WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

PRELIMINARY DRAFT

Annual Catch Limits and Accountability Measures for the Bottomfish Management Unit Species in American Samoa for Fishing Year 2024 to 2027

Western Pacific Fishery Management Council
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ABBREVIATIONS

ABC – Acceptable Biological Catch
ACL – Annual Catch Limit
AM – Accountability Measure
AS – American Samoa
BMUS – Bottomfish Management Unit Species
Council – Western Pacific Fishery Management Council
CFR – Code of Federal Regulations
CPUE – Catch per Unit of Effort
DMWR – American Samoa Department of Marine and Wildlife Resources
EA – Environmental Assessment
ECS – Ecosystem Component Species
EEZ – Exclusive Economic Zone
FEP – Fishery Ecosystem Plan
FMP – Fishery Management Plan
FR – *Federal Register*
lb – pound or pounds
MFMT – Maximum Fishing Mortality Threshold
MSST – Minimum Stock Size Threshold
MSY – Maximum Sustainable Yield
mt – metric tons
MUS – Management Unit Species
NEPA – National Environmental Policy Act
NMFS – National Marine Fisheries Service
NOAA – National Oceanic and Atmospheric Administration, U.S. Dept. Commerce
NOAA OLE – NOAA Office of Law Enforcement
OFL – Overfishing Limit
P* – Acceptable Risk or Probability of Overfishing
PIFSC – NMFS Pacific Islands Fisheries Science Center
SEEM – Social, economic, and ecological considerations, or management uncertainty
SFD - Sustainable Fisheries Division
SPR – Spawning Potential Ratio
SSC – Scientific and Statistical Committee of the Council
WPFMC – Western Pacific Fishery Management Council

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1 Introduction

1.1 Background Information

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) established the Western Pacific Fishery Management Council (WPFMC, or the Council) in 1976 to develop management plans for fisheries within the United States Fishery Conservation Zone around Hawaii, U.S. Pacific territories, commonwealth, and possessions of the United States in the Pacific Ocean (16 U.S.C. § 1801 *et seq.*). The National Marine Fisheries Service (NMFS) and the Western Pacific Fishery Management Council (Council) manage fishing for bottomfish management unit species (BMUS) in the U.S. Exclusive Economic Zone (EEZ; generally 3-200 nm from shore) around American Samoa through the Fishery Ecosystem Plan for the American Samoa Archipelago (FEP, WPFMC 2009).

The BMUS are composed of six deep snappers (*Aphareus rutilans, Etelis carbunculus, E. coruscans, Pristipomoides filamentosus, P. flavipinnis,* and *P. zonatus*), two shallower snappers (*Aprion virescens* and *Lutjanus kasmira*), one emperor (*Lethrinus rubrioperculatus*), one jack (*Caranx lugubris*), and one grouper (*Variola louti*). All 11 species are wide-ranging Indo-Pacific tropical coastal species found generally between East Africa and Tahiti, including Hawaii (except for *L. rubrioperculatus, P. flavipinnis,* and *V. louti*). The black jack *C. lugubris* is the only circumtropical species. These species typically inhabit deep-slope areas from 100 m to 400 m, with *A. virescens, C. lugubris, L. kasmira, L. rubrioperculatus,* and *V. louti* habitat extending to shallow areas (< 10 m depth).

In accordance with the Magnuson-Stevens Act, the FEP and implementing regulations at 50 CFR 600.310, each Council's Scientific and Statistical Committee (SSC) must provide its Regional Fishery Management Council recommendations for acceptable biological catch (ABC). The ABC is defined as a level of annual catch, which is based on an ABC control rule that accounts for the scientific uncertainty in the estimate of the overfishing limit (OFL), any other scientific uncertainty, and the Council's risk policy. NMFS must specify an annual catch limit (ACL) and implement accountability measures (AM) for BMUS. ACLs are recommended by the Council in consideration of the best available scientific, commercial, and other information about the fishery for that stock or stock complex. The ACL may not exceed the acceptable biological catch ABC recommended by the Council's Scientific and Statistical Committee SSC.

On February 10, 2020, NMFS notified the Council that the American Samoa bottomfish stock complex was overfished and subject to overfishing (85 FR 26940, May 6, 2020). Consistent with section 304(e) of the Magnuson-Stevens Act and implementing regulations at 50 CFR 600.310(j), the Council prepared, and NMFS implemented, a rebuilding plan under Amendment 5 to the FEP (87 FR 25590). The rebuilding plan implemented an ACL of 5,000 lb (2,268 kg) starting in 2022, and harvests from both territorial and Federal waters are counted toward the ACL. The rebuilding plan also included an in-season accountability measure and a higher performance standard. If NMFS projects that the fishery will reach the ACL in any year, then the fishery will be closed in Federal waters for the remainder of that year. If the total annual catch exceeds the ACL during a year, NMFS will close the fishery in Federal waters until NMFS and the Territory of American Samoa implement a coordinated management approach to ensure that catch in Federal and territorial waters is maintained at levels that allow the stock to rebuild.

In June 2023, NMFS Pacific Islands Fisheries Science Center (PIFSC) completed a benchmark stock assessment for bottomfish in American Samoa (Nadon et al. 2023). The assessment used a single-species age-structured model integrated into the Stock Synthesis 3 modeling framework (Methot and Wetzol 2013), incorporated historical catch from 1967 to 1985 using older government reports, and was the culmination of a three-year American Samoa bottomfish stock assessment improvement plan (Nadon and Bohaboy 2022). Estimates of harvest rate (H), annual biomass (B), the harvest rate associated with overfishing as determined by the harvest control rule (HCR), maximum sustainable yield (MSY), and the biomass at maximum sustainable yield (B_{MSY}) were used to determine stock status relative to reference points determining overfishing (H/HCR > 1) and overfished (B < 0.7×BMSY) status. Stock projections and corresponding risk of overfishing were calculated for 2022–2028 over a range of hypothetical eight-year catches for nine BMUS: *Aphareus rutilans, Aprion virescens, Caranx lugubris, Etelis coruscans, Lethrinus rubrioperculatus, Lutjanus kasmira, Pristipomoides flavipinnis, Pristipomoides zonatus,* and *Variola louti*. .

The 2023 benchmark assessment was reviewed by the Western Pacific Stock Assessment Review (WPSAR) panel on February 17 – 23, 2023. The panel found the assessment update adequate for management use (Franklin, Cordue, and Powers 2023). The SSC received the WPSAR review reports and the peer-reviewed benchmark stock assessment at its 148th meeting in June 14, 2023. The SSC discussed the issues of lessons learned, the role of sensitivity analysis, use of indicator species for two unassessed species and the potential for incorporating catch per unit effort (CPUE) data. The SSC noted the benefits of holding the review in the territory and suggested taking the WPSAR to their respective areas for their upcoming stock assessments. The SSC accepted the 2023 benchmark assessment as the best scientific information available (BSIA) for setting harvest limits for fishing year 2024 to 2027. The SSC also recommended that the Council direct staff to convene the Risk of Overfishing Analysis (P*) and Social, Economic, Ecological and Management (SEEM) working group to quantify the uncertainties to set the ABC and specify the ACLs.

On August ##, 2023, PIFSC sent a memorandum to the Council stating that NMFS determines the 2023 benchmark stock assessment to be BSIA consistent with National Standard 2. On Aug/Sept ##, 2023, NMFS determined that the none of the American Samoa bottomfish stocks assed in the 2023 benchmark assessment were overfished or subject to overfishing (## FR ####, Sept ##, 2023). On August/September ##, 2023, NMFS Pacific Islands Regional Office (PIRO) issued a notification informing the Council of this determination, which included the basis for the change in stock status and the fishery was not overfished or experiencing overfishing in 2017 through the current fishing year. Based on this determination, NMFS notified the Council that they may amend the American Samoa FEP to discontinue the rebuilding plan (WPRFMC 2022) (50 CFR 600.310(j)(5)) and set ACLs and AMs for the 2024-2026 fishing years.

1.2 Proposed Action

The proposed action is to amend the FEP to discontinue the rebuilding plan established by Amendment 5 and to specify ACLs and AMs for American Samoa BMUS managed under the FEP for fishing years 2024 to 2026.

1.3 Purpose and Need for the Action

The purpose of this action is to specify the ACL and AMs for American Samoa BMUS for fishing years 2024 to 2027and revise the current rebuilding plan to reflect the results of the 2023 benchmark stock assessment. Doing so will comply with the requirements of the Magnuson-Stevens Act, the FEP and implementing regulations that require implementation of ACLs and AMs for AS BMUS.

This action is needed to prevent overfishing and to provide for long-term sustainability of the fishery resources while allowing fishery participants to continue to benefit from their utilization. AMs are needed to reduce the potential of exceeding an ACL and are used to correct or mitigate overages of the ACL should they occur.

1.4 Action Area

The fishery management area for the American Samoa FEP bottomfish fishery includes the EEZ around American Samoa. However, the action area also encompasses those areas in which fishing for bottomfish occurs in territorial waters of American Samoa. Bottomfish fishing primarily occurs in waters from the surface to 230 m depth around the islands and offshore banks of American Samoa, including Tutuila, Aunu'u, and the Manu'a Islands (i.e., Ta'ū and Ofu-Olosega, approximately 54 nm east of Tutuila). As of June 3, 2013, commercial fishing is prohibited in Rose Atoll Marine National Monument (78 FR 32996), which is approximately 80 nm east of Ta'ū. The fishery does not fish in areas closed to fishing around the Islands of Tutuila and Aunu'u, which include several community and territorial marine protected areas (MPAs), including at Fagamalo and several National Marine Sanctuary Management Areas.

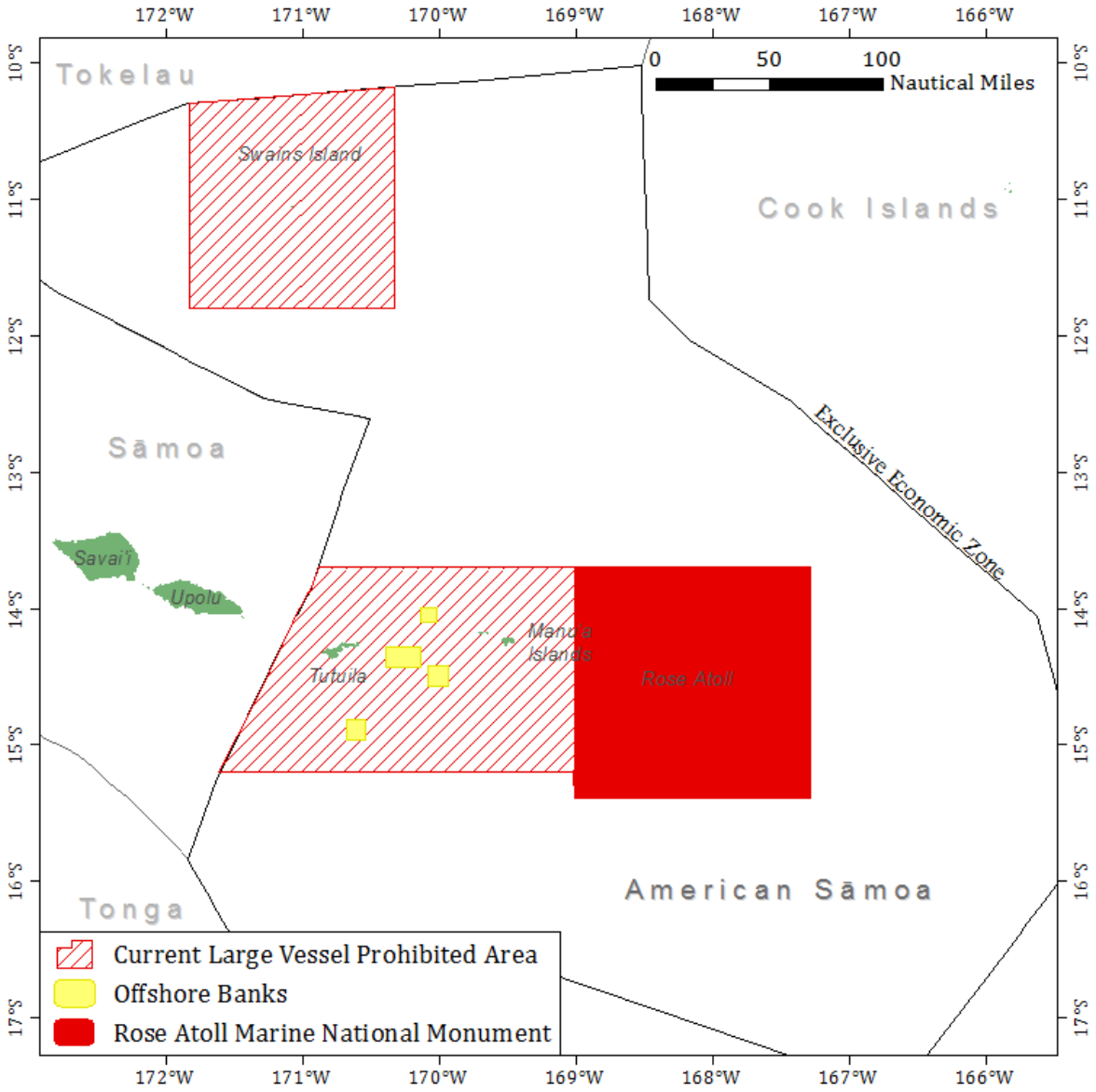

Figure 1: American Samoa Fishery Ecosystem Regulated Fishing Areas. Include the Large Vessel Prohibited areas, the offshore Banks and the Rose Atoll Marine National Monument.

1.5 Benchmark Stock Assessment and Status of the Stock

The Magnuson-Stevens Act requires that a fishery management plan specify objective and measurable criteria, or reference points, for determining when a stock is subject to overfishing or is overfished. The FEP includes status determination criteria (SDC) that specify when the bottomfish stock is considered overfishing or when overfishing is occurring (WPFMC 2009). Overfishing of bottomfish occurs when the fishing mortality rate (F) is greater than the fishing mortality rate for maximum sustainable yield (F_{MSY}) for one year or more; this is the Maximum

Fishing Mortality Threshold (MFMT) and is expressed as a ratio, $F/F_{MSY} = 1.0$ (Fig. 3). Thus, if the F/F_{MSY} ratio exceeds 1.0 for one year or more, overfishing is occurring. A stock is a considered to be overfished when its biomass (B) declines below the level necessary to produce the MSY on a continuing basis and can be expressed as the ratio $B/B_{MSY} < 1\text{-}M$, where M is the natural mortality of the stock.

Under all of the western Pacific FEPs, overfishing occurs when the fishing mortality rate (F) is greater than the fishing mortality rate that produces MSY (F_{MSY}) for one year or more. This threshold is termed the maximum fishing mortality threshold (MFMT) and is expressed as a ratio, $F_{year}/F_{MSY} = 1.0$. Thus, if the F_{year}/F_{MSY} ratio is greater than 1.0 for one year or more, overfishing is occurring. A stock is considered overfished when its biomass (B) has declined below the level necessary to produce MSY on a continuing basis (B_{MSY}). This threshold is termed the minimum stock size threshold (MSST) and is expressed as a ratio, $B/B_{MSY} = 0.7$. Thus, if the B/B_{MSY} ratio is less than 0.7, the stock complex is considered overfished.

On January 10, 2020, PIFSC sent a memorandum to the Council stating that NMFS determined the 2019 benchmark stock assessment to be the best scientific information available (BSIA) consistent with National Standard 2. On February 6, 2020, NMFS determined that the American Samoa bottomfish stock is overfished and subject to overfishing (85 FR 26940, May 6, 2020). On February 10, 2020, the NMFS Pacific Islands Regional Office (PIRO) issued a notification informing the Council of this determination, which included the basis for the change in stock status and outlined the obligations of the Council to take immediate action to end overfishing and to implement a plan within two years to rebuild the stock as stipulated by the Magnuson-Stevens Act. The Council recommended and NMFS implemented a rebuilding plan for the American Samoa bottomfish fishery under Amendment 5 to the FEP (87 FR 25590).

In June 2023, NMFS Pacific Islands Fisheries Science Center (PIFSC) completed a benchmark stock assessment for bottomfish in American Samoa (Nadon et al. 2023). The assessment was conducted as a benchmark, which means that all components of the assessment analyses were re-evaluated by PIFSC and several changes were made relative to previous assessments of the bottomfish fisheries. The assessment integrates catch, an abundance index, and length composition from four data sources: historical catches (pre-1986) from older reports; recent catches (post-1985) from boat- and shore-based creel surveys; length compositions from boat-based creel surveys and the biosampling program; and an abundance index from boat-based creel survey interviews. A major improvement for this new benchmark was the move to single-species, age-structured models in the Stock Synthesis modeling framework for all BMUS except *E. carbunculus* and *P. filamentosus* (Methot and Wetzel 2013). It also corrects data issues from previous stock assessments, including misidentification of species, catch records of species in areas outside of their known habitat, discrepancy in catch rate and effort units, and missing data for certain species or areas.

Estimates of harvest rate (H), annual biomass (B), the harvest rate associated with overfishing as determined by the harvest control rule (HCR), maximum sustainable yield (MSY), and the biomass at maximum sustainable yield (BMSY) were used to determine stock status relative to reference points determining overfishing ($H/HCR > 1$) and overfished ($B < 0.7 \times BMSY$) status. Stock projections and corresponding risk of overfishing were calculated for 2022–2028 over a range of hypothetical eight-year catches for 9 BMUS: *Aphareus rutilans*, *Aprion virescens*,

Caranx lugubris, *Etelis coruscans*, *Lethrinus rubrioperculatus*, *Lutjanus kasmira*, *Pristipomoides flavipinnis*, *Pristipomoides zonatus*, and *Variola louti*.

In 2023, the production model results indicate that all nine BMUS assessed were not overfished nor experiencing overfishing in 2021 (Nadon et al. 2023; **Error! Reference source not found.**). The two species closest to an overfished status were *A. virescens* and *E. coruscans*. The production model results indicated that seven of the nine BMUS were either overfished or came close to being overfished in the 1980s and early 1990s, following the increased fishing effort associated with the dory and alia programs (Nadon et al. 2023).

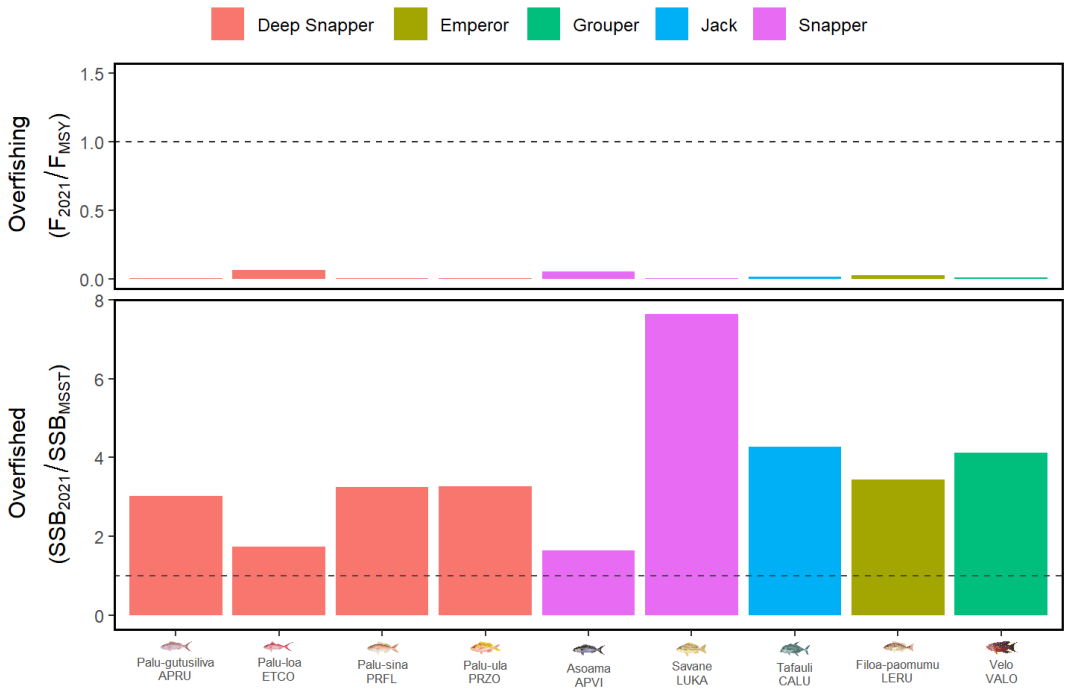

Figure 2: Stock status in 2021 of the nine BMUS species with single-species assessment models (Nadon et al. 2023).

In 2022, the most recent year for which annual estimated BMUS catch data are available, there was an estimated total catch of 2,583 lb from creel surveys (WPRFMC 2023). The 2023 point estimate of catch is lower than the recent ten year average. The estimated commercial catch for 2020 is higher than the recent three year average commercial catch (**Error! Reference source not found.**).

Table 1: Summary of selected metrics for the BMUS. Overfishing is defined by F/FMSY > 1 and overfished status is defined by SSB/SSBMSST < 1 (Nadon et al. 2023).

BMUS	Samoan name	MSY (lb)	F/F_{MSY} 2021	SSB/SSB_{MSST} 2021	*SSB* 2021 (lb)	Catch 2019-2021 (lb)	OFL 2028 (lb)	Status in 2021
Aphareus rutilans	Palu-gutusiliva	4,762	<0.01	3.1	31,306	1,115	9,039	No overfishing, not overfished
Aprion virescens	Asoama	3,439	0.05	1.7	11,023	1,986	4,850	No overfishing, not overfished
Caranx lugubris	Tafauli	1,896	0.015	4.4	4,586	700	2,778	No overfishing, not overfished
Etelis carbunculus	Palu-malau	-	-	-	-	-	-	Unknown
Etelis coruscans	Palu-loa	3,461	0.05	1.7	28,440	1,038	5,291	No overfishing, not overfished
Lethrinus rubrioperculatus	Filoa-paomumu	5,247	0.02	2.8	21,164	1,057	7,496	No overfishing, not overfished
Lutjanus kasmira	Savane	18,210	<0.01	7.6	27,558	571	17,637	No overfishing, not overfished
Pristipomoides filamentosus	Palu-‘ena-‘ena	-	-	-	-	-	-	Unknown
Pristipomoides flavipinnis	Palu-sina	1,367	<0.01	3.2	7,055	148	2,425	No overfishing, not overfished
Pristipomoides zonatus	Palu-ula	816	<0.01	3.3	4,409	94	1,323	No overfishing, not overfished
Variola louti	Velo	1,014	<0.01	4.1	4,630	229	1,984	No overfishing, not overfished

Table 2: Comparison of bottomfish catches to annual catch limits (ACLs). ACLs were not specified in 2018 through 2021. All ACL and catch values are in lb (Nadon et al. 2023).

Year	APRU	APVI	CALU	ETCO	LERU	LUKA	PRFL	PRZO	VALO	Total	AS ACL
2012	1,171	1,021	562	1,129	2,500	1,168	631	71	172	10,183	99,000
2013	2,950	4,145	970	2,800	4,877	3,635	606	161	761	24,310	101,000
2014	3,596	4,839	604	5,088	2,341	3,982	644	280	646	27,752	101,000
2015	4,068	5,628	1,246	4,239	6,773	4,076	1,221	243	353	33,307	101,000
2016	3,148	6,598	1,676	6,748	1,929	1,243	1,323	571	139	31,447	106,000
2017	3,450	4,213	1,488	3,338	1,360	798	205	540	121	19,057	106,000
2018	1,989	2,086	1,396	3,351	888	520	355	280	143	14,714	No ACL
2019	2,743	2,756	1,272	1,376	1,790	754	254	159	410	13,142	No ACL
2020	527	2,932	745	1,396	959	582	165	110	247	9,224	13,000
2021	75	271	82	344	421	377	24	13	31	2,006	13,000
3 yr ave	**1,115**	**1,986**	**700**	**1,038**	**1,057**	**571**	**148**	**94**	**229**	**8,124**	
10 yr ave	**2,372**	**3,449**	**1,004**	**2,981**	**2,384**	**1,714**	**543**	**243**	**302**	**18,514**	

1.6 Overview of ACL and AM Development Process

Federal regulations at 50 CFR 665.4 (76 FR 37285, June 27, 2011) require NMFS to implement an ACL and AM(s), as recommended by the Council, based on the best scientific, commercial, and other information available for the fishery. In accordance with the Magnuson-Stevens Act and the FEP, there are three required elements in the development of an ACL as shown in Figure 3: calculating the ABC, determining an ACL that may not exceed the ABC, and developing AMs.

In the first step, the Council's SSC calculates an ABC that is set at or below the stocks OFL. The OFL is an estimate of the catch level above which overfishing is occurring and corresponds with the MFMT. In accordance with Federal regulations at 50 CFR 600.310 implementing National Standard 1 of the Magnuson-Stevens Act, the probability of overfishing (P*, pronounced P-star) cannot exceed 50 percent and should be a lower value. Thus, the ABC is the maximum amount the fishery can catch that provides at least a 50 percent chance, or better, of not overfishing the stock.

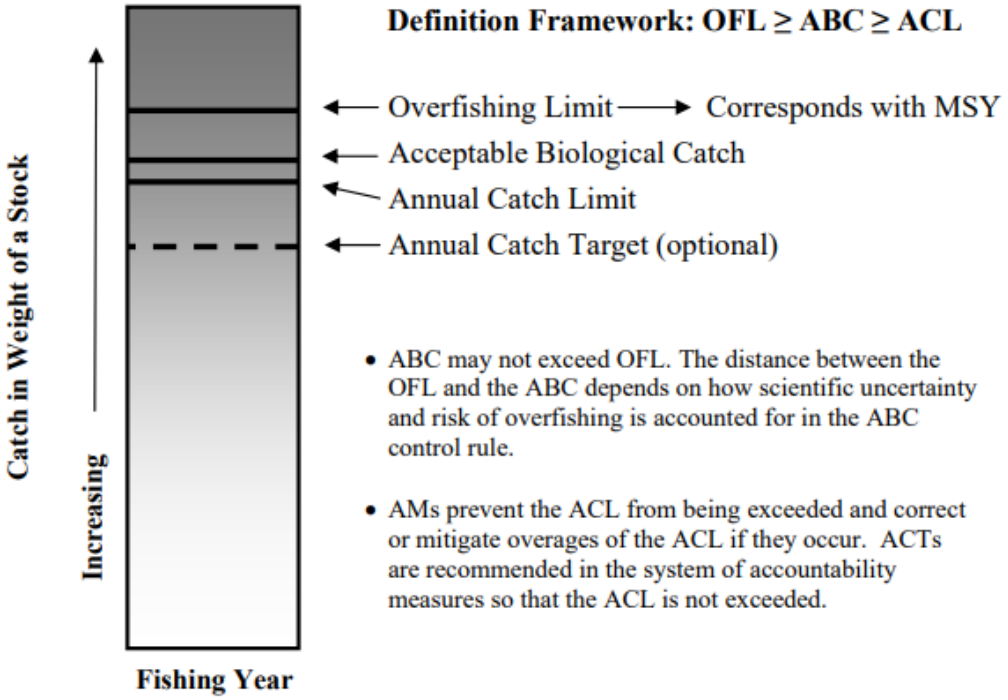

Figure 3: Relationship between OFL, ABC, ACL, and ACT.

Second, the Council must recommend an ACL that does not exceed the ABC recommended by the SSC. An ACL set below the ABC further reduces the probability that actual catch will exceed the ABC or OFL and result in overfishing. The SSC may reduce the ABC below the OFL considering factors evaluated in a P* analysis. The Council may then reduce the ACL below the ABC in consideration of social, economic, ecological, and management (SEEM) factors in a SEEM analysis (see Hospital et al. 2019 for SEEM considerations.). While the P* analysis considers management uncertainty arising from underreporting and misreporting of catch, the SEEM analysis is more

forward-looking and considers uncertainty arising from concerns about compliance and/or management capacity.

The third and final element in the ACL process is the inclusion of AMs. There are two categories of AMs, in-season AMs and post-season AMs. In-season AMs prevent an ACL from being exceeded and may include closing the fishery, closing specific areas, changing bag limits, setting an annual catch target (ACT), or other methods to reduce catch. Post-season AMs reduce the ACL and/or ACT in subsequent years if the ACL is exceeded in order to mitigate potential impacts to fish stocks. Additionally, National Standard 1 and the FEP describe performance standards that identify conditions when a system of ACLs and AMs should be reevaluated. Generally, if any fishery exceeds an ACL more than once in a four-year period, as a performance standard the Council is required to re-evaluate the ACL process for that fishery and adjust the system as necessary to improve its performance and effectiveness in ensuring sustainability of the fishery. The Council can also choose a higher performance standard to provide more conservative management for vulnerable stocks.

1.7 Public review and Involvement

The Council convenes several meetings per year, including meetings for its SSC, all of which are open to the public. The Council notifies and invites the public to these meetings through notices published in the *Federal Register* and on its website. Public comment, including both oral and written statements, are accepted by the Council and SSC on its agenda items for the meeting.

1.8 Decisions to be Made

The Council's task is to recommend whether to discontinue the rebuilding plan, specify the ACLs from the ABCs recommended by the SSC, and recommend AMs for American Samoa BMUS for fishing years 2024-2026. The Council's specification process allows setting an ACL for a maximum of four years. The ACLs may not exceed the ABCs set by the SSC, in accordance with implementing regulations for National Standard 1 of the Magnuson-Stevens Act (50 CFR 600.310). 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 analysis (WPRFMCc).

1.9 NEPA Compliance

This Environmental Assessment (EA) is being prepared using the 2020 Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) Regulations. The effective date of the 2020 CEQ NEPA Regulations was September 14, 2020, and reviews begun after this date are required to apply the 2020 regulations unless there is a clear and fundamental conflict with an applicable statute. 85 Fed. Reg. at 43372-73 (50 CFR §§ 1506.13, 1507.3(a)). This EA began after June 30, 2021 and accordingly proceeds under the 2020 regulations.

1.10 List of Preparers

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2 Descriptions of the Alternatives

2.1 Development of the Alternatives

2.1.1 Estimation of OFL

New scientific information was presented to the SSC and the Council at its 148th and 195th meeting, respectively, with the release of the peer-reviewed benchmark stock assessment for nine bottomfish species in the American Samoa Archipelago (Nadon et al. 2023). The assessment used single-species age-structured models into a Stock Synthesis modeling framework (Methot and Wetzel 2013) to obtain mortality rates and various stock status metrics. *E. carbunculus* and *P. filamentosus* were not assessed due to lack of insufficient data. The assessment proposed the use of indicator species from the nine assessed BMUS that would serve as proxies for *E. coruscans* and *P. flavipinnis*. An indicator stock is a stock with measurable and objective SDC that can be used to help manage and evaluate more poorly known stocks that are in a stock complex. The indicator in the present case is a species for which stock status is known and there is sufficient information to track catch, and it is used to determine, or indicate, the status of another species or stock in the fishery that has similar life history and for which status is unknown. When the indicator species reaches the management triggers such as an ACT or ACL, management measures are applied to both the indicator species and to those species for which it indicates status. No catch limits are set for unassessed species, and their catch is not tracked against the limit of the indicator species.

The overfishing limits (OFL) (**Error! Reference source not found.**) correspond to a 50% risk of overfishing. The sum of the nine BMUS OFL with the use of indicator species were about 51,588 lb, which is higher than the 2023 5,000 lb limit outlined in the 2019 assessment. The sum of the nine MSY values in the 2023 benchmark was 23.8 mt (52,559 lb) (**Error! Reference source not found.**). The P* distributions for a range of catch limits were generated for the nine assessed species. From 2015 to 2021, the average catch estimates were below the OFL and MSY with an average of 11,000 pounds.

Table 3: *Aphareus rutilans (palu-gutusiliva)* probabilities of overfishing (%) in fishing year 2024-2028 (lbs) (Nadon et al. 2023).

P*	2024	2025	2026	2027	2028
0.50	11,618	10,538	10,009	9,436	8,995
0.49	11,530	10,428	9,921	9,348	8,907
0.48	11,420	10,340	9,811	9,259	8,818
0.47	11,332	10,251	9,722	9,171	8,730
0.46	11,222	10,163	9,634	9,105	8,642
0.45	11,133	10,075	9,524	9,017	8,554
0.44	11,023	9,965	9,436	8,929	8,466
0.43	10,935	9,877	9,348	8,841	8,378
0.42	10,825	9,789	9,237	8,752	8,289
0.41	10,714	9,700	9,149	8,664	8,201
0.40	10,626	9,590	9,039	8,576	8,135
0.39	10,516	9,502	8,951	8,488	8,047
0.38	10,406	9,414	8,863	8,400	7,959
0.37	10,296	9,326	8,752	8,311	7,870
0.36	10,207	9,237	8,664	8,223	7,782
0.35	10,097	9,127	8,554	8,135	7,716
0.34	9,987	9,039	8,466	8,047	7,628
0.33	9,877	8,951	8,378	7,959	7,540
0.32	9,766	8,863	8,267	7,893	7,474
0.31	9,656	8,752	8,179	7,804	7,385
0.30	9,546	8,664	8,069	7,716	7,297
0.29	9,436	8,576	7,981	7,628	7,231
0.28	9,326	8,488	7,870	7,540	7,143
0.27	9,215	8,378	7,782	7,452	7,055
0.26	9,105	8,289	7,694	7,363	6,989
0.25	8,973	8,201	7,584	7,275	6,900
0.24	8,863	8,091	7,496	7,187	6,834
0.23	8,752	8,003	7,385	7,099	6,746
0.22	8,642	7,915	7,297	7,011	6,680
0.21	8,510	7,826	7,187	6,945	6,592
0.20	8,400	7,716	7,099	6,856	6,526
0.19	8,289	7,628	6,989	6,768	6,437
0.18	8,157	7,540	6,900	6,680	6,371
0.17	8,047	7,430	6,812	6,592	6,283
0.16	7,915	7,341	6,702	6,504	6,217
0.15	7,804	7,253	6,614	6,415	6,151
0.14	7,672	7,143	6,504	6,327	6,063
0.13	7,562	7,055	6,415	6,239	5,997
0.12	7,430	6,967	6,305	6,151	5,930
0.11	7,297	6,856	6,217	6,085	5,842
0.10	7,187	6,768	6,107	5,997	5,776

Table 4: *Aprion virescens* (asoama) probabilities of overfishing (%) in fishing year 2024-2028 (lbs) (Nadon et al. 2023).

P*	2024	2025	2026	2027	2028
0.50	5,798	5,401	5,115	4,894	4,740
0.49	5,776	5,379	5,115	4,894	4,740
0.48	5,754	5,357	5,093	4,872	4,718
0.47	5,732	5,335	5,071	4,850	4,718
0.46	5,710	5,313	5,049	4,850	4,696
0.45	5,688	5,313	5,049	4,828	4,674
0.44	5,666	5,291	5,027	4,806	4,674
0.43	5,644	5,269	5,004	4,806	4,652
0.42	5,622	5,247	4,982	4,784	4,630
0.41	5,600	5,225	4,960	4,762	4,630
0.40	5,578	5,203	4,960	4,762	4,608
0.39	5,556	5,203	4,938	4,740	4,586
0.38	5,534	5,181	4,916	4,718	4,586
0.37	5,512	5,159	4,894	4,718	4,564
0.36	5,490	5,137	4,872	4,696	4,542
0.35	5,467	5,115	4,872	4,674	4,542
0.34	5,445	5,093	4,850	4,674	4,519
0.33	5,423	5,071	4,828	4,652	4,497
0.32	5,401	5,049	4,806	4,630	4,497
0.31	5,379	5,049	4,784	4,630	4,475
0.30	5,357	5,027	4,762	4,608	4,453
0.29	5,335	5,004	4,762	4,586	4,453
0.28	5,313	4,982	4,740	4,564	4,431
0.27	5,291	4,960	4,718	4,564	4,409
0.26	5,269	4,938	4,696	4,542	4,409
0.25	5,247	4,916	4,674	4,519	4,387
0.24	5,225	4,894	4,652	4,497	4,365
0.23	5,181	4,872	4,630	4,497	4,365
0.22	5,159	4,850	4,630	4,475	4,343
0.21	5,137	4,828	4,608	4,453	4,321
0.20	5,115	4,806	4,586	4,431	4,321
0.19	5,093	4,784	4,564	4,431	4,299
0.18	5,071	4,762	4,542	4,409	4,277
0.17	5,027	4,740	4,519	4,387	4,255
0.16	5,004	4,718	4,497	4,365	4,255
0.15	4,982	4,696	4,475	4,365	4,233
0.14	4,960	4,674	4,453	4,343	4,211
0.13	4,938	4,652	4,453	4,321	4,189
0.12	4,894	4,630	4,431	4,299	4,189
0.11	4,872	4,608	4,409	4,277	4,167
0.10	4,850	4,586	4,387	4,277	4,145

Table 5: *Caranx lugubris* (tafauli) probabilities of overfishing (%) in fishing year 2024-2028 (lbs) (Nadon et al. 2023).

P*	2024	2025	2026	2027	2028

0.50	4,453	3,616	3,219	2,954	2,778
0.49	4,431	3,594	3,219	2,954	2,778
0.48	4,409	3,594	3,197	2,932	2,778
0.47	4,409	3,594	3,197	2,932	2,756
0.46	4,387	3,571	3,175	2,932	2,756
0.45	4,365	3,571	3,175	2,910	2,756
0.44	4,365	3,549	3,153	2,910	2,734
0.43	4,343	3,549	3,153	2,888	2,734
0.42	4,321	3,527	3,131	2,888	2,734
0.41	4,299	3,527	3,131	2,888	2,712
0.40	4,299	3,505	3,109	2,866	2,712
0.39	4,277	3,505	3,109	2,866	2,690
0.38	4,255	3,483	3,086	2,844	2,690
0.37	4,233	3,483	3,086	2,844	2,690
0.36	4,211	3,461	3,064	2,822	2,668
0.35	4,211	3,461	3,064	2,822	2,668
0.34	4,189	3,439	3,042	2,822	2,646
0.33	4,167	3,417	3,042	2,800	2,646
0.32	4,145	3,417	3,020	2,800	2,623
0.31	4,123	3,395	3,020	2,778	2,623
0.30	4,123	3,395	2,998	2,778	2,623
0.29	4,101	3,373	2,976	2,756	2,601
0.28	4,079	3,351	2,976	2,756	2,601
0.27	4,057	3,351	2,954	2,734	2,579
0.26	4,034	3,329	2,954	2,734	2,579
0.25	4,012	3,307	2,932	2,712	2,557
0.24	3,990	3,307	2,932	2,690	2,557
0.23	3,968	3,285	2,910	2,690	2,535
0.22	3,968	3,263	2,888	2,668	2,535
0.21	3,946	3,263	2,888	2,668	2,513
0.20	3,924	3,241	2,866	2,646	2,513
0.19	3,902	3,219	2,866	2,646	2,491
0.18	3,880	3,197	2,844	2,623	2,469
0.17	3,858	3,175	2,822	2,601	2,469
0.16	3,836	3,175	2,822	2,601	2,447
0.15	3,814	3,153	2,800	2,579	2,447
0.14	3,792	3,131	2,778	2,579	2,425
0.13	3,770	3,109	2,778	2,557	2,425
0.12	3,748	3,086	2,756	2,535	2,403
0.11	3,726	3,086	2,756	2,535	2,381
0.10	3,704	3,064	2,734	2,513	2,381

Table 6: *Etelis coruscans* (palu-loa) probabilities of overfishing (%) in fishing year 2024-2028 (lbs) (Nadon et al. 2023).

P*	2024	2025	2026	2027	2028
0.50	5,666	5,490	5,445	5,335	5,247
0.49	5,644	5,445	5,401	5,313	5,203
0.48	5,600	5,423	5,379	5,269	5,159
0.47	5,578	5,379	5,335	5,247	5,137
0.46	5,534	5,335	5,291	5,203	5,093
0.45	5,490	5,313	5,269	5,159	5,071
0.44	5,467	5,269	5,225	5,137	5,027
0.43	5,423	5,225	5,181	5,093	4,982
0.42	5,379	5,203	5,137	5,049	4,960
0.41	5,357	5,159	5,115	5,027	4,916
0.40	5,313	5,115	5,071	4,982	4,872
0.39	5,269	5,093	5,027	4,960	4,850
0.38	5,225	5,049	4,982	4,916	4,806
0.37	5,181	5,004	4,938	4,872	4,762
0.36	5,159	4,982	4,894	4,828	4,740
0.35	5,115	4,938	4,872	4,806	4,696
0.34	5,071	4,894	4,828	4,762	4,652
0.33	5,027	4,850	4,784	4,718	4,630
0.32	4,982	4,828	4,740	4,674	4,586
0.31	4,938	4,784	4,696	4,652	4,542
0.30	4,894	4,740	4,652	4,608	4,519
0.29	4,850	4,696	4,608	4,564	4,475
0.28	4,806	4,652	4,564	4,519	4,431
0.27	4,762	4,608	4,519	4,475	4,387
0.26	4,718	4,586	4,475	4,431	4,365
0.25	4,674	4,542	4,431	4,387	4,321
0.24	4,630	4,497	4,387	4,365	4,277
0.23	4,564	4,453	4,343	4,321	4,233
0.22	4,519	4,409	4,299	4,277	4,211
0.21	4,475	4,365	4,255	4,233	4,167
0.20	4,431	4,321	4,211	4,189	4,123
0.19	4,387	4,277	4,145	4,145	4,079
0.18	4,321	4,233	4,101	4,101	4,057
0.17	4,277	4,189	4,057	4,057	4,012
0.16	4,233	4,145	4,012	4,012	3,968
0.15	4,189	4,101	3,968	3,968	3,924
0.14	4,123	4,057	3,924	3,924	3,880
0.13	4,079	4,012	3,858	3,880	3,858
0.12	4,012	3,968	3,814	3,836	3,814
0.11	3,968	3,924	3,770	3,792	3,770
0.10	3,924	3,880	3,726	3,748	3,726

Table 7: *Lethrinus rubrioperculatus* (filoa-paomumu) probabilities of overfishing (%) in fishing year 2025-2028 (lbs) (Nadon et al. 2023).

P*	2025	2026	2027	2028
0.50	10,362	8,863	7,959	7,408
0.49	10,318	8,841	7,959	7,385
0.48	10,296	8,796	7,937	7,363
0.47	10,274	8,774	7,915	7,341
0.46	10,251	8,752	7,893	7,341
0.45	10,207	8,730	7,870	7,319
0.44	10,185	8,708	7,848	7,297
0.43	10,163	8,686	7,826	7,275
0.42	10,141	8,664	7,804	7,253
0.41	10,097	8,642	7,782	7,231
0.40	10,075	8,620	7,760	7,231
0.39	10,053	8,598	7,760	7,209
0.38	10,009	8,576	7,738	7,187
0.37	9,987	8,554	7,716	7,165
0.36	9,965	8,532	7,694	7,165
0.35	9,943	8,510	7,672	7,143
0.34	9,899	8,488	7,650	7,121
0.33	9,877	8,466	7,628	7,099
0.32	9,855	8,444	7,606	7,077
0.31	9,811	8,422	7,606	7,077
0.30	9,789	8,400	7,584	7,055
0.29	9,766	8,378	7,562	7,033
0.28	9,722	8,356	7,540	7,011
0.27	9,700	8,333	7,518	7,011
0.26	9,678	8,311	7,496	6,989
0.25	9,656	8,289	7,474	6,967
0.24	9,612	8,267	7,452	6,945
0.23	9,590	8,245	7,452	6,945
0.22	9,568	8,201	7,430	6,923
0.21	9,524	8,179	7,408	6,900
0.20	9,502	8,157	7,385	6,878
0.19	9,480	8,135	7,363	6,878
0.18	9,436	8,113	7,341	6,856
0.17	9,414	8,091	7,319	6,834
0.16	9,392	8,069	7,319	6,834
0.15	9,348	8,047	7,297	6,812
0.14	9,326	8,025	7,275	6,790
0.13	9,303	8,003	7,253	6,768
0.12	9,259	7,981	7,231	6,768
0.11	9,237	7,959	7,209	6,746
0.10	9,215	7,937	7,209	6,724

Table 8: Probabilities of overfishing (%) *Lutjanus kasmira* (savane) (Nadon et al. 2023).

P*	MSY
0.50	17,637
0.49	17,549

0.48	17,461
0.47	17,372
0.46	17,306
0.45	17,218
0.44	17,130
0.43	17,042
0.42	16,976
0.41	16,887
0.40	16,799
0.39	16,733
0.38	16,645
0.37	16,557
0.36	16,491
0.35	16,402
0.34	16,314
0.33	16,226
0.32	16,138
0.31	16,050
0.30	15,961
0.29	15,873
0.28	15,785
0.27	15,675
0.26	15,587
0.25	15,498
0.24	15,410
0.23	15,322
0.22	15,212
0.21	15,124
0.20	15,013
0.19	14,903
0.18	14,793
0.17	14,661
0.16	14,550
0.15	14,418
0.14	14,308
0.13	14,176
0.12	14,021
0.11	13,867
0.10	13,713

Table 9: *Pristipomoides flavipinnis* (palu-sina) probabilities of overfishing (%) in fishing year 2024-2028 (lbs) (Nadon et al. 2023).

P*	2024	2025	2026	2027	2028
0.50	3,682	3,153	2,844	2,623	2,469
0.49	3,660	3,131	2,822	2,601	2,447
0.48	3,638	3,109	2,800	2,579	2,425
0.47	3,594	3,086	2,800	2,579	2,403
0.46	3,571	3,064	2,778	2,557	2,381
0.45	3,549	3,042	2,756	2,535	2,359

0.44	3,527	3,020	2,734	2,513	2,359
0.43	3,505	2,998	2,712	2,513	2,337
0.42	3,483	2,976	2,690	2,491	2,315
0.41	3,461	2,954	2,668	2,469	2,293
0.40	3,439	2,932	2,668	2,447	2,271
0.39	3,417	2,910	2,646	2,425	2,271
0.38	3,373	2,888	2,623	2,425	2,249
0.37	3,351	2,866	2,601	2,403	2,227
0.36	3,329	2,844	2,579	2,381	2,205
0.35	3,307	2,822	2,557	2,359	2,205
0.34	3,285	2,800	2,535	2,337	2,183
0.33	3,263	2,778	2,513	2,337	2,161
0.32	3,219	2,756	2,491	2,315	2,138
0.31	3,197	2,734	2,469	2,293	2,138
0.30	3,175	2,712	2,447	2,271	2,116
0.29	3,153	2,690	2,425	2,249	2,094
0.28	3,109	2,668	2,403	2,249	2,094
0.27	3,086	2,668	2,381	2,227	2,072
0.26	3,064	2,646	2,359	2,205	2,050
0.25	3,020	2,623	2,337	2,183	2,050
0.24	2,998	2,601	2,315	2,161	2,028
0.23	2,976	2,579	2,293	2,138	2,006
0.22	2,932	2,557	2,271	2,138	2,006
0.21	2,910	2,535	2,249	2,116	1,984
0.20	2,888	2,513	2,227	2,094	1,962
0.19	2,844	2,491	2,205	2,072	1,962
0.18	2,822	2,469	2,183	2,050	1,940
0.17	2,800	2,447	2,161	2,028	1,940
0.16	2,756	2,425	2,138	2,006	1,918
0.15	2,734	2,403	2,116	2,006	1,896
0.14	2,690	2,381	2,094	1,984	1,896
0.13	2,668	2,359	2,072	1,962	1,874
0.12	2,623	2,337	2,028	1,940	1,874
0.11	2,601	2,337	2,006	1,918	1,852
0.10	2,557	2,315	1,984	1,896	1,852

Table 10: *Pristipomoides zonatus* (palu-ula, palu-sega) probabilities of overfishing in fishing year 2024-2028 (lbs) (Nadon et al. 2023).

P*	**2024**	**2025**	**2026**	**2027**	**2028**
0.50	2,028	1,786	1,609	1,477	1,411
0.49	2,028	1,764	1,609	1,477	1,389
0.48	2,028	1,764	1,609	1,477	1,389
0.47	2,006	1,764	1,609	1,477	1,389
0.46	2,006	1,764	1,587	1,455	1,389
0.45	2,006	1,742	1,587	1,455	1,367
0.44	1,984	1,742	1,587	1,455	1,367
0.43	1,984	1,742	1,587	1,455	1,367
0.42	1,984	1,742	1,565	1,433	1,367

0.41	1,962	1,720	1,565	1,433	1,345
0.40	1,962	1,720	1,565	1,433	1,345
0.39	1,940	1,720	1,543	1,433	1,345
0.38	1,940	1,698	1,543	1,411	1,323
0.37	1,940	1,698	1,543	1,411	1,323
0.36	1,918	1,698	1,521	1,411	1,323
0.35	1,918	1,676	1,521	1,389	1,301
0.34	1,896	1,676	1,521	1,389	1,301
0.33	1,896	1,676	1,499	1,389	1,301
0.32	1,874	1,653	1,499	1,389	1,279
0.31	1,874	1,653	1,477	1,367	1,279
0.30	1,852	1,631	1,477	1,367	1,279
0.29	1,852	1,631	1,477	1,345	1,257
0.28	1,830	1,609	1,455	1,345	1,257
0.27	1,830	1,609	1,455	1,345	1,257
0.26	1,808	1,587	1,433	1,323	1,235
0.25	1,808	1,587	1,433	1,323	1,235
0.24	1,786	1,565	1,411	1,301	1,235
0.23	1,764	1,565	1,411	1,301	1,213
0.22	1,764	1,543	1,411	1,301	1,213
0.21	1,742	1,543	1,389	1,279	1,190
0.20	1,742	1,521	1,389	1,279	1,190
0.19	1,720	1,521	1,367	1,257	1,190
0.18	1,698	1,499	1,367	1,257	1,168
0.17	1,698	1,499	1,345	1,235	1,168
0.16	1,676	1,477	1,345	1,235	1,146
0.15	1,676	1,455	1,323	1,213	1,146
0.14	1,653	1,455	1,301	1,213	1,124
0.13	1,631	1,433	1,301	1,190	1,124
0.12	1,631	1,411	1,279	1,190	1,102
0.11	1,609	1,411	1,279	1,168	1,102
0.10	1,587	1,389	1,257	1,168	1,080

Table 11: Variola louti (velo) probabilities of overfishing in fishing year 2024-2028 (lbs) (Nadon et al. 2023).

P*	**2024**	**2025**	**2026**	**2027**	**2028**
0.50	1,102	3,086	2,425	2,094	1,874
0.49	1,080	3,064	2,403	2,072	1,874
0.48	1,058	3,064	2,403	2,072	1,852
0.47	1,036	3,042	2,381	2,050	1,852
0.46	1,014	3,020	2,359	2,028	1,830
0.45	992	2,998	2,359	2,028	1,830
0.44	970	2,976	2,337	2,006	1,808
0.43	948	2,954	2,315	2,006	1,786
0.42	926	2,932	2,315	1,984	1,786
0.41	904	2,910	2,293	1,962	1,764
0.40	882	2,888	2,271	1,962	1,764
0.39	860	2,866	2,271	1,940	1,742
0.38	838	2,844	2,249	1,918	1,720
0.37	816	2,822	2,227	1,896	1,720

0.36	794	2,800	2,205	1,896	1,698
0.35	772	2,778	2,205	1,874	1,698
0.34	750	2,756	2,183	1,852	1,676
0.33	728	2,734	2,161	1,852	1,676
0.32	705	2,712	2,138	1,830	1,653
0.31	683	2,690	2,138	1,808	1,631
0.30	661	2,668	2,116	1,808	1,631
0.29	639	2,646	2,094	1,786	1,609
0.28	617	2,623	2,072	1,764	1,609
0.27	595	2,601	2,050	1,764	1,587
0.26	573	2,579	2,050	1,742	1,565
0.25	551	2,557	2,028	1,720	1,565
0.24	529	2,535	2,006	1,720	1,543
0.23	507	2,513	1,984	1,698	1,543
0.22	485	2,469	1,962	1,676	1,521
0.21	463	2,447	1,940	1,653	1,521
0.20	441	2,425	1,940	1,653	1,499
0.19	419	2,403	1,918	1,631	1,477
0.18	397	2,381	1,896	1,609	1,477
0.17	375	2,359	1,874	1,609	1,455
0.16	353	2,337	1,852	1,587	1,455
0.15	331	2,315	1,830	1,565	1,433
0.14	309	2,293	1,808	1,543	1,433
0.13	287	2,249	1,786	1,543	1,411
0.12	265	2,227	1,764	1,521	1,389
0.11	243	2,205	1,764	1,499	1,389
0.10	220	2,183	1,742	1,499	1,367

2.1.2 Calculation of ABC, ACL, and ACT

Using the final 2023 benchmark stock assessment, the Council at its 195th meeting on June 27, 2023, directed staff to organize a working group to conduct the P* and SEEM analysis. The P* working group meeting was held at the Tradewinds Hotel in American Samoa on August 29, 2023. The working group was comprised of assessment scientists, fishery managers, and bottomfish fishermen. The working group scored the four scientific uncertainty dimensions: 1) assessment information; 2) uncertainty characterization; 3) stock status; and 4) productivity-susceptibility. The group reviewed the information in the 2023 benchmark stock assessment for the American Samoa bottomfish fishery and quantified scores for the nine species assessed. The working group quantified a single score for assessment information, uncertainty characterization and stock stocks. For assessment information, the group agreed that it was a characterized as a perfect assessment that provides the estimates of exploitation, biomass and MSY derived benchmarks. The total assessment aspects point was 4.0, which is a scaled equivalent of 1.1. Uncertainties were carried forward into the projections quantifying a 3.5 percent reduction. For stock status, the nine assessed species are not overfished nor experiencing overfishing although *A virescens* and *E coruscan* were close to the overfished limits. The scores for productivity and susceptibility ranged from 3.8 to 6.3. The shallow bottomfish species have a moderate productivity with higher spawning rates and low susceptibility compared to the deep bottomfish that are more long lived species. The P* analysis quantified reduction scores for nine species listed in Table 12 from 50% risk of overfishing (P*) (WPFMC 2023b).

The SEEM working group meeting was held at the Tradewinds Hotel in American Samoa on August 30, 2023. The working group is comprised of an economist/social scientist, fishery managers, and bottomfish fishermen. The working group utilized a standardized SEEM dimensions and criteria. SEEM analysis quantified a reduction of 0 from the SEE dimensions and a management uncertainty reduction was quantified at four percent. Although there is mandatory licensing and reporting to the creel survey, there is a high uncertainty in the catch expansion in the data limited fishery. For example, in 2022 PIFSC was not able to do a catch projection expansion for the AS BMUS until October 2022 due to the limited amount of surveys. For management, there has been an improvement with the development of the territorial fishery management plan and willingness of the agency to use their annual proclamation. Under management uncertainty, a reduction of 2.5 was made for monitoring and 1.5 for management uncertainty. This would set a potential ACL at risk of overfishing equals to their respective percent in Table 12(WPFMC 2023c).

Table 12: American Samoa bottomfish management unit species and the results from the P* and SEEM analysis (WPRFMC 2023b and c)

BMUS	Samoan name	P* Score	P*=ABC	SEEM Score	P* and SEEM = ACL
Aphareus rutilans	Palu-gutusiliva	11	39	4	35
Aprion virescens	Asoama	10	40	4	36
Caranx lugubris	Tafauli	9	41	4	37

Etelis coruscans	Palu-loa	11	39	4	35
Lethrinus rubrioperculatus	Filoa-paomumu	9	41	4	37
Lutjanus kasmira	Savane	8	42	4	38
Pristipomoides flavipinnis	Palu-sina	10	40	4	36
Pristipomoides zonatus	Palu-ula	11	39	4	35
Variola louti	Velo	10	40	4	36

Table 13: Comparison of the ACL options for the American Samoa Bottomfish fishery.

Options	Onaga (ETCO)	Grey jobfish (APVI)	Black jack (CALU)	Silverjaw snapper (APRU)	Spotcheek emperor (LERU)	Savane/ Ta'ape (LUKA)	Golden eye jobfish (PRFL)	Gindai (PRZO)	Yellow-edged lyeretail grouper (VALO)
1 – No Action	5,000								
2a – Aggregated ACL	48,680								
2b – 9 Single Species ACL (2b)	4,696	4,542	7,716	4,696	7,165	16,645	2,205	1,323	1,698
2c – 2 Single Species and an Aggregated ACL for 7 BMUS	4,696	4,542	41, 721						

2.2 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 DMWR with assistance from the Western Pacific Fisheries Information Network (WPacFIN). These programs include boat-based and shore-based creel survey programs.

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

Prior to implementing future ACLs, the Council and its Scientific and Statistical Committee would review the fishery performance and other factors, and make a recommendation to NMFS. NMFS would conduct additional environmental analyses, if necessary, and the public would have the opportunity to provide input and comment on the ACL specification at that time. If an ACL is exceeded 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.

2.3 Description of the Options

2.3.1 Option 1: No Action – Continue the rebuilding plan

Under Option 1, the Council would recommend to take no action, which would continue the rebuilding and would not specify ACLs for the bottomfish fishery in American Samoa for 2024-2026 fishing years. This option does not consider the 2023 benchmark stock assessment, and therefore, does not comply with National Standard 2 where management decisions should be based on BSIA.

Expected Fishery Outcome

Under this Option, the fishery would continue to operate under the rebuilding plan with a catch limit of 5,000 lbs. If the catch limit is reached, then the fishery would remain closed until a coordinated approach to management in territorial waters is developed. After the fishery is closed,

fishing for and possession of American Samoa BMUS is prohibited and the sale, offering for sale and purchase of any American Samoa BMUS would be prohibited.

2.3.2 Option 2: Discontinue the rebuilding plan

Under Option 2, the Council would recommend to discontinue the American Samoa bottomfish rebuilding plan and amend its American Samoa FEP (WPRFMC 2022). The Council would further recommend ACLs and AMs for the 2024-2026 fishing years.

This option would utilize the results of the 2023 bottomfish stock assessment that found the fishery was not experiencing overfishing nor overfished in 2019. At its 148th meeting, the SSC agreed that this assessment was BSIA. On [include dates], the Council received the BSIA and stock status determination memorandum from NMFS concluding the fishery was not overfished in those corresponding years and provided justification for the Council to discontinue Amendment 5 to the American Samoa FEP.

Expected Fishery Outcome

Under Option 2, the Council could further recommend a new catch limit based on the 2023 assessment. The fishery could catch up to 45,000 pounds while achieving MSY. Based on Amendment 2 to the American Samoa FEP, the Council directed staff to convene the P* and SEEM analysis to quantify uncertainty to develop the ABC and ACL. Using the information from the new benchmark assessment resulted in higher allowable catch levels compared to the previous assessment.

2.3.2.1 Option 2a: Utilize the result of the P and SEEM Analysis and an aggregated ACL and specify AM*

Under Option 2b, the Council could specify an aggregated ABC for the nine American Samoa BMUS that were assessed in the 2023 stock assessment based on their respective P* and SEEM analysis for 2024-2026. The Risk of Overfishing table (Table 12) will be used to specify the ACL. This option would also utilize the results of the American Samoa BMUS P* and SEEM analyses (Table 12, WPRFMC 2023b; 2023c) to guide specifying the aggregated ACL. The American Samoa P* analysis resulted with nine scores of which two will be used as indicators for *E carbunculus* and *P filamentosus* (Table 12, WPRFMC 2023b).

Based on the 2023 benchmark stock assessment, the cumulative MSY for the nine species assessed is estimated 45,040 lbs, which is more than the previous MSY estimate by Langseth et al. (2019) at 28,800 lbs. Using this new benchmark assessment information conforms with the National Standard 2 of the Magnuson-Stevens Act, which requires the use of the best scientific information available for management. This option also utilizes the information from the P* working group meeting that accounted for the scientific uncertainties following the specification process described in the American Samoa FEP.

Expected Fishery Outcome

Under Option 2a, the fishery could catch up to 49,738 pounds of bottomfish, which is nine times more than the ACL under the rebuilding plan and equivalent to the ACL for fishing year 2017.

Using the information from the new benchmark assessment resulted in higher allowable catch levels compared to the previous assessment. However, the fishery is not likely to reach the ACL of 45,000 pounds if the fishery performance is similar to fishery performance over the past 10 years. The average catch from 2019-2021 was 8,124 pounds (Table 2). If the fishery performs close to the highest recent catch of 33,307 pounds during the 2015 fishing year, the fishery would remain open throughout each of the next four years. On a single species level, the bottomfish fishery did exceed the proposed single species ACL for *A virescens* 2014, 2015 and 2016, and *E coruscan* in 2014 and 2016 (Table 2). From 2017 through 2021, the fishery did not exceed any of the MSY values for the nine assessed species and participation in the fishery steadily declined.

If the fishery were to attain the aggregated ACL, NMFS could implement one or more AMs, as outlined in Section 2.3.3. For more information on the expected fishery outcomes of the in-season and post-season AM options, please refer to Section 2.3.2.2.

As compared to option 2b, it would be less precautionary if the catch limit for a single species was reached, then the catch limit for the other species could account for its overage.

2.3.2.2 Option 2b: Utilize the result of the P and SEEM Analysis and specify nine single-species ACLs and specify AM*

Under Option 2b, the Council would specify ACLs for the nine American Samoa BMUS based on their respective P* and SEEM analysis for 2024-2026. The Council would also specify any of the AMs listed in Section 2.3.3 below. The Risk of Overfishing tables (Table 2 through 10) will be used to set the ACL. This option would also utilize the results of the American Samoa BMUS P* and SEEM analyses (Table 12, WPRFMC 2023b; 2023c) to guide specifying the nine ACLs. The American Samoa P* and SEEM analyses resulted with nine scores of which two will be used as indicators for *E. carbunculus* and *P. filamentosus* (Table 12, WPRFMC 2023).

Expected Fishery Outcome

Under Option 2b, the fishery could catch up to 49,738 pounds of bottomfish, which is nine times more than the ACL under the rebuilding plan and equivalent to the ACL for fishing year 2017. Using the information from the new benchmark assessment resulted in higher allowable catch levels compared to the previous assessment. However, the fishery is not likely to reach the ACL of 45,000 pounds if the fishery performance is similar to fishery performance over the past 10 years. The average catch from 2019-2021 was 8,124 pounds (**Error! Reference source not found.**). If the fishery performs close to the highest recent catch of 33,307 pounds during the 2015 fishing year, the fishery would remain open throughout each of the next four years. On a single species level, the bottomfish fishery did exceed the proposed single species ACL for *A virescens* 2014, 2015 and 2016, and *E coruscan* in 2014 and 2016 (Table 2). From 2017 through 2021, the fishery did not exceed any of the MSY values for the nine assessed species and participation in the fishery steadily declined.

If the fishery were to attain the ACL for the bottomfish complex, NMFS could implement one or more AMs, as outlined in Section 2.3.3. For more information on the expected fishery outcomes of the in-season and post-season AM options, please refer to Section 2.3.2.2.

Compared to options 2a and 2c, this option would be more precautionary as management could close federal waters for each of the nine species if one catch limit is reached. This option would also create an administrative burden for implementation and publication for final rule.

2.3.2.3 Option 2c: Utilize the result of the P and SEEM Analysis and single-species ACLs for E coruscan* **and** *A Virescens and an aggregated ACL for the seven BMUS assessed and specify AM*

Under Option 2b, the Council would specify single species ACLs *Aprion virescens* and *Etelis corsucans* and an aggregated ACL for the other seven American Samoa BMUS based on their respective P* and SEEM analysis for 2024-2026. The Council would also specify any of the AMs listed in Section 2.3.3 below. The Risk of Overfishing tables (Table 2 through 10) will be used to set the ACL. This option would also utilize the results of the American Samoa BMUS P* and SEEM analyses (Table 12, WPRFMC 2023b; 2023c) to guide specifying the nine ACLs. The American Samoa P* and SEEM analyses resulted with nine scores of which two will be used as indicators for *E. carbunculus* and *P. filamentosus* (Table 12, WPRFMC 2023).

Expected Fishery Outcome

Under Option 2b, the fishery could catch up to 49,738 pounds of bottomfish, which is nine times more than the ACL under the rebuilding plan and equivalent to the ACL for fishing year 2017. Using the information from the new benchmark assessment resulted in higher allowable catch levels compared to the previous assessment. However, the fishery is not likely to reach the ACL of 45,000 pounds if the fishery performance is similar to fishery performance over the past 10 years. The average catch from 2019-2021 was 8,124 pounds (**Error! Reference source not found.**). If the fishery performs close to the highest recent catch of 33,307 pounds during the 2015 fishing year, the fishery would remain open throughout each of the next four years. On a single species level, the bottomfish fishery did exceed the proposed single species ACL for *A virescens* 2014, 2015 and 2016, and *E coruscan* in 2014 and 2016 (Table 2). From 2017 through 2021, the fishery did not exceed any of the MSY values for the nine assessed species and participation in the fishery steadily declined. This option would allow the Council to monitor the fishery for *A virescens* and *E coruscan* since catch for these species have reached the proposed ACL and the fishery has historically caught over 50% of the catch consistently prior to the impacts of COVID-19.

If the fishery were to attain the ACL for the bottomfish complex, NMFS could implement one or more AMs, as outlined in Section 2.3.3. For more information on the expected fishery outcomes of the in-season and post-season AM options, please refer to Section 2.3.3.

Compared to options 2b, this option would be less precautionary as management could not close federal waters if a species in the aggregated ACL were reached. Although, this option would lessen the administrative burden and allow management to closely monitor *A virescens* and *E coruscans*. These two species are the only known catches that have come close to or reaching the proposed ACL.

2.3.2.4 Option 2d: Specify ACLs lower than the outcome of the P and SEEM analysis and specify AM (Nadon et al 2023)*

Under Option 2c, the Council would specify ACLs for the nine American Samoa BMUS that were assessed in the 2023 stock assessment lower their respective P* analysis for 2024-2026. The Council would also specify any of the AMs listed in Section 2.3.3 below. The Risk of Overfishing tables (Table 2 through 10) will be used to set the ABC. This option provides a more precautionary approach to cover scientific uncertainties not identified in the P* and SEEM analysis. The American Samoa P* and SEEM analyses did not assess two BMUS due to data limitations: *E. carbunculus* and *P. filamentosus* (Table 12, WPRFMC 2023b and c). Consistent with recommendations in the 2023 stock assessment and the SSC, *E. coruscans* would be used as an indicator species for *E. carbunculus* and *P. flavipinnis* would be used and an indicator species for *P. filamentosus*. Separate ACLs and AMs would not be implemented for *E. carbunculus* and *P. filamentosus*. Instead, they would be subject to AMs based on monitoring of catch of the indicator species.

Expected Fishery Outcome

Under Option 2c, the fishery could catch up to 45,000 pounds of bottomfish, which is nine times more than the ACL under the rebuilding plan and equivalent to the ACL for fishing year 2017. Using the information from the new benchmark assessment resulted in higher allowable catch levels compared to the previous assessment. However, the fishery is not likely to reach the ACT of 45,000 pounds if the fishery performance is similar to fishery performance over the past 10 years. The average catch from 2019-2021 was 8,124 pounds (**Error! Reference source not found.**). If the fishery performs close to the highest recent catch of 33,307 pounds during the 2015 fishing year, the fishery would remain open throughout each of the next four years.

If the fishery were to attain the ACL for the bottomfish complex, NMFS could implement one or more AMs, as outlined in Section 2.3.3. For more information on the expected fishery outcomes of the in-season and post-season AM options, please refer to Section 2.3.3.

2.3.2.5 Options Not Considered in Detail

Implement ACL higher than ABCs
Pursuant to Federal law. NMFS cannot implement an ACL that exceeds an ABC. Therefore, NMFS would not consider any ACL that exceeds the SSC's recommended ABC. Because ACLs that exceed an ABC are not allowed under existing regulations, this alternative was not considered in further detail.

2.3.3 Accountability Measures

Accountability measures are management controls to prevent ACLs from being exceeded and to correct or mitigate overages of the ACL if they occur. AMs should address and minimize both the frequency and magnitude of overages, and correct the problems that caused the overage in as short a time as possible. There are two categories of AMs that the Council will consider: 1) in-season AMs and 2) AMs where the ACL is exceeded.

2.3.3.1 In-season Accountability Measures

The Council could recommend the use of the creel survey data to conduct in-season monitoring until a more reliable catch monitoring system is in place. When the Department of Marine and Wildlife Resources (DMWR) has conducted sufficient creel survey interviews to allow for appropriate expansion of the available data based on scientific uncertainty, NMFS would estimate the total catch for the fishing year up to that point. NMFS expects the first expansion to take place roughly halfway through the fishing year. However, since fewer interviews increases the uncertainty in the catch estimates for the expansion time period, it is also expected that this semi-annual expansion would have high uncertainties associated with the data. After the initial expansion, NMFS would then perform additional expansions for the entire year on a month-to-month basis.

Although NMFS would not be able to track catches for the fishery in near-real time, NMFS would review in-season progress of the catches relative to the implemented ACL based on data reports from DMWR, which monitors the bottomfish fishery through its creel survey program. The alternatives would use a predetermined method to allow for in-season monitoring of the fishery over the course of each fishing year. The in-season monitoring plan would rely on the use of expanded estimates from the creel survey program in American Samoa.

Expected Fishery Outcome

Under this option, if the fishery were to attain the ACL for a single species or aggregated complex, NMFS could implement a closure of the fishery for a single species or aggregated complex. If this occurs, American Samoa does not have regulations in place for a complementary fishery closure in territorial waters, thus territorial waters would still be open to fishing. The in-season AM of a fishery closure would keep total report catch of bottomfish well below the OFL and prevent overfishing. When the fishery was identified as overfished and experiencing overfishing in 2019, the Council and NMFS were prompted to reconsider the use of creel survey data for in-season monitoring despite the associated uncertainties because tracking the fishery throughout the fishing year is necessary to ensure that the fishery is adhering to the proposed timelines of the rebuilding plan. With new data indicating that no species in the BMUS complex is overfished or experiencing overfishing, it may not be prudent to track in-season catches, given the scientific uncertainties associated with the creel survey.

2.3.3.2 Overage Adjustment Accountability Measure

2.3.3.2.1 Post-Season single year overage adjustment

The Council could recommend a post-season single-year overage adjustment if landings of bottomfish exceed the specified ACL in a fishing year (50 CFR 600.310(g)). After every fishing year, the Council must determine as soon as possible if an ACL was exceeded. If an ACL was exceeded, an overage adjustment would be equal to the amount of the overage and be applied to the subsequent fishing year. If catch exceeds the ACL for a given stock or complex more than once over the three-year period, the system of ACLs and AMs should be re-evaluated and modified.

Compared to Option 1 of no action, the fishery would not be closed indefinitely. But if there is a high uncertainty in the creel survey expansion is could lead to the closure of the next fishing years if the expansion number comes out higher than expected.

Expected fishery outcome

Though these data are expected to be associated with high scientific uncertainties when expanded during the fishing year, the creel survey data represent BSIA to NMFS. When DMWR has conducted sufficient creel survey interviews to allow for appropriate expansion of the available data based on scientific uncertainty, NMFS would estimate the total catch for the fishing year to that point. However, since fewer interviews increases the uncertainty in the catch estimates for the expansion time period, it is also expected that this semi-annual expansion would have high uncertainties associated with the data. After the initial expansion, NMFS would then perform additional expansions for the entire year. Under this option, it would not account for yearly fluctuations in catch as seen in Table 2.

Prior to implementing future ACTs, the Council and SSC would review the fishery performance and other factors, and make a recommendation to NMFS. NMFS would conduct additional environmental analyses, if necessary, and the public would have the opportunity to provide input and comment on the ACL specification at that time. If an ACL is exceeded 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.

2.3.3.2.2 Post-season 3-year average overage adjustment

The Council could recommend a post-season accountability measure that if average total landings of bottomfish in the most recent three years exceed the specified ACL in a fishery year, then the Regional Administrator would reduce the bottomfish ACL for the subsequent year by the amount of the overage in a separate rulemaking.

Expected Fishery Outcome

Compared to Option 1, the fishery would not be closed indefinitely. But the three-year average could account for high uncertainty to provide buffer from year to year for ACL overage adjustment.

The American Samoa bottomfish annual catch is reliant on the creel saves that could be project highly variable annual catches. In order to account for annual fluctuations in catch, NMFS would utilize the most recent three-year average and compare that catch to the ACL. In the event that the three-year average exceeded the ACL, the amount of overage will be deducted from the ACL the following fishing year.

Prior to implementing future ACLs, the Council and SSC would review the fishery performance and other factors, and make a recommendation to NMFS. NMFS would conduct additional environmental analyses, if necessary, and the public would have the opportunity to provide input and comment on the ACL specification at that time. If an ACL is exceeded 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.

3 Affected Environment

This section describes the affected fishery, fishery resources, protected species, habitats, and the potential environmental effects of the proposed rebuilding plan on these resources. Climate change and environmental justice are considered, along with potential effects to fishing communities, species marine areas and other resources, and potential effects on fishery administration and enforcement.

3.1 Overview of American Samoa

The Territory of American Samoa consists of five volcanic islands (i.e., Tutuila, Aunu'u, Ofu, Olosega, and Ta'ū) with steep, mountainous terrain and high sea cliffs in addition to two coral atolls (i.e., Swains Island and Rose Atoll). The population in 2020 was 55,191 people. Tutuila is the largest and most populous island in the territory, inhabited by over 95 percent of the total population of American Samoa. Tutuila is characterized by an extensive shelf area accompanied by offshore banks and barrier reefs. Tutuila is also the center of government and business for the territory, and Pago Pago Harbor on Tutuila is one of the most sheltered natural deep water harbors in the Southern Pacific (WPFMC 2009).

3.2 Overview of Bottomfish Biology and Distribution

Very little biological information is known about the bottomfish stock complex in American Samoa. The bottomfish fishery in primarily harvests 11 species that include emperors, snappers, groupers, and jacks (Table 1). All species have a wide Indo-Pacific distribution and their range generally extends east to Hawaii, north to Japan, south to Australia, and, for some, as far west as East Africa. Most species prefer rocky bottom substrates or rocky reefs; however, in Hawaii the blueline snapper (*Lutjanus kasmira*) prefers schooling on sandy substrates in the juvenile stage while adults are more solitary and inhabit deep reefs. The majority of the stock complex can be found at depths between 10 and 350 m (33 and 1,150 ft), but some species, such as the red snapper (*Etelis carbunculus)* and pink snapper (*Pristipomoides sieboldii)* can occur at depths up to 400 and 500 m, respectively (1,310 and 1,640 ft). As shown in Figure 2, the best information currently available shows that the majority of bottomfish habitat is in territorial waters (85 percent), and the rest is in the Federal waters located on and around offshore banks (15 percent). All species in the complex are predatory fish and feed on fish, squid, mollusks, crustaceans, and zooplankton.

Spawning has been recorded nearly year-round for most species, but is more common in warmer months and with peak activity occurring in some species around November and December. Spawning aggregations have been reported in the giant trevally (*Caranx ignobilis*), red snapper (*Etelis carbunculus*), and lunartail grouper (*Variola louti*). While most groupers are protogynous hermaphrodites (i.e., animals that are born female and at some point in their lifespan change sex to male), it has yet to be confirmed in the lunartail grouper. Sexual maturity and life span varies greatly among the stock complex. *Pristipomoides sieboldii* reaches sexual maturity at three years old and has a lifespan of not more than eight years. In contrast, *Pristipomoides filamentosus* is a slow growing, long lived species, with the oldest fish recorded at 44 years old.

3.3 Overview of the Bottomfish Fishery

Throughout the development of the American Samoa bottomfish fishery in the 1900s, indigenous people harvested many of the same bottomfish species and used some of the same gears and

techniques utilized currently (WPFMC 2009). Bottomfish are typically harvested in deep waters, though some species are caught over reefs at shallower depths. The 2021 LOF estimated that there were less than 20 participants in the American Samoa bottomfish fishery (86 FR 3028, January 14, 2021). Fishing for bottomfish primarily occurs using aluminum alia catamarans less than 32 feet in length that are outfitted with outboard engines and wooden hand reels that fishermen use for both trolling and bottomfish fishing. Fishermen typically fish less than 20 miles from shore because few vessels carry ice (WPFMC 2009). Over the last three years (2018 to 2020), approximately 7.2 percent of that catch has been commercially sold (Table 8; see Section 3.6.1), so the fishery is primarily non-commercial. Though the pelagic fisheries play a relatively larger role in American Samoa's economy, insular fisheries hold fundamental socioeconomic and dietary importance (Levine and Allen 2009). The demand for bottomfish on American Samoa varies depending on the need for fish at government and cultural events, and alia fishermen may switch to bottomfish fishing during periods when longline catches or prices are low (WPFMC 2021). Fishing grounds in Federal waters around American Samoa are also important for the harvest of deep-water snappers used for chiefly position entitlements and *fa'a lavelave* ceremonies (e.g., funerals, weddings, births, and special birthdays).

3.4 Overview of Fishery Management and Data Collection

NMFS and the Council manage bottomfish fishing in Federal waters (3 to 200 nm) around American Samoa in accordance with the FEP for the American Samoa Archipelago (WPFMC 2009), which was developed by the Council and implemented by NMFS under the authority of the Magnuson-Stevens Act. The American Samoa Archipelago FEP emphasizes community participation, increased consideration of the habitat and ecosystem in its management structure, and other elements that are not usually incorporated in fishery management decision making. The American Samoa DWMR manages bottomfish fishing from 0 to 3 nm from the shore. A joint Federal-territorial partnership enforces Federal fishery regulations, and the American Samoa Archipelago FEP requires the Council to produce an annual performance report for the fishery (e.g., WPFMC 2021). Federal regulations prohibit bottom trawls, bottom gillnets, explosives, and poisons (50 CFR Parts 665.104 and 665.406). Additionally, territorial regulations also prohibit the use of explosives, poisonous substances, and electrical devices, in addition to specifying requirements for which cast nets, gill nets, seines, surround nets, and drag nets may be used (ASCA § 24.0920 through 24.0933). The American Samoa bottomfish fishery is monitored using data voluntarily provided by fishermen to DMWR through the boat-based and shore-based creel survey programs. Additionally, DMWR receives commercial sales data from the mandatory commercial receipt book system in accordance with territorial regulations.

Currently, there are no Federal permit or reporting requirements for bottomfish fishing in Federal waters around American Samoa. In addition, there are currently no required territorial permitting or reporting requirements for bottomfish fishing in territorial waters around American Samoa.

3.4.1 Boat-Based Creel Survey Program

The boat-based creel survey program collects data on catch, effort, and participation for offshore fishing activities conducted by commercial and non-commercial fishing vessels. Surveys are conducted at main docks and boat ramps using two separate phases of data collection: participation counts and fishermen interviews. Participation counts are done by counting the number of boats absent from port, identifying the presence of boat trailers, and determining the

type of gear used. The fishermen interviews document catch composition, CPUE, length-weight information, catch disposition, and additional socioeconomic information. Survey days are randomly selected three to eight times per month. Surveys follow a random stratified design by survey area, weekday/weekend, and time of day (e.g., daytime and nighttime). The creel survey data are transcribed weekly into the NMFS Western Pacific Fisheries Information Network (WPacFIN) database. NMFS applies catch expansion algorithms to the data, which also include port, time of day, and fishing method, at the stratum level on an annual scale to estimate total catch, effort, and CPUE in the fishery.

3.4.2 Shore-Based Creel Survey Program

The shore-based creel survey program collects data on catch, effort, and participation for inshore fishing activities. The surveys randomly sample shore-based fishing and also consist of both participation counts and fishermen interviews. Participation counts are done using a "bus route" method, with data collectors using predefined stopping points and time constraints to count the number of fishermen along the shoreline while recording gear type and number of gears. The fishermen interviews document catch composition, CPUE, length-weight information, catch disposition, and additional socioeconomic information. Survey dates are randomly selected two to four times per week and the surveys take place over eight-hour periods. The creel survey data are transcribed weekly into the WPacFIN database. NMFS applies catch expansion algorithms to the data, which also include island region, weekday/weekend, and fishing method, at the stratum level on an annual scale to estimate total catch, effort, and CPUE in the fishery.

3.4.3 Dealer Reporting

American Samoa has a mandatory requirement for entities that sell any seafood products (e.g., fish dealers, hotels, and restaurants) to submit invoice reports to DMWR (ASCA § 24.0305). This commercial receipt book system collects information by the 16th day of every month. The system monitors fish sold locally and collects information by vendors who purchase fish directly from fishermen. The reported information typically includes the weight and number of each species purchased, the name of the fishermen providing the fish, the boat registration name and number as applicable, the name of the dealer, the date, the price paid, the type of fishing gear used, whether fish were taken in territorial or Federal waters, and other information as requested by DMWR. The submitted invoices usually compile daily trip landings.

3.5 Protected Resources

4 Potential Effects of the Alternatives

Table 14: Summary of Effects of the Alternatives

Resource	Option 1 (Status quo)	Option 2a (set single-species ACLs: catch associated with ABC)	Option 2b (set single species ACLs: catch associated with SEEM)	Option 2c (set single species ACLs: value lower than SEEM to account for

				possible overage adjustment)
• **Target**	Nadon et al. 2023 concluded that the target BMUS stock in American Samoa are not overfished nor experiencing overfishing. If a higher ACL is specified, participation in the fishery may increase			
• **Non-target**	The bottomfish fishery harvests both deep snapper complex and the shallow water reef fish species complexes. The action will not likely change the conduct of the fishery. It is a hook and line fishery and the species composition is anticipated to remain similar to previous years.			
• **Bycatch**	American Samoa bottomfish fishery had 0% bycatch in 2022. Therefore, the action is not likely to have an adverse impact on bycatch species.			
• **Protected species**	No new information and the actions are not likely to adversely affect protected species.			
• **Biodiversity and eco-**	The action will not likely have an adverse effect on			

function	biodiversity and ecosystem function since the fishery has been landing well below the ACL since 2012 until the new assessment generated a conservative catch projection estimate. The bycatch rates are very low, and fishing methods do not impact the habitat.			
Socio-economic setting	No new socio-economic information aside from the updated fishing participation data from the American Samoa Annual SAFE Report			
Management setting		No substantial change	No substantial change	
• **Marine Protected Areas**	No new information and the actions are not likely to adversely affect the management of MPAs. The fishery does not occur inside protected areas.			
• **EFH/HAPC**	No change in EFH/HAPC for the American Samoa Bottomfish.			

4.1 Potential Effects of Alternative 1: No Action (Status Quo)

4.2 Potential Effects of Alternative 2:

4.2.1 Potential Effects of Alternative 2a:
4.2.2 Potential Effects of Alternative 2b:
4.2.3 Potential Effects of Alternative 2c:

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