Economic and Social Characteristics of the American Samoa Small Boat Fishery 2021

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Executive Summary

This report summarizes data from the 2021 American Samoa small boat fishery cost-earnings survey. For this report, we define small boat fishing as fishing from vessels 50 ft in length and smaller for both commercial and non-commercial purposes. We exclude longliner vessels, *alia* longliners, and purse seiners. In total, we received survey responses from 33 individual small boat fishers: 73% from Tutuila and 27% from the Manuʻa Islands. A Lynker, LLC team in American Samoa conducted in-person interviews to collect the survey data from April to November 2021.

Using the R coding language in R Studio, we executed summary statistics and categorical distributions of our survey data. We also disaggregated responses to distinguish between island area, boat owners and crew, age groups, race, and primary fishing motivations to provide useful results to fishing communities, managers, and researchers. The majority of survey respondents (73%) were age 45 and older, with an average age of 50 years. Most described their race as Samoan (82%). The median self-reported household income was $17,500. While 91% reported their gender as male, 6% of boat owners and 13% of commercial fishers identified as female.

A slight majority of the survey sample (55%) owned the boat on which they fished. Of these, 38% of respondents in Tutuila and 100% from the Manuʻa Islands owned their boat. Boat owners reported that it is rare for individuals to use their boat without them onboard—7% of the time based on survey responses. Only 28% of boat owners said commercial fishing was their primary fishing motivation, while 72% marked theirs as non-commercial, which includes subsistence, cultural, and recreational fishing.

The median fishing vessel in American Samoa was 30 ft long with 105 hp and was built in 2003. Respondents took an average of 43 boat fishing trips in 2020. Most fishers engaged in a mix of boat-based and shoreline fishing trips during 2020. An average of four fishers were on board for a typical boat fishing trip. Most respondents (82%) fished in both local and federal waters. Overall, 55% reported that most (60%-89%) of their boat-based trips were surveyed by the local fishery creel survey program in 2020. On Tutuila, 75% of fishers noted that most of their trips were surveyed, while far less (0%-39% of trips) were surveyed from the Manuʻa Islands that year.

In considering gear and targeting, 90% of the small boat fleet engaged in near-shore/shallow bottomfish fishing, 81% went deep-water bottomfish fishing, and 75% went trolling. All (100%) respondents in the Manuʻa Islands described that they went trolling, deep-water and shallow bottomfish fishing in 2020. On Tutuila, 85% reported shallow bottomfish, followed by 74% deep-water bottomfish and 70% spearfishing. While trips often employ multiple gears, handline for deep-water bottomfish was the most common primary gear type utilized (34%), with trolling as the second most common (31%) followed by spearfishing (25%). In the Manuʻa Islands, 78% of fishers reported handline for deep-water bottomfish as their primary gear, while 35% on Tutuila relayed that theirs was either spearfishing or trolling.

The largest percentage of respondents (27%) noted part-time commercial fishing as their primary fishing motivation, followed by full-time commercial (21%) and cultural (18%). On Tutuila, 38% declared part-time commercial fishing as their primary motivation. All crew and captain survey responses were from Tutuila, with most crew describing themselves as primarily commercial fishers. In the Manu‘a Islands, 33% fished primarily for subsistence and another 33% fished primarily for cultural reasons. In 2020, fishers caught a median of 88 lb of pelagic fish, 301 lb of deep-water bottomfish, 76 lb of shallow bottomfish, and 51 lb of reef fish.

Our analyses on catch distribution demonstrate the community’s reliance on certain species for food and income. Bottomfish was the primary species group that respondents targeted to sell (39%) followed closely by reef fish species (35%). Nearly half (41%) of respondents indicated that bottomfish was their primary target to keep for personal and family consumption, while pelagic species were the top target to give away (54%). Manu‘a Islands respondents reported that bottomfish was their primary target species group (56%) to give away. Overall, fishers sold approximately 46% of their catch, gave away about 26%, released 7%, and kept about 21% of their catch for personal and family consumption. Nearly all fishers (94%) gave away a portion of their catch and 97% of fishers kept some of their catch for personal and family consumption.

Approximately 90% of respondents sold a portion of their catch contributing to an average of 39% of their personal income. Fifty-seven percent of fishers from Tutuila and 51% from the Manu‘a Islands documented that half or more of their income came from fish sales. Fishers reported an annual median of $751 from fish sales in 2020. On average, 37% of this value came from reef fish, followed by pelagics at 28% and deep-water bottomfish at 20%. Overall, 38% of respondents sold to friends, neighbors, and coworkers. Fewer (29%) sold at roadside or farmers’ markets followed by 23% selling directly to restaurants and stores.

Trolling trips had the highest median trip cost at $286 followed by deep-water bottomfish at $215. Shallow bottomfish trips cost a median of $55, while spearfishing trips cost the least at a median of $35. Boat fuel composed the majority of trip costs for trolling (61%), deep-water bottomfish fishing (47%), and shallow bottomfish (36%), while ice was the highest expense for spearfishing trips (43%). Median annual fishing expenditures such as fees, gear, and boat and trailer maintenance totaled to about $2,100 per vessel in 2020.

Considering the social aspects of fishing, 91% of respondents felt that the community respects them as fishers. Nearly all (97%) said that fishing is an important part of who they are and all (100%) agreed that fishing is an important part of their culture. Generally, most fishers believed there would be more fishing in the future. Most (85%) shared that it is important to include their voice in decision making, and 85% believed it is important that managers know how many fish there are. All fishers declared that it is important that managers know how healthy the reef and other habitats are. Nearly all respondents (97%) remarked that it is very or extremely important that managers build or maintain fisheries infrastructure such as boat ramps and harbors. Another 85% believed it is important that managers know about fishers and fishing communities. Sentiments were mixed when asked how well respondents felt that each was being done.

The American Samoa fishing community offered many suggestions for future research and management, with 85% of respondents providing comments to open-ended questions. More than

half (61%, $n = 33$) provided suggestions for improvement. In all, 27% of comments ($n = 20$) emphasized that fishing is a way of life and traditional practice that most people enjoy in American Samoa. They also highlighted that fishing is necessary due to the high prices of imported foods. Indeed, access to locally caught fresh fish is critical for food security in some areas. One quarter expressed that they are against a bottomfish closure. Twenty percent asked for better data collection for stock assessments. The majority (71%, $n = 24$) did not change their fishing activity due to COVID-19, though several remarked that there were fewer fishers and opportunities to fish. Others described having fewer fishing trips as a result of lockdown curfew and stores being closed.

We dedicated a section of the report to focus on bottomfish fishers, defining them as respondents who reported that 40% or more of their trips were either deep-water or shallow bottomfish in 2020 ($n = 13$). Most (85%) owned the boat from which they fished. On average, 66% of their fishing trips were in local waters and 34% were in federal waters, taking an average of 28 bottomfish trips. The majority described either part-time or full-time commercial (39%), subsistence (23%), or cultural (23%) as their primary motivation for fishing. Bottomfish respondents sold about 48% of their catch in 2020 and consumed roughly 30% of their catch at home. They gave away a further 20%. Most (38%) of the value from fish sales was from deep-water bottomfish and 29% came from shallow bottomfish. Fifty-five percent ($n = 11$) of bottomfish respondents indicated that half or more of their personal income was from fish sales in 2020.

We also focused on the 13 survey respondents who self-described as crew. All crew were from Tutuila and most were age 35 to 64. Of these, 62% were age 45 and over. Fifteen percent were female and 92% were Samoan. Crew reported total household incomes of $49,999 or less in 2020, with 77% of less than $10,000. Eighty-five percent of crew respondents kept all the fish that they caught, while the other 15% kept a portion of the catch and/or revenue from fishing. Crew sold about 71% of their catch in 2020. Eighty-three percent ($n = 12$) reported that 40% or more of their personal income came from the sale of fish. Crew documented that an average of 87% of fish sale value came from reef fish in 2020. They paid between 5% and 40% of trip costs for their primary gear type trip ($n = 12$), the majority of crew (75%) contributing 5% to 10% of costs. None paid annual fishing expenditures. Crew took an average of 59 boat fishing trips in 2020 ($n = 11$).

The results of this survey can begin to characterize small boat fishing and economic activity to better include the small boat fishers of American Samoa in federal fisheries management and research. Our results underscore the importance of local catch for food security and as a vital source of income, particularly for near-shore and deep-water bottomfish. Our findings demonstrate where management can begin working directly with the community on management actions and alternatives that may affect fishing and life in American Samoa.

Introduction

American Samoa lies in the central South Pacific Ocean, 2,558 miles south of Hawai‘i at about 14° south latitude and 170° west longitude. It is an unincorporated United States territory composed of seven islands and atolls. Its population resides on the islands of Tutuila, Aunu‘u, Ta‘ū, Ofu, and Olosega. About 98% of residents live on Tutuila (U.S. Census Bureau 2021), while the Manu‘a Islands support mostly subsistence-based communities (Kleiber et al, 2018). The total land area is about 78.6 mi^2 (199 km^2), slightly larger than Washington, D.C. It has a tropical climate year-round with high humidity and frequent rain showers. Polynesian voyagers first inhabited the islands as early as 1,000 BCE (Before Common Era) and European explorers starting colonizing it in the 18th century. It remains self-governing since passing its revised 1967 American Samoa Constitution (American Samoan Government 2011). A political history of American Samoa is detailed in Olsen 1976 and the community-based governance system is described in Churney 1998.

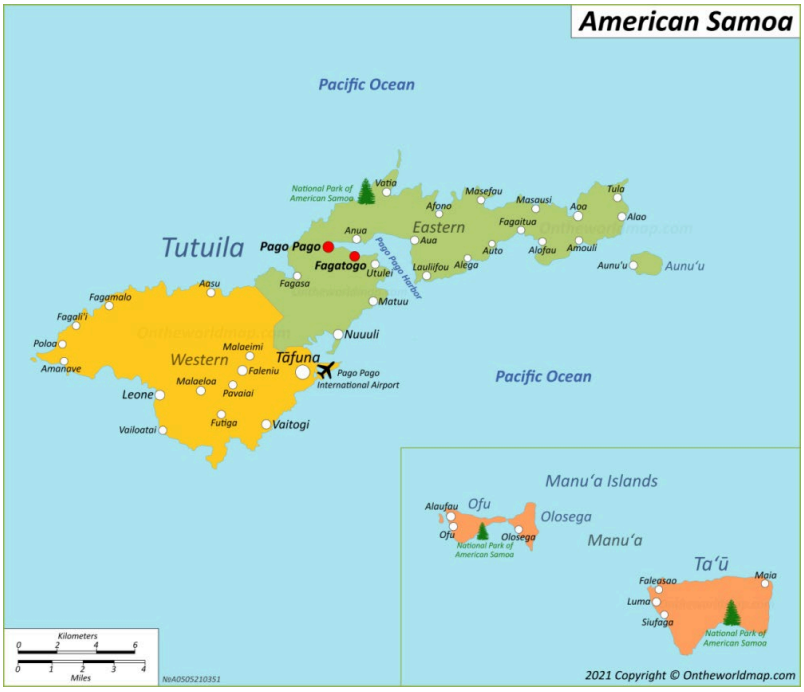

Figure 1. Map of American Samoa.
Source: OnTheWorldMap. https://ontheworldmap.com/american-samoa/

Fishing is central to the culture, history, and way of life in American Samoa (Levine and Allen 2009, Grace-McCaskey 2015). Previous research found that more than half of residents fish or engage in fishing-related activity (Levine et al. 2016). In support of ecosystem-based fisheries management, sustainable fisheries, and equity and environmental justice in the Pacific Islands region, we conducted this cost-earnings survey to better understand the economic and social characteristics of the American Samoa small boat fishing fleet. We define the small boat fishery as a commercial and non-commercial fleet that consists of vessels 50 ft in length or under, excluding longline or purse seine vessels. These include *alia* catamarans and other types of small

boats, though it excludes *alia* longliners. This report updates information on the fleet, its fishing activity, and economic contributions, last published in 1989 (Kasaoka 1989).

We present survey results on demographics, vessel characteristics, and fishing activity in 2020. We then describe market participation, trip costs, and annual fishing expenditures. We individually profile bottomfish respondents and crew to highlight their unique characteristics, contributions, and needs. We conclude our study with responses on social aspects of fishing and fisher perspectives towards management, research, and the impacts of COVID-19 on the fishery. Our report establishes a baseline fishery characterization that can help guide future management actions and alternatives.

Methods

In this report, we analyzed survey response data from the 2021 American Samoa Small Boat Fishery Cost-Earnings Survey (Appendix A). It consisted of 49 questions pertaining to small boat fishing activity, market participation, demographics, vessel characteristics, fishing trip costs, and annual fishing expenditures. We focused on small-boat fishers who were active in 2020 that targeted near-shore bottomfish, reef fish, crustaceans, deep-water bottomfish, and pelagic species. We contracted a team in American Samoa through Lynker LLC (Lynker) to identify small boat fishers and conduct in-person interviews.

Lynker staff spoke with respondents across Tutuila and the Manu'a Islands (Table 2). In the initial survey design, we anticipated that up to 60 small boat fishers could be active in American Samoa in 2020, including captains and crew. We estimated an 84% response rate with 50 completed surveys. From April through November 2021, Lynker interviewed 35 individual fishers who completed 37 surveys at locations convenient to them, including in their homes, at their boats, and in restaurants. Since there are no local fisheries licensing programs or reporting requirements, Lynker staff identified potential respondents through network sampling of community members in accordance with local customs. Each Lynker staff member held deep personal connections to the fishery and community, and feedback from the community confirms that we surveyed the majority of the active small boat fishing fleet in American Samoa.

Of the completed surveys, we used 33 responses for our analyses. Four surveys were not included in the analysis as they were determined to be outside the scope of our study. Using the R coding language in R Studio,[1] we cleaned the data and checked the skip patterns for accurate analyses. For a complete list of data cleaning steps, please reference the documents contained in the "Data" folder of our R program and our data cleaning R script. Across our data set, some observations also contained item nonresponses, which we either dropped from our calculations or recoded to "0." We articulated methods distinctions and variations in sample size throughout our results sections.

We also conducted our analyses with the R programming language in R Studio. Across most calculations, we disaggregated the data and regrouped it to characterize social and economic traits of the small boat fishing community. To showcase the widest breadth of analyses, we combined certain categories that are otherwise distinguished in our survey instrument. We described these groupings in our results where applicable. Results with less than three responses are not displayed to maintain respondent confidentiality.

In the majority of our results, we emphasized the median rather than the mean. Our data represented a small sample size that sometimes contained high variation and skewed distributions, and here the median is a more stable measure to represent our full sample. Our standard error calculations take the standard error of the mean. Calculations used the midpoint value of the stated range or else the respondent's stated value, noted in each table where applicable. We use the terms *midpoint value* and *median* interchangeably and they denote the same measure. For further information about specific methods employed in each calculation,

[1] A copy can be found on the report's GitHub site: https://github.com/CrystalDombrow-NOAA/2021-American-Samoa-Small-Boat-Fishery

please reference the R scripts provided on our report's GitHub site.[2] Project metadata can be found in the NMFS InPort.[3]

[2] A copy can be found on the report's GitHub site: https://github.com/CrystalDombrow-NOAA/2021-American-Samoa-Small-Boat-Fishery

[3] https://www.fisheries.noaa.gov/inport/item/66701

Results

In this section, we present the survey responses for our complete American Samoa respondent pool as well as for relevant subgroups of the small boat fishing fleet. The report documents results in a multitude of groupings we consider useful for fishing communities, managers, and researchers. Due to the small sample size (n = 33), care should be taken when interpreting these results. Groupings with less than three responses are not displayed to maintain respondent confidentiality.

We disaggregated responses to distinguish between island area, boat owners and crew, age groups, race, and primary fishing motivations, presenting results across the most survey questions possible. We were unable to show differences in gender; the small sample of female respondents would allow for a breach of confidentiality. All tables show distinctions between Tutuila and the Manuʻa Islands. We classified age groups as either 44 years and under, or 45 years and older. Similarly, we presented racial identities as either Samoan or non-Samoan, the latter which consists of Asian, White, Native Hawaiian, and other Pacific Islander. We distinguished primary fishing motivations as either commercial or non-commercial, the former including both part-time and full-time commercial fishing, while the latter combines recreational expense, purely recreational, subsistence, cultural, and mixed motivation fishing.

We also devoted unique sections to notable results for crew and bottomfish fishing. Our survey differentiated between boat owners that did not fish, boat owner-operators, captains, and crew. For the purposes of this report, we only included crew responses as "crew" and removed captain responses. The "boat owners" group contains results for both boat owners that did not fish and boat owner-operators. We defined the bottomfish group as respondents who reported that 40% or more of their boat fishing trips in 2020 were either deep-water or near-shore/shallow bottomfish.

Demographics

It is important to understand the socioeconomic composition of small boat fishers to identify the potential for differential economic and social impacts from management actions. The majority of survey respondents (73%) were age 45 and older (Table 1), with an average age of 50 years. On Tutuila, 29% of fishers were 44 years of age and younger, while fishers were mostly older in the Manuʻa Islands. Boat owners tended to be older, while crew were mostly 35 to 64 years of age. Ninety-four percent (94%) of commercial fishers were age 35 to 64, while non-commercial fishers spread across all age categories. We also present 2020 Census data for comparison (Table 1), finding that small boat fishers in American Samoa were mostly older than the general population.

Table 1. Survey responses: "What is your age?"

Percentage of Responses [*n*]	Less than 25 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	More than 65 Years
Full Sample [33]	3.0	6.1	18.2	39.4	24.2	9.1
Census (2020)	46.6	12.5	12.5	12.9	9.3	6.4
Island Group						

Percentage of Responses [*n*]	Less than 25 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	More than 65 Years
Tutuila [24]	4.2	4.2	20.8	37.5	29.2	4.2
Manuʻa Islands [9]	0.0	11.1	11.1	44.4	11.1	22.2
Fisher Type						
Boat owner [18]	0.0	5.6	11.1	38.9	27.8	16.7
Crew [13]	0.0	7.7	30.8	38.5	23.1	0.0
Primary Motivation						
Commercial [16]	0.0	6.2	25.0	43.8	25.0	0.0
Non-commercial [17]	5.9	5.9	11.8	35.3	23.5	17.6
Race						
Samoan [27]	3.7	3.7	22.2	33.3	25.9	11.1
Non-Samoan [6]	0.0	16.7	0.0	66.7	16.7	0.0

Our survey respondents were from nine different villages on Tutuila and from both Ofu and Taʻū in the Manuʻa Islands (Table 2). All crew were from Tutuila. In comparison to the general population, based on 2020 Census data, more small boat fishers responding to the survey were concentrated in several villages across American Samoa: Alega, Faleniu, Futiga, Malaeimi, Maloata, Utulei, Ofu, and Taʻū (Table 2).

Table 2. Survey responses: "What village do you live in?"

Island Area	Village	Percent of Sample	Census (2020)
Tutuila	Alega	3.0	0.1
	Faleniu	33.3	3.9
	Futiga	6.1	1.4
	ʻIliʻili	3.0	6.2
	Malaeimi	6.1	2.1
	Maloata	3.0	0.01
	Pago Pago	6.1	6.0
	Tafuna	9.1	16.1
	Utulei	3.0	1.0
Manuʻa Islands	Ofu	6.1	0.3
	Taʻū	21.2	0.5

The majority of respondents described themselves as Samoan (82%). The remaining fishers identified as Asian, White, or Native Hawaiian/Pacific Islander (Table 3). Our survey results closely reflect 2020 Census data across most racial identities, with the exception that more small boat fishers in American Samoa identified as White than the general American Samoa population (Table 3). All fishers in the Manuʻa Islands described themselves as Samoan, while 25% of fishers on Tutuila reported being non-Samoan. Seventy-eight percent of boat owners were Samoan. Thirteen percent of commercial fishers self-described as Asian and 6% of non-

commercial fishers were Native Hawaiian/Pacific Islander. Another 18% of non-commercial fishers characterized themselves as White. No respondents identified as Hispanic or Latino. Almost all respondents identified with a single race. Similarly, 2020 Census data shows that 95.6% of American Samoans identify with a single race.

Table 3. Survey responses: "How would you describe your race?"

Percentage of Responses [*n*]	Samoan	American Indian or Alaska Native	Asian	Black or African American	Native Hawaiian or Other Pacific Islander	White
Full Sample [33]	81.8	0.0	6.1	0.0	3.0	9.1
Census (2020)	83.2	0.0	5.8	0.0	5.5	0.8
Island Group						
Tutuila [24]	75.0	0.0	8.3	0.0	4.2	12.5
Manuʻa Islands [9]	100.0	0.0	0.0	0.0	0.0	0.0
Fisher Type						
Boat owner [18]	77.8	0.0	11.1	0.0	0.0	11.1
Crew [13]	92.3	0.0	0.0	0.0	7.7	0.0
Primary Motivation						
Commercial [16]	87.5	0.0	12.5	0.0	0.0	0.0
Non-commercial [17]	76.5	0.0	0.0	0.0	5.9	17.6
Age Group						
44 and under [9]	88.9	0.0	0.0	0.0	11.1	0.0
45 and over [24]	79.2	0.0	8.3	0.0	0.0	12.5

Most survey respondents noted that they earned a high school diploma, GED, or attended some college (73%, Table 4). All fishers from the Manuʻa Islands described being high school graduates or having completed some college. Generally, boat owners reported higher levels of education than crew, while non-commercial fishers recorded having more education than commercial fishers. In comparison to the general population from 2020 Census data, American Samoan small boat fishers were more likely to attend some high school or college but were less likely to hold a degree (Table 4).

Table 4. Survey responses: "What is the highest level of education you have completed?"

Percentage of Responses [*n*]	Less than 9th Grade	Some High School	High School Graduate	Some College	Associates Degree or Technical School	College Graduate	Advanced, Professional, or Doctoral Degree
Full Sample [33]	6.1	15.2	48.5	24.2	3.0	3.0	0.0
Census (2020)	4.3	7.0	53.4	12.5	9.6	7.9	5.4
Island Group							
Tutuila [24]	8.3	20.8	50.0	12.5	4.2	4.2	0.0
Manuʻa Islands [9]	0.0	0.0	44.4	55.6	0.0	0.0	0.0

Percentage of Responses [*n*]	Less than 9th Grade	Some High School	High School Graduate	Some College	Associates Degree or Technical School	College Graduate	Advanced, Professional, or Doctoral Degree
Fisher Type							
Boat owner [18]	0.0	0.0	50.0	38.9	5.6	5.6	0.0
Crew [13]	15.4	38.5	38.5	7.7	0.0	0.0	0.0
Primary Motivation							
Commercial [16]	12.5	31.2	56.2	0.0	0.0	0.0	0.0
Non-commercial [17]	0.0	0.0	41.2	47.1	5.9	5.9	0.0
Age Group							
44 and under [9]	11.1	11.1	66.7	11.1	0.0	0.0	0.0
45 and over [24]	4.2	16.7	41.7	29.2	4.2	4.2	0.0
Race							
Samoan [27]	7.4	18.5	40.7	29.6	3.7	0.0	0.0
Non-Samoan [6]	0.0	0.0	83.3	0.0	0.0	16.7	0.0

Using the midpoint of survey response categories, the median household income was $17,500 and the average was $19,838 for American Samoan small boat fishers in 2020. By comparison, the general population had higher total household incomes in 2019 according to 2020 American Samoa Census data, with a median of $28,352 and an average of $41,752. Small boat fishers reported total household incomes of $10,000 or less to as much as $99,999 in 2020 (Table 5). Boat owner respondents indicated that they made slightly higher incomes than crew, while commercial fishers mostly described receiving lower incomes than non-commercial fishers. Higher incomes were more prevalent for respondents 45 and older when compared to those age 44 and younger, and most Samoans marked lower incomes than other racial groups. Census data categorized incomes of $100,000 and above differently than our survey instrument, and so we presented these upper income levels as a single combined statistic in Table 5.

Table 5. Survey responses: "What was your total household income, before taxes, in 2020, including fishing income?"

Percentage of Responses [*n*]	Less than $10,000	$10,000 to $24,999	$25,000 to $49,999	$50,000 to $99,999	$100,000 to $249,999	$250,000 or More
Full Sample [31]	45.2	32.3	19.4	3.2	0.0	0.0
Census (2020)	13.6	30.8	28.3	18.9	8.3	
Island Group						
Tutuila [22]	50.0	27.3	18.2	4.5	0.0	0.0
Manuʻa Islands [9]	33.3	44.4	22.2	0.0	0.0	0.0
Fisher Type						
Boat owner [16]	18.8	50.0	25.0	6.2	0.0	0.0
Crew [13]	76.9	15.4	7.7	0.0	0.0	0.0
Primary Motivation						
Commercial [16]	68.8	31.2	0.0	0.0	0.0	0.0

Percentage of Responses [*n*]	Less than $10,000	$10,000 to $24,999	$25,000 to $49,999	$50,000 to $99,999	$100,000 to $249,999	$250,000 or More
Non-commercial [15]	20.0	33.3	40.0	6.7	0.0	0.0
Age Group						
44 and under [9]	66.7	22.2	11.1	0.0	0.0	0.0
45 and over [22]	36.4	36.4	22.7	4.5	0.0	0.0
Race						
Samoan [26]	53.8	26.9	15.4	3.8	0.0	0.0
Non-Samoan [5]	0.0	60.0	40.0	0.0	0.0	0.0

While 91% of respondents reported their gender as male (Table 6), notably, 8% of Tutuila respondents and 11% of Manuʻa Islands respondents were female. Six percent of boat owners were female, along with 13% of commercial fishers. Eight percent of female respondents were age 45 and over and 11% were Samoan. In comparison to 2020 Census data, small boat fishers in American Samoa were more likely to be male (Table 6).

Table 6. Survey responses: "What is your gender?"

Percentage of Responses [*n*]	Female	Male
Full Sample [33]	9.1	90.9
Census (2020)	49.2	50.8
Island Group		
Tutuila [24]	8.3	91.7
Manuʻa Islands [9]	11.1	88.9
Fisher Type		
Boat owner [18]	5.6	94.4
Crew [13]	15.4	84.6
Primary Motivation		
Commercial [16]	12.5	87.5
Non-commercial [17]	5.9	94.1
Age Group		
44 and under [9]	11.1	88.9
45 and over [24]	8.3	91.7
Race		
Samoan [27]	11.1	88.9
Non-Samoan [6]	0.0	100.0

Vessel Characteristics

This section presents an overview of small boat fishing vessels that were active in American Samoa in 2020, based on survey responses. We filtered the results to respondents who owned the boat that they fished on in 2020. A few respondents did not provide vessel characteristics data for some questions, as shown in the varying sample sizes in Table 7. We also removed one

observation as an outlier from Table 7, as its characteristics are more reflective of a charter fishing vessel which will be covered in future surveys better suited to handle the economics of charter operations.

A slight majority of respondents (55%, $n = 33$) reported owning the boat on which they fished. Approximately 38% of Tutuila respondents ($n = 24$) and 100% of Manu‘a Islands respondents ($n = 9$) owned the boat on which they fished. Seventy-eight percent of Samoan respondents and 83% of respondents age 45 and over also owned their fishing boat. Sixty-nine percent of boat owners ($n = 18$) reported a total household income of $49,999 or less in 2020 ($n = 16$), with the remainder earning up to $99,999. Interestingly, only 28% noted that commercial fishing was their primary motivation, while 72% marked theirs as non-commercial. This group had higher levels of education when compared to the remainder of the respondent pool; all boat owners noted that they graduated from high school or received some higher education.

The median fishing vessel in American Samoa was 30 ft long with 105 hp and was built in 2003 (Table 7). Boat owners purchased their vessels in 2015 for approximately $14,000. The median market value of each boat was $30,000 and owners last made major improvements to their boats in 2020. The median boat in Tutuila was the same size as those in the Manu‘a Islands, but with more than four times the horsepower. Vessels in the Manu‘a Islands were older than those on Tutuila. Respondents on Tutuila reported a median vessel purchase price of $50,000, while boats in the Manu‘a Islands were purchased at about $10,000. The mean, standard error, minimum, and maximum are presented in Table B-1 (Appendix B).

Table 7. Vessel characteristics, median values.

Variable [*n*]	Full Sample	Tutuila	Manu‘a Islands
Boat length (ft)	[17] 30	[8] 30	[9] 30
Boat total horsepower (hp)	[17] 90	[8] 205	[9] 60
Year boat was built	[15] 2001	[6] 2005	[9] 1998
Year boat was purchased	[16] 2015	[7] 2015	[9] 2015
Purchase price of boat ($)	[15] 12,000	[6] 50,000	[9] 10,000
Market value of boat ($)	[15] 25,000	[6] 52,500	[9] 19,000
Most recent year of major boat improvements	[15] 2020	[7] 2020	[8] 2020

We asked survey respondents about the amount of time people other than family used their boat without them in 2020 (Table 8). This question can reflect communal aspects of fishing. On

average, non-family used boat owner's vessels 7% of the time. On Tutuila, this average was slightly lower at 4% and higher in the Manu'a Islands at 9%. Non-commercial fishers lent their boats to people other than family approximately 9% of the time, while commercial fishers did so much less often at about 1% of the time.

Table 8. Survey responses: "In 2020, what percent of time did other people (other than family members) use the boat without you?"

Percentage of Responses [*n*]	None (0%)	Very Little (1%-9%)	Some (10%-39%)	About Half (40%-59%)	Most (60%-89%)	Almost All (90%-100%)
Full Sample [18]	55.6	22.2	22.2	0.0	0.0	0.0
Island Group						
Tutuila [9]	66.7	22.2	11.1	0.0	0.0	0.0
Manu'a Islands [9]	44.4	22.2	33.3	0.0	0.0	0.0
Primary Motivation						
Commercial [5]	80.0	20.0	0.0	0.0	0.0	0.0
Non-commercial [13]	46.2	23.1	30.8	0.0	0.0	0.0
Age Group						
44 and under [3]	66.7	0.0	33.3	0.0	0.0	0.0
45 and over [15]	53.3	26.7	20.0	0.0	0.0	0.0
Race						
Samoan [14]	57.1	21.4	21.4	0.0	0.0	0.0
Non-Samoan [4]	50.0	25.0	25.0	0.0	0.0	0.0

Fishing Activity

This section discusses various facets of fishing activity of the American Samoa small boat fishery. We present results on the number of fishing trips, fisher type, trip frequency, gears used, crew size, target species, catch estimates, and whether respondents fished in local or federal waters. These estimates may provide useful information for managers on fleet activity and catch composition, and demonstrate the community's reliance on certain species for food and income.

Using the medians of survey response categories, we estimated that small boat fishers took an average of 43 boat fishing trips in 2020 (Table 9). Fishers on Tutuila averaged slightly lower at about 41 trips, while those in the Manu'a Islands reported an average of 49 trips. Crew took the highest number of trips at an average of 59, while boat owners described about 36 trips on average. Commercial fishers took an average of 52 trips, while non-commercial fishers took about 36 trips. Fishers who sold their catch in 2020 took an average of 43 trips, and those who did not sell fish took fewer at around 22 trips. The median, standard error, minimum, and maximum are presented in Table B-2 (Appendix B).

Table 9. Average number of boat fishing trips taken in 2020.

Variable [*n*]	Full Sample [31]	Tutuila [22]	Manu‘a Islands [9]
Boat fishing trips taken	43.2	40.7	49.1

Note: Calculations take the midpoint value of each range. Otherwise, if respondent included a stated value, calculation uses the stated value.

Table 10. Survey responses: “Approximately how many boat fishing trips did you take in 2020?”

Percentage of Responses [*n*]	Fewer than 12 Trips	12-24 Trips	25-49 Trips	50-99 Trips	100-200 Trips
Full Sample [33]	19.4	12.9	22.6	41.9	3.2
Island Group					
Tutuila [22]	18.2	13.6	27.3	40.9	0.0
Manu‘a Islands [9]	22.2	11.1	11.1	44.4	11.1
Fisher Type					
Boat owner [18]	27.8	16.7	22.2	27.8	5.6
Crew [11]	0.0	9.1	18.2	72.7	0.0
Primary Motivation					
Commercial [14]	14.3	7.1	14.3	64.3	0.0
Non-commercial [17]	23.5	17.6	29.4	23.5	5.9
Age Group					
44 and under [8]	12.5	25.0	25.0	37.5	0.0
45 and over [23]	21.7	8.7	21.7	43.5	4.3
Race					
Samoan [25]	20.0	12.0	16.0	48.0	4.0
Non-Samoan [6]	16.7	16.7	50.0	16.7	0.0

Our survey asked respondents to classify if they were a boat owner, boat owner and operator, captain, or crew (Table 11). More respondents were boat owners than crew, with few being owners that did not fish. All crew and captains were from Tutuila. Most crew described themselves as primarily commercial fishers, while most non-commercial and bottomfish fishers were boat owners.

Table 11. Fisher type.

Percentage of Responses [*n*]	Boat Owner	Boat Owner-Operator	Captain	Crew
Full Sample [33]	6.1	48.5	6.1	39.4
Island Group				
Tutuila [24]	4.2	33.3	8.3	54.2

Percentage of Responses [*n*]	Boat Owner	Boat Owner-Operator	Captain	Crew
Manuʻa Islands [9]	11.1	88.9	0.0	0.0
Primary Motivation				
Commercial [16]	6.2	25.0	0.0	68.8
Non-commercial [17]	5.9	70.6	11.8	11.8
Age Group				
44 and under [9]	0.0	33.3	11.1	55.6
45 and over [24]	8.3	54.2	4.2	33.3
Race				
Samoan [27]	3.7	48.1	3.7	44.4
Non-Samoan [6]	16.7	50.0	16.7	16.7

All survey respondents in the analysis took boat trips in 2020. Overall, more fishers used a mix of boat-based and shoreline trips. Among respondents who reported exclusively fishing on a boat, the majority were boat owners, slightly more than half were primarily non-commercial fishers, and more than two-thirds were bottomfish fishers.

Table 12. Survey responses: "What type of fishing trips did you take in 2020?"

Percentage of Responses [*n*]	Boat Only	Sometimes Used a Boat
Full Sample [33]	42.4	57.6
Island Group		
Tutuila [24]	41.7	58.3
Manuʻa Islands [9]	44.4	55.6
Fisher Type		
Boat owner [18]	66.7	33.3
Crew [13]	0.0	100.0
Primary Motivation		
Commercial [16]	31.2	68.8
Non-commercial [17]	52.9	47.1
Age Group		
44 and under [9]	44.4	55.6
45 and over [24]	41.7	58.3
Race		
Samoan [27]	37.0	63.0
Non-Samoan [6]	66.7	33.3

Across our data set, four fishers were on board for an average fishing trip in 2020 (Table 13). This figure remained for both Tutuila and the Manuʻa Islands, as well as across most data groupings described throughout this report. However, fishers age 44 and under and non-Samoan fishers reported slightly larger crews at an average of five fishers per trip. For the median, standard error, minimum, and maximum, please see Table B-3 (Appendix B).

Table 13. Survey responses: "How many people in total, including yourself, are on board for an average fishing trip?" mean values.

Variable [*n*]	Full Sample [33]	Tutuila [24]	Manu'a Islands [9]
Fishers on board for an average fishing trip	4.1	4.2	3.9

Small boat fishers in American Samoa mostly fished in both federal waters (3-200 nautical miles (nm) from shore) and local waters (less than 3 nm from shore) in 2020 (Table 14). Of the fishers who reported exclusively fishing in either area, five times more fishers stayed in local waters compared to a small portion that fished only in federal waters. Some groups did not fish exclusively in federal waters, among them fishers in the Manu'a Islands, boat owners, commercial fishers, those age 44 and under, non-Samoan fishers, and primarily bottomfish fishers.

Table 14. Percentage of respondents reporting fishing in local and federal waters.

Percentage of Responses [*n*]	Local Waters Only (0-3 nm)	Federal Waters Only (3-200 nm)	Both Local and Federal Waters
Full Sample [33]	15.2	3.0	81.8
Island Group			
Tutuila [24]	12.5	4.2	83.3
Manu'a Islands [9]	22.2	0.0	77.8
Fisher Type			
Boat owner [18]	11.1	0.0	88.9
Crew [13]	23.1	7.7	69.2
Primary Motivation			
Commercial [16]	12.5	0.0	87.5
Non-commercial [17]	17.6	5.9	76.5
Age Group			
44 and under [9]	33.3	0.0	66.7
45 and over [24]	8.3	4.2	87.5
Race			
Samoan [27]	14.8	3.7	81.5
Non-Samoan [6]	16.7	0.0	83.3

On average, survey respondents reported that they spent 61% of their fishing time in local waters and 39% in federal waters (Table 15). This number was higher in the Manu'a Islands with about 75% of fishing in local waters and lower on Tutuila (57%). Likewise, respondents on Tutuila relayed that they took about 44% of their trips in federal waters, while that figure was almost half in the Manu'a Islands at around 25%. The median, mean, standard error, minimum, and maximum of survey responses are presented in Table B-4 (Appendix B).

Table 15. Average percent of time fishing in local and federal waters.

Average Percent of Time (%) [*n*]	Full Sample [33]	Tutuila [24]	Manu‘a Islands [9]
Local waters (0-3 nm)	61.4	56.5	74.9
Federal waters (3-200 nm)	38.6	43.5	25.1

Note: Values are normalized. Calculations use the midpoint value of the range, as described in the survey instrument (Appendix A).

Table 16 shows survey responses on the estimated amount of boat fishing trips that were sampled by the American Samoa Department of Marine and Wildlife Resources (DMWR). Overall, 55% of respondents reported that most (60%-89%) of their boat-based trips were surveyed by the DMWR creel program in 2020. On Tutuila, 75% of fishers noted that most of their trips were surveyed, while far less (0%-39% of trips) from the Manu‘a Islands were surveyed in 2020. DMWR boat-based creel surveys are opportunistic for Manu‘a Islands fishers (Remington et al. 2021), although some Manu‘a Islands fishers make trips to Tutuila and may have been surveyed while there.

Table 16. Survey responses: “In 2020, what percent of your boat fishing trips were sampled by the DMWR creel survey program?”

Percentage of Responses [*n*]	None (0%)	Very Little (1%-9%)	Some (10%-39%)	About Half (40%-59%)	Most (60%-89%)	Almost All (90%-100%)
Full Sample [33]	12.1	9.1	18.2	6.1	54.5	0.0
Island Group						
Tutuila [24]	8.3	4.2	4.2	8.3	75.0	0.0
Manu‘a Islands [9]	22.2	22.2	55.6	0.0	0.0	0.0

Fishing Gears

This section explores survey responses on different gear types and target species as well as the frequency of gear type use in 2020. In American Samoa, small boats often utilize multiple gear types in a single trip. Although there is no gear distinction between deep-water and shallow bottomfish fishing, we considered the species groups separately for management considerations. Table 17 displays the percentage of survey respondents who reported using various gears or target species for their boat-based fishing trips in 2020. Near-shore/shallow bottomfish fishing was the most popular at 90% of the small boat fleet, followed closely by deep-water bottomfish at 81% and trolling at 75%. All (100%) respondents in the Manu‘a Islands claimed that they went trolling, deep-water and shallow bottomfish fishing in 2020. On Tutuila, 85% reported shallow bottomfish, followed by 74% deep-water bottomfish and 70% spearfishing.

Table 17. Percentage of fishers using gear types on a boat fishing trip in 2020, by gear type.

Percentage of Respondents [*n*]	Full Sample	Tutuila	Manu‘a Islands
Spearfishing	[29] 65.5	[20] 70.0	[9] 55.6
Deep-water Bottomfish	[32] 81.2	[23] 73.9	[9] 100.0
Near-shore/Shallow Bottomfish	[29] 89.7	[20] 85.0	[9] 100.0
Trolling	[32] 75.0	[23] 65.2	[9] 100.0
Nets	[30] 10.0	[21] 9.5	[9] 11.1
Other	[8] 50.0	[7] 42.9	* *

Note: “Other” includes faifee, sao-tao-faifee, and poles. *Marks confidential data, with less than 3 survey responses.

Table 18 details the distribution of categorical responses for the full survey respondent pool and relevant groupings. Notably, nearly 21% of respondents reported almost all of their boat-based fishing trips were spearfishing in 2020, all of which were from Tutuila. Forty-one percent of respondents indicated some deep bottomfish fishing, while 86% noted little, none, or some near-shore/shallow bottomfish fishing. However, 41% of respondents shared that trolling accounted for half or more of their boat-based trips in 2020; respondents from Tutuila described trolling activity more often than those in the Manu‘a Islands. Similarly, boat owners and non-commercial fishers reported more trolling trips than crew and commercial fishers, respectively. Respondents noted few boat-based net fishing trips in 2020 and even fewer of other gear types, which includes faifee, sao-tao-faifee, and poles.

Table 18. Survey responses: “We understand you may use multiple gears in a trip, please estimate in 2020, what percent of your boat fishing trips were…”

Percentage of Responses [*n*]	None (0%)	Very Little (1%-9%)	Some (10%-39%)	About Half (40%-59%)	Most (60%-89%)	Almost All (90%-100%)
Spearfishing						
Full Sample [29]	34.5	34.5	3.4	3.4	3.4	20.7
Tutuila [20]	30.0	25.0	5.0	5.0	5.0	30.0
Manu‘a Islands [9]	44.4	55.6	0.0	0.0	0.0	0.0
Deep-water Bottomfish						
Full Sample [32]	18.8	6.2	40.6	21.9	12.5	0.0
Tutuila [23]	26.1	8.7	43.5	8.7	13.0	0.0
Manu‘a Islands [9]	0.0	0.0	33.3	55.6	11.1	0.0

Percentage of Responses [*n*]	None (0%)	Very Little (1%-9%)	Some (10%-39%)	About Half (40%-59%)	Most (60%-89%)	Almost All (90%-100%)
Near-shore/Shallow Bottomfish						
Full Sample [29]	10.3	34.5	41.4	13.8	0.0	0.0
Tutuila [20]	15.0	40.0	35.0	10.0	0.0	0.0
Manuʻa Islands [9]	0.0	22.2	55.6	22.2	0.0	0.0
Trolling						
Full Sample [32]	25.0	9.4	25.0	18.8	18.8	3.1
Tutuila [23]	34.8	8.7	21.7	4.3	26.1	4.3
Manuʻa Islands [9]	0.0	11.1	33.3	55.6	0.0	0.0
Nets						
Full Sample [30]	90.0	3.3	3.3	3.3	0.0	0.0
Tutuila [21]	90.5	0.0	4.8	4.8	0.0	0.0
Manuʻa Islands [9]	88.9	11.1	0.0	0.0	0.0	0.0
Other						
Full Sample [8]	50.0	12.5	12.5	0.0	12.5	12.5
Tutuila [7]	57.1	0.0	14.3	0.0	14.3	14.3
Manuʻa Islands [*]	*	*	*	*	*	*

Note: "Other" includes faifee, sao-tao-faifee, and poles. *Marks confidential data, with less than 3 survey responses.

We also asked survey respondents to indicate the primary and secondary gears they used on boat fishing trips in 2020 (Tables 19 and 20). Deep-water bottomfish was the most common gear primarily used in 2020 (34%), with trolling as the second most common at 31% followed by spearfishing at 25%. In the Manuʻa Islands, 78% of fishers reported deep-water bottomfish as their primary gear, while 35% on Tutuila relayed that theirs was either spearfishing or trolling.

Boat owners described deep-water bottomfish (50%) followed by trolling (44%) as their primary gear, while crew mostly indicated that spearfishing was theirs (67%). Similarly, spearfishing was the primary gear type for nearly half of commercial fishers (47%), while non-commercial fishers focused on trolling (53%) and deep-water bottomfish (41%). Samoans reported deep-water bottomfish (39%), spearfishing and trolling (27% each) as their primary gear types, while half of non-Samoans described that trolling was theirs. Near-shore/shallow bottomfish was the most prominent secondary gear type across most groupings (Table 20). Boat owners and non-commercial fishers shared that both shallow bottomfish and deep-water bottomfish fishing were their highest secondary gear uses (35% each). Half of non-Samoans marked deep-water bottomfish as their most common secondary gear usage.

Table 19. Survey responses: "In 2020, what was the primary gear usage for your most common trip?"

Percentage of Responses [*n*]	Spearfishing	Deep-water Bottomfish	Near-shore/ Shallow Bottomfish	Trolling	Nets	Other
Full Sample [32]	25.0	34.4	6.2	31.2	0.0	3.1
Island Group						
Tutuila [23]	34.8	17.4	8.7	34.8	0.0	4.3
Manu'a Islands [9]	0.0	77.8	0.0	22.2	0.0	0.0
Fisher Type						
Boat owner [18]	0.0	50.0	5.6	44.4	0.0	0.0
Crew [12]	66.7	8.3	8.3	8.3	0.0	8.3
Primary Motivation						
Commercial [15]	46.7	26.7	13.3	6.7	0.0	6.7
Non-commercial [17]	5.9	41.2	0.0	52.9	0.0	0.0
Age Group						
44 and under [9]	44.4	33.3	0.0	11.1	0.0	11.1
45 and over [23]	17.4	34.8	8.7	39.1	0.0	0.0
Race						
Samoan [26]	26.9	38.5	3.8	26.9	0.0	3.8
Non-Samoan [6]	16.7	16.7	16.7	50.0	0.0	0.0

Note: "Other" gear includes faifee.

Table 20. Survey responses: "In 2020, what was the secondary gear usage for your most common trip?"

Percentage of Responses [*n*]	Spearfishing	Deep-water Bottomfish	Near-shore/ Shallow Bottomfish	Trolling	Nets	Other
Full Sample [31]	3.2	25.8	48.4	19.4	3.2	0.0
Island Group						
Tutuila [23]	4.3	30.4	47.8	13.0	4.3	0.0
Manu'a Islands [8]	0.0	12.5	50.0	37.5	0.0	0.0
Fisher Type						
Boat owner [17]	0.0	35.3	35.3	29.4	0.0	0.0
Crew [12]	8.3	8.3	66.7	8.3	8.3	0.0
Primary Motivation						
Commercial [14]	7.1	14.3	64.3	14.3	0.0	0.0
Non-commercial [17]	0.0	35.3	35.3	23.5	5.9	0.0
Age Group						
44 and under [8]	12.5	12.5	50.0	12.5	12.5	0.0
45 and over [23]	0.0	30.4	47.8	21.7	0.0	0.0
Race						
Samoan [25]	4.0	20.0	52.0	24.0	0.0	0.0
Non-Samoan [6]	0.0	50.0	33.3	0.0	16.7	0.0

Our survey asked respondents their primary motivation for fishing in 2020 (Table 21). The largest percentage (27%) marked part-time commercial fishing as their primary motivation, followed by full-time commercial (21%) and cultural (18%). On Tutuila, 38% declared part-time commercial fishing as their primary motivation. In the Manu‘a Islands, 33% fished primarily for subsistence in 2020 and another 33% fished primarily for cultural reasons. Twenty-eight percent of boat owners noted subsistence as their primary motivation, while 15% of crew reported theirs was cultural.

Table 21. Primary fishing motivation.

Percentage of Responses [*n*]	Purely Recreati-onal	Recreati-onal Expense	Subsiste-nce	Cultural	Part-time Commer-cial	Full-time Commer-cial	Mixed Motivati-ons
Full Sample [33]	6.1	6.1	15.2	18.2	27.3	21.2	6.1
Island Group							
Tutuila [24]	4.2	4.2	8.3	12.5	37.5	25.0	8.3
Manu‘a Islands [9]	11.1	11.1	33.3	33.3	0.0	11.1	0.0
Fisher Type							
Boat owner [18]	11.1	11.1	27.8	16.7	16.7	11.1	5.6
Crew [13]	0.0	0.0	0.0	15.4	46.2	38.5	0.0
Age Group							
44 and under [9]	0.0	0.0	11.1	33.3	22.2	33.3	0.0
45 and over [24]	8.3	8.3	16.7	12.5	29.2	16.7	8.3
Race							
Samoan [27]	7.4	3.7	18.5	18.5	29.6	22.2	0.0
Non-Samoan [6]	0.0	16.7	0.0	16.7	16.7	16.7	33.3

Note: “Mixed motivations” indicates two or more motivations selected as primary motivation.

Catch Estimates and Composition

This section presents survey responses on the species groups targeted and the estimated amount of catch for American Samoa small boat fishing in 2020. These results can highlight the scale of fishing effort and its connection to the costs of fishing. Using the medians of categories (stated in Tables 23 to 26), we estimated the reported pounds caught in 2020 by species group (Table 22). Fishers indicated they caught a median of approximately 88 lb of pelagic fish in 2020. On Tutuila, this was slightly higher at a median of about 100 lb. Boat owners, non-commercial fishers, Samoan fishers, and bottomfish fishers each recorded the highest median pelagic catch at 301 lb. Additionally, Tutuila fishers estimated a median catch of 301 lb of deep-water bottomfish in 2020, while the Manu‘a Islands’ catch was lower at about 76 lb. Non-Samoan fishers had the highest reported median deep-water bottomfish catch in 2020 at about 413 lb.

Respondents recorded uniformly lower shallow bottomfish catches at a median of about 76 lb. Most respondent groupings reported this figure. However, fishers age 44 and under, crew, and commercial fishers each documented a lower median shallow bottomfish catch of 26 lb in 2020. Finally, fishers on Tutuila described that they caught a median of 301 lb of reef fish, while those

in the Manuʻa Islands recorded a median of 26 lb. Fishers age 44 and under documented the highest median reef fish catch at around 388 lb, followed by crew and commercial fishers at 301 lb each. For the mean, standard error, minimum, and maximum, see Table B-5 (Appendix B). Categorical distribution for each species group and data grouping is shown in Tables 23 to 26.

Table 22. Reported pounds caught in 2020, by species group, median values.

Species Group [*n*]	Full Sample	Tutuila	Manuʻa Islands
Pelagic	[26] 87.8	[17] 100.0	[9] 75.5
Deep-water Bottomfish	[24] 300.5	[15] 300.5	[9] 75.5
Near-shore/Shallow Bottomfish	[29] 75.5	[20] 75.5	[9] 75.5
Reef Fish	[18] 50.5	[12] 300.5	[6] 25.5

Note: Calculations take the midpoint value of the range, as described in the survey instrument (Appendix A). Otherwise, if respondent included a stated value, calculation uses the stated value.

Table 23. Survey responses: "In 2020, approximately how many total pounds of pelagic fish did you catch?"

Percentage of Responses [*n*]	0 lb	1-50 lb	51-100 lb	101-500 lb	501-1,000 lb	More than 1,000 lb
Full Sample [33]	21.2	9.1	27.3	24.2	9.1	9.1
Island Group						
Tutuila [24]	29.2	12.5	16.7	20.8	12.5	8.3
Manuʻa Islands [9]	0.0	0.0	55.6	33.3	0.0	11.1
Fisher Type						
Boat owner [18]	0.0	0.0	38.9	33.3	16.7	11.1
Crew [13]	53.8	23.1	15.4	7.7	0.0	0.0
Primary Motivation						
Commercial [16]	37.5	18.8	25.0	18.8	0.0	0.0
Non-commercial [17]	5.9	0.0	29.4	29.4	17.6	17.6
Age Group						
44 and under [9]	22.2	33.3	11.1	22.2	11.1	0.0
45 and over [24]	20.8	0.0	33.3	25.0	8.3	12.5
Race						
Samoan [27]	22.2	11.1	25.9	29.6	7.4	3.7
Non-Samoan [6]	16.7	0.0	33.3	0.0	16.7	33.3

Table 24. Survey responses: "In 2020, approximately how many total pounds of deep-water bottomfish did you catch?"

Percentage of Responses [*n*]	0 lb	1-50 lb	51-100 lb	101-500 lb	501-1,000 lb	More than 1,000 lb
Full Sample [33]	27.3	6.1	27.3	21.2	12.1	6.1
Island Group						
Tutuila [24]	37.5	8.3	16.7	16.7	16.7	4.2
Manu'a Islands [9]	0.0	0.0	55.6	33.3	0.0	11.1
Fisher Type						
Boat owner [18]	0.0	0.0	44.4	27.8	16.7	11.1
Crew [13]	69.2	15.4	7.7	7.7	0.0	0.0
Primary Motivation						
Commercial [16]	56.2	0.0	18.8	12.5	6.2	6.2
Non-commercial [17]	0.0	11.8	35.3	29.4	17.6	5.9
Age Group						
44 and under [9]	44.4	11.1	11.1	22.2	11.1	0.0
45 and over [24]	20.8	4.2	33.3	20.8	12.5	8.3
Race						
Samoan [27]	33.3	3.7	25.9	25.9	7.4	3.7
Non-Samoan [6]	0.0	16.7	33.3	0.0	33.3	16.7

Table 25. Survey responses: "In 2020, approximately how many total pounds of shallow bottomfish did you catch?"

Percentage of Responses [*n*]	0 lb	1-50 lb	51-100 lb	101-500 lb	501-1,000 lb	More than 1,000 lb
Full Sample [33]	12.1	33.3	39.4	9.1	0.0	6.1
Island Group						
Tutuila [24]	16.7	37.5	29.2	12.5	0.0	4.2
Manu'a Islands [9]	0.0	22.2	66.7	0.0	0.0	11.1
Fisher Type						
Boat owner [18]	5.6	16.7	55.6	11.1	0.0	11.1
Crew [13]	23.1	61.5	7.7	7.7	0.0	0.0
Primary Motivation						
Commercial [16]	18.8	50.0	18.8	6.2	0.0	6.2
Non-commercial [17]	5.9	17.6	58.8	11.8	0.0	5.9
Age Group						
44 and under [9]	11.1	66.7	11.1	11.1	0.0	0.0
45 and over [24]	12.5	20.8	50.0	8.3	0.0	8.3
Race						
Samoan [27]	14.8	37.0	33.3	11.1	0.0	3.7
Non-Samoan [6]	0.0	16.7	66.7	0.0	0.0	16.7

Table 26. Survey responses: "In 2020, approximately how many total pounds of reef fish did you catch?"

Percentage of Responses [*n*]	0 lb	1-50 lb	51-100 lb	101-500 lb	501-1,000 lb	More than 1,000 lb
Full Sample [33]	45.5	27.3	3.0	9.1	15.2	0.0
Island Group						
Tutuila [24]	50.0	16.7	4.2	12.5	16.7	0.0
Manu'a Islands [9]	33.3	55.6	0.0	0.0	11.1	0.0
Fisher Type						
Boat owner [18]	61.1	33.3	0.0	0.0	5.6	0.0
Crew [13]	15.4	23.1	7.7	23.1	30.8	0.0
Primary Motivation						
Commercial [16]	31.2	18.8	6.2	18.8	25.0	0.0
Non-commercial [17]	58.8	35.3	0.0	0.0	5.9	0.0
Age Group						
44 and under [9]	33.3	33.3	0.0	0.0	33.3	0.0
45 and over [24]	50.0	25.0	4.2	12.5	8.3	0.0
Race						
Samoan [27]	40.7	25.9	3.7	11.1	18.5	0.0
Non-Samoan [6]	66.7	33.3	0.0	0.0	0.0	0.0

Catch Distribution

Table 27 shows the distribution of target species that fishers sell, keep for personal consumption, or give away. Referencing several sources of Samoan fish species names and consulting a DMWR colleague in American Samoa, we first translated Samoan species names to common Pacific Islands region names. We then consolidated these species into the broad groupings shown in Table 27. "Pelagics" include barracuda, billfishes, dogtooth tuna, mackerels and jacks, mahimahi, marlin, sharks, skipjack tuna, trevally, wahoo, yellowfin tuna, and unspecified tuna. "Bottomfish" includes emperors, groupers, lehi, opakapaka, and snappers. The "reef fish" category contains blotcheye soldierfish, octopus, parrot fish, sea cucumber, sea urchin, squirrelfish/soldierfish, surgeonfish, and unicornfish. Finally, the "crustaceans" category contains only lobster, and "limu" is a regional term for seaweed/macroalgae.

Bottomfish was the primary species group that respondents targeted to sell in 2020 (39%) (Table 26) followed closely by reef fish species (35%). Forty-four percent of respondents on Tutuila primarily targeted reef fish species to sell, while 75% of fishers in the Manu'a Islands targeted bottomfish. Seventy-three percent of bottomfish fishers and 70% of commercial fishers targeted bottomfish for sale. Half of commercial fishers reported that reef fish species were their primary target to sell in 2020.

Nearly half (41%) of respondents indicated that they targeted bottomfish as the primary species group to keep for personal consumption. On Tutuila, the primary target for this purpose was reef fish (44%) followed closely by pelagics (39%). All fishers in the Manu'a Islands primarily

targeted bottomfish for personal consumption. As expected, bottomfish fishers said that bottomfish was their primary target to keep (77%). Pelagic species were the top target to give away in 2020 for the full survey sample (54%) and on Tutuila (58%). Manu‘a Islands respondents again reported that bottomfish was their primary target species group (56%) to give away, followed by pelagics (44%). Survey responses for secondary and tertiary targets are detailed in Table 27.

Table 27. Survey responses: “What are the top three (3) species you target …”

Percentage of Responses [*n*]	To Sell	To Keep for Personal Consumption	To Give Away
Primary	*[26]*	*[32]*	*[28]*
Pelagics	15.4	28.1	53.6
Bottomfish	38.5	40.6	21.4
Reef fish	34.6	31.2	21.4
Crustaceans	11.5	0.0	3.6
Limu	0.0	0.0	0.0
Secondary	*[26]*	*[31]*	*[26]*
Pelagics	26.9	45.2	57.7
Bottomfish	30.8	16.1	23.1
Reef fish	38.5	35.5	19.2
Crustaceans	0.0	0.0	0.0
Limu	3.8	3.2	0.0
Tertiary	*[25]*	*[25]*	*[22]*
Pelagics	32.0	20.0	54.5
Bottomfish	28.0	64.0	40.9
Reef fish	28.0	16.0	4.5
Crustaceans	12.0	0.0	0.0
Limu	0.0	0.0	0.0

Table 28 shows the average percentage of small boat fishers’ catch that they consumed at home, gave away, caught and released, and sold (for a summary of categorical distributions, see Tables B-6 through B-9, Appendix B). Respondents reported selling roughly 46% of their catch in 2020, while they noted that they caught and released less than 7%. Respondents gave away about 26% of their catch and consumed a further 21% at home. Tutuila respondents reported selling slightly more at about 52%. Respondents on the Manu‘a Islands gave away more of their catch (37%) in comparison to the full sample and consumed more at home (32%). Commercial fishers sold about 75% of their catch and crew sold 71% of theirs. By contrast, boat owners (35%) and non-commercial fishers (46%) gave away more of theirs.

Table 28. Survey responses: "In 2020, what percent of your catch was…?"

Average Percentage of Responses [*n*]	Consumed at Home	Given Away	Caught and Released	Sold
Full Sample [33]	21.0	25.9	6.7	46.4
Island Group				
Tutuila [24]	16.8	22.0	8.8	52.4
Manu'a Islands [9]	32.1	36.8	1.1	30.0
Fisher Type				
Boat owner [18]	27.1	35.0	7.5	30.4
Crew [13]	11.6	13.1	4.2	71.0
Primary Motivation				
Commercial [16]	13.3	7.6	4.1	75.0
Non-commercial [17]	29.3	45.5	9.4	15.8
Age Group				
44 and under [9]	15.6	12.8	10.7	60.9
45 and over [24]	23.0	30.9	5.2	40.9
Race				
Samoan [27]	21.5	25.4	5.7	47.4
Non-Samoan [6]	17.8	29.2	13.4	39.6

Note: Values are normalized. Calculations use the midpoint value of the range, as described in the survey instrument (Appendix A).

Market Participation

In this section, we present survey responses related to respondents' fish market access and participation as small boat fishers in American Samoa. There are some economic incentives to sell fish in American Samoa, especially with the high cost of fishing (trip costs and annual expenditures are detailed in later sections). Overall, 90% of fishers reported that they sold a portion of their catch in 2020. On Tutuila, 90% sold their catch, while in the Manu'a Islands, 89% sold their catch. Of those who sold fish, 79% were Samoan and 56% ($n = 27$) were boat owners. Half (n = 28) reported a total household income of less than $10,000 in 2020. More respondents age 45 and over and more commercial fishers indicated that they sold their catch when compared to those 44 and under and non-commercial fishers, respectively. Those who sold fish noted that an average of four crew were on board for a typical fishing trip.

Overall, an average of 39% of the respondents' personal income came from selling their catch (Table 29). Fifty-seven percent of fishers from Tutuila and 51% from the Manu'a Islands documented that half or more of their income came from selling fish in 2020 (Table 30). As expected, 81% of commercial fishers indicated that half or more of their income was from fish sales compared to 23% of non-commercial fishers. Of crew respondents, 83% reported half or more of their personal income came from the sale of fish in 2020. Sixty-five percent of Samoan fishers shared that half or more of their income in 2020 was from fish sales, compared to 17% of

non-Samoans. The median, standard error, minimum, and maximum are presented in Table B-10 (Appendix B).

Table 29. Survey responses: "In 2020, after expenses, what percent of your personal income came from the sale of fish?" mean values.

Variable [*n*]	Full Sample [29]	Tutuila [21]	Manu'a Islands [8]
Average percent of personal income	38.6	38.0	40.2

Note: For fishers who reported selling their catch in 2020. Calculations take the midpoint value of the stated range, as described in the survey instrument (Appendix A).

Table 30. Survey responses: "In 2020, after expenses, what percent of your personal income came from the sale of fish?"

Percentage of Responses [*n*]	None (0%)	Very Little (1%-9%)	Some (10%-39%)	About Half (40%-59%)	Most (60%-89%)	Almost All (90%-100%)
Full Sample [29]	13.8	10.3	20.7	37.9	10.3	6.9
Island Group						
Tutuila [21]	19.0	9.5	14.3	38.1	14.3	4.8
Manu'a Islands [8]	0.0	12.5	37.5	37.5	0.0	12.5
Fisher Type						
Boat owner [15]	20.0	6.7	33.3	26.7	6.7	6.7
Crew [12]	0.0	8.3	8.3	58.3	16.7	8.3
Primary Motivation						
Commercial [16]	0.0	0.0	18.8	50.0	18.8	12.5
Non-commercial [13]	30.8	23.1	23.1	23.1	0.0	0.0
Age Group						
44 and under [9]	11.1	22.2	11.1	22.2	11.1	22.2
45 and over [20]	15.0	5.0	25.0	45.0	10.0	0.0
Race						
Samoan [23]	4.3	8.7	21.7	47.8	8.7	8.7
Non-Samoan [6]	50.0	16.7	16.7	0.0	16.7	0.0

Note: For fishers who reported selling their catch in 2020.

To calculate the approximate total values of fish that respondents reported selling in 2020, we took the median of each survey category (described in Appendix A, question 19). Due to the wide range in survey responses, we highlighted median values to most accurately represent the majority of small boat fishers. The mean, standard error, minimum, and maximum are presented in Table B-11 (Appendix B). Each respondent sold an annual median of approximately $751 total of fish in 2020 (Table 31). On Tutuila, that figure was also around $751 but was lower in

the Manu‘a Islands at about $526 per fisher. Commercial fishers, bottomfish fishers, and fishers age 44 and under reported higher median annual catch values, each with approximately $1,501 per respondent in 2020. The lowest median annual value came from non-Samoan fishers at about $301.

Table 31. Value of fish sold in 2020, median values.

Variable [*n*]	Full Sample [29]	Tutuila [21]	Manu‘a Islands [8]
Value of fish sold per respondent ($)	750.5	750.5	525.5

Note: For fishers who reported selling their catch in 2020. Calculations take the midpoint value of the stated range, as described in the survey instrument (Appendix A).

Our survey also asked respondents to share the percent of value that came from selling various types of fish in 2020. We estimated these figures in two steps. For survey respondents who provided exact percentages in the open-ended response option, we incorporated those numbers into the calculations. Otherwise, we used the midpoint value of the marked categorical response choice (detailed in Appendix A, question 20). We then calculated the mean and normalized these values to show distribution across categories (Table 32).

Survey respondents reported that on average, 37% of the value of the fish they sold in 2020 came from reef fish species, followed by pelagics at 28% and deep-water bottomfish at 20% (Table 32). The lowest value came from the sale of shallow bottomfish at 15%. These results were similar on Tutuila, though reef fish was higher at about 48%. By contrast in the Manu‘a Islands, near-shore bottomfish composed about 35% of the value of fish sold, followed by deep-water bottomfish at 32% and pelagics at nearly 31%. Crew documented that an average of 87% of fish sale value came from reef fish, while boat owners reported pelagics as their majority (44%). Commercial fishers relayed a similar majority for reef fish (57%), while non-commercial fishers recorded that their highest sale values were from pelagics (50%).

Table 32. Survey responses: “In 2020, what percent of the value of fish sold came from the sale of pelagic fish, deep-water bottomfish, near-shore/shallow bottomfish, and reef fish?”

Average Percent of Fishing Income [*n*]	Pelagics	Deep-water Bottomfish	Near-shore/ Shallow Bottomfish	Reef Fish
Full Sample [29]	28.3	19.7	14.9	37.1
Island Group				
Tutuila [21]	27.4	15.8	8.5	48.3
Manu‘a Islands [8]	30.9	31.7	34.5	2.8
Fisher Type				
Boat owner [15]	44.2	30.4	23.6	1.7
Crew [12]	4.1	4.1	5.0	86.9

Average Percent of Fishing Income [*n*]	Pelagics	Deep-water Bottomfish	Near-shore/ Shallow Bottomfish	Reef Fish
Primary Motivation				
Commercial [16]	13.1	16.3	13.9	56.7
Non-commercial [13]	49.7	24.5	16.3	9.5
Age Group				
44 and under [9]	18.3	14.0	15.1	52.7
45 and over [20]	32.9	22.3	14.9	29.9
Race				
Samoan [23]	20.4	20.8	15.7	43.1
Non-Samoan [6]	57.3	15.8	11.8	15.1

Note: For fishers who reported selling their catch in 2020. Values are normalized. Calculations use the midpoint value of the ranges stated in question 20 of Appendix A.

Survey respondents who sold fish in 2020 reported where they sold their catch across various market channels. Table 33 illustrates the distribution of responses among the full sample and various groupings. These results only show if the respondent marked "yes" to selling their fish in various manners; it does not illustrate the volume or share of catch sold in 2020.

Overall, 38% of respondents who sold fish reported selling to friends, neighbors, and coworkers. Fewer (29%) sold at roadside or farmers' markets, followed by 23% selling to restaurants and stores. On Tutuila, less than 6% noted that they sold fish at Fagatogo Market Place. Sixty-seven percent of fishers in the Manu'a Islands said they sold to neighbors, friends, and coworkers. Commercial fishers mostly sold on the roadside and at farmers' markets (38%), followed by friends, neighbors, and coworkers (31%), with a further 25% to restaurants and stores. Samoan fishers (46%) and bottomfish fishers (47%) sold their catch mostly to friends, neighbors, and coworkers.

Table 33. Survey responses: "In 2020, where did you sell your fish?"

Percentage of Responses using Market Channel [*n*]	Fagatogo Market Place	Restaurants/ Stores	Roadside/ Farmers' Market	Friends/ Neighbors/ Coworkers	Other
Full Sample [29]	4.2	22.9	29.2	37.5	6.2
Island Group					
Tutuila [21]	5.6	27.8	36.1	27.8	2.8
Manu'a Islands [8]	0.0	8.3	8.3	66.7	16.7
Fisher Type					
Boat owner [15]	9.1	27.3	9.1	45.5	9.1
Crew [12]	0.0	20.8	50.0	29.2	0.0
Primary Motivation					
Commercial [16]	3.1	25.0	37.5	31.2	3.1
Non-commercial [13]	6.2	18.8	12.5	50.0	12.5
Age Group					
44 and under [9]	0.0	26.7	33.3	33.3	6.7

Percentage of Responses using Market Channel [*n*]	Fagatogo Market Place	Restaurants/ Stores	Roadside/ Farmers' Market	Friends/ Neighbors/ Coworkers	Other
45 and over [20]	6.1	21.2	27.3	39.4	6.1
Race					
Samoan [23]	0.0	17.9	30.8	46.2	5.1
Non-Samoan [6]	22.2	44.4	22.2	0.0	11.1

Note: For fishers who reported selling their catch in 2020. This table reflects the percent of fishers that reported using the market channel, not a reflection of volume through market channels. "Other" includes special order, church, village, sold/auctioned to charity.

Trip Costs

This section investigates trip costs in 2020 across various gear trip types: trolling, deep-water bottomfish, shallow bottomfish, and spearfishing. We highlight median values to most accurately represent our respondent sample. We calculated core operating expenses (boat fuel, truck fuel, oil, ice, bait, and food and beverage) separately from occasional maintenance costs (daily maintenance and repair, and lost gear). Daily maintenance and repair and lost gear were higher expenses and likely not applicable to each fishing trip, so we present them separately as occasional maintenance costs. Due to the relatively small sample size for our full survey respondent pool, we combined the analyses for both primary and secondary gear type trips. We also removed two outlier observations from deep-water bottomfish trips (Tables 36 and 37) and one from spearfishing trips (Tables 40 and 41). These respondents indicated some mixed charter activity, which will be covered in future surveys. When interpreting these results, it's important to note that many small boat fishers in American Samoa use multiple gear types in a single trip. The following tables provide self-reported best estimates of expenses by each gear type. Although there is no gear distinction between deep-water and shallow bottomfish fishing, we distinguish these species groups for management considerations.

Overall, respondents reported that trolling had the highest median expenses at $286 per trip (Table 34) followed by deep-water bottomfish at $215 (Table 36). Shallow bottomfish trips cost further less at a median of $55 (Table 38) and spearfishing the lowest at $35 (Table 40). Boat fuel composed the majority of trip costs for trolling (61%, Table 34), deep-water bottomfish (47%, Table 36), and shallow bottomfish (36%, Table 38), while ice was the largest expense for spearfishing trips (43%, Table 40). Across fishing gear types, occasional maintenance costs were overall higher in the Manuʻa Islands than on Tutuila (Tables 35, 37, 39, 41).

Table 34 shows the trip costs for trolling in 2020. The median total core operating costs for trolling in 2020 was about $286. That figure was slightly higher on Tutuila at around $300 and slightly lower in the Manuʻa Islands at $274. Boat fuel comprised about 61% of overall trolling trip costs: 67% for respondents on Tutuila and 37% for those in the Manuʻa Islands. The second highest operating expense was food and beverage at around 18% of the trip cost for the full sample of responses. The median total occasional maintenance costs for trolling trips in 2020 was about $114 (Table 35). Overall, lost gear accounted for higher costs than daily maintenance and repair. The mean, standard error, minimum, and maximum costs of trolling trips are presented in Tables B-12 and B-13 (Appendix B).

Table 34. Trip costs for trolling in 2020, median values.

Expenditure Type [*n*]	Full Sample [16]		Tutuila [11]		Manu‘a Islands [5]	
	$ per Trip	% of Cost	$ per Trip	% of Cost	$ per Trip	% of Cost
Boat fuel	173.60	60.8	200.00	66.7	100.00	36.5
Truck fuel	20.00	7.0	20.00	6.7	40.00	14.6
Oil	17.00	6.0	10.00	3.3	24.00	8.8
Ice	25.00	8.8	20.00	6.7	30.00	10.9
Bait	0.00	0.0	0.00	0.0	30.00	10.9
Food and beverage	50.00	17.5	50.00	16.7	50.00	18.2
Total trip cost	285.60		300.00		274.00	

Note: Responses for primary and secondary gear trip types.

Table 35. Occasional maintenance costs for trolling in 2020, median values.

Expenditure Type [*n*]	Full Sample [16]		Tutuila [11]		Manu‘a Islands [5]	
	$ per Trip	% of Cost	$ per Trip	% of Cost	$ per Trip	% of Cost
Daily maintenance & repair	50.00	44.1	30.00	33.3	50.00	33.3
Lost gear	63.50	55.9	60.00	66.7	100.00	66.7
Total occasional maintenance costs	113.50		90.00		150.00	

Note: Responses for primary and secondary gear trip types.

Tables 36 and 37 display the trip costs and occasional maintenance costs for deep-water bottomfish trips in 2020. The median total core operating trip cost was $215 in 2020 (Table 36). The costs were reportedly lower on Tutuila at $198 total than in the Manu‘a Islands at $225 total. Respondents documented that boat fuel was again the highest share of this cost (47%) followed by food and beverage (23%). Lost gear was a slightly higher expense than daily maintenance and repair (Table 37), save for in the Manu‘a Islands where lost gear comprised half the occasional maintenance costs. For the mean, standard error, minimum, and maximum costs of deep-water bottomfish trips, see Tables B-14 and B-15 (Appendix B).

Table 36. Trip costs for deep-water bottomfish in 2020, median values.

Expenditure Type [*n*]	Full Sample [15]		Tutuila [7]		Manu‘a Islands [8]	
	$ per Trip	% of Cost	$ per Trip	% of Cost	$ per Trip	% of Cost
Boat fuel	100.00	46.5	50.00	25.3	100.00	44.4
Truck fuel	25.00	11.6	25.00	12.7	30.00	13.3
Oil	10.00	4.7	37.50	19.0	5.00	2.2
Ice	30.00	14.0	35.00	17.7	20.00	8.9
Bait	0.00	0.0	0.00	0.0	0.00	0.0
Food and beverage	50.00	23.3	50.00	25.3	70.00	31.1
Total trip cost	215.00		197.50		225.00	

Note: Responses for primary and secondary gear trip types.

Table 37. Occasional maintenance costs for deep-water bottomfish in 2020, median values.

Expenditure Type [*n*]	Full Sample [15]		Tutuila [7]		Manu‘a Islands [8]	
	$ per Trip	% of Cost	$ per Trip	% of Cost	$ per Trip	% of Cost
Daily maintenance & repair	35.00	36.8	0.00	0.0	75.00	50.0
Lost gear	60.00	63.2	60.00	100.0	75.00	50.0
Total occasional maintenance costs	95.00		60.00		150.00	

Note: Responses for primary and secondary gear trip types.

Only two respondents reported near-shore/shallow bottomfish as their primary gear trip type and 15 responded that it was their secondary gear trip type. Total median trip costs were about $55 overall, with a median of $35 on Tutuila and a much higher $160 in the Manu‘a Islands (Table 38). Although not much ice is sold throughout American Samoa, respondents recorded that it cost 27% of shallow bottomfish trips overall and nearly half (43%) of trip expenses on Tutuila in 2020. Only Manu‘a Islands respondents reported occasional maintenance costs for shallow

bottomfish trips (Table 39). The mean, standard error, minimum, and maximum of shallow bottomfish trips are presented in Tables B-16 and B-17 (Appendix B).

Table 38. Trip costs for near-shore/shallow bottomfish in 2020, median values.

Expenditure Type [*n*]	Full Sample [17]		Tutuila [13]		Manu‘a Islands [4]	
	$ per Trip	% of Cost	$ per Trip	% of Cost	$ per Trip	% of Cost
Boat fuel	20.00	36.4	10.00	28.6	40.00	25.0
Truck fuel	10.00	18.2	10.00	28.6	20.00	12.5
Oil	0.00	0.0	0.00	0.0	5.00	3.1
Ice	15.00	27.3	15.00	42.9	15.00	9.4
Bait	0.00	0.0	0.00	0.0	0.00	0.0
Food and beverage	10.00	18.2	0.00	0.0	80.00	50.0
Total trip cost	55.00		35.00		160.00	

Note: Responses for primary and secondary gear trip types.

Table 39. Occasional maintenance costs for near-shore/shallow bottomfish in 2020, median values.

Expenditure Type [*n*]	Full Sample [17]		Tutuila [13]		Manu‘a Islands [4]	
	$ per Trip	% of Cost	$ per Trip	% of Cost	$ per Trip	% of Cost
Daily maintenance & repair	0.00	0.0	0.00	0.0	30.00	46.2
Lost gear	0.00	0.0	0.00	0.0	35.00	53.8
Total occasional maintenance costs	0.00		0.00		65.00	

Note: Responses for primary and secondary gear trip types.

Table 40 shows self-reported trip costs for spearfishing in 2020. All respondents who went spearfishing as their primary or secondary gear type trip were from Tutuila. Boat-based spearfishing was the least expensive of trip types from our survey data, with a total median trip cost at just $35. Ice (43%) and truck fuel (29%) were the highest expenditure type. For occasional maintenance costs, only a few respondents reported having replaced lost gear from

spearfishing trips in 2020 (Tables 41 and B-19). The mean, standard error, minimum, and maximum of spearfishing trip costs are presented in Tables B-18 and B-19 (Appendix B).

Table 40. Trip costs for spearfishing in 2020, median values.

Expenditure Type [*n*]	Full Sample [8]	
	$ per Trip	% of Cost
Boat fuel	5.00	14.3
Truck fuel	10.00	28.6
Oil	0.00	0.0
Ice	15.00	42.9
Bait	0.00	0.0
Food and beverage	5.00	14.3
Total trip cost	35.00	

Note: Responses for primary and secondary gear trip types.

Table 41. Occasional maintenance costs for spearfishing in 2020, median values.

Expenditure Type [*n*]	Full Sample [8]	
	$ per Trip	% of Cost
Daily maintenance & repair	0.00	0.0
Lost gear	0.00	0.0
Total occasional maintenance costs	0.00	

Note: Responses for primary and secondary gear trip types.

Annual Fishing Expenditures

Our survey asked respondents to document the costs of various annual expenditures related to small boat ownership and operation in 2020. These questions were limited to those who owned the boat on which they fished. Three boat owners provided no annual expenditure information. They each noted that they took up to 49 boat fishing trips in 2020 and they shared their fishing trip costs. We removed these three boat owners from our sample size for this section so that *n* =

15. Results in the below tables describe boat owners who provided partial or full annual expenditure information. We recoded missing items in partial answers to zero and present two tables of the results: one which includes these zeros (Table 42) and another that excludes these zeros (Table 43). We highlighted median values to best represent the majority of survey responses. For the mean, standard error, minimum, and maximum annual expenditures, see Tables B-20 and B-21 (Appendix B).

Both median and average annual expenditures decreased across expenditure types when we incorporated zeros into the calculations (Table 42 and Table B-20) in comparison to excluded zeros (Table 43 and Table B-21). Including zeros, median total annual expenditures were about $2,100 for the full set of responses (Table 42). This median value was slightly higher on Tutuila at $2,575 and lower in the Manu‘a Islands at about $2,000 for 2020. We also included a percent of the small boat fleet that documented each expenditure. Forty-five percent of survey respondents (n = 33) noted some form of annual expenditure in 2020.

Table 42. Annual fishing expenditures in 2020 (including zero expenditure responses), median values.

Expenditure Type ($) [*n*]	% of Fleet with Expenditure	Full Sample [15]	Tutuila [6]	Manu‘a Islands [9]
Boat insurance	0.0	0.00	0.00	0.00
Loan payments	6.1	*	0.00	*
Mooring fees	0.0	0.00	0.00	0.00
Gear replacement/ repair from wear and tear	42.2	1,000.00	1,000.00	1,000.00
Annual boat and trailer repair, maintenance, and improvements	42.2	1,000.00	1,450.00	1,000.00
Fees	27.3	100.00	125.00	0.00
Financial service	6.1	*	0.00	*
Other	0.0	0.00	0.00	0.00
Annual fishing expenditures in 2020	45.4	2,100.00	2,575.00	2,000.00

Note: *Marks confidential data, with less than 3 survey responses.

When excluding zero values from our calculations, the median annual fishing expenditure costs were about $8,300 (Table 43). That median cost was the same for respondents in the Manu‘a Islands but lower on Tutuila at around $3,625. However, Tutuila had the highest single expenditure maximum—$20,000 for annual boat and trailer repair, maintenance, and

improvements (Table B-21). Tutuila also described the highest maximum annual expenditure total at $23,700 (Table B-21). Respondents reported $0 in costs for mooring fees, boat insurance, and other expenses. Financial services was the highest median expenditure category (amount hidden due to confidentiality), while fees were the lowest at $100.

Table 43. Annual fishing expenditures in 2020 (excluding zero expenditure responses), median values.

Expenditure Type ($) [*n*]	Full Sample [15]	Tutuila [6]	Manu‘a Islands [9]
Boat insurance	0.00	0.00	0.00
Loan payments	*	0.00	*
Mooring fees	0.00	0.00	0.00
Gear replacement/ repair from wear and tear	1,000.00	1,000.00	1,000.00
Annual boat and trailer repair, maintenance, and improvements	1,000.00	2,500.00	1,000.00
Fees	100.00	125.00	100.00
Financial service	*	0.00	*
Other	0.00	0.00	0.00
Annual fishing expenditures in 2020	8,300.00	3,625.00	8,300.00

Note: *Marks confidential data, with less than 3 survey responses.

Bottomfish Respondents

To understand bottomfish fishing activity in American Samoa, we analyzed survey responses that reported 40% or more of their boat-based fishing trips were either deep-water bottomfish or near-shore/shallow bottomfish in 2020. Using these criteria, we identified 13 bottomfish fishers for our analysis. Eighty-five percent described themselves as Samoan, 77% were age 45 and above, and the remainder spanned across all age categories. About 8% were female. Fifty-four percent were from the island of Ta‘ū, while the remaining 46% were from various villages across Tutuila. All reported a total household income of $49,999 or less in 2020 ($n$ = 12).

Of bottomfish respondents, 85% owned the boat on which they fished (n = 11). Individuals other than family used their boat without them an average of 6% of the time in 2020. Most (70%) took only boat fishing trips in 2020. Bottomfish fishers took an average of 28 bottomfish boat-based trips with an average of 4 people on board for a typical fishing trip. We calculated these

approximate trips by taking the midpoint values of the percents of self-reported bottomfish trips. We then multiplied this figure by the number of stated fishing trips or, if none was given, by the midpoint value of the selected range. On average, bottomfish fishers reported that 76% of their boat-based trips were for bottomfish in 2020. None fished exclusively in federal waters, 15% fished only in local waters, and the remaining 85% fished in both federal and local waters. In all, they fished an average of 66% of their time in local waters and 34% in federal waters. Forty-six percent noted that most (60%-89%) of their boat fishing trips were sampled by the DMWR creel survey program in 2020, while 31% said that some were and 15% shared that none were.

Bottomfish fishing motivations varied. The majority described cultural (23%), part-time commercial (23%), and subsistence (23%) as their primary motivation for fishing. A further 15% relayed that they were full-time commercial fishers and 15% were primarily recreational. Overall, they reported a median catch of about 301 lb of deep-water bottomfish and 76 lb of shallow bottomfish in 2020. They also documented pelagic catch in 2020 at a median of 301 lb. For comparisons to other groupings, please see Tables 23 to 26. As expected, 73% primarily targeted bottomfish to sell.

Overall, bottomfish respondents sold about 48% of their catch in 2020 and consumed roughly 30% at home (Table 28). They gave away a further 20% and caught and released about 2%. Fifty-five percent (n = 11) indicated that half or more of their personal income was from fish sales in 2020. Most (38%, n = 11) of their fish sales value was from deep-water bottomfish and another 29% (n = 11) came from shallow bottomfish (Table 32).

Crew Considerations

This section highlights survey results from crew respondents. We included only respondents who declared themselves as crew and did not include boat captains. In total, 13 of the 33 survey responses self-described as crew. All were from Tutuila (n = 13) and were mostly between 35 and 64 years of age. Of these, 62% were age 45 and over. Fifteen percent were female (Table 6) and 92% identified as Samoan (Table 3).

Fifteen percent relayed that non-commercial fishing was their primary fishing motivation, which includes recreational, subsistence, and cultural motivations. Crew took an average of 59 boat fishing trips in 2020 (n = 11). Taking the midpoint value of each range (described in Appendix A, question 7), we also calculated that on average, crew fished in local waters 66% of the time and 34% in federal waters. Eighty-five percent of crew respondents kept all the fish that they caught, while the other 15% kept a portion of the catch and/or revenue from fishing. Supporting these results, 39% of boat owners described sharing a portion of the catch with their crew. Crew sold about 71% of their catch in 2020 (Table 28) and reported that about 87% of fish sale value came from reef fish species (Table 32).

Crew paid between 5% and 40% of trip costs for their primary gear type trip (n = 12) and of these, 75% of crew contributed 5% to 10% of trip costs. Crew reporting a secondary gear type trip (n = 11) indicated that they paid between 5% and 50% of those trip costs. Of these, 64% of crew provided 5% to 10% of Costs. All crew respondents noted that they paid no annual fishing expenditures in 2020. Eighty-three percent of crew (n = 12) documented that 40% or more of

their personal income came from the sale of fish. Of these, 58% indicated that fish sales accounted for 40% to 59% of their personal income in 2020. Crew reported total household incomes of $49,999 or less in 2020, with 77% earning less than $10,000 (Table 5). Fifteen percent self-reported that their total household income was between $10,000 and $24,999, while an additional 8% said theirs was between $25,000 and $49,999. In the open-ended questions, crew described that they typically wait for fishing vessels to invite them onto trips.

Social Aspects of Fishing

The following tables present survey responses for various questions about being a fisher in American Samoa. For this section, we focused our results on the full survey pool, island group, and race. Overall, 91% of respondents described feeling that the community respects them as fishers (Table 44). Similarly, 92% of fishers on Tutuila and 89% of fishers in the Manuʻa Islands agree or strongly agree that the community respects them as fishers. The majority of Samoan fishers (96%) felt respected by the community as a fisher, while less non-Samoan fishers reported the same (67%).

Nearly all (97%) of respondents felt that fishing is an important part of who they are (Table 45). Likewise, 96% of respondents on Tutuila and 100% of respondents in the Manuʻa Islands agree or strongly agree with this statement. Samoan (96%) and non-Samoan (100%) fishers mostly agreed as well. All respondents (100%) agreed or strongly agreed that fishing is an important part of their culture (Table 46).

Table 44. Survey responses: "As someone who fishes I am respected by the community."

Percentage of Responses [*n*]	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Full Sample [33]	0.0	3.0	6.1	39.4	51.5
Island Group					
Tutuila [24]	0.0	4.2	4.2	45.8	45.8
Manuʻa Islands [9]	0.0	0.0	11.1	22.2	66.7
Race					
Samoan [27]	0.0	0.0	3.7	37.0	59.3
Non-Samoan [6]	0.0	16.7	16.7	50.0	16.7

Table 45. Survey responses: "Fishing is an important part of who I am."

Percentage of Responses [*n*]	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Full Sample [33]	0.0	0.0	3.0	45.5	51.5
Island Group					
Tutuila [24]	0.0	0.0	4.2	45.8	50.0
Manuʻa Islands [9]	0.0	0.0	0.0	44.4	55.6
Race					
Samoan [27]	0.0	0.0	3.7	40.7	55.6
Non-Samoan [6]	0.0	0.0	0.0	66.7	33.3

Table 46. Survey responses: "Fishing is an important part of my culture."

Percentage of Responses [*n*]	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Full Sample [33]	0.0	0.0	0.0	45.5	54.5
Island Group					
Tutuila [24]	0.0	0.0	0.0	50.0	50.0
Manu'a Islands [9]	0.0	0.0	0.0	33.3	66.7
Race					
Samoan [27]	0.0	0.0	0.0	40.7	59.3
Non-Samoan [6]	0.0	0.0	0.0	66.7	33.3

Fisher Perspectives

Our survey asked respondents to share their opinions on various aspects of fisheries management in American Samoa. We asked the importance of certain regulations and management duties (Tables 47 to 52) as well as how well respondents feels they are being done at present (Tables 53 to 58). Respondents could then communicate if they feel more or less fishers will be fishing for certain species in the next year (Table 59) and provide details on their selections. In this section, we also describe the open-ended comments we received from survey respondents about their fishing activity due to COVID-19 restrictions in 2020 and for any suggestions they may have to improve fisheries management in American Samoa.

Eighty-five percent of respondents felt it was very important or extremely important (33%) that rules are followed and enforced (Table 47). Most (85%) shared that it's very or extremely important to include their voice in decision making (Table 48), 33% of which noted that this was extremely important. Another 85% believed it was very or extremely (30%) important that managers know how many fish there are (Table 49). Of these, 7% of Samoan respondents communicated that this was only slightly important or not at all important (4%).

All fishers declared that it was at least very important that managers know how healthy the reef and other habitats are (Table 50), 25% of which marked this priority as extremely important. Fifteen percent of respondents felt that it was only moderately important that managers know about the fishers and fishing communities (Table 51), while the remaining 85% believed this was very or extremely (30%) important. Finally, nearly all respondents (97%) remarked that it was at least very important that managers build or maintain fisheries infrastructure such as boat ramps and harbors (Table 52); some repeated these sentiments in the open-ended responses shared later in this section. Nearly half (42%) felt this priority was extremely important.

Table 47. Survey responses: "How important is it that rules are followed and enforced for managing fisheries in American Samoa?"

Percentage of Responses [*n*]	Not at all Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Full Sample [33]	0.0	9.1	6.1	51.5	33.3
Island Group					

Percentage of Responses [*n*]	Not at all Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Tutuila [24]	0.0	0.0	4.2	70.8	25.0
Manu‘a Islands [9]	0.0	33.3	11.1	0.0	55.6
Race					
Samoan [27]	0.0	11.1	3.7	51.9	33.3
Non-Samoan [6]	0.0	0.0	16.7	50.0	33.3

Table 48. Survey responses: “How important is it that your voice is included in decision making for managing fisheries in American Samoa?”

Percentage of Responses [*n*]	Not at all Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Full Sample [33]	0.0	6.1	9.1	51.5	33.3
Island Group					
Tutuila [24]	0.0	4.2	8.3	58.3	29.2
Manu‘a Islands [9]	0.0	11.1	11.1	33.3	44.4
Race					
Samoan [27]	0.0	3.7	7.4	55.6	33.3
Non-Samoan [6]	0.0	16.7	16.7	33.3	33.3

Table 49. Survey responses: “How important is it that managers know how many fish there are for managing fisheries in American Samoa?”

Percentage of Responses [*n*]	Not at all Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Full Sample [33]	3.0	3.0	9.1	54.5	30.3
Island Group					
Tutuila [24]	0.0	0.0	8.3	66.7	25.0
Manu‘a Islands [9]	11.1	11.1	11.1	22.2	44.4
Race					
Samoan [27]	3.7	3.7	11.1	59.3	22.2
Non-Samoan [6]	0.0	0.0	0.0	33.3	66.7

Table 50. Survey responses: “How important is it that managers know how healthy the reef/other habitats are for managing fisheries in American Samoa?”

Percentage of Responses [*n*]	Not at all Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Full Sample [32]	0.0	0.0	0.0	75.0	25.0
Island Group					
Tutuila [23]	0.0	0.0	0.0	78.3	21.7
Manu‘a Islands [9]	0.0	0.0	0.0	66.7	33.3
Race					
Samoan [27]	0.0	0.0	0.0	81.5	18.5
Non-Samoan [5]	0.0	0.0	0.0	40.0	60.0

Table 51. Survey responses: "How important is it that managers know about the fisher(men) and fishing community (income, culture, etc.) for managing fisheries in American Samoa?"

Percentage of Responses [*n*]	Not at all Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Full Sample [33]	0.0	0.0	15.2	54.5	30.3
Island Group					
Tutuila [24]	0.0	0.0	16.7	58.3	25.0
Manu'a Islands [9]	0.0	0.0	11.1	44.4	44.4
Race					
Samoan [27]	0.0	0.0	14.8	59.3	25.9
Non-Samoan [6]	0.0	0.0	16.7	33.3	50.0

Table 52. Survey responses: "How important is it that managers build or maintain fisheries infrastructure (boat ramps, harbors, etc.) for managing fisheries in American Samoa?"

Percentage of Responses [*n*]	Not at all Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Full Sample [33]	0.0	0.0	3.0	54.5	42.4
Island Group					
Tutuila [24]	0.0	0.0	4.2	66.7	29.2
Manu'a Islands [9]	0.0	0.0	0.0	22.2	77.8
Race					
Samoan [27]	0.0	0.0	3.7	55.6	40.7
Non-Samoan [6]	0.0	0.0	0.0	50.0	50.0

Responses were more mixed on questions asking how much respondents agree or disagree with how well fisheries management was being done. Thirteen percent disagreed that rules are followed and enforced (Table 53), while 47% agreed and about 13% strongly agreed. Over half (56%) of Samoan respondents agreed and 7% disagreed. A majority (75%) agreed or strongly agreed that their voice is included in decision making and 85% of Samoan respondents felt the same (Table 54). However, 11% of Samoan fishers disagreed.

More respondents agreed or strongly agreed (63%) that managers know how many fish there are, while 22% disagreed (Table 55). Of these, 22% disagreed or strongly disagreed. About 19% of Samoan respondents also disagreed. More fishers agreed or strongly agreed (72%) that managers know how healthy the reef and other habitats were (Table 56). Slightly less (63%) agreed or strongly agreed (about 19%) that managers know about the fishers and fishing communities (Table 57). One quarter (25%) disagreed that managers build and maintain fisheries infrastructure (Table 58), while 66% agreed or strongly agreed. In the Manu'a Islands, 44% also strongly agreed with this statement and another 22% disagreed. Across these survey questions, non-Samoan fishers disagreed or strongly disagreed with each statement more than Samoan fishers (Tables 53 to 58).

Table 53. Survey responses: "How much do you agree or disagree that rules are followed and enforced?"

Percentage of Responses [*n*]	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Full Sample [32]	0.0	12.5	28.1	46.9	12.5
Island Group					
Tutuila [23]	0.0	8.7	21.7	60.9	8.7
Manu'a Islands [9]	0.0	22.2	44.4	11.1	22.2
Race					
Samoan [27]	0.0	7.4	25.9	55.6	11.1
Non-Samoan [5]	0.0	40.0	40.0	0.0	20.0

Table 54. Survey responses: "How much do you agree or disagree that your voice is included in decision making?"

Percentage of Responses [*n*]	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Full Sample [32]	3.1	12.5	9.4	56.2	18.8
Island Group					
Tutuila [23]	4.3	8.7	13.0	52.2	21.7
Manu'a Islands [9]	0.0	22.2	0.0	66.7	11.1
Race					
Samoan [27]	0.0	11.1	3.7	66.7	18.5
Non-Samoan [5]	20.0	20.0	40.0	0.0	20.0

Table 55. Survey responses: "How much do you agree or disagree that managers know how many fish there are?"

Percentage of Responses [*n*]	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Full Sample [32]	3.1	18.8	15.6	46.9	15.6
Island Group					
Tutuila [23]	4.3	13.0	13.0	56.5	13.0
Manu'a Islands [9]	0.0	33.3	22.2	22.2	22.2
Race					
Samoan [27]	0.0	18.5	11.1	55.6	14.8
Non-Samoan [5]	20.0	20.0	40.0	0.0	20.0

Table 56. Survey responses: "How much do you agree or disagree that managers know how healthy the reef/other habitats are?"

Percentage of Responses [*n*]	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Full Sample [32]	3.1	9.4	15.6	56.2	15.6
Island Group					
Tutuila [23]	4.3	4.3	13.0	65.2	13.0

Percentage of Responses [*n*]	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Manuʻa Islands [9]	0.0	22.2	22.2	33.3	22.2
Race					
Samoan [27]	0.0	11.1	14.8	59.3	14.8
Non-Samoan [5]	20.0	0.0	20.0	40.0	20.0

Table 57. Survey responses: "How much do you agree or disagree that managers know about the fisher(men) and fishing community (income, culture, etc.)?"

Percentage of Responses [*n*]	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Full Sample [32]	3.1	18.8	15.6	43.8	18.8
Island Group					
Tutuila [23]	4.3	17.4	17.4	47.8	13.0
Manuʻa Islands [9]	0.0	22.2	11.1	33.3	33.3
Race					
Samoan [27]	0.0	18.5	14.8	48.1	18.5
Non-Samoan [5]	20.0	20.0	20.0	20.0	20.0

Table 58. Survey responses: "How much do you agree or disagree that managers build or maintain fisheries infrastructure (boat ramps, harbors, etc.)?"

Percentage of Responses [*n*]	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Full Sample [32]	0.0	25.0	9.4	43.8	21.9
Island Group					
Tutuila [23]	0.0	26.1	8.7	52.2	13.0
Manuʻa Islands [9]	0.0	22.2	11.1	22.2	44.4
Race					
Samoan [27]	0.0	18.5	11.1	48.1	22.2
Non-Samoan [5]	0.0	60.0	0.0	20.0	20.0

Table 59 displays the percentage of respondents that felt more people will be fishing in the next year. It is important to note that the sample size (*n*) varies among questions due to item non-response and care should be taken when interpreting these results. Generally, most fishers believed there will be more fishing in the coming year. The majority of full sample (83%), Tutuila (86%), and Samoan respondents (85%) thought there will be more near-shore/shallow bottomfish fishing. The same amount of Samoan fishers (85%) believed there would be more pelagic fishing.

Table 59. Survey responses: "Given your experience, do you think in the next year more people will be going…"

Percentage of "yes" Responses [*n*]	Pelagic Fishing	Deep-water Bottomfish Fishing	Near-shore/ Shallow Bottomfish Fishing	Reef Fishing
Full Sample	78.8 [33]	75.0 [32]	83.3 [30]	80.0 [30]
Island Group				
Tutuila	79.2 [24]	73.9 [23]	85.7 [21]	81.0 [21]
Manu'a Islands	77.8 [9]	77.8 [9]	77.8 [9]	77.8 [9]
Race				
Samoan	85.2 [27]	81.5 [27]	85.2 [27]	81.5 [27]
Non-Samoan	50.0 [6]	40.0 [5]	66.7 [3]	66.7 [3]

Most fishers (79%, $n = 33$) shared why they selected these responses. Those that felt there would be less fishing in the coming year (27%, $n = 26$) expressed that fewer people are living on the islands, fishing crew are scarce, the younger generation is uninterested in fishing, and many residents are not fishing. Several cited bottomfish closures, while others pointed to fishery closures in general and shifts in fishing effort (for a full list of comments, please reference Appendix C).

The remaining 73% ($n = 26$) expressed there would be more fishing in the coming year, mostly due to lifting COVID-19 restrictions, ending lockdown curfews, and that more residents would be returning to American Samoa. Others pointed to expanded fishing grounds as the reason for increased effort. In all, 27% of these comments emphasized the cultural importance of fishing in American Samoa—that it is a way of life and a traditional practice that most people enjoy. Comments also highlighted that fishing is a necessary due to the high prices of imported foods. Indeed, access to locally caught fresh fish is critical for food security.

Fisher Comments

This section analyzes the responses to the open-ended questions in our survey. We provide some representative quotes of the respondents' comments to highlight our findings. For a full list of open-ended comments organized by topic, please reference Appendix C.

Research and Management

Our survey asked respondents an open-ended question about fisheries management and research (Appendix A, question 47). More than half (61%, $n = 33$) provided suggestions for improvement. Of these, 15% ($n = 20$) expressed that they are against the bottomfish closure:

> *The government (federal) wants to limit our fishing of bottomfish because of overfishing. There is no overfishing! Plenty of fish here in Manu'a.*
>
> *Please, do not close bottomfish fishery. It is not right to deny livelihood and cultural practices.*

Twenty percent asked for better data collection for stock assessments, emphasizing that poor data quality should not determine fishery closures. A further 25% suggested that local government should manage local fisheries:

> *Improve on getting input from the people, let the villages decide on how to manage their own resources.*
>
> *Local voice needs to be heard more with the emphasis of a stronger local government management.*

Although one comment asked for a longline fishing upgrade, a few respondents noted that larger commercial vessels have been fishing closer to shore, possibly disrupting small boat fishing effort:

> *Get commercial longliners to fish farther away from the islands of Manu'a.*
>
> *My suggestion is for commercial longliner vessels in LVPA be extended to 100 miles from shoreline. Sometimes large vessels come and fish to close to my island.*
>
> *Less fish in close due to longliners in close.*

Another 20% highlighted the need for improved fisheries infrastructure critical to fishing safety and expanded fishery access and participation:

> *No proper docks here. Not good and very unsafe.*
>
> *We need improvements to Ta'ū wharf. Small fishing boats must have safe and secure docks. Currently alia must tie up together. High risk for damage to alia. Difficult to access alia safely. Proper docks would make fishing community very happy, more alia could be added.*
>
> *... Some ramps aren't long enough and just drop off/not deep enough.*

COVID-19 Impacts

Finally, our survey asked respondents to describe if they changed their fishing activity due to COVID-19 and if their survey responses differed from previous fishing years as a result (Appendix A, questions 48 and 49). Nine fishers (27%, $n = 33$) did not provide responses. Of those who did, the majority (71%, $n = 24$) relayed that they did not change their fishing activity due to COVID-19. The remaining 29% shared how COVID-19 affected their fishing in 2020. Several detailed that there was less travel and tourism in American Samoa, resulting in less fishing and fewer fishers. Others described having less fishing trips as a result of lockdown curfew, stores being closed, and needing to be selective about who to fish with. One respondent reported scheduling more fishing trips when curfew and the subsequent fishing closure ended.

Respondents shared that they implemented these changes due to the emergency order government restrictions and to avoid contracting COVID-19. One fisher made changes so they could travel to Pago Pago less often. A crew respondent described fewer opportunities to fish due to less frequent trips in 2020.

Discussion

Using the responses we received from our 2021 small boat fishery cost-earnings survey, this report has described the fishing activity, market participation, fishing expenditures, social aspects, and fisher perspectives of the American Samoa small boat fleet. Our results highlight the cultural and social significance of this fishery, including the critical local source of food that it provides for both fishers and their broader communities. Indeed, 94% of respondents documented that they gave away a portion of their catch in 2020, 97% kept some for personal consumption, and 38% sold catch to friends, neighbors, and coworkers. Careful attention has also been given to the economic and fishing activity of bottomfish fishers and crew respondents, underscoring their unique needs and contributions to the fleet. We also found that bottomfish are the primary target species for many boat-based fishers.

Our results show that fishing is also an important source of income for fishers in American Samoa. On average, 39% of respondents' income came from selling fish in 2020. A further 48% reported part- or full-time commercial fishing as their primary motivation. In all, 90% of respondents documented selling a portion of their catch yet earned a median of $751 off fish sales annually, which recovers the cost of only a few fishing trips. Half of recreational fishers primarily fished to cover their fishing expenses. Respondents self-reported a median household income of $17,500, with half describing household incomes of $10,000 or less. The majority of small boat fishers primarily targeted bottomfish to consume at home and to sell, and pelagics to share among the community. Half of commercial fishers targeted reef fish to sell. The American Samoa small boat fleet and their communities truly rely on these fishery resources for income, subsistence, and cultural perpetuation.

We find that the American Samoa small boat fleet consists of a broad spectrum of fishers with varying economic and social characteristics. Their survey responses reflect what the community consistently emphasizes: fishing is the way of life in American Samoa. This paper establishes an important baseline that can provide guidance to inform fisheries management actions and alternatives. It demonstrates where to begin working directly with the community on management that may affect life in American Samoa.

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Appendix A Survey Instrument

SECTION A. YOUR FISHING EXPERIENCES

VAEGA A. O LAU POTO MASANI I LE FAGOTA

Different fishermen in American Samoa had different fishing experiences over 2020. Please tell us about yours.
E eseese le poto masani o tagata fagogota i Amerika Samoa i le 2020. Faamolemole faamatala mai lau masani.

1. Are you …
   O oe se…

- ✘ Boat owner (but not going out for fishing)
  Tagata e ona le va'a (ae e le alu e fagota)
- ✘ Owner operator
  Tagata e ona ma ulia le va'a
- ✘ Captain (not boat owner)
  Kapeteni (ae e le'o sona va'a)
- ✘ Crew
  'Auva'a

2. What type of fishing trips did you take in 2020?
   O a ituaiga fagotaga sa e faia i le 2020?

- ✘ I went fishing using a boat only
  Sa ou alu e fagota e fa'aaoga na 'o le vaa
  → Go to Q3
  Alu i le F3
- ✘ I went fishing sometimes using a boat and sometimes not using a boat
  Na ou fagota i isi taimi i la'u vaa ma o isi taimi ou te lē alu i la'u vaa
  → Go to Q3
  Alu i le F3
- ✘ I went fishing not using a boat
  Ou te alu e fagota ae ou te lē faaaoga se vaa
  → Go to Q5
  Alu i le F5

3. Approximately how many **BOAT** fishing trips did you take in 2020? _____trips
E tusa e fia ni faiva i le **VA'A** na alu i le 2020? _____ malaga

(If not sure, please provide answer below):
(a lē mautinoa, faamolemole e faaaoga tali i lalo ifo)

- ✖ 0
  E le 'i alu fa'atasi
- ✖ Fewer than 12 trips (once every month or less)
  Lalo ifo I le 12 malaga (fa'atasi I le masina pe i lalo ifo)
- ✖ 12-24 trips (once every other week)
  12-24 malaga (fa'atasi I le 2 vaiaso)
- ✖ 25-49 trips (once a week)
  25-49 (fa'atasi i le vaiaso)
- ✖ 50-99 trips (once or twice a week)
  50-99 malaga (fa'atasi pe lua i le vaiaso)
- ✖ 100-200 trips (two or three times a week) or more
  100-200 malaga (fa'alua pe fa'atolu I le vaiaso) pe sili atu fo'i

4. We understand you may use multiple gears in a trip, please estimate in 2020, what percent of your **BOAT** fishing trips were: (please check <u>one</u> for each gear type)
Matou te malamalama e te ono faaaoga mea faigaluega fai faiva e tele i au malaga fagota, faamolemole siaki ifo le aofa'iga o se tupe na faaalu i le 2020, o le a se pasene o ni ituaiga faiva o lou VAA pe a alu ou faiva: (faamolemole 'osi ifo se tasi o ituaiga mea fagota

	None Leai (0%)	Very little Toeitiiti a lē Faia (1%-9%)	Some Nisi (10%-39%)	About half Tusa e 'afa (40%-59%)	Most Feololo (60%-89%)	Almost all Toeitiiti Faia Uma (90%-100%)
Spearfishing Fagotaga mata tao	✖	✖	✖	✖	✖	✖
Deepwater bottomfish 'Afa'afa Loloa poo le Pulu	✖	✖	✖	✖	✖	✖
Nearshore/shallow bottomfish Fagota I le a'au po'o le aloalo	✖	✖	✖	✖	✖	✖
Trolling Tuli atu po'o le toso	✖	✖	✖	✖	✖	✖
Nets Upega	✖	✖	✖	✖	✖	✖
Other gear, please specify: Isi ituaiga mea fagota, faamolemole ta'u mai:	✖	✖	✖	✖	✖	✖

5. Approximately how many **NON-BOAT** fishing (shoreline) trips did you take in 2020? _____trips
E mata e fia ni fagotaga **E AUNOA MA LE FA'AAOGĀGA O SE VAA** (talafātai poo le matāfaga) na e alu ai i le 2020? _____ malaga.

(If not sure, please provide answer below):
(a lē mautinoa, faamolemole e faaaoga tali i lalo ifo)

- ✖ 0
  E le'I alu fa'atasi
- ✖ Fewer than 12 trips (once every month or less)
  Lalo ifo i le 12 malaga (faatasi i le masina pe i lalo ifo)
- ✖ 12-24 trips (once every other week)
  12-24 malaga (faatasi i le isi lava vaiaso)
- ✖ 25-49 trips (once a week)
  25-49 malaga (faatasi i le vaiaso)
- ✖ 50-99 trips (once or twice a week)
  50-99 malaga (faatasi pe faalua i le vaiaso)
- ✖ 100-200 trips (two or three times a week) or more
  100-200 malaga (fa'alua pe fa'atolu I le vaiaso) pe fa'atele atu

6. In 2020, what percent of your **NON-BOAT** fishing (shoreline) trips were: (please check <u>one</u> for each gear type)
I le 2020, o le a le pasene o ou faiva **E LĒ FAAAOGA AI SE VA'A** (talafātai poo le matāfaga): (faamolemole 'osi ifo se tasi o ituaiga mea fagota).

	None Leai (0%)	Very little Toeitiiti a lē Faia (1%-9%)	Some Nisi (10%-39%)	About half Tusa e 'afa (40%-59%)	Most Feoloolo (60%-89%)	Almost all Toeitiiti Faia Uma (90%-100%)
Rod and reel (pole) 'Ofe fagota ma le 'auvili	✖	✖	✖	✖	✖	✖
Spearfishing Faiva mata tao	✖	✖	✖	✖	✖	✖
Cast/throw net Upega lafo	✖	✖	✖	✖	✖	✖
Other gear, please specify: Isi ituaiga mea fagota, faailoa mai:	✖	✖	✖	✖	✖	✖

_____

7. In 2020, what percent of your fishing time occurred in local and federal jurisdiction?
I le 2020, o le a le pasene o ou taimi fagota sa fa'ataunu'u i le gataifale o lo outou nu'u ma gataifale puipuia a le feterale?

	None Leai (0%)	Very little Toeitiiti a lē Faia (1%-9%)	Some Nisi (10%-39%)	About half Tusa e 'afa (40%-59%)	Most Feoloolo (60%-89%)	Almost all Toeitiiti Faia Uma (90%-100%)
Local waters (0-3 miles) Sami faalenuu (0-3 maila)	✖	✖	✖	✖	✖	✖
Federal waters (3 miles offshore) Sami Feterali (3 maila i fafo atu o matāfaga)	✖	✖	✖	✖	✖	✖

8. How many people in total, including yourself, are on board for an average fishing trip? _____ people
E to'afia le faitau aofa'i o le 'au fai faiva e malaga ma oe i au fagotaga i le vaa? _____Tagata

9. In 2020, approximately how many total pounds of pelagic fish (such as tunas, wahoo, mahimahi, etc.) did you catch?
I le 2020, e tusa e fia le faitau aofa'i o pauna o i'a mai le tuā'au (~~tuna~~ atu ma 'asi'asi, ~~uahu~~ pala, masimasi, ma isi i'a) sa e mauā?

✖ None
Leai

✖ 1 - 50 pounds
1-50 pauna

✖ 51 - 100 pounds
51-100 pauna

✖ 101 - 500 pounds
101- 500 pauna

✖ 501 - 1000 pounds
501-1000 pauna

→

✖ More than 1000 pounds
Sili atu I le 1000 pauna

About how much? _____ pounds

Tusa e fia? _____pauna

10. In 2020, approximately how many total pounds of deepwater bottomfish (such as red snapper, black trevally, lunartail grouper, etc.) did you catch?
I le 2020, e tusa e fia pauna o i'a mai le tuā'au (e pei o malau, malauli, gatala 'ata'ata ~~le~~ mumu, televali uliuli, lunartail grouper, ma isi) sa e mauā?

✖ None
Leai se mea

✖ 1 - 50 pounds
1-50 pauna

✖ 51 - 100 pounds
51-100 pauna

✖ 101 - 500 pounds
101-500 pauna

✖ 501 - 1000 pounds
501-1000 pauna

→

✖ More than 1000 pounds
Sili atu i le 1000 pauna

About how much? _____ pounds

Tusa e fia? _____pauna

11. In 2020, approximately how many total pounds of nearshore/shallow bottomfish (such as redgill emperor, blueline snapper, jobfish, etc.) did you catch?
I le 2020, e tusa e fia le faitau aofa'i o pauna o i'a mai le a'au (e pei o le filoa gutu piniki, savane, asoama, ma isi i'a)~~)~~ sa e pu'ea?

- ✘ None
  Leai se mea
- ✘ 1 - 50 pounds
  1-50 pauna
- ✘ 51 - 100 pounds
  51-100 pauna
- ✘ 101 - 500 pounds
  101-500 pauna
- ✘ 501 - 1000 pounds
  501-1000 pauna
- ✘ More than 1000 pounds
  Sili atu i le 1000 pauna

About how much? _____ pounds

Tusa e fia? _____pauna

12. In 2020, approximately how many total pounds of reef fish (such as parrotfishes (fuga), surgeonfishes (alogo), unicomfishes (ume), etc.) did you catch?
I le 2020, e tusa e fia pouna o~~f~~ i'a mai le aloalo (e pei o le fuga, alogo, ma le ume sa e mauā?

- ✘ None
  Leai se mea
- ✘ 1 - 50 pounds
  1-50 pauna
- ✘ 51 - 100 pounds
  51-100 pauna
- ✘ 101 - 500 pounds
  101-500 pauna
- ✘ 501 - 1000 pounds
  501-1000 pauna
- ✘ More than 1000 pounds
  Sili atu i le 1000 pauna

About how much? _____ pounds

Tusa e fia? _____pauna

13. In 2020, what percent of your boat fishing trips were sampled by the DMWR creel survey program?
I le 2020, o le a le pasene o au fagotaga na iloilo e le polokalama mo le siakiga o meaola?

None	Very little	Some	About half	Most	Almost all
Leai se mea	La'iitiiti	Nisi	Tusa e afa	Tele lava	Tele atoa
(0%)	(1%-9%)	(10%-39%)	(40%-59%)	(60%-89%)	(90%-100%)
✘	✘	✘	✘	✘	✘

SECTION B. MARKET PARTICIPATION
VAEGA B. AU AI I LE MAKETI

14. What is your motivation for fishing? (if multiple applies to you, put 1 as primary, 2 as secondary, and 3 as tertiary)
O le a le uunaiga sili ua ala ai ona e fiafia ~~ai~~ e fagota? (a fai e apalai ia te oe ni tulaga se tele, tusi le 1 e avea ma au faamuamua, 2 pe a fai e soso'o ane ai, ma le 3 pe a fai e mulia'i mai)

- ✘ **Purely Recreational** (I fished only for sport or pleasure)
  Mea Faapasi Taimi (Ua na 'o se taaloga poo le faapasiga o le taimi e ala ai ona ou fagota)
- ✘ **Recreational Expense** (I fished primarily for sport or pleasure, but I also sell a few fish to cover trip expenses)
  Mausa totogi (oute fagota muamua o se faagatama ma le loto fiafia, ae oute fa'atauina isi i'a e totogi ai la'u malaga fagota.
- ✘ **Subsistence** (I fish primarily to catch fish to feed myself/my family/my community)
  Tausiga (Out e muamua lava fagota e fafaga ai a'u/lo'u aiga/ma lo'u nu'u)
- ✘ **Cultural** (I enjoy fishing, but I am even more concerned about keeping traditional practices alive, such as using traditional fishing gear)
  Aganu'u, (Out e fiafia e fagota, ae sili atu lo'u popole I lo'u fa'aaogaina o mea fagpota fa'aleatonu'u)
- ✘ **Part-time Commercial** (Fishing pays some of my bills, but I still have to work at another job)
  Pisinisi afa-taimi (E totogi e 'au faiva fa'atau a'u pili, ae e tatau lava na ou faigaluega I seisi galuega) galuega lua.
- ✘ **Full-time Commercial** (Fishing brings in most or all of the money I make in a year)
  Pisinisi Aso-atoa (O Fagotaga e maua ai tupe a lo'u aiga I le tausaga atoa).
- ✘ **Other,** please specify: _____
  O isi, fa'amolemole fa'amatalai mai: _____

15. In 2020, how was catch distributed among fishermen in a fishing trip? (please check <u>one</u> and estimate percentage)
I le 2020, e fa'apefea na vavaeina le faiva i le va o le auva'a i au Malaga? Osi ifo se tali e fuafua ai pasene.

- ✘ I kept all the fish I caught (for sale/given away/self-consumption)
  Sa ou taofia I'a o lo'u faiva (e ave e fa'atau/foa'i/mo lo'u aiga).
- ✘ I kept/received _____ % of total fish caught
  Sa ou Taofia/maua_____% le aofa'i o i'a sa maua I lo'u faiva.
- ✘ I kept/received _____ % of trip revenue
  Sa ou Taofia/Maua_____% o le tupe maua I le malaga
- ✘ Don't know/different every time
  E leiloa/ona e ese'ese i malaga uma
- ✘ Other, please describe: _____
  Isi, Fa'amolemole fa'amatala mai: _____

16. In 2020, what percent of your catch was:
I le 2020 o lea le pasene o lau faiva:

	None Leai se mea (0%)	Very little La'iitiiti (1%-9%)	Some Nisi (10%-39%)	About half Tusa e afa (40%-59%)	Most Tele lava (60%-89%)	Almost all Tele Atoa (90%-100%)
Consumed at home Tausami i le fale	✖	✖	✖	✖	✖	✖
Given away Foa'I atu	✖	✖	✖	✖	✖	✖
Caught and released Pu'e ae toe fa'asola	✖	✖	✖	✖	✖	✖
Sold Fa'atau atu	✖	✖	✖	✖	✖	✖

17. In 2020, did you ever sell any of the fish you caught?
I le 2020, sa e ta'atauina se I'a o au faiva?

✖ Yes Q18
Ioe F18

✖ No Q22
Leai F22

If you sold any of your fish…
A fai sa e fa'atauina se vaega o au faiva…

18. In 2020, where did you sell your fish?
I le 2020, o fea sa e fa'atauina ai I'a o au faiva?

✖ Fagatogo Market Place
Le maketi i Fagatogo?

✖ Restaurants/stores
Faleaiga/ Faleoloa

✖ Roadside/farmers' market
Autafa o alatele/ maketi fa'ato'aga

✖ Friends/neighbors/coworkers
Uo/tuao'i/tagata faigaluega

✖ Other, please specify: _____

O isi, fa'amatala mai: _____

If you sold any of your fish…
A fai sa e fa'atauina se vaega o lau faiva…

19. In 2020, what was the approximate value of all the fish you sold?
I le 2020, e tusa o lea le tau o le I'a sa e fa'atauina?

- ✖ $1 - $100
- ✖ $101 - $500
- ✖ $501 - $1,000
- ✖ $1,001 - $2,000
- ✖ $2,001 - $5,000
- ✖ $5,001 - $10,000
- ✖ $10,001 - $20,000
- ✖ $20,001 - $50,000
- ✖ More than $50,000, specify
  Sili atu i le $50,000, fa'aali mai
  $_____

If you sold any of your fish…
A fai sa e fa'atauina au i'a…

20. In 2020, what percent of the value of fish sold (question 19) came from the sale of pelagic fish, deepwater bottomfish, nearshore/shallow bottomfish, and reef fish?
I le 2020, o lea le pasene o au I'a fa'atau (fesili 19) sa maua mai ia sami, i''a sami loloto, I'a sami papa'u, ma I'a a'amu?

	None Leai se mea (0%)	Very little La'iitiiti (1%-9%)	Some Nisi (10%-39%)	About half Tusa e afa (40%-59%)	Most Tele lava (60%-89%)	Almost all Tele atoa (90%-100%)
Pelagic fish	✖	✖	✖	✖	✖	✖
I'a sami Deepwater bottomfish I'a sami loloto	✖	✖	✖	✖	✖	✖
Nearshore/shallow bottomfish I'a sami papa'u	✖	✖	✖	✖	✖	✖
Reef fish I'a a'amu	✖	✖	✖	✖	✖	✖

If you sold any of your fish…
A fai na e faatauina au i'a…

21. In 2020, after expenses, what percent of your <u>personal income</u> came from the sale of fish?
I le 2020, ina ua uma ona faaaoga tupe faaalu, o le a le pasene o <u>lau tupe maua</u> na maua mai i au i'a na faatau atu?

None Selo (0%)	Very little La'itiiti (1%-9%)	Some Nisi (10%-39%)	About half Tusa e afa (40%-59%)	Most Tele lava (60%-89%)	Almost all Tele atoa (90%-100%)
✖	✖	✖	✖	✖	✖

SECTION C. YOUR VESSEL
VAEGA C. O LOU VAA

In this section, we want to better understand the vessel and gear characteristics of boat based fishery in American Samoa.
I le vaega lea, matou te fia malamalama lelei i le vaa ma uiga o mea faigaluega o le vaa e tusa o faigā faiva i Amerika Samoa.

22. Do you own the boat that you fish on?
O oe e onā le va'a lea e te fagota ai?

→ ✗ Yes Go to Question 23
Ioe Aga'i sa'o I le fesili 23

→ ✗ No Go to Question 31
Leai Aga'i sa'o i le fesili 31

If you own the boat that you fish on…
A fai o oe e onā le vaa lea e fagota ai…

23. In 2020, what percent of time did other people (other than family members) use the boat **without** you?
I le 2020, o le a le pasene o le taimi sa faaaoga ai e isi tagata (e ese mai tagata o lou aiga) le va'a e aunoa ma oe?

None	Very little	Some	About half	Most	Almost all
Leai se mea	La'itiiti lava	Nisi	Tusa e afa	Tele lava	Tele atoa
(0%)	(1%-9%)	(10%-39%)	(40%-59%)	(60%-89%)	(90%-100%)
✗	✗	✗	✗	✗	✗

24. What is the length of your boat? _____ feet
O le a le umi ale va'a? _____ futu

25. What is the total horsepower? _____hp
O le a le malosi o le afi o lou vaa? _____ malosi o le afi

26. In what year was the boat built? _____
O le a le tausaga na fau ai le vaa?_____

27. In what year did you purchase the boat you fish on? _____
(If homebuilt – when did you complete it?)
O le a le tausaga na faatau ai le vaa o loo e fagota ai? _____
(a fai na fausia i le fale – o anafea na māe'a ai?)

28. How much did you pay to purchase the boat you fish on? $_____
(If homebuilt – how much did it cost to build it?)
E fia le aofa'i na e faatauina ai le vaa o loo e fagota ai? $_____
(a fai na fausia i le fale – e fia le tau sa fausia ai?

29. What is the approximate market value of your boat?
(considering age and current condition and including motor(s) and trailer) $_____
O le a se tau pe a fuafua i tau masani e ono faatau ese ai lou vaa?
(a fua i tausaga ma le tulaga o iai nei lou vaa e aofia ai le afi ma le taavale toso vaa) $_____

30. Please enter the most recent year in which you made any major improvement to your vessel _____
Faamolemole ta'u mai le tausaga sa e faia ai ni faaopoopoga fou e faalelei atili ai lou vaa_____

SECTION D. YOUR FISHING TRIP COSTS
VAEGA D. TUPE ALU I AU FAIGĀ FAIVA I LE TAI

We now want to understand your per trip costs for fishing.
Please remember that all your answers are strictly confidential.
Ua matou fia iloa I lau tupe alu ~~o~~ i au fagotaga.
Fa'amolemole e manatua ane, o au tali uma e tausi lotomau i le fa'alilolilo.

31. In 2020, what was the primary gear usage for your most common trip (please check one)?
I le 2020, o le a le 'aupega tāua tau faigā faiva na faaaoga i ou faiva e pei ona masani ai (faamolemole 'osi ane na 'o se tasi)?

- ✘ Spearfishing
  Fagota mata tao
- ✘ Deepwater bottomfish
  I'a sami loloto
- ✘ Nearshore/shallow bottomfish
  Matafaga/i'a sami papa'u
- ✘ Trolling
  Pou fagota
- ✘ Nets
  Upega
- ✘ Other gear, specify: _____
  O isi mea fagota, ta'u mai: _____

31a. On average per trip, how much money did you spend on your most common (question 31) gear type trip?
E tusa ai ma lou masani i au faiva alu, faamata e fia le aofa'i o tupe na faaaoga i mea faigaluega a o aga'i ou faiva masani (fesili 31)

Type of Expenditure Ituaiga Tupe Alu	Trip Expenditure Tupe na Alu i Faigā Faiva	Amount Aofa'iga
Boat fuel Kesi o le va'a	$_____	_____gallons kalone
Truck fuel (round-trip) Kesi o lau ta'avale (alu ma le toe fo'I mai)	$_____	_____gallons kalone
Oil Suāu'u	$_____	
Ice 'Aisa	$_____	_____lbs pauna
Bait Māunu	$_____	_____case(s) pusa
Food and beverage Mea'ai ma mea inu	$_____	
Daily maintenance and repair Meniteni ma le līpea e faia i aso ta'itasi	$_____	
Gear lost Mea fagota lē iloa	$_____	
Other, please specify: Isi mea, ta'u mai: _____	$_____	

31b. Is the cost in Q31a the total trip costs for all fishermen in a trip, or just the portion you paid?
O le tau o mea i le Fesili 31 le aofa'i o tupe alu i faiva ta'itasi e totogi ai le 'auva'a, poo se vaega o tupe na e faaaluina?

✘ Total costs for all fishermen in a trip
Tau atoa mo tagata fagota I le Malaga

✘ Only the portion I paid, and it is approximately _____ % of the total trip costs
Na'o se vaega sa ou totogiina, ae e tusa _____% o le tau atoa o malaga

32. In 2020, what was your second most common gear usage (please check one)?
I le 2020, o lea le mea lona lua o mea fagota sa fa'aaogaina (siaki se mea e tasi)?

- ✘ Spearfishing
  Mata tao
- ✘ Deepwater bottomfish
  I'a sami loloto
- ✘ Nearshore/shallow bottomfish
  I'a sami papa'u
- ✘ Trolling
  Pou faifaiva
- ✘ Nets
  Upega
- ✘ Other gear, specify
  Isi, ta'u mai _____

32a. On average per trip, how much money did you spend on your second most common (question 32) gear type trip?
I le evarasi o malaga, e fia le tupe sa e fa'aalu i lau malaga lona lua (fesili 32)

Type of Expenditure Ituaiga Tau Fa'aalu	Trip Expenditure Tau O le Malaga	Amount Aofaiga
Boat fuel Penisini o le va'a	$_____	_____gallons
Truck fuel (round-trip) Penisini o le Loli (alu ma le fo'imai)	$_____	_____gallons
Oil Suau'u	$_____	
Ice Aisa	$_____	_____lbs
Bait Maunu	$_____	_____case(s)
Food and beverage Mea ai ma mea inu	$_____	
Daily maintenance and repair Tausiga ma lipea	$_____	
Gear lost Kia leiloa	$_____	
Other, please specify: O isi fa'amolemole fa'amatala mai: _____	$_____	

32b. Is the cost in Q32a the total trip costs for all fishermen in a trip, or just the portion you paid?
O le tau ile Q32a le aofa'I o tau o malaga mo tagata faifaiva uma I se malaga, pe na'o le vaega na e totogiina

- ✘ Total costs for all fishermen in a trip
  Aofa'iga o le tau mo faifaiva uma I se malaga
- ✘ Only the portion I paid, and it is approximately _____ % of the total trip costs
  Na'o le vaega na ou totogiina_____% o le aofa'I o le tau o le malaga

SECTION E. 2020 FISHING EXPENDITURES (for boat owner only)
VAEGA E. 2020 TUPE FA'AFAIGALUEGA (na'o latou e ona va'a)

In an effort to better understand your economic contribution to American Samoa's economy, we would like to ask about your fishing-related expenditures in 2020. In the table below please indicate how much, if any, was spent on the following items during 2020.

I se taumafaiga e malamalama I lau foa'I I le tamaoaiga o Amerika Samoa, matou te fesili atu e uiga I au tupe fa'aalu i au faiva I le 2020. I le laulau I lalo, fa'amolemole ta'u mai pe fia, na e fa'aaluina I mea nei i le 2020.

Enter "0" if you did not have any expenses in a category. Please do not leave blank.
Remember that all your answers are strictly confidential.

Tusi le "0" pe a fai e leai sau tupe fa'aalu I le vaega. Fa'amolemole aua le tu'ua se avanoa.
Manatua o au tali uma e matua puipuia fa'alilo lava.

33.	Cost Category Tau Vaega	2020 Expenditure (dollars) 2020 Tupe Fa'aalu (Tala)	
	Boat insurance …… Inisua	$_____	✖per month ✖per year
	Loan payments …… Totogi Nonogatupe	$_____	✖per month ✖per year
	Mooring fees …….. Tau o le mea e taua ai le va'a	$_____	✖per month ✖per year
	Gear replacement/repair from wear and tear (lines, lures, gaffs, rods, electric/hydraulic reels, spears, wetsuits, coolers, safety equipment, etc.) …… (laina, maunu, pou fagota, eletise, matatao, suti susu, kula vai, ma mea faigaluega mo le saogalemu, ma isi)	$_____	
	Annual boat and trailer repair, maintenance, and improvements (exclude daily expenses) …… Lipea o le va'a fa'ale tausaga ma lipea, ma le fa'aleleia o mea fagota	$_____	
	Fees (registration for truck and trailer, safety, dry dock fees, etc.) …… Totogi fa'apa'uina (lesitalaina mo loli ma mea tosova'a, saogalemu, ma tupe e totogi ai mea e toso ai le va'a I luga	$_____	
	Financial service……..…….. Tautua tautupe……	$_____	
	Other, please specify…….. Isi, fa'amolemole fa'aali mai	$_____	

_____

SECTION F. ABOUT YOU
VAEGA F. FA'ATATAU IA TE OE

Different people have different fishing experiences and different motivations for fishing. The following questions help us to better understand these differences.

To'atele o tagata e ese'ese latou poto masani ma fa'aosofia mo fagotaga. O fesili nei e fesoasoani ia matou e malamalama atili ai i nei ese'esega.

34. What is your gender?
O le a lou itupa?

- ✘ Male
  Ali'i
- ✘ Female
  Tama'ita'i

35. What is your age?
E fia ou tausaga?

- ✘ Less than 25 years
  E ititi ifo ma le 25 tausaga
- ✘ 25 to 34 years
  25 i le 34 tausaga le matua
- ✘ 35 to 44 years
  35 i le 44 tausaga le matua
- ✘ 45 to 54 years
  45 i le 54 tausaga le matua
- ✘ 55 to 64 years
  55 i le 64 tausaga le matua
- ✘ More than 64 years
  Sili atu I le 64 tausaga

36. What village do you live in? _____
O lea le nu'u e ta alala ai? _____

37. Are you Hispanic or Latino?
O oe o se Fa'a- Sipaniolo pe Latino?

- ✘ Yes, Hispanic or Latino
  Ioe, Fa'a- Sipaniolo pe Latino
- ✘ No, not Hispanic or Latino
  Leai, Fa'a- Sipaniolo pe Latino

38. How would you describe your race? (check <u>all</u> that apply)
E fa'apefea na e fa'amatalaina lou tu'uga? (Siaki uma tali e talafeagai)

- ✘ Samoan
  Samoa
- ✘ American Indian or Alaska Native
  Initia/ sau mai Alaska
- ✘ Asian
  Asia
- ✘ Black or African American
  Aferika Amerika
- ✘ Native Hawaiian or Other Pacific Islander
  Mai Hawaii po'o se isi motu mai le Pasefika
- ✘ White
  Papalagi

39. What is the highest level of education you have completed?
O lea le tulaga maualuga o a'oa'oga mae'a?

- ✘ Less than 9th grade
  Lalo ifo o le vasega 9
- ✘ Some high school (no diploma)
  Nisi aoga maualuga (leai se tipiloma)
- ✘ High school graduate (including GED)
  Fa'auu aoga maualuga (aofia ai GED)
- ✘ Some college (no degree)
  Nisi kolisi (leai se tikeri)
- ✘ Associates degree or technical school
  Tusi Muamua- Associate Degree
- ✘ College graduate (bachelor degree)
  Fa'auu ma le tusi lona lua- Bahelor Degree
- ✘ Advanced, professional, or doctoral degree
  Polofesa ma le Tikeri Foma'i

40. What was your total household income, before taxes, in 2020, including fishing income?
O le a le aofa'I o lau tupe maua a le aiga, ae le' 2020, e aofia ai ma tupe maua mai faiva?

- ✘ Less than $10,000
  Lalo ifo o le $10,000
- ✘ $10,000 to $24,999
  $10,000 i le $24,999
- ✘ $25,000 to $49,999
  $25,000 i le $49,999
- ✘ $50,000 to $99,999
  $50,000 i le $99,999
- ✘ $100,000 to $249,999
  $100,000 I le$249,999
- ✘ $250,000 or more
  $250,000 pe sili atu

SECTION G. WHAT DO YOU THINK?

41. Given your experience, do you think in the next year more people will be going … (please check one for each)
I lau iloa, e te manatu o lea soso'o mai nisi tagata e o atu… (fa'amolemole siaki se tali e tasi)

Pelagic Fishing Fagota l'a sami	Deepwater Bottomfish Fishing Fagota l'a sami loloto/ l'a sami lalo	Nearshore/Shallow Bottomfish Fishing Fagota Matafaga/ l'a sami papa'u	Reef Fishing Fagota a'au
✘ Yes Ioe	✘ Yes Ioe	✘ Yes Ioe	✘ Yes Ioe
✘ No Leai	✘ No Leai	✘ No Leai	✘ No Leai

42. Why do you feel this way?
Aisea ua e maua ai lenei lagona?

_____

43. What are the top three (3) species you target …
O a ituaiga l'a e tolu (3) e te sa'ilia?

	1	2	3
To sell? E fa'atau?			
To keep for self-consumption? E te teua e tausami mo lou aiga?			
To give away? I'a e te foa'ia?			

44. Please state how much you agree or disagree with the following statements:
Fa'amolemole ta'u mai pe malosi lou malie I fa'amatalaga nei pe leai.

	Strongly Disagree Matua le malie	Disagree Le malie	Neutral Isi Taimi	Agree Malie	Strongly Agree Matua Malie
As someone who fishes I am respected by the community I le avea o a'u o se tasi e fagota ua fa'aaloalogia ai a'u e lo'u nu'u	✗	✗	✗	✗	✗
Fishing is an important part of who I am Fagotaga ose vaega taua o lo'u tagata.	✗	✗	✗	✗	✗
Fishing is an important part of my culture Fagotaga o se vaega taua o la'u aganu'u.	✗	✗	✗	✗	✗

45. How important are the following for managing fisheries in American Samoa?
O lea le taua o mea nei mo le fa'atautaia o faiga faiva I Amerika Samoa

	Not at all Important Matua le taua	Slightly Important Taua teisi	Moderately Important Fa'ataua	Very Important Taua tele	Extremely Important Matua taua
Rules are followed and enforced E taua tulafono ma fa'amalosia	✗	✗	✗	✗	✗
My voice is included in decision making O lo'o aofia lo'u leo I le faiga o fa'ai'uga	✗	✗	✗	✗	✗
Managers know how many fish there are E Silafia e ta'ita'I le aofa'I o I'a o iai.	✗	✗	✗	✗	✗
Managers know how healthy the reef / other habitats are E iloa e ta'ita'I vaega le ola malosi o a'au ma isi mea sami e nonofo ai.	✗	✗	✗	✗	✗
Managers know about the fisher(men) and fishing community (income, culture, etc.) E malamalama ta'ita'i vaega i le nu'u faifaiva (tupemaua, aganu'u, ma isi)	✗	✗	✗	✗	✗
Managers build or maintain fisheries infrastructure (boat ramps, harbors, etc.) Ua fausia ma tausia e pulevaega (va'a, alaga va'a i le sami, uafu, ma isi)	✗	✗	✗	✗	✗
Other, please specify: O isi, fa'amolemole fa'amatala mai: _____	✗	✗	✗	✗	✗

46. Please state how much you agree or disagree that following management is being done well:
Fa'amolemole ta'u mai pe o le a le tele o lou maliega po'o le le malie o lo'o faia lelei mea nei:

	Strongly Disagree Matua le malie	Disagree Le malie	Neutral Malie isi taimi	Agree Malie	Strongly Agree Matua malie
Rules are followed and enforced O lo'o mulimuli ma fa'amalosia tulafono uma	✗	✗	✗	✗	✗
My voice is included in decision making E taua lo'u leo i faiga filifiliga	✗	✗	✗	✗	✗
Managers know how many fish there are O lo'o silafia e ta'ita'I vaega le aofa'i o i'a	✗	✗	✗	✗	✗
Managers know how healthy the reef / other habitats are O lo'o silafia e ta'ita'i vaega le maloloina lelei o a'au ma isi mea sami e nonofo ai.	✗	✗	✗	✗	✗
Managers know about the fisher(men) and fishing community (income, culture, etc.) E fausia e ta'ita'I vaega ma atina'e fagotaga (va'a, uafu, ma isi mea mo'omia)	✗	✗	✗	✗	✗
Managers build or maintain fisheries infrastructure (boat ramps, harbors, etc.) O lo'o fausia ma tausia e ta'ita'ivaega le atina'e tetele o fagotaga (va'a, alava'a i le sami, uafu, ma isi)	✗	✗	✗	✗	✗
Other, please specify: _____ Isi, ta'u mai:_____	✗	✗	✗	✗	✗

47. Do you have any suggestions for how American Samoa's fisheries should be managed or topics that you feel need further study?
E iai ni ou manatu pe fa'apefea ona fa'atautaia faiga fagota po'o ni mataupu e mana'omia ni su'esu'ega e fa'alelei atili ai le faiga faiva I Amerika Samoa?

_____

_____

_____

_____

_____

48. How have you changed your fishing activities due to COVID-19? For example, were any of your survey responses different than they would have been in a normal year?
Fa'apefea one e suia au fagotaga on o le Koviti-19?

_____

_____

_____

_____

_____

49. What are the main reasons you made those changes?
O a mafua'aga autu na e faia ai na suiga?

_____

_____

_____

_____

_____

Thank you for participating in this survey.

The information you have provided will improve our understanding of the importance of fishing in American Samoa.

Faafetai atu i lou auai i le faatumuga o lenei pepa fesili.

O nei faamatalaga uma ua e saunia o le a fesoasoani i lo matou iloa o le tāua o faigā faiva i Amerika Samoa.

Would you like to receive a copy of the final report for this study? (all personal information will be kept strictly confidential)

E te mana'o i sau kopi o fa'ai'uga o lenei sailiiliga? (o le a matuā teu mau faalilolilo faamatalaga uma e patino ia te oe)

✘ Yes/ Ioe

Name/ Igoa: _____

Address/ Tuātusi poo le Pusa Meli: _____

✘ No/ Leai

Email address/ Tuātusi Imeli:_____

May we contact you if we have any questions about your survey responses?

E mafai ona matou fa'afeso'ota'ia oe pe a iai ni a matou fesili e uiga i au tali o le pepa fesili?

✘ Yes/ Ioe

Phone/ Numera Telefoni: _____

Best time to reach you/ Taimi lelei e maua ai oe: _____

✘ No/ Leai

(your phone number will be kept strictly confidential)/ (O lau numera telefoni o le a matuā teu lilo i a matou faamaumauga)

Paperwork Reduction Act Statement. NOAA's National Marine Fisheries Service (NMFS) is collecting this economic information to improve its ability to conduct the analyses required by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and other applicable law. NMFS and the Regional Fishery Management Councils will use this information to monitor, explain and predict changes in the economic performance and impacts of commercial fisheries. Among other things, this will enable fisheries managers and the public to more fully consider the economic effects of proposed and existing regulations for federally managed fisheries.

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995 unless the information collection has a currently valid OMB Control Number. The approved OMB Control Number for this information collection is 0648-0773 and its expiration date is 12/31/2023. Without this approval, we could not conduct this information collection. Public reporting for this information collection is estimated to be approximately 45 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. All responses to this information collection are voluntary. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the NOAA Fisheries at: 1845 Wasp Blvd., Building 176, Honolulu, HI 96818, Attn: Justin Hospital, and Justin.Hospital@noaa.gov if desired.

O faamatalaga tau le tulafono o pepa o faamaumauga e tā'ua o le Paperwork Reduction Act Statement. O loo faamaumau ma ao e le vaega o le National Marine Fisheries Service (NMFS) faamatalaga tau le tamaoaiga e faaleleia ai lana tautua e faatino sailiiliga e pei ona tu'upoloa'iina ai e le Magnuson-Stevens Fishery Conversation ma le tulafono o le Management Act (MSA) ma isi tulafono o loo apalai i ai. O le a faaaoga e le NMFS ma le Regional Fishery Management Councils faamatalaga aloa'ia mai lenei sailiiliga mo le silasila toto'a i nei faiga, ma faamatala toe māta'itū ai suiga i alumaga o le tupe faasoasoa ae faapea ai fo'i ma a'afiaga o faigā faiva tau pisinisi. Faatasi ai la ma isi mea, o le a mafai e lenei sailiiliga ona lauliliu a'afiaga o le tamaoaiga i e faatautaiina faigā faiva faatasi ai ma le atunuu e ala i tulafono o loo faaaoga i lenei vaitau mo le faafoeina o polokalama a le feterale i faigā faiva.

E ono lē mafai e se ofisa o le Feterale ona faataunuu pe lagolago nei tulaga, ma e lē faamalosia fo'i so'o se tagata e tau tali i fesili o lenei sailiiliga, pe saisaitia fo'i se tagata i ni moli'aga ona o le lē utagia o faamatalaga fia ao mai i totonu, poo le tu'upoloa'iina fo'i e tusa ai ma le tulafono o le Paperwork Reduction Act o le 1995, se 'i vaganā ai o nei faamatalaga e iai se numera ua tā'ua o le OMB Control Number. O le numera faamaonia o le OMB Control Number mo faamaumauga o nei faamatalaga o le 0648-0773 ma o le aso e faagata ai o le XX/XX/2023. A aunoa ma lenei faamaoniga, e lē mafai e matou ona faataunuu le faamaumauga o nei faamatalaga. O le faalauiloaga fa'alaua'itele o nei faamatalaga faamaumau e fua i luga o le 45 minute i tali ta'itasi, e aofia ai ma le toe silasila i faatonuga, e o'o fo'i i le sailiga o faamaumauga tuai, ma le aoina ae faapea ai ma le meniteniina o faamaumauga moomia, ma le faaumaga ma lauliliu faamatalaga ua ao mai. O tali uma i nei faamaumauga e tuu saunoa lava e aunoa ma le faamalosia. Faaali mai ni ou manatu e faatatau i nei fuafuaga e fa'amāmā avega ai i le NOAA Fisheries i le: 1845 Wasp Blvd., Building 176, Honolulu, HI 96818, Attn: Justin Hospital, ma le Justin.Hospital@noaa.gov pe a finagalo i ai.

Appendix B Additional Tables

Table B-1. Vessel characteristics.

Variable	Calculation	Full Sample	Tutuila	Manu‘a Islands
Boat length (ft)	[*n*]	[17]	[8]	[9]
	Mean	**26.2**	**28.0**	**24.7**
	Standard error	1.9	2.2	3.1
	Minimum	14.0	20.0	14.0
	Maximum	40.0	36.0	40.0
Boat total horesepower (hp)	[*n*]	[17]	[8]	[9]
	Mean	**139.7**	**220.0**	**68.3**
	Standard error	29.2	47.6	10.5
	Minimum	30.0	90.0	30.0
	Maximum	500.0	500.0	120.0
Year boat was built	[*n*]	[15]	[6]	[9]
	Mean	**2002**	**2006**	**1999**
	Standard error	1.9	2.0	2.6
	Minimum	1989	2000	1989
	Maximum	2013	2013	2012
Year boat was purchased	[*n*]	[16]	[7]	[9]
	Mean	**2013**	**2012**	**2013**
	Standard error	1.4	2.1	2.0
	Minimum	2003	2004	2003
	Maximum	2019	2018	2019
Purchase price of boat ($)	[*n*]	[15]	[6]	[9]
	Mean	**28,766.70**	**56,166.70**	**10,500.00**
	Standard error	9,510.30	19,097.00	2,751.3
	Minimum	1,500.00	10,000.00	1,500.00
	Maximum	135,000.00	135,000.00	25,000.00
Market value of boat ($)	[*n*]	[15]	[6]	[9]
	Mean	**40,200.00**	**67,916.70**	**21,722.20**
	Standard error	10,102.10	20,170.30	4,630.1
	Minimum	1,500.00	12,500.00	1,500.00
	Maximum	150,000.00	150,000.00	50,000.00
Most recent year of major boat improvements	[*n*]	[15]	[7]	[8]
	Mean	**2020**	**2020**	**2019**
	Standard error	0.4	0.7	0.6
	Minimum	2016	2016	2016
	Maximum	2021	2021	2021

Note: Calculations take the standard error of the mean.

Table B-2. Analysis of boat fishing trips taken in 2020.

Variable	Calculation	Full Sample	Tutuila	Manu‘a Islands
Boat fishing trips taken	[*n*]	[31]	[22]	[9]
	Standard error	5.2	5.4	12.2
	Median	**37.0**	**37.0**	**50.0**
	Minimum	1.0	1.0	6.0
	Maximum	120.0	74.5	120.0

Note: Calculations take the midpoint value of each range, as described in the survey instrument (Appendix A). Otherwise, if respondent included a stated value, calculation uses the stated value. Calculations take the standard error of the mean.

Table B-3. Survey responses: “How many people in total, including yourself, are on board for an average fishing trip?”

Variable	Calculation	Full Sample	Tutuila	Manu‘a Islands
Fishers on board for an average fishing trip	[*n*]	[33]	[24]	[9]
	Median	**4.0**	**4.0**	**4.0**
	Standard error	0.3	0.3	0.4
	Minimum	1.0	1.0	2.0
	Maximum	8.0	8.0	6.0

Note: Calculations take the standard error of the mean.

Table B-4. Percent of time fishing in local and federal waters.

Jurisdiction	Calculation	Full Sample	Tutuila	Manu‘a Islands
Local waters (0-3 nm)	[*n*]	[33]	[24]	[9]
	Mean	**61.7**	**57.3**	**73.5**
	Standard error	4.0	4.9	5.4
	Median	**74.5**	**49.5**	**74.5**
	Minimum	0.0	0.0	49.5
	Maximum	95.0	95.0	95.0
Federal waters (3-200 nm)	[*n*]	[33]	[24]	[9]
	Mean	**38.8**	**44.2**	**24.6**
	Standard error	4.3	5.1	5.8
	Median	**49.5**	**49.5**	**24.5**
	Minimum	0.0	0.0	0.0
	Maximum	95.0	95.0	49.5

Note: Calculations take the midpoint value of the range, as described in the survey instrument (Appendix A). Calculations take the standard error of the mean.

Table B-5. Reported pounds caught in 2020, by species group.

Species group	Calculation	Full Sample	Tutuila	Manu‘a Islands
Pelagic pounds caught	[*n*]	[26]	[17]	[9]
	Mean	**278.8**	**248.1**	**336.6**
	Standard error	74.3	66.4	180.4
	Minimum	6.0	6.0	75.5
	Maximum	1,750.0	800.0	1,750.0
Deep-water bottomfish pounds caught	[*n*]	[24]	[15]	[9]
	Mean	**455.6**	**527.1**	**336.6**
	Standard error	153.8	223.8	180.4
	Minimum	25.5	25.5	75.5
	Maximum	3,500.0	3,500.0	1,750.0
Near-shore/shallow bottomfish pounds caught	[*n*]	[29]	[20]	[9]
	Mean	**238.4**	**232.9**	**250.4**
	Standard error	115.1	147.2	187.6
	Minimum	25.5	25.5	25.5
	Maximum	3,000.0	3,000.0	1,750.0
Reef fish pounds caught	[*n*]	[18]	[12]	[6]
	Mean	**275.5**	**340.1**	**146.2**
	Standard error	75.2	93.1	120.8
	Minimum	25.5	25.5	25.5
	Maximum	750.5	750.5	750.0

Note: Calculations take the midpoint value of the range, as described in the survey instrument (Appendix A). Otherwise, if respondent included a stated value, calculation uses the stated value. Calculations take the standard error of the mean.

Table B-6. Survey responses: “In 2020, what percent of your catch was consumed at home?”

Percentage of Responses [*n*]	None (0%)	Very Little (1%-9%)	Some (10%-39%)	About Half (40%-59%)	Most (60%-89%)	Almost All (90%-100%)
Full Sample [32]	3.1	40.6	40.6	9.4	6.2	0.0
Island Group						
Tutuila [23]	4.3	47.8	39.1	4.3	4.3	0.0
Manu‘a Islands [9]	0.0	22.2	44.4	22.2	11.1	0.0
Fisher Type						
Boat owner [17]	0.0	17.6	58.8	17.6	5.9	0.0
Crew [13]	7.7	76.9	7.7	0.0	7.7	0.0
Primary Motivation						
Commercial [15]	0.0	66.7	26.7	0.0	6.7	0.0
Non-commercial [17]	5.9	17.6	52.9	17.6	5.9	0.0
Age Group						
44 and under [9]	11.1	33.3	55.6	0.0	0.0	0.0

Percentage of Responses [*n*]	None (0%)	Very Little (1%-9%)	Some (10%-39%)	About Half (40%-59%)	Most (60%-89%)	Almost All (90%-100%)
45 and over [23]	0.0	43.5	34.8	13.0	8.7	0.0
Race						
Samoan [27]	0.0	44.4	37.0	11.1	7.4	0.0
Non-Samoan [5]	20.0	20.0	60.0	0.0	0.0	0.0

Table B-7. Survey responses: "In 2020, what percent of your catch was given away?"

Percentage of Responses [*n*]	None (0%)	Very Little (1%-9%)	Some (10%-39%)	About Half (40%-59%)	Most (60%-89%)	Almost All (90%-100%)
Full Sample [32]	6.2	37.5	34.4	6.2	9.4	6.2
Island Group						
Tutuila [23]	4.3	47.8	30.4	4.3	8.7	4.3
Manu'a Islands [9]	11.1	11.1	44.4	11.1	11.1	11.1
Fisher Type						
Boat owner [17]	5.9	11.8	47.1	11.8	17.6	5.9
Crew [13]	7.7	76.9	7.7	0.0	0.0	7.7
Primary Motivation						
Commercial [15]	6.7	73.3	20.0	0.0	0.0	0.0
Non-commercial [17]	5.9	5.9	47.1	11.8	17.6	11.8
Age Group						
44 and under [9]	22.2	33.3	44.4	0.0	0.0	0.0
45 and over [23]	0.0	39.1	30.4	8.7	13.0	8.7
Race						
Samoan [27]	3.7	40.7	33.3	7.4	7.4	7.4
Non-Samoan [5]	20.0	20.0	40.0	0.0	20.0	0.0

Table B-8. Survey responses: "In 2020, what percent of your catch was caught and released?"

Percentage of Responses [*n*]	None (0%)	Very Little (1%-9%)	Some (10%-39%)	About Half (40%-59%)	Most (60%-89%)	Almost All (90%-100%)
Full Sample [31]	41.9	45.2	9.7	0.0	3.2	0.0
Island Group						
Tutuila [23]	30.4	52.2	13.0	0.0	4.3	0.0
Manu'a Islands [8]	75.0	25.0	0.0	0.0	0.0	0.0
Fisher Type						
Boat owner [16]	43.8	43.8	6.2	0.0	6.2	0.0
Crew [13]	46.2	46.2	7.7	0.0	0.0	0.0

Percentage of Responses [*n*]	None (0%)	Very Little (1%-9%)	Some (10%-39%)	About Half (40%-59%)	Most (60%-89%)	Almost All (90%-100%)
Primary Motivation						
Commercial [15]	33.3	60.0	6.7	0.0	0.0	0.0
Non-commercial [16]	50.0	31.2	12.5	0.0	6.2	0.0
Age Group						
44 and under [9]	44.4	44.4	0.0	0.0	11.1	0.0
45 and over [22]	40.9	45.5	13.6	0.0	0.0	0.0
Race						
Samoan [26]	46.2	46.2	3.8	0.0	3.8	0.0
Non-Samoan [5]	20.0	40.0	40.0	0.0	0.0	0.0

Table B-9. Survey responses: "In 2020, what percent of your catch was sold?"

Percentage of Responses [*n*]	None (0%)	Very Little (1%-9%)	Some (10%-39%)	About Half (40%-59%)	Most (60%-89%)	Almost All (90%-100%)
Full Sample [29]	10.3	17.2	6.9	20.7	17.2	27.6
Island Group						
Tutuila [20]	10.0	10.0	5.0	15.0	20.0	40.0
Manu'a Islands [9]	11.1	33.3	11.1	33.3	11.1	0.0
Fisher Type						
Boat owner [16]	12.5	31.2	6.2	31.2	12.5	6.2
Crew [12]	8.3	0.0	8.3	0.0	25.0	58.3
Primary Motivation						
Commercial [16]	0.0	0.0	6.2	12.5	31.2	50.0
Non-commercial [13]	23.1	38.5	7.7	30.8	0.0	0.0
Age Group						
44 and under [8]	0.0	12.5	0.0	25.0	25.0	37.5
45 and over [21]	14.3	19.0	9.5	19.0	14.3	23.8
Race						
Samoan [26]	11.5	15.4	7.7	23.1	15.4	26.9
Non-Samoan [3]	0.0	33.3	0.0	0.0	33.3	33.3

Table B-10. Survey responses: "In 2020, after expenses, what percent of your personal income came from the sale of fish?"

Variable	Calculation	Full Sample	Tutuila	Manu'a Islands
Percentage of personal income	[*n*]	[29]	[21]	[8]
	Median	**49.5**	**49.5**	**37.0**
	Standard error	5.2	6.3	9.7
	Minimum	0.0	0.0	5.0

Variable	Calculation	Full Sample	Tutuila	Manu‘a Islands
	Maximum	95.0	95.0	95.0

Note: For fishers who reported selling their catch in 2020. Calculations take the midpoint value of the stated range, as described in the survey instrument (Appendix A). Calculations take the standard error of the mean.

Table B-11. Value of fish sold in 2020.

Variable	Calculation	Full Sample	Tutuila	Manu‘a Islands
Value of fish sold per respondent ($)	[*n*]	[29]	[21]	[8]
	Mean	**2,957.40**	**3,205.30**	**2,306.80**
	Standard error	1,229.3	1,654.2	1,142.7
	Minimum	300.50	300.50	300.50
	Maximum	35,000.50	35,000.50	7,500.50

Note: For fishers who reported selling their catch in 2020. Calculations take the midpoint value of the stated range, as described in the survey instrument (Appendix A). Calculations take the standard error of the mean.

Table B-12. Trip costs for trolling in 2020.

Expenditure Type $ per Trip	Calculation [*n*]	Full Sample [16]	Tutuila [11]	Manu‘a Islands [5]
Boat fuel	Standard error	31.0	39.5	27.9
	Mean	**181.10**	**216.10**	**104.00**
	Minimum	40.00	50.00	40.00
	Maximum	400.00	400.00	200.00
Truck fuel	Standard error	3.5	4.5	4.9
	Mean	**27.10**	**24.80**	**32.00**
	Minimum	8.00	8.00	20.00
	Maximum	50.00	50.00	40.00
Oil	Standard error	18.3	7.9	56.7
	Mean	**39.60**	**23.50**	**74.80**
	Minimum	0.00	0.00	0.00
	Maximum	300.00	63.00	300.00
Ice	Standard error	10.4	13.4	17.5
	Mean	**38.80**	**40.90**	**34.00**
	Minimum	0.00	10.00	0.00
	Maximum	150.00	150.00	100.00
Bait	Standard error	5.2	6.1	9.7
	Mean	**14.70**	**11.40**	**22.00**
	Minimum	0.00	0.00	0.00
	Maximum	60.00	60.00	50.00
Food and beverage	Standard error	7.4	9.1	13.9
	Mean	**51.60**	**51.40**	**52.00**

Expenditure Type $ per Trip	Calculation [*n*]	Full Sample [16]	Tutuila [11]	Manu‘a Islands [5]
	Minimum	10.00	10.00	20.00
	Maximum	100.00	100.00	100.00
Total trip cost	Standard error	45.3	55.0	86.7
	Mean	**352.90**	**368.10**	**318.80**
	Minimum	58.00	78.00	80.00
	Maximum	1,060.00	823.00	790.00

Note: Responses for primary and secondary gear trip types. Calculations take the standard error of the mean.

Table B-13. Occasional maintenance costs for trolling in 2020.

Expenditure Type $ per Trip	Calculation [*n*]	Full Sample [16]	Tutuila [11]	Manu‘a Islands [5]
Daily maintenance & repair	Standard error	15.3	21.6	15.0
	Mean	**68.80**	**66.40**	**74.00**
	Minimum	0.00	0.00	50.00
	Maximum	200.00	200.00	120.00
Lost gear	Standard error	19.5	18.0	51.0
	Mean	**87.90**	**77.90**	**110.00**
	Minimum	0.00	0.00	0.00
	Maximum	300.00	200.00	300.00
Total occasional maintenance costs	Standard error	30.3	34.7	64.1
	Mean	**156.70**	**144.30**	**184.00**
	Minimum	0.00	0.00	50.00
	Maximum	500.00	400.00	420.00

Note: Responses for primary and secondary gear trip types. Calculations take the standard error of the mean.

Table B-14. Trip costs for deep-water bottomfish in 2020.

Expenditure Type $ per Trip	Calculation [*n*]	Full Sample [15]	Tutuila [7]	Manu‘a Islands [8]
Boat fuel	Standard error	15.4	28.0	16.8
	Mean	**102.70**	**92.90**	**111.20**
	Minimum	30.00	30.00	40.00
	Maximum	200.00	200.00	200.00
Truck fuel	Standard error	4.5	6.2	6.5
	Mean	**32.20**	**27.50**	**36.20**
	Minimum	10.00	10.00	20.00
	Maximum	60.00	50.00	60.00

Expenditure Type $ per Trip	Calculation [*n*]	Full Sample [15]	Tutuila [7]	Manu‘a Islands [8]
Oil	Standard error	5.5	10.0	4.2
	Mean	**18.20**	**27.50**	**10.00**
	Minimum	0.00	0.00	0.00
	Maximum	60.00	60.00	30.00
Ice	Standard error	8.2	6.0	15.0
	Mean	**35.70**	**37.90**	**33.80**
	Minimum	0.00	20.00	0.00
	Maximum	100.00	60.00	100.00
Bait	Standard error	6.2	7.1	9.8
	Mean	**14.00**	**7.10**	**20.00**
	Minimum	0.00	0.00	0.00
	Maximum	60.00	50.00	60.00
Food and beverage	Standard error	7.4	5.9	10.7
	Mean	**55.30**	**38.60**	**70.00**
	Minimum	10.00	10.00	20.00
	Maximum	100.00	50.00	100.00
Total trip cost	Standard error	25.7	35.0	37.4
	Mean	**258.10**	**231.50**	**281.20**
	Minimum	50.00	70.00	80.00
	Maximum	580.00	470.00	550.00

Note: Responses for primary and secondary gear trip types. Calculations take the standard error of the mean.

Table B-15. Occasional maintenance costs for deep-water bottomfish in 2020.

Expenditure Type $ per Trip	Calculation [*n*]	Full Sample [15]	Tutuila [7]	Manu‘a Islands [8]
Daily maintenance & repair	Standard error	13.0	14.1	18.8
	Mean	**48.00**	**24.30**	**68.80**
	Minimum	0.00	0.00	0.00
	Maximum	150.00	100.00	150.00
Lost gear	Standard error	14.0	15.5	21.3
	Mean	**62.00**	**41.40**	**80.00**
	Minimum	0.00	0.00	0.00
	Maximum	200.00	100.00	200.00
Total occasional maintenance costs	Standard error	24.0	27.9	33.3
	Mean	**110.00**	**65.70**	**148.80**
	Minimum	0.00	0.00	0.00
	Maximum	350.00	200.00	350.00

Note: Responses for primary and secondary gear trip types. Calculations take the standard error of the mean.

Table B-16. Trip costs for near-shore/shallow bottomfish in 2020.

Expenditure Type $ per Trip	Calculation [*n*]	Full Sample [17]	Tutuila [13]	Manu'a Islands [4]
Boat fuel	Standard error	8.6	9.5	16.0
	Mean	**29.60**	**22.50**	**52.50**
	Minimum	0.00	0.00	30.00
	Maximum	120.00	120.00	100.00
Truck fuel	Standard error	2.8	2.8	5.0
	Mean	**14.40**	**11.20**	**25.00**
	Minimum	0.00	0.00	20.00
	Maximum	40.00	30.00	40.00
Oil	Standard error	2.2	2.7	2.9
	Mean	**5.30**	**5.40**	**5.00**
	Minimum	0.00	0.00	0.00
	Maximum	30.00	30.00	10.00
Ice	Standard error	4.3	2.1	18.0
	Mean	**18.20**	**15.40**	**27.50**
	Minimum	0.00	5.00	0.00
	Maximum	80.00	30.00	80.00
Bait	Standard error	2.8	3.5	5.0
	Mean	**4.10**	**3.80**	**5.00**
	Minimum	0.00	0.00	0.00
	Maximum	45.00	45.00	20.00
Food and beverage	Standard error	8.9	6.8	17.0
	Mean	**27.60**	**13.80**	**72.50**
	Minimum	0.00	0.00	30.00
	Maximum	100.00	80.00	100.00
Total trip cost	Standard error	23.0	23.6	36.4
	Mean	**99.20**	**72.10**	**187.50**
	Minimum	0.00	5.00	80.00
	Maximum	415.00	335.00	350.00

Note: Responses for primary and secondary gear trip types. Calculations take the standard error of the mean.

Table B-17. Occasional maintenance costs for near-shore/shallow bottomfish in 2020.

Expenditure Type $ per Trip	Calculation [*n*]	Full Sample [17]	Tutuila [13]	Manu'a Islands [4]
Daily maintenance & repair	Standard error	58.4	76.7	21.6
	Mean	**70.60**	**80.00**	**40.00**
	Minimum	0.00	0.00	0.00
	Maximum	1,000.00	1,000.00	100.00
Lost gear	Standard error	91.2	119.8	21.7
	Mean	**103.80**	**122.70**	**42.50**

Expenditure Type $ per Trip	Calculation [*n*]	Full Sample [17]	Tutuila [13]	Manu‘a Islands [4]
	Minimum	0.00	0.00	0.00
	Maximum	1,560.00	1,560.0	100.00
Total occasional maintenance costs	Standard error	149.6	196.5	42.1
	Mean	**174.40**	**202.70**	**82.50**
	Minimum	0.00	0.00	0.00
	Maximum	2,560.00	2,560.0	200.00

Note: Responses for primary and secondary gear trip types. Calculations take the standard error of the mean.

Table B-18. Trip costs for spearfishing in 2020.

Expenditure Type $ per Trip	Calculation [*n*]	Full Sample [8]
Boat fuel	Standard error	4.3
	Mean	**9.40**
	Minimum	0.00
	Maximum	30.00
Truck fuel	Standard error	3.8
	Mean	**13.10**
	Minimum	0.00
	Maximum	25.00
Oil	Standard error	1.6
	Mean	**1.60**
	Minimum	0.00
	Maximum	12.50
Ice	Standard error	2.0
	Mean	**18.10**
	Minimum	12.50
	Maximum	25.00
Bait	Standard error	0.0
	Mean	**0.00**
	Minimum	0.00
	Maximum	0.00
Food and beverage	Standard error	2.0
	Mean	**5.60**
	Minimum	0.00
	Maximum	15.00
Total trip cost	Standard error	7.4
	Mean	**47.80**
	Minimum	12.50
	Maximum	107.50

Note: Responses for primary and secondary gear trip types. Calculations take the standard error of the mean.

Table B-19. Occasional maintenance costs for spearfishing in 2020.

Expenditure Type $ per Trip	Calculation [*n*]	Full Sample [8]
Daily maintenance & repair	Standard error	0.0
	Mean	**0.00**
	Minimum	0.00
	Maximum	0.00
Lost gear	Standard error	6.2
	Mean	**7.50**
	Minimum	0.00
	Maximum	50.00
Total occasional maintenance costs	Standard error	6.2
	Mean	**7.50**
	Minimum	0.00
	Maximum	50.00

Note: Responses for primary and secondary gear trip types. Calculations take the standard error of the mean.

Table B-20. Annual fishing expenditures in 2020 (including zero expenditure responses).

Expenditure Type	% of Fleet with Expenditure	Calculation ($)	Full Sample [15]	Tutuila [6]	Manu‘a Islands [9]
Boat insurance	0.0	Standard error	0.0	0.0	0.0
		Mean	**0.00**	**0.00**	**0.00**
		Minimum	0.00	0.00	0.00
		Maximum	0.00	0.00	0.00
Loan payments	6.1	Standard error	*	0.0	*
		Mean	*	**0.00**	*
		Minimum	*	0.00	*
		Maximum	*	0.00	*
Mooring fees	0.0	Standard error	0.0	0.0	0.0
		Mean	**0.00**	**0.00**	**0.00**
		Minimum	0.00	0.00	0.00
		Maximum	0.00	0.00	0.00
Gear replacement/ repair from wear and tear	42.2	Standard error	281.4	577.4	302.2
		Mean	**1,426.70**	**1,500.00**	**1,377.80**
		Minimum	0.00	0.00	400.00
		Maximum	3,500.00	3,500.00	3,000.00
Annual boat and trailer repair, maintenance, and improvements	42.2	Standard error	1,404.3	3,285.6	779.9
		Mean	**3,360.00**	**5,516.70**	**1,922.20**
		Minimum	0.00	0.00	100.00
		Maximum	20,000.00	20,000.00	6,000.00
Fees	27.3	Standard error	21.0	29.1	24.2

Expenditure Type	% of Fleet with Expenditure	Calculation ($)	Full Sample [15]	Tutuila [6]	Manu‘a Islands [9]
		Mean	**77.60**	**127.30**	**44.40**
		Minimum	0.00	14.00	0.00
		Maximum	200.00	200.00	200.00
Financial service	6.1	Standard error	*	0.0	*
		Mean	*	**0.00**	*
		Minimum	*	0.00	*
		Maximum	*	0.00	*
Other	0.0	Standard error	0.0	0.0	0.0
		Mean	**0.00**	**0.00**	**0.00**
		Minimum	0.00	0.00	0.00
		Maximum	0.00	0.00	0.00
Annual fishing expenditures in 2020	45.4	Standard error	1,811.8	3,845.1	1,766.4
		Mean	**5,691.00**	**7,144.00**	**4,722.20**
		Minimum	0.00	14.00	500.00
		Maximum	29,900.00	23,700.00	15,400.00

Note: Calculations take the standard error of the mean. *Marks confidential data, with less than 3 survey responses.

Table B-21. Annual fishing expenditures in 2020 (excluding zero expenditure responses).

Expenditure Type	Calculation	Full Sample [15]	Tutuila [6]	Manu‘a Islands [9]
Boat insurance	Standard error	0.0	0.0	0.0
	Mean	**0.00**	**0.00**	**0.00**
	Minimum	0.00	0.00	0.00
	Maximum	0.00	0.00	0.00
Loan payments	Standard error	*	0.0	*
	Mean	*	**0.00**	*
	Minimum	*	0.00	*
	Maximum	*	0.00	*
Mooring fees	Standard error	0.0	0.0	0.0
	Mean	**0.00**	**0.00**	**0.00**
	Minimum	0.00	0.00	0.00
	Maximum	0.00	0.00	0.00
Gear replacement/ repair from wear and tear	Standard error	281.8	604.2	302.2
	Mean	**1,528.60**	**1,800.00**	**1,377.80**
	Minimum	400.00	500.00	400.00
	Maximum	3,500.00	3,500.00	3,000.00
Annual boat and trailer repair, maintenance, and improvements	Standard error	1,486.3	3,790.3	779.9
	Mean	**3,600.00**	**6,620.00**	**1,922.20**
	Minimum	100.00	200.00	100.00
	Maximum	20,000.00	20,000.00	6,000.00
Fees	Standard error	21.1	29.1	33.3

Appendix C Comments from Fishers

This appendix presents all open-ended responses from our survey. Approximately 82% (n = 33) of respondents provided suggestions or comments. We organized their responses by question and topic, noting the number of comments for each [n]. Some comments were split for organizational purposes (noted by "…"). However, comments were not edited for content, and no individual comment is repeated.

Why do you feel there will be more or less people fishing in the next year? [n = 25] (Appendix A, question 42)

More fishing

COVID-19:

- *There will be no pandemic curfew 6am - 6pm like last year 2021.*
- *End of the pandemic, more people will be coming home, and fishing will be the issue!*
- *COVID restrictions lifted.*
- *No COVID-19 curfew / less lockdown restrictions.*
- *Not much COVID restrictions.*
- *Because there won't be as much COVID-19 restrictions like 2020.*

Culture:

- *It's the way of life here in Manu'a.*
- *It's culture.*
- *It's a traditional practice for all fisherman, old and young people.*
- *Most of the people like to go fishing.*
- *It's our way of life here in Manu'a…*
- *Fishing is our way of life. Important to the people and Fa'a Samoa.*
- *Samoan people always want fresh fish.*
- *Fish is loved by all Samoan people.*

Food Security:

- *People are hungry, love to go fishing, sick of eating frozen food, etc.*
- *…Imported foods very expensive.*

Fishing Activity:

- *I just know more people will be out fishing.*
- *I always feel this way about fishing.*
- *Expand fishing grounds.*

Less fishing

Fishing Activity:

- *Hard to get crew for trolling.*
- *Because there is too much commercial fishing and too little recreational fishing. Areas are being closed off due to excessive pressure on fish stocks due to commercial*

longliners able to fish close to the island. Federal bureaucrats. Closing off areas they know little about.
- *Shift in society, younger generation not keen.*
- *Hardly anyone fishing.*
- *Bottomfish closure.*

Population:
- *Many residents leave and don't come back.*
- *Fewer people living in Manu'a.*

"Do you have any suggestions for how American Samoa's fisheries should be managed or topics that you feel need further study?" [*n* = 20] (Appendix A, question 47)

Community-Based Management:
- *Get the fono and the government involved.*
- *Improve on getting input from the people, let the villages decide on how to manage their own resources.*
- *Let A.S. fisheries be governed by American Samoa and not federal bureaucrats that know very little about this place.*
- *Local voice needs to be heard more with the emphasis of a stronger local government management.*
- *Should be managed by local government.*

Current Regulations and Enforcement:
- *Get commercial longliners to fish farther away from the islands of Manu'a.*
- *Longline fishing upgrade, hold space increase.*

Data Collection:
- *Collect data.*
- *Better data collection.*
- *Best data input for next stock assessment.*
- *Need better data collection…*

Fishery Closures:
- *Yes. The government (federal) wants to limit our fishing of bottomfish because of overfishing. There is no overfishing! Plenty of fish here in Manu'a.*
- *My suggestion is for commercial longliner vessels in LVPA be extended to 100 miles from shoreline. Some times large vessels come and fish to close to my island.*
- *End federal ban on fishing.*
- *No suggestions. I am against federal closure of bottomfish fishery.*
- *Please, do not close bottomfish fishery. It is not right to deny livlihood and cultural practices.*
- *Do not close fishery over bad data. Plenty of fish to catch.*

Infrastructure Needs:

- *No proper docks here. Not good and very unsafe.*
- *We need improvements to Ta'u wharf. Small fishing boats must have safe and secure docks. Currently alia must tie up together. High risk for damage to alia. Difficult to access alia safely. Proper docks would make fishing community very happy, more alia could be added.*
- *Maintain Docks/wharves. Install more boat ramps - proper ramps (some ramps aren't long enough and just drop off/not deep enough).*
- *… [need] assistance for better facilities (ie docks, ice supplies, etc).*

"How have you changed your fishing activities due to COVID-19? For example, were any of your survey responses different than they would have been in a normal year?" [*n* = 6] (Appendix A, question 48)

- *Less travel.*
- *Less fishing; stores closed.*
- *Yes - not as many trips - selective on who to go with.*
- *Yes, schedule more fishing trips. No more curfew or closure.*
- *Yes. Less tourism due to COVID 19 means less charters + less fishermen. Less fish in close due to longliners in close.*

"What are the main reasons you made those changes?" [*n* = 7] (Appendix A, question 49)

- *As a crew member I wait for the vessel to go out and wait to be asked to join.*
- *To avoid going to Pago more often.*
- *Avoid getting COVID-19.*
- *Because of COVID restrictions/lockdown.*
- *It was the law under emergency order.*
- *Government restrictions.*
- *Sanity.*