WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

PRELIMINARY DRAFT

Discontinuation of the Rebuilding Plan and Annual Catch Limits and Accountability Measures for the Bottomfish Management Unit Species in American Samoa for Fishing Years 2024 to 2026

Draft Document Deadline

~~**October 3, 2023: Council staff to send document to action team and call for meeting during the week of October 20**~~

~~**October 12, 2023: Action team to meet and discuss roles and assignments for the Affected Environment and Potential Effects**~~

~~**October 26, 2023: Action Team follow up on completion of sections to be forwarded for GC review.**~~
~~*Status: Analysis for Alternatives 1 and 2a were completed. On Monday, Oct 23, SFD notified Council staff that the Analysis for 2b and 2c will be provided by Monday 10/30. SFD provided their analysis on 10/31.*~~

October 27, 2023: Draft EA for GC review
Status: Council staff finished addressing SFD comments on 11/9. Revised Deadline of 11/24

November 14, 2023: Document due for AP and Council meeting

November 24, 2023: GC comment due

November 27 – 28, 2023: Review and Address GC comments and provide rev1 for meeting books

December 5, 2023: American Samoa Advisory Panel Meeting

December 11, 2023: 197th Council Meeting

Western Pacific Fishery Management Council

1164 Bishop Street, Suite 1400

Honolulu, HI 96813

November 9, 2023

ABBREVIATIONS

ABC – Acceptable Biological Catch
ACL – Annual Catch Limit
AM – Accountability Measure
AS – American Samoa Code Annotated
ASCA – American Samoa CA
BMUS – Bottomfish Management Unit Species
BSIA – Best Scientific Information Available
Council – Western Pacific Fishery Management Council
CEQ – Council on Environmental Quality
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
NS – National Standard
OFL – Overfishing Limit
P* – Acceptable Risk or Probability of Overfishing
PIFSC – NMFS Pacific Islands Fisheries Science Center
PIRO – NMFS Pacific Islands Regional Office
SAFE – American Samoa Annual Stock Assessment and Fisheries Evaluation Report
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
WPacFIN – Western Pacific Fisheries Information Network
WPFMC – Western Pacific Fishery Management Council
WPSAR – Western Pacific Stock Assessment Review

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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 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).

There are 11 BMUS in American Samoa: eight snappers, one emperor, one jack, and one grouper (Table 1). 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).

Table 1: American Samoa bottomfish management unit species.

Family	**Scientific name & abbreviation**	**Local Samoan name**	**English common names**
Emperor (Lethrinidae)	*Lethrinus rubrioperculatus* (LERU)	filoa-paomumu	spotcheek emperor, redgill emperor
Grouper (Serranidae)	*Variola louti* (VALO)	papa, velo	yellow-edged lyretail, lunartail grouper, yellow-edged lyretail grouper
Jack (Carangidae)	*Caranx lugubris* (CALU)	tafauli	black jack, trevally
Snapper (Lutjanidae)	*Aphareus rutilans* (APRU)	palu-gutusiliva	rusty jobfish, red snapper, silvermouth
Snapper	*Aprion virescens* (APVI)	asoama	green jobfish, gray snapper, jobfish
Snapper	*Etelis carbunculus* (ETCA)	palu-malau	Ruby snapper, red snapper, deep-water red snapper
Snapper	*Etelis coruscans* (ETCO)	palu-loa	flame snapper, red snapper, deepwater longtail red snapper

Family	Scientific name & abbreviation	Local Samoan name	English common names
Snapper	*Lutjanus kasmira* (LUKA)	savane	common bluestripe snapper, blueline snapper, bluestripe snapper
Snapper	*Pristipomoides filamentosus* (PRFI)	palu-‘ena‘ena	crimson jobfish, pink snapper
Snapper	*Pristipomoides flavipinnis* (PRFL)	palu-sina	golden eye jobfish, yelloweye snapper
Snapper	*Pristipomoides zonatus* (PRZO)	palu-ula, palu-sega	oblique-banded snapper, snapper

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 then 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 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) of BMUS starting in 2022, and harvests from both territorial and Federal waters are counted toward the ACL. The rebuilding plan also includes 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 2023 benchmark assessment differs significantly from previous assessments in several respects. A major improvement was the change to a single-species, age-structured model integrated into the Stock Synthesis 3 modeling framework (Methot and Wetzol 2013). The 2023 assessment also

incorporated data through 2021, including 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 fishing mortality (F), biomass (B), , 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 and overfished reference points defined in the FEP (see Section 1.7). Stock projections and corresponding risk of overfishing were calculated for 2022–2028 over a range of hypothetical eight-year catches for nine BMUS: *A. rutilans, A. virescens, C. lugubris, E. coruscans, L. rubrioperculatus, L. kasmira, P. flavipinnis, P. zonatus,* and *V. 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 2026. 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, which the Council did at its 195th meeting in June 2023.

On August 23, 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 September 21, 2023, NMFS determined that none of the American Samoa bottomfish stocks assessed in the 2023 benchmark assessment were overfished or subject to overfishing and the NMFS Pacific Islands Regional Office (PIRO) issued a notification informing the Council of this determination. This notification included the basis for the change in stock status and explained that the fishery was neither overfished nor experiencing overfishing in any year from 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 (NMFS 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 implement ACLs and AMs for American Samoa BMUS managed under the FEP for fishing years 2024 to 2026.

The FEP allows the Council and NMFS to set 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 (WPRFMC 2023c).

1.3 Purpose and Need for the Action

The purpose of this action is to amend the FEP to discontinue the rebuilding plan based on the results of the 2023 benchmark stock assessment and to implement ACLs and AMs for American Samoa BMUS for fishing years 2024 to 2026. 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 American Samoa 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 establish a process to correct or mitigate overages of the ACL should they occur.

1.4 Action Area

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 49,710 people (U.S. Bureau of the Census). 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).

The fishery management area for the American Samoa FEP bottomfish fishery includes Federal waters from 3 to 200 nautical miles (i.e. the exclusive economic zone or EEZ) around American Samoa (Figure 1). 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.

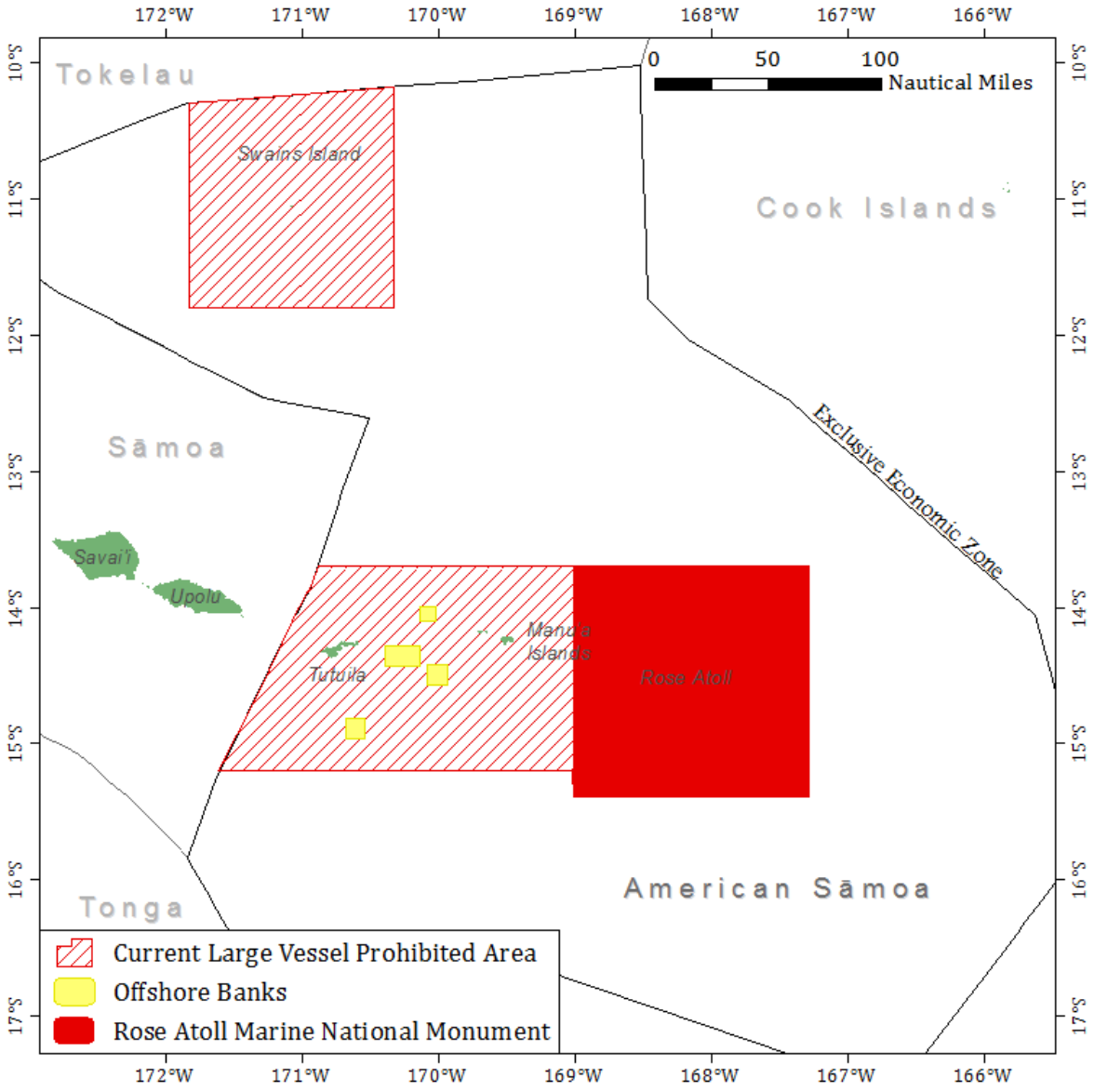

Figure 1: American Samoa Fishery Ecosystem Regulated Fishing Areas. Include the Large Vessel Prohibited areas, the offshore Banks and the Rose Atoll Marine National Monument.

1.4.1 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). The 2023 List of Fisheries (LOF) estimated that there were only 6 participants in the American Samoa bottomfish fishery (86 FR 16899, March 21, 2023). 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).

The list of BMUS in American Samoa includes six deep snappers (*Aphareus rutilans, E. carbunculus, E. coruscans, P. filamentosus, P. flavipinnis,* and *P. zonatus*), two shallower snappers (*Aprion virescens* and *Lutjanus kasmira*), one emperor (*Lethrinus rubrioperculatus*), one jack (*C. lugubris*), and one grouper (*Variola louti*). These species typically inhabit deep-slope areas from 100 m to 400 m, with *A. virescens, C. lugubris,kasmira, L. rubrioperculatus,* and *V. louti* habitat extending to shallow areas (< 10 m depth).

Before 2019, the BMUS stock was assessed as a multi-species complex of 17 species. Stock assessments prior to 2019 indicated the bottomfish stock complex was not experiencing overfishing or overfished, and catch limits were near 100,000 lb per year. The fishery consistently landed much less than these limits (Table 2). In 2020, the Council was notified that the American Samoa bottomfish fishery was experiencing overfishing and overfished, and NMFS implemented an interim catch limit of 13,000 lb for much of 2020 and 2021 while the Council developed a rebuilding plan. Between 2020 and 2022, American Samoa bottomfish fishermen caught an average of 4,114 lb annually (Table 2). Based on the stock status determination, the nature of the fishery shifted to prevent overfishing and to rebuild the stock. In 2022 following the implementation of the rebuilding plan, the fishery landed 2,583 lb of BMUS, approximately 52 percent of the 5,000 lb ACL.

Table 2: Comparison of bottomfish catches to annual catch limits. From 2012 – 2018, the stock complex included 17 species; from 2019 on, there were 11 species. ACLs were not specified in 2018 and 2019.

Year	Total BMUS Catch (lb)*	ACL (lb)
2012	3,648	99,000
2013	11,070	101,000
2014	16,260	101,000
2015	27,722	101,000
2016	24,819	106,000
2017	17,425	106,000
2018	12,811	No ACL
2019	11,399	No ACL
2020	7,697	13,000
2021	2,063	13,000
2022	2,583	5,000
2020-2022 average catch	**4,114**	

Year	Total BMUS Catch (lb)*	ACL (lb)
2012-2022 average catch	**10,717**	

*Source for 2012– 2018 is WPFMC 2020; for 2019 – 2022 is WPFMC 2023a

Over the last four years of available data (2017 to 2020), approximately 8.9 percent of that catch has been commercially sold (WPRFMC 2023a) 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 in 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 2023a). 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)

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

1.5 Overview of Bottomfish Biology and Distribution

The bottomfish fishery in American Samoa primarily harvests 11 species that include emperors, snappers, groupers, and jacks (Table 1). All 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*). Most species prefer rocky bottom substrates or rocky reefs; however, in Hawaii the blueline snapper (*L. kasmira*) prefers schooling on sandy substrates in the juvenile stage while adults are more solitary and inhabit deep reefs. The black jack *C. lugubris* is the only circumtropical species. 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 (*E. carbunculus)* can occur at depths up to 400 and 500 m, respectively (1,310 and 1,640 ft).

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) (NMFS 2020). 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 for red snapper (*E. carbunculus*) and lyretail grouper (*V. louti*). Sexual maturity and life span varies greatly among the stock complex. *Pristipomoides*

filamentosus is a slow growing, long lived species, with the oldest fish recorded at 44 years old (Nichols et al. 2020).

1.6 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 2023a). Federal regulations prohibit bottom trawls, bottom gillnets, explosives, and poisons (50 CFR § 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 (American Samoa Code Annotated (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 permits 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.

Stock status for the American Samoa bottomfish fishery is assessed by the PIFSC Fisheries Research and Monitoring Division's Stock Assessment Program, and stock status is reported in NOAA's Species Information System (SIS). The SIS database serves as the national repository for stock assessment results, status determination results, and annual catch limit information. Following the 2023 benchmark stock assessment, stock status for American Samoa BMUS are reported in the SIS database as the following individual species or species groups: black jack (*C. lugubris*), common bluestripe snapper (*L. kasmira*), flame snapper complex (*E. carbunculus* and *E. coruscans)*, golden eye jobfish complex (*P. filamentosus and P. flavipinnis*), green jobfish (*A. virescens*), oblique-banded snapper (*P. zonatus*), rusty jobfish (*A. rutilans*), spotcheek emperor (*L. rubrioperculatus*), yellow-edged lyretail (*V. louti*).

1.6.1 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.

1.6.2 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.

1.6.3 PIFSC WPacFIN catch expansion algorithm

The expansion algorithm to estimate total catch utilizes three variables from creel surveys: 1) total effort; 2) average catch; and 3) average effort. The formula is as follows:

$$Total\ Catch = Total\ Effort\ x\ Average\ (\frac{Catch}{Effort})$$

Total effort is taken from the boat log conducted on weekday and weekend sampling days per month. Each sampling day has three period strata: morning, afternoon, and evening. Sampling is done in the major marina, ramps, and sections of the island shoreline.

More detailed catch and effort data are collected from interview conducted as fisher returns to the marinas, ramps, or shorelines. Types of fishing method, length of fishing, species composition, size and weight of catch are logged, measured, but sometime estimated depending on the fisher's cooperation. Effort is analyzed at a trip level, whether it is a bottomfishing trip, troll trip, or spearfishing trip. The catch-per-unit-effort per trip would depend on the total weight of the catch.

The trip level effort and CPUE information is expanded at an annual fishing method level. At this phase, this includes all species caught under each of the fishing method. This acknowledges the mixed-species nature of the fishery. To get to the total catch of the bottomfish management unit species, the species composition ratio is applied. This species ratio is generated from the interview level catch composition. All of the non-BMUS species are removed from the final annual total catch estimates. Once the annual BMUS catch for each fishing method is estimated,

the estimated catch for each method is summed to generate the total annual BMUS catch (Figure 2).

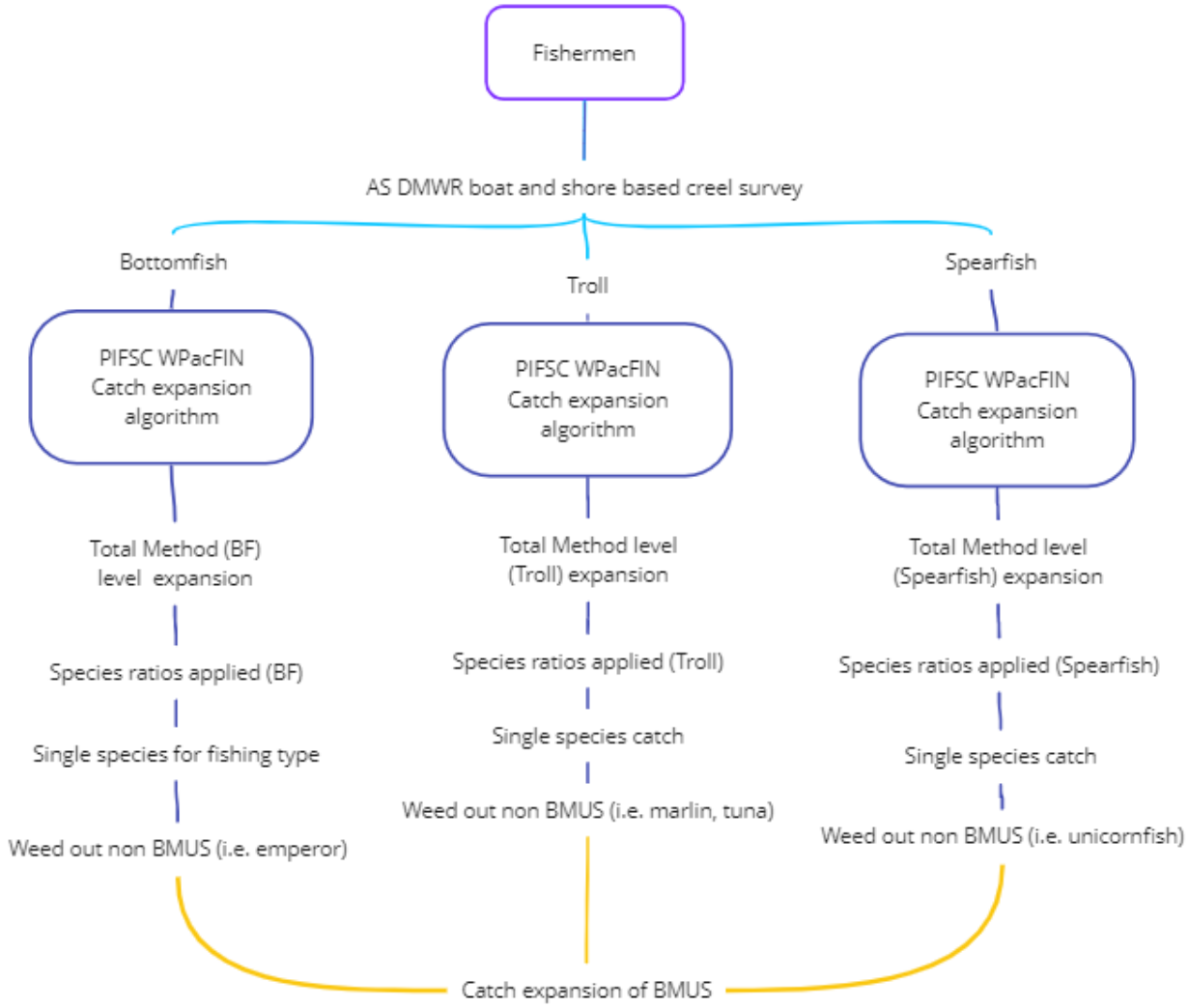

Figure 2: Flowchart on the process of the catch expansion process of BMUS catch from the creel survey

1.6.4 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.

1.7 Benchmark Stock Assessment and Status of the Stock

The Magnuson-Stevens Act requires that a fishery management plan (or FEP) specify objective and measurable criteria, or reference points, for determining when a stock is subject to overfishing or is overfished (50 CFR 600.310(c)). The FEP includes status determination criteria (SDC) that specify when the bottomfish stock is considered overfished or when overfishing is occurring (WPFMC 2009). If a stock is a considered to be overfished when biomass (B) declines below the level necessary to produce the MSY on a continuing basis (B_{MSY}). This threshold is termed the minimum stock size threshold (MSST) and is expressed the relationship $B/B_{MSY} < 1\text{-}M$, where M is the natural mortality of the stock. Thus, if the B/B_{MSY} ratio is less than 1-M, the stock complex is considered overfished.

If the stock is not overfished 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. If a stock is overfished, then the threshold decreases proportionally to B/MSST. If a stock is overfished, the overfishing threshold declines in proportion to the $MSST/B_{MSY}$ ratio.

On January 10, 2020, PIFSC sent a memorandum to the Council stating that NMFS determined the 2019 benchmark stock assessment to be BSIA consistent with National Standard 2. This stock assessment indicated that the American Samoa bottomfish stock complex was overfished and experiencing overfishing, and 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, PIRO notified the Council of this determination and outlined the Council's obligation 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. Subsequently, 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, PIFSC completed a 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 2023 assessment integrates information 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 DMWR 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). These two species could not be assessed due to data limitations. The 2023 assessment 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 F_{Year} relative to MFMT and B_{Year} relative to MSST were used to evaluate stock status for the nine assessed species (Figure 3, Table 3). Stock projections and corresponding risk of overfishing were calculated for 2022–2028 over a range of hypothetical eight-year catches for eight BMUS: *Aphareus rutilans, Aprion virescens, C. lugubris, E. coruscans, Lethrinus rubrioperculatus, P. flavipinnis, P. zonatus,* and *V. louti*. For *L. kasmira*, 2023 bottomfish benchmark assessment found that given the low proportion of the stock that is vulnerable to bottomfishing, it was impossible to determine fixed catch values that would result in either overfishing or overfished status. Therefore, the OFL was set to MSY estimates. There was insufficient data to assess *E. carbunculus* and *P. filamentosus.*

The production model results indicate that all nine BMUS assessed were not overfished nor experiencing overfishing in 2021 (Nadon et al. 2023; Figure 3). In addition, the stock assessment found that none of the assessed species were overfished or experiencing overfishing in 2017 or since.

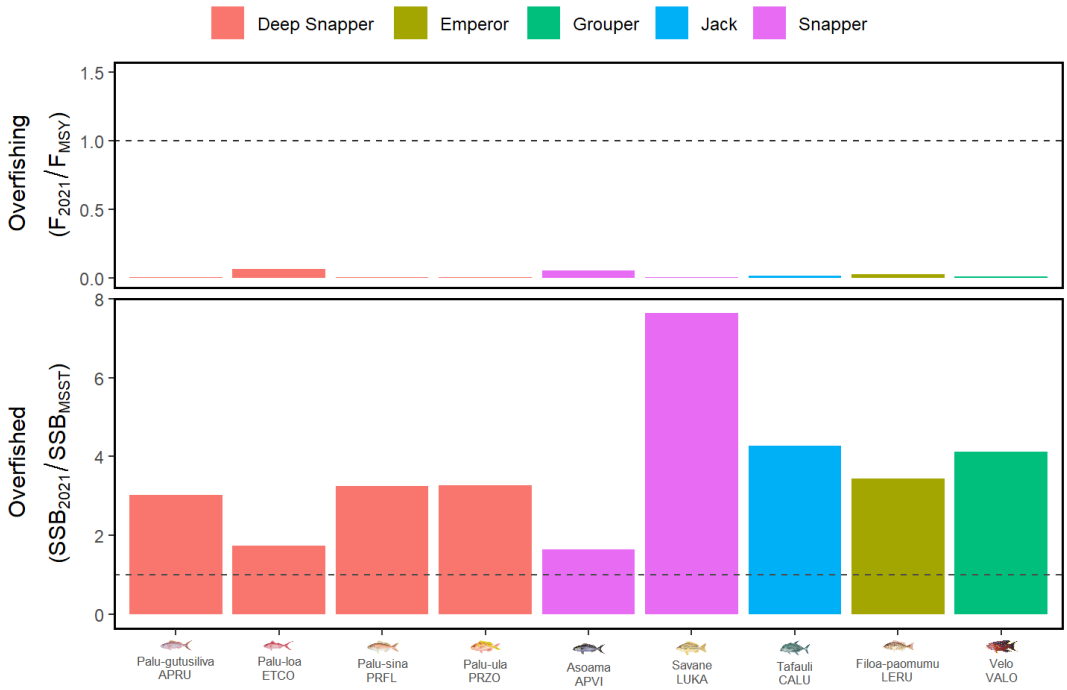

Figure 3: Stock status in 2021 of the nine BMUS species with single-species assessment models that shows that the BMUS stocks are not overfished and overfishing is not occurring (Nadon et al. 2023).

Table 3: Summary of MSY, Fishing mortality, Natural mortality, catch average and OFL 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	8,995	No overfishing, not overfished
Aprion virescens	Asoama	3,439	0.05	1.7	11,023	1,986	4,740	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	5,247	No overfishing, not overfished
Lethrinus rubrioperculatus	Filoa-paomumu	5,247	0.02	2.8	21,164	1,057	7,408	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	2,469	No overfishing, not overfished
Pristipomoides zonatus	Palu-ula	816	<0.01	3.3	4,409	94	1,411	No overfishing, not overfished
Variola louti	Velo	1,014	<0.01	4.1	4,630	229	1,874	No overfishing, not overfished

1.8 Overview of ACL and AM Development Process

Federal regulations at 50 CFR 665.4 (76 FR 37285, June 27, 2011) require NMFS to implement ACLs 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 National Standard 1, this process begins with the OFL for each stock as determined by the stock assessment. 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 and with the FEP, the OFL is set at a level of catch that corresponds to a 50 percent probability of overfishing (P*, pronounced P-star). Next, the Council's SSC calculates an ABC that is set at or below the OFL for the stock. The SSC may reduce the ABC below the OFL in consideration of scientific uncertainty as determined through a P* analysis. The P* analysis is conducted by a working group that includes NMFS scientists and managers, Council staff, and fishery participants.

Once the ABC is set, the Council must recommend an ACL in consideration of SEEM factors following analysis by a SEEM working group (see Hospital et al. 2019 for SEEM considerations). The ACL may 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. While the P* analysis considers 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 relationship between OFL, ABC, and ACL is described in Figure 4.

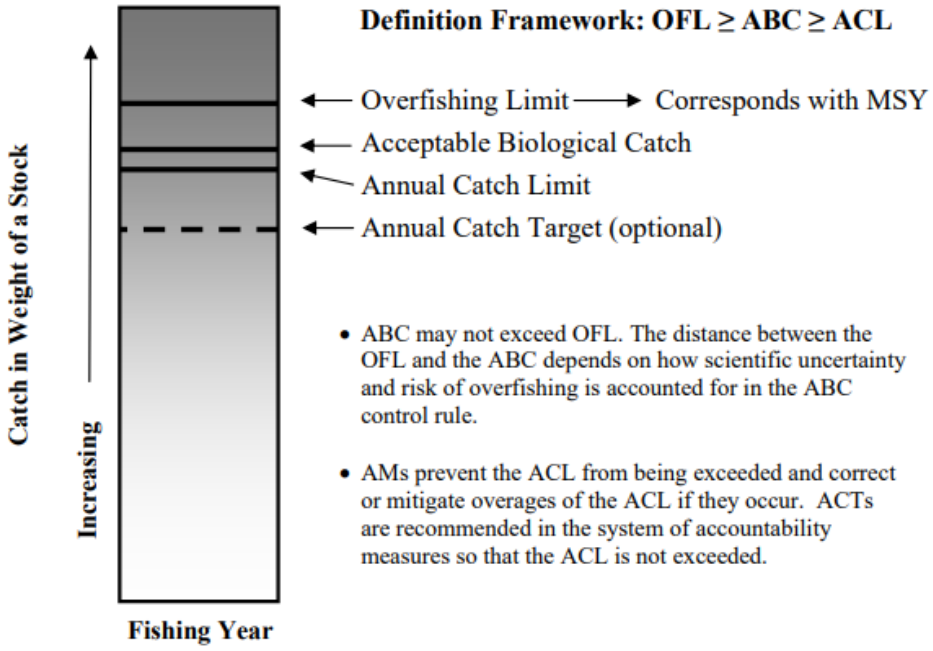

Figure 4: Relationship between OFL, ABC, ACL, and ACT.

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 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 when a system of ACLs and AMs should be reevaluated. If the fishery exceeds an ACL more than once in a four-year period, the Council is required to re-evaluate the ACL and AM process for the fishery and adjust the system as necessary to improve its performance and effectiveness in ensuring sustainability of the fishery.

1.9 Public review and Involvement

Development of the proposed ACL and AMs were made in a public process. At its 148th meeting in June 2023, the Council's SSC considered and discussed the outcomes of the peer-review from the report of the WPSAR Panel Chair, Dr. Erik Franklin. In the same meeting, PIFSC released the final 2023 benchmark assessment for American Samoa bottomfish (Nadon et al. 2023) incorporating the recommendations from the WPSAR review. The SSC considered this benchmark assessment as BSIA for the nine assessed bottomfish stock status and setting harvest limits. At its 195th meeting in June 2023, the Council received the presentation from PIFSC on the benchmark assessment, accepted the SSC BSIA recommendation, and directed staff to organize a working group to quantity the scientific uncertainty through the P* analysis and management uncertainty through the SEEM analysis. Both the Council and SSC meetings were open to the public and advertised through notices in the *Federal Register (*88 FR 101, May 25, 2023), and on the Council's website.

At its 196th meeting on September 19, 2023, the Council considered and discussed issues relevant to discontinuing the rebuilding plan and specifying ACLs and AMs for the American Samoa bottomfish fishery, including the ABC recommendations from the SSC at its 149th meeting held on September 12 2023. At its 149th meeting, the SSC recommended setting nine single species ABCs, utilizing *P. flavipinnis* and *E. coruscans* as indicator species for *P. filamentosus* and *E. carbunculus,* respectively. The Council recommended an aggregated ACL for the nine assessed species and a post-season accountability measure for overage adjustment for fishing years 2024 to 2026 as a preliminary preferred alternative. The Council did not recommend an ACT during preliminary action. Both the Council and SSC meetings were open to the public and advertised through notices in the *Federal Register* (88 FR 165, August 28, 2023), and on the Council's website. The public had an opportunity to comment at the meetings on the proposed ACL and ACT specifications and AMs. There were no request for public comment. NMFS will be accepting comments on the draft EA during the comment period for the proposed ACL and AM rule. To submit comments, go to www.regulations.gov and search for RIN 0648-XX000. NMFS will consider comments received prior to making a decision on any proposed rule.

1.10 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.

1.11 List of Preparers

Western Pacific Regional Fishery Management Council
Zach Yamada, Fishery Analyst, WPRFMC, Preparer

NMFS PIRO Sustainable Fisheries Division
Heather Nelson, Fishery Management Specialist, PIRO SFD, Preparer
Keith Kamikawa, Fishery Management Specialist, PIRO SFD, Preparer
Brett Schumacher, Fish and Wildlife Administrator, PIRO SFD, Reviewer

2 Descriptions of the Alternatives

The alternatives considered in this document include a range of possible ACLs for the American Samoa bottomfish fishery. The SSC utilized the results of the P* analysis to set single species ABC while the Council utilized the results of the SEEM analysis and took initial action to specify an aggregated ACL. Although the estimate of the OFL and the calculation of the ABC are part of specifying the ACL, the established of these reference points are scientific in nature and used to develop the alternatives, but it not part of the proposed Federal Action

2.1 Development of the Alternatives

The Council and its SSC used the approved process, described previously, to develop its ACL and AM recommendations for the American Samoa BMUS fishery for fishing years 2024 through 2026. These alternatives were initially discussed at Council's 196th meeting and final action will be taken at the 197th meeting. Further details on the Council's considerations for the development of American Samoa BMUS ACLs and AMs are described in the following sections.

2.1.1 Estimation of OFL

The peer-reviewed benchmark stock assessment for nine bottomfish species in the American Samoa Archipelago (Nadon et al. 2023) was presented to the SSC and the Council at their 148th and 195th meetings, respectively. 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, and concluded that all nine assessed species were neither overfished nor experiencing overfishing. *E. carbunculus* and *P. filamentosus* were not assessed due to insufficient data, and the assessment proposed the use of *E. coruscans* and *P. flavipinnis*, respectively, as indicator species.

An indicator stock (species) 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. 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. In the present case, *E. coruscans and P. flavipinnis* are species for which stock status is known and there is sufficient information to track catch. They would be used to determine, or indicate, the respective statuses of *E. carbunculus* and *P. filamentosus*, which have similar life histories to *E. coruscans* and *P. flavipinnis,* and for which status is unknown.

The OFL (Table 4) correspond to a 50 percent risk of overfishing. The OFL based on the catch projections assuming that previous year catch reached the single species ACL is 8,995 lb for *A. rutilans*, 4,740 lb for *A. virescens*, 2,778 lb for *C. lugubris*, 5,247 lb for *E. coruscans*, 7,408 for *L. rubrioperculatus*, 17,637 for *L. kasmira*, 2,469 lb for *P. flavipinnis*, 1,411 lb for *P. zonatus*, and 2,874 lb for *V. louti*.

Table 4: The probabilities of overfishing (%) in fishing year 2028 (lb) (Nadon et al. 2023) for American Samoa BMUS

	Aphareus rutilans	*Aprion virescens*	*Caranx lugubris*	*Etelis coruscans*	*Lethrinus rubrioperculatus*	*Pristipomoides flavipinnis*
P*						
0.50	8,995	4,740	2,778	5,247	7,408	2,469
0.49	8,907	4,740	2,778	5,203	7,385	2,447
0.48	8,818	4,718	2,778	5,159	7,363	2,425
0.47	8,730	4,718	2,756	5,137	7,341	2,403
0.46	8,642	4,696	2,756	5,093	7,341	2,381
0.45	8,554	4,674	2,756	5,071	7,319	2,359
0.44	8,466	4,674	2,734	5,027	7,297	2,359
0.43	8,378	4,652	2,734	4,982	7,275	2,337
0.42	8,289	4,630	2,734	4,960	7,253	2,315
0.41	8,201	4,630	2,712	4,916	7,231	2,293
0.40	8,135	4,608	2,712	4,872	7,231	2,271
0.39	8,047	4,586	2,690	4,850	7,209	2,271
0.38	7,959	4,586	2,690	4,806	7,187	2,249
0.37	7,870	4,564	2,690	4,762	7,165	2,227
0.36	7,782	4,542	2,668	4,740	7,165	2,205
0.35	7,716	4,542	2,668	4,696	7,143	2,205
0.34	7,628	4,519	2,646	4,652	7,121	2,183
0.33	7,540	4,497	2,646	4,630	7,099	2,161
0.32	7,474	4,497	2,623	4,586	7,077	2,138
0.31	7,385	4,475	2,623	4,542	7,077	2,138
0.30	7,297	4,453	2,623	4,519	7,055	2,116
0.29	7,231	4,453	2,601	4,475	7,033	2,094
0.28	7,143	4,431	2,601	4,431	7,011	2,094
0.27	7,055	4,409	2,579	4,387	7,011	2,072
0.26	6,989	4,409	2,579	4,365	6,989	2,050
0.25	6,900	4,387	2,557	4,321	6,967	2,050
0.24	6,834	4,365	2,557	4,277	6,945	2,028
0.23	6,746	4,365	2,535	4,233	6,945	2,006
0.22	6,680	4,343	2,535	4,211	6,923	2,006
0.21	6,592	4,321	2,513	4,167	6,900	1,984
0.20	6,526	4,321	2,513	4,123	6,878	1,962

Table 5: The probabilities of overfishing (%) expressed at MSY (lb) (Nadon et al. 2023) for *Lutjanis kasmira*

P*	MSY[1]
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

[1] The median MSY estimate was determined to be the OFL for *L. kasmira*, due to only larger individuals being selected by the fishery and the stock remaining sustainable even at elevated *F* values. For more information regarding the different methods used in the stock assessment for *L. kasmira*, please see Section 2.5 of Nadon et al. (2023).

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 analyses. P* and SEEM scores represent a percent reduction in the probability of overfishing from the OFL. The OFL is set at a level of catch which corresponds to the catch that results in a 50 percent probability of overfishing. The P* score is used to set the ABC, while the SEEM score is used to set the ACL or ACT at a level that is below the ABC. For example, a P* score of 1 would indicate that a 1 percent reduction in the probability of overfishing from the OFL is needed to account for the scientific uncertainty, and the ABC would be set at the level that results in a 49 percent probability of overfishing.

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. To determine a P* score for the scientific uncertainty for each assessed stock, the working group scored 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 assigned the same score across all species for assessment information, uncertainty characterization and stock status uncertainty dimensions. For the assessment information uncertainty dimension, the group agreed that the assessment provides estimates of exploitation, biomass and MSY-derived benchmarks. The assessment information dimension was therefore assigned a 4.0, which scales to contribution of 1.1 to the total P* value. The working group scored the uncertainty characteristic dimension of the P* at 3.5 for all species because uncertainties were carried forward into the assessment projections. For stock status, none of the nine assessed species are overfished or experiencing overfishing, so the group scored this dimension as 0 for all species. The scores for productivity and susceptibility differed across species, ranging 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 **6** from 50 percent risk of overfishing (WPFMC 2023b). P* scores ranged from an 8 to 11 percent reduction in P* from the OFL.

The SEEM working group meeting was held at the Tradewinds Hotel in American Samoa on August 30, 2023. The working group was comprised of an economist/social scientist, fishery managers, and bottomfish fishermen. The working group utilized standardized SEEM dimensions and criteria. The SEEM analysis quantified a reduction of 0 for the social, economic, and ecological uncertainty dimensions. The management uncertainty dimension of the SEEM analysis is further broken down into monitoring uncertainty and compliance and management uncertainty. Although there is mandatory licensing and commercial reporting, participation in the creel survey is voluntary and 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 American Samoa BMUS until October 2022 due to the limited amount of surveys. Therefore the SEEM working group assigned a reduction of 2.5 for monitoring uncertainty and 1.5 for compliance and management uncertainty, resulting in a total management uncertainty score of 4

for all species. This resulted in a total SEEM score of 4 for all assessed species, which would set the P* for each species ACL at 4 percent lower than the P* for the ABC (

Table **6**) (WPFMC 2023c).

Table 6: American Samoa bottomfish management unit species and the results from the P* (Scientific Uncertainty Reduction) and SEEM (Social, Economic, Ecological, and Management Uncertainty Reduction) analysis (WPRFMC 2023b; 2023c).

BMUS	Samoan name	P* Score	P* **for ABC**	**SEEM Score**	P* **for 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	10	40	4	36
Variola louti	Velo	10	40	4	36

At its 149th meeting in September 2023, the SSC recommended to set nine, single-species ABC's for the assessed American Samoa BMUS species for fishing years 2024, 2025, and 2026 in accordance with the results of the P* and SEEM analysis and based on BSIA from the 2023 benchmark stock assessment. The SSC further recommended the use of *P. flavipinnis* as an indicator species for *P. filamentous* and the use of *E. coruscans* as an indicator species for *E. carbunculus*. ABC's for each of the nine assessed species are listed in Table 7.

Table 7: American Samoa bottomfish management unit species and the results from the P* analysis (WPRFMCb).

BMUS	**Samoan name**	**P* Score (Scientific Uncertainty Reduction)**	**P* for ABC**	**2024-2026 ABC (lb)**
Aphareus rutilans	Palu-gutusiliva	11	**39**	**8,047**
Aprion virescens	Asoama	10	**40**	**4,608**
Caranx lugubris	Tafauli	9	**41**	**2,712**
Etelis coruscans	Palu-loa	11	**39**	**4,850**
Lethrinus rubrioperculatus	Filoa-paomumu	9	**41**	**7,231**

Lutjanus kasmira	Savane	8	**42**	**16,976**
Pristipomoides flavipinnis	Palu-sina	10	**40**	**2,271**
Pristipomoides zonatus	Palu-ula	10	**40**	**1,345**
Variola louti	Velo	10	**40**	**1,764**

As set forth by the implementing regulations for National Standard 1 of the MSA, the ACL may not exceed the ABC for any species and ACLs in coordination with AM's must prevent overfishing (50 CFR 600.310(f)(4)(i)). Furthermore, regulations specify that if an ACT is not used, management uncertainty should be accounted for in the ACL. Therefore, the Council may recommend and NMFS may implement ACLs that are equal to or less than the ABCs recommended for each species by the SSC. If the Council recommends ACLs that are equal to the ABCs, the Council should recommend an ACT reflecting the results of the SEEM analysis to incorporate management uncertainty. If the Council does not recommend an ACT, the Council should recommend ACLs that reflect the results of the SEEM analysis and incorporate management uncertainty.

Table 8: Comparison of the ACLs as proposed under Alternatives 1 and 2a-c for the American Samoa Bottomfish fishery. All values are in lb.

ACL Alternatives	***Aphareus rutilans***	***Aprion virescens***	***Caranx lugubris***	***Etelis coruscans***	***Lethrinus rubrioperculatus***	***Lutjanus kasmira***	***Prisitpomoides flavipinnis***	***Pristipomoides zonatus***	***Variola louti***
1 – No Action	5,000 (catch limit would apply to all eleven BMUS)								
2a – Aggregated ACL	48,680 (catch limit would apply to total catch of nine assessed species)								
2b – 9 Single Species ACL	7,716	4,542	7,716	4,696	7,165	16,645	2,205	1,323	1,698
2c -Single Species ACL lower than P* and SEEM	<7,716	<4,542	<2,690	<4,696	<7,165	<16,645	<2,205	<1,323	<1,698

2.2 Features Common to All Alternatives

Each alternative assumes that all other 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 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 (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.

Coordinated management in Federal and territorial waters would improve the ability of management measures to a designated catch limit. However, American Samoa does not currently have regulations in place to enforce catch limits on any species in territorial waters. For that reason, the following environmental and fishery outcome analyses of the alternatives account for the actions that NMFS can take within its regulatory authority.

2.3 Description of the Alternatives

2.3.1 Alternative 1: No Action – Continue the rebuilding plan

Under Alternative 1, the Council would recommend to take no action, which would continue the current rebuilding and would not implement new ACLs for the bottomfish fishery in American Samoa for the 2024-2026 fishing years. This alternative 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. This alternative reflects the recent fishery status quo, which provides a baseline for NMFS to consider the potential fishery outcomes and environmental effects of other alternatives.

Expected Fishery Outcome

Under this alternative, the fishery would continue to operate under the rebuilding plan with a catch limit of 5,000 lb. If NMFS projects the ACL will be reached in a fishing year, NMFS will close the fishery in Federal waters through the end of the fishing year. 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. As an additional accountability measure, if the catch limit is exceeded the fishery would be closed in Federal waters until a coordinated approach to management in territorial waters is developed.

In 2022, the catch expansion projected that the bottomfish fishery caught a total of 2,583. Following the announcement that the American Samoa bottomfish fishery was declared overfished and overfishing was occurring in 2020, the catch declined from 7,697 to a low of

2,063 pounds in 2021 with lower catch effort and fewer boats with 27 trips in 2027 to a low of seven trips in 2021(Table 9).

Table 9: Comparison of bottomfish catches to trips. Trips include the use of bottomfish, trolling and spearfishing gear (WPRFMC 2023).

Year	Catch	Trips
2012	3,648	9
2013	11,070	15
2014	16,260	23
2015	27,722	25
2016	24,819	27
2017	17,425	21
2018	12,811	17
2019	11,399	11
2020	7,697	15
2021	2,063	7
2022	2,583	9

2.3.2 Alternative 2: Discontinue the rebuilding plan

Under Alternative 2, the Council would recommend to discontinue the American Samoa bottomfish rebuilding plan and amend the American Samoa FEP (NMFS 2022). The Council would further recommend AMs and ACLs for the 2024-2026 fishing years. For all alternatives under Alternative 2 (Alternatives 2a through 2c) the Council would recommend that if the average catch over the most recent three years exceeds the ACL, the ACL would be reduced by the amount of the overage in the subsequent year.

This alternative would utilize the results of the 2023 bottomfish stock assessment that found the fishery was neither experiencing overfishing nor overfished in 2017 or any subsequent year. At its 148th meeting, the SSC agreed that this assessment was BSIA. On August 23, 2023, 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.

2.3.3 Accountability measures common to all subsequent alternatives

In American Samoa, the fishing year begins January 1 and ends on 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). However, the Council and its SSC discussed the difficulty in implementing in-season monitoring for the American Samoa bottomfish fishery because catch statistics only become available about six months after local management agencies collect the data (see Section 1.6 for more details on data collection). For these reasons, only post-season AMs are possible. Specifically, after the end

of each fishing year, if NMFS and the Council determine that the average catch of a territory from the most recent three-year period exceeds the ACL, 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.

2.3.3.1 *Alternative 2a: Implement an aggregate ACL of XX,XXX lb and a post-season AM for fishing years 2024–2026 (Initial Preferred)*

Under Alternative 2a, the Council would implement an aggregated ACL for the nine American Samoa BMUS that were assessed in the 2023 stock assessment based on the catch limits for 2024–2026 that would be derived from their P* and SEEM analyses. The Risk of Overfishing tables from the stock assessment would be used to calculate single-species the ACLs, and those numbers would be summed to produce the aggregate. However, the 2023 stock assessment estimates risk of overfishing on an individual species basis, and thus the risk of overfishing for the nine BMUS in aggregate is unknown.

Based on the 2023 benchmark stock assessment, The OFL based on the catch projections assuming that previous year catch reached the single species ACL is 8,995 lb for *A. rutilans*, 4,740 lb for *A. virescens*, 2,778 lb for *C. lugubris*, 5,247 lb for *E. coruscans*, 7,408 for *L. rubrioperculatus*, 17,637 for *L. kasmira*, 2,469 lb for *P. flavipinnis*, 1,411 lb for *P. zonatus*, and 2,874 lb for *V. louti*. The sum of the OFL for the nine species assessed is estimated 52,559 lb, which is more than the previous OFL estimate by Langseth et al. (2019) at 8,000 lb. While this comparison may provide some general perspective on the state of the fishery as described in the 2023 stock assessment, the model structure of the single-species models is fundamentally different from a surplus production model that would have to be used to estimate an MSY for a multi-species complex. Thus using the information from the 2023 stock assessment to create combined or aggregate metrics and catch limits does not conform with the NS 2 of the Magnuson-Stevens Act, which requires the use of the best scientific information available for management. Also, this Alternative may not consider potential fluctuations in the fishery. In the case that the fishery exceeds the overfishing limit of a single species, the Council may not be able to provide an overage adjustment in the subsequent fishing year.

Expected Fishery Outcome

Under Alternative 2a, the fishery could catch up to 48,680 lb of bottomfish, which is nine times more than the ACL under the rebuilding plan but less than half of 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 48,680 lb if the fishery performance is similar to fishery performance over the past 10 years. The average catch from 2020–2022 was 4,114 lb (Table 8), and the average total BMUS catch (i.e., for eleven species) from 2012–2021 was 18,338 lb (Table 3). The sum of the proposed

ACLs would equate to a total of 52,888 lb of total potential catch for the 9 assessed BMUS species. Even if the fishery performs close to the highest recent catch of 33,307 lb during the 2015 fishing year, the fishery would remain open throughout each of the next three years. On a single species level, the bottomfish fishery did exceed the proposed single species ACL for *A. virescens* in 2014, 2015 and 2016, and *E. coruscans* in 2014 and 2016 (Table 10). From 2017 through 2021, the fishery did not exceed any of the OFL values for the nine assessed species and participation in the fishery steadily declined. If the fishery were to perform similar to the 2014 through 2016 years, this alternative would not prevent overfishing and would not comply with NS 1. Based on the participation, fishery participation has steadily decreased from 2012 through 2021.

Table 10: Catch of current BMUS from 2012 - 2021. All ACL and catch values are in lb (Table 7-6, Nadon et al. 2023)

Year	*Aphareus rutilans*	*Aprion virescens*	*Caranx lugubris*	*Etelis coruscans*	*Lethrinus rubrioperculatus*	*Lutjanus kasmira*	*Prisitpomoides flavipinnis*	*Pristipomoides zonatus*	*Variola louti*	Total BMUS Catch
2012	1,171	1,021	562	1,129	2,500	1,168	631	71	172	8,428
2013	2,950	4,145	970	2,800	4,877	3,635	606	161	761	20,905
2014	3,596	4,839	604	5,088	2,341	3,982	644	280	646	22,020
2015	4,068	5,628	1,246	4,239	6,773	4,076	1,221	243	353	27,847
2016	3,148	6,598	1,676	6,748	1,929	1,243	1,323	571	139	23,375
2017	3,450	4,213	1,488	3,338	1,360	798	205	540	121	15,513
2018	1,989	2,086	1,396	3,351	888	520	355	280	143	11,008
2019	2,743	2,756	1,272	1,376	1,790	754	254	159	410	11,514
2020	527	2,932	745	1,396	959	582	165	110	247	7,663
2021	75	271	82	344	421	377	24	13	31	1,638
3-yr avg. (2019 - 2021)	**1,115**	**1,986**	**700**	**1,038**	**1,057**	**571**	**148**	**94**	**229**	**9,467**
10-yr avg. (2012 - 2021)	**2,372**	**3,449**	**1,004**	**2,981**	**2,384**	**1,714**	**543**	**243**	**302**	**14,991**

If the fishery were to exceed the 48,680 aggregate ACL on average for three years, NMFS would reduce the ACL in the next fishing year by the amount of the overage based on the average catch of the most recent three years.

As compared to Alternatives 2b and 2c, it would be less precautionary if the catch limit for a single species was reached. If the catch limit for a single species could account for its overage so management would not be able to address potential biological effects on individual stocks as they were assessed in the 2023 stock assessment.

2.3.3.2 *Alternative 2b: Implement nine single-species ACLs and post-season AMs for fishing years 2024–2026 based on the results of the P* and SEEM analyses*

Under Alternative 2b, the Council would implement single-species ACLs for the nine assessed American Samoa BMUS based on their respective P* and SEEM analyses for 2024–2026 (Table 16), and establish *E. coruscans* as an indicator species for *E. carbunculus* and *P. flavipinnis* as 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 the post-season AM based on monitoring of catch of the indicator species. The risk of overfishing tables (**Error! Reference ource not found.** or Table 4 and

Table 5) would be used to set the ACL, and the ACL would be set lower than the ABC and incorporate management uncertainty in accordance with the SEEM score.

Table 11: Single-species ACLs for the nine assessed BMUS, as indicated by the P* and SEEM (Social, Economic, Ecological, and Management uncertainty) **analyses**

BMUS	Samoan name	OFL (lb)	P* for ABC	ABC (lb)	SEEM Score	P* for ACL	Proposed ACL (lb)
Aphareus rutilans	Palu-gutusiliva	8995	39	8047	4	35	**7716**
Aprion virescens	Asoama	4740	40	4608	4	36	**4542**
Caranx lugubris	Tafauli	2778	41	2712	4	37	**2690**
Etelis coruscans	Palu-loa	5247	39	4850	4	35	**4696**
Lethrinus rubrioperculatus	Filoa-paomumu	7408	41	7231	4	37	**7165**
Lutjanus kasmira	Savane	17,637	42	16,976	4	38	**16,645**
Pristipomoides flavipinnis	Palu-sina	2469	40	2271	4	36	**2205**
Pristipomoides zonatus	Palu-ula	1411	40	1345	4	36	**1323**
Variola louti	Velo	1874	40	1764	4	36	**1698**

Expected Fishery Outcome

Prior to 2020, there was not an in-season AM that would close the fishery if it was projected to reach the ACL. During fishing years 2020–2022 there was an in-season AM, but the fishery did not approach the catch limits. From 2012 through 2022 the fishery never approached an ACL in any year (Table 2). Since the performance of the fishery was not functionally constrained by previous catch limits, fishery performance was not reduced or otherwise affected by these management measures. Accordingly, we do not expect catch levels to change if the total authorized catch in the bottomfish fishery increases to greater than the 5,000 lb ACL in place under the current rebuilding plan. Table 10 shows the average catch annual for each of the 9 assessed BMUS species for fishing years 2019–2021, the 3 most recent years in the 2023 stock assessment, in comparison to the proposed ACLs. No species exceeded an average catch that was greater than 41 percent of its proposed ACL during these years. Average catch of *A. virescens* in 2019-2021 was the closed to the proposed ACL at 44 percent of the proposed ACL followed by *C. lugubri* and *E. carbunculus* 26 percent and 22 percent, respectively. . In addition, between 2017 through 2021, the fishery did not exceed any of the OFL values for the nine assessed species and participation in the fishery steadily declined. The catch of *A. virescens* and *E. coruscans* did exceed the proposed ACL in 2014–16 and 2014 and 2016, respectively (Table 12), and the three year average catch would also have exceeded the ACLs. If the fishery performs similar to those years and catches more on average than the ACL, the Council and NMFS would reduce the annual catch limit to mitigate potential biological effects on the stocks. If this happens more than once in a four-year period, the Council would reassess the AMs and could implement other restrictions on catch, including size limits, or closed seasons or areas.

Table 12: Average catch of BMUS in fishing years 2019–2021 (Nadon et al. 2023) for the 9 assessed species compared to the proposed ACLs under Alternative 2b.

Species	**Average catch 2019-2021**	**Proposed ACL** (lb)	**% of Proposed ACL**
A. rutilans	1,115	7,716	14
A. virescens	1,986	4,542	44
C. lugubris	700	2,690	26
E. carbunculus	1,038	4,696	22
L. rubrioperculatus	1,057	7,165	15
L. kasmira	571	16,645	3
P. flavipinnis	148	2,205	7
P. zonatus	94	1,323	7
V.louti	229	1,698	12

2.3.3.3 ***If the fishery were to continue to operate as it has in recent years, it is anticipated that the fishery would not be constrained by the proposed ACLs. If the fishery were to reach or exceed the ACL for any one species, the post-season AM would be applied to that species, but the fishery could continue to catch all other BMUS species until their limits were reached.Alternative 2c: Implement nine single-species ACLs X percent lower than the results of the P* and SEEM analyses for fishing years 2024–2026 and implement post-season AMs***

Under Alternative 2c, the Council would implement ACLs for 2024 to 2026 for the nine American Samoa BMUS that were assessed in the 2023 stock assessment at catch levels that are X percent lower than the ACLs indicated by the results of each species P* and SEEM analysis. The Council would also establish *E. coruscans* as an indicator species for *E. carbunculus* and *P. flavipinnis* as 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. The Risk of Overfishing tables (Table 2 through 10) would be used to set the ACLs. This alternative provides a more precautionary approach to account for scientific or management uncertainties not identified in the P* and SEEM analysis.

Table 18: Possible ACLs, based on percent reductions from the probability of overfishing as set by the P*and SEEM analysis. ABCs are expressed in lb. The numbers in parentheses represent the probabilty of overfishing.

BMUS	**Samoan name**	**P***	**P*-2%**	**P*- 5%**	**P*-8%**	**P*- 10%**
Aphareus rutilans	Palu-gutusiliva	7716 (35)	7540 (33)	7297 (30)	7,055 (27)	6,900 (25)
Aprion virescens	Asoama	4,542 (36)	4,519 (34)	4,475 (31)	4,431 (28)	4,409 (26)
Caranx lugubris	Tafauli	2,690 (37)	2,668(35)	2,623 (32)	2,601 (29)	2,579 (27)
Etelis coruscans	Palu-loa	4,696 (35)	4,630 (33)	4,519 (30)	4,387 (27)	4,321 (25)
Lethrinus rubrioperculatus	Filoa-paomumu	7,165 (37)	7,143(35)	7,077 (32)	7,033 (29)	7,011 (27)
Lutjanus kasmira	Savane	16,645 (38)	16,491(36)	16,226 (33)	15,961 (30)	15,785(28)
Pristipomoides flavipinnis	Palu-sina	2,205(36)	2,183(34)	2,138 (31)	2,094 (28)	2,050 (26)
Pristipomoides zonatus	Palu-ula	1,345(36)	1,323 (34)	1,279 (31)	1,257 (28)	1,235 (26)
Variola louti	Velo	1,698 (36)	1,676(34)	1,631 (31)	1,609 (28)	1,565 (26)

Expected Fishery Outcome

The fishery is currently operating under a 5,000 lb limit for all eleven BMUS under the rebuilding plan, and the ACLs set under Alternative 2c would increase the total allowable landings in the bottomfish fishery over the current rebuilding plan. The sum of the proposed ACLs if the risk of overfishing were to be set 2 percent lower than that indicated by the SEEM analysis would equate to a total of 52,305 lb of total potential catch for the 9 assessed BMUS species, and a total of 49,623 lb if the risk of overfishing were to be set 10 percent lower.

Table 17 shows the average catch annual for each of the nine assessed BMUS species for fishing years 2019–2021, the three most recent years in the stock assessment. No species exceeded an average catch that was greater than 44 percent of its proposed ACL, if ACLs were set at a catch level that incurs a risk of overfishing that is 10 percent less than indicated by the SEEM analysis. In addition, between 2017 through 2021, the fishery did not exceed any of the OFL values for the nine assessed species and participation in the fishery steadily declined.

Under Alternative 2c, the allowable catch would be depend on the ACL selected by the Council, but the sum of the ACLs for each of the 9 assessed species is likely to be greater than the current 5,000 lb limit under the rebuilding plan. If the fishery were to continue to operate as it has in recent years, it can be expected that the fishery would not be constrained by the proposed ACLs. If the fishery were to reach or exceed the ACL for any one species, the post-season AM would be applied to that species, but the fishery could continue to catch all other BMUS species until their limits were reached.

2.3.3.4 ***Alternatives Considered, but not included for further analysis***

Implement In-Season AMs

Fishery managers cannot process catch information in near-real time in the American Samoa, bottomfish fisheries, and fishery statistics do not become available until at least six months after local agencies collect the data. Under the American Samoa bottomfish rebuilding plan, in-season monitoring during the fishing year and close the fishery in Federal waters for the remainder of the year if and when the fishery attain or exceed the ACL. Under the rebuilding plan, in-season monitoring was limited to the availability of creel surveys and was not available until the third quarter of the year. Therefore, the Council and NMFS did not consider in-season AM for Alternatives 2a, 2b and 2c to prevent an ACL from being exceeded (e.g., fishery closures in Federal waters) for the American Samoa bottomfish fishery affected by the proposed rule.

Implement a Post-Season AM in which the annual overage amount is deducted from the ACL and ACT in the subsequent year

At its 196th meeting, the Council considered a post-season single year overage adjustment if landings of bottomfish exceed the specified ACL in a fishing year, but did not include for further analysis. The creel survey data represents BSIA to NMFS; however, since fewer interviews increased the uncertainty in the catch estimates for the expansion time period, it is also expected that the semi annual expaonsion would have high uncertainties associated with the data. The catch expansion data from the creel survey are expected to be associated with high scientific uncertainties fluctuating from year to year. This AM would not account for yearly fluctuactions

3 Description of the Affected Environment

This section describes the baseline condition of resources in the action area under recent fishery conditions. This section also describes the socioeconomic and management setting, as well resources eliminated from detailed analysis. NMFS and the Council derive the information in this section primarily from the 2022 American Samoa Archipelago FEP Stock Assessment and Fishery Ecosystem (SAFE) Report (WPRFMC 2023), the FEP (WPRFMC, 2009, as amended), the NMFS species directory, the NMFS Stock SMART webpage (summaries of the NMFS approved stock assessment reports), and other available information cited below.

3.1 Target and Non-Target Stocks

BMUS managed under the FEP that the American Samoa bottomfish fishery harvest include several species of emperors, snappers, groupers, and jacks (Table 1). Recent catch levels since 2012 are described in Table 3. These and other catch statistics for the American Samoa bottomfish fishery can be found in the 2022 SAFE report. For a comprehensive discussion of the biology, life history, factors that affect distribution and abundance of pelagic MUS, and other information, see the FEP (WPRFMC 2009) or search the NMFS species directory for a summary of species-specific information (https://www.fisheries.noaa.gov/species-directory). Recent target and non-target catch data for the American Samoa bottomfish fishery is available in the 2022 SAFE Report, along with a detailed summary of the environment affected by this action (WPRFMC 2022).

The Magnuson-Stevens Act defines bycatch as finfish, mollusks, crustaceans, and all other forms of marine animal and plant life (other than marine mammals and seabirds) that are harvested in a fishery that are not sold or kept for personal use. Bycatch can be further described as either economic or regulatory discards. Economic discards are fish that are discarded because they are of undesirable size, sex, or quality, while regulatory discards are fish that are discarded because regulations do not allow fishermen to retain the fish. Discards in American Samoa usually occur due to regulatory requirements, cultural reasons, ciguatera poisoning, or shark depredation.

3.1.1 Status of the BMUS in the American Samoa bottomfish fishery

NMFS determines stock status of MUS using the Status Determination Criteria (SDC) for overfishing and overfished conditions described in detail in the FEP (WPFMC 2009). The 2023 stock assessment determined that the no species in the fishery was overfished or experiencing overfishing (Table 1).

Overfishing occurs when fishing mortality (F) or the rate of fish killed by fishery harvest is higher than the level at which fishing produces maximum sustainable yield (MSY). MSY is the maximum long-term average yield that can be produced by a stock on a continuing basis. There is an ideal proportion of fish to catch that will produce MSY—this is called F_{MSY}. In other words, if the proportion of fish caught (F) is greater than F_{MSY}, overfishing is happening. Overfished designations refer to the biomass (B) of a population, or stock, of fish. This is the amount of fish in the water. A stock is overfished when B has fallen to a level substantially below what is necessary to produce MSY. So there are two aspects that managers must monitor

to determine the status of a fishery: the level of F in relation to F at MSY (F_{MSY}), and the level of B in relation to B at MSY (B_{MSY}).

For summary information on individual stock assessment results, as reported to the NOAA Fisheries Office of Science and Technology through the Species Information System, see the Stock SMART webpage and browse by stock. This information is based on the best scientific information available but does not represent all aspects of each individual stock assessment, status, or management situation. For the full final stock assessment report for each species see the downloadable .pdf under "Final Assessment Report" on the same webpage. More information on the status, life history, biology, and management for each species can be found by searching the NMFS species directory.

3.1.2 Summary of American Samoa BMUS Catch Statistics

BMUS catch and effort information can be found in Section 1.5 through 1.7 of the 2022 SAFE report (WPFRMC 2023). The number of bottomfishing and mixed bottomfishing-trolling vessels has been declining since 2015. BMUS landings have closely tracked landings for all bottomfish and account for 40 percent of the total bottomfish landings. Generally, there is zero bycatch in bottomfishing, whether BMUS or non-BMUS, because all fish are retained for consumption or sale.

3.2 Protected Resources

There are several protected species known to occur in the waters around American Samoa, and thus, there exists potential for the American Samoa bottomfish fishery to interact with these protected species. NMFS has evaluated potential impacts on protected species by the American Samoa bottomfish fishery such that they can be managed in compliance with the Magnuson-Stevens Act, the Marine Mammal Protection Act (MMPA), the Endangered Species Act (ESA), and other laws as applicable. More detailed descriptions of protected species around American Samoa are available in Section 3.3.4 of the FEP for the American Samoa Archipelago (WPFMC 2009) and online on the NMFS species directory website.

3.2.1 Species Protected under the Endangered Species Act

The purpose of the ESA is to protect and recover imperiled species and the ecosystems upon which they depend. Section 7(a)(2) of the ESA requires each federal agency to insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. To "jeopardize" means to reduce appreciably the likelihood of survival and recovery of a species in the wild by reducing its numbers, reproduction, or distribution. When a federal agency's action "may affect" an ESA-listed species, that agency is required to consult formally with NMFS (for marine species, some anadromous species, and their designated critical habitats) or the U.S. Fish and Wildlife Service (USFWS, for terrestrial, freshwater, and certain marine species including seabirds, or their designated critical habitat). The product of formal consultation is the relevant service's biological opinion (BiOp).

This section summarizes much of the information contained in the following current BiOps to describe baseline conditions. NMFS previously evaluated the potential impacts of the fishery on all ESA-listed species under NMFS jurisdiction, and any relevant designated critical habitat, and documented its determinations in the following list of BiOps under which the American Samoa bottomfish fishery currently operates.

Table 13: ESA-listed species and their determinations under the relevant ESA consultations for the American Samoa bottomfish fishery

Consultation	Species	Determination
NMFS 2002	Loggerhead Sea turtle, Leatherback sea turtle, Olive ridley sea turtle, Green sea turtle, Hawksbill sea turtle, Blue whale, Fin whale, Sei whale, Sperm whale, Norther right whale	Not likely to adversely affect
NMFS 2015	Scalloped hammerhead sharks, *Acropora globiceps, A. retusa, A. speciose, Euphyllia paradivisa, Isopora crateriformis,*	Not likely to adversely affect
NMFS 2022	Giant manta ray, Chambered nautilus, Oceanic Whitetip shark	Not likely to adversely affect

These documents can be found by clicking on the hyperlinks, by searching the following website, or by contacting NMFS using the contact information at the beginning of the document.

3.2.2 Species Protected under the Marine Mammal Protection Act

The MMPA prohibits, with certain exceptions, the take of marine mammals in the U.S. EEZ and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the United States. The MMPA authorizes the Secretary of Commerce to protect and conserve all cetaceans (whales, dolphins, and porpoises) and pinnipeds (seals and sea lions, except walruses). The MMPA requires NMFS to prepare and periodically review marine mammal stock assessments. See 16 U.S.C. § 1361, et seq.

Pursuant to the MMPA, NMFS has promulgated specific regulations that govern the incidental take of marine mammals during commercial fishing operations (50 CFR 229). Under Section 118 of the MMPA, NMFS must publish, at least annually, a List of Fisheries that classifies U.S. commercial fisheries into three categories, based on relative frequency of incidental mortality and serious injury to marine mammals in each fishery.

According to the 2023 List of Fisheries (88 FR 16899), the American Samoa bottomfish fishery is a Category III fishery. This fishery is expected to have a remote likelihood of marine mammal interactions. Additionally, no mortality or serious injury of marine mammals has been reported or documented in the fishery.

3.2.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) makes it illegal to intentionally take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid Federal permit. On January 7, 2021, the USFWS published a final rule (effective February 8, 2021) defining the scope of the MBTA as it applies to conduct resulting in the injury or death of migratory birds protected by the MBTA (86 FR 1134). In that January 2021 rule, USFWS determined that the MBTA's prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same, apply only to actions directed at migratory birds, their nests, or their eggs. On October 4, 2021, USFWS published a final rule (effective December 3, 2021) revoking the January 2021 rule, and returning the implementation of the MBTA as prohibiting incidental take and applying enforcement discretion consistent to USFWS practice prior to 2017 (86 FR 54642). NMFS and the Council continue to monitor interactions with seabirds and have implemented take mitigation measures.

3.2.4 Monitoring

Bottomfish fisheries in American Samoa have not had reported interactions with protect species, and no specific regulations are in place to mitigate protected species interactions. Destructive gear such as bottom trawls, bottom gillnets, explosives and poisons are prohibited under the FEP, and these prohibitions benefit protected species by preventing potential interactions with non-selective fishing gear.

3.2.5 Seabirds

Table 14 lists seabird species that are considered residents or visitors of American Samoa. Of the presented species, only the Newell's shearwater is listed as threatened under the ESA.

Table 14: Seabirds occurring in American Samoa.

Samoan name	English name	Scientific name
Residents (i.e., breeding)		
Taio	Wedge-tailed shearwater	*Puffinus pacificus*
Taio	Audubon's shearwater	*Puffinus lherminieri*
Taio	Christmas shearwater	*Puffinus nativitatis*
Taio	Tahiti petrel	*Pterodroma rostrata*
Taio	Herald petrel	*Pterodroma heraldica*
Taio	Collared petrel	*Pterodroma brevipes*
Fuao	Red-footed booby	*Sula*
Fuao	Brown booby	*Sula leucogaster*
Fuao	Masked booby	*Sula dactylatra*
Tavaesina	White-tailed tropicbird	*Phaethon lepturus*
Tavaeula	Red-tailed tropicbird	*Phaethon rubricauda*
Atafa	Great frigatebird	*Fregata minor*
Atafa	Lesser frigatebird	*Fregata ariel*

Samoan name	English name	Scientific name
Gogouli	Sooty tern	*Onychoprion fuscatus*
Gogo	Brown noddy	*Anous stolidus*
Gogo	Black noddy	*Anous minutus*
Laia	Blue-gray noddy	*Procelsterna cerulea*
manu sina	Common fairy-tern (white tern)	*Gygis alba*
Taio	Short-tailed shearwater	*Puffinus tenuirostris*
Taio	Newell's shearwater (ESA threatened)	*Puffinus auricularis newelli*
Taio	Mottled petrel	*Pterodroma inexpectata*
Taio	Phoenix petrel	*Pterodroma alba*
Taio	White-bellied storm petrel	*Fregetta grallaria*
Taio	Polynesian storm petrel	*Nesofregetta fuliginosa*
-----	Laughing gull	*Larus atricilla*
Gogosina	Black-naped tern	*Sterna sumatrana*

(Source: WPFMC 2009; online sources).

There has only been one confirmed sighting of the threatened Newell's shearwater in American Samoa (Grant et al. 1994), and it appears to be an uncommon visitor to the archipelago. There have been no reports of interactions between the American Samoa bottomfish fishery and seabirds (WPFMC 2009).

3.2.6 Sea Turtles

All sea turtles are subject to protection under the ESA in American Samoa. Direct harvest, direct harm, and indirect harm are prohibited unless the ESA section 9 prohibition on take is otherwise exempted. In the United States, NMFS and the USFWS have joint jurisdiction for the recovery and conservation of ESA-listed threatened and endangered sea turtles. NMFS has jurisdiction over sea turtles in the marine environment, while the USFWS has jurisdiction of these species in the terrestrial environment (e.g. nesting beaches). NMFS has coordinated the continued authorization of the American Samoa bottomfish fishery under Section 7 of the ESA. All six sea turtle species occurring in U.S. waters are listed under the ESA. The range of five of these species overlaps with the EEZ around American Samoa, and they may be encountered by fishermen. Territorial regulations prohibit the take, possession, and sale of green, hawksbill, and leatherback sea turtles (ASCA § 24.0959). Table 15 lists the sea turtle species reasonably likely to occur around American Samoa. No critical habitat has been established for any sea turtle species in American Samoa.

Sea turtles currently face many threats, including (1) direct harvest of animals and eggs or predation; (2) incidental interactions with fisheries; (3) collisions with vessels and automobiles; (4) urban development / loss of habitat; (5) pollution (e.g., plastics); and (6) climate change. Sea turtle conservation initiatives are also in place, including restoration of habitats, laws to protect turtles, and management of threats to help provide for recovery. More information on the conservation of sea turtles is available on the NMFS website.

Table 15. ESA-listed sea turtles known to occur or reasonably expected to occur in waters around the American Samoa Archipelago.

Common names/ DPS if applicable	Scientific Name	ESA listing status in American Samoa	Occurrence in American Samoa	Interactions with the American Samoa bottomfish fishery through 2019
Green sea turtle (laumei enaena and fonu) Central South Pacific DPS	*Chelonia mydas*	Endangered DPS	Frequently seen. Nest at Rose Atoll. Known to migrate to feeding grounds.	No interactions observed or reported.
Hawksbill sea turtle (laumei uga)	*Eretmochelys imbricata*	Endangered	Frequently seen. Nest at Rose Atoll and Swain's Island.	No interactions observed or reported.
Leatherback sea turtle	*Dermochelys coriacea*	Endangered	Very rare in American Samoa. One recovered dead in experimental longline fishing.	No interactions observed or reported.
Olive ridley sea turtle	*Lepidocheylys olivacea*	Threatened	Uncommon in American Samoa. Three sightings.	No interactions observed or reported.
Loggerhead sea turtle South Pacific DPS	*Caretta caretta*	Endangered DPS	American Samoa is within the species nesting range, but the species has not been observed in the territory.	No interactions observed or reported.

Both commercial and non-commercial fisheries have the potential to cause adverse effects to sea turtles, including injuries and mortalities that occur incidental to fishing, such as fishing gear or vessel interactions. The most likely impacts of the bottomfish fishery in American Samoa on sea turtles is the potential for vessel collisions causing injuries and mortalities. The frequency of this type of effect is unknown in American Samoa. However, given the limited number of bottomfish fishing vessels in American Samoa (seven recorded vessels; WPFMC 2021), and the fact that bottomfish fishing occurs while either at anchor or slowly drifting over fishing grounds, sea turtle collisions with vessels in this fishery are expected to be rare. As Table 15 indicates, no records exist of interactions between the American Samoa bottomfish fishery and sea turtles.

3.2.7 Marine Mammals

Marine mammal species that are reasonably likely to occur in American Samoa are listed in Table 16. In accordance with ESA Section 7(a)(2), NMFS previously evaluated the potential impacts of the American Samoa bottomfish fishery to ESA-listed marine mammals and

determined that the fishery is not likely to adversely affect any species in the action area. No critical habitat has been established for any whale species in American Samoa (Table 17). The MMPA prohibits, with certain exceptions, taking of marine mammals in the U.S. and by persons aboard U.S. flagged vessels (i.e., persons and vessels subject to U.S. jurisdiction). Territorial regulations prohibit the take, possession, and sale any marine mammal (ASCA § 24.0960). NMFS classifies the American Samoa bottomfish fishery as a Category III fishery under Section 118 of the MMPA (86 FR 16899, March 21, 2023). A Category III fishery is one with a low likelihood or no known incidental takings of marine mammals. Additionally, the ESA lists five whale species known to occur in the EEZ around American Samoa (see note under Table 16).

Table 16. Marine mammals known to occur or reasonably expected to occur in waters around American Samoa

Common Name	Scientific Name	Interactions with the Fishery
Humpback whale* (tafola or ia manu)	*Megaptera novaeangliae*	No interactions observed or reported.
Sperm whale*	*Physeter macrocephalus*	No interactions observed or reported.
Blue whale*	*Balaenoptera musculus*	No interactions observed or reported.
Fin Whale*	*Balaenoptera physalus*	No interactions observed or reported.
Sei whale*	*Balaenoptera borealis*	No interactions observed or reported.
Blainville's beaked whale	*Mesoplodon densirostris*	No interactions observed or reported.
Bottlenose dolphin	*Tursiops truncatus*	No interactions observed or reported.
Bryde's whale	*Balaenoptera edeni*	No interactions observed or reported.
Common dolphin	*Delphinus delphis*	No interactions observed or reported.
Cuvier's beaked whale	*Ziphius cavirostris*	No interactions observed or reported.
Dwarf sperm whale	*Kogia sima*	No interactions observed or reported.
False killer whale	*Pseudorca crassidens*	No interactions observed or reported.
Fraser's dolphin	*Lagenodelphis hosei*	No interactions observed or reported.
Killer whale	*Orcinus orca*	No interactions observed or reported.
Melon-headed whale	*Peponocephala electra*	No interactions observed or reported.
Minke whale	*Balaenoptera acutorostrata*	No interactions observed or reported.

Common Name	Scientific Name	Interactions with the Fishery
Pygmy killer whale	*Feresa attenuata*	No interactions observed or reported.
Pygmy sperm whale	*Kogia breviceps*	No interactions observed or reported.
Risso's dolphin	*Grampus griseus*	No interactions observed or reported.
Rough-toothed dolphin	*Steno bredanensis*	No interactions observed or reported.
Short-finned pilot whale	*Globicephala macrorhynchus*	No interactions observed or reported.
Spinner dolphin	*Stenella longirostris*	No interactions observed or reported.
Spotted dolphin (Pantropical spotted dolphin)	*Stenella attenuata*	No interactions observed or reported.
Striped dolphin	*Stenella coeruleoalba*	No interactions observed or reported.
Longman's beaked whale	*Indopacetus pacificus*	No interactions observed or reported.

(Source: NMFS PIRO and PIFSC unpublished data)
* Species is also listed under the Endangered Species Act.

3.2.8 Sharks and Rays

Scalloped hammerhead shark

On July 3, 2014, NMFS listed the Indo-West Pacific scalloped hammerhead shark DPS under the ESA (79 FR 38213). The Indo-West Pacific scalloped hammerhead shark DPS occurs in all U.S. Pacific Island territories. Scalloped hammerhead sharks range widely from nearshore to pelagic environments and from the surface to 500 meters (m) deep. Because the shark is listed in American Samoa, it is illegal to target or retain the shark.

As noted in the final rule (79 FR 38213, July 3, 2014), the significant operative threats to the listed scalloped hammerhead DPSs are overutilization by foreign industrial, commercial, and artisanal fisheries and inadequate regulatory mechanisms in foreign nations to protect these sharks from the heavy fishing pressure and related mortality, with illegal fishing identified as a significant problem in areas outside of U.S. jurisdiction. Some fishermen target sharks, including the scalloped hammerhead, to harvest their fins. Incidental capture in fisheries also contributes to increased mortality in this species (79 FR 38213, July 3, 2014).

Conservation initiatives for scalloped hammerhead sharks are in place and include, in addition to the Federal prohibition on retention of the scalloped hammerhead DPS, territorial prohibitions on the retention or transport of any sharks. The territorial government passed a law in 2012 (ASAC § 24.0961) stating that no person shall:

(1) Possess, deliver, carry, transport or ship by any means whatsoever any shark species or the body parts of any such species;
(2) Import, export, sell or offer for sale any such species or body parts of such species; or
(3) Take or kill any such species in American Samoa.

Oceanic whitetip shark

On January 30, 2018, NMFS issued a final rule to list the oceanic whitetip shark as threatened under the ESA (83 FR 4153). The oceanic whitetip shark is found in tropical and subtropical seas between 30º N. and 35º S. latitudes worldwide. The oceanic whitetip shark experiences high encounter and mortality rates in some commercial fisheries (e.g., pelagic longline, purse seine, and gillnet fisheries) throughout its range because of its tropical distribution and tendency to remain in surface waters (NMFS 2019a).

As noted in the final rule, the greatest threat to the oceanic whitetip shark is overutilization from fishing pressure and inadequate regulatory mechanisms to protect the species. However, American Samoa has territorial conservation measures that prohibit retention or transport of any shark (ASAC § 24.0961). The best available information to estimate interactions with oceanic white tip sharks are boat-based creel surveys, and review of 33 years of creel survey data did not find evidence of interactions with oceanic whitetip sharks and the American Samoa bottomfish fishery (NMFS 2019a). On August 8, 2022, NMFS determined that the continued operation of the bottomfish fishery in American Samoa is not likely to jeopardize the continued existence of the oceanic whitetip shark (NMFS 2022).

Giant manta ray

On January 22, 2018, NMFS issued a final rule to list the giant manta ray as a threatened species under the ESA (83 FR 2916). The giant manta ray is found worldwide in tropical, subtropical, and temperate bodies of water. It is commonly found offshore, in oceanic waters, and near productive coastlines. As noted in the final rule (83 FR 2916, January 22, 2018), the giant manta ray appears to be most at risk of overutilization in the Indo-Pacific and eastern Pacific portions of its range. Targeted fishing and incidental capture of the species in Indonesia, Philippines, Sri Lanka, India, and throughout the eastern Pacific, has led to observed declines in populations.

There are no targeted giant manta ray fisheries in American Samoa. Manta rays are filter feeders who forage near the surface and do not interact with bottomfish fishing gear (Miller and Klimovich 2016). The rate at which the American Samoa bottomfish fishery interacts with giant manta rays in other ways is unknown; however, there are no reported or observed collisions with giant manta rays and bottomfish fishing vessels in any island area. Over the last ten years, there have been less than 400 trips per year on average (WPFMC 2019). Due to the small number of bottomfish trips in American Samoa and the fact that there have been no reported or observed collisions between giant manta rays and bottomfish fishing vessels, we do not expect interactions between the bottomfish vessels and giant manta ray. On August 8, 2022, NMFS determined that the continued operation of the bottomfish fishery in American Samoa is not likely to jeopardize the continued existence of the giant manta ray (NMFS 2022).

3.2.9 Chambered Nautilus

On September 28, 2018, NMFS issued a final rule to list the chambered nautilus as threatened under the ESA (83 FR 48976). The chambered nautilus is found in tropical, coastal reef, deep-water habitats native to tropical reef habitats of the Indo-Pacific, and its known range includes waters off American Samoa. As noted in the final rule (83 FR 48976, September 28, 2018), the most significant threat to the chambered nautilus is overutilization through commercial harvest to meet the demand for the international nautilus shell trade. Targeted fishing of, and trade in, the species is thought to primarily occur in Philippines, Indonesia, India, and China, despite prohibitions (Miller 2018). Commercial harvest of the species is also thought to occur in Papua New Guinea, East Asia, Thailand, Vanuatu, and Vietnam (Miller 2018).

There is no known local utilization or commercial harvest of chambered nautilus in American Samoa (CITES 2016). Additionally, there are no records of any interaction between the American Samoa bottomfish fishery and chambered nautilus, and it is highly unlikely that they would be caught while bottomfish fishing. Research suggests that chambered nautilus may be strict or obligate bottom-dwelling scavengers (Barord 2015; Barord et al. 2014; Miller 2018). Further, chambered nautilus have an estimated average swimming speed of 0.10 m/s (Barord et al. 2014). To catch them, targeted fisheries use traps that are deployed for several hours or left overnight (Freitas and Krishnasamy 2016). Given the limited mobility and feeding behavior of the species, they would not be able to approach and take bait in the short time it is deployed by hook and line while bottomfish fishing.

On August 8, 2022, NMFS determined that the continued operation of the bottomfish fishery in American Samoa is not likely to jeopardize the continued existence of the chambered nautilis (NMFS 2022).

3.2.10 Marine Habitat and Protected Areas

Bottomfish fishing is prohibited through Federal management in the Rose Atoll Marine National Monument, the National Marine Sanctuary of American Samoa in the Fagatele Bay unit, and the research zone of the Aunu'u Island units. It is also prohibited in the territorial MPAs where and/or when fishing is prohibited, such as the no-take Fagamalo Village Marine Protected Area. The bottomfish fishery as currently managed does not have any adverse effects on the MPAs.

3.2.11 Essential Fish Habitat

The Magnuson-Stevens Act defines essential fish habitat (EFH) as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (Magnuson-Stevens Act § 3(10)). Federal agencies whose action may adversely affect EFH must consult with NMFS in order to conserve and enhance federal fisheries habitat. Habitat areas of particular concern (HAPC) are subsets of EFH that merit special conservation attention because they meet at least one of the following four considerations:

1) provide important ecological function;
2) are sensitive to environmental degradation;
3) include a habitat type that is/will be stressed by development;
4) include a habitat type that is rare.

HAPC are afforded the same regulatory protection as EFH and do not exclude activities from occurring in the area, such as fishing, diving, swimming or surfing.

An "adverse effect" to EFH is anything that reduces the quantity and/or quality of EFH. It may include a wide variety of impacts such as:

> 1) direct impacts (e.g., contamination or physical disruption);
> 2) indirect impacts (e.g., loss of prey, reduction in species' fecundity); or site-specific/habitat wide impacts, including individual, cumulative or synergistic consequences of actions.

In 1999, the Council developed and NMFS approved EFH definitions for management unit species of the Bottomfish and Seamount Groundfish FMP (Amendment 6), Crustacean FMP (Amendment 10), Pelagic FMP (Amendment 8), and Precious Corals FMP (Amendment 4) (64 FR 19067, April 19, 1999). NMFS approved additional EFH definitions for coral reef ecosystem species in 2004 as part of the implementation of the Coral Reef Ecosystem FMP (69 FR 8336, February 24, 2004). NMFS approved EFH definitions for deepwater shrimp through an amendment to the Crustaceans FMP in 2008 (73 FR 70603, November 21, 2008).

In 2009, the Council developed and NMFS approved five new archipelagic-based FEPs. The FEPs incorporated and reorganized elements of the Councils' species-based FMPs into a spatially-oriented management plan (75 FR 2198, January 14, 2010). The Council subsequently carried forward EFH definitions and related provisions for all FMP fishery resources into the respective FEPs.

Table 17 summarizes the designated areas of EFH and HAPC for American Samoa FEP BMUS by life stage. To analyze the potential effects of a proposed fishery management action on EFH, one must consider all designated EFH.

According to the most recent bottomfish fishery ESA consultations for American Samoa (Table 17), the current bottomfish fishery does not have an adverse effect on listed corals in American Samoa. The findings were based on the fact that the fishery is a targeted fishery with little bycatch, or gear contact with the bottom (i.e., no trawling, nets, traps, etc. and only a few weighted hooks and lines deployed at a time). However, this fishery is not known to adversely affect habitat. Similar methods are used to fish for bottomfish in American Samoa and Hawaii, and studies of bottomfish habitat in Hawaii have not found adverse impacts to habitat from bottomfish fishing activities (Kelley and Moffit 2004; Kelley and Ikehara 2006). Also, to prevent and minimize adverse bottomfish fishing impacts to EFH, each western Pacific FEP prohibits the use of explosives, poisons, bottom trawl, and other non-selective and destructive fishing gear. No alternative under consideration would result in substantial changes to the way fishermen conduct the bottomfish fishery in American Samoa, and, under complementary management, may substantially reduce fishery activity; therefore, the alternatives are not expected to result in adverse effects on bottomfish EFH or HAPC.

Table 17: Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPC) for American Samoa, Guam, and CNMI BMUS

Archipelago	Bottomfish MUS	EFH	HAPC
American Samoa	Lehi (*Aphareus rutilans*), asoama (*Aprion virescens*), black trevally (*Caranx lugubris*), ehu (*Etelis carbunculus*), onaga (*E. coruscans*), redgill emperor *(Lethrinus rubrioperculatus)*, blueline snapper (*Lutjanus kasmira*), opakapaka (*Pristipomoides filamentosus*), yelloweye snapper (*P. flavipinnis*), gindai (*P. zonatus*), lyretail grouper *(Variola louti)*.	**Eggs and larvae:** the water column extending from the shoreline to the outer limit of the EEZ down to a depth of 400 m (200 fm). **Juvenile/adults:** the water column and all bottom habitat extending from the shoreline to a depth of 400 m (200 fm)	All slopes and escarpments between 40–280 m (20 and 140 fm)

According to the most recent bottomfish fishery consultations for American Samoa (Table 17), none of the current bottomfish fisheries in these three areas has an adverse effect on EFH or HAPC. The findings were based on the fact that the bottomfish fisheries are targeted fisheries with very little bycatch, or gear contact with the bottom (i.e., no trawling, nets, traps, etc. and only a few weighted hooks and lines).

3.3 Physical Resources

The American Samoa FEP describes the physical environment of the Pacific Ocean. The dynamics of the Pacific Ocean's physical environment have direct and indirect effects on the occurrence and distribution of life in marine ecosystems. For a comprehensive discussion on physical resources in American Samoa, see the FEP (WPRFMC 2009).

3.4 Socioeconomic Setting

The socioeconomic setting for the American Samoa bottomfish fishery is described below. A more detailed description of the fishery and the latest socio-economic statistics can be found in the FEP Annual SAFE Reports.

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)".

In 1998, the Council 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 2023a) present sales data after the ECS amendment that revised the list of bottomfish in the American Samoa Archipelago, so estimates of commercial sales of just the 11 species that remain categorized only recently became available. The remaining species were selected in part because of their importance to the fishery, and likely comprised most reported sales prior to the ECS amendment.

The 2023 LOF estimated that there were less than six participants in the American Samoa bottomfish fishery (88 FR 16899, April 20, 2023). 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. Commercial and non-commercial fisheries for bottomfish occur primarily less than 20 miles from shore because few vessels carry ice, although some fishermen make longer trips to offshore banks in Federal waters (Brodziak et al. 2012).

Since 2012, the boat-based segment of the fishery has landed between an estimated 2,006 and 33,307 lb of bottomfish annually (Table 2). Over the last three years of available data (2017 to 2020), approximately 8.9 percent of that catch has been commercially sold (WPRFMC 2023a) 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).

"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. As noted in Section 2.2, 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. In a letter to NMFS on June 15, 2020, the DMWR highlighted that deepwater snappers are critical for cultural ceremonies and *fa'a lavelave* (e.g., funerals, weddings, births, special birthdays). Cultural fishing would also encompass day-to-day practices of subsistence, and coral reef fisheries are particularly important from a dietary and socio-cultural standpoint (Kilarski et al. 2006; Levine and Allen 2009).

3.5 Management Setting

The Council in accordance with the approved FEPs currently manages fisheries in Federal waters, and NMFS PIRO is responsible for implementing and enforcing fishery regulations that implement the FEPs. NMFS PIFSC conducts research and reviews fishery data provided through logbooks and fishery monitoring systems administered by State and territorial resource management agencies. The Council, PIRO, and PIFSC collaborate with local agencies in the administration of fisheries of the western Pacific through other activities including coordinating meetings, conducting research, developing information, processing fishery management actions, training fishery participants, and conducting educational and outreach activities for the benefit of fishery communities.

NOAA's Office of Law Enforcement (OLE) is responsible for enforcement of the nation's marine resource laws, including those regulating fisheries and protected resources. OLE, Pacific Islands Division oversees enforcement of Federal regulations in American Samoa, Guam, the CNMI, and Hawaii and enters into Joint Enforcement Agreements with each participating State and territory.

The U.S. Coast Guard's (USCG) Fourteenth District (Honolulu) jurisdiction is the EEZ and high seas in the western and central Pacific. At over 10 million square miles, its area of responsibility is the largest of any USCG District. The USCG patrols the region with airplanes, helicopters, and surface vessels, as well as monitors vessels through the NMFS-supplied vessel monitoring system (VMS), which remotely indicates the position of certain Federally permitted fishing vessels in the region. The USCG also maintains patrol assets in the Mariana Islands.

Federal regulations at 50 CFR 665.4 (76 FR 37285, June 27, 2011) require NMFS to specify ACLs and AMs for each stock or stock complex of MUS identified in an FEP, 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. This fishery has been managed by NMFS and the Council through the specification of ACLs and AMs since 2012, in coordination with the American Samoa DMWR. In May 2022, the fishery was subject to an ACL of 5,000 lb under a rebuilding plan (87 FR 25590). For information regarding data collection, see section 1.2 of the FEP.

3.6 Resources Eliminated from Detailed Study

Historical and archaeological resources may be found in Federal waters of American Samoa in the future, but there are no known districts, sites, highways, structures, or objects that are listed in or eligible for listing in the National Register of Historic Places in the areas that the Federal bottomfish fishery operates. Shipwrecks may exist in areas where the fishery operates, but the fishery is not known to adversely affect shipwrecks. Bottomfish fishers tend to avoid fishing in, anchoring on, and anchoring near known shipwrecks to avoid losing gear.

Sites with unique scientific resources have not been identified in American Samoa, apart from those protected as MPAs. Fishing is generally restricted in these areas, including fishing for bottomfish, so this fishery would not affect MPAs. NMFS does not expect the proposed rebuilding plan to have an effect on objects or places listed in the National Register of Historical

Places as no such areas exist in the U.S. EEZ around American Samoa. While fishing may occur in areas of potential scientific, cultural, or historical interest, the fishery is not currently known to cause loss or destruction to any such resources. Because management under the action alternatives is not expected to result in significant changes to the conduct of the fishery in this scenario, none of the action alternatives are expected affect scientific, historic, cultural, or archaeological importance.

Bottomfish fishing is not known to be a potential vector for spreading alien species as none of the bottomfish vessels fish outside of their respective archipelagic waters.

Although precious coral species occur in American Samoa, there are no known precious coral beds in waters around American Samoa (WPFMC 2009). Although little is known about the distribution and abundance of precious corals in American Samoa, bottomfish fishing is unlikely to affect these species. Exposure of precious corals to damage from bottomfish fishing activities is limited due to existing Federal regulations (e.g., use of trawls, poisons, explosives) that are not subject to change due to the proposed action.

4 Potential Environmental Effects of the Alternatives

This chapter describes the potential environmental consequences that could result from the alternatives considered and described in Chapter 2. The analysis relies on the information described in Chapter 3 as the baseline to evaluate the impacts of the management alternatives considered herein. The environmental resources that are potentially affected include the following: target and non-target species (including bycatch), protected resources, socioeconomic setting and management setting.

Table 18: Summary of Effects of the Alternatives

Resource	Alternative 1	Alternative 2a	Alternative 2b	Alternative 2c
Overview of Alternatives	**No action – Continue the rebuilding plan**	**Discontinue rebuilding plan – aggregated ACL**	**Discontinue rebuilding plan – single-species ACL**	**Discontinue rebuilding plan – single-species ACL**
Annual Catch Limits	5,000 lb for 11 BMUS species	48,680 lb for nine BMUS	ACL determined by P*/SEEM	ACL XX % < P*/SEEM
Accountability Measures	Monitor catch in-season and close the fishery in Federal waters if the ACL is projected to be reached If the ACL is exceeded close Federal fishery until coordinated state-Federal management is established	Evaluate catch post-season and reduce ACL if the average catch over 3 years exceeds the ACL.	AM reduce catch limit for an individual species if the average catch over 3 years exceeds the ACL	Same as Alt 2b
Physical resource: Water quality	No change	No change	No change	No change
Biological Resource: Protected Species	No change expected	No change expected	No change expected	No change expected

Resource	Alternative 1	Alternative 2a	Alternative 2b	Alternative 2c
Overview of Alternatives	**No action – Continue the rebuilding plan**	**Discontinue rebuilding plan – aggregated ACL**	**Discontinue rebuilding plan – single-species ACL**	**Discontinue rebuilding plan – single-species ACL**
Biological Resource: Target & Non-target Stocks	Catch similar to recent years under the rebuilding plan Most restrictive option under consideration.	NMFS determined the target BMUS stock in American Samoa are not overfished nor experiencing overfishing. If a higher ACL is implemented, participation in the fishery may increase. Aggregate ACL and AM may not prevent overfishing of individual species.	NMFS determined the target BMUS stock in American Samoa are not overfished nor experiencing overfishing. If a higher ACL is implemented, participation in the fishery may increase. Scientific and management uncertainty are accounted for in ACLs and AMs ACLs are higher than average catch of any species in 2019-2021 ACL and AM would prevent overfishing of individual species.	NMFS determined the target BMUS stock in American Samoa are not overfished nor experiencing overfishing. If a higher ACL is implemented, participation in the fishery may increase. Incorporates more scientific and management uncertainty into the ACL than is indicated by the P* and SEEM analysis ACLs are higher than average catch of any species in 2019-2021 ACL and AM would prevent overfishing of individual species.
Socio-economic Setting	No change	Potential increased participation and revenue	Potential increased participation and revenue over baseline, fishers are	Potential increased participation and revenue over baseline, fishers are

Resource	Alternative 1	Alternative 2a	Alternative 2b	Alternative 2c
Overview of Alternatives	**No action – Continue the rebuilding plan**	**Discontinue rebuilding plan – aggregated ACL**	**Discontinue rebuilding plan – single-species ACL**	**Discontinue rebuilding plan – single-species ACL**
			able to switch to different target species if one species reaches its limit	able to switch to different target species if one species reaches its limit, lower catch limits than Alt. 2b would lead to lower potential revenue
Management Setting	No change. In season monitoring and relatively high likelihood of administrative burden to close the fishery due to low catch limit.	Does not comply with MSA NS1 Lower likelihood of administrative burden from AM due to higher ACL than baseline.	Complies with MSA and is based on BSIA, species managed are the same as those reported in SIS Lower likelihood of administrative burden from AM due to higher ACL than baseline, but higher than Alt. 2a.	Complies with MSA and is based on BSIA, species managed are the same as those reported in SIS Lower likelihood of administrative burden from AM due to higher ACL than baseline, but higher than Alt. 2a. or Alt. 2b.

4.1 Potential Effects of Alternative 1: Continue the rebuilding plan (No Action)

The analysis in this subsection present the effects of action Alternatives 1, No Action which continue the rebuilding plan with an ACL of 5,000 lb. Accountability measures to monitor catch in season andclose the fishery in federal water if the ACL is reached or is projected to be reached would also remain in place until the Council decides to take action. The rebuilding plan was put into place because of the bottomfish stock complex was determined to be overfished and experiencing overfishing in the 2019 stock assessment (Langseth et al. 2019). The rebuilding plan was intended to prevent overfishing while rebuilding the American Samoa bottomfish fishery to its B_{MSY} within 10 years. However, the most recent benchmark stock assessment (Nadon et al. 2023) concluded that the fishery was not overfished nor experiencing overfishing in 2017 or any subsequent years. Alternative 1 would maintain the rebuilding plan and its associated accountability measures, despite BSIA which indicates that the fishery is no longer overfished or experiencing overfishing.NMFS 2022).

4.1.1 Effects on Physical Resources

The fishery is not known to have adverse effects on air quality, noise, water quality, view planes, or terrestrial resources. Management of the fishery is not expected to change relative to impacts to the physical environment (see Section 3.3), and cumulative impacts to physical resources are not expected under either alternative.

Because fishing activity under Alternative 1 (No Action) is not expected to change substantially from previous years, it is unlikely that the fishery would affect vulnerable marine ecosystems such as deep or shallow coral ecosystems under these alternatives. Additionally, neither alternative would fundamentally change the way the fishery is conducted in a way that would impact vulnerable marine ecosystems. This alternative would change regulations that are in place to prevent and minimize adverse effects from bottomfish fishing on fish habitat.

For these reasons, Alternative 1 is not expected to lead to substantial physical, chemical, or biological alterations to ocean, coral, or coastal habitats or result in impacts to the marine habitat, including areas designated as EFH, HAPC, or unique areas such as MPAs or deep coral ecosystems.

4.1.2 Effects on Biological Resources

4.1.2.1 *Effects on Target and non-target stocks*

Under Alternative 1 No Action, the American Samoa bottomfish rebuilding plan would continue with an ACL of 5,000 lb, an in-season AM, and a higher performance standard until the Council decides to take action (NMFS 2022). The authorized level of catch is less that 90 percent lower than the collective OFL of the nine assessed BMUS (Table 3: Summary of MSY, Fishing mortality, Natural mortality, catch average and OFL for the BMUS. Overfishing is defined by F/FMSY > 1 and overfished status is defined by SSB/SSBMSST < 1 (Nadon et al. 2023).). The rebuilding plan was intended to prevent overfishing while rebuilding the American Samoa

bottomfish fishery to its BMSY in ten years based on the overfished and overfishing status outline in the 2019 bottomfish benchmark stock assessment (Langseth et al 2019).

If Federal waters are closed through the higher performance standard without complementary management by the territory, the intended conservation benefits of the management measures would be substantially reduced and NMFS expects that it would take 19 years for the stock to rebuild. Any displacement of fishing effort from Federal waters to territorial waters could offset this anticipated conservation benefit and increase the timeline for rebuilding. However, No Action would not consider the most recent benchmark stock assessment (Nadon et al. 2023) that concluded that the fishery was not overfished nor experiencing overfishing.

Under this alternative, NMFS and the Council would continue to monitor catches based on all available sources of information. Based on fishery performance, the fishery has been constrained under the rebuilding which has led to the decrease in participation in addition to the effects of COVID 19. Prior to the rebuilding plan, the number of bottomfishing, mixed bottomfishing-trolling and spearfishing vessels has been declining since 2016 with 27 vessels to 9 vessels fishing for BMUS in 2022 (WPRFMC 2023a). The average catch from the past three years of 4,604 lbs. is 92 percent of the catch limit. Prior to COVID shutdowns in mid-2020, the average catch from 2018 to 2020 was 12,360, which exceeds the catch limit and would close the fishery indefinitely until the Council takes action as a high-performance accountability measure. For this reason, this alternative would not be in compliance with MSA National Standard 2 (MSA 301(1)(3)).

4.1.2.2 *Effects on Protected Resources*

4.1.3 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 in American Samoa. The fishery does not have adverse effects 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. Given the characteristics of the fishing fleet and the offshore nature of the fishery, none of the alternatives would result in impacts to air quality, noise, water quality, view planes, or terrestrial resources.

4.1.4 Effects on Socioeconomic Setting

Under this alternative, NMFS and the Council would continue to monitor catches of all 11 BMUS based on all available sources of information. The number of bottomfishing, mixed bottomfishing-trolling and spearfishing vessels has been declining from 27 vessels fishing for BMUS in 2016 to 9 vessels in 2022 (WPRFMC 2023a). This decline in participation was likely exacerbated by the onset of the COVID-19 pandemic in 2020. Prior to the onset of the pandemic in 2020, average catch of BMUS species was 15,644 lb between 2012 and 2019, which is 213% greater than the 5000 lb catch limit. In 2022, catch of BMUS was 2,583 lb which is 52 percent of the 5000 lb catch limit.

Under Alternative 1, the fishery would be constrained by the 5,000 lb catch limit and accountability measures under the rebuilding plan if fishing participation returned to closer to pre-pandemic levels. Accountability measures under the rebuilding plan are designed to rebuild an overfished stock, rather than prevent overfishing of a healthy stock. For this reason, NMFS would close federal waters to fishing if the ACL was reached or the ACL was projected to be reached. This would unnecessarily prohibit fishers from accessing BMUS resources in Federal waters, given the current status (i.e. not overfished and not experiencing overfishing) of the nine assessed BMUS. Further, because the 5,000 lb catch limit is set for the bottomfish stock complex as a whole, catch of one species could disproportionately contribute to reaching the catch limit, limiting the utilization of other BMUS species.

4.1.5 Effects on Management Setting

Under Alternative 1, No action, NMFS would continue to monitor catch data as it becomes available. The in-season AM would require that NMFS close the fishery in Federal waters, which would not require an additional action by the Council but would require administrative resources by NMFS to close the fishery and enforce the closure. However, NMFS has utilized an in-season closure as an AM in the Hawaii Deep 7 bottomfish fishery, and so NMFS has experience with this type of action. If the fishery were closed in American Samoa, NMFS OLE and the USCG would be responsible for enforcing the closure in Federal waters. Enforcement of the bottomfish fishing closure in Federal waters would not be difficult on the water because the 3-mile limit is fairly easily determined using GPS. However, existing data reporting systems do not differentiate catch from fish caught in territorial from fish caught in Federal waters. The application of the performance standard to close the Federal fishery in subsequent years until a new management approach is developed similarly would not require an additional action by the Council but would require resources by NMFS to enact and enforce the closure. The new regulations would not cause substantial costs to fishermen. Fishermen would need to continue to comply with existing laws, learn about the potential for an in-season closure under the new ACL, and comply with the no-retention regulation for bottomfish caught in Federal waters if a closure is implemented.

4.2 Potential Effects of Alternative 2a: Utilize the result of the P* and SEEM Analysis and an aggregated ACL and specify AM

The analysis in this subsection present the effects of action Alternatives 2a, which would utilize the results of the P* and SEEM analysis and set an aggregated ACL for the nine assessed BMUS. As an accountability measure, if the most recent three-year average catch of the aggregate exceeds its ACL, NMFS and the Council would implement an ACL in the subsequent year that is reduced by the amount of the overage. The Risk of Overfishing tables from the stock assessment would be used to calculate single-species the ACLs, and those numbers would be summed to produce the aggregate. However, the 2023 stock assessment estimates risk of overfishing on an individual species basis, and thus the risk of overfishing for the nine BMUS in aggregate is unknown.

4.2.1 Effects on Biological Resources

4.2.1.1 *Effects on Target and non-target stocks*

Under all alternatives, implementing multi-year ACLs, ACTs (if applicable), and AMs over the 2024-2026 period is not expected to result in negative effects to the health of the target BMUS. Harvest of BMUS in American Samoa would continue to be sustainable, and the none of the 9 assessed BMUS are expected to be subject to overfishing or become overfished in the short term. Under Alternative 2a, fishing for American Samoa bottomfish would be subject to an aggregate ACL of 48,680 lb for fishing years 2024 to 2026 as recommended by the Council. This ACL considers the best available information on stock status. This aggregate ACL would correspond to the respective probability of overfishing based on the P* and SEEM analysis for the nine assessment species, which is below the 50 percent P* threshold as described in the National Standard 1 guidelines (74 FR 3178, January 11, 2009).

Based on past fishery performance as show in **Error! Reference source not found.**, the fishery ould need to harvest ten times its most recent year average catch of 4,090 lb to attain the ACL. This level of catch is extremely unlikely with decreasing participation in the fishery. Since the 2023 benchmark assessment generated nine BMUS stock status, nine OFL levels were calculated. However, if the fishery were perform similar to the 2014, 2015 and 2016 fishing years when the fishery exceeded the OFL for *Aprion virescens* and *E. coruscans* in 2016, then management would not be able to apply the post season accountability measure since this alternative would require the aggregate ACL to be exceeded to initiate the AM. If the fishery were to exceed the OFL for any of the assessed BMUS, Alternative 2a would not provide regulatory ability to prevent overfishing and ensure the long-term sustainability of the resource and would not be in compliance with National Standard 1.

4.2.1.2 *Effects on Protected Resources*

Bottomfish fishing is target-specific, and effects under Alternative 2a is not expected to impact marine mammals or sea birds. The American Samoa bottomfish fishery is not known to affect these species through gear interactions or through disruptions in or adverse effects on prey, and neither alternative would change the conduct of the bottomfish fishery in a manner that would alter the type or frequency of marine mammal interactions with the fishery.

On April 9, 2015, NMFS documented its determination in a Letter of Concurrence under section 7 of the ESA that the continued authorization of the bottomfish fishery is not likely to adversely affect reef-building corals. The fishery has not had any known interactions with listed corals since 2015 and methods, locations, and target species of fishery operations would not change under Alternatives 2a.

There are no targeted shark fisheries in American Samoa, and regulations prohibit take or killing of any shark species, along with possession and sale of shark fins and shark products. The alternatives under consideration would not change the manner in which the fishery operates with respect to areas fished, gear used, or methods employed in a manner that would alter the likelihood of interactions with scalloped hammerhead sharks, oceanic whitetip sharks, giant manta ray, or chambered nautilus, so interactions with these species are not anticipated.

The bottomfish fishery does not have any adverse effects on the MPAs, so effects are unlikely under all alternatives under consideration. None of the proposed alternatives would change the way bottomfish fishing is conducted with respect to these MPAs, so continued operation of the fishery under the baseline or action alternatives would not result in adverse impacts to the Monument, Sanctuary, or other MPAs.

None of the alternatives considered would result in substantial changes to the way fishermen conduct the bottomfish fisheries in American Samoa; therefore, the alternatives would not result in adverse effects on any EFH or HAPC in the three areas.

4.2.2 Effects on Socioeconomic Setting

Under Alternative 2a, the Council would recommend and NMFS would discontinue the rebuilding plan and specify an aggregated ACL of 48,680 lbs for the nine assessed BMUS for fishing years 2024 to 2026. This alternative would allow for a higher catch limit and intended to provide for the long term availability of bottomfish. Between 2018 and 2020, American Samoa bottomfish fishermen caught an average of 12,360 lb of bottomfish annually and sold an average of 1,043 lb, which is 8.9 percent of total estimated catch sold. Based on the 2020 commercial estimate of lb sold (336 lb) and the commercial value of the fishery in 2020 ($1,067), the average adjusted price per pound was $3.18 (WPRFMC 2023a). Assuming that the full ACL was caught and fishermen sell eight percent of their catch for $5 per lb, the sold component would be 3,894 lb and generate a fleet-wide revenue of $19,472 per year. This alternative and alternative 2b would have the highest economic revenue in comparison to alternatives 1 and 2c.

Accountability measures under the rebuilding plan are designed to rebuild an overfished stock, rather than prevent overfishing of a healthy stock. For this reason, under the current rebuilding plan, NMFS would close federal waters to fishing if the ACL was reached or the ACL was projected to be reached. Under Alternative 2a, and overage adjustment would be used to mitigate the effects of overfishing if the aggregated ACL is exceeded. This would allow fishers to continue harvesting BMUS species, providing greater economic opportunity and year-to-year consistency in the persecution of the fishery than is currently available under the rebuilding plan. Although this would provide economic opportunity, it would not prevent overfishing an assessed single-species. If the fishery were to exceed the OFL for a single species, then it could have adverse impacts on the status of the stock in future assessment and not prevent overfishing. Therefore, Alternative 2a would not be in compliance with National Standard 1.

Table 19: Value of the total catch and commercial value of the total catch based on a 8 percent of catch sold. (WPRFMC 2023).

Alternatives	ACL Value ($)	Commercial Catch value ($)
Alt 1: ACL=5,000	$30,000	$2,000
Alt 2a and 2b: ACL=48,680	$292,080	$19,472
Alt 2c: ACL<48,680	<$292,080	<$19,472

4.2.3 Effects on Management Setting

The proposed ACL and AM specifications under Alternatives 2a would not require a change to monitoring or fishery data collection. NMFS will continue to monitor catch data as it becomes available, in collaboration with local resource management agencies and the Council (Section 1.6). No changes to the role of law enforcement agents or the USCG would be required in association with implementing these specifications. Under these alternatives, if landings exceed the aggregated ACL, NMFS and the Council would pursue post-season AM. If landings did exceed a single-species OFL level, but did not exceed the aggregated ACL, then NMFS and the Council would not have the regulatory ability to prevent overfishing and would negatively affect that stock status of an assessment BMUS in American Samoa.

Alternatives 2a would not conflict with or reduce the efficacy of existing bottomfish resource management by any local resource management agency, NMFS, or the Council. Additionally, the proposed management measures would also not conflict with ACL and AM implementations for the other Western Pacific bottomfish fisheries in the CNMI, Guam, or Hawaii because these fisheries are geographically separated and bottomfish fishery participants do not fish in different territories such that management in one island area (e.g., American Samoa) would adversely affect the stock status of bottomfish in another island area (e.g., Guam, CNMI, or Hawaii).

4.3 Potential Effects of Alternative 2b and 2c: Set single-species ACLs at or lower than catch associated with SEEM/P* scores

The analysis in this subsection present the effects of action Alternatives 2b and 2c, which would set nine single-species ACLs and establish indicator species for unassessed *E. carbunculus* and *P. filamentosus.* As an accountability measure under both alternatives, if the most recent three-year average catch of a species exceeds its ACL, NMFS and the Council would implement an ACL for that species in the subsequent year that is reduced by the amount of the overage. Alternative 2b sets the ACLs based on the results of the P* and SEEM analysis, whereas Alternative 2c takes a more cautious approach and sets the ACLs at a level that is lower than that indicated by the P* and SEEM analysis. Given that these alternatives are similar with respect to setting ACLs and AMs, many of the subsections below present uniform effects. When different effects resulted during analysis, they are documented separately.

4.3.1 Effects on Physical Resources

The fishery is not known to have adverse effects on air quality, noise, water quality, view planes, or terrestrial resources. In the three most recent years that the fishery for which single-species catch data is available from the stock assessment (2019-2021), catch did not exceed 65 percent of the ACLs proposed under Alternatives 2b and 2c for any of the 9 assessed species. Therefore fishing behavior and effort are not expected to change substantially under Alternative 2b or 2c. Management of the fishery is not expected to change relative to impacts to the physical environment (see Section 3.3), and cumulative impacts to physical resources are not expected under either alternative.

Because fishing activity under Alternatives 2b and 2c is not expected to change substantially from previous years, it is unlikely that the fishery would affect vulnerable marine ecosystems

such as deep or shallow coral ecosystems under these alternatives. Additionally, neither alternative would fundamentally change the way the fishery is conducted in a way that would impact vulnerable marine ecosystems. Neither alternative would change regulations that are in place to prevent and minimize adverse effects from bottomfish fishing on fish habitat.

For these reasons, neither Alternative 2b nor 2c is expected to lead to substantial physical, chemical, or biological alterations to ocean, coral, or coastal habitats or result in impacts to the marine habitat, including areas designated as EFH, HAPC, or unique areas such as MPAs or deep coral ecosystems.

4.3.2 Effects on Biological Resources

4.3.2.1 *Effects on Target and non-target stocks*

Under all alternatives, implementing multi-year ACLs, ACTs (if applicable), and AMs over the 2024-2026 period is not expected to result in negative effects to the health of the target BMUS. Harvest of BMUS in American Samoa would continue to be sustainable, and the 9 assessed BMUS are not expected to be subject to overfishing or become overfished in the short term. If recent catch trends in commercial and non-commercial fisheries continue through 2024-2026, the BMUS would not be subject to overfishing or become overfished. The action Alternatives 2b and 2c would set single-species ACL's that are below the OFL estimated for each species in the 2023 stock assessment. Both alternatives consider scientific and management uncertainties through the P* and SEEM analyses. Based on the recent performance of the fishery, total catches in fishing years 2024-2026 are expected to remain below the proposed ACLs for all species both Alternatives 2b and 2c.

Under both Alternatives 2b and 2c the ACLs and AMs together would result in continued sustainable management of the BMUS in Federal waters. Continued management of the fishery is expected to have minor beneficial effects to the BMUS in American Samoa. The 2023 stock assessment assumes average total catch would be relatively constant and equal to or below the ACL.

Bycatch of non-target stocks in both commercial and non-commercial fisheries are expected to continue at low levels due to cultural reasons, ciguatera poisoning, or shark depredation.

4.3.2.2 *Effects on Protected Resources*

Bottomfish fishing is target-specific, and effects under Alternatives 2b and 2c are not expected to impact marine mammals or sea birds. The American Samoa bottomfish fishery is not known to affect these species through gear interactions or through disruptions in or adverse effects on prey, and neither alternative would change the conduct of the bottomfish fishery in a manner that would alter the type or frequency of marine mammal interactions with the fishery.

On April 9, 2015, NMFS documented its determination in a Letter of Concurrence under section 7 of the ESA that the continued authorization of the bottomfish fishery is not likely to adversely affect reef-building corals. The fishery has not had any known interactions with listed corals since 2015 and methods, locations, and target species of fishery operations would not change under Alternatives 2b or 2c.

There are no targeted shark fisheries in American Samoa, and regulations prohibit take or killing of any shark species, along with possession and sale of shark fins and shark products. The alternatives under consideration would not change the manner in which the fishery operates with respect to areas fished, gear used, or methods employed in a manner that would alter the likelihood of interactions with scalloped hammerhead sharks, oceanic whitetip sharks, giant manta ray, or chambered nautilus, so interactions with these species are not anticipated.

The bottomfish fishery does not have any adverse effects on the MPAs, so effects are unlikely under all alternatives under consideration. None of the proposed alternatives would change the way bottomfish fishing is conducted with respect to these MPAs, so continued operation of the fishery under the baseline or action alternatives would not result in adverse impacts to the Monument, Sanctuary, or other MPAs.

None of the alternatives considered would result in substantial changes to the way fishermen conduct the bottomfish fisheries in American Samoa; therefore, the alternatives would not result in adverse effects on any EFH or HAPC in the three areas.

4.3.3 Effects on Socioeconomic Setting

Bottomfish fishing is target-specific, and no fish recorded in creel survey fishermen interviews for the American Samoa bottomfish fishery were released in 2022 (see Table 12 in WPFMC 2023a). Between 2018 and 2020, American Samoa bottomfish fishermen caught an average of 12,360 lb of bottomfish annually and sold an average of 1,043 lb (i.e., a recent average 8.9 percent of total estimated catch sold). Based on the 2020 commercial estimate of lb sold (336 lb) and the commercial value of the fishery in 2020 ($1,067), the average adjusted price per pound was $3.18. The 2023 LOF estimated there was 6 participants in the fishery (88 FR 16899, April 20, 2023). If participation and effort were equal in 2020, each of the 20 fishermen would have sold approximately 56 lb of bottomfish valued at $174 per fisherman.

Action Alternatives 2b and 2c will increase catch limits above those set under the current rebuilding plan (i.e. 5000 lb. for the bottomfish complex), enabling greater utilization of the bottomfish resource. Alternatives 2b and 2c set single-species catch limits, which would allow fishers to switch between target species if one species is at or near its ACL, rather than limiting access to the BMUS complex as a whole. Compared to Alternative 1 (the no action alternative), Alternatives 2a-2c will allow greater utilization of the complex.

Accountability measures under the rebuilding plan are designed to rebuild an overfished stock, rather than prevent overfishing of a healthy stock. For this reason, under the current rebuilding plan, NMFS would close federal waters to fishing if the ACL was reached or the ACL was projected to be reached. Under Alternatives 2b and 2c, and overage adjustment would be used to mitigate the effects of overfishing if an ACL was exceeded for one of the 9 assessed species. This would allow fishers to continue harvesting BMUS species, providing greater economic opportunity and year-to-year consistency in the persecution of the fishery than is currently available under the rebuilding plan.

Alternative 2c sets ACLs for the 9 assessed species that are lower than those set under Alternative 2b. However, even if the ACLs were to be set at a level that incurred a risk of overfishing that was 10% lower than that indicated by the P* and SEEM analyses, average annual catch in 2019-2021 did not exceed 45 percent of the ACLs proposed under Alternative 2c for any of the 9 assessed BMUS. It is therefore unlikely that the socioeconomic impacts under Alternative 2c would be different than those under Alternative 2b.

Considering that generally less than eight percent of bottomfish catch is sold, this fishery can be considered predominantly non-commercial, providing fish for sustenance and cultural events (WPRFMC 2023a). 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 2023a). Because Alternatives 2b and 2c set single-species catch limits, fishers would allow be able to switch between target species if one species is at or near its ACL. This would allow them to continue to harvest BMUS species for important cultural events, rather than limiting access to the BMUS complex as a whole,

4.3.4 Effects on Management Setting

The proposed ACL and AM specifications under Alternatives 2b and 2c would not require a change to monitoring or fishery data collection. NMFS will continue to monitor catch data as it becomes available, in collaboration with local resource management agencies and the Council. No changes to the role of law enforcement agents or the USCG would be required in association with implementing these specifications. Under these alternatives, if landings exceed the ACL, NMFS and the Council would pursue post-season AM.

Alternatives 2b and 2c would not conflict with or reduce the efficacy of existing bottomfish resource management by any local resource management agency, NMFS, or the Council. Additionally, the proposed management measures would also not conflict with ACL and AM implementations for the other Western Pacific bottomfish fisheries in the CNMI, Guam, or Hawaii because these fisheries are geographically separated and bottomfish fishery participants do not fish in different territories such that management in one island area (e.g., American Samoa) would adversely affect the stock status of bottomfish in another island area (e.g., Guam, CNMI, or Hawaii).

4.4 Other Effects

There are no other anticipated effects from the implementation of Alternative 2a-2c. Decisions to establish ACLs and AMs under either of these action alternatives would not establish precedents or narrow decisions about future specifications. All of the fisheries considered here have been operating under ACL and AM specifications made annually since 2012. The proposed ACLs and AMs would not result in changes to the way any of the fisheries are conducted. Furthermore, because the proposed specifications are intended to support ongoing management in fisheries that are considered sustainable, and because the specifications would not result in effects to resources that are having high and adverse effects on stocks, the proposed specifications would not affect the Council or NMFS' ability to establish effective ACLs or AMs in the future.

4.5 Other Considerations

4.5.1 Public Health and Safety

The bottomfish fisheries operating under the FEP are not known to experience or cause other public health or safety-at-sea issues. The ACL and AM specifications would not result in any change to the fishery that would pose an additional risk to human safety at sea.

4.5.2 Sensitive Biological Resources, Biodiversity, and Ecosystem Function

To date, there have been no identified effects to marine biodiversity and/or ecosystem function from the American Samoa bottomfish fishery. Bottomfish species are not known to have critical ecosystem roles, such as those of parrotfishes or reef-building corals (Bozec et al. 2013; Wild et al. 2011), and the fishery is not known to have large effects on biodiversity or ecosystem function. Also, the continuation of the fisheries under any of the alternatives would not result in concerns regarding predator-prey relationships or biodiversity.

4.5.3 Cultural Resources

NMFS is not aware of any districts, sites, structures, or objects listed in or eligible for listing in the National Register of Historic Places within areas fished by bottomfish fisheries. Bottomfish fisheries are not known to result in adverse impacts to scientific, historic, archeological, or cultural sites. The proposed action would not change the fishery in any manner that would result in effects to such sites; therefore, there is no potential for loss or destruction of significant scientific, cultural, or historical resources in the marine environment.

4.5.4 Invasive Species

Bottomfish fishing is not known to be a potential vector for spreading alien species as none of the bottomfish vessels fish outside of their respective archipelagic waters. Because fishing would not change in this regard under any of the (Section 2.32.3), the proposed action would not have the potential to spread invasive species into or within the waters of American Samoa.

4.5.5 Climate Change

Although there are no specific studies examining the potential effects of climate change on Pacific Island bottomfish, changes in the environment from global climate change have the potential to affect bottomfish fisheries. Effects of climate change may include sea level rise, increased intensity or frequency of coastal storms and storm surges, changes in rainfall (more or less) that can affect salinity nearshore or increase storm runoff and pollutant discharges into the marine environment, increased temperatures resulting in coral bleaching, and temperature mediated responses in some marine species (IPCC 2007). The effects from climate change may occur slowly and be difficult to discern from other effects. Climate change has the potential to adversely affect some organisms, while others could benefit from changes in the environment. Increased carbon dioxide uptake can increase ocean acidity which can disrupt calcium uptake processes in corals, crustaceans, mollusks, reef-building algae, and plankton, among other organisms (Houghton et al. 2001; The Royal Society 2005; Caldeira and Wickett 2005; Doney 2006; Kleypas et al. 2006). Climate change can also lead to changes in ocean circulation

patterns, which can affect the availability of prey, migration, survival, and dispersal (Buddemeier et al. 2004). Damage to coastal areas due to storm surge or sea level rises as well as changes to catch rates, migratory patterns, or visible changes to habitats are among the most likely changes.

The efficacy of the proposed alternatives in providing for sustainable levels of fishing for bottomfish is not expected to be adversely affected by climate change. Recent catches and biological status of the species complex informed the development of the alternatives, and climate change effects, if any, would be indirectly reflected in those statistics. Monitoring of bottomfish catches and stocks would continue, regardless of which alternative is selected, and if environmental factors were found to be affecting the stocks, management could be adjusted in the future.

4.6 Potential Cumulative Effects of the Alternatives

Cumulative effects refer to the combined effects on the human environment that result from the incremental impact of the proposed action, and its alternatives, when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-federal) or person undertakes such other actions. Further, cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. The cumulative effects analysis examines whether the direct and indirect effects of the alternatives considered on a given resource interact with the direct and indirect effects of other past, present and reasonably foreseeable actions on that same resource to determine the overall, or cumulative effects on that resource.

4.6.1 Cumulative Effects Related to Effects on Target and Non-Target Stocks

Cumulative Effects on Target Species

Under the no action alternative, the fishery would continue to operate under the rebuilding plan. This alternative would constrain the fishery to the 5,000 lb catch limit. If the catch limit is reached, or is projected to be reached, then the fishery would close Federal waters around American Samoa until until a coordinated management approach is developed that ensures catch in both Federal and territorial waters can be maintained at levels that allow the stock to rebuild.

Under Alternatives 2a through 2c the Council would recommend and NMFS would discontinue the rebuilding plan (NMFS 2022) and implement ACLs and AM for the American Samoa bottomfish fishery in fishing years 2024 through 2026. The stock assessment calculated the potential sustainability and impacts to the nine assessed bottomfish stock if the ACL is specified for the next three years assuming the entire ACL is caught (Nadon et al. 2023). Though this EA focuses on implementing ACLs for fishing years 2024-2026, the 2023 stock assessment on which these recommendations are based contains projections for catch levels and associated risk of overfishing through fishing year 2024-2028 (Nadon et al. 2023). If necessary, NMFS and the Council may use this stock assessment as a basis for recommending ACLs for 2027-2028, given consistency with acceptable levels of risk that were identified during P* and SEEM analyses. Based on the recent performance of the fishery, annual catches are expected to remain below the proposed ACLs in Alternatives 2a, 2b and 2c, so the actual risk of overfishing would likely be less than this.

The proposed ACLs under Alternatives 2a, 2b and 2c include consideration of both scientific and management uncertainties, and, therefore, the ACT has built in buffers to account for uncertainty, and we do not anticipate that any of the alternatives would have a risk of large unknown effects that could result in adverse cumulative effects. The Council and its SSC applied a quantitative method to develop the P* estimates. P* (risk of overfishing) was computed on best scientific information available and including scientific uncertainty for four dimensions: 1) assessment information, 2) assessment uncertainty, 3) stock status, and 4) productivity and susceptibility (WPFMC and NMFS 2011). Building in this buffer reduces the potential for large adverse cumulative effects of the proposed ACTs and AMs on sustainability of the fishery.

The Council and its SSC also applied a qualitative analysis related to management uncertainties considering four factors: 1) Social, 2) Economic; 3) Ecological, and 4) Management uncertainty considerations (WPFMC and NMFS 2011). This information was incorporated into the ACL and ACT by subtracting SEEM scores from the ABC. Building in this buffer reduces the potential for large adverse cumulative effects of the proposed ACTs and AMs on sustainability of the fishery due to any of these factors.

Cumulative Effects on Non-target and Bycatch Species

Bycatch in the American Samoa bottomfish fishery is negligible (NMFS 2022) and not believed to affect any species (Section 3.1). It is not expected that substantial changes would occur in the fishery under any proposed action alternative compared to the no action baseline (Section **Error! eference source not found.**), so effects on other species are not anticipated from implementation of an interim management measure or from an extension of that measure. NMFS and the Council would also continue to monitor catch of ECS to evaluate changes to catch that could indicate management measures are required.

4.6.2 Cumulative Effects Related to Effects on Protected Resources

Consultations under the ESA have determined that bottomfish fishing activities in American Samoa are not likely to adversely affect any ESA-listed species. Under all alternatives under consideration, fishing is expected to remain within levels considered during these consultations, and no additional effects to protected species are expected (Section **Error! Reference source ot found.**). The fishery would continue to be authorized and conducted in accordance with Section 7 of the ESA and the MMPA (NMFS 2002). The analysis of effects of the fishery under each of the alternatives found that the fishing is not likely to have significant effects on the survival or recovery of any listed species, largely because the fishery does not interact with these listed species, and because vessel collisions with sea turtles are far below levels that would jeopardize survival and recovery. NMFS analysis of effects on ESA- and MMPA-listed species took into consideration outside actions that affect the same species. In general, management of the fishery under the full suite of proposed management measures, including an ACL and AM, would not change the fishery in any way that is likely to have the potential for large and adverse cumulative effects on listed species.

4.6.3 Cumulative Effects Related to Fishery Participants and Communities

Management of the American Samoa bottomfish fishery using catch limits and associated AMs is not known to have large adverse effects on the socio-economic setting. Discontinuing the rebuilding plan and the implementation of ACLs and AMs is unlikely to substantially affect catch or revenue (see Section 3.4). Social and economic considerations were incorporated into the range of alternatives analyzed here. The short-term and long-term socio-economic and cultural effects under the preferred alternative are greater than those expected under the no action alternative, as it would allow for an increased catch limit compared to the rebuilding plan.

Previous management of the fishery under catch limits and accountability measures has not constrained fishing and so did not affect the socioeconomic setting related to the fishery. Proposed management under catch limits based on the 2023 American Samoa bottomfish stock assessment and P* and SEEM analysis, is not expected to change this condition because none of the alternatives under consideration are expected to substantially affect the fishery or associated communities.

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6 Draft Proposed Regulations

This section contains the regulations necessary to implement the conservation and management measures described in the regulatory amendment, based on the preferred alternative selected by the Council at the 197th meeting in December 2023. Additions to the existing regulatory language are shown in underline, and deletions are shown in strikethroughs.

§ 665.106 American Samoa annual catch limits (ACL).

(a) In accordance with § 665.4, the nine single-species ACLs for American Samoa bottomfish MUS ~~is 5,000 lb~~ are as follows in the table below. There are no separate ACLs and AMs for *Etelis carbunculus* and *Pristipomoides filamentosus*. *E. coruscans* will serve as an indicator species for *E. carbunculus* and *P. flavipinnis* will serve as an indicator species for *P. filamentosus*.

BMUS	**Samoan name**	**Proposed ACL** (lb)

Aphareus rutilans	Palu-gutusiliva	**7,716**
Aprion virescens	Asoama	**4,542**
Caranx lugubris	Tafauli	**2,690**
Etelis coruscans	Palu-loa	**4,696**
Lethrinus rubrioperculatus	Filoa-paomumu	**7,165**
Lutjanus kasmira	Savane	**16,645**
Pristipomoides flavipinnis	Palu-sina	**2,205**
Pristipomoides zonatus	Palu-ula	**1,323**
Variola louti	Velo	**1,698**

b) *Post-season Accountability Measure:* If the average catch over the most recent three years exceeds the ACL for any once species, the ACL will be reduced by the amount of the overage in the subsequent year for that species. If the fishery reaches or exceeds the ACL for any one species, the post-season AM will be applied to that species, but the fishery may continue to catch all other BMUS species until their limits are reached. ~~When NMFS projects the ACL will be reached, the Regional Administrator shall publish a document to that effect in the **Federal Register** and shall use other means to notify permit holders. The document will include an advisement that the fishery will be closed, beginning at a specified date that is not earlier than seven days after the date of filing the closure notification for public inspection at the Office of the Federal Register, through the end of the fishing year in which the catch limit is reached.~~

(c) *Indicator Species: E. coruscans* will serve as an indicator species for *E. carbunculus* and *P. flavipinnis* will serve as an indicator species for *P. filamentosus*. *E. carbunculus* will be subject to the post-season AM if *E. coruscans* reaches the ACL. *P. filamentosus* will be subject to the post-season AM if *P. flavipinnis* reaches the ACL. ~~If the ACL is exceeded in any fishing year, the Regional Administrator shall publish a document to that effect in the **Federal Register** and shall use other means to notify permit holders. The document will include an advisement that the fishery will be closed, beginning at a specified date that is not earlier than seven days after the date of filing the closure notification for public inspection at the Office of the Federal Register. The fishery will remain closed until such time that a coordinated approach to management is developed that ensures catch in both Federal and territorial waters can be maintained at levels that allow the stock to rebuild or the rebuilding plan is modified based on the best scientific information available.~~

~~(d) On and after the date the fishery is closed as specified in paragraph (b) or (c) of this section, fishing for and possession of American Samoa bottomfish MUS is prohibited in the American Samoa fishery management area, except as otherwise authorized by law.~~

~~(e) On and after the date the fishery is closed as specified in paragraph (b) or (c) of this section, the sale, offering for sale, and purchase of any American Samoa bottomfish MUS caught in the American Samoa fishery management area is prohibited.~~

Appendix A. Regulatory Impact Review