WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

PRELIMINARY DRAFT

Annual Catch Limits for the Bottomfish Management Unit Species in American Samoa for Fishing Year 2021 to 2022

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Table of Contents

1 Introduction 4
1.1 Background 4
1.1.1 Overview of the ACL Implementation Process 6
1.2 Purpose and Need 8
1.3 Best Scientific Information Available 8
1.4 Task for the Council 9
2 Summary of Bottomfish Fishery Information 10
2.1 American Samoa Bottomfish MUS 10
2.1.1 Estimation of OFL 10
2.1.2 Stock Status 11
2.2 ACL Alternatives for Bottomfish MUS 12
2.2.1 Features Common to All Alternatives 12
2.2.2 Alternative 1: No Action – Do not specify an ACL 13
2.2.3 Alternative 2: Set the ACL at 5,000 lb for 2021 and 2,000 lb for 2022 14
2.2.4 Alternative 3: Set the ACL at 2,000 lb for both 2021 and 2022 17
2.2.5 Alternative 4: Establish a Temporary Prohibition on Bottomfish Fishing in Federal waters around American Samoa 19
2.3 Comparison of Features of the Alternatives 21
3 References 24

Table of Tables

Table 1. List of bottomfish species in American Samoa that remain bottomfish management unit species (BMUS) and those that were reclassified as ecosystem component species (ECS) on February 8, 2019 (84 FR 2767) 5
Table 2. American Samoa BMUS probabilities of overfishing in fishing years 2020-2025. 10
Table 3. Stock assessment parameters for the American Samoa BMUS complex in 2017 11
Table 4. Annual estimated BMUS catch (lb) in American Samoa from 2000 to 2019. 12
Table 5. Comparison of bottomfish catches to annual catch limits (ACLs). ACLs were not specified in 2018 and 2019. All ACL and catch values are in lb 14
Table 6. Probability of Overfishing and ACL (in pounds) for fishing years 2021 to 2022 using the phased-in approach. 15

Table 7. Comparison of the proposed fishery management features and expected outcomes of the alternatives. 21

Table of Figures

Figure 1. General relationship between OFL, ABC, ACL and ACT. 8
Figure 2. Kobe plot of relative biomass and relative exploitation rate from the best fitting production model for American Samoa from 1982 to 2017. 11
Figure 3. Cumulative monthly catch of American Samoa BMUS from 2016 to 2018 compared to the proposed ACLs for Alternative 2 for fishing years 2021 and 2022. 17
Figure 4. Cumulative monthly catch of American Samoa BMUS from 2016 to 2018 compared to the proposed ACL for Alternative 3 for fishing years 2021 to 2022. 19

1 Introduction

1.1 Background

The National Marine Fisheries Service (NMFS) and the Western Pacific Fishery Management Council (Council) manage fisheries for bottomfish in the U.S. Exclusive Economic Zone (EEZ), generally 3–200 nautical miles (nm) around the U.S. Pacific Islands, through one of four Fishery Ecosystem Plans (FEP) authorized by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). Three of the FEP are archipelagic-based, including the FEP for the American Samoa Archipelago, the FEP for the Hawaiian Archipelago, and the FEP for the Mariana Archipelago (which applies to Federal waters around Guam and the Commonwealth of the Northern Mariana Islands (CNMI)). In each archipelago, bottomfish fisheries harvest an assemblage, or complex, of species that includes emperors, snappers, groupers, and jacks. NMFS manages Hawaii and Mariana bottomfish fisheries through separate management actions, so this document will focus solely on American Samoa bottomfish fisheries.

The fourth FEP covers Federal waters of the U.S. Pacific Remote Island Areas (PRIA), which includes Palmyra Atoll, Kingman Reef, Jarvis Island, Baker Island, Howland Island, Johnston Atoll, and Wake Island. On January 6, 2009, the President issued Presidential Proclamation 8336 establishing the Pacific Remote Islands Marine National Monument (Monument). This proclamation prohibited commercial fishing within the Monument. NMFS implemented regulations to codify this prohibition on June 3, 2013 (78 FR 32996). The President further expanded the Monument's boundaries by proclamation on September 25, 2014 and prohibited commercial fishing within the expanded boundaries (Presidential Proclamation 9173). NMFS implemented regulations to codify this change on March 25, 2015 (80 FR 15693). These actions eliminated commercial bottomfish fishing in these areas. Therefore, NMFS does not permit commercial fishing for bottomfish in the PRIA, and this document will not focus on fishing around the PRIA.

Under all Pacific Island FEPs, Federal regulations require NMFS to set an annual catch limit (ACL) and implement accountability measures (AM) for each bottomfish stock and stock complex, as recommended by the Council, and in consideration of the best available scientific, commercial, and other information about the fishery for that stock or stock complex.

The Bottomfish Management Unit Species (BMUS) list was revised by a NMFS rule published on February 8, 2019 (84 FR 2767) that reclassified certain bottomfish species as ecosystem component species (ECS), which left 11 species as BMUS in American Samoa. Thus, the ACLs and AMs for 2021 and 2022 evaluated in this document apply to the 11 remaining bottomfish species, consistent with Council's recommendations.

Table 1. List of bottomfish species in American Samoa that remain bottomfish management unit species (BMUS) and those that were reclassified as ecosystem component species (ECS) on February 8, 2019 (84 FR 2767).

Scientific Name	Common Name(s)	Family	Designation
Aphareus rutilans	Red snapper, silvermouth, lehi	Lutjanidae	BMUS
Aprion virescens	Gray snapper, jobfish	Lutjanidae	BMUS
Caranx ignobilis	Giant trevally	Carangidae	ECS
Caranx lugubris	Black trevally, jack	Carangidae	BMUS
Epinephelus fasciatus	Blacktip grouper	Serranidae	ECS
Etelis carbunculus	Red snapper, ehu	Lutjanidae	BMUS
Etelis coruscans	Red snapper, onaga	Lutjanidae	BMUS
Lethrinus amboinensis	Ambon emperor	Lethrinidae	ECS
Lethrinus rubrioperculatus	Redgill emperor	Lethrinidae	BMUS
Lutjanus kasmira	Blueline snapper	Lutjanidae	BMUS
Pristipomoides auricilla	Yellowtail kalikali	Lutjanidae	ECS
Pristipomoides filamentosus	Pink snapper, paka	Lutjanidae	BMUS
Pristipomoides flavipinnis	Yelloweye snapper	Lutjanidae	BMUS
Pristipomoides sieboldii	Pink snapper, kalekale	Lutjanidae	ECS
Pristipomoides zonatus	Flower snapper, gindai	Lutjanidae	BMUS
Seriola dumerili	Amberjack	Carangidae	ECS
Variola louti	Lunartail grouper, lyretail grouper	Serranidae	BMUS

Recent ACLs and recommendations for Pacific Island bottomfish fisheries

On August 31, 2015 (80 FR 52415), NMFS specified the 2015 ACLs in American Samoa at 101,000 lb.

The 2016 ACLs for bottomfish in the Pacific Island territories were specified on April 21, 2017 (82 FR 18716). The 2016 ACLs were based on new estimates of maximum sustainable yield in a 2016 stock assessment (Yau et al. 2016) as follows: American Samoa bottomfish ACL = 106,000 lb.

The 2017 ACLs for bottomfish in the Pacific Island territories were specified on December 11, 2017 (82 FR 58129). The 2017 ACLs were based on estimates of maximum sustainable yield in the 2016 stock assessment and were identical to the 2016 ACLs: American Samoa bottomfish ACL = 106,000 lb

The Council did not recommend and NMFS did not implement ACLs for American Samoa bottomfish for 2018. This is because the Council and NMFS developed an amendment to reclassify certain Pacific Island MUS as ECS in 2018 to prioritize conservation and management efforts and improve fishery management in the region.

In October 2018 at the 174th meeting, the Council recommended ACLs for bottomfish for 2019 identical to the ACLs implemented in 2017. The rule to reclassify species had not been finalized at the time of the ACL recommendation, and the available science on which to base the ACLs was the 2016 stock assessment for the original 17 BMUS. On February 8, 2019, NMFS published a final rule (84 FR 2767) to reclassify certain bottomfish in the American Samoa, Hawaii, and Mariana FEPs as ECS. Therefore, the ACL and catch monitoring for 2019 applied to the bottomfish complex as the group of 17 species as it existed at the time the Council made the recommendation for 2019. However, due to the publication of the new stock assessment in 2019 (see below), NMFS did not pursue implementing the ACL for 2019.

In October 2019 at the 180th Council meeting, the NMFS Pacific Islands Fisheries Science Center (PIFSC) presented a stock assessment for the revised BMUS complex in American Samoa, Guam, and the CNMI. This assessment included catch projections and associated risks of overfishing beginning in 2020. The results of the assessment indicated that the BMUS stock in American Samoa is overfished and experiencing overfishing. Thus, the Council is required to end overfishing immediately, which requires the Council's Scientific and Statistical Committee (SSC) to set an acceptable biological catch (ABC) and the Council to consider the SSC's recommendation in recommending an ACL to meet this Magnuson-Stevens Act and NS1 requirement.

1.1.1 *Overview of the ACL Implementation Process*

In accordance with the Magnuson-Stevens Act and the FEPs, there are three required elements in the development of an ACL. The first requires the Council's SSC to calculate an ABC that is set at or below the stock or stock complex's overfishing limit (OFL). The OFL is an estimate of the catch level above which overfishing occurs and corresponds with the maximum fishing mortality threshold (MFMT). NMFS defines an ABC as the level of catch that accounts for the scientific uncertainty in the estimate of OFL and other sources. To determine the appropriate ABC, the ACL mechanism described in the FEPs includes a five-tiered system of control rules that allows consideration of different levels of scientific information. Tiers 1 and 2 involve data-rich to data-moderate situations and include levels of scientific uncertainty derived from model-based stock assessments. Tiers 3 to 5 involve data-poor situations and include levels of scientific uncertainty derived from ad-hoc procedures, including simulation models or expert opinion.

When calculating an ABC for a stock or stock complex, the SSC first evaluates the information available for the stock and designates the stock or stock complex into one of the five tiers. The SSC then applies the control rule assigned to that tier to determine ABC. For stocks or stock complexes like bottomfish with estimates of maximum sustainable yield (MSY) and other MSY-based reference points derived from statistically-based stock assessment models (Tier 1 to 3 quality data), the SSC calculates ABC based on an ABC control rule that accounts for scientific uncertainty in the estimate of the OFL and the acceptable level of risk (as determined by the

Council) for catch equal to the ABC that would result in overfishing. The ABC represents the maximum value for which the probability of overfishing (P*) is less than 50 percent. In accordance with Federal regulations, the probability of overfishing cannot exceed 50 percent (74 FR 3178, January 9, 2011). Each FEP includes a qualitative process by which the P* value may be reduced below 50 percent by the Council based on consideration of four dimensions of information, including assessment information, uncertainty characterization, stock status, and stock productivity and susceptibility. The FEPs also allow the SSC to recommend an ABC that differs from the results of the ABC control rule calculation based on factors such as data uncertainty, recruitment variability, declining trends in population variables, and other factors determined relevant by the SSC. However, the SSC must explain its rationale.

The second element requires the Council to determine an ACL not exceeding the SSC-recommended ABC. The process includes methods by which the Council's ACL may reduce the ABC based on social, economic, and ecological considerations, or management uncertainty[1] (SEEM). An ACL set below the ABC reduces the probability that actual catch would exceed the OFL and result in overfishing.

Finally, the ACL process may include two types of AMs: in-season AMs and post-season AMs. In-season AMs are intended to prevent an ACL from being exceeded and may include, but are not limited to closing the fishery, closing specific areas, changing bag limits, or other methods to reduce catch. The Council may also recommend an annual catch target (ACT) as an AM so that fisheries do not exceed an ACL. An ACT is the management target of the fishery to account for management uncertainty in controlling the actual catch at or below the ACL. An ACT might be included as a management measure where an in-season fishery closure could not be implemented. A post-season AM which typically involves a downward adjustment to an ACL in the following year if a fishery exceeds the ACL in the preceding year.

If, in a given year, the Council were to determine that landings exceeded an ACL, the Council may recommend that NMFS reduce the ACL in the subsequent fishing year by the amount of the overage. By regulation, in deciding whether to recommend an overage adjustment, the Council would consider the magnitude of the overage and its impact on the affected stock's status. Additionally, if a fishery exceeds an ACL more than once in a four-year period, the Council is required to re-evaluate the ACL process and adjust the system, as necessary, to improve its performance and effectiveness.

Figure 1 illustrates the relationship between the terms used in this section.

[1] Management uncertainty occurs because of the lack of sufficient information about catch (e.g., late reporting, under reporting, and misreporting of landings).

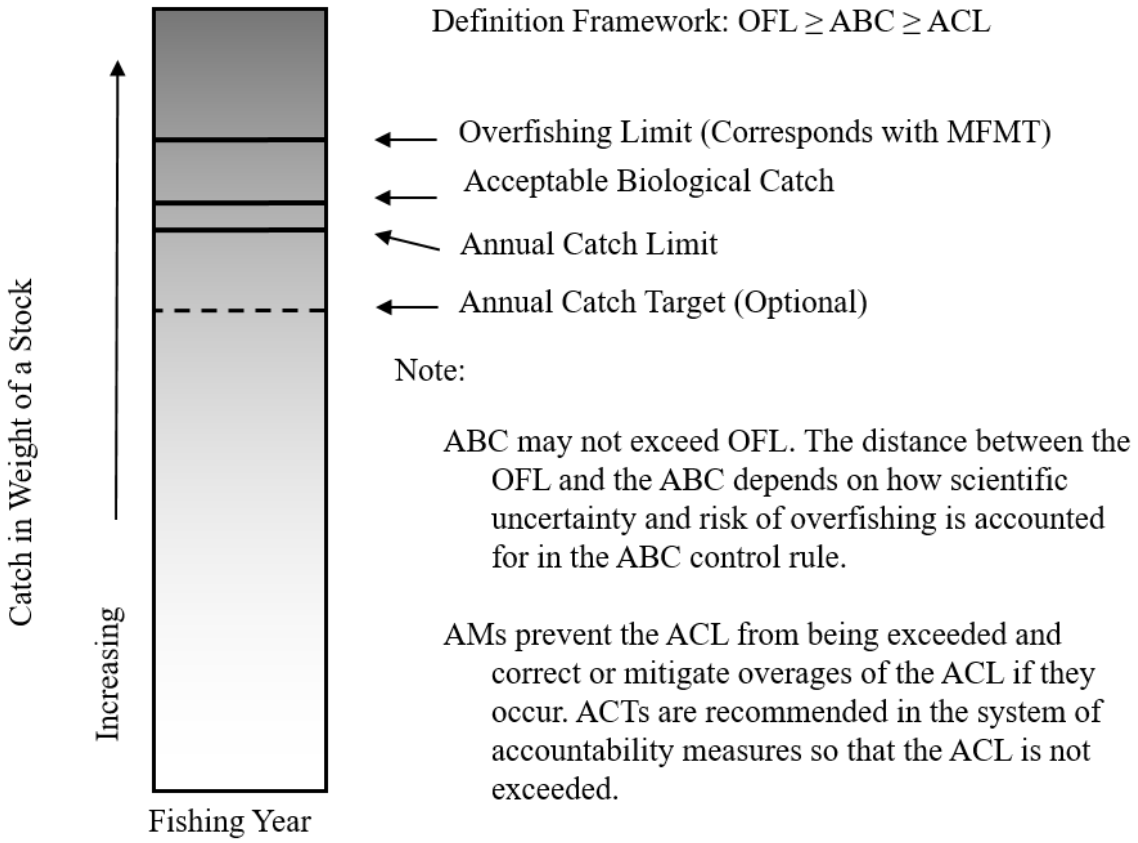

Figure 1. General relationship between OFL, ABC, ACL and ACT.

For more details on the specific elements of the ACL implementation mechanism and process, see Amendment 1 to the PRIA FEP, Amendment 2 to the FEP for the American Samoa Archipelago, Amendment 2 to the FEP for the Mariana Archipelago, Amendment 3 to the FEP for the Hawaii Archipelago, and the final implementing regulations at 50 CFR 665.4 (76 FR 37286, June 27, 2011).

1.2 Purpose and Need

The purpose of the action is to comply with the requirements of the Magnuson-Stevens Act, the provisions of the American Samoa FEP, and implementing regulations that require NMFS to set ACLs and AMs for Pacific Island bottomfish fisheries based on Council recommendations. The need for this action is to provide management oversight, prevent overfishing, and provide for long-term sustainability of the fishery resources while allowing fishery participants to continue to benefit from their utilization.

1.3 Best Scientific Information Available

In August 2019, NMFS PIFSC completed a benchmark stock assessment for bottomfish in American Samoa, Guam, and the CNMI (Langseth et al. 2019). The assessments used a state-space Bayesian surplus production model within the modeling framework Just Another Bayesian Biomass Assessment (JABBA). Estimates of harvest rate (H), annual biomass (B), the harvest

rate associated with overfishing as determined by the harvest control rule (H_{CR}), maximum sustainable yield (MSY), and the biomass at maximum sustainable yield (B_{MSY}) allowed for determination of stock status relative to reference points determining overfishing ($H/H_{CR} > 1$) and overfished ($B < 0.7 \times B_{MSY}$) status for the American Samoa bottomfish stock complex. Stock projections were conducted for 2020 to 2025 for a range of hypothetical six-year catches, and the corresponding risk of overfishing was calculated.

The 2019 benchmark assessment was reviewed by the Western Pacific Stock Assessment Review (WPSAR) Tier 1 panel on April 15-18, 2020. The panel found the assessment update adequate for management use (Martell, Powers, and Nielson 2019). The SSC, at its 134th meeting in October 15, 2019, received the WPSAR review reports and the peer-reviewed benchmark stock assessment. The SSC had concerns regarding the application of the assessment to the single BMUS complex and the quality of the data used in the assessment. The SSC also noted the improvements in the benchmark assessment compared to the 2015 assessment update. The SSC accepted the 2019 benchmark assessment as the best scientific information available for setting harvest limits for fishing years 2020 to 2022. The SSC also recommended that the Council direct staff to convene the P* and SEEM working group to quantify the uncertainties to set the ABC and specify the ACLs.

1.4 Task for the Council

Specifying the Annual Catch Limit

The Council task is to specify the ACL from the ABC recommended by the SSC for the bottomfish fishery in American Samoa for fishing years 2021 to 2022. The Council's ACL specification process allows for a maximum of four years to be set at once, but this specification spans two years since the Council's rebuilding plan for American Samoa BMUS will be subsequently implemented. The ACL specified by the Council should not exceed the SSC's ABC. The Council's ACL process is described in the FEPs and includes methods by which the ACL may be reduced from the ABC based on management uncertainties through a SEEM Uncertainty Analysis. In April 2020, due to the COVID pandemic, it was not possible to convene the SEEM Working Group after the P* Working Group met. The Government of American Samoa issued a stay-at-home order. Additionally, there was also not a sufficient level of catch to which the SEEM score could be applied that would allow for some catch to be harvested in the fishery. The American Samoa Advisory Panel suggested setting the ACL equal to the ABC. Setting the ACL equal to the ABC will provide the highest level of catch without the fishery being subject to overfishing while the stock is allowed to rebuild in relatively small increments. However, despite the maximum level of P* allowed based on the analysis, the fishery lands an order of magnitude higher than the harvest limits, which presents difficulties in managing this fishery without an effective accountability measure.

2 Summary of Bottomfish Fishery Information

2.1 American Samoa Bottomfish MUS

2.1.1 *Estimation of OFL*

According to the PIFSC 2019 bottomfish benchmark stock assessment (Langseth et al. 2019), the long-term MSY for American Samoa BMUS is estimated to be 28,800 lb (95%CI=16,400 – 55,900 lb). This is lower than the previous MSY estimate in the previous assessment update (Yau et al. 2016). Stock projection results, which assumed that a six-year catch limit would be harvested in its entirety each year, indicated that an ACL of 8,000 lb would result in a 50 percent probability of overfishing from 2020 to 2025 (Table 2). Also, an ACL of 5,000 lb is considered to be the OFL proxy for 2021 and 2022 (Table 2). As a reference, estimated average annual total catch during the period 2017 to 2019 was 12,614 lb with 11,093 lb landed in 2019, the most recent year for which complete catch data (i.e., total and commercial catch) are available (Table 4). The average catch and the 2019 catch estimate are above the OFL for 2021 to 2022 by 252 and 222 percent, respectively. There were two years in the time series (i.e., 2012 and 2013) where the catches were below the OFL since the implementation of ACLs in 2012.

The 5,000 lb of catch associated with the OFL projects a standing stock biomass of 105,400 lb and a harvest rate of 5 percent in 2022. The probability of the stock is overfished in 2022 under this OFL is 73 percent (see Table 19 in Langseth et al 2019).

Table 2. American Samoa BMUS probabilities of overfishing in fishing years 2020-2025.

Probability of overfishing (H/H_{CR}>1) in terminal year	2020	2021	2022	2023	2024	2025	Probability of overfishing (H/H_{CR}>1) in terminal year	2020	2021	2022	2023	2024	2025
0.01	0	0	0	0	0	0	0.26	1	1	1	1	2	2
0.02	0	0	0	0	0	0	0.27	1	1	1	1	2	2
0.03	0	0	0	0	0	0	0.28	1	1	1	2	2	2
0.04	0	0	0	0	0	0	0.29	1	1	1	2	2	2
0.05	0	0	0	0	0	0	0.30	1	1	2	2	2	3
0.06	0	0	0	0	0	0	0.31	1	1	2	2	2	3
0.07	0	0	0	0	0	0	0.32	1	1	2	2	3	3
0.08	0	0	0	0	0	0	0.33	1	2	2	2	3	3
0.09	0	0	0	0	0	0	0.34	1	2	2	3	3	3
0.10	0	0	0	0	0	0	0.35	1	2	2	3	3	4
0.11	0	0	0	0	0	0	0.36	1	2	2	3	3	4
0.12	0	0	0	0	0	0	0.37	2	2	3	3	4	4
0.13	0	0	0	0	0	0	0.38	2	2	3	3	4	4
0.14	0	0	0	0	0	0	0.39	2	2	3	3	4	4
0.15	0	0	0	0	0	0	0.40	2	3	3	4	4	5
0.16	0	0	0	0	0	0	0.41	2	3	3	4	4	5
0.17	0	0	0	0	0	1	0.42	2	3	3	4	5	5
0.18	0	0	0	0	1	1	0.43	2	3	4	4	5	6
0.19	0	0	0	0	1	1	0.44	3	3	4	5	5	6
0.20	0	0	0	1	1	1	0.45	3	3	4	5	6	6
0.21	0	0	1	1	1	1	0.46	3	4	4	5	6	6
0.22	0	0	1	1	1	1	0.47	3	4	5	5	6	7
0.23	0	0	1	1	1	1	0.48	3	4	5	6	6	7
0.24	0	1	1	1	1	2	0.49	3	4	5	6	7	7
0.25	0	1	1	1	1	2	0.50	4	5	5	6	7	8

Source: Langseth et al. (2019).

2.1.2 *Stock Status*

In 2017, the most recent year for which stock status information is available, H_{2017}/H_{CR} = 2.75 while B_{2017}/B_{MSY} = 0.38 (Langseth et al. 2019; Table 3). The production model results indicate that from 1982 through 2017, there were years were the stock was not overfished nor experiencing overfishing, several years where overfishing was occurring but the stock was not overfished, one year the fishery was overfished but not subject to overfishing, and in the terminal year of the analysis (2017), the stock is both overfished and experiencing overfishing (Figure 2).

Table 3. Stock assessment parameters for the American Samoa BMUS complex in 2017.

Param	Value	Notes	Status
MSY	28.8 ± 16.4-55.9	Expressed in 1,000 lb (95%CI)	
H_{2017}	0.15	Expressed in percentage	
H_{MSY}	0.107 ± 0.044-0.228	Expressed in percentage (95%CI)	
H/H_{CR}	2.75		Overfishing
B_{2017}	102.6	Expressed in 1,000 lb	
B_{MSY}	272.8 ± 120.8-687.4	Expressed in 1,000 lb (95%CI)	
B/B_{MSY}	0.38		Overfished

Source: Langseth et al. (2019).

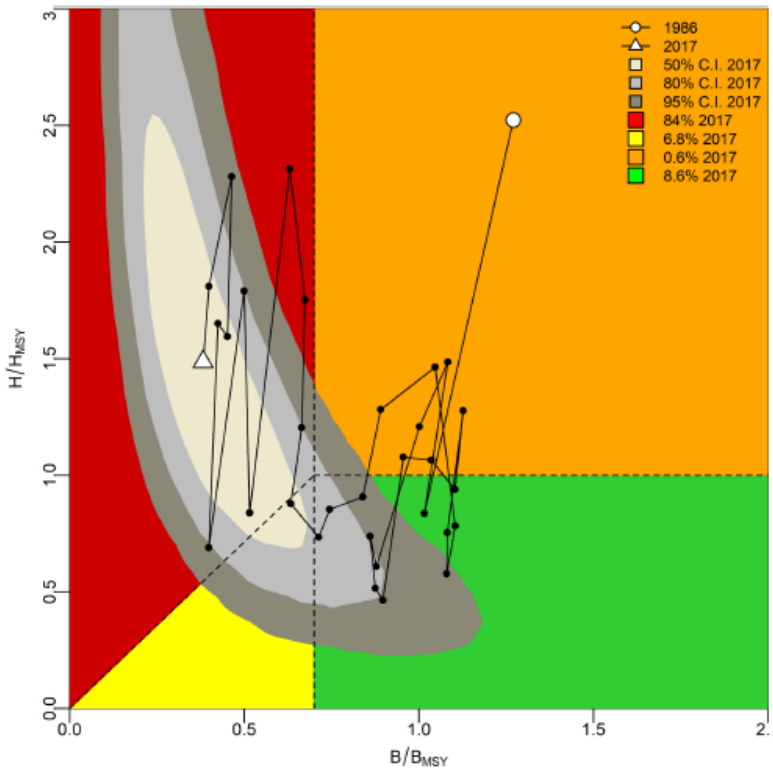

Figure 2. Kobe plot of relative biomass and relative exploitation rate from the best fitting production model for American Samoa from 1982 to 2017.
Source: Langseth et al. (2019).

In 2019, the most recent year for which annual estimated BMUS catch data are available, there was an estimated total catch of 11,093 lb from boat-based creel surveys and just 1,402 lb recorded from commercial purchase reports. The 2019 point estimate of catch is lower than the recent three-year average, and the estimated commercial catches for 2017 and 2019 are higher than the recent three-year average commercial catch (Table 4). The difference between the creel total and the commercial landings is assumed to be the non-commercial component of the catch. The average catch and the 2019 point estimate are above the OFL for 2021 and 2022. This exceedance in catch, if it were to continue, will not prevent overfishing from occurring.

Table 4. Annual estimated BMUS catch (lb) in American Samoa from 2000 to 2019.

Year	Estimated Total Catch (lb)	Estimated Commercial Catch (lb)
2000	*13,850	3,693
2001	*30,064	3,447
2002	*23,621	1,448
2003	*12,971	2,511
2004	*11,000	3,233
2005	*8,226	2,490
2006	3,051	2,203
2007	*10,913	4,001
2008	*22,095	3,171
2009	*34,388	3,035
2010	*7,044	1,084
2011	*14,083	711
2012	2,099	1,161
2013	*5,732	882
2014	*13,984	3,140
2015	*21,528	2,047
2016	*19,307	1,131
2017	*14,791	1,131
2018	*11,957	838
2019	*11,093	1,402
Three-year average (2017–2019)	**12,614**	**1,124**

Source: WPRFMC (2020).
* = Catch greater than OFL (5,000 lb) for 2021 and 2022.

2.2 ACL Alternatives for Bottomfish MUS

2.2.1 *Features Common to All Alternatives*

Each alternative assumes that all existing Federal and local resource management laws and regulations will continue, as will non-regulatory monitoring of catch by the American Samoa Department of Marine and Wildlife Resources (DMWR) with assistance from NMFS PIFSC's Western Pacific Fisheries Information Network (WPacFIN). These programs include boat-based

and shore-based creel survey programs. The Council has two years to prepare and implement an FMP, FMP amendment, or proposed regulations to rebuild an overfished stock. However, if overfishing is still occurring for that stock, the Council should immediately take appropriate steps to end overfishing (see Magnuson-Stevens Act section 304(e)(6) and implementing regulations at 50 C.F.R. § 600.310(j)(2)(i)).

No Federal permit is required to fish for BMUS in American Samoa, and there is no Federal reporting requirement. However, a commercial fishing license is required for all fishermen engaged in commercial fishing in the waters of American Samoa (American Samoa Administrative Code (ASAC) § 24.0981). In addition to the permit requirement, entities that sell seafood products are required to report sales on a monthly basis to the American Samoa DMWR (ASAC § 24.0906). DMWR reports commercial fishery sales information to NMFS through the WPacFIN system. Under all the alternatives, NMFS would work with WPacFIN and DMWR to encourage timely processing of data and would track catches towards any applicable limit as data are provided to NMFS.

A coordinated closure of Federal and territorial waters would improve the ability of management measures to limit catch to a designated catch limit, but American Samoa does not have regulations in place that provide for a complementary closure of bottomfish fishing in territorial waters if a Federal catch limit is reached. For that reason, the following environmental and fishery outcome analysis of the alternatives accounts for the action that NMFS can take within its regulatory authority. Each action alternative assumes that only Federal waters would be closed as an in-season AM.

2.2.2 *Alternative 1: No Action – Do not specify an ACL*

Under Alternative 1, the Council would not recommend an ACL for 2021 or 2022. Alternative 1 serves as the no-management action alternative. Since the fishery did not operate under an ACL for 2018 and 2019, this is also the "status quo" and environmental baseline alternative. Without ACLs, the fishery would not operate under catch limits, so AMs would not be needed.

The Council and NMFS are required to implement ACLs and AMs. The "no action" alternative would not be in compliance with the Magnuson-Stevens Act, the provisions of the FEP, or implementing Federal regulations. This alternative is included because it represents the no-management action alternative and is the recent fishery baseline. This alternative allows for a comparison of the effects of action alternatives to the environmental baseline.

Expected Fishery Outcome

Catches have not approached the ACLs in American Samoa since ACLs were first implemented in 2012 (Table 5). Because there has previously been no in-season closure, ACLs and associated management do not appear to constrain the fishery. Catches in 2018 and 2019 (when no ACLs or AMs were implemented) were similar to or less than the range of catches during other years when ACLs were implemented (Table 5). This catch history indicates the fishery has performed similarly regardless of whether ACLs and AMs are in place. We, therefore, expect that under Alternative 1, catches in 2021 and 2022 would continue to be similar to past years, all other

applicable fishing regulations would remain in place, and the fisheries would continue to be monitored. Without a catch limit, a race to fish, while possible without ACLs, is very unlikely. These fishery characteristics show that the lack of an ACL under Alternative 1 is not expected to impact the way fishery participants operate relative to recent years in the fishery.

Table 5. Comparison of bottomfish catches to annual catch limits (ACLs). ACLs were not specified in 2018 and 2019. All ACL and catch values are in lb.

Year	AS ACL	AS Catch
2012	99,000	2,099
2013	101,000	5,732
2014	101,000	13,984
2015	101,000	21,528
2016	106,000	19,307
2017	106,000	14,791
2018	No ACL	11,957
2019	No ACL	11,093

(Source: WPFMC 2020)

2.2.3 *Alternative 2: Set the ACL at 5,000 lb for 2021 and 2,000 lb for 2022*

Under this alternative, the Council will be utilizing the best scientific information available (Langseth et al. 2019) in recommending the ACL for fishing years 2021 and 2022. The ACLs under this alternative are 5,000 lb for 2021 and 2,000 lb for 2022 (Table 6). The specification of an ACL of 5,000 lb for American Samoa BMUS in 2021 is equal to the OFL calculated for that year in the new stock assessment (Langseth et al. 2019, see Section 2.1.1). The 2022 ACL specification of 2,000 lb is consistent with the results of the P* Working Group that recommended a reduction score of 20 percent to allow the fishery to be managed at a 30 percent risk of overfishing (WPFMC 2020a) and utilized projection results from the stock assessment to determine this level of catch (Table 2). This specification spans two years instead of the usual four-year specifications by the Council because the rebuilding plan for American Samoa bottomfish will be implemented by 2022. An in-season AM would be implemented for the fishery in which NMFS would monitor catch throughout the year and close Federal waters to bottomfish fishing if the ACL is reached.

National Standard 1 guidelines at 50 CFR 600.310(f)(2)(ii) state that Council can develop ABC control rules that allow for changes in catch limits to be phased in over time. Large changes in catch limits due to new scientific information about the status of the stock can have negative short-term effects on a fishery and fishing communities, so National Standard 1 allows for the development of a control rule that phases in changes to the ABC over time (i.e., not to exceed three years) to reduce the immediate magnitude of the change as long as the resulting ACL does not exceed the ABC. The NMFS Technical Guidance on implementing phase-in also describes that the impact of phase-in on a stock rebuilding progress should be considered, as the overriding management goal for stocks in a rebuilding plan, such as American Samoa bottomfish, are to rebuild them the shortest time possible (Holland et al. 2020). For the American Samoa

bottomfish fishery, the new stock assessment resulted in an abrupt change to the stock status for BMUS, which will result in a drastically lower ACL; the application of a phase-in approach will allow for the immediate impacts of the reduced ACL on the fishing community to be lessened while still preventing overfishing. These ACL specifications will be applied for 2021 and 2022 and will be equal to the associated ABC in accordance with the recommendation by the American Samoa Advisory Panel (see Section 1.4).

The projected standing stock biomass of American Samoa BMUS under a catch level of 5,000 lb would be 95,800 lb in 2021 with a harvest rate of 5 percent. In 2022, a catch level of 2,000 lb is associated with a projected stock biomass of 112,700 lb with a harvest rate of 2 percent, though this assumes a similar catch level is harvested in 2021 as well (see Table 19 in Langseth et al. 2019). The catch level of 5,000 lb would prevent overfishing and allow the fishery to rebuild in relatively small increments (Table 2). The catch level of 2,000 lb determined by the Council's P* Working Group would prevent overfishing and allow for the fishery to rebuild in a shorter time frame (WPFMC 2020a; Table 2). However, this ACL would not promote the stock being rebuilt within 10 years in accordance with the Magnuson-Stevens Act Section 304(e) due to its overfished state.

Table 6. Probability of Overfishing and ACL (in pounds) for fishing years 2021 to 2022 using the phased-in approach.

Year	P* level	ACL (lb)
2021	50	5,000
2022	30	2,000

Under this alternative, the SEEM analysis for American Samoa BMUS will adopt comparable reasoning to the SEEM analysis for Guam BMUS because of the similarities in the circumstances where the projected catch is significantly decreased and the stock status is pessimistic (WPRFMC 2020b) to specify the ACL equal to the ABC set by the SSC. The SEEM analysis recognized the importance of the American Samoa bottomfish fishery socially, ecologically and economically and acknowledges the uncertainties surrounding the monitoring and management of the fishery. Regardless of what level of risk at which the ACL will be set, the difference provided by a buffer will not provide any conservation or management benefit since the average catch for the fishery will be an order of magnitude above the ACL, ABC, and OFL.

In each of the archipelagic areas, the fishing year begins January 1 and ends December 31. In accordance with 50 CFR 665.4, when NMFS projects that catches will reach an ACL for any stock or stock complex, the agency must restrict fishing for that stock or stock complex in the applicable U.S. EEZ to prevent catches from exceeding the ACL. The restriction may include, but is not limited to, closing the fishery, closing specific areas, or restricting effort (76 FR 37286, June 27, 2011).While an in-season restriction is difficult to implement for any territorial bottomfish fishery because catch statistics typically become available about six months after local management agencies collect the data, the Council recommends an in-season AM to close Federal waters when the ACL is exceeded to better prevent overfishing in the fishery. Additionally, if landings of any stock complex exceed the specified ACL in a fishing year, the

AM requires the Council to take action in accordance with 50 CFR 600.310(g) to correct the operational issue that caused the ACL overage. This may include a recommendation that NMFS implement a downward adjustment to the ACL in the subsequent fishing year, or other measures, as appropriate. As an additional performance measure specified in each FEP, if catches exceed any ACL more than once in a four-year period, the Council must re-evaluate the ACL process, and adjust the system, as necessary, to improve its performance and effectiveness. Future changes to an ACL would be subject to separate environmental review at such time as changes are proposed and are not part of the current proposed action.

Expected Fishery Outcome

Under Alternative 2, fishing for American Samoa BMUS would be subject to an ACL of 5,000 lb for the fishing year 2021 and 2,000 lb for fishing year 2022. The fishery has landed above the levels specified in each of the past 10 years except for 2012, which had 2,099 lb of estimated catch (Table 4). Fishery operations have fluctuated over the past eight years since ACLs were first implemented. The average annual catch from 2017 to 2019 was 12,614 lb, which is higher than both proposed ACLs.

Given the current state of American Samoa's bottomfish fleet, it is highly likely that total catch in 2021 and 2022 will exceed the ACLs described under this alternative. This will trigger the in-season AM and will cause the American Samoa bottomfish fishery to be closed in Federal waters. This will deny fishing access to the offshore banks for the majority of the year. Currently, the amount of fishing effort in the offshore banks is not well supported by available data. Aside from the offshore banks, the banks off the coast of Taputapu (west most tip of the island of Tutuila), which is a prime fishing ground for the villages of Amanave and Poloa (Will Sword, pers. comm), will be closed. The Interim Measure emergency rule (85 FR 56208, September 11, 2020) calculated that only 15 percent of the BMUS Essential Fish Habitat (EFH) is found in Federal waters and the majority of bottomfish EFH is found in territorial waters within 0-3 nm. The fishery is expected to continue operating in territorial waters since there is no mechanism to close the territorial waters to fishing complementary to a Federal closure.

Figure 3 shows the cumulative catch of American Samoa BMUS on a monthly basis from WPacFIN and demonstrates the variability of the data. For fishing year 2021, an ACL of 5,000 lb is expected to result in a closure of Federal waters by May after 5,400 lb of catch through April considering monthly averages from 2016 to 2018 (Figure 3). However, this level of catch may be reached as early as March (based on 2016 fishery performance) or as late as July (based on 2018 fishery performance). The Council and NMFS do not possess the spatial information or data to discern the amount of BMUS harvested in Federal versus territorial waters around American Samoa. However, if it is assumed that catch is proportional to the amount of bottomfish EFH in either Federal or territorial waters and 15 percent of bottomfish EFH around American Samoa occurs in Federal waters, a rough estimate can be made for the reduction in catch under an ACL of 5,000 lb. Using the recent average annua catch for the fishery of 12,614 lb, there would be 7,214 lb still expected to be caught after a Federal closure in May and 1,082 lb that may have been caught in Federal waters would not be harvested. Therefore, the total expected catch under an ACL of 5,000 lb would be 11,532 lb assuming fishing effort is not displaced to territorial

waters. Thus, this ACL would slightly reduce fishery catch, but adverse impacts to the American Samoa bottomfish stock will persist, overfishing will still occur, and rebuilding will be delayed.

For fishing year 2022, an ACL of 2,000 lb is expected to result in a closure of Federal waters by March after 2,224 lb of catch through February considering monthly averages from 2016 to 2018 (Figure 3). This level of catch may be reached as soon as January (based on 2017 fishery performance) or as late as March (based on 2018 fishery performance). Similar to the ACL for fishing year 2021, a simple calculation can be used to determine the estimated reduction in catch under an ACL of 2,000 lb. If the fishery continues harvesting as it has in recent years at an average of 12,614 lb, there would still be 10,390 lb expected to be harvested after the expected fishery closure. If fishing occurs proportional to where bottomfish EFH occurs, 1,559 lb that may have ordinarily been harvested in Federal waters would not be caught. Therefore, the total expected catch for fishing year 2022 under this alternative would be 11,055 lb assuming fishing effort is not displaced to territorial waters. Thus, this ACL would moderately reduce fishery catch, but adverse impacts to the American Samoa bottomfish stock will persist, overfishing will not be prevented, and rebuilding will be delayed for the fishery.

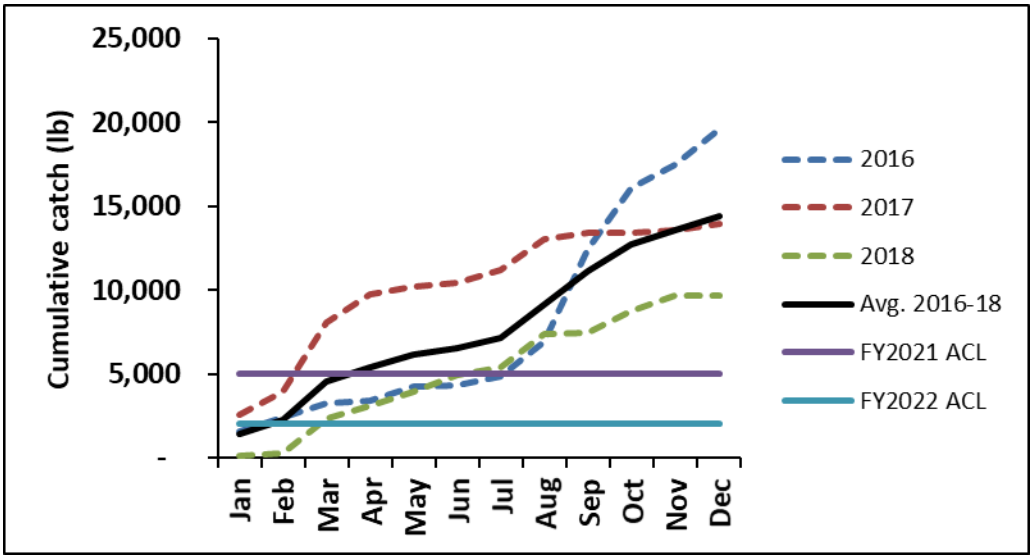

Figure 3. Cumulative monthly catch of American Samoa BMUS from 2016 to 2018 compared to the proposed ACLs for Alternative 2 for fishing years 2021 and 2022. (Source: WPacFIN).

2.2.4 *Alternative 3: Set the ACL at 2,000 lb for both 2021 and 2022*

Under Alternative 3, the Council will be utilizing the best scientific information available (Langseth et al. 2019) in recommending the ACL for fishing years 2021 and 2022. Similar to Alternative 2, the ACL will be set at a level consistent with the results of the P* Working Group (WPFMC 2020a) using projection results from the stock assessment (Table 2). However, under this alternative, the Council will apply the same ACL of 2,000 lb to both fishing years 2021 and 2022. This alternative provides a more precautionary approach to prevent overfishing and allow the rebuilding of the fishery in a shorter time frame. The projected standing stock biomass of American Samoa BMUS under a catch level of 2,000 lb would be 112,700 lb in 2022 with a

harvest rate of 2 percent (see Table 19 in Langseth et al. 2019). The catch level of 2,000 lb determined by the Council's P* Working Group would prevent overfishing and allow for the fishery to begin rebuilding from its overfished state. Under this alternative, similar to Alternative 2, the SEEM analysis for American Samoa BMUS will adopt comparable reasoning to the SEEM analysis for Guam BMUS to specify the ACL equal to the ABC set by the SSC. Also similar to Alternative 2 (see Section 2.2.2), this alternative would employ an in-season AM where Federal waters around American Samoa would be closed to bottomfish fishing if the ACB and resulting ACL are reached.

Expected Fishery Outcome

Under this alternative, the ACL will allow the fishery to be open for roughly two months before a closure of Federal waters to bottomfish fishing is implemented. This will deny fishing access to the offshore banks for the majority of the year. Currently, the amount of fishing effort in the offshore banks is not well supported by available data. Aside from the offshore banks, the banks off the coast of Taputapu (west most tip of the island of Tutuila), which is a prime fishing ground for the villages of Amanave and Poloa (Will Sword, pers. comm), will be closed. The Interim Measure emergency rule (85 FR 56208, September 11, 2020) calculated that only 15 percent of the BMUS Essential Fish Habitat (EFH) is found in Federal waters and the majority of bottomfish EFH is found within 0-3 nm. The fishery is expected to continue operating in territorial waters since there is no mechanism to close the territorial waters to fishing complementary to a Federal closure.

Figure 4 shows the same cumulative catch of BMUS from 2016 to 2018 as Figure 3 but compared to the proposed ACL of 2,000 lb for fishing years 2021 and 2022 under Alternative 3. This ACL is expected to result in a closure of Federal waters by March after 2,224 lb of catch through February considering monthly averages from 2016 to 2018 (Figure 4). This level of catch may be reached as soon as January (based on 2017 fishery performance) or as late as March (based on 2018 fishery performance). As described under Alternative 2, the Council does not have spatial information to determine the amount of BMUS caught in Federal waters or territorial waters, but the reduction in catch can be estimated with a simple calculation. It is assumed that bottomfish are caught proportional to the distribution of their EFH in Federal and territorial waters and the fishery will continue to harvest bottomfish as it has in recent years. If the average annual catch is 12,614 lb and a Federal closure occurs in March after 2,224 lb of catch, there would be another 10,390 lb ordinally caught in a given year after this time and 1,559 lb that might have been caught in Federal waters would not be caught in the fishery. Therefore, the total catch for this scenario would be 11,055 lb assuming no displacement of fishing effort to territorial waters, which is unlikely. Thus, there will still be adverse impacts to the American Samoa bottomfish fishery as it will continue to be subject to overfishing and rebuilding will be delayed.

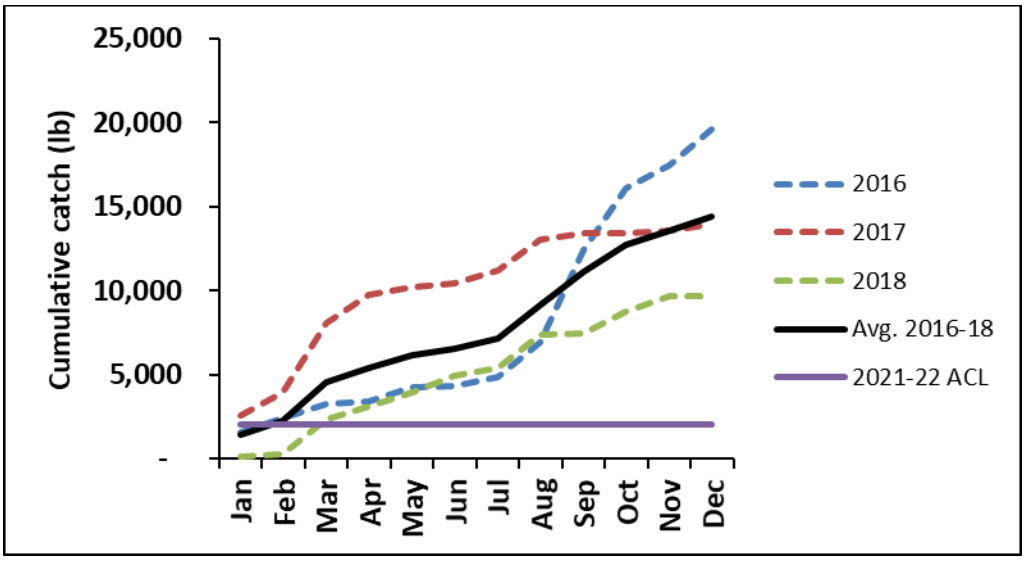

Figure 4. Cumulative monthly catch of American Samoa BMUS from 2016 to 2018 compared to the proposed ACL for Alternative 3 for fishing years 2021 to 2022. (Source: WPacFIN).

2.2.5 *Alternative 4: Establish a Temporary Prohibition on Bottomfish Fishing in Federal waters around American Samoa*

Under Alternative 4, the Council will not specify an ACL and will recommend a fishing prohibition for and possession of BMUS in Federal waters around American Samoa for the entirety of fishing years 2021 and 2022. This is equivalent to implementing a catch limit of 0 lb in Federal waters around American Samoa and is the maximum action the Council could consider to address overfishing of bottomfish and rebuilding the fishery. There would be no AM associated with this alternative because catch would not need to be checked against an ACL. All other applicable fishing regulations would remain in place and the bottomfish fishery would continue to be monitored by NMFS and the Council.

Expected fishery outcome

Under Alternative 4, catches in 2021 and 2022 are expected to be moderately less than Alternative 1 and slightly less than Alternatives 2 and 3; this is because the ACL for Alternatives 2 and 3 are relatively low and would only allow for a small number of fishing trips before the catch limit would be exceeded. Also, bottomfish fishing occurs predominantly in nearshore territorial waters, and it is not anticipated that the American Samoa government will implement a complementary closure of territorial waters alongside the Federal closure. For this reason, the fishery is expected to continue to catch BMUS in territorial waters the closure of Federal waters to bottomfish fishing.

As described under Alternatives 2 and 3, the Council does not have spatial information to determine the amount of BMUS caught in Federal waters or territorial waters, but only 15 percent of bottomfish EFH is located in Federal waters. Assuming that bottomfish are caught proportional to the distribution of their EFH in Federal and territorial waters and the fishery

continues to harvest bottomfish as it has in recent years, the recent average annual catch of 12,614 lb would be reduced by 15 percent (1,892 lb) to 10,722 lb with a closure of Federal waters; however, this also assumes that there would be no displacement of fishing effort to territorial waters, which is unlikely. Thus, this alternative will result in a moderate reduction in catch, but it is expected the American Samoa bottomfish stock will continue to be subject to overfishing and the delay the time for it to rebuild.

Under this alternative, revenue for commercial fishermen would also be reduced by 15 percent assuming fishing is proportional to bottomfish EFH and there is no displacement of fishing effort from Federal waters to territorial waters. Also, assuming the change in catch is similar for non-commercial fishing, Alternative 4 would also result in less catch available for subsistence, cultural and religious purposes than Alternatives 1, 2, and 3. A moratorium on bottomfish fishing in waters around American Samoa would fulfill requirements under the Magnuson-Stevens Act for the Council to take action to end overfishing and rebuild the fishery, but would not consider the needs of the American Samoa fishing community by constraining the fishery to the maximum possible extent.

2.3 Comparison of Features of the Alternatives

Table 7 presents a summary of features of the alternatives and allows a quick comparison among alternatives.

Table 7. Comparison of the proposed fishery management features and expected outcomes of the alternatives.

Topic	Alt. 1 - No Action/Status Quo	Alt. 2 – Recommend ACL of 5,000 lb for 2021 and 2,000 lb for 2022	Alt. 3 – Recommend ACL of 2,000 lb for 2021 and 2022	Alt. 4 – Closure of Fishery in Federal Waters
General characteristics of alternative	No ACL or AM.	ACL set to reduce overfishing and rebuild the fishery with different ACL in subsequent years; in-season fishery closure would be used as AM. Alt. 2 reduces adverse effects on fishing community during the period of effectiveness by having a higher ACL in 2021 than Alt. 3 before transitioning to a lower level.	ACL set at the rebuilding catch level to significantly reduce overfishing; in-season fishery closure would be used as AM. Alt. 3 has insignificant reduction of adverse effects on fishing community during the period of effectiveness due to the immediate application of the ACL and does not benefit from a phase-in approach.	ACL of 0 lb and no AM. Fishing for BMUS prohibited in Federal waters to reduce overfishing. Alt. 4 has no reduction of adverse effects on fishing community during the period of effectiveness.
Duration of the management action	N/A.	2 years.	2 years.	2 years.
ACL (lb) for BMUS in American Samoa	No limit.	2021: 5,000 lb; 2022: 2,000 lb.	2021-2022: 2,000 lb.	0 lb.
Accountability Measure: Closure of Federal waters to bottomfish fishing when ACL is reached	No AM. The fishery would not be subject to a potential fishery closure.	If available data indicates the fishery will attain the ACL, NMFS would close the fishery in Federal waters for the remainder of the year.	If available data indicates the fishery will attain the ACL, NMFS would close the fishery in Federal waters for the remainder of the year.	No AM necessary. Fishery closed in Federal waters.
Complementary closure of territorial waters by American Samoa Government	N/A.	Not anticipated in time for this action. Not part of proposed action.	Same as Alt. 2.	Same as Alt. 2.
Possible fishery closure in Federal waters	None.	2021: possibly May – Dec. 2022: possibly Mar. – Dec.	2021-2022: possibly Mar. – Dec.	2021-2022: Jan - Dec

Topic	Alt. 1 - No Action/Status Quo	Alt. 2 – Recommend ACL of 5,000 lb for 2021 and 2,000 lb for 2022	Alt. 3 – Recommend ACL of 2,000 lb for 2021 and 2022	Alt. 4 – Closure of Fishery in Federal Waters
Expected catch of American Samoa BMUS (see text for detail)	2021-2022: 12,614 lb (same as recent average).	2021: 11,532 lb; 2022: 11,055 lb; (if effort not displaced to territorial waters).	2021-2022: 11,055 lb (if effort not displaced to territorial waters).	2021-2022: 10,722 lb (if effort is not displaced to territorial waters).
Reduces overfishing relative to previous years	No. Catch expected to be similar to recent average of 12,614 lb.	2021: Slightly. Catch may be reduced to 11,532 lb; 2022: Slightly. Catch may be reduced to 11,510 lb;	2021-2022: Slightly. Catch may be reduced to 11,055 lb;	2021-2022: Moderately. Catch may be reduced to 10,722 lb;
Authorized catch would allow stock biomass to increase during the specification period	No.	Yes, based on the interim measure emergency rule that indicated the maximum catch that would allow for biomass to increase is 13,000 lb. The ACLs under Alt. 2 are below that level and the increment of increase in biomass will be greater than Alt. 1. Biomass increase could be offset by fishing in territorial waters.	Yes, a stricter reduction in catch in 2021 would allow biomass to increase at an increased rate. Biomass increase could be offset by fishing in territorial waters.	Yes, the stricter reduction in catch in 2021 and 2022 would allow biomass to increase at the maximum rate. Biomass increase could be offset by fishing in territorial waters.

Topic	Alt. 1 - No Action/Status Quo	Alt. 2 – Recommend ACL of 5,000 lb for 2021 and 2,000 lb for 2022	Alt. 3 – Recommend ACL of 2,000 lb for 2021 and 2022	Alt. 4 – Closure of Fishery in Federal Waters
Mitigates effects of immediately ending overfishing on communities during ACL specification time frame	Yes. Fishing would be the same as status quo. This alternative lacks long-term benefits of shortening rebuilding time frame the action alternatives would provide.	Yes, more than Alternatives 3 and 4 as more fishing in Federal waters is expected in 2021 than in the other alternatives while still managing for a reduction in fishing impacts. There would be less fishing in Federal waters during the specification time frame than under the status quo Alt. The approach of implementing a higher ACL in 2021 before the lower ACL in 2020 will help mitigate the impacts on communities with the sudden drop in ACL. It allows for the community to adjust to the new quota. Long-term, there could be some benefit to stocks due to the shortened rebuilding time frame.	Alternative 3 does less to mitigate effects on fishing communities than the no action and preferred alternatives, but more than Alternative 4. Long-term, there could be some benefit to stocks due to the shortened rebuilding time frame relative to Alt. 1 and 2.	Not in the short term, since this is the maximum action the Council could consider. Long-term, there could be some benefit to stocks due to the shortened rebuilding time frame relative to all other alternatives.

3 Affected Environment and Potential Effects of the Alternatives

This section describes the affected fishery, fishery resources, protected species, and habitats and the potential environmental effects of the proposed ACL and AMs on these resources. We consider climate change and environmental justice, along with potential effects to fishing communities, special marine areas and other resources, and potential effects on fishery administration and enforcement. Potential cumulative effects are also considered.

3.1 Overview of Bottomfish Fisheries

Descriptions of traditional fishing practices indicate that indigenous people in American Samoa harvested the same bottomfish species and used some of the same gears and techniques employed today (WPFMC 2009). Fishermen generally target bottomfish in deep waters, but some are caught over reefs or at shallower depths. The eteline snappers (*Etelis* and *Pristipomoides* spp.) primarily inhabit high-relief, deep slopes ranging from 80–400 m deep. Fishermen catch bottomfish with a vertical handline described below. In addition to the deep-water eteline snappers, fishermen catch other species such as jacks, emperors, and lutjanid snappers at shallower depths. Fishermen also catch the gray jobfish (*Aprion virescens*) by vertical handline, but fishermen may use drifting or slowly moving vessels and trolling gear and fish over relatively flat-bottom areas for this species.

Bottomfish fishermen generally employ a vertical hook-and-line method of fishing in which they lower and raise weighted and baited lines with electric, hydraulic, or hand-powered reels. The main line is typically 400–450-pound test, with hook leaders of 80–120-pound test monofilament. The hooks are circle hooks, generally of the Mustad (conventional scale) sizes 11/0, 12/0 and 13/0, and a typical rig uses six to eight hooks branching off the main line. The terminal weight is typically 5–6 lb. The hook leaders are typically 2–3 ft long and separated by about 6 ft along the main line. Fishermen may bait hooks with fish such as the big-eye scad (*Selar crumenopthalmus*) or squid as bait. Fishermen also sometimes supplement lines with a chum bag containing chopped fish or squid suspended above the highest hook. Federal regulations prohibit bottom trawls, bottom gillnets, explosives, and poisons (50 CFR Parts 665.104 and 665.406). Commercial and non-commercial fisheries for bottomfish occur primarily in nearshore waters from 0–3 nm, although some fishermen make longer trips to specific offshore bank areas (Brodziak et al. 2012).

3.1.1 *Overview of Fishery Data Collection Systems in American Samoa*

Resource management agencies, with assistance from NMFS PIFSC WPacFIN, collect bottomfish fisheries data through three primary fisheries monitoring programs. These programs include the boat-based creel survey program, the shore-based creel survey program, and the commercial purchase system or trip ticket invoice program.

Boat-based creel survey program

The boat-based creel survey program collects catch, effort, and participation data on offshore fishing activities conducted by commercial, recreational, subsistence, and charter fishing vessels. Program staff conduct surveys at boat ports or ramps, and data collection consists of two main

components - participation counts (trips) and interviews of fishermen. Survey days are randomly selected, and the number of survey days ranges from 3–8 per month. The surveys are stratified by weekdays, weekend-days and day- and nighttime. WPacFIN applies data expansion algorithms to this information that include port, type of day, and fishing method to estimate total catch in the fishery.

Shore-based creel survey program

The shore-based creel survey program randomly samples inshore fishing trip information and consists of two components: participation counts and fishermen interviews. Program staff base participation counts on a "bus route" method, with predefined stopping points and time constraints. Survey days are randomly selected, and the number of days ranges from 2–4 times per week. WPacFIN applies data expansion algorithms to this information that includes island region, type of day (e.g., weekday/weekend) and fishing method WPacFIN to estimate total catch in the fishery.

Commercial purchase system

American Samoa has a mandatory requirement for seafood vendors to submit invoice reports. The commercial purchase system or "trip ticket invoice" monitors fish sold locally and collects information submitted by vendors (fish dealers, hotels, and restaurants) who purchase fish directly from fishers. Each invoice usually compiles daily trip landings.

3.1.2 *Overview of Federal Permit and Reporting Requirements*

Fishermen in American Samoa are not required to purchase a Federal permit to fish for BMUS or report their catch to NMFS.

3.1.3 *Overview of the AMs*

When evaluating catch, NMFS applies all catches of BMUS toward the ACL regardless of whether catch occurred in Federal or territorial waters. If available data indicates that catch will attain the ACL, NMFS would close the fishery in Federal waters to limit fishing mortality.

3.2 Potential Effects on Physical Resources

There are no known significant impacts to air quality, noise, water quality, view planes, or terrestrial resources from past or current bottomfish fishing activity. The fishery is not having an adverse effect on unique features of the geographic environment, and fishing behavior and effort are not expected to change under any alternative in a manner that would result in effects on physical resources (Section 3.2). Therefore, given the characteristics of the vessels in the fishery and the offshore nature of the fishing activity, none of the alternatives would result in impacts to air quality, noise, water quality, view planes, or terrestrial resources.

3.3 American Samoa Bottomfish Fishery and Biological Resources

The Samoa Archipelago is located in the western portion of the South Pacific Ocean and consists of seven major volcanic islands, several small islets and two coral atolls. The largest islands in this chain are Upolu and Savaii, which belong to the independent state of Samoa with a population of approximately 198,050 people (World Population Review, accessed March 19, 2020). The Territory of American Samoa by comparison, has a population of 55,465 (World Population Review, accessed March 19, 2020). The territory includes the island of Tutuila, the Manua Island group of Ofu, Olosega and Tau, and two coral atolls (Rose Atoll and Swains Island). Tutuila is the largest island and is the center of government and business. This island features Pago Pago Harbor, the deepest and one of the most sheltered bays in the South Pacific. About 95 percent of American Samoa's total population lives on Tutuila (World Population Review, accessed March 31, 2020).

3.3.1 *Overview of American Samoa's Bottomfish Fishery*

NMFS and the Council manage bottomfish fishing in Federal waters around American Samoa in accordance with the FEP for the American Samoa Archipelago (WPFMC 2009), developed by the Council, and implemented by NMFS under the authority of the Magnuson-Stevens Act. The U.S. EEZ around American Samoa is approximately 156,246 mi^2 and extends from 3–200 nm from shore. Because of the steepness of the offshore slope around Tutuila and other islands, most of the benthic habitat is fringing coral reefs, a limited reef slope, and a few offshore banks (Craig et al. 2005). The management structure of the FEP emphasizes community participation and enhanced consideration of the habitat and ecosystem, and other elements not typically incorporated in fishery management decision-making. The American Samoa DMWR manages bottomfish fishing from 0 to 3 nm from shore. A joint Federal-territorial partnership enforces Federal fishery regulations, and the FEP requires the Council to produce an annual performance report on the fishery (e.g., WPFMC 2020).

At the present time there are no Federal permits or reporting requirements for bottomfish fishing in Federal waters around American Samoa. Therefore, monitoring of the fishery depends largely on data voluntarily provided by fishermen to DMWR through the boat-based and shore-based creel survey programs. Additionally, DMWR reviews commercial sales data from the mandatory commercial purchase system.

The 2020 List of Fisheries (LOF) estimated there were less than 30 participants in the fishery (85 FR 21095, April 16, 2020). Most vessels are aluminum *alia* (pronounced ah-lee-ah) catamarans less than 32 ft long, outfitted with outboard engines and wooden hand reels that fishermen use for both trolling and bottomfish fishing. Because few boats carry ice, they typically fish within 20 miles of shore (WPFMC 2009). Since 2000, the fishery has landed between 2,099–34,388 lb of BMUS annually (Table 4). Over the last five years, approximately eight percent of catch has been commercial (see "Fishing Communities," section 3.1.1), so currently the fishery is predominantly non-commercial. While pelagic fisheries play a larger role in the broader economy in American Samoa, insular fisheries are important from a socio-cultural and dietary standpoint (Levine and Allen 2009), and the demand for bottomfish varies depending on the need for fish at government and cultural events (WPFMC 2020). The June 15, 2020 letter to NMFS from the American Samoa DMWR also expressed that fishing grounds in Federal waters

are important for fishing for deep-water snappers that are critical for cultural ceremonies and *fa'alavelave* (e.g., funerals, weddings, births, special birthdays).

Potential Effects of the Alternatives on the Bottomfish Fishery in American Samoa

Alternative 1: No Action (Status Quo Alternative)

Under Alternative 1, catches would not be limited by Federal rule. The lack of an ACL and AM would not provide regulatory oversight to support management or to limit fishing mortality and promote recovery of the fishery resource. Since catch limits were first used in 2012, catches have been consistently below ACLs (Table 5). In-season management measures were not used during these years, indicating that the fishery has not been functionally constrained and has performed as it would without catch limits and AMs (Section 2.2.2). The lack of an ACL or AM under Alternative 1 is therefore not expected to result in any change to the fishery with respect to fishing gear, effort, participation, intensity or areas fished, and catches are expected to be similar to those in recent years. Since ACLs were first implemented in 2012, the lowest estimated total annual catch of BMUS in American Samoa occurred in 2012 at 2,099 lb, and the greatest catch was in 2015 at 21,528 lb. The average annual catch for recent years from 2017–2019 is 12,614 lb (Table 4). This level of catch is 2.5 times the OFL of 5,000 lb for 2021-2022 estimated in the 2019 stock assessment (Langseth et al. 2019).

Under Alternative 1, the fishery would continue to be subject to monitoring and collection of data, and enforcement of other fishing regulations. Without ACLs or AMs, there would not be management review of fishery performance relative to a catch limit. Because fishing effort and catch is not expected to change from recent years, catch is expected to be near the recent average of 12,614 lb and would remain above levels that reduce or prevent overfishing. Catch is expected to continue at the same unsustainable rate of overfishing may increase the time needed for the bottomfish stock to rebuild. Implementing this alternative would address Council concerns that immediately ending overfishing would negatively affect communities in American Samoa, but it is not consistent with the Purpose and Need to prevent overfishing. Alternative 1 is also not consistent with regulations requiring NMFS to set an annual catch limit for MUS.

Alternative 2: Set the ACL at 5,000 lb for 2021 and 2,000 lb for 2022

Under Alternative 2, the Council would recommend a catch limit of 5,000 lb for FY 2021 and 2,000 lb for FY 2022. The Council will also recommend implementation of an in-season AM to prevent the fishery from exceeding the catch limit where, if available information indicates that the ACL will be reached, NMFS would close fishing for BMUS in Federal waters for the remaining period of the fishing year. During a closure of Federal waters, NMFS would prohibit fishing for and possession of BMUS in Federal waters. Catch data to monitor the fishery comes from creel surveys and the commercial receipt program administered by DMWR and reported to WPacFIN. NMFS would work with DMWR and WPacFIN to encourage timely processing of data and would track catches towards the limit as data are available.

This alternative would set the ACLs at approximately five and two percent (FY 2021 and 2022, 2023-24, respectively) of the ACLs most recently implemented in 2016 and 2017 (ACLs were

not implemented in 2018 and 2019) and at 40 and 16 percent of the recent three-year average catch of 12,614 lb. NMFS expects that total catch during the fishing year would reach the ACL and trigger the in-season AM if catches are similar to those in recent years (Table 5). Territorial waters of American Samoa would not be affected by the Federal closure, and bottomfish habitat is predominantly found in territorial waters. NMFS expects that some fishing effort could move from Federal waters to unrestricted territorial waters in response to a closure of Federal waters to bottomfish fishing. Displacement of fishing effort to territorial waters would limit the potential reduction in catch realized from the closure of Federal waters. The fishery is therefore not expected to change the way it fishes with respect to fishing gear, fishing effort, participation or intensity, and is expected to change moderately with respect to total catch and areas fished since bottomfish fishing is expected to be prohibited in Federal waters for part of the year. The expected reduction in catch from Alternative 2 would be 1,082 lb in 2021 (for a total of 11,532 lb) and 1,559 lb in 2022 (for a total of 11,055 lb). Although overall catch may be reduced only moderately due to continued fishing in territorial waters beyond the jurisdiction of NMFS, because Alternative 2 provides for the closure of offshore fishing grounds under Federal jurisdiction, we expect some conservation benefit to the stock complex. Therefore, we anticipate the Alternative 2 would provide a conservation benefit relative to the no-action alternative.

The catch level authorized under this alternative is intended to reduce overfishing. Although catch is expected to exceed this level due to continued fishing in territorial waters after a Federal fishery closure, catch and overfishing would still be reduced compared to the baseline (Section 2.2.3). Implementing this alternative would address Council concerns that immediately ending overfishing would negatively affect communities in American Samoa by authorizing a catch level that would phase-in to the more restrictive catch level. Overall, in 2021, Alternative 2 has the potential to result in reduced fishery effects on bottomfish stocks relative to the baseline, while reducing adverse social, cultural, and economic effects on members of the community relative to other action alternatives. Analysis of Alternative 3 provides information on implementation of the relatively lower ACL proposed for 2022 that would immediately end overfishing and at the same time achieve a ten year rebuilding.

Under Alternative 2, the ACL would be implemented at 5,000 lb and 2,000 lb in FY 2021 to and 2022, respectively, and catches would be counted in Federal and territorial waters from January 1, 2021 through December 31, 2021. Bottomfish fishing would be allowed in Federal and territorial waters, so the fishery is expected to catch fish at a rate similar to the no action alternative and catch to the ACL within each of the fishing years. There would be conservation benefits for the bottomfish stock due to expected catch in Federal waters that would not be harvested due to the Federal closure. This, however, will have an adverse effect on the fishing community that relies on the bottomfish resources caught at offshore banks in Federal waters.

Alternative 3: Set the ACL at 2,000 lb for both 2021 and 2022

Under Alternative 3, the Council would recommend a catch limit of 2,000 lb for Fishing Years 2021 and 2022. The Council would also recommend implementing an in-season AM to prevent the fishery from exceeding the catch limit where, if available information indicates that the ACL will be reached, NMFS would close fishing for BMUS in Federal waters for the remaining

period of the fishing year. During a closure of Federal waters, NMFS would prohibit fishing for and possession of BMUS in Federal waters.

This alternative would set the ACL at approximately two percent of the ACLs most recently implemented in 2016 and 2017 (ACLs were not implemented in 2018 and 2019) and at 16 percent of the recent three-year average catch of 12,614 lb (Table 5). If catches are similar to those in recent years, NMFS expects that total catch in 2021 and 2022 would reach the ACL. Data on seasonality of catch is not available to make an precise estimate of when this might occur, but if catches are similar throughout the year the catch could reach 2,000 lb within the few months of the fishing year (Section 2.2.4). If available catch data indicates this is the case, NMFS would immediately implement the in-season management measure. Territorial waters of American Samoa would not be affected by the Federal closure, where bottomfish habitat is predominantly found. NMFS expects that some fishing effort could be displaced from Federal waters to unrestricted territorial waters in response to a Federal closure to bottomfish fishing. The expected fishery catch in 2021 and 2022 under Alternative 3 would be reduced by 1,559 lb from the recent average to 11,055 lb. Displacement of fishing effort to territorial waters would limit the potential reduction in catch realized from the closure of Federal waters. The fishery is therefore not expected to change the way it fishes substantially with respect to fishing gear, fishing effort, participation or intensity, and is expected to change moderately with respect to total catch and areas fished since bottomfish fishing will likely be prohibited in Federal waters for the majority of the fishing year. Although overall catch under Alternative 3 may be reduced only moderately due to continued fishing in territorial waters beyond the jurisdiction of NMFS, because this alternative provides for the closure of offshore fishing grounds under Federal jurisdiction, we expect slight conservation benefit to the stock complex. Therefore, we anticipate Alternative 3 would provide some conservation benefit relative to the no-action alternative.

Although the catch level authorized under this alternative would end overfishing, catch in 2021 and 2022 is expected to exceed this level due to continued fishing in territorial waters after a Federal closure. However, catch and overfishing would still be reduced compared to the baseline and the preferred alternative. Implementing Alternative 3 would not address Council concerns that immediately ending overfishing would negatively affect communities in American Samoa as well as Alternative 2 because authorized catch levels would end overfishing and permit catch at a much lower level than the preferred alternative in 2021. Overall, in 2021, Alternative 3 has the potential to result in reduced fishery effects on bottomfish stocks relative to Alternative 1 and Alternative 2, but it does not reduce adverse social, cultural, and economic effects on members of the community like Alternative 2 since catch of 2,000 lb would end overfishing immediately as required under the Magnuson-Stevens Act. In 2022, the expected impacts of Alternative 3 are similar to those for Alternative 2 because the ACLs implemented that year would be equal.

Under Alternative 3, the ACL would be 2,000 lb, and catches would be counted in Federal and territorial waters from January 1, 2021 through December 31, 2021. Starting January 1, bottomfish fishing would be allowed in Federal and territorial waters, so the fishery is expected to initially catch fish at a rate similar to the no action alternative and attain the 2,000 lb limit within the first few months (i.e., as early as January or as late as March). In this event, the fishery would close in Federal waters for the majority of the fishing year. Closing the fishery this early in the fishing year would provide the greatest benefit to the stock compared to the no action

alternative and the first year of Alternative 2. Alternative 3 would provide management oversight to limit catches if needed. However, a 2,000 lb ACL would do slightly less than Alternative 2 to address Council concerns about socio-economic impacts of immediately ending overfishing, since a relatively higher ACL would be implemented in 2021 under the preferred alternative.

Alternative 4: Establish a Temporary Prohibition on Bottomfish Fishing in Federal waters around American Samoa

Under Alternative 4, the Council would recommend prohibiting fishing for and possession of BMUS in Federal waters around American Samoa for the duration of the fishing year. This alternative is functionally equivalent to an ACL of 0 lb and is the maximum action the Council could take to address overfishing of bottomfish. Under this alternative, it would not be necessary to monitor fishing during the season as it would for Alternative 2 or Alternative 3, because no further management action would result. As with other alternatives, catch would continue to be summarized by the Council in annual Stock Assessment and Fishery Evaluation (SAFE) reports after the fishing year (e.g. WPFMC 2020).

Because most bottomfish habitat is in territorial waters, closing Federal waters for the duration of the moratorium is expected to result in only moderately less catch for the fishery relative to the status quo and other action alternatives. If the rule is effective, catch of BMUS may be reduced to 10,722 lb from the recent average catch of 12,614 lb (Section 2.2.5). However, the Council expects that some fishing effort would move from Federal waters to territorial waters in response to a closure of Federal waters to bottomfish fishing. This may limit the reduction in catch realized from a closure, so catch is expected to total between 10,722 lb and 12,614 lb. The fishery is therefore not expected to change the way it fishes with respect to fishing gear, fishing effort, participation or intensity, but is expected to change moderately with respect to total catch and moderately with respect to areas fished since bottomfish fishing would be prohibited in Federal waters. Although overall catch may be reduced only moderately (i.e., by 1,892 lb from Alternative 1) due to continued fishing in territorial waters beyond the jurisdiction of NMFS, because Alternative 4 provides for the closure of offshore fishing grounds under Federal jurisdiction, we expect moderate conservation benefit to the stock complex. Therefore, we anticipate Alternative 4 would provide a conservation benefit relative to the no-action alternative.

Although the catch level authorized under this alternative would prohibit all BMUS fishing in Federal waters to end overfishing, actual catch is expected to exceed this level due to continued fishing in territorial waters despite the Federal closure. However, catch and overfishing would still be reduced compared to the baseline and the preferred alternative (Section 2.2.5). Implementing Alternative 4 would not address Council concerns that immediately ending overfishing would negatively affect communities in American Samoa because authorized catch levels allow for no BMUS catch in Federal waters, and authorized catch levels are lower than the level that would reduce overfishing under the preferred alternative. Overall, Alternative 4 has the potential to result in reduced fishery effects on bottomfish stocks relative to Alternative 1, Alternative 2, and Alternative 3, but it does not reduce adverse social, cultural, and economic effects on members of the community to the same extent as Alternative 2 since it completely prohibits bottomfish fishing in Federal waters.

Starting January 1, 2021, bottomfish fishing would be prohibited in Federal waters, though the fishery would be open in territorial waters where most bottomfish habitat is found. The catch will only be reduced by a small amount and the fishery will continue in territorial waters. However, alternative 4 would do less than all other alternatives to address Council concerns about socio-economic impacts of immediately ending overfishing.

3.1 Potential Effects on the Socio-Economic Setting

3.1.1 *Fishing Communities*

The Magnuson-Stevens Act defines a fishing community as "a community that is substantially dependent upon or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew, and fish processors that are based in such communities" (16 U.S.C. § 1802(16)). NMFS further specifies in the National Standard guidelines that a fishing community is "a social or economic group whose members reside in a specific location and share a common dependency on commercial, recreational, or subsistence fishing or on directly related fisheries dependent services and industries (for example, boatyards, ice suppliers, tackle shops)".

National Standard 8 of the Magnuson-Stevens Act requires that conservation and management measures shall, consistent with the conservation requirements of the Act (including the prevention of overfishing and the rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (a) provide for the sustained participation of such communities and (b) to the extent practicable, minimize adverse economic effects on such communities. The Council's concerns regarding immediately ending overfishing in the American Samoa bottomfish fishery, the subsequent request to NMFS for interim action, and the proposed preferred alternative account for this consideration, in that these actions seek a catch limit the reduces rather than immediately ends overfishing to mitigate effects of more stringent management measure on the American Samoa fishing community.

The Council, in 1998, identified American Samoa as a fishing community and requested the Secretary of Commerce concur with this determination. American Samoa was recognized in regulation as a fishing community under the Magnuson-Stevens Act on April 19, 1999 (64 FR 19067). The community continues to participate in the Council decision-making process through its representatives on the Council, its Advisory Panel members, and through opportunities for public input during the Council's deliberations and through public comment periods during NMFSs rulemaking process.

The most recent SAFE report (WPFMC 2020) included only BMUS to reflect the changes after the Ecosystem Component Amendment was implemented. These species were selected because of their importance to the fishery. Table 8 shows that between 2017 and 2019, American Samoa bottomfish fishermen caught an average of 12,614 lb of BMUS annually and sold 1,124 lb (approximately 9 percent). Based on the 2019 commercial sale estimate of 1,402 lb and the commercial value of the fishery in 2019 of $5,708, the average price per pound was $4.07. The 2020 LOF estimated there were less than 30 participants in the fishery (85 FR 21095, April 16,

2020). If participation and effort were equal among fishermen in 2019, each of 30 estimated fishery participants would have sold approximately 47 lb of BMUS valued at $190.

Table 8. Summary of annual commercial bottomfish catch and estimated revenues in American Samoa (2009–2019).

Year	Estimated total catch (lb)	Estimated pounds sold (lb)	Percent sold	Estimated revenue ($)	Average price per pound ($)
2009	34,388	3,035	9	8,208	2.70
2010	7,044	1,084	15	3,398	3.13
2011	14,083	711	5	1,949	2.74
2012	2,099	1,161	55	3,796	3.27
2013	5,732	882	15	3,257	3.69
2014	13,984	3,140	22	11,051	3.52
2015	21,528	2,047	10	6,074	2.97
2016	19,307	1,131	6	3,896	3.44
2017	14,791	1,131	8	5,688	5.00
2018	11,957	838	7	3,558	4.25
2019	11,093	1,402	13	5,708	4.07
3-year avg.	12,614	1,124	9	4,985	4.44

(Source: WPFMC 2020).

"Cultural fishing" is a relatively new term and is not readily defined (Kleiber and Leong 2018). As with other studies of culture, cultural fishing is context dependent – definitions from other areas may not be suitable for American Samoa. American Samoa culture is often framed in terms of *Fa'a Samoa*, or the "Samoan Way" which govern local social norms and practices. This includes core values and practices such as *Tautua*, or "service", which involves the broad collective sharing of labor, resources, income, and social and political support to strengthen the *Aiga* (family groups), the village, and the role of chiefs in perpetuating *Fa'a Samoa*. In a fisheries context, this may mean the distribution of catch within the *Aiga*, or the use of fish as specific ceremonial events. The June 15, 2020 letter to NMFS from the American Samoa DMWR highlighted that deep-water snappers are critical for cultural ceremonies and *fa'alavelave* (e.g., funerals, weddings, births, special birthdays). Cultural fishing would also encompass day-to-day practices of subsistence, and insular fisheries are particularly important from a dietary and socio-cultural standpoint (Kilarski et al. 2006; Levine and Allen 2009). Considering that generally less than ten percent of bottomfish catch is sold (Table 8), this fishery can be considered predominantly non-commercial, providing fish for sustenance and cultural events. This importance for subsistence and cultural use is evident during important community events, and demand for bottomfish varies depending on the need for fish at government and cultural events (WPFMC 2020).

Potential Effects of the Alternatives on the American Samoa Fishing Community

Alternative 1: No Action (Status Quo Alternative)

Under Alternative 1, the Council would not recommend an ACL and AM for the bottomfish fishery in American Samoa in 2021 to 2022. As described above, the level of bottomfish catch under this alternative is expected to be similar to the average annual catch in recent years (12,614 lb from 2017–2019; Section 2.2.2). No available information indicates that commercial sales would change, so the Council anticipates that an average of 1,124 lb of bottomfish would be sold in 2021 and 2022. Using the recent average price of $4.44 per lb, this level of catch sold would generate $4,991 in revenue. Using the estimate of the number of fishery participants from the 2020 LOF, the 30 participants would earn approximately $167 each (Table 9). This alternative would not constrain bottomfish fishing activity in American Samoa, so it is not expected to affect the fishing communities in American Samoa. Similarly, non-commercial fishing (inclusive of recreational, sustenance, and cultural fishing) would be unaffected relative to the recent baseline under Alternative 1.

Table 9. Estimated annual revenues in the American Samoa bottomfish fishery under each of the alternatives. A price per lb of $4.44 and 30 fishery participants were assumed.

Timeframe	Alt.	Expected annual catch (lb)	Expected annual lb sold	Est. annual revenue ($)	Est. annual revenue per participant ($)	Difference from Alt. 1 ($)	Percent difference from Alt. 1
2021-2022	1	12,614	1,124	4,985	166	0	0
2021	2	11,532	1,038	4,608	154	12	7
2022	2	11,055	995	4,418	147	19	11
2021-2022	3	11,055	995	4,418	147	19	11
2021-2022	4	10,722	965	4,285	143	23	14

Alternative 2: Set the ACL at 5,000 lb for 2021 and 2,000 lb for 2022

Under Alternative 2, the Council expects that catch of BMUS in 2020 may be slightly reduced from the recent average, and catch is expected to be 11,532 lb from a catch limit of 5,000 lb in 2021 and 11,055 lb from a catch limit of 2,000 lb in 2022 (Section 2.2.3). Using 2021 as a demonstrative example, if total bottomfish catch is 11,532 lb and 9 percent of the catch is sold commercially at $4.44 pound that means 1,038 lb would be sold for $4,608. Using the number of fishery participants from the 2020 LOF, the 30 participants would earn $154 each. This is a decrease of approximately $12 (7 percent) from the status quo alternative (Table 9). If fishermen compensated for a closure of Federal waters by catching BMUS in territorial waters that remained open to fishing, revenue would be closer to that expected under the no action alternative. NMFS does not have information to estimate the magnitude of compensation that would occur.

Offshore banks in Federal waters do not have shallow coral reef habitat, so these areas may produce more deepwater snappers for the fishery. However, NMFS does not have detailed information on whether catch for commercial or non-commercial purposes comes

disproportionately from territorial or Federal waters, or the proportions of species that are caught in these waters. Overall, NMFS expects that the amount of fish caught for sustenance and cultural purposes would be affected similarly to fish caught for commercial purposes. Specifically, there may be a decrease in available fish of 9 percent relative to the no action alternative in 2021 and a decrease of 12 percent in 2022.

Overall, implementation of Alternative 2 is expected to change the American Samoa bottomfish fishery slightly relative to the baseline in 2021 and moderately relative to the baseline in 2022. These changes may decrease the amount of fish available to the community and the amount of revenue available to fishermen between 7 and 11 percent (Table 9). Thus, fish available for sustenance and cultural purposes and revenue would not be significantly decreased relative to the status quo, so the Council does not expect a disruption to the fishery that would result in any substantial social or economic effects to the American Samoa fishing community.

Alternative 3: Set the ACL at 2,000 lb for both 2021 and 2022

Under Alternative 3, the Council expects that catch of BMUS in 2021 and 2022 may be moderately reduced from the recent average, and catch is expected to be 11,055 lb for both years (Section 2.2.4). If total catch is 11,055 lb and 9 percent of the catch is sold commercially at $4.44 pound, that means 995 lb would be sold for $4,418. Using the number of fishery participants from the 2020 LOF, the 30 participants would earn an average of $147 each in 2021 and 2022. This is a decrease of $19, or 11 percent from the status quo alternative. If fishermen compensated for a closure of Federal waters by catching BMUS in territorial waters that remained open to fishing, revenue would be closer to that expected under the no action alternative. NMFS does not have information to estimate the magnitude of compensation that would occur.

The Council does not have detailed information on whether catch for commercial or non-commercial purposes comes disproportionately from territorial or Federal waters, or the proportions of species that are caught in these waters. Overall, the Council expects that the amount of fish caught for sustenance and cultural purposes would be affected similarly to fish caught for commercial purposes. Specifically, there may be a decrease in available fish of 12 percent relative to the no action alternative in 2021 and 2022.

Implementation of Alternative 3 is therefore expected to affect the fishery and associated communities more than the preferred alternative due to a reduction in the availability of bottomfish resources in 2021. Revenue is expected to be decreased very slightly relative to the no action alternative, so the Council does not expect disruption to the fishery that would result in large or substantial social or economic effects to the American Samoa fishing community. Overall, this alternative is the more restrictive than Alternative 2 in terms of the catch limit compared to the no action alternative. However, the relatively low ACL does little in curbing the catch in territorial waters, thus, its effect on fish available to markets and for sustenance and cultural practices in American Samoa will be low.

Alternative 4: Establish a Temporary Prohibition on Bottomfish Fishing in Federal waters around American Samoa

Under Alternative 4, the Council expects that in 2021 and 2022 the fishery would be slightly more restricted than under Alternative 3. This alternative would close the fishery in Federal waters, and BMUS catch may be moderately reduced from the recent average. Catch is expected to be 10,722 lb (Section 2.2.5). If total catch is 10,722 lb and 9 percent of the catch is sold commercially at $4.44 per pound, that means 965 lb would be sold for $4,285. Using the number of fishery participants from the 2020 LOF, the 30 participants would earn $143 each. This is a decrease of approximately $23, or 14 percent from the status quo alternative. If fishermen compensate for a closure of Federal waters by catching BMUS in territorial waters that remained open to fishing, revenue would be closer to that expected under the no action alternative. NMFS does not have information to estimate the magnitude of compensation that would occur.

The action under Alternative 4 does not provide for authorized catch in Federal waters, but territorial waters would remain open to fishing for bottomfish, which would allow for some availability of bottomfish resources to the American Samoa fishing community while the Council develops a long-term management plan to end overfishing and rebuild the fishery. As under the other action alternatives, fish are expected to be available in lower quantities than under the no action alternative. The Federal fishery closure under Alternative 4 may decrease the amount of bottomfish available to the community and the amount of revenue available to fishermen by as much as 14 percent from the no action alternative, and would result in more of a decrease than Alternatives 2 and 3. Implementation of Alternative 4 is therefore expected to affect the fishery and associated communities more than the no action alternative as well as Alternatives 2 and 3. Revenue would be decreased relative to all other alternatives, but NMFS does not expect a disruption to the fishery that would result in any large or substantial social or economic effects to the American Samoa fishing community due to the general extent of the decrease. Overall, this alternative does less than the no action and preferred alternatives to mitigate effects on fish available to markets and for sustenance and cultural practices in American Samoa, and does not meet the purpose and need to mitigate socio-economic effects as well as the preferred alternative.

Public Health and Safety at Sea

As it has been conducted historically, the fishery is not causing adverse effects on public health, does not have notable concerns with safety at sea, and has not had a “race to fish”. No changes to the fishery are expected under the baseline alternative in this regard. For the ACLs under Alternative 2 and Alternative 3, the fishery is likely to reach the catch limit during the fishing year in 2021 and 2022. However, the majority bottomfish habitat (85 percent) would still be available to fishermen because territorial waters would not close, so a race to fish is not expected to occur in this fishery. Under Alternative 4, a closure of Federal waters would occur when the rule is enacted, so this alternative would also not result in a race to fish. Because none of the proposed alternatives are expected to result in substantial changes to the conduct of the fishery and the majority of habitat would be open to bottomfish fishing even if the fishery was closed in Federal waters (Section 2.2.5), none of the proposed alternatives are expected to result in safety issues or associated concerns for fishermen at sea.

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