaranteed to get strikes. Now it's more blind hits, fishing our hotspots, because there aren't as many birds. I don't necessarily know what it is. Our catch in 2024 is not what it used to be 5–10 years ago, at least on the north side of American Samoa, Tutuila.” <b>(juvenile and adult recruitment, amount of fish, PMUS, skipjack tuna)</b></p> <p>“I'm from [a] fishing club in American Samoa. I wanted to add in what those guys are saying and give a perspective of what we've been dealing with on the banks. We cover about 40 miles out to all the banks. Just give you a quick insight on it. I'd agree with what guys have been saying, the fishing has slowed down a lot. I've been sportfishing since 1999–2000, but 2016–2018 were some of the best years yet for us, and it's really gone down since then. Gone are the days when we would catch 30 yellows, 12–16 wahoos, and on top of that, 2–3 marlin...It has declined a lot with our catches.” <b>(juvenile and adult recruitment, amount of fish, PMUS, marlin, yellowfin tuna, wahoo)</b></p> <p>“Last weekend we held our first tournament of the year. We were targeting yellowfin and wahoo, the biggest yellowfin was 54 lb, then 20 lb and 18 lb. No wahoo</p>

Themes/subthemes (counts)	Quote(s)
	<p>caught. That was a shocker. Usually there's at least one boat that catches wahoo. [Names two fishermen] are wahoo slayers. Talk about covering the banks the whole day, 12–13 hour days, and you don't even have a wahoo and that's very rare." (<b><i>juvenile and adult recruitment, amount of fish, PMUS, yellowfin, wahoo</i></b>)</p> <p>"Just wanted to comment on the declining number of our catches, not sure if it's La Niña, the climate, because the skippies [skipjack tuna] are around, but not in the numbers we are used to. Gone are the days that you could bring back hundreds if you wanted to. It's not like that anymore." (<b><i>juvenile and adult recruitment, amount of fish, PMUS, skipjack tuna</i></b>)</p> <p>"I spoke to one of my friends that has [longline] fishing boats, they've been catching 40 fish a night albacore, but prices are low and the fuel is still high and the bait is high, that is what he has to report. So far, the fishing is good." (<b><i>juvenile and adult recruitment, amount of fish, PMUS, albacore tuna</i></b>)</p> <p>"My friend started longlining, they're catching about 40 [pieces] a night, they just started going out this year. That's commercial fishing. [Names friend] and the crew." (<b><i>juvenile and adult recruitment, amount of fish, PMUS, Albacore</i></b>)</p> <p>"As far as anything that comes near to the surface? They're not there. We didn't even catch wahoo last tournament we had with the club. As a troller, things are not good. Hopefully things will turn around." (<b><i>juvenile and adult recruitment, amount of fish, PMUS, wahoo</i></b>)</p> <p>"Interesting what neighboring Samoa are saying. Going 15–30 miles out getting more yellow [yellowfin tunas]. I can agree with that. For us on the northside of the island, 5–10 years ago you would get more. We usually just go 2–6 miles out. We never needed to go 15–30 miles out. I'm a 3rd generation fisherman, my dad, he's almost 70 now, used to always say, 'you follow the birds, you find the fish.' We aren't even able to follow the birds anymore to find the fish. We are finding more fish with blind hits or going out at sunrise or sunset, or</p>

Themes/subthemes (counts)	Quote(s)
	<p>our own spots, we keep circling around those areas. The whole northern side of the island we're cruising around and the birds aren't there. We will go bottomfishing in the afternoon, we're not going all day. Maybe the birds are on a different part of the island, but you just don't see the schools by the thousands anymore." <b>(juvenile and adult recruitment, amount of fish, fewer birds, PMUS, BMUS)</b></p> <p>"We've seen the runs decline, the nearshore netting are really getting minimal amounts, the abundance has gone down a lot. We're on the northside of the island and our season is starting to hit a little bit later. The birds are a little less abundant." <b>(juvenile and adult recruitment, forage items, ECS, atule)</b></p> <p>"I wanted to comment on the atule. I am a diver and I do a lot of diving around the islands. I see a ton of atule all over, but no one is fishing it. A few at the harbor with the fishing pole. Big atule all over. So many, beautiful." <b>(juvenile and adult recruitment, forage items, ECS, atule)</b></p> <p>"I know one of the observations was they only had their second seasonal atule run last year. It wasn't as much as the previous year. It was the second year in a row in the last decades." <b>(juvenile and adult recruitment, forage items, ECS, atule)</b></p> <p>"Last year, I don't think there was a very strong recruitment for atule. A lot of the villages have their own MPAs and they're really strict with the harvests here. I haven't seen any harvests in 2024 for any of the villages." <b>(juvenile and adult recruitment, forage items, ECS, atule)</b></p> <p>"With sportfish, we encourage tagging and release. There were a lot of billfish caught last year in the billfish Buds and Suds [fishing] tournament caught and released. At least 40–60 were caught and were 60–150 lb, but all were below 200 lb. Not sure it's a cycle we're going through, but rarely you'll bring in a 200–300 lb marlin anymore. Used to bring that in 4–5 years ago. Last year we didn't even have a marlin on the leaderboard. With all of these species that are</p>

Themes/subthemes (counts)	Quote(s)
	<p>declining." (<i>juvenile and adult recruitment, size of fish, PMUS, marlin</i>)</p> <p>"My guys were out spearfishing and they came in with about 200 lb of bottomfish. They were out for about 3–4 hours. Bottomfish is good around the outside too, the ones on the outside beyond the reef, outside the waves. Size is good too, parrotfish, the lapaka, the lobsters. This is usually the time November–February to go spearfishing because the water is calmer." (<i>juvenile and adult recruitment, size of fish, ECS, parrotfish, crustaceans, lobster</i>)</p>
<p>Depredation (4)</p> <ul style="list-style-type: none"> <li>- Sharks (4) <ul style="list-style-type: none"> <li>• BMUS, PMUS (marlin)</li> </ul> </li> </ul>	<p>"The big numbers of sharks, they're around the FADs and the banks. There are a lot of numbers around. The fishermen are complaining about it, what can you do when you have to pay taxes when you're out fishing?" (<i>depredation, sharks</i>)</p> <p>"Since it was so hot, a lot of the big ones are not coming up, they're staying down deep. I'm marking them down at 600–700 feet deep. You see large crescents on your fish finder. They're down there. A few have been bringing some sharks with them. They're asking if there's a way that they can just get rid of them." (<i>depredation, sharks</i>)</p> <p>"Only way to get rid of them is to harvest the sharks." (<i>depredation, sharks</i>)</p> <p>"Sportfisherman here on Tutuila. Not sure what order we're going in, if you have more on your slides. Sharks are definitely a problem still. Both with trolling and bottomfishing. A typical trip out bottomfishing at the mid-depths, 500–700 feet, you might catch a few bottomfish and no sharks. Then the tide changes or the moon phase changes, and the fishing is really good. It'll be non-stop bites every few seconds, but you can't land any because the sharks take everything and you have to leave. It's either slow and you're catching a little or it's good and you can't keep anything. Same thing with trolling. Billfish or something are getting sharked, but also sharks are biting the lures directly. Seems to be happening more. It's still infrequent but still happens a</p>

Themes/subthemes (counts)	Quote(s)
	few times each year." ( <b>depredation, sharks, BMUS, PMUS, marlin</b> )

### Physical/Oceanographic

The physical/oceanographic issues fishers mentioned included weather and wind patterns that affected American Samoa in 2024. Among the most frequently mentioned aspects was westerly winds, which are associated with La Niña. The westerly winds brought large amount of sargassum with them, which negatively affect fishing and if they get close enough to the islands, can also affect coral reefs. Other issues related to weather/wind patterns was more calm weather days later in the year – a shift from the norm – and more rainfall and runoff that affected roads and transported sediment to ocean. Additional issues mentioned included king tides that affected fishing trips, stronger currents, and warmer water temperatures, even in the middle of the winter, when the water should be cooler. Full results are displayed in [Table 7](#).

**Table 7.** Physical/Oceanographic aspects of American Samoa fisher observations.

Themes/subthemes (counts)	Quote(s)
Weather, wind patterns (8) <ul style="list-style-type: none"> <li>- Westerlies (4) <ul style="list-style-type: none"> <li>• Seaweed</li> </ul> </li> <li>- Rainfall and runoff (2)</li> </ul>	<p>"For us on the north side, it's been later in the year. We like to go in the summer, May-August, mostly in August, it's the calmest time of the year, when we can do bottomfishing, jigging, trolling. We've noticed more calm days later in the year. More calm days in October, November, December. So there has been weather changes on the north side." (<b>weather, wind patterns</b>)</p> <p>"When we have these westerly winds, we have these seaweeds, it's always been a problem in Western [Independent] Samoa. When we have those westerlies, the seaweeds come right up to the harbor. Usually when we have seaweeds, it's not great fishing for us. That weather and the seaweed problem coming from the west. I can't wait for the trades to pick back up again. To blow all that seaweed back to where it came from." (<b>weather, wind patterns, westerlies, seaweed</b>)</p> <p>"I don't know what the seaweeds are called, but back in the 1990s, when the cyclones Ofa and Val ran through the Samoa islands, we hadn't had the seaweed problems. In neighboring Samoa and over here we didn't have seaweeds on the reef. Now you go</p>

Themes/subthemes (counts)	Quote(s)
	<p>spearfishing at night or in the daytime and these seaweeds are covering the reefs. Growing up as a kid [here on Tutuila], you didn't have them. The reefs were just beautiful. In Samoa, you had them as a staple. Maybe we need another hurricane to wipe them out. I believe that is part of the problem for us sportfishing guys. Our lines always get tangled up with what is floating around the islands. Seaweed is a constant problem for Independent Samoa. That's why the guys [Independent Samoa fishers] would rather come over to here [American Samoa] because we don't have as much seaweed as over there. To catch more fish and less seaweed. With the westerlies, all the seaweed from Upolu and Savai'i will end up washing over to our shores." (<b>weather, wind patterns, westerlies, seaweed</b>)</p> <p>"When I first got my alia, monohull in 1998, I want to echo what [another fisher] was saying about the seaweed. Back then we didn't have that seaweed. The only problem we had was that red dye, that was so bad. It would come into the harbor and you couldn't see anything. Then that seaweed started showing up. That seaweed is really crazy coming into our island. I hope it's not affecting our reefs. Maybe we could research it and use it for some fertilizer and stuff." (<b>weather, wind patterns, westerlies, seaweed</b>)</p> <p>"I wanted to comment on something [another fisherman] brought up. I don't know what the species is, but I believe the Genus is sargassum. I took the boat out yesterday and I think that's what I saw on the surface of the harbor, not even a mile out from the harbor. [Another fisherman that commented about seaweed] is right about the westerlies bringing it here. I've been hearing complaints from the sportfishers about catching a lot of seaweed when they're trolling. I've been hearing from my relatives that it is a problem over there, nothing has been done about it. The seaweed issue has been raised with the minister of agriculture. I'm heading out on the water; I'm going to try to pick up some and take a picture of them so we can know what we're dealing with. Definitely [names another fisherman] is right that it's a big problem that has been raised in our</p>

Themes/subthemes (counts)	Quote(s)
	<p>neighboring island of Samoa. Hopefully it doesn't come over here and become a problem for our reefs. Some changes that we've noticed as divers. I'll let you guys know if we find pictures of that seaweed. Maybe we can identify it." (<b>weather, wind patterns, westerlies, seaweed</b>)</p> <p>"We just went through a...season is just over. It was really raining like cats and dogs; it was rainy for like two weeks straight a couple months ago. And windy. The wind picked up. It was wet, windy a little bit. Everyone that is listening knows about it. Now it is mostly sunshine, a lot of heat. Pretty soon it'll be rainy again, it's a little cloudy." (<b>weather, wind patterns</b>)</p> <p>"Later in the year we had a lot of rain, runoff, going into the roadways, damaging the roads." (<b>weather, wind patterns, rainfall and runoff</b>)</p> <p>"With the rain we got a few weeks ago, there was a lot of erosion. If NOAA has any applications for marine corps of engineers, if you guys could push that down and also to protect the shoreline and the streams, so that dirt doesn't end up in the ocean. I don't know if there's any out there, but that's what I heard. Right now, in the middle of transitioning in the new administration, I would like to get more information on applications from the marine corps of engineers." (<b>weather, wind patterns, rainfall and runoff</b>)</p>
Tides (2) <ul style="list-style-type: none"> <li>- King tides (2)               <ul style="list-style-type: none"> <li>• Shellfish gleaning</li> </ul> </li> </ul>	<p>"Last year, earlier in the year, there were a lot of instances of really, really low tides, corals showing near the shoreline. People were gleaning for shellfish and all of that." (<b>tides, king tides, shellfish gleaning</b>)</p> <p>"As far as king tides and all that. That has been a problem, it has affected when we go out fishing, we don't catch that many fish when it's like that." (<b>tides, king tides</b>)</p>
Currents (2) <ul style="list-style-type: none"> <li>- PMUS (aku)</li> <li>- Ecosystem changes</li> </ul>	<p>"Second thing was the current. Back then, 20–30 years ago, even when the weather was bad, the current wasn't bad at all. Nowadays, you put a weight down and it floats like you're trolling. You might catch an aku, your line is moving 10 mph even though your boat is anchored. If it's nice and calm, the current stays good. If</p>

Themes/subthemes (counts)	Quote(s)
	<p>the wind picks up, the current goes with it. Seems like the current goes with the wind somehow. That's what I've experienced over so many years of fishing. Current comes with the wind. High wind, high current. Nowadays, little wind, you get a lot of current 60–70 feet down, get a bottom current going through. You have bottom current even without the wind. So many sharks out there." (<b>currents, PMUS, aku</b>)</p> <p>"Deepwater currents – it's changed for sure. It's getting warmer down there. It's supposed to be colder. Something has changed and we need to figure out why. Something changed down deep and may be affecting the ecosystem down there. We're down to 70-80' diving here." (<b>currents, ecosystem changes</b>)</p>
Water temperature - Finding fish at deeper depths	<p>"Right now, with how warm it is, we're in our summer, our hot season right now, those temperatures are definitely affecting our fishing, I know the fish are there, they're just staying down low, at deeper depths." (<b>water temperature, finding fish at deeper depths</b>)</p>

### **Management Uncertainty**

A majority of the comments pertaining to management uncertainty were related to regulations or ensuring compliance with them. Some American Samoa fishers highlighted the effectiveness of locally managed marine areas for ensuring an abundance of atule on outer islands. This is accomplished by restricting effort for most of the daylight hours. Another fisher explained the importance of respecting cultural protocols following funerals, which prohibit fishing during a period of community mourning for the person that passed. Fishers from outside the village that did not obey the fishing restriction had their gear taken and were asked to leave, which should deter outsiders from breaking cultural norms or at least may encourage them to consult with the local community or chief before they fish in an area. Other comments addressed the destructiveness of nighttime spearfishing, ineffective penalties for use of illegal inshore commercial netting, and the lack of customs enforcement on foreign fish sales. View [Table 8](#) for full results.

**Table 8.** Management aspects of American Samoa fisher observations.

Themes/subthemes (counts)	Quote(s)
Regulations (9) <ul style="list-style-type: none"><li>- Locally-managed marine areas (3)<ul style="list-style-type: none"><li>• Atule</li><li>• Local enforcement</li></ul></li><li>- Nighttime spearfishing (2)</li><li>- Illegal inshore commercial net fishing (2)</li><li>- Customs enforcement on foreign fish sales (2)</li></ul>	<p>“You were asking about which island, the atule, if it’s consistent with the harvesting. I like the way Manu’ā people treat their atules when they would come into their channel. They would fish them, but they would keep people from fishing for them from 8am to 3pm. And believe it or not that atule school stayed in Ta’ū harbor for 8 months. I counted it. Every time you go you would just see a huge school. I like how they are conserving it. Whereas others, they just scoop it up, I like how they are doing it as Ta’ū village, they would just eat what you can eat for the day and tomorrow you would get your catch again. The numbers are there. The atules are staying around. Maybe they feel protected. I like how the Manu’ā people are doing it. Maybe us here in Tutuila should do that when they’re around those bays and those channels.” (<b>regulations, locally-managed marine areas, atule</b>)</p> <p>“I’m over here in Leone. We have fishermen over here in Leone, but for years I have not seen any fishermen selling any fish on this side of the island for many years. It tells me that most of the fishermen on this side are fishing for their families, not to sell. It’s been like that for a lot of years in this area. Last year, our ocean was out, no fishing because we had some funerals in the village.</p>

Themes/subthemes (counts)	Quote(s)
	<p>We were sitting around, there was a couple coming from the westside, they were telling us that there were some Vietnamese fishermen on the reef, and they were casting their nets on the reef, from one side to the other side. A lot of people don't respect the village sa or po if there is a funeral, kapu for the village. So, two Vietnamese and one Samoan guy were casting without asking or finding out if they were allowed to cast their net in the village. So, we went over, brought them in, and told them what happened, no fishing. The Samoan guy was afraid. We took their nets, we took their fish and told them to tell their boss – if they want their nets back, they have to come to the village to explain. If they don't see anyone out in the ocean swimming or fishing, then something is going on. If someone is from the other side of the island or somewhere else, they have to respect that. They have to respect the village. They never came back. I think most of the people in our village, most of the people on our side, they fish for their families, they don't fish to sell. I think that's good too, you just catch what you need. Don't be greedy."</p> <p><b><i>(regulations, locally-managed marine areas, local enforcement)</i></b></p> <p>"I'm thankful for our culture and our community. The atule is still there. We close the [atule] fishery [on Manu'a] from 8am to 4pm. That allows people to go to work and not fish every day. That way the fish is still there when you get off work. People coming from Japan, it's affecting us. There's a lot of human influence with building structures, road, that wash nutrients into the ocean, affect the health of the reef. Influence of infrastructure, numbers of people coming in and affecting the health of the reef. Pala lagoon, streams, people not throwing trash. By protecting the reef, we can help the populations of fish. So that's what I've been doing lately. Still, our work is important, educating our young people, taking care of our trash, people being mindful to make American Samoa a better place."</p> <p><b><i>(regulations, locally-managed marine areas)</i></b></p> <p>"Just on management and regulations, speaking on behalf of my dad and his experience, just what he's seen, that he disagrees with, is the underwater</p>

Themes/subthemes (counts)	Quote(s)
	<p>flashlight, the nearshore, that's been one of the biggest downfalls with limited regulations. When the tide used to go down in the ocean near our village you could see the parrotfish flapping around and hit them, knock them out." <b>(regulations, nighttime spearfishing)</b></p> <p>"But talking about regulations and fishing, I'm learning a lot. There's so many issues. It's a lot about influence. Being in Pago, there's an issue with population, there's so many people. A lot less people in Manu'a. Only 50 people in our village. We share fish and there's still so many. People come from Pago and night dive. That is probably the scariest depletion of fish. Because it's cost-effective." <b>(regulations, nighttime spearfishing)</b></p> <p>"Personally, I have observed an overfishing of netting. Asian farmers, that is translating over to fishing too. Now you see 1–3 people netting, mostly Vietnamese or Chinese. Not to be discriminatory, but sometimes the practices are not what they should be whether using drift nets or too small nets. They're not supposed to be fishing commercially. Whenever someone asks, they say they are fishing for our friends or family. When you have nets that are 100' long, but they're going on the weekends, on the holidays, after government work hours, you're getting a lot of catch. You have turtles, the bycatch, but that's just my personal experience, you're seeing more net fishermen and night divers. Even in my generation. To me, this is having a big impact. When I moved into this area 6 years ago you would see a lot of mullet. Nowadays you don't see many of them. People can catch 50 per trip. Lion's Park is a breeding ground for mullet. If they're being caught at the breeding ground, then what?" <b>(regulations, illegal inshore commercial net fishing)</b></p> <p>"Going back to the comment to [names another fisher] on fishing activities, I think fishing activity falls in with the Division of Marine and Wildlife. We do not have size limits. We have been trying to set this with SPC. A lot of people are coming in, a lot of nighttime fishermen, divers, they're just doing it for the money. They don't even stay here. They're just getting their fish, getting their money, and sending it off. I think the team is</p>

Themes/subthemes (counts)	Quote(s)
	<p>pushing for these regulations to move forward. [Another person] is trying to get regulations. It's something the Department is moving closer to. The stories from my dad and others growing up, there were a lot more fish. It's sad to see we don't see what we were told it was like when our parents were growing up. The Office is empowered to put regulations in place. These fines for the fishermen for breaking the law, they can pay that fine 3 times over with the fish in their coolers. It bothers me as a fisherman. We need to come together to put these regulations in place." <b>(regulations, illegal inshore commercial net fishing)</b></p> <p>"[Another fisherman] brought up the fish coming off the foreign boats is delivering to the cannery. I want to follow up on what he was talking about. This is an issue that our Advisory Panel members have stressed with the flooding of the market with the fish that are being sold, undercutting our fishermen. This would fall under local conditions [referencing the categories on the slides]. Basically, we have a situation where it affects not only our larger longline vessels but also our smaller alia commercial fishermen. We have this fish coming in that isn't being tracked by customs and the duty is not being put on it that is supposed to by regulations. There's definitely a gap or loophole where we're not putting a duty on that fish being sold and it's affecting the fishermen. I went out this morning, I usually buy from the longline. The guys that work for the treasury have to do a better job policing that. I pull up with my cooler in the back and tell them I need to report my fish and they just tell me to go ahead. For a government with a shortfall, it just drags down our government's ability to bring in finances. I see it all the time."</p> <p><b>(regulations, customs enforcement on foreign fish sales)</b></p> <p>"I would go and get fish from the longliners sometimes and [names another fisher] is exactly right. The fish is given very loosely over there. If somebody brings out fish, they're just going to give one fish to the security guard. That's the ticket right there and all the fish go out. There's got to be some way. And Customs is not over there. It's just the Port security guard. Customs is</p>

Themes/subthemes (counts)	Quote(s)
	<p>in the Customs office. Everything goes through security. I could be wrong, but everything goes through security. All I see is port security at the gate. [Another fisher] is exactly right, there's no selling of the fish on the west side, the east side. Only the central, hanging on a tree. Those are fishermen and also Faleniu and under the mango tree. Those are the areas where they sell fish. As far as these guys that fish, they don't have any other means to feed their family. They sell only in their village. If there is a fa'alavelave or if someone is going to visit family, to the states, they will catch octopus. Every night I see little alias fishing out there. I don't know how we're going to stop them. They say you have no jurisdiction here, or way of enforcing it. They say this is God's Ocean. If there's some kind of legislation to bring to the fono, I'd be glad to introduce it. Guys who fish, I'm not the expert. When I used to fish it was reef walking. That's what fishing was to me back then. But you guys who are directly affected by all of this type of fishing, you guys are the experts, you can bring up the legislature, just give it to me and I'll introduce it."</p> <p><b><i>(regulations, customs enforcement on foreign fish sales)</i></b></p>

## **CNMI**

### ***Social***

The only comment associated with social aspects of CNMI fisher observations dealt with fishing infrastructure; repairs needed to the Rota boat ramp. See [Table 9](#).

**Table 9.** Social Aspects of CNMI fisher observations

Themes/subthemes (counts)	Quote(s)
Fishing infrastructure <ul style="list-style-type: none"><li>- Boat ramp repairs needed<ul style="list-style-type: none"><li>• Rota</li></ul></li></ul>	<p>“We just had one of our ramps—all of our ramps on the westside of the island—there has been more activity launching their boats on that side. On Rota, their westside harbor is damaged right now. Last I heard they are getting their permits together and stuff like that.”</p> <p><b>(fishing infrastructure, boat ramp repairs needed, Rota)</b></p>

## **Economic**

When discussing economic issues, CNMI fishers primarily focused on market conditions. They reported a lack of fish of all types—pelagic, bottom, and coral reef—in markets, and one fisher suggested that the weather, an abundance of earthquakes (which may affect bottomfishing to a greater extent), and climate change may be to blame. Fish prices have remained stable since COVID-19 began and fuel prices remain high, which continue to challenge fishing in the archipelago. See [Table 10](#) for full results.

**Table 10.** Economic aspects of CNMI fisher observations.

Themes/subthemes (counts)	Quote(s)
Market conditions (3) <ul style="list-style-type: none"><li>- Lack of fish in markets<ul style="list-style-type: none"><li>• PMUS, BMUS, ECS</li><li>• BMUS (kalekale, opakapaka), ECS (mafuti)</li></ul></li><li>- Steady market prices</li></ul>	<p>“Just in December, I visited markets to get fish for home and it was empty. No reef fish, no pelagics, no bottomfish at all.” (<b>market conditions, lack of fish in markets, PMUS, BMUS, ECS</b>)</p> <p>“Because of the bad weather, climate change and all that, the earthquakes, most people have stopped bottomfishing. If there are 8 fish markets, 7 don’t have bottomfish. A lot of the markets have stopped carrying bottomfish and if they do it’s mafuti, kalekale, opakapakas? Most have decided to get other jobs because they’re not catching fish.” (<b>market conditions, BMUS, kalekale, opakapaka, ECS, mafuti</b>)</p> <p>“Fish prices in Saipan have been stable over the past 3 years since COVID.” (<b>market conditions, steady prices</b>)</p>
Costs of fishing <ul style="list-style-type: none"><li>- Fuel prices</li></ul>	“\$5.39 on Saipan, Tinian, \$0.30 more.” ( <b>costs of fishing, fuel prices</b> )

## *Ecological*

### *Biological*

CNMI fishers stated that 2024 was an average year for pelagic recruitment, but a slow year for bottomfish, potentially due to frequent earthquakes across the region. One fisher mentioned that the ti'ao run occurred later in the year than normal and the mañahak run did not happen at all on Saipan and Tinian. In addition, bottomfish that were caught were smaller than in previous years. Fishers also noted an abundance of grey reef sharks, spearfishing, and humpback whales sighted near the beach. Lastly, one fisher felt that shark depredation decreased in 2024. Full results of biological aspects of CNMI fisher observation for 2024 are available in [Table 11](#).

**Table 11.** Biological aspects of CNMI fisher observations.

Themes/subthemes (counts)	Quote(s)
Juvenile and Adult recruitment (4) <ul style="list-style-type: none"><li>- Amount of fish (2)<ul style="list-style-type: none"><li>• PMUS (yellowfin tuna), BMUS</li><li>• PMUS (mahimahi, yellowfin tuna)</li></ul></li><li>- Forage items<ul style="list-style-type: none"><li>• Mañahak, ECS, ti'ao</li></ul></li><li>- Size of fish<ul style="list-style-type: none"><li>• BMUS (onaga)</li></ul></li></ul>	<p>“As far as 2024, pelagic fishes from tuna, yellowfin, mahi, pretty average from the first few months to October–November. By Christmas we had practically no yellowfin anywhere in the markets. Bottomfish slowed down, then picked back up in November–December.” <b>(juvenile and adult recruitment, amount of fish, PMUS, yellowfin, BMUS)</b></p> <p>“I went trolling a couple weeks ago, lots of schools of mahi, yellowfin, but they’re not biting.” <b>(juvenile and adult recruitment, amount of fish, PMUS, mahimahi, yellowfin tuna)</b></p> <p>“The ti'ao run came late, it's usually in the 3rd quarter. Juvenile jacks also came later in the year. Other fishers also reported that they didn't see the mañahak run on Saipan and Tinian as well.” <b>(juvenile and adult recruitment, forage items, mañahak, ECS, ti'ao)</b></p> <p>“For all the CNMI, bottomfishermen had a tough time locating schools of onaga. They've been trying and trying for 2024 and just haven't had any luck. Maybe 2–3 times the entire year some guy will catch 5–7, but it's usually none. I haven't caught one 15 pounder and up—3–4 lb at the most.” <b>(juvenile and adult recruitment, size of fish, BMUS, onaga)</b></p>
Changes in spatial distribution patterns (2)	“I've been taking a couple guys out spearfishing, the second quarter, and they've been noticing that a lot of the grey reef tip sharks are coming in closer towards the

Themes/subthemes (counts)	Quote(s)
<ul style="list-style-type: none"> <li>- Sharks, parrotfish</li> <li>- Marine mammals (humpback whales)</li> </ul>	<p>reef. And the parrotfish used to be deeper, but they're coming up closer to the surface. They had seen the parrotfish at a certain depth years ago, then they were going deeper, and now they're coming up to depth where they originally saw them." <b>(changes in spatial distribution patterns, sharks, parrotfish)</b></p> <p>"Recently had a whale sighting on the westside near the reef, pod breaching by the beach." <b>(changes in spatial distribution patterns, marine mammals, humpback whales)</b></p>
<p>Phenology</p> <ul style="list-style-type: none"> <li>- Timing of migration patterns <ul style="list-style-type: none"> <li>• Marine mammals (humpback whales)</li> </ul> </li> </ul>	<p>"I've heard from some fishermen that it is common for the whales to breed between those 2 beaches in Saipan." <b>(phenology, timing of migration patterns, marine mammals, humpback whales)</b></p>
<p>Depredation</p> <ul style="list-style-type: none"> <li>- Sharks</li> </ul>	<p>"Shark depredation slowed down again into December–January." <b>(depredation, sharks)</b></p>

### *Physical/Oceanographic*

Weather and earthquakes affected fishing trips, particularly bottomfishing trips, in 2024. One fisher felt that the earthquakes could be to blame for fewer bottomfish caught this year. Currents were also observed moving west to east, the opposite of their normal pattern, which might be attributed to La Niña. See [Table 12](#) for results.

**Table 12.** Physical/Oceanographic aspects of CNMI fisher observations.

Themes/subthemes (counts)	Quote(s)
Weather, wind patterns - Rough ocean conditions (PMUS, BMUS)	“Weather has been same as 2023. Fluctuates every month. Months of October–November–December, the weather is always rough. Pelagic fishermen and bottomfishermen have a tough time. It’s like that pretty much every year for the last part of the year.” ( <b>weather, wind patterns, rough ocean conditions, PMUS, BMUS</b> )
Disturbances - Earthquakes	“Last few months CNMI waters have been constantly having earthquakes. From the very north the Maug Islands to the south of Guam. I work for Homeland Security and I get an update every day. The bottomfishermen come in and their catch is very bad. Affected by earthquakes, coming home from fishing with 15–20 lb. instead of 80–100 lb. average. The earthquake has a significant factor in why the bottomfish aren’t biting as good as they used to be.” ( <b>disturbances, earthquakes, BMUS</b> )
Currents	“The current usually goes east to west, but now it’s going the opposite side.” ( <b>currents</b> )

### *Management Uncertainty*

There were no comments related to this topic in the 2024 annual summit.

## Guam

### Social

Fishing infrastructure issues (FADs and overcrowded boat ramps) were notable social aspects of Guam fisheries mentioned by meeting attendees in 2024. There was concern about FADs becoming unmoored shortly after deployment. The costs and bidding process associated with procurement makes them difficult to quickly replace. Fishers also described crowding at Guam boat ramps, particularly Agana, where fishers compete with other ocean users and ocean recreation businesses such as sunset cruise boats. Upgrades to the marina have reduced parking spots, and derelict trailers further decreased places to park after launching a fishing vessel. Fishers also discussed the mixed blessing of social media and fishing: they often use social media to sell their catch; however, their posts of successful catch result in more people turning up to fish at the same location. When they subsequently sell their catch, the increased supply reduces prices. Fishers also mentioned that several small vessels fish at night with no navigation lights, which is a danger to other mariners. See full results in [Table 13](#).

**Table 13.** Social Aspects of Guam fisher observations.

Themes/subthemes (counts)	Quote(s)
Fishing infrastructure (4) <ul style="list-style-type: none"><li>- FADs (2)<ul style="list-style-type: none"><li>• FADs offline (PMUS)</li><li>• High cost of replacing FADs</li></ul></li><li>- Overcrowded boat ramps (2)<ul style="list-style-type: none"><li>• Agana boat basin</li></ul></li></ul>	<p>“We have concerns with the FADs, we tend to lose them pretty quick. If all the FADs were online the pelagic bite would be a lot better.” (<b><i>fishing infrastructure, FADs, FADs offline, PMUS</i></b>)</p> <p>“The FADs, we all know the issues, but it’s gotten worse. A FAD system I think is \$33,000 now. It’s not sustainable. [Names FAD manufacturer], the one we’ve used for decades, is under new ownership and we don’t know if anyone will bid on the FAD systems this year. Every year just gets harder and harder. We explore different avenues to try to remedy the situation. There’s some kind of bond that guarantees the business owner to not have to put down 10%, a bid bond, it’ll be guaranteed by the bank. That’s been a stumbling block for smaller businesses not having the capital to bid on these FAD contracts. Any help, we’ll accept any help, any ideas, on different FAD systems. Reducing size of FADs, the size of vessel that can be deployed. We’ll try anything, any help available. Also, the military, the Coast Guard, anyone that can help fishermen with the FADs because the government procurement system on</p>

Themes/subthemes (counts)	Quote(s)
	<p>Guam is a beast." (<b><i>fishng infrastructure, FADs, high cost of replacing FADs</i></b>)</p> <p>“Boat ramps, Agana [Boat Basin] is the busiest, has been heavy on traffic. When the ocean is calm, you see a lot of fishermen going out. Sometimes you have to wait an hour just to launch a boat.” (<b><i>fishng infrastructure, overcrowded boat ramps, Agana boat basin</i></b>)</p> <p>“On the infrastructure again, both marinas are congested at times. I don’t even want to come in early [from a fishing trip] if I’m headed down south. We’re butting heads with dolphin watchers and sunset tours. Can never find parking, you’re parking along the side of the road in the mud. Seems to be a lot of parking for liveaboards, they never move. Trailers, derelict trailers just taking up space. Especially Agana. It gets hard with those larger party boats, booze cruises, not to mention they built a bathroom that takes up an additional 5 parking spots to accommodate the tourists. Trailers are getting broken, getting sideswiped by people trying to get a parking spot. Generally, a lack of courtesy. People are hunkering down, not having courtesy for others to get out of the way. With the military ramping up and the buildup, there are increased charters. The government should look at how to handle the increased traffic, it’s painful.” (<b><i>fishng infrastructure, overcrowded boat ramps, Agana boat basin</i></b>)</p>
Social networks (2) <ul style="list-style-type: none"> <li>- Social media posts drive fishing effort (2)</li> </ul>	<p>“Or they wait for other people to post there’s a bite and then they make the effort to operate and go out.”</p> <p><b><i>(social networks, social media posts drive fishing effort)</i></b></p> <p>“So if one boat catches a wahoo on a Friday, there will be a lot more boats along the coast. Which kind of sucks because we use social media to sell our fish so we post what we have for sale and then others see we are catching and go out too. So, it helps us and hurts us.”</p> <p><b><i>(social networks, social media posts drive fishing effort)</i></b></p>
Emerging conflicts	<p>“They’re still out there fishing every day. They’re not that spread out anymore, they’re usually all in the south or all in the north. They are active at night as well, with</p>

Themes/subthemes (counts)	Quote(s)
- Mosquito fleet fishing without navigation lights	no lights. They get close to our lines. As we're coming in at night. I bought a light for my line now so you can see me! You can hear them at night driving by us with no lights. They are active at night with no lights." <b>(emerging conflicts, Mosquito fleet fishing without navigation lights)</b>

### **Economic**

Market conditions permeated discussions about the economics of Guam fisheries in 2024. Some fishers reported steady prices but noted that demand can easily drop if too much fish enters the market. Others felt they did not have a problem with selling their fish. They utilized social media or delivered their catch to the flea market. With more H2 [visa] contract workers on the island, there may be a greater demand for fish. Likewise, tourism is increasing, and many chefs design menus around local fish, which is good for fishers looking to sell their catch. Fishers also noted high costs of fishing, particularly fuel costs, which remain over \$5.10/gallon on Guam. Full results are available in [Table 14](#).

**Table 14.** Economic aspects of Guam fisher observations.

Themes/subthemes (counts)	Quote(s)
Market conditions (8) <ul style="list-style-type: none"> <li>- Steady prices (2)</li> <li>- Markets</li> <li>- Tourism</li> <li>- Biosampling program created a false market</li> <li>- Social media sales</li> <li>- High demand for local fish</li> <li>- H2 workers purchasing fish</li> </ul>	<p>“Steady price all around, I think. So easy to flood the markets on Guam, especially with the higher price. If 10 boats catch fish and they all load up, if you're not the first one dropping off, you're going to struggle.” <b>(market conditions, steady prices)</b></p> <p>“Add clarification that although price may not have changed, the market will flood. Just the ability to move your fish at any price is always a factor. Prices have not gone up, but there are times you cannot move fish at any price. The marketability of fish could use a boost. Support local, buy local would definitely help. Anything could help. Restaurants, hotels can only take so much.” <b>(market conditions, steady prices)</b></p> <p>“Markets have been pretty easy for me. That's about it.” <b>(market conditions, markets)</b></p> <p>“Tourism, we're still on the rebound, but they're transitioning a campaign. They revamped one of their programs to try to attract Japan, South Korea, and</p>

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China. We recently had some Mongolian customers. It's good to see tourism rebounding." **(market conditions, tourism)**

"I've heard from a few sources, one complaint about marketing is exactly what this body has stressed that the biosampling program may be artificially inflating the market. People complain that they can't move their catch because they are no longer buying certain sizes of different species. The AP said that the Biosampling program could artificially inflate prices. It has changed fisher behaviors, motivations, they have started to voice concerns." **(market conditions, biosampling program created a false market)**

"It's the social media market. That's what a lot of guys have resorted to. Restaurants are not willing to pay that price, it's a direct passthrough to customers. If a hotel can buy imported filleted or prepped, they're going to do that. It's a hustle. Restaurant hotels can only buy some. In some places where the market is flooded prices drop, here when the market is flooded you can't move fish." **(market conditions, social media sales)**

"Basa is on a lot of the menus now to keep prices cheap. Restaurants for steamed fish, Chinese restaurants a lot of them have distributors who bring in the coral trout, the groupers from Philippines, Indonesia. It's hard to get the grouper here let alone get it consistently. But other areas are able to catch it. That 1–2 lb fish. Wholesale groups bring it in. Outer islands, Micronesia, Philippines. Has shifted to basa. Ask them for fish for the day. The culture is changing, chefs want local fresh fish. But if they aren't going to get it consistently, they aren't willing to work with you. For example, they don't know the fishery and they want mahi off season, or bottomfish when it's blowing. So, they fall back on frozen." **(market conditions, fish imports, higher demand for local fish)**

"We don't have the military buildup; we only have a couple hundred workers. A lot of H2 workers were brought in from the Philippines or the Mainland. The fishermen can bring their fish to the flea market and dump their fish on the weekend. If they can't sell their fish in the markets, they sell to the flea markets. The later in the day it goes, the cheaper it goes for. That's

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	been helping the local fishermen. And the H2 workers love fresh fish." ( <b>market conditions, H2 workers purchasing fish</b> )
Costs of fishing (4) - Fuel prices (4)	<p>"Fuel prices are always in fluctuation here on Guam. Right now it is \$5.10/gallon." (<b>costs of fishing, fuel prices</b>)</p> <p>"All is over \$5. Diesel is over \$5. Regular is \$ 5.09 on Guam. I don't even look, I just put it in." (<b>costs of fishing, fuel prices</b>)</p> <p>"Higher fuel prices just means I stay out until I catch enough to pay that fuel bill. That might mean fishing for atulai at night after fishing all day, anchoring, staying into the night to pay the fuel bill. We did have a pretty good trolling season so I didn't have to do the night trips as much." (<b>costs of fishing, fuel prices</b>)</p> <p>"It's factored into my costs to operate, trip cost. I'm going to go if I'm going to go. We have some boats with twin 200s, twin 250s, by the time you get out there you've already burned so much, you've already lost." (<b>costs of fishing, fuel prices</b>)</p>

## ***Ecological***

### ***Biological***

Biological discussions of Guam fisheries in 2024 included runs of mañahak and ti'ao, which were not big relative to previous years. The beginning of the year was good for pelagic fishing, especially mahimahi and marlin, perhaps in part due to an abundance of debris in the water acting as FADs. Depending on who you talked to, 2024 was either a bad year or a good year for wahoo. In some cases, they were difficult to find and catch but in others, big fish were caught every week. In terms of phenology or timing/migration patterns, fishers noted that the i'e or juvenile jack run occurred 1–2 months later in the year and there was an abundance of smaller marlin in the 50-100 lb range. Guam fishers also frequently observed humpback whales or dolphins toward the end of 2024. Depredation continued on both pelagic and deep bottomfishing trips, making it difficult to land both tuna and onaga. Full results of the biological aspects of Guam fisher observations are available in [Table 15](#).

**Table 15.** Biological aspects of Guam fisher observations.

Themes/subthemes (counts)	Quote(s)
Juvenile and Adult recruitment (7) <ul style="list-style-type: none"><li>- Forage items (3)<ul style="list-style-type: none"><li>• mañahak, ti'ao, atulai</li><li>• ti'ao</li><li>• mañahak</li></ul></li><li>- Amount of fish (3)<ul style="list-style-type: none"><li>• PMUS (mahimahi, marlin, yellowfin tuna, wahoo)</li><li>• PMUS (mahimahi)</li><li>• PMUS (wahoo)</li></ul></li><li>- Size of fish<ul style="list-style-type: none"><li>• PMUS (skipjack)</li></ul></li></ul>	<p>“2024, the juvenile run for mañahak, ti'ao, wasn't that good at all. There was anticipation that there would be good ones [runs], but it didn't happen. Atulai, I don't think it was that good all year. I think a lot of that has to do with currents. Juvenile recruitment that's really about it.” (<b><i>juvenile and adult recruitment, forage items, mañahak, ti'ao, atulai</i></b>)</p> <p>“With the juvenile [mañahak] run, it usually skips years. We usually have that abundance every 5–7 years. We're creeping up on that time but we haven't had the big runs yet. There's more talayas [thrownets] on the beach than mañahak!” (<b><i>juvenile and adult recruitment, forage items, mañahak</i></b>)</p> <p>“Ti'ao there was a run, but it was short, only a day or two, in November. It was inconsistent. Usually, it's consistent for a week or so. But now it's smaller schools that show up. We usually think those are the front runners with smaller schools coming, but that wasn't the case. There was oddball days when one guy would catch a bucket. Then the next day, nothing. The guys that go some of them caught some decent catches, but you go the next day and nothing. No fresh schools</p>

Themes/subthemes (counts)	Quote(s)
tuna, wahoo, marlin)	<p>come in." (<b><i>juvenile and adult recruitment, forage items, ti'ao</i></b>)</p> <p>"I had an excellent mahi run at the end of last year. No less than 100 lb trips. 40 some pieces multiple times. Mahi stayed with us well throughout the year well through May, then marlin. Good marlin bite for us, both close to FADs and around the banks, a lot of marlin around. Landed about 20 marlin, lost more, so it was a good year. Mirroring what [another fisher] was saying, the tuna bite kind of shut down toward the end of the year. Not sure what that was about. Slow wahoo run, consistent fish, but hard to get more than 5–6 pieces." (<b><i>juvenile and adult recruitment, amount of fish, PMUS, mahimahi, marlin, yellowfin tuna, wahoo</i></b>)</p> <p>"The beginning of last year there was a lot of debris in the water, large nets, logs floating. And I think that helped with our success with the mahi last year." (<b><i>juvenile and adult recruitment, amount of fish, PMUS, mahimahi</i></b>)</p> <p>"Echo what [another fisher] said, 2024 beginning of the year the pelagic fishing was really strong. Had daylight coming in a lot of the time with the box already full. Usually stay out until dark to fill up the box. Not a bad problem to have. We expected that wahoo run, but it never happened. That basically throttled my fishing down when the fishing slowed down. Keep paying that fuel bill or throttle down. Buy a bigger fish box on those days when the fish were biting." (<b><i>juvenile and adult recruitment, amount of fish, PMUS, wahoo</i></b>)</p> <p>"The bonita/skipjack I've picked up quite a few big ones in their stomachs, I've seen lots of eggs in them, first time catching female bonitas like that. All the females were 20+ lb and they all had eggs. I was picking up big wahoos every week. Big ones. 30–40–50 pounders. And they're hitting the same size on the lure. Not so much the smaller ones coming in, the majority were big ones. And they're consistent. What [another fisher] said, a lot of marlins last season and it stayed consistent throughout the year, almost every boat in our derbies were catching marlins—50–100 lb were the consistent sizes. Every month at least one and it's unusual."</p>

Themes/subthemes (counts)	Quote(s)
	<b><i>(juvenile and adult recruitment, size of fish, PMUS, skipjack tuna, wahoo, marlin)</i></b>
Phenology (4) <ul style="list-style-type: none"> <li>- Timing of migration patterns (4) <ul style="list-style-type: none"> <li>• ECS (i'e)</li> <li>• PMUS (marlin)</li> <li>• Marine mammals (humpback whales, dolphins)</li> <li>• Marine mammals (humpback whales)</li> </ul> </li> </ul>	<p>“To include i'e or juvenile jacks, they did not run as hard this year. They were two months late. They're usually anticipated in May or early June. They did run a couple months later, but not as strong.” <b><i>(phenology, timing of migration patterns, ECS, i'e)</i></b></p> <p>“May–November we had a good marlin run. One trip we landed 5 of 13 marlin strikes in November. Unusual to see them in November, usually the summer months. A couple other boats also landed marlin either same day, same trip, same week. Then it shut down where nothing was biting, no pelagic fish.” <b><i>(phenology, timing of migration patterns, PMUS, marlin)</i></b></p> <p>“I saw the humpbacks too, on Wednesday by Hågat. I've seen a lot of big pods of dolphins or whales at the end of 2024. Every trip up to now, I've seen whales or big pods of dolphins.” <b><i>(phenology, timing of migration patterns, marine mammals, humpback whales, dolphins)</i></b></p> <p>“We've had the cetacean research program come down here to do surveys. The whales are not that rare of an occurrence. But they haven't been out here in a few years to do their shore-based surveys.” <b><i>(phenology, timing of migration patterns, marine mammals, humpback whales)</i></b></p>
Depredation (2) <ul style="list-style-type: none"> <li>- Sharks <ul style="list-style-type: none"> <li>• BMUS (onaga)</li> <li>• PMUS (tuna, mahimahi)</li> </ul> </li> </ul>	<p>“Of course, the depredation, I refer to bottomfishing. Deep bottom bite was pretty consistent, sharks were also consistent. Although I missed some key months, the onaga fishing was good, but with the depredation - we lose at least half due to shark depredation. Either lost multiple fish or we would just lose them. It was a tough challenge each trip. Still dealing with shark depredation on bottomfish.” <b><i>(depredation, sharks, BMUS, onaga)</i></b></p> <p>“For shark depredation I've noticed that they are getting more desperate. They're not just targeting specific species, they're hitting everything. It's interesting how aggressive they're getting. We'll be lucky if we catch any tuna. We were targeting a mahi school and when</p>

Themes/subthemes (counts)	Quote(s)
	they came in, we just had the head. At this point the sharks are targeting any kind of species. Just as much as the tunas are jumping, the sharks are there as well. It's making it harder for us to catch fish, whether it's tuna, mahi." ( <b>depredation, sharks, PMUS, tuna, mahimahi</b> )

### Physical/Oceanographic

Guam fishers reported abnormal weather conditions in 2024. Large westerly swells made trips out of west coast harbors difficult, and rough ocean conditions prevented bottomfishing trips. Wet weather, tropical weather systems, and strong currents were noted throughout the year. When fishers could go on bottomfishing trips, they reported an abundance of onaga, which they felt might be attributed to La Niña conditions. Fishing was also affected by earthquakes, which one fisher posited also had a negative effect on the mañahak run. See full results in [Table 16](#).

**Table 16.** Physical/Oceanographic aspects of Guam fisher observations.

Themes/subthemes (counts)	Quote(s)
Weather, wind conditions (3)  - Rainfall - Westerly swells - BMUS	<p>"Last year in October, in a two-week period, NWS reported 21 million gallons of rain dumped on Guam and we anticipate that having an impact on our fisheries this year." (<b>weather, wind conditions, rainfall</b>)</p> <p>"Going back to 2024, in the beginning months Jan-April we saw a lot of westerly swells. It made it a lot harder for fishermen to go out because all the harbors are on the west side. When the water is like that, we don't go out. Brought from a lot of the passing storms that we had. That also chased away a lot of our fish. There was an overturned boat too, in the channel." (<b>weather, wind conditions, westerly swells</b>)</p> <p>"Weather conditions made bottomfishing not attemptable." (<b>weather, wind patterns, BMUS</b>)</p>
Disturbances  - Earthquakes • Forage items (mañahak)	"So my family does a lot of mañahak fishing. There was a lot of anticipation that there was going to be a good run, but unfortunately, the day before the run we had a few earthquakes. And when that happens, they [mañahak] do not want to run. There were a lot of

	people out there, but not as many fish as usual." <b>(disturbances, earthquakes, forage items, mañahak)</b>
Currents - Strong winds - Water temperature - Rainfall	"For 2024, even in the summer days and latter part of 2024, the days may be hot but the water is still kind of cold. I thought it might be a positive thing that the fish might come in and stay in, but the seasons are kind of off, fish are coming in late, not staying. You would think it would with the colder temperature. Things are not lining up. A lot of tropical storms, a lot of depressions. Strong winds, strong currents. A lot of wet seasons for 2024." <b>(currents, strong winds, water temperature, rainfall)</b>
Climate - La Niña	"Just wanted to add we're in a La Niña period until March. End of December I did find some big piles of onaga and it's kind of carrying over to now. I am not sure if it's going to carryover to this year. There were a couple trips this past weekend we did pretty good. So hopefully this year will be productive, moving into La Niña, [ENSO] neutral period March-April." <b>(climate, La Niña, BMUS, onaga)</b>

### **Management Uncertainty**

Management concerns voiced by the Guam fishing community primarily focused on military regulations that may affect fishing, fishing activity, or navigational safety. There is a bomb detonation site on the banks off of the Rota banks that fishers said is still active. The surface danger zone of several firing ranges at the Marine Corps base extend 2–3 miles into the ocean, causing some fishers to avoid the area entirely whether fishing or transiting. Full results are available in [Table 17](#).

**Table 17.** Management aspects of Guam fisher observations.

Themes/subthemes (counts)	Quote(s)
Regulations (3) - Military impacts on fishing activity (3)	"At the Marine Corps base, 5 firing ranges have been completed. 3 of the 5 Marine Corps firing ranges are up and the surface danger zone (SDZ) extends into the water 2–3 miles. Training for marines to use the range is 39 weeks of the year, fishermen cannot access the surface danger zone that extends out into the ocean. During that time fishers have to go around the danger zone. That will influence safety, time. 39 weeks are that you cannot access when they're using the high caliber

Themes/subthemes (counts)	Quote(s)
	<p>machine guns. We're told that when boats travel through the area, they will cease operations. But I go around. They have cameras on both west and east end of the range with radar, they can actually see the boats coming and what not." <b>(regulations, military impacts on fishing activity)</b></p> <p>"They said they will not be doing it on the weekends. There's a certain time of the year that the mahis will be right in that spot. What I'm worried about is the 50 caliber range, that's the largest one and that's still under construction. The berms that they've put up, they kind of look sketchy. The backdrop is the ocean." <b>(regulations, military impacts on fishing activity)</b></p> <p>"They also have their bomb detonation site, they're still blowing stuff up. We were fishing Rota banks and we could still hear them. Has been there for a decade." <b>(regulations, military impacts on fishing activity)</b></p>

## Hawai‘i

### *Social*

Social issues reported by Hawai‘i fishers included fishing infrastructure issues, a lack of people fishing for bottomfish on Kaua‘i, and reduced small boat fishing effort on Hawai‘i Island. Fishers referenced conflicts with tourists at Kaua‘i boat harbors over a lack of parking; the need to dredge and reopen Pohoiki and the impact that delay in dredging has had on fishers trying to launch out of Wailoa. Full results are presented in [Table 18](#).

**Table 18.** Social Aspects of Hawai‘i fisher observations.

Themes/subthemes (counts)	Quote(s)
Fishing infrastructure (3) <ul style="list-style-type: none"><li>- Boat ramps<ul style="list-style-type: none"><li>• Tourism conflicts</li></ul></li><li>- Wailoa small boat harbor dredging</li><li>- Pohoiki dredging</li></ul>	<p>“The situation with the ramps and what not, Kekaha is a bit better because the tour boats aren’t running. They’re looking at Anini because the county owns that ramp and are thinking about how to better that ramp. The one problem on Kaua‘i, tourists have started to take over boat ramps because there’s no parking around. You’ll find them parking in the washdown areas, and that frustrates the fishermen. The Park Rangers write a ticket, but the car is still there. They’re trying to work with the county, the state, to find something that will work, especially in the Hanalei area.” (<b><i>social, fishing infrastructure, boat ramps, tourism conflicts</i></b>)</p> <p>“Infrastructure. On the Hilo side with Pohoiki being inundated with the lava flow, that ramp is no longer feasible. The commercial fishers that used to come out of Pohoiki now use our ramp. Wailoa small boat harbor. It would be pretty interesting to see how that affects the sand. We have recorded people walking their boats out. Radons, large Forces [brand name island fishing boats]. They have to walk their boats out to get past the sandbar. I’d be curious to see the impact of not having the free and open access because of the negligence for Hilo.” (<b><i>social, fishing infrastructure, Wailoa small boat harbor dredging</i></b>)</p> <p>“Like [another person] said, there was no assessment of Pohoiki. There probably should have been an attempt to declare a fishery disaster. There was definitely an impact. With the shoaling at the harbor there was major impacts. A lot of guys just stopped going. Weekend warriors didn’t come out. Others had to time their trips</p>

Themes/subthemes (counts)	Quote(s)
	with the tide so they could get in and out. Commercial guys walking their boats out. A number of boats sustained damage. It's important to recognize how the role that Pohoiki played historically and how much Pohoiki fishers suffered from this. They are still good grounds and if they have been left alone, there will probably be pretty good fishing. They are planning to dredge, but there are concerns about what will happen to the environment when they dredge." ( <b>fishing infrastructure, Wailoa small boat harbor dredging, Pohoiki dredging</b> )
Lack of people fishing - BMUS	"The only thing that needs more recruitment in Kaua'i is bottomfishermen because no more get around there." ( <b>lack of people fishing, BMUS</b> )
Reduced small boat fishing effort - PMUS ('ahi, ono), uku, ECS (nabeta)	"There's been a little predation by ono, by palu 'ahi guys. There's been more kayak fishing out of Keaukaha, dragging them for ono, uku. In the market I've seen some very large nabeta. Probably one guy who knows where they are. It's been recognized that there are 4 different species." ( <b>reduced small boat fishing effort, PMUS, 'ahi, ono, uku, ECS, nabeta</b> )

### ***Economic***

Economic issues described by Hawai'i fishers included market conditions, marketing, changing consumer preferences, and a lack of markets on Kaua'i. Fishers described good market prices for bottomfish around Lunar New Year, low prices for tombo in Hilo when markets were flooded with fish, the difficulty of timing markets for pelagic fish like 'ahi and ono in Hilo, and the benefit of using iki jime to reduce lactic acid in fish after landing them to secure better prices. Fishers also discussed the challenges of marketing their catch, especially if they live on an outer island and need to transport their fish to the United Fishing Agency fish auction on O'ahu. One fisher reported that the high fuel prices make people more selective about when they go fishing. Full results can be found in [Table 19](#).

**Table 19.** Economic aspects of Hawai'i fisher observations.

Themes/subthemes (counts)	Quote(s)
Market conditions (10) <ul style="list-style-type: none"> <li>- Prices (4) <ul style="list-style-type: none"> <li>• Lunar new year (BMUS)</li> <li>• Low prices for tombo in Hilo (PMUS, tombo)</li> <li>• PMUS, ono, 'ahi</li> <li>• Iki jime (BMUS, opakapaka, onaga)</li> </ul> </li> <li>- Marketing (3) <ul style="list-style-type: none"> <li>• BMUS (kalekale)</li> <li>• BMUS (opakapaka, onaga, hapu'upu'u), ECS (hagi)</li> <li>• ECS (moana)</li> </ul> </li> <li>- Changing consumer preferences (2) <ul style="list-style-type: none"> <li>• BMUS (opakapaka, onaga), uku, PMUS ('ahi, mahimahi, marlin)</li> <li>• ECS (ta'ape, akule, menpachi)</li> </ul> </li> </ul>	<p>"Bottomfish has been coming in. November was horrible with a lot of wind, but now it's holding pretty good. Prices are holding steady with Chinese New Year." (<b>market conditions, prices, Lunar New Year, BMUS</b>)</p> <p>"A lot of tombo in the market the last 2-3 months, at not too high of price. Need to verify that it is all local or if they're bringing anything in, but I will check with Suisan and email you." (<b>market conditions, prices, low prices for tombo in Hilo, PMUS, tombo</b>)</p> <p>"In general, fish prices have been stable in Hilo, pretty much all four quarters. Depends a little on the peak of the bite. We have been experiencing the same trend. The last big run of ono and 'ahi in Hilo, the market can only handle so much so what you're going to experience is a crash. An example was when the ono were biting in December, that's a little weird. We heard guys were getting \$6 for ono in Hilo then when guys caught so much at the peak of the bite the market was flooded so they can't move them and the price went down \$1/lb to \$0.50 lb. It's based on the peak of the bite." (<b>market conditions, prices, PMUS, ono, 'ahi</b>)</p> <p>"I do notice paka, onaga, fish across the board, people like it better when you bleed it, that correlates the fish price. We run the wire, ike jime. It paralyzes them so they don't have the lactic acid from bringing them up. We sell most of our fish to restaurants, even if you catch a lot of fish, you need to take some time to take care of your fish. They like to see that [assuming they meant the wire/ike jime processing] so that when they open it up they see that they are getting what they said they would get." (<b>market conditions, prices, iki jime, BMUS, opakapaka, onaga</b>)</p> <p>"I do know guys on other islands, some places where they go fish, sometimes they will only catch fish that are sought on O'ahu, hapu'upu'u or hagi and ship it over. They'll go to a spot and only catch that fish. I've never shipped fish so I don't know the shipping fees, but if that</p>

Themes/subthemes (counts)	Quote(s)
<ul style="list-style-type: none"> <li>- Lack of markets on Kaua'i</li> </ul>	<p>fish is sought after, then maybe there should be a main fish shipping service that could take the fish directly to the block, because people are sketched out by how many hands their fish has been into and in contact with." (<b><i>market conditions, marketing, BMUS, hapu'upu'u, ECS, hagi</i></b>)</p> <p>"If you have to go to all that stuff to ship it over here, I feel like that's why people might ship to the mainland. If there's not a way to ship it here, they're all big-name brands. No reason to go through all that." (<b><i>market conditions, marketing</i></b>)</p> <p>"I have a suggestion for people in Kaua'i, you need to go find one broker. You're going to have a problem because of the temperature. If you find a broker you might have better luck. Kaua'i has so much fish. I think people give away a lot of fish too. People can only consume so much. Logistics, that's why. The biggest mistake we did was the ferries. Because if we still had the ferries, we could truck fish to O'ahu and still maintain that temperature. The airlines need ice, that adds weight, it's a crap shoot if it's going to get to the block. The Northwest Hawaiian Islands, they don't catch one species and load it up. They catch 1000 lb onaga, 1,000 lb 'paka, 300 lb hapu'upu'u. Marketing is something that you got to work on yourself. But first you got to have the fish. But marketing is the second step to actually making money. I got people on the Big Island who can catch 1,000 lb no problem but can't get it to market. It's not a menu fish. The marketing strategy is very important. The broker never loses money. I kind of despise them because when they buy low it still costs money. It's ridiculous. Marketing is the second step because you're dealing with something perishable. If you can solve the perishable problem, you're going to make money. If you're talking about a lot of fish, that's another story. I feel for people in Kaua'i because they got a lot of fish, but no can sell them. You gotta sell to the mainland. Restaurants pay. They got their ways of paying. Maybe the state or PIFG can put out a class on marketing. That is the second biggest factor on making</p>

Themes/subthemes (counts)	Quote(s)
	<p>money." (<b><i>market conditions, marketing, BMUS, opakapaka, onaga, hapu'upu'u</i></b>)</p> <p>"That is an amazing question, and yes. The culture has definitely changed for sure, market-wise, restaurant-wise. Everybody before used to buy 'paka, onaga, uku. Now they're all going for larger filets, 'ahi, mahi, even marlin. I was talking to this net guy and he said they used to net moana and stuff and sell it but one of the reasons they quit is that people don't want to eat fish with bones no more. Early 2000s start to see like shifting back now." (<b><i>market conditions, changing consumer preferences, BMUS, opakapaka, onaga, uku, PMUS, 'ahi, mahimahi, marlin</i></b>)</p> <p>"I noticed that a lot of the customers want ta'ape more than akule, more than menpachi. Akule you get more pieces, but ta'ape get more weight, menpachi get less weight than akule and noticed with different species being sold, they gotta clean um either way, might as well get the one that is inherently cheaper, and you can catch ta'ape anywhere." (<b><i>market conditions, changing consumer preferences, ECS, ta'ape, akule, menpachi</i></b>)</p> <p>"I think about going back commercial fishing, but where am I going to sell my fish? That is a huge problem we have over here on Kaua'i, lots of fish to be caught, not too many places for it to be sold." (<b><i>market conditions, lack of markets on Kaua'i</i></b>)</p>
Fuel prices	"Gas prices not super high, but still gotta make choices, are you going to take this trip, it is worthwhile? You gotta be more selective when you go out." ( <b><i>fuel prices</i></b> )

## *Ecological*

### *Biological*

Hawai‘i fishers reported a good year for uku and noted an abundance of bottomfish such as juvenile opakapaka. Meeting attendees said 2024 was a good year for forage fish ‘ōpelu, moana, ‘oama, halalu, and akule. Fishers continued to catch numbers of pelagic tombo off Hawai‘i Island as they have the past couple years. Fishers across the islands reported catching marlin and striped marlin. Two granders were caught in 2024 out of Kailua-Kona. Fishers also noted some timing shifts in the arrival of forage fish and uku, although some pelagic fish like tombo and ‘ahi were caught year-round. Depredation on bottomfishing and trolling trips continued, making landing fish frustrating and difficult. Full results are available in [Table 20](#).

**Table 20.** Biological aspects of Hawai‘i fisher observations.

Themes/subthemes (counts)	Quote(s)
Juvenile and Adult recruitment (30) - Amount of fish (15) <ul style="list-style-type: none"><li>• PMUS (marlin) (2)</li><li>• BMUS (opakapaka), uku</li><li>• PMUS (striped marlin)</li><li>• ECS (moi)</li><li>• ECS ('oama)</li><li>• PMUS (marlin)</li><li>• PMUS ('ahi, aku, tombo)</li><li>• PMUS (otado)</li><li>• BMUS (ehu, onaga)</li><li>• PMUS (tombo)</li><li>• Uku</li><li>• PMUS</li></ul>	<p>“The uku and the baby ‘pakas...we’ve been catching a lot of them. We caught 2–3 ukus and if you drop the ‘ōpelu below the uku pile you catch the baby ‘pakas. Even yesterday we caught two baby uku, shaka size. If you threw them below the pile, you would catch paka.” (<b>juvenile and adult recruitment, amount of fish, BMUS, opakapaka, uku</b>)</p> <p>“The marlin... it has been incredible how much fish has been coming up this past year. This year already getting reports of striped marlin and stuff.” (<b>juvenile and adult recruitment, amount of fish, PMUS, striped marlin</b>)</p> <p>“Shoreline, moi opening season was really good, everybody has been catching moi. The opos has been large and abundant. The best harvest I’ve seen in a while.” (<b>juvenile and adult recruitment, amount of fish, ECS, moi</b>)</p> <p>“I’m a non-commercial fisherman. Some reports from late in the season diving the south shore, still seeing ‘oama in the water, fresh, not even at the bottom yet.” (<b>juvenile and adult recruitment, amount of fish, ECS, ‘oama</b>)</p> <p>“Reports of high numbers of marlin being caught offshore.” (<b>juvenile and adult recruitment, amount of fish, PMUS, marlin</b>)</p>

Themes/subthemes (counts)	Quote(s)
<ul style="list-style-type: none"> <li>• PMUS ('ahi)</li> <li>• Sharks</li> <li>- Forage items (11) <ul style="list-style-type: none"> <li>• ECS ('ōpelu) (2)</li> <li>• ECS ('oama) (2)</li> <li>• Marquesan sardines</li> <li>• ECS (moana)</li> <li>• ECS (halalu, 'oama)</li> <li>• ECS (halalu)</li> <li>• ECS (akule)</li> <li>• ECS (halalu)</li> <li>• ECS (akule, 'ōpelu)</li> </ul> </li> <li>- Size of fish (4) <ul style="list-style-type: none"> <li>• BMUS (opakapaka, onaga)</li> <li>• Uku</li> <li>• PMUS (blue marlin)</li> <li>• PMUS ('ahi)</li> <li>• PMUS (otado)</li> </ul> </li> </ul>	<p>"Sounds like there was a lot of 'ahi, tombos, and aku that stuck around all year." <b>(juvenile and adult recruitment, amount of fish, PMUS, 'ahi, aku, tombo)</b></p> <p>"Recreational fisherman, but have a commercial license. Usually fish westside with my partner, but he goes all over. I don't go with him that often. This year there was a lot of marlin around. Everybody was catching marlin. We don't usually target it but we caught it this year." <b>(juvenile and adult recruitment, amount of fish, PMUS, marlin)</b></p> <p>"Bottomfishing we went out a couple times, we have a small boat so we don't go very far. We did go out with someone on a bigger boat, to Moloka'i and we did ok, we caught some ehus, and onaga. We weren't targeting onaga, but just playing the bottom. I know that other people that went out Christmas, New Year's and they did get some onagas." <b>(juvenile and adult recruitment, amount of fish, BMUS, ehu, onaga)</b></p> <p>"In general, I haven't fished a whole ton this year, but listening to people around the docks, I think the last 2 years the run of tombo is really worth noting in regards to what might be going on in the ecosystem." <b>(juvenile and adult recruitment, amount of fish, PMUS, tombo)</b></p> <p>"Just relating some of the stuff to what we see in commercial catch reports, uku was really down in the catch landings this year. I think it was due to some of the observations you made and also fishermen, who is going fishing." <b>(juvenile and adult recruitment, amount of fish, uku)</b></p> <p>"From what my captain was saying, 2024 was a pretty good year compared to recent years. In January it was my first year and we were doing really well. 40-50 pieces a night and that was down south. Fortunately, it was a pretty normal trip length. He was expecting to travel farther because the warm water was way higher than it normally is. But when we were on fish, we were on fish, so it equaled out to a normal trip length."</p>

Themes/subthemes (counts)	Quote(s)
	<p><b>(juvenile and adult recruitment, amount of fish, PMUS)</b></p> <p>“Just listening to the conversation on the longline action. In the beginning of 2024, April/May, beginning of ‘ahi trolling season, the ‘ahi was slow for the troll but our two longliners said that the bite was better than normal. Throw that out there for the record.” <b>(juvenile and adult recruitment, amount of fish, PMUS, ‘ahi)</b></p> <p>“We are seeing more shark activity. I don’t know what’s up. Two weeks ago a shark chased a couple of surfers in at the bay where I live at.” <b>(juvenile and adult recruitment, amount of fish, sharks)</b></p> <p>“Marlin has been predominant this time of year.” <b>(juvenile and adult recruitment, amount of fish, PMUS, marlin)</b></p> <p>“For the most part the fishing has been kind of steady.” <b>(juvenile and adult recruitment, amount of fish)</b></p> <p>“I can’t go out anymore, I’m too old, but I walk by Coconut Island [Moku Ola] 3 to 4 times a week. There are a lot of people with straight poles fishing for Marquesan Sardines. Some of which they eat and some they use for bait for papio. I am remembering some wrong extrapolations with data which claimed that marquesan sardines were once one of the most caught fish in the state. I am tossing this in as a slam at the quality of the data.” <b>(juvenile and adult recruitment, forage items, marquesan sardines)</b></p> <p>“Oama, a lot of small ‘omas now, but must be the water temperature.” <b>(juvenile and adult recruitment, forage items, ‘oma)</b></p> <p>“Yeah, so shallow bottom stuff, the moanas have been pretty prevalent both last year and this year, the early parts. Yesterday we went out on a charter and we only fished for about one hour and we caught about 50 moanas. Tourists that had never touched saltwater in their life. That stuff is kind of strong.” <b>(juvenile and adult recruitment, amount of fish, ECS, moana)</b></p>

Themes/subthemes (counts)	Quote(s)
	<p>“I think it’s been a pretty good ‘opelu year outside of Hilo.” (<b>juvenile and adult recruitment, amount of fish, forage items, ‘opelu</b>)</p> <p>“Ōpelu, August–September, west to south, that whole area was covered with bait. ‘Ōpelu was strong at the beginning of the season.” (<b>juvenile and adult recruitment, forage items, ECS, ‘ōpelu</b>)</p> <p>“Seems to be a productive year for a lot of guys. I’ve been fishing a lot of spots. Kind of got back into nearshore, been pretty consistent, but I don’t see too much change on the nearshore side as much as the offshore side except for a shift in baitfish like halalu and ‘oamas.” (<b>juvenile and adult recruitment, forage items, ECS, halalu, ‘oama</b>)</p> <p>“One of the trips, early morning, had a pretty good run of halalu, by the boat ramp, and that only lasted morning, maybe midday and then they were pretty much scattered.” (<b>juvenile and adult recruitment, forage items, ECS, halalu</b>)”</p> <p>“North Shore Kaua‘i. The akule run this year was pretty strong. I sent Uncle Clay a picture of a pile that was at least a football field in size. It was rare because it was end of September, beginning of October. Piles have been coming in a little bit more and more. As recent as last month there was a small pile outside my house and the surf was up.” (<b>juvenile and adult recruitment, forage items, ECS, akule</b>)</p> <p>“Listening to that, it just kind of reminded me. I’ve heard a couple of friends during the summer of last year that they did really good with the ‘oama. They told me that a couple times they went and I think in maybe an hour or two at the most and they all had their limit, all of them. It’s a lot, 50–60 pieces? And there were like 6 of them. It was a good run, a good bite, so that was good for this past summer.” (<b>juvenile and adult recruitment, forage items, ECS, ‘oama</b>)</p> <p>“So when I did get to go out, I did get to see the halalu at Honokohau. It was good to see, I haven’t seen them there in a while. They didn’t come into the harbor like they used to, they stayed around the mouth, but they</p>

Themes/subthemes (counts)	Quote(s)
	<p>stuck around for a bit which was nice." (<b>juvenile and adult recruitment, Forage items, ECS, halalu</b>)</p> <p>I crew with one of the guys that goes for akule. The 'opelu is mixing with the akule almost 50/50. When you pick the fish off the water, the fish is cold, because it's cold. But the last time this happened was in the summer when the water was warm. (<b>juvenile and adult recruitment, forage items, ECS, akule, 'opelu</b>)</p> <p>"Our only deep bottomfishermen fishing out of Kaua'i, he's been pulling nice loads, jumbo 'paka and onaga - 15-20 lb size." (<b>juvenile and adult recruitment, size of fish, BMUS, onaga, opakapaka</b>)</p> <p>"My other fishing partner yanked a few good loads, 80-90 pieces off of Na Pali coast on 2-3 days, all big kine ukus as well, 15 lb average." (<b>juvenile and adult recruitment, size of fish, uku</b>)</p> <p>"There was 2 granders [blue marlin over 1,000 lb] caught out of Kona this year." (<b>juvenile and adult recruitment, size of fish, PMUS, blue marlin</b>)</p> <p>"As far as the pelagics, shibis coming up, once in a while over 100 lb." (<b>juvenile and adult recruitment, size of fish, PMUS, 'ahi</b>)</p> <p>"We went out this past Sunday, we went out on the west side and we caught some otados. Usually this time of year, they're gone, but the ones we caught were big kine. All were 25 lb." (<b>juvenile and adult recruitment, size of fish, PMUS, otado</b>)</p>
Phenology (11) <ul style="list-style-type: none"> <li>- Timing of migration patterns (6)               <ul style="list-style-type: none"> <li>• ECS (halalu, 'oama), PMUS ('ahi)</li> <li>• PMUS (aku, marlin, 'ahi, tombo)</li> <li>• PMUS, BMUS</li> </ul> </li> </ul>	<p>"I have the privilege of being able to fish too much both onshore and offshore. Halalu, 'oama was late this year, even the tuna run, came a little late, lasted a little longer. Both good and bad I guess." (<b>phenology, timing of migration patterns, ECS, halalu, 'oama, PMUS, 'ahi</b>)</p> <p>"Everything was actually late this year. The grounds, which is one big source of aku—and aku is one bait fish for marlin, 'ahi. The last 3 years, no aku, because the angle of the trades was a little different. The tuna, everybody knows it was late. We had tombos in December. Yellowfin tuna runs. Pohoiki in Christmas,</p>

Themes/subthemes (counts)	Quote(s)
<ul style="list-style-type: none"> <li>• PMUS ('ahi)</li> <li>• ECS (halalu, 'oama)</li> <li>• PMUS ('ahi, ono, tombo)</li> </ul>	<p>yellowfin tuna." (<b>phenology, timing of migration patterns, PMUS, aku, marlin, 'ahi, tombo</b>)</p>
<ul style="list-style-type: none"> <li>- Timing of spawning (4) <ul style="list-style-type: none"> <li>• Uku</li> <li>• PMUS ('ahi)</li> <li>• ECS (moi)</li> </ul> </li> </ul>	<p>"I fish out of the westside, Waianae / Ko Olina. I've only fished a few times; I haven't fished much. The bite was good in early 2024, not so good at the end of the year. Mostly troll, occasional bottomfishing." (<b>phenology, timing of migration patterns, PMUS, BMUS</b>)</p>
<ul style="list-style-type: none"> <li>- Marine mammals <ul style="list-style-type: none"> <li>• Whales</li> </ul> </li> </ul>	<p>"We've been home since November [our longline vessel], our boat has been in drydock, but I had been fishing non-stop since January 2024. Fishing has been so good. A little slower towards the end of the year, but nicer quality fish for sure." (<b>phenology, timing of migration patterns, PMUS, 'ahi</b>)</p>
	<p>"The timing issue kind of threw numbers off for some people. More halalu or more 'oama." (<b>phenology, timing of migration patterns, ECS, halalu, 'oama</b>)</p>
	<p>"I never comment on the pelagic bite here on the Hilo side. All 4 quarters I've stated we've had a strong 'ahi bite. That's how it is. Yellows were around all year. People started out on the troll, then the bag and ika shibi catching yellows. It was strange this year, onos biting in December. Catching 20–30 pieces in December. Those that are familiar with the seasons, wind, currents, normally as early as February you might get a decent bite. This year for some reason the bite in December was exceptional. What is going on? I'm not really sure. Then tombos on the outside late this season. October used to be when I would pick up tombo." (<b>phenology, timing of migration patterns, PMUS, 'ahi, ono, tombo</b>)</p>
	<p>"Even uku this year was late, the sperms were maybe out in October. It's just climate change, it could be one phenomenon. The earth, everything is so critical but there is big time changes." (<b>phenology, timing of spawning, uku</b>)</p>
	<p>"[We] have been monitoring the auction, a lot of ukus have been showing up, one day over 100 pieces. The ukus come and sharks do too. Showing up in December is kind of strange." (<b>phenology, timing of spawning, uku</b>)</p>

Themes/subthemes (counts)	Quote(s)
	<p>“I still think that yellowfin is not as migratory as people think and I also believe that as far as breeding, a lot of the fish breed more often than people think. Of course, there are seasons, but there are eggs in fish year-round. Kona is one special place because we feed the tuna and the tuna stays year-round. But the fish inside. Everything has been late the last couple years.”  <i>(phenology, timing of spawning, PMUS, 'ahi)</i></p> <p>“Comment on moi in Kona. Early May to late October The closed season is June-August...we continue to see moi spawning really early through really, really late. As far as general recruitment goes, marine finfish need the one life stage of one marine copepod at a particular time, so for science, we need information from folks doing general plankton tows. Just more of a comment.”  <i>(phenology, timing of spawning, ECS, moi)</i></p> <p>“A lot of whales around the islands.”  <i>(phenology, marine mammals, whales)</i></p>
Depredation (8) <ul style="list-style-type: none"> <li>– Sharks (7)               <ul style="list-style-type: none"> <li>• Uku (3)</li> <li>• (BMUS, PMUS) (2)</li> <li>• BMUS</li> <li>• BMUS (onaga)</li> <li>• ECS</li> <li>• BMUS (onaga)</li> <li>• ECS (moi)</li> <li>• Kona crab</li> <li>• ECS (nabeta, yellowstripe goatfish, uluas)</li> <li>• (BMUS, PMUS, 'ahi)</li> </ul> </li> <li>- Marine mammals</li> </ul>	<p>“Sharks has been recruited unbelievably. Get choke fish but plenty sharks too.”  <i>(depredation, sharks)</i></p> <p>“Bottomfishing wise, I don't really know. I have been out fairly recently in the last month or so and they're there and so are the sharks. And that's an ongoing problem.”  <i>(depredation, sharks, BMUS)</i></p> <p>“Depredation. In Kona, the shark was fierce this year. There's still sharks right now. People don't realize. Every February it's shark season. Usually they come in February, they're at all the buoys then they start disappearing. I can't even imagine with the sharks still here what it's going to look like soon. A lot of it at the buoys, there's those sharks. It's one big problem that we gotta...it's one of the hardest problems to solve with them being protected federally and the state has shark laws. We need to work with the laws. Maybe we need a stock assessment to prove that we should like...there has to be a way to have a deterrent factor. This is one food source that is being hurt badly. A lot of old timers, fishermen don't even want to go fishing already. They drop their lines, bottomfishing 180-200 fathoms, long drop, get maybe five bites a day, but they bring them up, boom the shark wen' go get 'um. It's hard to imagine</p>

Themes/subthemes (counts)	Quote(s)
<ul style="list-style-type: none"> <li>• False killer whales, pilot whales</li> </ul>	<p>without seeing them for yourself. We're not talking 1–2 sharks, we're talking schools." (<b>depredation, sharks, BMUS, PMUS</b>)</p> <p>"I know people that get sharks 9 times in a row, 5 times in a row, then they go home already. When you go to the buoy, you think good fishermen are going to catch them. They all get eaten. When you go to the school and 3 or 4 hook them, then you pull them up, only some are eaten. Maybe get 1 fish out of 5. We're not talking just the buoy, bottomfish, also 'opelu, Kona crab. I tell them, make sure the main line is not tangled with the bait. They always eat them. They bite the mainline. Last time I went, I lost one set. They eat the mainline and they eat the whole set. Even when I go bottomfish, the first drop I always get one onaga bite. Throw the line down, fuckin' two hooks gone. Gotta have another guy, maybe two, to catch one fish. Maybe you get lucky. They bite them right off the bottom. It's not too bad if they bite the onaga halfway, but as soon as you hook them, they eat them already. Once in a while I catch some kāhala, I'll throw some kāhala down and maybe I can bring up my onaga. To have that kind of strategy [chuckles]. It's hard. Before, to have one line with moi, cannot do that anymore. These sharks are smart. You put one wire leader, they won't bite. You put one floater, they won't bite. Old-timers used to catch all the sharks first at the beginning of the season, now cannot do that no more. It's a struggle out there. If you go places like Kaua'i with so many spots to go to run away from the shark. Even uku, the sharks love uku. I don't see how you can be one fisherman now, to tell you the truth." (<b>depredation, sharks, BMUS, onaga, uku, ECS, moi, Kona crab</b>)</p> <p>"All of us in Kona complain about sharks. Most of my fishing is shallow bottom from the boat from Kailua to the flat. Nabeta, uku, yellowstripe goatfish, uluas. Since I started fishing in 2007, there's a big abundance of sharks inside from the Kona airport to Waikoloa. It's not an area that is used much. Now it's full of sharks. The last couple years the sharks have gotten unbelievable and there's not even that many people fishing. It's an area I used to never lose a jig, now I lose them almost</p>

Themes/subthemes (counts)	Quote(s)
	<p>all day long." (<b>depredation, sharks, ECS, nabeta, yellowstripe goatfish, uluas, uku</b>)</p> <p>"I have a couple observations with the sharks. Bottomfishing, it seems like when losing fish to sharks, when you have the small ones, you get the small ones to the boat, but when it's a bigger fish, you only get the head, it's important to know for the NOAA guys this could be important for data because if they're using size, you wouldn't get the large ones if the bigger ones are the ones getting lost and only the head is there. Coming back. I was out fishing with an old timer, 5–6 miles and stopped for a minute a shark came right up to us and started circling us. Here in Kona, if I'm going around to the FADs, almost every time I'm there I'll see the tourist boats. If there's not too many boats, tourist boats will put divers in on the FADs. It seems like a problem waiting to happen. It's not good."</p> <p>(<b>depredation, sharks, PMUS, BMUS</b>)</p> <p>"Fishery impacts. As you already heard, the depredation issue that we have on all islands, in Hawai'i, we're not immune on the Hilo side, bottomfishing out of Hilo, sharks in the north predominant. Depredation of sharks, bottom, Deep 7 on the FADs, buoys, ika shibi guys all get reports of depredation." (<b>depredation, sharks, BMUS, PMUS, 'ahi</b>)</p> <p>"The shortliners were saying that the false killer whales and the pilot whales are nailing them out there, almost like they're following them around." (<b>depredation, marine mammals, false killer whales, pilot whales</b>)</p>

#### Physical/Oceanographic

Kailua-Kona fishers observed strange currents at the beginning of 2024 with ka'u currents transitioning to more regular kohala currents later in the year. The different currents may have driven greater tombo abundance around Hawai'i Island and led to smaller size classes of marlin. Fishers also noted warmer pelagic water temperatures which may have led to greater catches of yellowfin tuna for Hawai'i longliners. Fishers also noted increases in west swell events in Kona and late south swells that coincided with uku runs on the Penguin Banks. Fishers also observed windy days and heavy rainfall that affected or prevented fishing trips in 2024. See [Table 21](#) for full results.

**Table 21.** Physical/Oceanographic aspects of Hawai'i fisher observations.

Themes/subthemes (counts)	Quote(s)
Currents (5) <ul style="list-style-type: none"> <li>– PMUS (marlin) (2)</li> <li>– PMUS (ono, tombo, 'ahi)</li> <li>– Shoreline fishing <ul style="list-style-type: none"> <li>• Less sand and baitfish</li> </ul> </li> </ul>	<p>"The currents have been crazy. We're catchin' onos on the inside, tombos with ika shibi on the outside. That's kind of strange. On the same drift, we're picking up yellows and tombos. 2024, if you asked me, it was kind of unusual in that respect." (<b>currents, PMUS, ono, tombo, 'ahi</b>)</p> <p>"At Keāhole point, in what seemed to be early 2024, we had really strange currents. The ka'u current stabilized in 2024 to more of the kohala current. It was good to see the currents return to normal. The marlin fishermen enjoyed a really strong marlin year because of that. Just a guess, I think from the return to the Kohala current." (<b>currents, PMUS, marlin</b>)</p> <p>"Just for the note's sake, Kaua'i I thought it was one regular quote unquote year. Brisk trades in the summer months and it was dry. I think it was 2022 and 2023 we had rainstorms in the morning in July. This year on Kaua'i it's not the case. That is not normal on the westside of Kaua'i. The current normally going north to south. From Na Pali to Poipu. But now it seems like it's going back the other way east to west or south to north. But it's going back, the normal up current is up current and down current is down current. It's back to normal again. Nothing too much out of the ordinary for Kaua'i." (<b>Currents</b>)</p> <p>"From the guys I've talked to, it seems like an off, but good year. The currents have shifted but that's the reason the marlins are coming. People are talking about climate change. Regardless of why, it seems to be happening one way or another." (<b>currents, PMUS, marlin</b>)</p> <p>"I noticed no more sand with the currents and the big waves. Some of the houses you fish in front of the pipes are showing under the houses. Sand probably fills the pockets where the small fish would be. When the sand is out, I get a lot more predator strikes when I use baitfish. A predator is mū, south side of O'ahu, that's pretty much where I fish. I notice if that kind of stuff</p>

Themes/subthemes (counts)	Quote(s)
	<p>doesn't come in, fishing the exact same spots, there has been a definite decrease in baitfish, the to'aus, ta'apes, ama, crab, keahi, menpachi, that kine stuff because they can't access the crab and that other kine stuff." (<b>currents, shoreline fishing, less sand and baitfish</b>)</p>
<p>Water temperature (3)</p> <ul style="list-style-type: none"> <li>– PMUS ('ahi)</li> <li>– Longline fishing (PMUS)</li> </ul>	<p>"Who knows, maybe with this climate change it could be a good thing, there could be more fish in Hawai'i than ever? The warmer water could bring way more fish than people think. Even the longliners this year caught more, plenty yellowfin. Even the longliners, everything is all about science now. I think temperature change, longlining, everything is scientific fishing now. You can't just go out and find fish. I hope the scientists can figure it out because it could really help everybody." (<b>water temperature, PMUS, 'ahi</b>)</p> <p>"Looking for high 80s, 89, 90 degrees when we're looking for warmer water [when deep-set longline fishing]. Colder water, looking like 85s, 84s." (<b>water temperature, longline fishing</b>)</p> <p>"I think different kine patterns. I feel like things are getting later and later. Only now is it getting super cold. All my fish at my spots, from my logs it's going later on. When they usually bite, it's 4-5 hours later and when I get there, even when I go on the tidal graphs, it definitely doesn't reflect what the tide graph is showing." (<b>water temperature</b>)</p>
<p>Swell events (3)</p> <ul style="list-style-type: none"> <li>- Greater size and frequency of west swells in Kona</li> <li>- South swell <ul style="list-style-type: none"> <li>• Uku run</li> </ul> </li> <li>- Poor spearfishing conditions</li> </ul>	<p>"In Kona we didn't used to be known for our surfing, but for the last 2-3 years, the surf has been like... we have more surf now. It's changing. We're getting more westerly swells. It didn't used to be like that. There's definitely some change. This whole month the surfing was good. I don't know if it was 2023 with that big giant wave that went over the wall and slammed into the building, took out the Hulihuli Palace. There's definitely some type of change. I've never seen those kinds of waves like that in my whole life." (<b>swell events, greater size and frequency of west swells in Kona</b>)</p>

Themes/subthemes (counts)	Quote(s)
	<p>“Usually, the first south swell kicks off the uku run. But we had a big south swell in October and it got the uku going.” (<b><i>swell events, ssouth swell, uku run</i></b>)</p> <p>“Did less fishing this year than the previous year. For me I like to dive in the Punalu'u and Hau'ula side. This year seemed like fewer really nice glassy days on that side. We've been seeing bigger swells, so when the wind was down, seemed like the swell was up so it was really challenging [to go diving]. Last time I went with [a friend] a few days back and we got a good catch. I haven't been out too much but it's been good.” (<b><i>swell events, poor spearfishing conditions</i></b>)</p>
Weather, wind patterns (3) <ul style="list-style-type: none"> <li>– Lighter winds</li> <li>– High winds <ul style="list-style-type: none"> <li>• Decreased BMUS effort</li> </ul> </li> <li>– High rainfall</li> </ul>	<p>“To encapsulate the climate on the Hilo side in 2024, if you asked me, the winds were milder than usual. We didn't have a lot of days when the north was coming in busting up the fishermen on the north side. Pretty mild season on the Hilo side, so that was pretty good.” (<b><i>weather, wind patterns, lighter winds</i></b>)</p> <p>“Also, with the Deep 7 fishery kind of related to weather. Some months unusually low number of trips likely related to the high winds we've had over the last year. Nothing you guys haven't already mentioned.” (<b><i>weather, wind patterns, high winds, decreased BMUS effort</i></b>)</p> <p>“For me I haven't really fished a whole lot, hardly any in 2024. We had a lot of rain first three quarters of the year.” (<b><i>weather, high rainfall</i></b>)</p>

## Management Uncertainty

Several fishers brought up issues with green sea turtle overpopulation, regularly witnessing large numbers basking on beaches, seeing some dead in the water, and noting depleted limu beds. Fishers also felt that awareness of the new Kona crab regulations has improved fisher behavior and compliance. One fisher felt that the state of Hawai'i should announce spawning seasons for nearshore species and develop regulations to enhance protection during those times. Another hoped that something could be done about increasing shark populations that make landing fish difficult. Full results available in [Table 22](#).

**Table 22.** Management aspects of Hawai'i fisher observations.

Themes/subthemes (counts)	Quote(s)
Regulations (9)	<p>“Also, whenever a monk seal comes ashore, 20 yards [around them] gotta fence and block them out. There were 5 on the beach. Po‘ipū get turtles. By the salt pond area, 20–30 turtles up on the beach. I foresee that as long as no harvesting of this kine stuff, there’s gonna be a problem by like 2030. There’s a lot of marine mammals around.” (<b>regulations, marine mammals, sea turtles, monk seals</b>)</p>
- Marine mammals (5) <ul style="list-style-type: none"> <li>• Green sea turtles (4)</li> <li>• Green sea turtles, monk seals</li> </ul> - Kona crab (2)	<p>“I have something to say about turtles. I have grandchildren. I take them down to Honokohau National Park where we used to have our canoe. I never seen one turtle when ‘ōpelu net fishing when I was little. So many turtles, I took my grandson fishing, every 10 yards 5–10 turtles. The ranger is telling us you gotta stay away 20 yards. People can hardly even go swimming. I took my grandson we got 10’ from the turtle so that he could see them swimming. SO MUCH TURTLES! At Kona we don’t have too much beaches because we don’t have too much sand or shallow water. Thank God we don’t have monk seals like Kaua‘i and Moloka‘i, because we wouldn’t even have places to go!”</p> <p>(<b>regulations, marine mammals, green sea turtles</b>)</p>
- Spawning and seasonal closures	<p>“I don’t get out much, but last December I was out at Triangle flats at Ke‘ehi lagoon and I found a small dead turtle floating out on the flats.” (<b>regulations, marine mammals, green sea turtles</b>)</p>
- Sharks	<p>“Half the limu beds are gone due to the honu. I am doing the same thing with my son. I’ve heard that the honu are still a protected fish, they’re on the protected list, but management of the numbers would be good. They’re not endangered anymore with the numbers. I don’t fish on a boat anymore, but listen to the locals it’s a big difference.” (<b>marine mammals, green sea turtles</b>)</p>
	<p>“I fish from shore. Have a small [fishing] company. I fish on O‘ahu, maybe sometimes go to the Banks. Speaking on the turtle thing I [saw] more turtles from shore, just</p>

Themes/subthemes (counts)	Quote(s)
	<p>shore fishing." (<b>regulations, marine mammals, green sea turtles</b>)</p> <p>"I think fishermen observations were helping the regulations. Fishermen noticing that crabs are holding eggs longer, helping to protect, changing the seasons and it's been a win-win for everyone, our fishermen and our markets." (<b>regulations, Kona crab</b>)</p> <p>"Everyone went crabbing in October, people were happy, because they just changed the rules/regulations. I heard a lot of good things. Got to double their catch. I went crabbing twice and both times I think we only caught one crab with eggs. So that's a good thing. The regulation is really going to help the recruitment. This year and last year the state has been checking boats and I'm really happy that nobody got caught and they didn't even bring out their tape measure, but they were checking for undersize crab. And that is good. All they got to do is come a few times and people will be aware that the law is always there. I'm really happy with these new regulations and I hope other people are too."</p> <p>(<b>regulations, Kona crab</b>)</p> <p>"I think the state should actually just do more observations. They should call out the seasons. If there is this influx in, we no can help the moi if we can't catch them while they're spawning. We're going to have to make some adjustments. The spawning is really important in these fisheries and we need to find a way to actually protect it. Why do we have open season with moi when they're ready to spawn? It's like the Kona crab. I want the state to be like rock stars and call out seasons. Maybe this year you can open it early or later. Because there's no enforcement, this is one way we can actually protect some of these species."</p> <p>(<b>regulations, spawning and seasonal closures</b>)</p> <p>"We've been talking about this for a long time but I cannot think of any way that we can help these young fishermen that are trying to just make some money or bring some food to the table. The population is just going to grow because there's proof that they can still grow with all them hooks in the mouth, that's nothing to</p>

Themes/subthemes (counts)	Quote(s)
	them. I hope we can change some laws, I really don't have any answers for my friends." ( <b>regulations, sharks</b> )

## Literature Cited

- Ayers, A., Leong, K., Hospital, J., Tam, C., & Morioka, R. (2022a). Hawai'i fisher observations data summary and analysis (PIFSC Data Report Series, DR-23-12). Pacific Islands Fisheries Science Center.  
<https://repository.library.noaa.gov/view/noaa/51720>
- Ayers A., Leong, K., Hospital, J., Tam, C., & Morioka R. (2022b). Guam & CNMI Fisher Observations Data Summary and Analysis (PIFSC Data Report Series, DR-23-13). Pacific Islands Fisheries Science Center.  
<https://repository.library.noaa.gov/view/noaa/51721>
- Ayers, A., Leong, K., Hospital, J., Tam, C., & Morioka, R. (2024a.) 2023 American Samoa fisher observations data summary and analysis (PIFSC Data Report Series, DR-24-13). Pacific Islands Fisheries Science Center.  
doi:10.25923/x85x-0y72.  
<https://repository.library.noaa.gov/view/noaa/61925>.
- Ayers, A., Leong, K., Hospital, J., Tam, C., & Morioka, R. (2024b). 2023 Guam and CNMI fisher observations data summary and analysis (PIFSC Data Report Series, DR-24-12). Pacific Islands Fisheries Science Center.  
doi:10.25923/zh4f-4k39.  
<https://repository.library.noaa.gov/view/noaa/65605>.
- Ayers, A., Leong, K., Hospital, J., Tam, C., & Morioka, R. (2024c). 2023 Hawai'i fisher observations data summary and analysis (PIFSC Data Report Series, DR-24-09). Pacific Islands Fisheries Science Center.  
doi:10.25923/yyfz-a677.  
<https://repository.library.noaa.gov/view/noaa/61594>.
- WPRFMC. (2021a). Annual Stock Assessment and Fishery Evaluation Report Pacific Island Pelagic Fishery Ecosystem Plan 2020. Honolulu, Hawai'i: Western Pacific Regional Fisheries Management Council. [accessed 2022 May 4]. [https://www.wpcouncil.org/wp-content/uploads/2021/09/Pelagic-FEP-SAFE-Report-2020\\_v4.pdf](https://www.wpcouncil.org/wp-content/uploads/2021/09/Pelagic-FEP-SAFE-Report-2020_v4.pdf).
- WPRFMC. (2021b). Annual Stock Assessment and Fishery Evaluation Report for the Mariana Archipelago Fishery Ecosystem Plan 2020. Honolulu, Hawai'i: Western Pacific Regional Fisheries Management Council. [accessed 2022 May 4]. [https://www.wpcouncil.org/wp-content/uploads/2021/09/Marianas-FEP-SAFE-Report-2020\\_v2.pdf](https://www.wpcouncil.org/wp-content/uploads/2021/09/Marianas-FEP-SAFE-Report-2020_v2.pdf).

WPRFMC. (2021c). Annual Stock Assessment and Fishery Evaluation Report for the Hawaii Archipelago Fishery Ecosystem Plan 2020. Honolulu, Hawai'i: Western Pacific Regional Fisheries Management Council. [accessed 2022 May 4]. [https://www.wpcouncil.org/wp-content/uploads/2021/10/Hawaii-FEP-SAFE-Report-2020\\_v4.pdf](https://www.wpcouncil.org/wp-content/uploads/2021/10/Hawaii-FEP-SAFE-Report-2020_v4.pdf).

WPRFMC. (2022a). Annual Stock Assessment and Fishery Evaluation Report for the Pelagic Fisheries Ecosystem Plan 2021. Honolulu, Hawai'i: Western Pacific Regional Fishery Management Council. [accessed 2023 Apr 28]. <https://www.wpcouncil.org/wp-content/uploads/2022/07/Pelagic-FEP-SAFE-Report-2021-FINAL-v3.pdf>.

WPRFMC. (2022b). Annual Stock Assessment and Fishery Evaluation Report for the American Samoa Archipelago Fishery Ecosystem Plan 2021. Honolulu, Hawai'i: Western Pacific Regional Fishery Management Council. [accessed 2023 Apr 28]. <https://www.wpcouncil.org/wp-content/uploads/2022/07/American-Samoa-FEP-SAFE-Report-2021-Final-v1.pdf>.

WPRFMC. (2022c). Annual Stock Assessment and Fishery Evaluation Report for the Mariana Archipelago Fishery Ecosystem Plan 2021. Honolulu, Hawai'i: Western Pacific Regional Fishery Management Council. [accessed 2023 Apr 28]. <https://www.wpcouncil.org/wp-content/uploads/2022/07/Marianas-FEP-SAFE-Report-2021-Final-v2.pdf>.

WPRFMC. (2022d). Annual Stock Assessment and Fishery Evaluation Report for the Hawaii Archipelago Fishery Ecosystem Plan 2021. Honolulu, Hawai'i: Western Pacific Regional Fishery Management Council. [accessed 2023 Apr 28]. <https://www.wpcouncil.org/wp-content/uploads/2022/07/Hawaii-FEP-SAFE-Report-2021-Final-v3.pdf>.

WPRFMC. (2023a). Annual Stock Assessment and Fishery Evaluation Report for the Pacific Pelagic Fisheries Ecosystem Plan 2022. Honolulu, Hawai'i: Western Pacific Regional Fishery Management Council. [accessed 2024 Apr 30]. [https://www.wpcouncil.org/wp-content/uploads/2023/07/Pelagic-FEP-SAFE-Report-2022-Final\\_v5.pdf](https://www.wpcouncil.org/wp-content/uploads/2023/07/Pelagic-FEP-SAFE-Report-2022-Final_v5.pdf).

WPRFMC. (2023b). Annual Stock Assessment and Fishery Evaluation Report for the American Samoa Archipelago Fishery Ecosystem Plan 2022. Honolulu, Hawai'i: Western Pacific Regional Fishery Management Council. [accessed 2024 Apr 30]. <https://www.wpcouncil.org/wp->

content/uploads/2023/07/American-Samoa-FEP-SAFE-Report-2022-Final\_v2.pdf.

WPRFMC. (2023c). Annual Stock Assessment and Fishery Evaluation Report for the Mariana Archipelago Fishery Ecosystem Plan 2022. Honolulu, Hawai'i: Western Pacific Regional Fishery Management Council. [accessed 2023 Oct 11]. [https://www.wpcouncil.org/wp-content/uploads/2023/09/Marianas-FEP-SAFE-Report-2022-Final\\_v3.pdf](https://www.wpcouncil.org/wp-content/uploads/2023/09/Marianas-FEP-SAFE-Report-2022-Final_v3.pdf).

WPRFMC. (2023d). Annual Stock Assessment and Fishery Evaluation Report for the Hawaii Archipelago Fishery Ecosystem Plan 2022. Honolulu, Hawai'i: Western Pacific Regional Fishery Management Council. [accessed 2024 Apr 30]. [https://www.wpcouncil.org/wp-content/uploads/2023/07/Hawaii-FEP-SAFE-Report-2022-Final\\_v4.pdf](https://www.wpcouncil.org/wp-content/uploads/2023/07/Hawaii-FEP-SAFE-Report-2022-Final_v4.pdf).

WPRFMC. (2024a). Annual Stock Assessment and Fishery Evaluation Report: Hawaii Archipelago Fishery Ecosystem Plan 2023. Honolulu, Hawai'i: Western Pacific Regional Fisheries Management Council. [accessed 2025 Jan 3]. [https://www.wpcouncil.org/wp-content/uploads/2024/11/Hawaii-FEP-SAFE-Report-2023-Final\\_v1.3.pdf](https://www.wpcouncil.org/wp-content/uploads/2024/11/Hawaii-FEP-SAFE-Report-2023-Final_v1.3.pdf).

WPRFMC. (2024b). Annual Stock Assessment and Fishery Evaluation Report for the Mariana Archipelago Fishery Ecosystem Plan 2023. Honolulu, Hawai'i: Western Pacific Regional Fisheries Management Council. [accessed 2025 Jan 3]. [https://www.wpcouncil.org/wp-content/uploads/2024/08/Marianas-FEP-SAFE-Report-2023-Final\\_v2.pdf](https://www.wpcouncil.org/wp-content/uploads/2024/08/Marianas-FEP-SAFE-Report-2023-Final_v2.pdf).

WPRFMC. (2024c). Annual Stock Assessment and Fishery Evaluation Report: American Samoa Archipelago Fishery Ecosystem Plan 2023. Honolulu, Hawai'i: Western Pacific Regional Fisheries Management Council. [accessed 2025 Jan 3]. [https://www.wpcouncil.org/wp-content/uploads/2024/12/American-Samoa-FEP-SAFE-Report-2023-Final\\_v1.2.pdf](https://www.wpcouncil.org/wp-content/uploads/2024/12/American-Samoa-FEP-SAFE-Report-2023-Final_v1.2.pdf).

## **Appendix. Interview Guide**

### 4<sup>th</sup> Annual Fisher Observations

Fishery highlights for the Western Pacific Region for 2024:

Ground rules:

- Your observations from 2024. All of it is important.
- We encourage everyone to participate.
- When making comments, state your name and the fisheries you're representing.
- One person speaks at a time please.
- Be objective as possible.

### **Interview guide topics**

#### **1. Juvenile recruitment**

Abundance: strong, average, weak run

Species: nearshore, pelagic, bottomfish

Duration, season: early, typical, late

#### **2. Climate**

Temperature

Wind

Currents

Surf

Direction: normal different

Season: wet, dry stormy

#### **3. Other factors affecting fisheries**

Depredation

Fuel prices

Infrastructure

Jobs

Management

Natural disasters

Tourism