Amendment 8 – Fishery Ecosystem Plan for American Samoa

Bottomfish Management Unit Species Reclassification

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Amendment 8 to the Fishery Ecosystem Plan for American Samoa

Bottomfish Management Unit Species Reclassification

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Abstract

The Western Pacific Fishery Management Council (Council) established the Fishery Ecosystem Plan (FEP) for American Samoa to conserve and manage fisheries in the U.S. Exclusive Economic Zone (EEZ, or federal waters) in the Pacific Islands. Currently, the American Samoa FEP includes 11 bottomfish management unit species (BMUS), which are bottomfish stocks considered to be in a federal fishery and needing conservation and management. Under the National Standard (NS) guidelines for the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), the Council and the National Marine Fisheries Service (NMFS) manage MUS that are targets of a federal fishery and caught predominantly in federal waters. Pursuant to NS1, ecosystem component species (ECS) are stocks that are included in an FEP to achieve ecosystem management objectives, but do not require conservation and management.

Based on the ten factors described in the NS1 Guidelines, a hierarchical clustering analysis of the available creel survey data, a synthesis of life history information supplemented by expert opinion, and other relevant considerations in accordance with the Magnuson-Stevens Act and its National Standards, the Council proposes to amend the BMUS listed in the American Samoa FEP, ensuring the list appropriately characterizes the current state of the fishery and includes all species that are in need of federal conservation and management. The proposed reclassifications are intended to allow the Council and NMFS to better prioritize monitoring, assessment, and management resources for species that comprise federal fisheries and require conservation and management while retaining the ability to monitor the status of ECS important to American Samoa fishing communities.

Acronyms and Abbreviations

ABC – Acceptable Biological Catch
ACL – Annual Catch Limit
AM – Accountability Measure
CFR – Code of Federal Regulations
CNMI – Commonwealth of the Northern Mariana Islands
DPS – Distinct Population Segment
EA – Environmental Assessment
ECEWG – Ecosystem Component Expert Working Group
ECS – Ecosystem Component Species
EEZ – Exclusive Economic Zone
EFH – Essential Fish Habitat
ESA – Endangered Species Act
FEP – Fishery Ecosystem Plan
FMC – Fishery Management Council
FMP – Fishery Management Plans
FR – *Federal Register*
MFMT – Maximum Fishing Mortality Threshold
MHI – Main Hawaiian Islands
MMPA – Marine Mammal Protection Act
MPA – Marine Protected Area
MSST – Minimum Stock Size Threshold
MSY – Maximum Sustainable Yield
MUS – Management Unit Species
NEPA – National Environmental Policy Act
NMFS – National Marine Fisheries Service
NOAA – National Oceanic and Atmospheric Administration
NS – National Standard
NS1 – National Standard 1
NS2 – National Standard 2
NS3 – National Standard 3
OY – Optimum Yield
PIFSC – Pacific Islands Fisheries Science Center
PIRO – Pacific Islands Regional Office
PRIA – Pacific Remote Island Area
SAFE – Stock Assessment and Fishery Evaluation Report
SDC – Status Determination Criteria
SSC – Scientific and Statistical Committee
U.S. – United States
WPFMC – Western Pacific Fishery Management Council (Council)

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1 INTRODUCTION

1.1 Background Information

The National Marine Fisheries Service (NMFS) and the Western Pacific Regional Fishery Management Council (WPFMC, the Council) manage fishing in the Exclusive Economic Zone (EEZ) around the US Pacific Islands, including American Samoa. NMFS and the Council manage American Samoa bottomfish fisheries in the EEZ in accordance with the Fishery Ecosystem Plan for the American Samoa Archipelago (American Samoa FEP; WPFMC 2009), the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act; (16 U.S.C. § 1801 *et seq*.), and implementing regulations at 50 CFR 665. The American Samoa Department of Marine and Wildlife Resources (DMWR) manages fishing in territorial waters (i.e., generally 0 to 3 nm from shore) not part of the American Samoa FEP management area.

Section 302(h) of the Magnuson-Stevens Act requires each regional fishery management council (FMC) to develop fishery management plans (FMP) for each fishery under its area of management authority (i.e., the EEZ, or federal waters) in need of conservation and management. As discussed below and pursuant to implementing regulations of the Magnuson-Stevens Act at 50 CFR 600.305(c)(7), the FMCs are strongly encouraged to periodically review their FMPs (i.e., or FEPs) and the best scientific information available (BSIA) to determine if stocks requiring federal conservation and management are appropriately identified.

1.1.1 Application of National Standard 1

Section 301(a) of the Magnuson-Stevens Act specifies ten National Standards (NS) for fishery conservation and management and requires the Secretary of Commerce (the Secretary) to establish guidelines to assist in the development of FMPs (i.e., FEPs in the Pacific Islands Region). For fisheries under its authority, National Standard 1 (NS1) requires NMFS to use conservation and management measures for management unit species (MUS)[1] to prevent overfishing while achieving optimum yield on a continuing basis.

The reauthorization of the Magnuson-Stevens Act in 2006 mandated annual catch limits (ACLs) and accountability measures (AMs), which required NMFS to revise the NS1 guidelines to meet these mandates. Further, under a 2009 revision, the Magnuson-Stevens Act required FMCs to amend their FMPs to include mechanisms for specifying ACLs for all federally managed fisheries at a level to ensure overfishing does not occur and to implement AMs such that fishing would adhere to these limits. On January 16, 2009, NMFS published the NS1 Guidelines (50 CFR 600.310), applicable nationwide, to assist FMCs in determining which stocks are in need of conservation and management (74 FR 3178, January 16, 2009). Under these guidelines, all stocks in an FMP or FEP were considered to be in the fishery, necessitating conservation and management in the form of ACLs and AMs as well as other management measures under the Magnuson-Stevens Act that the Council and NMFS had established for these stocks.

The NS1 Guidelines published in 2009 also provide advice on how to identify ecosystem component species (ECS) that, in contrast with MUS, do not require conservation and management and are not subject to ACLs or AMs. The 2009 guidelines define ECS as "non-

[1] Stocks identified as "management unit species" or "stocks in the fishery" are stocks that are in need of conservation and management and are required to have ACLs, AMs, and other provisions as required by the Magnuson-Stevens Act.

target species; those not determined to be, or not likely to become, subject to overfishing, approaching overfished, or overfished; or those not generally retained for sale or personal use." Despite not being subject to ACLs or AMs, FMCs can monitor the harvest of ECS and reclassify the species as MUS if they determine that conservation and management is warranted.

NMFS revised the NS1 Guidelines in 2016, which provided additional direction regarding ECS and stocks that require conservation and management. While the guidelines clarify that not every fishery requires federal management, those that are predominately caught in federal waters and are also overfished or subject to overfishing, or likely to become overfished or subject to overfishing, are considered to require conservation and management. However, the final rule for the implementation of these revised guidelines states that "if a stock is not predominately (i.e., mainly, or the most part) caught in federal waters, a council may lack the authority, and thus ability, to adopt measures that would prevent overfishing and rebuild overfished stocks. It would not make sense, in that case, to require a council to automatically include the stock in an FMP" (81 FR 71858, October 18, 2016). Additionally, under the 2016 NS1 revisions, FMCs should consider the following ten non-exhaustive factors when deciding whether stocks require conservation and management (50 CFR 600.305(c)(1)(i-x)):

1. The stock is an important component of the marine environment.
2. The stock is caught by the fishery.
3. Whether an FMP can improve or maintain the condition of the stock.
4. The stock is a target of a fishery.
5. The stock is important to commercial, recreational, or subsistence users.
6. The fishery is important to the Nation or to the regional economy.
7. The need to resolve competing interests and conflicts among user groups and whether an FMP can further that resolution.
8. The economic condition of a fishery and whether an FMP can produce more efficient utilization.
9. The needs of a developing fishery, and whether an FMP can foster orderly growth.
10. The extent to which the fishery is already adequately managed by states, by state/federal programs, or by federal regulations pursuant to other FMPs or international commissions, or by industry self-regulation, consistent with the requirements of the Magnuson-Stevens Act and other applicable law.

The NS1 Guidelines clarify that these ten factors are not all-encompassing in making the determination of whether a stock requires conservation and management (50 CFR 600.305(c)(1)), and thus, FMCs may consider other factors to provide the basis for making this determination (50 CFR 600.305(c)(3)).

The 2016 revision to the NS1 Guidelines redefined ECS as "stocks that a council or the Secretary has determined do not require conservation and management, but desire to list in an FMP in order to achieve ecosystem management objectives" (50 CFR 600.305(d)(13)). Thus, consistent with section 303(b) of the Magnuson-Stevens Act, National Standard 9, and other applicable Magnuson-Stevens Act sections and laws, NMFS and the FMCs may adopt management measures to, for example, collect data on the ECS, minimize bycatch or bycatch mortality of ECS, protect the associated role of ECS in the ecosystem, and/or address other ecosystem issues, such as habitat impacts (81 FR 71858, October 18, 2016).

Under section 303(a) of the Magnuson-Stevens Act and the NS1 Guidelines (50 CFR 600.310(e) and 600.310(f)), for each fishery requiring federal conservation and management, the FMC's FMPs or FEPs and the associated stock assessment and fishery evaluation (SAFE) reports must specify or include:

1. Maximum Sustainable Yield (MSY) and Status Determination Criteria (SDC) (e.g., Minimum Stock Size Threshold (MSST) and Maximum Fishing Mortality Threshold (MFMT));
2. Optimum Yield (OY) at the stock, stock complex, or fishery level and provide the OY specification analysis;
3. Acceptable Biological Catch (ABC) control rule, which includes the specification of the Overfishing Limits (OFL);
4. Mechanisms for specifying ACLs and AMs; and
5. Essential Fish Habitat (EFH).

Notably, the above information is not required for ECS in an FMP or FEP. Additional information on the management of MUS and ECS is available in WPFMC and NMFS (2011).

Implementing regulations at 50 CFR 600.305(c)(7) strongly recommend the Council to periodically review the FEP and the BSIA to determine if stocks listed therein are appropriately identified, and, as appropriate, stocks should be reclassified within the FEP, added to or removed from the FEP, or added to a new FMP or FEP, through an FEP amendment that documents the rationale for the decision. Additionally, as discussed below, section 306(b) of the Magnuson-Stevens Act describes that the FMCs have limited ability to manage stocks predominately caught in state (i.e., and territorial) waters; as a result, FMCs may identify these stocks as ECS in its FMPs or FEPs (81 FR 71858, October 18, 2016). Further, the NS1 Guidelines strongly recommend that the FMCs consider the extent to which a fishery may already be adequately managed by states (i.e., or territories) that, if in place, would weigh heavily against listing the species in its FEPs (50 CFR 600.305(c)(3)).

1.2 Proposed Action

The proposed action would potentially revise the current BMUS list in the American Samoa FEP. Species that are designated as MUS are in need of federal conservation and management, as opposed to ECS, based on the non-exhaustive ten factors described in 50 CFR 600.305(c)(1) of the NS1 guidelines (81 FR 71858, October 18, 2016) and other relevant considerations in accordance with the Magnuson-Stevens Act and NS1 Guidelines. The proposed action would allow the Council and NMFS to develop and implement ACLs and AMs for MUS predominantly caught in federal waters in need of conservation and management.

1.3 Purpose and Need for the Action

The purpose of the proposed action is to adhere to section 302(h) of the Magnuson-Stevens Act and implementing regulations at 50 CFR 600.305(c), which articulate the Council should review the BMUS listed in the American Samoa FEP to determine whether they are appropriately identified as in need of conservation and management or if the species should be reclassified, added, or removed from the FEP. The need for this action is to ensure that the BMUS in the American Samoa FEP that require conservation and management are reflective of the current state of the American Samoa bottomfish fisheries, consistent with sections 301(a) and 303(a) of

the Magnuson-Stevens Act. This action is also needed to further support the sustainable management of the bottomfish fisheries in American Samoa.

1.4 Action Area

The Territory of American Samoa consists of five volcanic islands (Tutuila, Aunuʻu, Ofu, Olosega, and Taʻū) 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. 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 South Pacific Ocean (WPRMC 2009).

The fishery management area for the American Samoa FEP bottomfish fishery includes the EEZ around American Samoa as well as those areas in which fishing for BMUS occurs in the territorial waters of American Samoa (Fig. 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, Aunuʻu, and the Manu'a Islands (i.e., Taʻū 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 Taʻū. The fishery does not fish in areas closed to fishing around the islands of Tutuila and Aunuʻu, which include several community and territorial marine protected areas (MPAs), including at Fagamalo and several National Marine Sanctuary Management Areas.

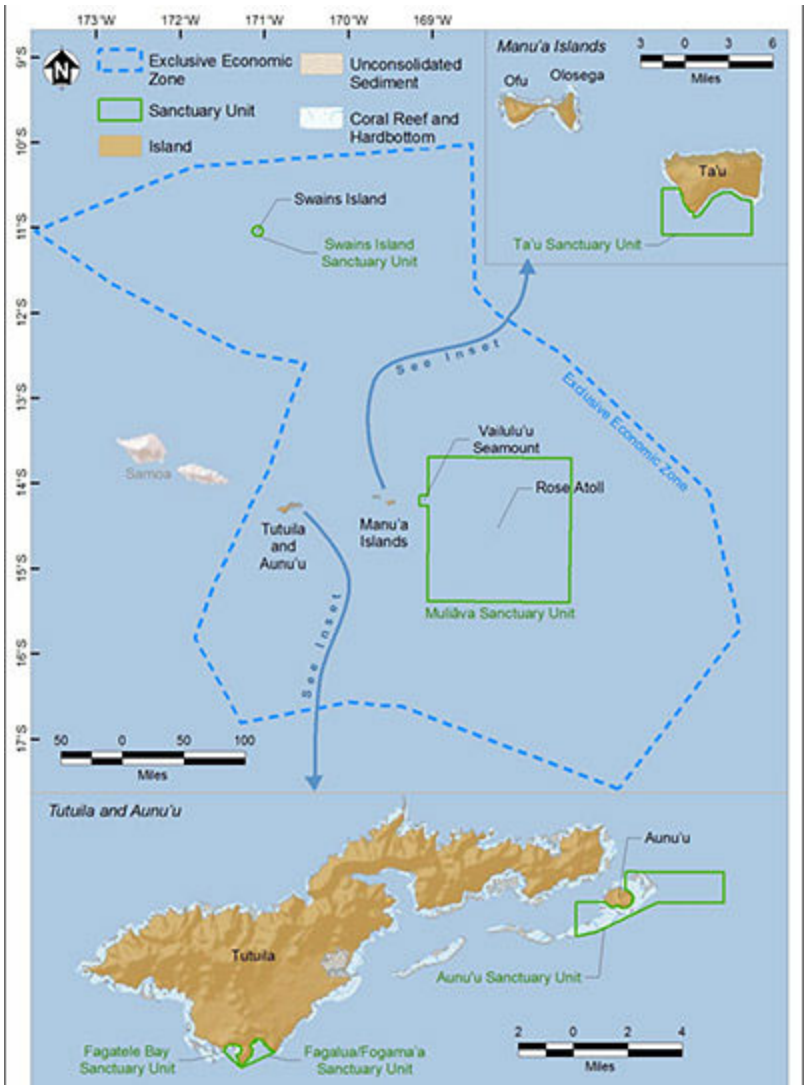

Figure 1. Samoan Archipelago with sanctuary units identified for the Rose Atoll Marine National Monument (Source: National Marine Sanctuary of American Samoa).

1.5 Overview of Fishery Management in the Pacific Islands Region

Prior to the 2006 reauthorization of the Magnuson-Stevens Act, NMFS and the Council managed MUS listed in the Council's FMPs (i.e., Western Pacific MUS) using a variety of conservation and management measures, including prohibitions of destructive gears, area closures, delineation of low-use marine protected areas, and permitting and reporting. The changes associated with this reauthorization of Magnuson-Stevens Act required FMCs to shift their fisheries management towards output control with the introduction of ACLs and AMs. To comply with these new requirements, the Council, in coordination with NMFS, reviewed the MUS in each of its FEPs and created an omnibus FEP amendment that described the mechanism by which the Council would specify ACLs and AMs for the American Samoa Archipelago, the Mariana Archipelago (i.e., inclusive of Guam and the Commonwealth of the Northern Mariana Islands, or the CNMI), the Hawaii Archipelago, the Pacific Remote Island Area (PRIA), and Pacific pelagic fisheries. In addition to describing the ACL mechanism, the amendment also adopted exemptions for

identified MUS that met the criteria for statutory exceptions from ACLs. The amendment also adopted the ECS classification system but did not identify any ECS at that time. The Council recommended and NMFS approved this FEP amendment, which went into effect on July 27, 2011 (76 FR 37285, June 27, 2011; WPFMC and NMFS 2011).

The 2016 revisions to the NS1 Guidelines prompted the Council to review the MUS in each of its archipelagic FEPs to determine whether any of the included species do not require federal conservation and management and would be better suited as ECS. Many of the MUS included in the FEPs at this time were coral reef associated species predominantly caught in jurisdictional (i.e., either state or territorial; non-federal) waters and not in the US EEZ around American Samoa, the CNMI, Guam, or Hawaii. Additionally, despite NMFS and the Council improving the ACL specification process through the generation of stock assessments for a range of data-limited species, there remained a substantial administrative burden to continuously specify ACLs for such a large number of stocks (i.e., inclusive of producing data-limited stock assessments, conducting regional peer-reviews, and applying control rules to specify ACLs) not predominantly caught in federal waters.

NMFS has limited authority to manage fishing activity for species not predominantly caught in federal waters (i.e., those primarily caught in jurisdictional waters). Section 306(b) of the Magnuson-Stevens Act notes that the Secretary may regulate a fishery within the boundaries of jurisdictional waters pursuant to the applicable FMP or FEP in cases where a stock is predominantly caught in the EEZ. Thus, if a species is not predominately caught in federal waters and exceeds its ACL, NMFS and the Council could reduce the ACL in the subsequent fishing year in accordance with its AM; however, NMFS does not currently have the authority to implement AMs or other management measures in jurisdictional waters. Without such authority, ACLs and AMs for stocks not in need of management and predominately caught in jurisdictional waters were unable to provide meaningful management for many of the stocks in the FEPs.[2]

In 2018, the Council drafted Amendment 4 to the American Samoa FEP that reclassified a large number of MUS as ECS (NMFS 2018), and the final rule was published in the *Federal Register* in early 2019 (84 FR 2767, February 8, 2019). This amendment reduced the number of MUS in the American Samoa FEP from 205 species and families to 11, reclassifying these species as ECS and retaining a BMUS list comprised of an assemblage of emperors, snappers, groupers, and jacks (Table 1).

Table 1. BMUS currently listed in the American Samoa FEP.

Scientific Name	Common Name(s)	Local Name(s)	Family
Aphareus rutilans	Red snapper, silvermouth, lehi	Palu-gutusiliva	Lutjanidae
Aprion virescens	Gray snapper, jobfish	Asoama	Lutjanidae
Caranx lugubris	Black trevally, jack	Tafauli	Carangidae
Etelis carbunculus	Red snapper, ehu	Palu-malau	Lutjanidae
Etelis coruscans	Red snapper, onaga	Palu-loa	Lutjanidae
Lethrinus rubrioperculatus	Redgill emperor	Filoa-paomumu	Lethrinidae

[2] An exception to this is management of Main Hawaiian Islands (MHI) Deep-7 bottomfish, where fishing in federal waters is managed cooperatively through measures implemented by both the State of Hawaii and NMFS.

Scientific Name	Common Name(s)	Local Name(s)	Family
Lutjanus kasmira	Blueline snapper	Savane	Lutjanidae
Pristipomoides filamentosus	Pink snapper, paka	Palu-ènaèna	Lutjanidae
Pristipomoides flavipinnis	Yelloweye snapper	Palu-sina	Lutjanidae
Pristipomoides zonatus	Flower snapper, gindai	Palu-ula, palu-sega	Lutjanidae
Variola louti	Lunartail grouper, lyretail grouper	Papa, velo	Serranidae

Previously, there were 17 BMUS listed in the FEP. All former coral reef ecosystem and crustacean MUS were reclassified as ECS that do not require ACLs or AMs because they were not targeted, were a minor component of the fishery, and/or were not in need of management; however, these species are still monitored to prioritize conservation and management efforts and improve the efficiency of regional fisheries management. All existing management measures, including reporting and record-keeping, gear and area prohibitions, and experimental fishing regulations apply to these ECS. If an ECS becomes a target of a federal fishery in the future, NMFS and the Council may consider reclassifying that stock as an MUS to actively manage it. ECS are still regularly monitored via other means (see WPFMC 2025).

1.5.1 Management and Status of American Samoa Bottomfish

The original American Samoa BMUS list was developed by the Bottomfish Plan Team from 1983 to 1986 as the Council's original FMPs were being developed. The list was created by examining all species caught by bottomfish fishing gear during a bottomfish fishing trip based on limited data from the Western Pacific Fisheries Information Network (WPacFIN) at the time. The Bottomfish Plan Team narrowed the list down to 20 species common across island areas of the Western Pacific region. This BMUS list persisted until the ECS amendment in 2019 (84 FR 2767, February 8, 2019).

Despite the changes to American Samoa BMUS associated with the 2019 amendment, recent circumstances related to the monitoring and management of the American Samoa bottomfish fishery have further emphasized the importance of periodically reviewing the MUS list in the American Samoa FEP to ensure it is reflective of the current state of the fishery. In August 2019, the NMFS Pacific Islands Fisheries Science Center (PIFSC) completed a benchmark stock assessment for the American Samoa bottomfish fishery (Langseth et al. 2019), re-evaluating all components of the assessment analyses and implementing several changes were relative to previous assessments of the bottomfish fishery. The assessment results indicated that American Samoa BMUS harvested from federal and territorial waters were both overfished and subject to overfishing based on the SDC specified in the American Samoa FEP (see WPFMC 2009). This is the first assessment to indicate the American Samoa BMUS were overfished or subject to overfishing (Fig. 2).

PIFSC presented the stock assessment findings to the Council at its 180th meeting on October 22-24, 2019, in Pago Pago, American Samoa (84 FR 53685, October 8, 2019) that showed that BMUS in American Samoa were overfished and experiencing overfishing. As required under National Standard 2 (NS2) of the Magnuson-Stevens Act (50 CFR 600.315), the 2019 assessment was subject to an independent review by a panel of independent fishery science

experts (i.e., a Western Pacific Stock Assessment Review, or WPSAR), which concurred that the changes to the assessment process were appropriate, improved on the previous assessments, and provided scientifically sound management advice (Martell et al. 2019). The WPSAR panel reports and the peer-reviewed benchmark stock assessment were received by the Council's Scientific and Statistical Committee (SSC) at its 134th meeting on October 15-17, 2019, in Honolulu, Hawaii. Although the SSC expressed its concerns regarding the impacts of the data used for the stock assessment on its results, the SSC endorsed the stock assessment for management purposes.

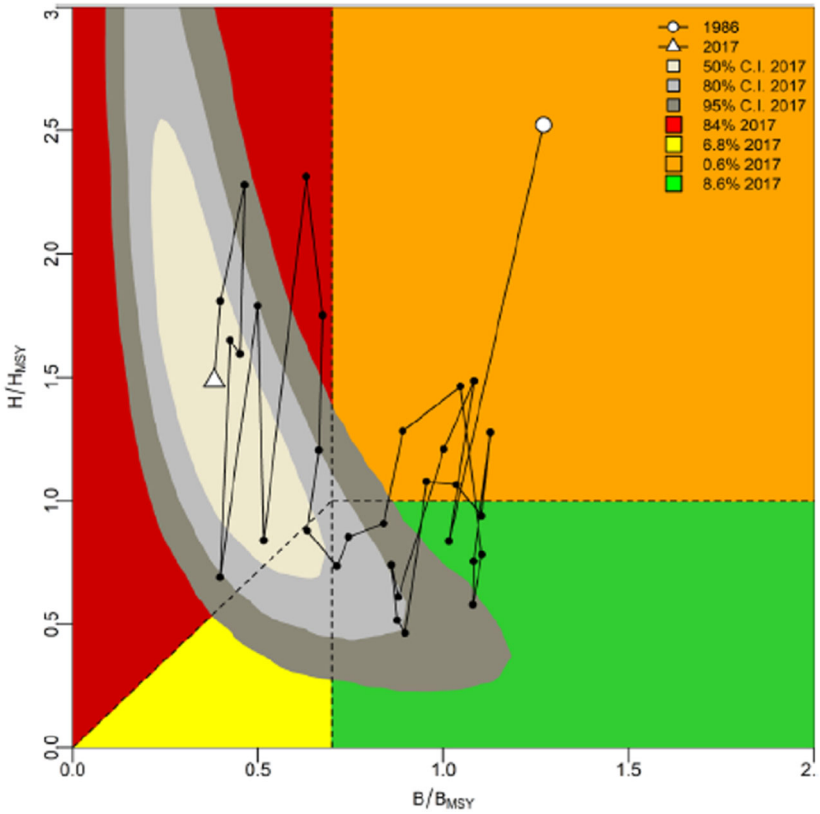

Figure 1. Kobe plot of relative biomass and relative exploitation rate from the best fitting production model for American Samoa bottomfish from 1982 to 2017. Colored areas delineate stock statuses (red = overfished and overfishing, yellow = overfished but not overfishing, orange = overfishing but not overfished, and green = not overfished and not overfishing). The gray and tan colored areas refer only to fishing year 2017. The status of the American Samoa BMUS in 2017 is shown in the shaded areas, with different shades depicting different credible intervals as described in the legend. The figure legend indicates the robustness of the different stock status conditions for year 2017 with there being an 84 percent probability that the American Samoa bottomfish stock is overfished and being subject to overfishing. (Source: Figure 39 in Langseth et al. 2019).

On January 10, 2020, PIFSC sent a memorandum to the Council stating that NMFS determined the 2019 benchmark stock assessment to be the BSIA consistent with NS2. On February 6, 2020, NMFS determined that the American Samoa bottomfish stock is overfished and subject to overfishing (85 FR 26940, May 6, 2020). On February 10, 2020, the NMFS Pacific Islands Regional Office (PIRO) issued a notification informing the Council of this determination, which included the basis for the change in stock status and outlined the obligations of the Council to

take immediate action to end overfishing and to implement a plan within two years to rebuild the stock.

The Council began the process of developing a rebuilding plan immediately upon notification of the change in the stock status, consistent with section 304(e) of the Magnuson-Stevens Act and implementing regulations at 50 CFR 600.310(j). On November 1, 2019, the Council requested that NMFS develop an interim catch limit (ICL) for the American Samoa bottomfish fishery while the Council worked to develop the rebuilding plan. NMFS implemented an ICL of 13,000 lb for 2020 and 2021 to reduce overfishing in the fishery while minimizing socio-economic impacts to American Samoa fishing communities (85 FR 73003, November 16, 2020; 86 FR 32361, June 21, 2021). The rebuilding plan set an ACL of 5,000 lb for the American Samoa BMUS with the fishery's first in-season AM and higher performance standard. Under these rebuilding provisions, NMFS would close federal waters around American Samoa to BMUS fishing for the remainder of the fishing year if NMFS projected that the ACL would be exceeded, and if the ACL was exceeded, NMFS would close the fishery in federal waters until a coordinated management approach was developed to ensure catch in both territorial and federal waters could be maintained at levels that would allow the stock to rebuild.

The American Samoa fishery for BMUS exists in both territorial and Federal waters, and NMFS is obligated to manage the stock throughout its range according to National Standard 3 (NS3) of the Magnuson-Stevens Act (50 CFR 600.320(a)). Therefore, under the rebuilding plan, NMFS monitored catch from both territorial and federal waters and used the total catch when assessing catch against the ACL. However, the federal catch limit would not limit catch in territorial waters as NMFS was only able to implement fishery management measures within the EEZ. Thus, the development and implementation of the rebuilding plan by the Council and NMFS was complicated by the nature of the BMUS list in the FEP, as several species comprising the list were predominantly harvested in territorial waters where there is no federal authority to unilaterally control catch. This management issue contributed to and further emphasized the need to review the BMUS list in the American Samoa FEP.

In June 2023, NMFS PIFSC completed a new benchmark stock assessment for American Samoa bottomfish (Nadon et al. 2023), which individually assessed nine BMUS: *Aphareus rutilans*, *Aprion virescens*, *Caranx lugubris*, *Etelis coruscans*, *Lethrinus rubrioperculatus*, *Lutjanus kasmira*, *Pristipomoides flavipinnis*, *P. zonatus*, and *Variola louti*. This assessment was reviewed by a panel of experts under the WPSAR framework from February 17-23, 2023 in Pago Pago, American Samoa, who found the assessment update adequate for management use (Franklin et al. 2023). The Council's SSC received the WPSAR review report and the peer-reviewed benchmark stock assessment at its 148th meeting on June 14, 2023. The SSC accepted the 2023 benchmark assessment as BSIA for setting harvest limits for fishing year 2024 to 2026.

The SSC also recommended that the Council direct staff to convene the Probability of Overfishing (P*, pronounced p-star) and Social, Economic, Ecological and Management uncertainty (SEEM) working groups to quantify uncertainties and recommend a risk of overfishing at which to set the ABC and ACLs.

On August 23, 2023, PIFSC sent a memorandum to PIRO stating their determination that the 2023 benchmark stock assessment is BSIA for managing American Samoa BMUS. On September 20, 2024, NMFS formally determined that none of the American Samoa bottomfish stocks assessed in the 2023 benchmark assessment were overfished or subject to overfishing in

2017 or any year since. PIRO notified the Council of this determination on September 21, 2023. Based on this determination, NMFS notified the Council that they may amend the FEP to discontinue the rebuilding plan and associated ACLs and AMs implemented to rebuild the stock, and set new ACLs and AMs for the 2024–2026 fishing years to prevent overfishing under section 303(c) Magnuson-Stevens Act

At its 197th meeting in December 2023, the Council took action to recommend discontinuing the rebuilding plan and implementing ACLs and AMs for nine assessed BMUS for fishing years 2024–2026, in accordance with the ACL process approved by NMFS, and in consideration of the best available scientific, commercial, and other information. The Council-recommended alternative included single-species ACLs for the nine assessed BMUS for 2024-2026 (see Table 2), established *E. coruscans* as an indicator species for *E. carbunculus* and *P. flavipinnis* as an indicator species for *P. filamentosus*, and implemented a post-season AM. These ACLs were implemented by NMFS on November 7, 2024 (89 FR 88170).

Table 2. Single-species ACLs for the nine assessed American Samoa BMUS per Amendment 7 to the American Samoa FEP.

Species	ACL (lb)
A. rutilans	8,554
A. virescens	4,872
C. lugubris	3,086
E. coruscans	4,872
L. rubrioperculatus	8,554
L. kasmira	16,645
P. flavipinnis	2,579
P. zonatus	1,521
V. louti	2,205

1.5.2 Additional Management Components under the Magnuson-Stevens Act

The ongoing management of BMUS in American Samoa pursuant to the American Samoa FEP and the Magnuson-Stevens Act also requires the consideration of several relevant management provisions that are required to be specified in the Council's FEPs consistent with section 303(a) of the Magnuson-Stevens Act. These provisions include, but are not limited to, SDC, ACLs and AMs, EFH, monitoring and bycatch, and fishing communities.

Status Determination Criteria

The Magnuson-Stevens Act NS1 (50 CFR § 600.310 (e)(2)(i)) defines both "overfishing" and "overfished" as states that jeopardizes the capacity of a fishery to produce the MSY on a continuing basis. SDC are the measurable and objective factors used to determine if overfishing has occurred, or if the stock or stock complex is overfished (50 CFR 600.310(e)(2)(i)(A)). Overfishing occurs whenever a stock or stock complex is subjected to a level of fishing mortality or total catch that jeopardizes the capacity of a stock or stock complex to produce MSY on a continuing basis, measured using MFMT, OFL, or suitable proxies. "Overfished" is a stock or stock complex state where biomass (B) has declined below MSST or suitable proxy. MFMT, OFL, and MSST reference points can be established if stock demographic, productivity, and fishery characteristics are known. This is usually achieved through an analysis of historical data

using an assessment model. When these characteristics cannot be determined, assumptions are made and proxy reference points are used in place of MFMT, OFL, and MSST.

Overfishing criteria and control rules are specified and applied to individual species within a multi-species stock whenever possible. When this is not possible, they are based on an indicator species for a multi-species stock. It is important to recognize that individual species would be affected differently based on this type of control rule, and for any given species, fishing mortality does not currently exceed a level that would result in excessive depletion of that species. As of the most recent stock assessment (Nadon et al. 2023) and ACL specification, NMFS manages the BMUS complex using species-specific ACLs for nine of the 11 species and indicator species for the remaining two species. The control rules are applied to each of the nine individual species and two indicator species individually.

The MSY control rule is used as the MFMT. The MFMT and MSST are specified based on the recommendations of Restrepo et al. (1998) and both are dependent on the natural mortality rate (M). The value of M used to determine the reference point values is not specified in this section. The latest estimate published annually in the SAFE report is used, and the value is occasionally re-estimated using the best available information. The range of M among species within a stock complex is taken into consideration when estimating the M to be used for the purpose of computing the reference point values.

In addition to the thresholds MFMT and MSST, a warning reference point, B_{FLAG}, is specified at some point above the MSST to provide a trigger for consideration of management action prior to B reaching the threshold. MFMT, MSST, and B_{FLAG} are specified as indicated in Table 3.

Table 3. Current overfishing threshold specifications for American Samoa BMUS.

MFMT	**MSST**	**B_{FLAG}**
$F(B) = \frac{F_{MSY}\, B}{c\, B_{MSY}}$ for $B \le c\, B_{MSY}$ $F(B) = F_{MSY}$ for $B > c\, B_{MSY}$	$c\, B_{MSY}$	B_{MSY}
where c = max (1-M, 0.5)		

Standardized values of fishing effort (E) and catch-per-unit effort (CPUE) are used as proxies for fishing mortality (F) and B, respectively, so E_{MSY}, $CPUE_{MSY}$, and $CPUE_{FLAG}$ are used as proxies for F_{MSY}, B_{MSY}, and B_{FLAG}, respectively.

In cases where reliable estimates of $CPUE_{MSY}$ and E_{MSY} are not available, they would be estimated from catch and effort times series, standardized for all identifiable biases. $CPUE_{MSY}$ would be calculated as half of a multi-year average reference CPUE, called $CPUE_{REF}$. The multi-year reference window would be objectively positioned in time to maximize the value of $CPUE_{REF}$. E_{MSY} would be calculated using the same approach or, following Restrepo et al. (1998), by setting E_{MSY} equal to E_{AVE}, where E_{AVE} represents the long-term average effort prior to declines in CPUE. When multiple estimates are available, the more precautionary is used.

Data limited stocks are stocks for which data are not available either to set reference points based on MSY or MSY proxies or manage to the reference points based on MSY or MSY proxies. Fisheries for BMUS in American Samoa are currently data limited, making the use of proxies the most suitable approach for establishing SDC. The suitability of these proxies depends on how

closely a chosen stock or stock complex's characteristics are to the underlying stock and fishery characteristics used to derive the proxies.

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 ACL information. Following the 2023 benchmark stock assessment (Nadon et al. 2023), 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*). *E. coruscans* serves as the indicator species for the flame snapper complex and *P. flavipinnis* serves as the indicator species for the golden eye jobfish complex.

Annual Catch Limits and Accountability Measures

Federal regulations at 50 CFR 665.4 (76 FR 37285, June 27, 2011) require NMFS to implement an ACL and AM(s) for all American Samoa BMUS, as recommended by the Council, and to consider the best available scientific, commercial, and other information about the bottomfish fishery. This section provides an overview of the process the Council used to develop its ACL and AM(s) recommendation for its MUS.

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

When calculating an ABC for a stock or stock complex, the SSC must first evaluate the information available for the stock and assign the stock or stock complex into one of the five tiers. The SSC must then apply the control rule assigned to that tier to determine ABC. For stocks or stock complexes that have estimates of MSY and other MSY based reference points derived from statistically based stock assessment models (Tier 1-3 quality data), the ABC is calculated by the SSC based on an ABC control rule that accounts for scientific uncertainty in the estimate of the OFL. In accordance with Federal regulations at 50 CFR 600.310 implementing NS1 of the Magnuson-Stevens Act, the probability of overfishing cannot exceed 50 percent and should be a lower value. The FEP includes a qualitative process by which the P* value may be reduced below 50 percent by the Council based on consideration of four dimensions of information: assessment information, uncertainty characterization, stock status, and stock productivity and susceptibility. The FEP also allows the SSC to recommend an ABC that differs from the results of the ABC control rule calculation based on factors such as data

uncertainty, recruitment variability, declining trends in population variables, and other factors determined relevant by the SSC. However, the SSC must explain its rationale.

The second element requires the Council to determine an ACL that may not exceed the ABC recommended by the SSC. The process includes methods by which the ACL may be reduced from the ABC based on a SEEM analysis. A SEEM analysis may also be used to define an ACT. An ACT set below the ACL and ABC further reduces the probability that actual catch will exceed the OFL and result in overfishing.

The third and final element in the ACL process is the inclusion of AMs. There are two categories of AMs, in-season and post-season AMs. In-season AMs prevent an ACL from being exceeded and may include, but are not limited to, closing the fishery, closing specific areas, changing bag limits, or other methods to reduce catch. Post-season AMs address performance of the fishery relative to the ACL, most often addressing an exceedance of an ACL by reducing it for subsequent fishing years. Figure 2 illustrates the relationship between the terms used in this section.

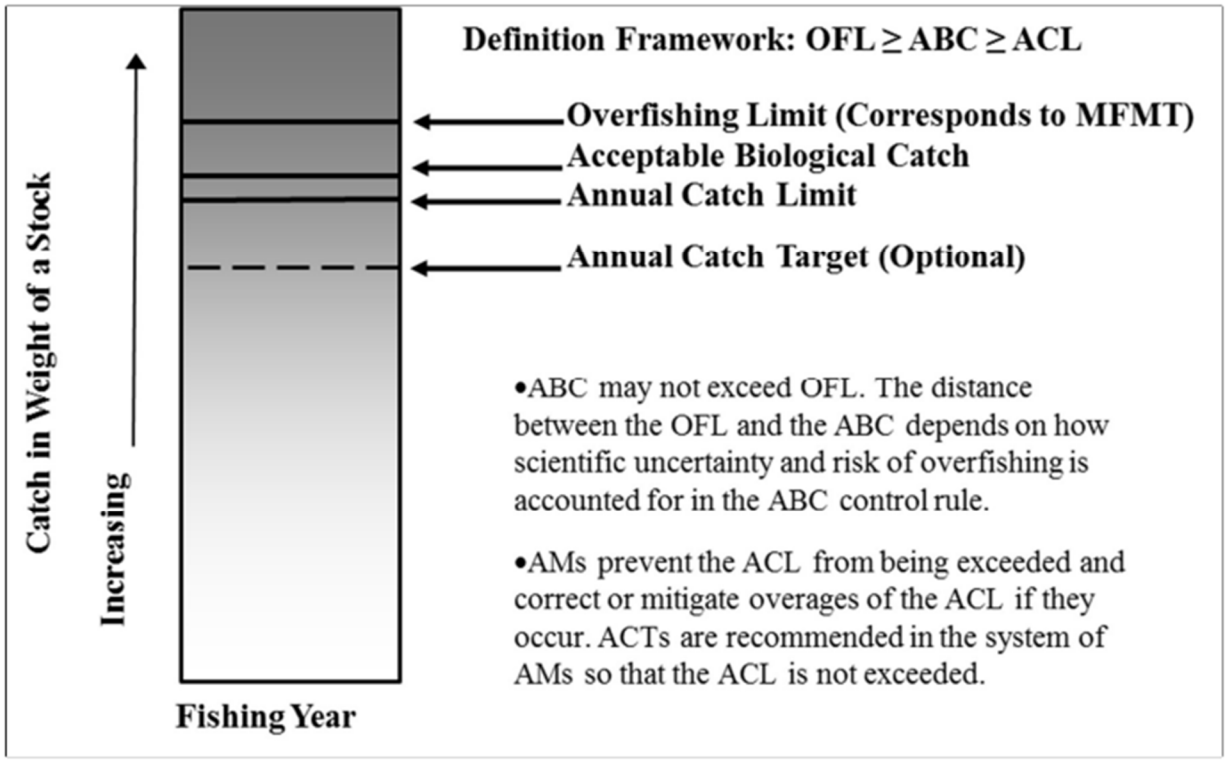

Figure 2. General relationship between OFL, ABC, ACL, and ACT.

Essential Fish Habitat

In 1996, Congress passed the Sustainable Fisheries Act, which amended the MSA and added several new FMP provisions. Among the most important of these additions was the requirement to holistically identify and describe EFH and, under the EFH final rule, habitat areas of particular concern (HAPC) for all federally managed species (50 CFR 600.815). The MSA defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." HAPC are areas of EFH that meet one or more of the following considerations: (1) ecological function provided by the habitat is important; (2) habitat is sensitive to human-

induced environmental degradation; (3) development activities are, or will be, stressing the habitat type; or (4) the habitat type is rare. At the time, the new mandate represented a shift in fishery management to allow regional councils to begin focusing on broader ecosystem-based approaches as opposed to traditional single or multi-species management.

In 1999, NMFS issued guidelines intended to assist Councils in implementing the EFH provision of the MSA and set forth the following four broad tasks:

1. Identify and describe EFH for all species managed under an FMP;
2. Describe adverse impacts to EFH from fishing activities;
3. Describe adverse impacts to EFH from non-fishing activities; and
4. Recommend conservation and enhancement measures to minimize and mitigate the adverse impacts to EFH resulting from fishing and non-fishing-related activities.

Councils also have the authority to comment on federal or state agency actions that would adversely affect the habitat, including EFH, of managed species. Fishery management actions must be evaluated for impacts on all EFH and HAPC in the area of effect and not just the EFH and HAPC for the fishery to which the management action applies.

The EFH guidelines note that a wide range of basic information is needed to identify EFH. This includes data on current and historic stock size, the geographic range of the managed species, the habitat requirements by life history stage, and the distribution and characteristics of those habitats. Since EFH has to be identified for each major life history stage, information about a species' distribution, density, growth, mortality, and production within all of the habitats it occupies, or formerly occupied, is also necessary. According to NS2 guidelines, the SAFE report should summarize the BSIA concerning the past, present, and possible future condition of EFH described by the FEPs. The guidelines also state that the quality of available data used to identify EFH should be rated using the following four-level system:

- Level 1: All that is known is where a species occurs based on distribution data for all or part of the geographic range of the species;
- Level 2: Data on habitat-related densities or relative abundance of the species are available;
- Level 3: Data on growth, reproduction, or survival rates within habitats are available; and
- Level 4: Production rates by habitat are available.

The EFH provisions are especially important because of the procedural requirements they impose on both regional councils and federal agencies. First, for each FMP, regional councils must identify adverse impacts to EFH resulting from both fishing and non-fishing activities, and describe measures to minimize these impacts. Second, the provisions allowed regional councils to provide comments and make recommendations to federal or state agencies that propose actions that may affect the habitat, including EFH, of a managed species. In 2002, NMFS revised the guidelines by providing additional clarifications and guidance to ease implementation of the EFH provision by regional councils.

The Magnuson-Stevens Act mandates that federal agencies conduct an EFH consultation with NMFS for "any action authorized, funded, or undertaken by a federal agency, or proposed to be authorized, funded, or undertaken by a federal agency" that may adversely affect EFH. This includes any project requiring a federal permit, federal activities, and federally-funded activities implemented by a federal agency or a federal designee. In American Samoa, these actions

include aquaculture; installation of buoys, moorings, aids to navigation; cables and utilities; coastal hardening such as seawalls and revetments; infrastructure construction and development (e.g., resorts, housing, and critical infrastructure); dredging; drilling and/or geotechnical boring; harbor construction and repair; fish pond restoration; flood mitigation and erosion control; outfall pipes and repairs; transportation projects (highway, bridge, rail); and wave energy projects. Examples of federal agencies that most frequently consult with PIRO include the DOC, the US Army Corps of Engineers, and the Department of Transportation.

EFH in the Western Pacific Region

In 1999, the Council developed and NMFS approved EFH definitions for MUS under 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 deep water shrimp through an amendment to the Crustaceans FMP in 2008 (73 FR 70603, November 21, 2008). In 2009, the Council transitioned its five species-based FMPs to five place-based FEPs that carried forward EFH definitions and provisions for all FMP fishery resources into their respective FEPs (75 FR 2198, January 14, 2010). In 2019, Amendment 4 to the American Samoa Archipelago FEP reclassified some bottomfish, pelagic, crustacean, precious coral, and coral reef ecosystem species as ECS (84 FR 2767, February 8, 2019). These species do not have EFH or HAPC under the MSA, as these habitat categories only apply to MUS. Discussion and analysis of potential effects on EFH and HAPC would only consider these habitat designations for species remaining as BMUS in these two territories.

The habitat objective of the FEPs is to refine EFH and minimize impacts to EFH, with the following sub-objectives:

- Review EFH and HAPC designations every five years based on the best scientific information available and update such designations based on the best scientific information available, when available; and
- Identify and prioritize research to assess adverse impacts to EFH and HAPC from fishing (including aquaculture) and non-fishing activities, including, but not limited to, activities that introduce land-based pollution into the marine environment.

As stated in the FEPs, none of the fisheries operating under the American Samoa Archipelago FEP are expected to have adverse impacts on EFH or HAPC for species managed under the different fisheries. Continued and future operations of fisheries under the FEP are not likely to lead to substantial physical, chemical, or biological alterations to the habitat, or result in loss of, or injury to, these species or their prey (WPFMC 2009).

Monitoring and Bycatch

Fishery-dependent data for American Samoa bottomfish are collected through both the boat and shore-based creel surveys as well as the Commercial Purchase Reporting System (CPRS) in each territory. The data collection methodologies are described in the American Samoa annual SAFE reports (e.g., WPFMC 2025). In American Samoa, commercial fish sales must be reported to the DMWR before the 16th day of each month (ASCA § 24.0905). The CPRS collects information on bottomfish sold to fish dealers, which includes date, dealer name, type of fish/species, weight, price, etc. Typically, only common fish are typically identified to the species level, and the rest

are sold in larger groups, such as “miscellaneous bottomfish.” Length information is generally not collected through commercial reports. In some instances, fish are grouped into price categories instead of classifications by fish or species type.

After the passing of the Sustainable Fisheries Act in 1996, section 303(a)(11) of the Magnuson-Stevens Act requires that Council’s FEP establish a standardized bycatch reporting methodology (SBRM) to assess the amount and type of bycatch occurring in the managed fisheries and include conservation and management measures that minimize bycatch and bycatch mortality to the extent practicable. The American Samoa FEP describes bycatch monitoring in American Samoa. The methods for collecting, recording, and reporting bycatch data are comprehensively described in the SBRM created collaboratively by the Council and NMFS (WPFMC 2021). The amount of bycatch recorded in the territorial bottomfish fisheries is described in the 2024 annual SAFE report for American Samoa (WPFMC 2025). Data collected on bycatch in the American Samoa bottomfish fishery is not subject to expansion.

Fishing Communities

In 1996, the Magnuson-Stevens Act National Standard 8 (NS8) specified that conservation and management measures take into account the importance of fishery resources to fishing communities, to provide for their sustained participation in fisheries and to minimize adverse economic impacts, provided that these considerations do not compromise the achievement of conservation. The MSA defines a fishing community as a community that is substantially dependent on or engaged in the harvest or processing of fishery resources to meet social and economic needs, which includes fishing vessel owners, operators, and crew and U.S. fish processors that are based in such a community.

As island communities in the Western Pacific Ocean, the surrounding ocean and its resources have long provided residents of American Samoa with a source of food and opportunities for maritime commerce and recreation. The islands of these territories are relatively small with most towns and villages located along the coast, and the ocean is a constant presence in the lives of all residents. Unlike other regions of the U.S., the settlement of the Western Pacific region was intimately tied to the ocean, which is reflected in local culture, customs, and traditions. Understanding the social and economic connections between residents of the U.S. Pacific Islands territories and the surrounding ocean environment is necessary to describe community life in these areas.

Between 1999 and 2002, the Council recommended that the Secretary designate all of the islands of the American Samoa Archipelagos as one fishing community under the MSA (i.e., NS8) because fishery participants tend to live in small towns and villages and because fishing, seafood, and fishing-related businesses hold large social and economic importance in the territory. NMFS PIFSC has since developed a general profile of the fishing communities in each of these territories (Levine and Allen 2009; Allen and Bartram 2008; Allen and Amesbury 2012).

American Samoa is the only U.S. territory possession in the southern hemisphere, and goods must be transshipped on or over thousands of miles of ocean to reach the archipelago. This has led to a relatively high cost of living and limited availability of certain products and services. The tourism economy is closely related to recreation and leisure opportunities along the shoreline but is also conditioned by the distance of travel to the territory. Various aspects of local and indigenous history, culture, and society are closely related to the surrounding ocean and use of its resources. Fishing activities are important across American Samoa, and residents use living

marine resources for commercial sale, household consumption, and cultural ceremonies and traditions. The pertinent economic, social, and community information available for assessing the successes and impacts of management measures or the achievements of the Council's FEPs for the American Samoa Archipelago are provided in the annual SAFE reports (WPFMC 2025). Additionally, the annual SAFE reports identify the various social and economic groups within the region's fishing communities and their interconnections. A selection of adapted information is provided in the following sections, and the full text can be found in the most recent annual SAFE reports.

Magnuson-Stevens Act section 305(i)(2) authorizes the Council and the Secretary of Commerce, through NMFS, to establish a Western Pacific Community Development Program (CDP) for any fishery under the authority of the Council and NMFS. The intent of the program is to provide Western Pacific communities access to fisheries upon which they have traditionally depended but may not have the capabilities to support continued and substantial participation, possibly due to economic, regulatory, or other barriers. The Western Pacific CDP includes two components: (1) the Development Plan Program; and (2) the Demonstration Projects Program. Under the CDP, the Council provides support for fishery projects in Western Pacific and indigenous communities through administrative processes. The Western Pacific Community Demonstration Project Program (CDPP) is a grant program that provides funds to Western Pacific indigenous communities for the demonstration of traditional, cultural fishery, fishery management, and fishery conservation projects.

Each year, PIFSC reports on the status of economic data collections for select regional commercial fisheries. This supports a national economic data monitoring effort known as the Commercial Fishing Economic Assessment Index (CFEAI). Select trip-level cost data (fuel, ice, bait, and gear loss) have been collected on a continuous basis for American Samoa small boat fisheries since 2009 in collaboration with the DMWR and the Western Pacific Fisheries Information Network (Chan and Pan 2019). In addition, a more comprehensive socioeconomic survey was conducted on the American Samoa small boat fishery during 2021 which collected data on fishing revenues, operating costs, and fixed costs. This survey also provides data on numerous elements related to fishing behavior, market participation, and fisher demographics for American Samoa boat-based fisheries (Dombrow and Hospital 2023). Additionally, community social indicators have been generated for American Samoa (Kleiber et al. 2018) in accordance with a national project to describe and evaluate community well-being in terms of environmental justice, economic vulnerability, and gentrification pressure using 2010 Census data.

1.5.3 Data Collection

There are no general permitting or reporting requirements for bottomfish fishing in territorial or Federal waters around American Samoa. However, DMWR receives commercial sales data from a mandatory commercial receipt book system in accordance with territorial regulations. Fishing for bottomfish is primarily non-commercial, so most catch data is collected through voluntarily participation in boat-based and shore-based creel survey programs. These programs are implemented by DMWR with the support of NMFS.

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 (including non-BMUS species), catch per unit effort (CPUE), length-weight information, catch disposition, and additional socioeconomic information. Size and weight of catch may be measured or estimated, depending on the fisher's cooperation. 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 WPacFIN database.

The shore-based creel survey program collects data on catch, effort, and participation for inshore fishing activities. These surveys randomly sample shore-based fishing and 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 (including non-BMUS species), CPUE, length-weight information, catch disposition, and additional socioeconomic information. Size and weight of catch may be measured or estimated, depending on the fisher's cooperation. Survey dates are randomly selected two to four times per week and the surveys take place over eight-hour periods. 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. The creel survey data are transcribed weekly into the WPacFIN database.

Once creel survey data are submitted to the WPacFIN database, PIFSC uses an expansion algorithm to estimate total catch for the bottomfish fishery. The expansion algorithm utilizes two variables from creel surveys: 1) total effort; 2) average CPUE. The formula is as follows:

$$\textit{Total Catch} = \textit{Total Effort} \times \textit{Average CPUE}$$

WPacFIN determines total effort from the boat logs and participation counts that the American Samoa DMWR creates during boat- and shore-based creel surveys, respectively. Effort is analyzed at a trip level, whether it is a bottomfishing trip, troll trip, or spearfishing trip. The CPUE is derived from the total weight of the catch, as opposed to the number of fish caught. In plain language, total catch is the number of trips per gear type per type of day (i.e., weekday/weekend and/or time of day) multiplied by the average catch per trip per type of day.

The trip level effort, CPUE, and species information is expanded to determine the annual effort and CPUE for each fishing method. Including all species caught under each fishing method in the expansion accounts for the mixed-species nature of the fishery. PIFSC calculates the total catch of the BMUS by applying a species composition ratio that is generated from the catch composition reported in creel survey interviews. All of the non-BMUS species are removed from the final annual total catch estimates to generate a total catch estimate of BMUS for each gear type in the bottomfish fishery. Once the annual BMUS catch for each gear type is estimated, the estimated catch for each method is summed to generate the total annual BMUS catch.

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, and is used to monitor locally sold fish and collect 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.

1.6 Decision(s) to be Made

This document will help the Council to choose their preferred alternative from Section 2. The preferred alternative will be recommended to NMFS following the 202nd Council meeting.

1.7 Public Involvement

The Council convenes many meetings each year, including meetings for its SSC and various other advisory bodies. Each of these meetings are open to the public and are noticed in the *Federal Register*, local newspapers and publications, and on the Council's website (www.wpcouncil.org). Meeting agendas provide opportunities for public comment, both oral and written, that are accepted by the Council and its advisory bodies.

The Council discussed the proposed action alongside relevant considerations at the following public meetings:

- The 180th meeting (October 22-24, 2019, 84 FR 53685);
- The 181st meeting (March 9-12, 2020, 85 FR 8568);
- The 185th meeting (March 23-25, 2021, 86 FR 11505);
- The 187th meeting (September 21-23, 2021, 86 FR 47626);
- The 188th meeting (October 19, 2021, 86 FR 54435);
- The 190th meeting (March 22-24, 2022, 87 FR 11046);
- The 192nd meeting (September 20-22, 2022, 87 FR 53732);
- The 193rd meeting (December 5-8, 2022, 87 FR 68135);
- The 194th meeting (March 27-31, 2023, 88 FR 12658);
- The 195th meeting (June 27-29, 2023, 88 FR 33870); and
- The 202nd meeting (March 25-27, 2025, 90 FR 11517).

The SSC considered the proposed action at the following meetings:

- The 143rd meeting (March 15-17, 2022, 87 FR 11046);
- The 145th meeting (September 13-15, 2022, 87 FR 53732); and
- The 148th meeting (June 14-16, 2023, 88 FR 33868).

The proposed action was additionally discussed at the following advisory group meetings:

- Archipelagic Fishery Ecosystem Plan Team (Plan Team) meetings:
    - January 23, 2020 (84 FR 72300)
    - April 20-22, 2020 (85 FR 19141)
    - April 20-22, 2021 (86 FR 17367)
    - February 16, 2022 (87 FR 5799)
    - January 25, 2023 (88 FR 1361)
    - April 20-21, 2023 (88 FR 17184)
    - May 13-17 (89 FR 33334)
    - January 21-23, 2025 (89 FR 106437)
- American Samoa Archipelago FEP Advisory Panel meetings:

- September 7, 2021 (86 FR 45710)
- November 16, 2021 (86 FR 60218)
- March 8, 2022 (87 FR 9581)
- June 7, 2022 (87 FR 30890)
- September 6, 2022 (87 FR 51062)
- February 28, 2023 (88 FR 8813)
- March 18, 2025 (89 FR 10476)

More detailed descriptions of discussions that occurred at public meetings of the Council and its advisory bodies are provided below in Section 2.1.1. Further, the topic of designating some stocks and stock complexes as ECS has been discussed in public meetings since 2007, leading to amendments to the American Samoa, Mariana Archipelago, and Hawaii Archipelago FEPs that reclassified various species in need of conservation and management (i.e., MUS) to ECS and resulting in the current BMUS list in the American Samoa FEP (NMFS 2018)

There were no public comments pertaining to this action. NMFS will be accepting comments on the proposed Amendment, draft EA, and Regulatory Impact Review during the comment period for the proposed rule. To submit comments, go to www.regulations.gov and search for RIN 0648-xxxx. NMFS will consider comments received prior to making a decision on any proposed rule.

1.8 List of Preparers

Western Pacific Regional Fishery Management Council
Thomas Remington, Council Contractor (Lynker), Preparer

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

2 DESCRIPTION OF THE ALTERNATIVES

2.1 Development of the Alternatives

The original American Samoa BMUS list was developed by the Council's Bottomfish Plan Team for inclusion in the 1986 FMP for Bottomfish and Seamount Groundfish Fisheries in the Western Pacific Region (51 FR 27413, August 27, 1986). The Bottomfish Plan Team determined the list by examining all species caught with bottomfish fishing gear before narrowing the list down to 20 species across island areas based on the most common species in each area; this list included a range of snappers, jacks, groupers, and emperors. The BMUS list remained unchanged until 2019 when Amendment 4 to the American Samoa FEP reclassified a large number of MUS as ECS and reduced the number of MUS from 205 species and families to 11 species. As a result of the FEP amendment, the number of American Samoa BMUS was reduced from 14 to 11 species, which are the same species that comprise the current BMUS list in the American Samoa FEP.

Section 302(h)(1) of the Magnuson-Stevens Act requires the Council to prepare an FMP for each fishery under its authority that requires conservation and management (16 U.S.C. 1852(h)(1)),

but not every fishery requires federal management. “Conservation and management” refers to all of the rules, regulations, conditions, methods, and other methods that are required to rebuild, restore, or maintain any fishery resource and the marine environment (16 U.S.C. 1802(5)). While any stock that is predominantly caught in federal waters and is overfished or experiencing overfishing is considered to be in need of conservation and management, FMCs may determine that additional stocks also require conservation and management. To this end, NS1 provides ten non-exhaustive, guiding factors that the Council should consider when deciding whether other stocks are in need of federal management (50 CFR 600.305(c)). When adding or removing a stock from an FMP or FEP, the NS1 Guidelines require the evaluation of these 10 factors, which, upon review, could lead to a determination that a stock does or does not need Federal management. Stocks that do not require federal management could be removed from the FEP or designated as an ECS through an FEP amendment. Implementing regulations of the Magnuson-Stevens Act at 50 CFR 600.305(c)(7) recommend the Council to review the FEP and the best scientific information available periodically to determine if stocks are appropriately identified.

NMFS and the Council underwent a multi-year, multi-faceted process to evaluate American Samoa bottomfish species in need of federal conservation and management, which can be broken down into two general steps (see Fig. 3). The first step involved PIFSC staff conducting a hierarchical clustering analysis of creel interviews for boat-based fishery operations in American Samoa (Ahrens et al. 2022), followed up an updated analysis with higher presence thresholds for inclusion (Ahrens 2024). The second step involved a thorough review of the results from the cluster analysis by the Council’s Archipelagic Plan Team (i.e., comprised of federal and state or territorial fishery and ecosystem experts), consideration of these results alongside a synthesis of available life history information, and application of the ten NS1 factors to these candidate species, including considerations for the wide range of life history traits and vulnerability of candidate species, by leveraging expert opinion through Plan Team discussions. This process resulted in the species list proposed under Alternative 2. Alternative 3 presents a further reduced species list including only deepwater snappers for which there exists sufficient information to conduct species specific stock assessments, allowing for adequate management of the species.

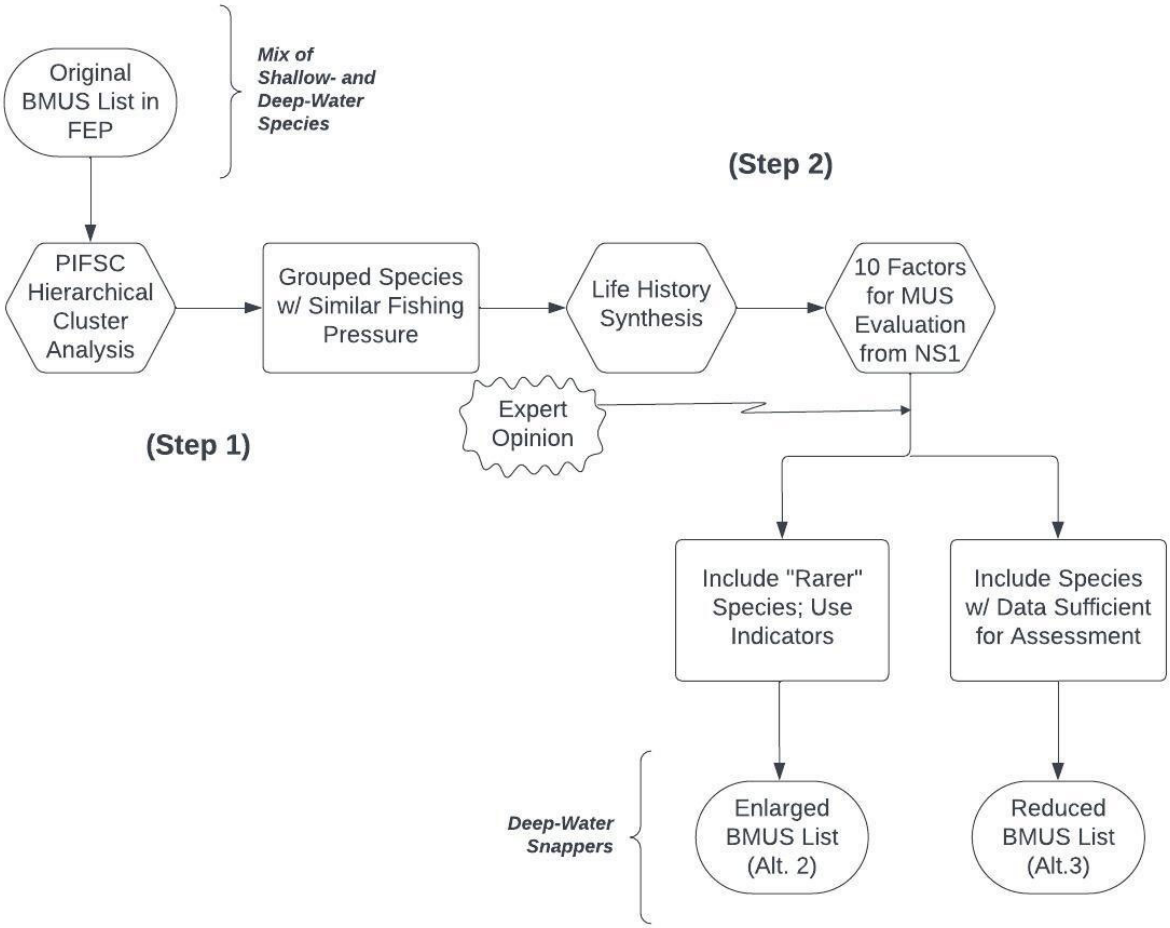

Figure 3. Review process for BMUS listed in the American Samoa FEP under Alt. 2 and 3.

2.1.1 PIFSC Hierarchical Cluster Analyses

The NS1 Guidelines recommend grouping species into complexes when fisheries target multiple species or when data are limited such that developing ACLs and AMs for every species harvested in a fishery may not be possible. Species in complexes typically have similar geographic distribution, life history characteristics, and vulnerabilities to fishing pressure. Further, the NS1 Guidelines suggest that stock complexes should utilize indicator stocks that are generally representative of the species comprising the complex. Fisheries in the U.S. Pacific Islands territories, inclusive of the American Samoa bottomfish fishery, are generally multi-gear and multispecies by nature, and the data collected from spatially- and temporally-restricted creel surveys may not be always categorized at the species level; these fishery characteristics had encouraged the use of species complexes in the American Samoa FEP, as had been employed in management of the fishery preceding the 2023 benchmark stock assessment (Nadon et al. 2023).

To this end, NMFS PIFSC produced a hierarchical clustering analysis of creel survey interview data for archipelagic boat-based fisheries in American Samoa (Ahrens et al. 2022) to delineate species groupings that are experiencing similar fishing pressure. The purpose of this cluster analysis was to adhere to the process implied in the NS1 Guidelines in which species subject to similar fishing pressure are initially identified before further aggregating geographically similar

assemblages based on the ten NS1 factors, life history characteristics, and vulnerabilities to define a complex and indicator species as needed in the American Samoa FEP. Because the Magnuson-Stevens Act and NS1 Guidelines encourage FMCs to periodically review stocks listed in an FMP or FEP to ensure conservation and management goals are being adequately met, the PIFSC cluster analysis provided a transparent and repeatable process by which NMFS and the Council can ensure that the FEP appropriately aligns with the current state of the fishery.

The clustering analysis aimed to identify species assemblages that are likely subject to similar fishing pressure under the assumption that species that are captured together are likely subject to similar fishing effort and can be considered as occurring in the same fishery. The analysis utilized American Samoa boat-based creel survey data from 1986 to 2019 that were converted into presence and absence by species for each interview. Data were assessed according to three date ranges of 1986-2019, 2010-2019, and 2016-2019, coinciding with notable changes to the creel survey program in the territory. Additionally, the analysis was conducted for each time block using all available data as well as a subset of the data containing only trips declared as bottomfish fishing.

In describing their findings, Ahrens et al. (2022) focused on species currently listed as BMUS in the American Samoa FEP. The association between different species was generally determined by the primary gear type used to harvest the species with some overdistribution as a result of mixed gear categories. The analysis found that pelagic species harvested by trolling clustered together in a consistent manner across time blocks, and shallow reef-associated species caught using spear also group together in a similar manner. Perhaps most pertinently, bottom-associated species tended to cluster based on depth preference and gear type, as bottomfish typically occur in deeper depths and require heavier gears (e.g., *Aphareus rutilans*, *Etelis carbunculus*, *E. coruscans*, *Pristipomoides flavipinnis*, *P. zonatus*, *P. filamentosus*). These deeper bottomfish clustered apart from moderate depth species harvested using lighter tackle or spear (e.g., *Aprion virescens*, *Lethrinus rubrioperculatus*, *Lutjanus kasmira*). The analysis did not explicitly identify species to be added as BMUS in the American Samoa FEP, but acted as a scientific baseline from which fishery scientists and managers could base their deliberations and identification of candidate BMUS.

In late 2024, Ahrens (2024) revisited the analysis to more fully understand the relationship between species proposed for the revised BMUS list using a higher threshold for filtering species present in the creel survey data over time. Threshold values of 0.2 and 0.5 were used to filter each data set (i.e., time series from 1985-2020 and 2016-2020) such that the large data set contained the species that fell above the cumulative 20 percent of the numbers distribution and the smaller data set encompassed species in the upper 50 percent of the cumulative number's distribution. This approach ensured that species were present in the data at levels that were more likely to be reflective of components of the current bottomfish fishery in American Samoa. Upon revisiting the cluster analysis, PIFSC staff concluded that the species associations remained similar regardless of filtering level. Additional information regarding the results of the hierarchical clustering analyses is provided in Appendix B.

2.1.2 Archipelagic Plan Team Contributions

The Council's Archipelagic Plan Team initially discussed the potential action to revise territorial BMUS lists in the FEPs at its intersessional meeting in January 2020 (84 FR 72300) and its subsequent regular meeting in April 2020 (85 FR 19141) in response to the Council's

recommendation at its 180th meeting in October 2019 that an options paper be developed for the revision of the BMUS lists in the FEPs. At these meetings, the Plan Team expressed the need to revisit the categorization of the territorial BMUS lists, inclusive of the list for American Samoa, to determine if alternative groupings could be generated based on available biological and fishery data. Through discussions at these meetings, the idea of regrouping the BMUS lists was deliberated alongside the idea of reclassification, as it was not clear to the Plan Team at that time that an FEP amendment may be the most appropriate course of action.

The Plan Team continued discussing the potential action to revise the territorial BMUS lists at its April 2021 meeting (86 FR 17367). At this meeting, representatives from the NMFS Office of Sustainable Fisheries attended the meeting and presented guidance on which stocks require federal conservation and management, changing stock status from known to unknown, and indicator stocks considering the NMFS Procedural Guidance 01-101-11 released in November 2020. If a stock is overfished or experiencing overfishing and is predominantly caught in federal waters, it likely requires federal management; conversely, if the stock is healthy or is not caught predominantly in federal waters, then the 10 non-exhaustive factors from the NS1 Guidelines can be considered with discretion to determine if federal management may still be required. Relatedly, the Plan Team discussed whether territorial BMUS lists should be examined to determine if they align with provisions of the Magnuson-Stevens Act and are representative of the current state of the bottomfish fisheries. Plan Team members noted the need to consider life history, distribution, and vulnerability information alongside the evaluation of the 10 non-exhaustive guiding factors described in NS1 when revising the BMUS lists to ensure they adequately characterize the managed fisheries. The Plan Team considered the idea of a clustering process to help clarify which species are caught together in the fishery. The Plan Team ultimately recommended the formation of a working group with membership from PIFSC, PIRO, the Council, and the territorial resource management agencies to analyze existing data relevant to potential revisions for the territorial BMUS lists in their respective FEPs and to develop an options paper for review at a future Plan Team meeting.

The Plan Team working group first convened on August 16, 2021, as an initial step to discuss the potential action to revise the territorial BMUS lists in their respective FEPs stemming from the Plan Team recommendation. Working group members noted that the potential action could represent an opportunity to ensure that the BMUS lists are reflective of the current bottomfish fisheries in American Samoa, Guam, and the CNMI and align with provisions of the Magnuson-Stevens Act. The working group discussed the historical background of the territorial bottomfish fisheries and BMUS lists, the notions of stock complexes and indicator species, and the need to understand fishing pressure and which species are harvested together. Preliminary results of the PIFSC clustering analysis were presented for American Samoa alongside an associated mapping exercise that indicated that 21.9 percent of bottomfish habitat exists in federal waters such that federal fishery management could theoretically only protect this proportion of the bottomfish population around American Samoa. Working group members generally endorsed the clustering analysis approach and approved the described path forward of supplementing the analysis with a synthesis of life history information at a subsequent working group meeting and soliciting additional feedback from the fishing communities and other stakeholders.

The Plan Team working group met again on January 26, 2022, to review the overlay of aggregated life history information with the results of the clustering analysis (Ahrens et al. 2022), to review available data evaluation reports, to discuss the species that could be included

or removed from the territorial BMUS lists, and to determine potential MUS based on the 10 guiding factors provided in the NS1 Guidelines. A point of emphasis during the meeting was that the revision of the territorial BMUS lists is linked to additional provisions that must be specified for MUS pursuant to the Magnuson-Stevens Act, including SDC, ACL specification mechanisms, EFH, bycatch information, data collection procedures, and fishing community information. It was also emphasized that species reclassified from MUS to ECS in the FEPs would continue to be managed under territorial fishery management plans (tFMPs) that are currently being developed by the territorial resource management agencies. The working group discussed what appeared to be a division between shallow- and deep-water bottomfish species in the cluster analysis for American Samoa, indicating that there may be patterns in fishers' targets between the two groups (i.e., deep-water snappers and shallow-water emperors).

Additionally, at its January 2022 meeting, the Plan Team working group noted that there is a distinctive fishery for deep-water snappers that is at least somewhat reflective of the partition between federal and state waters since deeper species are more likely to be targeted and harvested in federal waters that tend to be further from shore. Additionally, with respect to life history, species of the genera *Etelis* and *Pristipomoides* are more similar to each other than to other current or proposed BMUS. The working group discussed removing shallow-water species such as jacks and emperors from the BMUS list. It was noted that *P. flavipinnis* and *P. filamentosus* did not cluster with the rest of the deep-water snappers, likely due to issues with sample size given that they are not encountered frequently in the creel surveys of the American Samoa bottomfish fishery. The working group also discussed the inclusion of *Aphareus rutilans* due to its clusters and life history characteristics as well as *Etelis boweni* due to it likely being present in the data but not appearing in the analysis because of the lack of species identification. Ultimately, the working group determined that the starting point in using the results of the clustering analysis for developing a new BMUS list for the American Samoa FEP would be the clustered deep-water snappers that have similar life history and are predominantly caught in federal waters as a single fishery before reviewing and verifying the list with local fishers. Despite establishing an initial proposal for a revised species list based on life history and distribution, some working group members remained undecided on how to best move forward with an objective, science-based approach, and the working group decided to have another meeting preceding the next full meeting of the Archipelagic Plan Team.

The Plan Team working group reconvened on February 14, 2022, and reviewed the ongoing processes to evaluate and revise the territorial BMUS lists, inclusive of the species listed in the American Samoa FEP. Since the previous working group meeting in January 2022, members made progress summarizing available data that could inform the BMUS list revisions, including on the current BMUS, clusters resulting from the analysis, minimum and maximum depth ranges for candidate species, and consideration of the NS1 Guidelines' 10 guiding factors for species that may require federal conservation and management, especially factors 3 and 10 for these species. The working group discussed several species that required additional deliberation, such as *Aprion virescens*, *Caranx lugubris*, and *Variola louti*, which are most typically characterized as "intermediate depth." It was noted that there appears to be a clear depth distribution in the territories where all the strictly deep-water species are snappers, and most deep-water snapper habitat is situated in federal waters.

The working group discussed the addition of other deep-water snappers not already included on the American Samoa BMUS list, noting they would have similar life histories and that little

information would be required for management or more rare species since the use of indicator species would facilitate management. The working group noted the importance of objectivity in adding deep-water species to the proposed BMUS list based on the clustering analysis if they were willing to reclassify shallow-water species. Thus, the working group also proposed the addition of several species to the revised BMUS list in the American Samoa FEP based on the results of the cluster analysis, life history synthesis, and working group discussion, such as deep-water snappers *Paracaesio stonei*, *P. kuskarii*, *Etelis boweni* and several species of *Pristipomoides*. The working group suggested that emperors, groupers, and lutjanids currently comprising the BMUS list be considered for reclassification from MUS to ECS since they are predominantly caught where their habitat is situated in shallower waters with the understanding that these species would be managed under tFMPs being developed by each territorial resource management agency (i.e., the DMWR in American Samoa). The working group noted that the goal for the subsequent meeting of the Archipelagic Plan Team was to achieve consensus on the proposed revisions to the territorial BMUS.

Shortly thereafter, the Plan Team held an intersessional meeting on February 16, 2022 (87 FR 5799), during which the Plan Team took inventory of available data to inform the revision of the territorial BMUS lists and deliberated the potential options for the proposed list revisions. The Plan Team working group presented relevant evaluations to the full Plan Team, including the American Samoa bottomfish data evaluation, the clustering analysis, the life history synthesis, the consideration of the 10 non-exhaustive factors from the NS1 Guidelines, and review by DMWR representatives, with a meeting goal of reaching consensus about which species should be included in the revised lists before making headway on Magnuson-Stevens Act management components that need to be addressed and performing community engagement. Other considerations by the Plan Team for species to include in the proposed lists were species that occur in both territorial and federal waters (e.g., *Aprion virescens*, *Variola louti*, and *Caranx* spp.) and species with declining catch over time.

The Plan Team discussed that the proposed action to revise the BMUS list is not solely about changing the species, as there are additional considerations under the Magnuson-Stevens Act. After determining the final BMUS list, there will be additional decisions about managing at the species level, as a complex, or using indicator species. For any of these choices, the Plan Team must determine SDC and ACL provisions, designate EFH, address bycatch monitoring, identify data streams, and consult fishing communities. Ultimately, at its February 2022 meeting, the Plan Team achieved consensus and recommended that the proposed species under Alt. 2 be considered for Council approval to comprise the proposed federal BMUS in American Samoa based on the results of the hierarchical clustering analysis and the synthesis of life history information. The Plan Team further recommended that the Council endorse five new Plan Team working groups relevant to identified Magnuson Stevens Act management components that must be addressed alongside the proposed action to revise the BMUS list in the American Samoa FEP: stock SDC, EFH, ACLs and AMs using 50 CFR 600.310(h)(2), monitoring and bycatch, and fishing communities. The members of these working groups were charged with helping to compile information relevant for this FEP amendment.

Evaluation of Magnuson-Stevens Act Management Components

Consistent with the Plan Team recommendation that was adopted by the Council at its 192nd meeting in March 2022, five Plan Team working groups began reviewing and aggregating information pertinent to the five overarching Magnuson-Stevens Act management components to

be considered during the preparation of this proposed action. The deliberations and approaches of the component working groups are described in further detail below, and the resulting changes to relevant management provisions are described in Section 2.2.2.

Status Determination Criteria

The SDC component working group met on June 6, 2022, in tandem with the ACL/AM component working group to discuss possible changes to management provisions as they relate to SDC in consideration of the proposed action to revise the BMUS list in the American Samoa FEP. The working group discussed that the implementing regulations of the Magnuson-Stevens Act describe the features of MSY and SDC (50 CFR 600.310(e)), and each of the Council's FEPs require specification of SDC and overfishing and overfished determinations (50 CFR 600.310(e)(2)(ii)). NS1 Guidelines also state that "when data are not available to specify SDCs based on MSY or MSY proxies, alternative types of SDCs that promote sustainability of the stock or stock complex can be used." Moreover, if alternative types of SDCs are used, the Council should explain how the approach will promote sustainability of the stock complex on a long-term basis. The working group sought to describe the proposed alternative type of SDC that could be used for data limited stocks (i.e., rate-based SDC; see Section 2.2.2).

In its resulting report, the working group noted that MSY and other components of SDC all require the determination of an underlying stock-specific production function. This is usually accomplished, at a minimum, within a stock assessment framework using an index of abundance, typically derived from fishery dependent information including CPUE and total catch. For data limited fisheries, such as the American Samoa bottomfish fishery, the estimates of CPUE and catch have high variability due to the nature of data collection in the fishery. The limited quantity and quality of fishery-dependent information sets into question the reliability and representativeness of these data, particularly when determining the stock status based on MSY.

Annual Catch Limits, Accountability Measures, and the Flexibility Provision

The ACL/AM component working group met on June 6, 2022, alongside the SDC component working group to discuss possible changes to the framework to specify ACLs and related AMs utilizing provision at 50 CFR 600.310(h)(2) (i.e., the "flexibility provision") in consideration of the proposed action to revise the BMUS list in the American Samoa FEP. During meeting discussions and in its component report, the working group identified several key points and considerations relevant to the implementation of the flexibility provision with respect to the specification of alternative ACLs for American Samoa BMUS. These considerations include:

- When an approved alternative approach is used in place of a standard-approach ACL, it must satisfy the ACL requirement under the Magnuson-Stevens Act.
- The Council must document their rationale for any alternative approaches in an FEP or FEP amendment, which NMFS would review for consistency with the Magnuson-Stevens Act.
- If an alternative ACL is approved, there is no need (nor reasonable expectation) to then convert that alternative back into an amount of fish.
- The choice of data limited methods should be based on what aspect of the fishery can be measured.
- The type of information provided by PIFSC as the BSIA in stock assessments would be used as a basis for rate-based ACLs, as is done for standard-approach ACLs. The

upcoming stock assessments may use different methods for different species, so the type of specified ACLs may differ among species within the territorial BMUS lists.

- Noting that the NS1 guidelines require an alternative approach to be contained within the FEP, if it is anticipated that the Council will need to make a determination of which approach to use within a short time-frame, such as when new data become available, then it may be appropriate to consider establishing a framework within the FEP to allow for such determinations.
- Translating the change in percent effort into a particular or a suite of effort controls needs specific thought and attention and is often best designed using simulation testing.
- Strong buffers should be used in data limited situations due to increased uncertainty.
- Catch-scalar methods (i.e., setting catch based on a percentage of previous catches) have been shown to lead to poor management results, and are a less preferable management option compared to rate-based ACLs.

The working group recommended that the Council establish an alternative control rule allowing for the implementation of a rate-based ACLs in the American Samoa FEP for its bottomfish fishery consistent with regulations at 50 CFR 600.310(h)(2) and applicable NMFS guidance.

Essential Fish Habitat

The EFH component working group met on June 30, 2022, to discuss possible changes related to EFH in consideration of the proposed action to revise the BMUS list in the American Samoa FEP. The working group discussed available sources of information for informing EFH designations for American Samoa BMUS, including the species recommended to be added to the list under this proposed action. The working group noted in its report that PIFSC also completed a thorough evaluation of all published reports related to life history and habitat (depth, substrate, feeding) for BMUS species of shallow-and deep-water snappers found in American Samoa; none of the data summarized in those reports would support changes to the current EFH levels of information for American Samoa bottomfish. The working group concluded, based on the Magnuson-Stevens Act definition of EFH and its associated description in the FEPs, the proposed action to revise the BMUS list in the American Samoa FEP would have little effect on the designation of EFH required to be specified in the FEPs. The working group noted that while it is possible that bottomfish EFH definitions may need to be slightly revised to better reflect species being added to the BMUS list, there may not be data available to describe the depth distribution of newly added species. Additionally, shallow-water BMUS that would be reclassified as ECS would need to have their EFH designations removed.

Monitoring and Bycatch

The Monitoring and Bycatch component working group met on June 27, 2022, to discuss possible changes related to EFH in consideration of the proposed action to revise the BMUS list in the American Samoa FEP. The main topics of discussion included that the proposed list revisions themselves would require minimal changes in data collection methods for commercial reports but offers an opportunity to refine the creel survey design to allow for alternative management approaches, such as rate-based ACLs using length information (see above). By removing the shallow-water bottomfish species from the BMUS lists, data collection would be able to prioritize data from the boat-based creel surveys because the likelihood of catching a deep-water bottomfish using shore-based gear is very low barring juvenile deep-water species harvested in shallow-water habitats.

The working group concluded that the proposed action to revise the territorial BMUS list in the American Samoa FEP to generally retain deep-water species and reclassify shallow-water species is necessary for the FEP to reflect the current state of the fisheries. Further, the working group determined that the proposed action to revise the territorial BMUS lists would not impact how the fishery is conducted, nor would it be likely to influence fishery bycatch rates since the fishers' target bottomfish species would likely remain the same. The working group noted several improvements that could be implemented to improve the interception rate of bottomfish fishing trips during the catch interview phase of the creel surveys to increase the likelihood of capturing a representative sample of bottomfish catch data to support the potential implementation of rate-based monitoring (see above) in lieu of the currently implemented catch-based monitoring associated with tracking catch against a specified ACL.

The working group also recommended several changes to current data collection methodologies and considerations associated with the proposed action to revise the territorial BMUS list. These recommendations included augmenting the length-based monitoring of catch from bottomfish fishing trips by ensuring the species in the proposed BMUS list are properly identified and measured for length (and weight if possible); encouraging the data collection staff at American Samoa DMWR to collect length information, prioritizing the proposed BMUS list; developing technological solutions to support length-based monitoring, including through the use of mobile devices equipped with image recognition technology to identify and optically measure fish length; and conducting training sessions for data collectors to improve their fish identification for the proposed BMUS list, and develop methodologies to ensure a random selection of subsamples for length measurements.

Fishing Communities

The Fishing Communities component working group met on June 28, 2022 to discuss if the proposed action to revise the BMUS list in the American Samoa FEP would have any pertinence on management provisions related to Pacific Islands fishing communities as defined under the Magnuson-Stevens Act. Through their discussions at the working group meeting as well as the descriptions in its resulting component report, the working group ultimately determined that the proposed action would not be likely to have any notable impacts on Pacific Islands fishing communities, their definitions or description in the FEP, associated data collection efforts, and indigenous fishing community programs such as the CDP or CDPP. There are no other changes necessary regarding fishing communities under the proposed action, though the working group did encourage that the Council account for the change in American Samoa BMUS in its annual SAFE report.

Action Team Contributions

The Council-led Action Team, comprised of members from Council staff, PIFSC, PIRO, and DMWR, contributed to the progress of the proposed action across eight total meetings in early 2023 (i.e., preceding the Council's recommendation for initial action) and from July to December 2024 (i.e., preceding the Council's recommendation for final action. The Action Team facilitated important developments for the proposed action, including the generation of a revised cluster analysis (Ahrens 2024), exploration into the areas around American Samoa that current and proposed BMUS are harvested, investigations into funding implications stemming from the additional or reclassification of MUS in the FEP, the removal of the designation of a Tier 6 ABC control rule from the action to develop as an omnibus FEP amendment, and the recommendation

and development of Alt. 3, with a relatively smaller species list comprised only of species for which sufficient data exist to perform a stock assessment.

Some Action Team members suggested that classifying several of the proposed additional species as MUS under Alt. 2 would not provide management benefit to the stocks, would increase administrative burden on fishery scientists and managers, and increase the likelihood of unnecessary negative effects of management on fishing communities in American Samoa. Accordingly, the Action Team developed Alt. 3, which was not originally included for Council consideration for initial action, presenting a BMUS list of six total species. Justification for this approach is based on factor (iii) of the ten non-exhaustive factors to consider for species that may need federal conservation and management under NS1 (i.e., whether being in the FEP as an MUS could improve or maintain the condition of the stock), as the species proposed for inclusion as MUS under Alt. 3 would only be those with data available in sufficient quantity and quality to support a scientific stock assessment to determine stock status. There were also concerns about some of the proposed MUS additions under Alt. 2 being consistently harvested by the American Samoa bottomfish fishery given their infrequent presence in creel survey data.

Preceding final action at the Council's 202nd meeting in March 2025, the Plan Team deliberated the Action Team's progress at an intersessional meeting on January 23, 2025 (89 FR 106437),

2.1.3 Council and SSC Meetings

The Council and its SSC discussed the proposed action to revise the BMUS list in the American Samoa FEP, including the potential use of ECS designations and addition of new MUS, at the following meetings:

- At the 180th Council meeting in October 2019, the Council received a recommendation from the Guam Advisory Panel (AP) for the Council to request PIFSC to separate the shallow water bottomfish complex from the deep water bottomfish complex. The AP also emphasized a recommendation from the Data 2000 Workshop in 1996 to "investigate methods for separating and analyzing data and information on the shallow and deep bottomfish complexes." In response to the results of the 2019 territorial bottomfish stock assessment and ongoing issues surrounding the territorial bottomfish fisheries, the Council directed staff to develop an options paper for the revision (i.e., regrouping) of the BMUS complexes in the American Samoa Archipelago and Mariana (i.e., Guam and CNMI) Archipelago FEPs, which accounts for the stock throughout its range in the case of the Mariana Archipelago bottomfish fisheries, and to present the options paper at a future Council meeting.
- At the 181st Council meeting in March 2020, regarding the potential action to regroup the territorial BMUS, the Council initially identified a path forward by selecting a management option that would retain the flexibility in the application of the control rules for the BMUS and requested Council staff to work with PIFSC and the territorial resource management agencies to review the BMUS lists and discuss the available options and regulatory consequences of adding and removing species from the lists.
- At the 185th Council meeting in March 2021, the Council recommended the American Samoa DMWR continue the development of its tFMP and work with the community and pertinent agencies to approve and implement the plan. Additionally, the Council recommended NMFS find a viable solution to provide flexibility in the management of data limited stocks, as well as engage the fishing communities in American Samoa to

explain how the data from the territory data collection program is generated, summarized and used in the stock assessment as part of the Data Workshop in 2021 for American Samoa.

- At the 187th Council meeting in September 2021, the American Samoa AP encouraged the DMWR to complete the tFMP to provide sustained participation in the fishery and to provide food for the community. The Council endorsed the recommendation and requested the DMWR to develop conservation and management measures to ensure coordinated management between territorial and federal jurisdictions. Further, the Council requested that the plan include improvements in fishery data collection to enhance fishery science and management in the future.
- At the 188th Council meeting in October 2021, the Council directed staff to work with the American Samoa DMWR to initiate dialogue and information exchange with the Ministry of Agriculture and Fisheries in Samoa on the management and data sharing for local bottomfish fisheries. The goal of this recommendation was to bolster the data limited fishery in American Samoa via improved communication across the archipelago.
- At the 143rd SSC meeting and 190th Council meeting in March 2022, the SSC and Council received a recommendation from the American Samoa AP regarding the options paper to revise territorial BMUS lists in their respective FEPs. The American Samoa AP stated that flexibility is necessary for the fishery and that Option 2, which involved revising the territorial BMUS lists based on the PIFSC cluster analysis and life history synthesis, was the most flexible. At the 143rd SSC meeting, the SSC also recommended Option 2 and supported the refinement of the BMUS in the FEPs by reclassifying shallow-water species as ECS. The SSC also recommended that the species that are reclassified as ECS be included in the tFMPs. The SSC also acknowledged that the change in the composition of the territorial BMUS lists would trigger revisions to various requirements for MUS under the Magnuson-Stevens Act. At its190th meeting, the Council also selected Option 2 to revise the American Samoa and Guam BMUS lists based on the results of the cluster analysis and the life history synthesis, utilize the flexibility of the current FEP control rule, and apply the control rule at the appropriate level for the revised BMUS list depending on available data. Additionally, the Council endorsed the Archipelagic Plan Team working groups to provide information to support the different sections of a potential BMUS revision amendment to the FEPs, which includes status determination criteria, essential fish habitat, ACL and AMs, monitoring and bycatch, and fishing communities. Lastly, the Council directed staff to convene meetings of the Archipelagic Plan Team working groups to report on progress of their respective Magnuson-Stevens Act provisions in preparation for community and stakeholder engagement associated with the proposed action.
- At the 145th SSC meeting and 192nd Council meeting in March 2022, the SSC and Council acknowledged comments from their APs that they look forward to the community and stakeholder engagement anticipated to occur related to the proposed action to revise the territorial BMUS lists in the American Samoa and Mariana Archipelago FEPs. At the 145th SSC meeting, the SSC emphasized the importance of community and stakeholder engagement and the need to follow cultural protocols during local meetings. Council staff indicated they will work with the local social scientists to ensure all cultural protocols are followed during community and stakeholder engagement. At the 192nd Council meeting, the Council directed staff to refine the Archipelagic Plan

working group reports on Magnuson-Stevens Act provisions related with the proposed action and conduct community engagement in Guam, the CNMI, and American Samoa. Additionally, the Council directed staff to work with PIFSC and fishing communities in the Mariana Archipelago to further review the inclusion of *Etelis boweni* and *Pristipomoides argyrogrammicus* within the proposed BMUS lists. *Etelis boweni* is a newly described species in the region and members of the fishing community expressed that they would like more detailed information on catch histories to better understand the stock. *Pristipomoides argyrogrammicus* was noted to be less commonly caught in the BMUS complex despite being described as a possible MUS through the cluster analysis. Similar to *E. boweni*, the community was interested in more information being presented on the *P. argyrogrammicus* catch history.

- At the 193rd Council meeting in December 2022, the Council reviewed the final Magnuson-Stevens Act component reports and directed staff to convene an action team with participation by PIFSC, PIRO, and the territorial resource management agencies (i.e., DMWR, DAWR, and DFW) to begin drafting the FEP amendment for the proposed action to revise the territorial BMUS lists.
- At its 194th meeting in March 2023, the Council received a status update on the progress of the development of the proposed action to revise the territorial BMUS lists in the FEPs. The Council directed staff to incorporate the Archipelagic Plan Team recommendations for the BMUS revisions into a draft FEP amendment to be considered for initial action by the Council at its meeting in June 2023 that would include proposed revisions to Magnuson-Stevens Act management provisions such as EFH, SDC, and ACLs and AMs. The Council recommended that the BMUS revisions begin with the American Samoa FEP before continuing with similar revisions to the BMUS list in the Mariana Archipelago FEP as new stock assessments for the Guam and CNMI BMUS are made available. Relatedly, the Council recommended that PIFSC work with the territorial resource management agencies to implement length-based monitoring protocols and ensure that the species proposed BMUS lists could be identified and measured for length (and weight if possible) during fishery-dependent surveys through training sessions for data collectors. The Council also requested PIFSC to develop technological solutions to support this length-based monitoring (e.g., mobile devices equipped with image recognition technology to identify and optically measure fish-length) and recommended that its Archipelagic Plan Team update the annual SAFE reports consistent with the proposed BMUS list, if approved.
- At the 195th and 148th meeting of the Council and its SSC, respectively, in June 2023, the Council and the SSC received a presentation on the initial action to revise the American Samoa BMUS list in the FEP. The SSC noted the need for the amendment stemming from the Council's lack of jurisdiction over shallow-water species currently included as BMUS. Council discussion primarily focused on the timing of the action relative to other Council actions associated with the American Samoa bottomfish fishery. Both groups identified Alternative 2 to amend the American Samoa FEP to reclassify five current BMUS as ECS and seven current non-MUS as BMUS as its preliminary preferred alternative and directed the Action Team to further prepare the FEP amendment document for final action at a future meeting.
- At the Council meeting in March 2025…

2.2 Description of the Alternatives

The alternatives considered in this document were developed by the Council in collaboration with NMFS and the American Samoa DMWR pursuant to Magnuson-Stevens Act requirements as part of a review of the MUS listed in the American Samoa FEP. The alternatives apply to the current BMUS list in the American Samoa FEP (see Table 1). The alternatives are based on the hierarchical clustering analysis developed by NMFS PIFSC as well as in consideration of the criteria provided in the NS1 Guidelines for classifying ECS, other criteria such as life history characteristics and vulnerability, and further deliberation by the Council at its regular meetings. The summary of the analytical process for reclassifying species from MUS to ECS and from ECS to MUS is described in Section 2.1.

There are three alternatives: Alternative 1 (i.e., the status quo), Alternative 2 (i.e., the preliminary preferred action alternative), and Alternative 3 (i.e., a new alternative not considered during initial action with a relatively reduced species list). Alternative 1 is the No Action alternative that acts as the environmental baseline and does not meet the purpose and need for the proposed action. Alternative 2 would revise the BMUS list in the American Samoa FEP by reclassifying five of the current BMUS as ECS and adding seven new bottomfish ECS to the list as MUS, as further described below. Alternative 3 would revise the BMUS list in the American Samoa FEP by reclassifying six current BMUS as ECS, adding one species not currently in the FEP as an MUS, and adding one species not currently in the FEP as an ECS. A summary of the alternatives is provided in Tables 6 and 7.

2.2.1 Features Common Across Alternatives

Additional Management Components under the Magnuson-Stevens Act

Associated with the proposed action to revise the BMUS list in the American Samoa FEP, there are several proposed changes to the management provisions relevant to the American Samoa bottomfish fishery under the Magnuson-Stevens Act. Section 303 of the Magnuson-Stevens Act lists the required contents of FMPs (i.e., necessary management provisions) that would apply to the species newly listed as BMUS under Alternative 2 but would not apply to the species being reclassified from MUS to ECS. These fishery management components include establishment of SDC, designation of EFH, specification of ACLs and AMs, identification of fishing communities, establishment of standardized bycatch reporting methodology, and specification of pertinent data sources to be submitted to the Secretary, among others.

Under Alternative 2, these provisions would no longer apply to *Aprion virescens*, *Caranx lugubris*, *Lethrinus rubrioperculatus*, *Lutjanus kasmira*, and *Variola louti*, but the seven species reclassified as MUS would need to be managed under these Magnuson-Stevens Act requirements (i.e., ACLs, EFH, etc.). Similarly, under Alternative 3, these provisions would also not apply to the same species under Alt. 2, as well as *Pristipomoides filamentosus*. However, regulations for ECS in the FEPs related to ecosystem-based management, such as permitting, record-keeping, and reporting requirements to monitor ECS catch, could remain in place at the discretion of NMFS and the Council. The combination of permits and reports would allow NMFS to continue to monitor potential fishing impacts to ECS as well as to protect the associated role of ECS and address other ecosystem issues (50 CFR 600.305(c)(5) and (12); 16 U.S.C. § 1853(b)(12)). The proposed changes to these key Magnuson-Stevens Act management components in the American

Samoa FEP under Alternatives 2 and 3 and their expected outcomes are described in detail in subsequent sections of this document below.

Status Determination Criteria

The proposed action to revise the American Samoa BMUS list would not impact provisions of the Magnuson-Stevens Act that require SDC be established for all federally managed stocks and stock complexes. SDC must be specified for all MUS, and under the action alternatives, the American Samoa FEP would maintain the same SDC for newly listed MUS as they exist for the MUS currently managed by the Council through its FEP.

ACLs and AMs

ACLs have been effective management tools for preventing overfishing in many fisheries. Under the proposed action to revise the American Samoa BMUS list using the action alternatives provided in this document, ACLs and AMs must be implemented for newly listed species. If NMFS implements either action alternative, ACLs and AMs must be specified for each newly listed MUS. If information is not available to inform these management provisions for newly listed species, NMFS and the Council may elect to utilize indicator species until such time that the subsequent stock assessment provides sufficient information for the Council to recommend and NMFS to specify appropriate ACLs and AMs. This approach would follow the general ACL mechanism and process described in Amendment 2 to the American Samoa Archipelago FEP and the final implementing regulations at 50 CFR §665.4 (76 FR 37285, June 27, 2011) with the Council's tiered system of control rules to guide the specification of ACLs and AM (WPFMC 2011). The ACL mechanism includes the control rules for setting ABCs and specification of ACLs, including an option for setting ACTs.

Monitoring and Bycatch

Under the action alternatives, the addition of any new MUS would necessitate a greater emphasis on the collection of fishing and biological information for that species within the existing data collection systems (e.g., creel survey catch interviews). The creel survey catch interviews include the measurement of fish length (in millimeters) and weight (in grams). The implementation of this data collection is dependent on several factors: 1) fishers allowing the data collectors access to their catch; 2) managers or surveyors identifying the correct fish to be measured; and 3) the ability of surveyors to randomly select individual fish for measurement. No changes would be required for bycatch monitoring because deep-water BMUS tend to be preferred targets that are kept for both commercial and non-commercial purposes (WPFMC 2025), and this is not anticipated to change.

Essential Fish Habitat

Regarding EFH under the action alternatives, the proposed species on the revised BMUS list would assume the same EFH designation as the current BMUS (see Table 1). This would not prevent the EFH designations for these newly listed species from being refined in the future based on BSIA. A cursory literature review on the information available for the proposed BMUS that could be used to inform a refinement of the EFH designation is provided in Appendix C.

Fishing Communities

The proposed action to revise the territorial BMUS lists would not impact provisions of the Magnuson-Stevens Act related to fishing communities, including the definition of island fishing communities, the descriptions of Pacific Island fishing communities in the FEPs, or indigenous

programs offered to island fishing communities. However, the proposed action would change the MUS that would be covered under programs such as the CDP and CDPP; criteria for eligibility would otherwise remain unchanged for indigenous fishing communities in the territories.

Additionally, the potential action to revise the American Samoa BMUS list is not likely to have any adverse impacts on the social, cultural, or economic aspects of the bottomfish fisheries in American Samoa, would not impact the ongoing initiative to document empirical observations from fishers, and would not impact socioeconomic research and data collection efforts by PIFSC.

Expected Fishery Outcomes

In consideration of the additional Magnuson-Stevens Act management components proposed for implementation alongside the revised BMUS list in the American Samoa FEP under the action alternatives, we expect that the proposed action would be unlikely to result in adverse impacts to the fishery, its operations, or its fishers due to the administrative nature of the action. Indirect impacts from the proposed updates to these provisions are possible if the change to the management components results in a change to how the fishery is managed; for example, if the implementation of a new ACL results in overages for a species that would not have occurred previously, there may be subsequent actions that would impact the fishery (e.g., ACL overage adjustment; fishery closures).

Fishery Management and Administrative Outcomes

The proposed administrative and management changes under Alternatives 2 and 3 have more tangible outcomes than are expected to be observed in the fishery itself. Due to the administrative nature of reclassifying MUS within the Council's FEPs, there are not many quantifiable fishery impacts, but the proposed action could result in shifting management and administrative efficiencies as well as closer adherence with the Magnuson-Stevens Act, implementing regulations, and other applicable statutes. The utilization and implementation of management frameworks focused on species comprising the current state of the subject fishery would allow for more directed management to be applied while supporting the data collection streams necessary to sufficiently monitor them.

2.2.2 Alternative 1: No Action (Status Quo/Current Management)

Under the No Action Alternative, the Council and NMFS would not recommend or implement changes to the existing BMUS list in the American Samoa FEP. Management of the BMUS would continue to include specifications of ACLs and AMs, including for those species comprising the list that are not predominantly caught in federal waters.

Expected Fishery Outcomes

Under Alternative 1, the American Samoa fishery for BMUS would continue to operate as it has in recent years with respect to location, target and non-target species, catch, effort, fisher participation, gear composition, seasonality, intensity, and bycatch, as NMFS would not implement any changes. Similarly, NMFS would continue to manage the BMUS using ACLs and AMs. NMFS and the Council would continue to monitor BMUS catches and work with American Samoa DMWR to collaboratively manage species across federal and territorial waters.

Fishery Management and Administration

The Council and NMFS would continue to manage all BMUS in the American Samoa FEP pursuant to the requirements of the Magnuson-Stevens Act for managing stocks in a federal

fishery. This includes, but is not limited to, specifying MSY, specifying ACLs and AMs, establishing SDC and associated reference points, and designating and refining EFH. The predominant harvest for several species in the current BMUS list would persist in territorial waters. For species not predominantly caught in federal waters, the ACL and AMs specified by NMFS and the Council would continue to require increased scientific and administrative resources due to complications with managing a species throughout its range in areas in which the Council and NMFS have no jurisdiction, likely without observable conservation or management benefit.

Under Alternative 1, NMFS PIFSC would continue to conduct stock assessments for the current 11 BMUS, and the Council would continue recommending ACLs and AMs on an annual or multi-year basis while reporting annual catches in the annual SAFE reports. NMFS and the Council would continue to prioritize these BMUS for additional research within the Magnuson-Stevens Act Five-Year Research Priorities. NMFS, the Council, and the American Samoa DMWR would continue to regularly monitor the catch of all current BMUS.

Also under Alternative 1, there would be no change to the EFH designations for BMUS as they currently exist. Federal agencies would continue to be required to consult with NMFS for any proposed project that may adversely affect EFH in accordance with the Magnuson-Stevens Act. The Council would continue to perform periodic reviews of EFH and HAPC.

2.2.3 Alternative 2: Amend the American Samoa FEP to Reclassify Five Current BMUS as ECS and Seven Current Unlisted Species as BMUS

Under Alternative 2, NMFS and the Council would amend the American Samoa FEP to revise the current BMUS list (see Table 1), reclassifying five of the former BMUS as ECS and seven non-MUS (i.e., a mix of ECS and species currently not listed in the FEP) as new MUS (Table 4). Alternative 2 would expand the current list of 11 BMUS to a new BMUS list of 13 species. The Council recommended the proposed reclassifications in consideration of the hierarchical cluster analyses (Ahrens et al. 2022; Ahrens 2024) and Plan Team deliberations, which included utilizing the ten factors described in 50 CFR 600.305(c)(1) of the NS1 guidelines discussed in Section 2.1.2.

Five species currently listed as MUS in the American Samoa FEP (i.e., *Aprion virescens*, *Caranx lugubris*, *Lethrinus rubrioperculatus*, *Lutjanus kasmira*, and *Variola louti*) would be reclassified as ECS in accordance with the Council's determination that they are not in need of federal conservation and management. Two species not included in the American Samoa FEP would be added as MUS (i.e., *Etelis boweni* and *Pristipomoides argyrogrammicus*). Five species currently listed as ECS would be reclassified as BMUS (i.e., *Paracaesio kuskarii*, *Paracaesio stonei*, *Pristipomoides auricilla*, *Pristipomoides multidens*, and *Pristipomoides seiboldii*). Table 4 provides the proposed BMUS list in the American Samoa FEP under Alternative 2. Table 6 in Section 2.2.4 provides a comparison of the classification of species under each of the alternatives under consideration.

Table 4. Proposed BMUS in the American Samoa FEP under Alternative 2.

Scientific Name	Common Name(s)	Local Name(s)	Family
Aphareus rutilans	Red snapper, silvermouth, lehi	Palu-gutusiliva	Lutjanidae
Etelis boweni	Red snapper, giant ehu	-	Lutjanidae

Scientific Name	Common Name(s)	Local Name(s)	Family
Etelis carbunculus	Red snapper, ehu	Palu-malau	Lutjanidae
Etelis coruscans	Red snapper, onaga	Palu-loa	Lutjanidae
Paracaesio kuskarii	Saddle-back snapper	Palu-tuauli, mu-sina	Lutjanidae
Paracaesio stonei	Cocoa snapper	-	Lutjanidae
Pristipomoides argyrogrammicus	Blue banded gindai, jobfish	Palu-tusimoana	Lutjanidae
Pristipomoides auricilla	Goldflag jobfish	Palu-i`usama, palu-ave	Lutjanidae
Pristipomoides filamentosus	Pink snapper, paka	Palu-ènaèna	Lutjanidae
Pristipomoides flavipinnis	Yelloweye snapper	Palu-sina	Lutjanidae
Pristipomoides multidens	Goldbanded jobfish	Palu-pa`epa`e, palu-sina-ugatele	Lutjanidae
Pristipomoides sieboldii	Pink snapper, kalekale	-	Lutjanidae
Pristipomoides zonatus	Flower snapper, gindai	Palu-ula, palu-sega	Lutjanidae

Expected Fishery Outcomes

Under Alternative 2, we do not expect changes in the conduct of the American Samoa bottomfish fishery. The proposed action to designate some BMUS as ECS and some non-MUS as BMUS is inherently administrative in nature and is not likely to directly impact or change the fishery in terms of location, target and non-target species, catch, effort, fisher participation, gear composition, seasonality, intensity, or bycatch. Further, due to waning participation in the fishery in recent years, it is not likely that implemented ACLs and AMs functionally constrained the fishery for the species proposed to be reclassified as ECS. Thus, we expect the American Samoa bottomfish fishery to continue operating as it has in recent years. The Council and NMFS would continue to monitor catches of ECS in the annual SAFE reports and would continue to work with the American Samoa DMWR to ensure their sustainable management in territorial waters.

Fishery Management and Administrative Outcomes

The provisions of Alternative 2 would facilitate improved management and scientific efficiencies by focusing available resources on stocks that are predominantly caught in federal waters that require conservation and management pursuant to NS1 Guidelines. Under this alternative, NMFS and the Council would continue to manage the MUS listed in the American Samoa FEP in accordance with the Magnuson-Stevens Act, implementing regulations, and the FEP. NMFS would continue to conduct stock assessments for the species lists as MUS, inclusive of species newly classified as MUS under this alternative, and the Council would continue to recommend annual or multi-year ACLs and AMs for these MUS. NMFS and the Council would continue to monitor the fishery performance and ecological conditions relevant to the MUS in the American Samoa FEP through the 2024 annual SAFE report for the American Samoa Archipelago (e.g., WPFMC 2025), and considerations for the MUS under Alternative 2 would be emphasized under Magnuson-Stevens Act Five-Year Research Priorities.

Under Alternative 2, the ability for NMFS and the Council to collect and monitor fishery data for ECS would not be impacted, and through data provided in the annual SAFE reports, NMFS and the Council would be able to continue monitoring the fishery performance of the most caught and highest priority (i.e., as identified by local resource management agencies) ECS in addition to the ecosystems and habitats that sustain them. The regular and continued monitoring of these data streams would inform potential future management actions and options as deemed necessary by NMFS and the Council.

2.2.4 Alternative 3: Amend the American Samoa FEP to Reclassify Six Current BMUS as ECS, One Unlisted Species as BMUS, and One Unlisted Species as ECS

Alternative 3 would result in NMFS and the Council amending the American Samoa FEP to revise the current BMUS list (see Table 1) by reclassifying six of the BMUS as ECS, adding one species to the FEP as a BMUS, and adding one species to the FEP as an ECS (Table 5). Alternative 3 would reduce the current list of 11 BMUS to a new BMUS list of six species. The Council considered the proposed reclassifications in consideration of the hierarchical cluster analyses (Ahrens et al. 2022; Ahrens 2024) and Action Team deliberations, which included utilizing the ten factors described in 50 CFR 600.305(c)(1) of the NS1 guidelines discussed in Section 2.1.2 as well as assessing species for which available data are sufficient for a formal, scientific stock assessment.

Six species currently listed as MUS in the American Samoa FEP (i.e., *Aprion virescens*, *Caranx lugubris*, *Lethrinus rubrioperculatus*, *Lutjanus kasmira*, *Variola louti*, and *Pristipomoides filamentosus*) would be reclassified as ECS in accordance with the Council's determination that they are not in need of federal conservation and management. One species not included in the American Samoa FEP would be added as MUS (i.e., *Etelis boweni*), and another would be added to the FPE as an ECS (i.e., *Pristipomoides argyrogrammicus*). Table 5 provides the proposed BMUS list in the American Samoa FEP under Alternative 2. Table 6 in Section 2.2.4 provides a comparison of the classification of species under each of the alternatives under consideration.

Table 5. Proposed BMUS in the American Samoa FEP under Alternative 3.

Scientific Name	Common Name(s)	Local Name(s)	Family
Aphareus rutilans	Red snapper, silvermouth, lehi	Palu-gutusiliva	Lutjanidae
Etelis boweni	Red snapper, giant ehu	-	Lutjanidae
Etelis carbunculus	Red snapper, ehu	Palu-malau	Lutjanidae
Etelis coruscans	Red snapper, onaga	Palu-loa	Lutjanidae
Pristipomoides flavipinnis	Yelloweye snapper	Palu-sina	Lutjanidae
Pristipomoides zonatus	Flower snapper, gindai	Palu-ula, palu-sega	Lutjanidae

Expected Fishery Outcomes

We expect no changes in the conduct of the American Samoa bottomfish fishery under this alternative. The proposed action to designate some BMUS as ECS and some non-MUS as BMUS and ECS is inherently administrative in nature and is not likely to directly impact or change the fishery in terms of location, target and non-target species, catch, effort, fisher participation, gear composition, seasonality, intensity, or bycatch. Similar to Alternative 2, due to recent reduced effort in the fishery, it is not likely that the NMFS-implemented ACLs and AMs

functionally constrained the fishery for the species proposed to be reclassified as ECS. Thus, NMFS expects the American Samoa bottomfish fishery to continue operating as it has in recent years. We would continue to monitor catches or ECS in the Council's annual SAFE reports and work with the American Samoa DMWR to ensure adequate management of these stocks throughout their range (i.e., inclusive of territorial waters).

Fishery Management and Administrative Outcomes

Implementation of Alternative 3 would greatly enhance management and scientific efficiencies as they pertain to stock assessments and management provisions by focusing available resources on stocks that are predominantly caught in federal waters, require conservation and management pursuant to NS1 Guidelines, and have available data sufficient to conduct formal stock assessments. NMFS and the Council would continue to manage American Samoa BMUS in accordance with the Magnuson-Stevens Act, implementing regulations, and the FEP. NMFS would conduct BMUS stock assessments, and the Council would recommend ACLs and AMs for the six BMUS. Fishery performance monitoring would continue, and the Council and NMFS would also monitor relevant environmental factors potentially relevant to the fishery and its operation through the annual SAFE report for the American Samoa Archipelago (e.g., WPFMC 2025).

Similar to Alternative 2, the ability of NMFS and the Council to collect and monitor fishery data for ECS would not be impacted under Alternative 3. Through data provided in the annual SAFE reports, NMFS and the Council would be able to continue monitoring the fishery performance of the most caught and highest priority (i.e., as identified by local resource management agencies) ECS. The regular and continued monitoring of these data streams would inform potential future management actions and options as deemed necessary by NMFS and the Council.

2.2.5 Summary Comparison of Features of Alternatives Considered

Table 6 provides a comparison of the classification of species under each of the alternatives under consideration. Table 7 provides a comparison of features of the proposed alternatives.

Table 6. Comparison of the classification of species under each alternative.

Species	Alt. 1 (Status Quo)	Alt. 2 (Preferred)	Alt. 3
Aphareus rutilans	MUS	MUS	MUS
Aprion virescens	MUS	ECS	ECS
Caranx lugubris	MUS	ECS	ECS
Etelis boweni	N/A	MUS	MUS
Etelis carbunculus	MUS	MUS	MUS
Etelis coruscans	MUS	MUS	MUS
Lethrinus rubrioperculatus	MUS	ECS	ECS
Lutjanus kasmira	MUS	ECS	ECS
Paracaesio kuskarii	ECS	MUS	ECS
Paracaesio stonei	ECS	MUS	ECS
Pristipomoides argyrogrammicus	N/A	MUS	ECS
Pristipomoides auricilla	ECS	MUS	ECS
Pristipomoides filamentosus	MUS	MUS	ECS

Species	Alt. 1 (Status Quo)	Alt. 2 (Preferred)	Alt. 3
Pristipomoides flavipinnis	MUS	MUS	MUS
Pristipomoides multidens	ECS	MUS	ECS
Pristipomoides seiboldii	ECS	MUS	ECS
Pristipomoides zonatus	MUS	MUS	MUS
Variola louti	MUS	ECS	ECS

Table 7. Comparison of features of the alternatives.

Topic	Alt. 1 - No Action; Retain Current BMUS List in American Samoa FEP (Status Quo)	Alt. 2 - Revise BMUS List in American Samoa FEP to have 13 Species (Preliminary Preferred Alternative)	Alt. 3 - Revise BMUS List in American Samoa FEP to have Six Species
Short topic:	Retain the BMUS list in the American Samoa FEP as it currently exists.	Amend the American Samoa FEP to reclassify five BMUS as ECS and seven non-MUS as BMUS; amend additional Magnuson-Stevens Act management components.	Amend the American Samoa FEP to reclassify six BMUS as ECS, one unlisted species as BMUS; and one unlisted species as ECS; amend additional Magnuson-Stevens Act management components.
Would the FEPs list MUS and ECS?	Yes. The FEP would retain its current lists of MUS and ECS.	Yes. The FEP would continue to list MUS and ECS, but the lists would be revised to be reflective of the proposed reclassifications.	Same as Alt. 2.
Would the reclassified species be subject to new management measures?	N/A (baseline).	Yes. Species classified as ECS would not require federal conservation and management and would not be subject to required provisions under the Magnuson-Stevens Act such as ACLs, AMs, SDC, EFH, etc. Conversely, species reclassified as MUS would be subject to specification of ACLs and AMs, establishment of SDC, designation of EFH, etc., in accordance with applicable guidelines under the Magnuson-Stevens Act.	Same as Alt. 2.
Any species or stock removed from the FEP?	N/A (baseline).	No. Species may be reclassified as ECS from MUS (and vice versa) but would remain in the FEP.	No. Species may be classified as MUS or ECS, but no species would be removed from the FEP.
Any species or stock added to	N/A (baseline).	Yes. Under the proposed action, three of the species to	Yes. Under the proposed action, one species to be

Topic	Alt. 1 - No Action; Retain Current BMUS List in American Samoa FEP (Status Quo)	Alt. 2 - Revise BMUS List in American Samoa FEP to have 13 Species (Preliminary Preferred Alternative)	Alt. 3 - Revise BMUS List in American Samoa FEP to have Six Species
the FEP or moved into a different fishery?		be classified as BMUS were not previously listed in the FEP as an ECS: *Etelis boweni*, *Pristipomoides argyrogrammicus*, and *Paracaesio kuskarii*. The other four species proposed to be added to the BMUS list previously existed as ECS in the FEP.	classified as BMUS was not previously listed in the FEP as an ECS: *Etelis boweni*. Six species currently classified as MUS would be listed as ECS. One species to be listed as an ECS was not previously listed in the FEP.
Fishery Management Changes (Overview)			
Would catches be monitored?	Yes. All MUS are currently subject to monitoring.	Yes. MUS catch would still be monitored, and ECS catch would be subject to monitoring in the annual SAFE report for the American Samoa Archipelago.	Same as Alt. 2.
Would permits be required?	Permits would continue to be required for any fishery that necessitates permits under the American Samoa FEP. However, no permits are necessary to fish for American Samoa BMUS in territorial or federal waters around the archipelago.	No permits would be necessary to fish for American Samoa BMUS in territorial or federal waters around the archipelago. For ECS, the permit requirements would depend on the species or stock, and the species reclassified as ECS under this action would have no associated permit requirements.	Same as Alt. 2.
Would prohibitions such as gear restrictions, area restrictions, and closures still exist?	Yes, for MUS. Requirements for the American Samoa bottomfish fishery may be found in the FEPs, as amended, and under CFR Part 665 Subparts A and B.	Yes, for MUS and ECS that have such requirements now. Requirements for the American Samoa bottomfish fishery may be found in the FEPs, as amended, and under CFR Part 665 Subparts A and B.	Same as Alt. 2.
Would OFL, ABC, ACLs and AMs be required?	Yes, for all current MUS.	Yes, for all MUS, including new inclusions to the American Samoa BMUS list.	Same as Alt. 2.

Topic	Alt. 1 - No Action; Retain Current BMUS List in American Samoa FEP (Status Quo)	Alt. 2 - Revise BMUS List in American Samoa FEP to have 13 Species (Preliminary Preferred Alternative)	Alt. 3 - Revise BMUS List in American Samoa FEP to have Six Species
		ECS would not be required to have an ACL or AM.	
Would specific stock MSY and OY be required?	Yes, for all current MUS.	Yes, for all MUS, including new inclusions to the American Samoa BMUS list. ECS would not be required to have MSY and OY specified.	Same as Alt. 2.
Would specific stock status determination criteria be required? (e.g., MFMT, MSST)	Yes, for all MUS where available information allow establishment of SDC. Where data are not sufficient, NMFS and the Council would continue to rely on other means of evaluating stock status (e.g., indicators).	Yes, for all MUS, including new inclusions to the American Samoa BMUS list. Further, this alternative would include the option to apply rate-based SDC to these species. These criteria would not be required for ECS.	Same as Alt. 2.
Would fisheries description be required in the FEP?	Yes. Fisheries descriptions would be retained for all current MUS in the American Samoa FEP.	Yes, a slightly revised fishery description would be required for the American Samoa bottomfish fishery in the American Samoa FEP.	Same as Alt. 2.
Would there be EFH designations?	Yes. EFH designations would be retained for all current MUS in the American Samoa FEP.	Yes. EFH designations would be retained for current MUS not being reclassified to ECS in the American Samoa FEP. Those MUS reclassified to ECS would have their EFH designations removed. Additionally, EFH designations would be implemented for all newly listed MUS in the American Samoa FEP (i.e., those species reclassified from non-MUS to BMUS). EFH would not be designated for any ECS. See Section 3.2.4 and 4.2.4 for more information.	Same as Alt. 2.
Are EFH consultations required?	Yes, EFH is currently designated for all BMUS in	EFH would continue to be designated for all MUS and federal agencies would be	Same as Alt. 2.

Topic	Alt. 1 - No Action; Retain Current BMUS List in American Samoa FEP (Status Quo)	Alt. 2 - Revise BMUS List in American Samoa FEP to have 13 Species (Preliminary Preferred Alternative)	Alt. 3 - Revise BMUS List in American Samoa FEP to have Six Species
	American Samoa. Federal agencies must consult with NMFS if proposed actions are expected to adversely affect this EFH.	required to consult with NMFS if a proposed action is expected to adversely affect EFH. The EFH designations for species reclassified as ECS would no longer apply, but the consultation requirement continue to apply over the same area because the EFH footprint will remain the same.	

2.3 Alternatives Considered, but Rejected from Further Analysis

A possible alternative considered by the Plan Team but rejected from further analysis and not presented to the Council was a species list inclusive of several species do not present on the proposed BMUS lists. *Aprion virescens*, *Variola louti*, and *Caranx lugubris* were considered for inclusion because these species comprise the current list in the FEP and span both shallow and deep water (i.e., generally, territorial and federal waters, respectively). However, the Plan Team ultimately decided to focus on deep-water snappers with similar life histories that are predominantly caught in federal waters as the basis for the proposed BMUS lists in the American Samoa FEP, whereas *A. virescens*, *V. louti*, and *C. lugubris* either span both shallow and deep waters or are considered to inhabit intermediate depths (see Section 2.1.2).

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 as resources eliminated from detailed analysis. NMFS and the Council derive the information regarding recent descriptions of resources, performance of the bottomfish fishery in American Samoa, information on protected species interactions in the fishery, indications of climate change and related oceanic conditions, description of EFH, and additional contextual information from the 2024 annual SAFE report for the American Samoa Archipelago (WPFMC 2025), the American Samoa FEP (WPFMC 2009, as amended), the NMFS Stock SMART webpage (summaries of the NMFS approved stock assessment reports), and other available information cited below.

3.1 Physical Resources

The American Samoa FEP describes the physical environment of the Pacific Ocean, inclusive of a range of habitats such as sandy coastal areas, coral reefs, seagrass beds, lagoons, open ocean waters, and the features of those habitats such as water circulation, temperature, and salinity. 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 (WPFMC 2009).

3.2 Biological Resources

3.2.1 Affected Target Species and Non-Target Species

The bottomfish fishery in American Samoa primarily targets and harvests a complex of 11 species comprised of emperors, snappers, groupers, and jacks managed under the FEP (Table 1). Recent catch for these species are provided in Table 8. Additional catch statistics are available in the 2024 annual SAFE report (WPFMC 2025) alongside a detailed summaries of the environment affected by the proposed action. For a comprehensive discussion of the biology, life history, factors that affect distribution and abundance of BMUS, and other information, see the FEP (WPFMC 2009) or search the NMFS species directory for a summary of species-specific information.

Table 8. Total estimated catch (lb) of American Samoa BMUS from 2012 to 2021.

Year	*A. rutilans*	*A. virescens*	*C. lugubris*	*E. coruscans*	*L. rubrioperculatus*	*L. kasmira*	*P. flavipinnis*	*P. zonatus*	*V. louti*
2012	1,171	1,021	562	1,129	2,500	1,168	631	71	172
2013	2,950	4,145	970	2,800	4,877	3,635	606	161	761
2014	3,596	4,839	604	5,088	2,341	3,982	644	280	646
2015	4,068	5,628	1,246	4,239	6,773	4,076	1,221	243	353
2016	3,148	6,598	1,676	6,748	1,929	1,243	1,323	571	139
2017	3,450	4,213	1,488	3,338	1,360	798	205	540	121
2018	1,989	2,086	1,396	3,351	888	520	355	280	143
2019	2,743	2,756	1,272	1,376	1,790	754	254	159	410
2020	527	2,932	745	1,396	959	582	165	110	247
2021	75	271	82	344	421	377	24	13	31
3-yr avg.	**1,115**	**1,986**	**700**	**1,038**	**1,057**	**571**	**148**	**94**	**229**
10-yr avg.	**2,372**	**3,449**	**1,004**	**2,981**	**2,384**	**1,714**	**543**	**243**	**302**

Source: Nadon et al. (2023).

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; however, there has been no bycatch recorded in American Samoa boat-based creel surveys since 1992 except for one non-BMUS in 2003 (WPFMC 2025).

BMUS Status in American Samoa Bottomfish Fishery

NMFS determines the stock status of MUS using the 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 American Samoa bottomfish fishery for BMUS is overfished or experiencing overfishing (Nadon et al. 2023). Additional information on stock

status along with overfishing and overfished definitions as well as associated reference points are provided in section 1.5 of this document.

For summary information on individual stock assessment results, as reported to the NOAA Fisheries Office of Science and Technology through the SIS, see the Stock SMART webpage and browse by stock. This information is based on BSIA 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.

3.2.2 Protected Species

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 (WPRFMC 2009) and online on the NMFS species directory website.

Bottomfish fisheries in American Samoa have not had reported interactions with protected 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.

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 ensure 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 9. 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, Northern right whale	Not likely to adversely affect
NMFS 2015	Scalloped hammerhead sharks and five coral species with no common name (*Acropora globiceps, A. retusa, A. speciosa, Euphyllia paradivisa, Isopora crateriformis)*	Not likely to adversely affect
NMFS 2022a	Giant manta ray, Chambered nautilus, Oceanic Whitetip shark	Not likely to adversely affect

Note: See Appendix A of the NMFS 2022 biological opinion on the bottomfish fishery of American Samoa (NMFS 2022a) for the consultation history by ESA-listed species that occur in the area of operation for the fishery.

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

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 10 lists the sea turtle species reasonably likely to occur around American Samoa. On July 19, 2023, the USFWS proposed to designated critical habitat for six distinct population segments (DPSs) of the green sea turtle, including critical habitat area which occurs in American Samoa (88 FR 46376). However, the proposed critical habitat is terrestrial and does not overlap with the areas of operation for the bottomfish fishery, including shore-based fishing activities.

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 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 10. 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; WPRFMC 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 rare. As Table 10 indicates, no records exist of interactions between the American Samoa bottomfish fishery and sea turtles.

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 m (1,640 ft) deep.

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. In other parts of the Pacific, 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 2019).

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 2019). On August 8, 2022, NMFS determined that the continued operation of the bottomfish fishery in American Samoa is not likely to adversely affect the oceanic whitetip shark (NMFS 2022a). Finally, on May 14, 2024, NMFS published a proposed rule to apply the prohibitions listed under ESA section 9(a)(1)(A) through (G). This proposed rule would prohibit the take of oceanic whitetip shark within the United States, territorial seas of the United States or on the high seas by any person subject to the jurisdiction of the United Staes; import and export

of oceanic whitetip shark; as well as the possession, sale and transport of oceanic whitetip shark that are taken illegally or that are entered into interstate or foreign commerce.

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. On August 8, 2022, NMFS determined that the continued operation of the bottomfish fishery in American Samoa is not likely to adversely affect the giant manta ray (NMFS 2022a).

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 adversely affect the chambered nautilus (NMFS 2022a).

Corals

On November 29, 2023, NMFS proposed to designate critical habitat for five Indo-Pacific corals listed as threatened under the ESA within U.S. waters around Guam, CNMI, PRIA, and American Samoa (88 FR 83644). All five species are located in waters around American Samoa

including *Acropora globiceps, A. retusa, A. speciosa, Euphyllia paradivisa,* and *Isopora crateriformis*. Proposed coral designated critical habitat consists of the essential feature of substrate and water column habitat characteristics essential for the reproduction, recruitment, growth, and maturation of the listed corals.

Proposed critical habitat consists of 17 separate units, each of which contains between one and five ESA-listed corals that occur there. There are four units in American Samoa (Tutuila, Ofu-Olosega, Ta‘u, and Rose Atoll) extending 1-6 nm from shore. In a Biological Evaluation dated March 13, 2015, NMFS determined that the fisheries of American Samoa may affect, but are not likely to adversely affect the listed coral species. No critical habitat was designated at this time, but it was determined that 97 percent of potential habitat for the ESA-listed corals in American Samoa was within Territorial waters (0-3 nm). Bottomfish fishing is not known to adversely affect habitat. Similar methods are used to fish for bottomfish in American Samoa and Hawai‘i, and studies of bottomfish habitat in Hawai‘i have not found adverse impacts to habitat from bottomfish fishing activities (Kelley and Moffit 2004; Kelley and Ikehara 2006). Furthermore, there is a small area of overlap between the bottomfish fishery and potential coral habitat, based on the depth range of coral habitat and the preferred fishing depths and locations of the fishery.

NMFS has not yet made a final determination on the listing. If the proposal were finalized, NMFS would re-initiate consultation under Section 7 of the ESA to determine the impact of fishing activities on critical habitat and evaluate the need for any new management measures.

Giant Clams

NMFS is currently conducting a status review of seven species of giant clam to determine if these species warrant listing under the ESA. Four of these species have historical ranges that overlap with American Samoa, including *Hippopus hippopus*, *Tridacna derasa*, *T. gigas*, and *T. squamosa*. However, *T. squamosa* is the only species which currently occurs naturally in American Samoa waters. Similar to corals, bottomfish fishing likely has limited overlap with giant clam depth range and would be unlikely to affect the species or their habitat. If NMFS lists giant clam species as threatened or endangered, we would initiate consultation under Section 7 of the ESA to determine the impact of fishing activities on listed species and evaluate the need for any new management measures.

Species Protected under the Marine Mammal Protection Act

All species of marine mammals are protected under the MMPA. In addition to the five ESA listed marine mammals, there are several other marine mammal species that occur in waters around American Samoa (Table 11). 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 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. Territorial regulations also prohibit the take, possession, and sale any marine mammal (ASCA § 24.0960).

Table 11. 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.
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.

Common Name	Scientific Name	Interactions with the Fishery
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 ESA.

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 (LOF) 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 proposed 2025 LOF (89 FR 77789, September 24, 2024), the American Samoa bottomfish fishery is a Category III fishery. A Category III fishery is one with a low likelihood or no known incidental takings of marine mammals. 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. No interactions have been observed or reported between these species and the American Samoa bottomfish fishery.

Species Protected under the 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.

Table 12 lists seabird species that are considered residents of American Samoa. Of the presented species, only the Newell's shearwater is listed as threatened under the ESA.

Table 12. Seabirds occurring in American Samoa.

Samoan name	English name	Scientific name
Residents (i.e., breeding)		

Samoan name	English name	Scientific name
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*
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).

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).

3.2.3 Essential Fish Habitat and Habitat Areas of Particular Concern

As described in section 1.5.2 of this document, the Magnuson-Stevens Act defines 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 actions may adversely affect EFH must consult with NMFS in order to conserve and enhance federal fisheries habitat. 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.

Table 13 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.

Table 13. EFH and HAPC for American Samoa BMUS.

BMUS	EFH	HAPC
Lehi (*A. rutilans*), asoama (*A. virescens*), black trevally (*C. lugubris*), ehu (*E. carbunculus*), onaga (*E. coruscans*), redgill emperor *(L. rubrioperculatus)*, blueline snapper (*L. kasmira*), opakapaka (*P. filamentosus*), yelloweye snapper (*P. flavipinnis*), gindai (*P. zonatus*), lyretail grouper *(V. 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 ESA consultations for American Samoa (Table 9), the current bottomfish fishery does not have an adverse effect on listed corals in

American Samoa. The findings were based on the fishery being 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). This fishery is not known to adversely affect habitat. Similar methods are used to fish for bottomfish in American Samoa and Hawai‘i, and studies of bottomfish habitat in Hawai‘i 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.

There have been no EFH reviews completed by the Council in recent years. The non-fishing and cumulative impact components of EFH were reviewed in 2016 through 2017 for the region, which can be found in Minton (2017).

3.2.4 Marine 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.

3.3 Socio-economic Setting

The socioeconomic setting for the American Samoa bottomfish fishery is described below. A more detailed description of the fishery and the latest socioeconomic 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 proposed 2025 LOF estimated 87 participants in the American Samoa bottomfish fishery (89 FR 77789, September 24, 2024). Fishing for bottomfish primarily occurs using aluminum *‘alia* catamarans less than 32 ft 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).

“Cultural fishing” is a relatively new term and is not readily defined (Kleiber and Leong 2018). As with other studies of culture, cultural fishing is context dependent; definitions from other areas may not be suitable for American Samoa. American Samoa culture is often framed in terms of *fa'a Samoa*, or the “Samoan Way”, which govern local social norms and practices. This includes core values and practices such as *tautua*, or “service”, which involves the broad collective sharing of labor, resources, income, and social and political support to strengthen the *aiga* (family groups), the village, and the role of chiefs in perpetuating *fa'a Samoa*. In a fisheries

context, this may mean the distribution of catch within the *aiga*, or the use of fish as specific ceremonial events. 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, and 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).

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations," requires consideration of how federal projects may result in disproportionately high and adverse human health or environmental effects on minority and low-income populations. According to the U.S. Census, 50.7 percent of families had incomes below the poverty level in American Samoa in 2019. Higher levels of poverty are associated with a community's poorer access to resources that can be used to adapt to changing conditions in social, economic, or ecological systems (Kleiber et al. 2018). Given the social and cultural importance of fishing to American Samoa, NMFS considers current conditions in the community and evaluates potential impacts of the proposed management action through the perspective of environmental justice and disproportionate environmental impacts.

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 (WPRFMC 2021). In 2023, PIFSC published a report on the economic and social characteristics of the American Samoa small boat fishery (Dombrow and Hospital 2023) that surveyed 33 small boat fishers from Tutuila and the Manu'a islands. Based on the results, 90 percent of the respondents said they sold a portion of their catch and reported that on average 39 percent of their personal income came from selling their catch at a median value of $751 of fish in 2020. Thirty-eight percent of respondents who sold fish reported that most of their catch was sold to friends, neighbors, and coworkers, followed by roadside or farmers' markets, and restaurants and stores. The values differed between Tutuila and the Manu'a Islands as noted in Table 14. Of the bottomfish respondents, they reported that 48 percent of their catch was sold, 30 percent was for subsistence, 20 percent was given away and 2 percent was released.

Table 14. Response of percent of fish sold in different market channels in Tutuila and the Manu'a Islands.

Island Group	Fagatogo Market Place	Restaurants and Stores	Roadside/ Farmers' Market	Friends/ Neighbors/ Coworkers	Other
Tutuila	5.6	27.8	36.1	27.8	2.8
Manu'a Islands	0	8.3	8.3	66.7	16.7

Source: Dombrow and Hospital (2023).

3.4 Management Setting

The Council manages fisheries in Federal waters in accordance with the FEPs. NMFS PIRO is responsible for implementing fishery regulations that implement the FEPs. NMFS PIFSC conducts research and reviews fishery data provided through logbooks and fishery monitoring systems administered by territorial resource management agencies, such as DMWR. The

Council, PIRO, and 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 and enters into Joint Enforcement Agreements with the 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.

Federal regulations at 50 CFR 600.305(c)(7) (81 FR 71858, October 18, 2016) strongly recommend the Council to periodically review the FEP and the BSIA to determine if stock listed therein are appropriately identified, and, as appropriate, stocks should be reclassified within the FEP, added to or removed from the FEP, or added to a new FMP or FEP, through an FEP amendment that documents the rationale for the decision. The species list in the FEP has not been evaluated since Amendment 4 to the American Samoa FEP that reclassified certain MUS as ECS (84 FR 2767, February 8, 2019), and that list continues to be the basis for management by NMFS and the Council in coordination with the American Samoa DMWR.

For information regarding (1) data collection, see section 1.5.3 of this document or section 1.2 of the FEP; (2) specification of ACLs and AMs, see section 1.3 of Amendment 2 to the FEP; and (3) designation of EFH, see section 1.6 of the FEP.

3.5 Resources Eliminated from Detailed Study

NMFS does not expect the proposed action to revise the American Samoa BMUS list in the FEP to have an effect on objects or places listed in the National Register of Historical Places. 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 because bottomfish fishers tend to avoid fishing in, anchoring on, and anchoring near known shipwrecks to avoid losing gear. NMFS does not expect the proposed action to result in changes to the areas in which the fishery operates. Historical and archaeological resources will not be discussed further.

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. While fishing may occur in areas of potential scientific 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, none of the action alternatives are expected affect resources of scientific, historic, or archaeological importance. These resources will not be discussed further.

Bottomfish fishing is not known to be a potential vector for spreading alien species, as none of the vessels comprising the American Samoa bottomfish fishery fish outside of their respective archipelagic waters. The vessels are also small boats that do not use ballast water, so that would not be a potential mechanism for spreading invasive species. Because fishing operations would not substantively change under any of the proposed alternatives, the proposed action would not have the potential to introduce species into or within the waters of American Samoa. Invasive species will not be discussed further.

While precious coral species may occur the waters around American Samoa, there are no known precious coral beds (WPFMC 2009). No precious corals are listed under the ESA. 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., prohibition on the use of trawls, poisons, explosives, and other destructive fishing methods) that are not subject to change due to the proposed action. Precious corals will not be discussed further.

4 POTENTIAL EFFECTS OF THE ALTERNATIVES

This section describes the potential effects of each alternative on the components of the affected environment identified in Section 3 above.

The proposed action to designate some BMUS as ECS and some non-MUS as BMUS is inherently administrative in nature and is not likely to directly impact the following topics considered in this document: Marine protected areas; vulnerable marine or coastal ecosystems; scientific, historic, archaeological, or cultural resources; biodiversity and ecosystem function; highly uncertain effects unique or unknown risks; environmental justice; fishery operations; public health and safety at sea; potential for controversy; and climate change. Information regarding these topics and how they interact with the American Samoa bottomfish fishery are further detailed in the American Samoa FEP and 2024 annual SAFE report (WPFMC 2009 and WPFMC 2025).

The topics that are anticipated to experience some level of impact are further described within each alternative, as they relate to the MSA components: SDC; ACL/AMS and 50 CFR 600.310(h)(2); EFH; Monitoring and Bycatch; and Fishing Communities.

4.1 Alternative 1 (No Action/Status Quo)

Under the No Action Alternative, the Council and NMFS would not recommend or implement changes to the existing BMUS list in the American Samoa FEP. Management of the BMUS would continue to include annual specifications of ACLs and AMs, including for those species comprising the list that are not predominantly caught in federal waters and are not overfished or subject to overfishing.

4.1.1 Potential Effects of Alternative 1 on Target and Non-Target Species

Alternative 1 maintains the current BMUS in American Samoa and therefore is likely to result in impacts to target and non-target species that are similar to what the fishery has been experiencing in recent years. Regarding the current MUS, SDC, and ACL/AMs in the American Samoa FEP consistent with regulations at 50 CFR 600.310(h)(2), impacts to target and non-target species are anticipated to range from slight negative to no impact, when compared to current fishery

operations because the MUS list would remain as it is currently and no other changes would be made, and thus the fishery would continue normal operations. However, retaining the current MUS could lead to BMUS management issues in the future associated with managing shallow water species predominantly caught in territorial waters. For SDC and ACL/AMs in the American Samoa FEP consistent with regulations at 50 CFR 600.310(h)(2), status quo operations are likely not adequate for the data limited fishery. For EFH, there is no anticipated impact to target and non-target species given EFH is already defined for the current MUS to the extent practicable. For monitoring and bycatch, the current monitoring system is inadequate and has led to a data limited BMUS stock complex. This monitoring would remain in place for the current BMUS and its deficiencies would continue to impose slight negative impacts on the assessment and management of American Samoa bottomfish. For the fishing communities, there is no anticipated impact to target and non-target species compared to baseline fishery operations given the administrative nature of this action and that Alternative 1 does not implement changes from the way the fishery is currently operating.

4.1.2 Potential Effects of Alternative 1 on Bycatch

Under Alternative 1, the American Samoa BMUS list would not change and would continue to have limited interactions with bycatch given the fishery remains highly target specific. Additionally, the administrative nature of this action and minimal interactions with bycatch through this fishery, is likely to result in no impact to any of the MSA components.

4.1.3 Potential Effects of Alternative 1 on Protected Species

Under Alternative 1, the American Samoa BMUS list would not change and would continue to have limited interactions with ESA or MMPA-listed species. Protected species that may interact with the fisheries include sea turtles, listed marine mammals, listed sharks, listed corals, listed seabirds; however, these interactions rarely occur. The latest status information of the protected species that may be affected by fisheries can be found in the annual SAFE reports (WPFMC 2009 and WPFMC 2023). Ultimately, there is no anticipated impact to protected species given the administrative nature of this action and that interactions are already rare.

NMFS monitors the effects of the fishery on non-ESA listed marine mammals through comparison of the average level of interactions which result in mortality and serious injury to a stock's potential biological removal (PBR). For most marine mammal stocks where the PBR is available, the number of observed takes of marine mammal species in the bottomfish fishery inside the U.S. EEZ around American Samoa is well below the PBR in the time period covered by the most current stock assessment report.

4.1.4 Potential Effects of Alternative 1 on the Physical Environment and EFH

Under Alternative 1, the American Samoa BMUS list would not change and would continue to have limited interactions with the physical environment and EFH. The latest descriptions of the physical environment and EFH, including HAPCs, that may be affected by the fisheries can be found in the annual SAFE reports (WPFMC 2025). Moreover, there is no anticipated impact given the administrative nature of this action and that the current EFH designations would not change.

4.1.5 Potential Effects of Alternative 1 on the Human Communities

Under the MSA, socio-economic considerations of proposed FEP amendments and fishery management actions should consider effects on fishing communities, other resource or area

users, markets, earnings, disproportionately high and adverse health or environmental effects on members of minority or low-income populations, and health and safety.

Each of the islands in American Samoa are considered fishing communities and fishery participants include commercial, non-commercial and recreational (e.g., visitors). Given the fishing activities for all participants would remain the same as under the current management structure, no impact on the human communities is anticipated under Alternative 1.

4.2 Alternative 2 (Preliminary Preferred Alternative)

Under Alternative 2, NMFS and the Council would amend the American Samoa FEP to revise the current BMUS list (see Table 1), reclassifying five of the former BMUS as ECS and seven non-MUS (i.e., a mix of ECS and species currently not listed in the FEP) as new MUS. Alternative 2 would expand the current list of 11 BMUS to a new BMUS list of 13 species. The species reclassified as ECS would be identified as not in need of conservation and management based on the NS1 Guidelines. Similarly, those species added to the BMUS list would be identified as in need of conservation and management. The Council recommended the proposed reclassifications in consideration of the hierarchical cluster analyses (Ahrens et al. 2022; Ahrens 2024) and Plan Team deliberations, which included utilizing the ten factors described in 50 CFR 600.305(c)(1) of the NS1 guidelines as discussed in Section 2.1.2. Table 3 provides the proposed BMUS list in the American Samoa FEP under Alternative 2.

4.2.1 Potential Effects of Alternative 2 on Target and Non-Target Species

Alternative 2 revises the BMUS in the American Samoa FEP. Given the administrative nature of the proposed action, the likely impacts to target and non-target species would be relatively similar to what the fishery has been experiencing in recent years. Regarding the revised MUS, impacts to target and non-target species are anticipated to range from no impact to slight positive. The BMUS list would be changed to be more reflective of the current state of the fishery, focusing on deep-water species predominantly caught in federal waters; this would facilitate more effective and administratively efficient management efforts for BMUS going forward. For SDC and ACL/AMs in the American Samoa FEP consistent with regulations at 50 CFR 600.310(h)(2), the proposed change would likely have no impact on target and non-target species. For EFH, there is no anticipated impact to target and non-target species given EFH is already defined for the current MUS and closely related to the extent practicable. For monitoring and bycatch, the current monitoring system is inadequate and has led to a data limited BMUS stock complex. This monitoring would remain in place for the revised BMUS and its deficiencies would continue to impose slight negative impacts on the assessment and management of American Samoa bottomfish. However, a more focused effort to collect data solely on deep-water bottomfish may have improved outcomes with respect to available information for the fishery. For the fishing communities, there is no anticipated impact to target and non-target species compared to baseline fishery operations given the administrative nature of this action and that Alternative 2 does not implement changes from the way the fishery is currently operating.

4.2.2 Potential Effects of Alternative 2 on Bycatch

Under Alternative 2, the American Samoa BMUS list would change but would have negligible impacts on fishing operations. Thus, we expect that the fishery would continue to have limited bycatch, as bottomfish fishing methods remain highly target specific. Additionally, the

administrative nature of this action and minimal interactions with bycatch from this fishery over the past several decades indicate that there is likely no impact to any of the MSA components.

4.2.3 Potential Effects of Alternative 2 on Protected Species

Under Alternative 2, the American Samoa BMUS list would change, but we expect that the fishery to have limited interactions with ESA or MMPA-listed species. Protected species that may interact with the fishery include sea turtles, listed marine mammals, listed sharks, listed corals, listed seabirds; however, these interactions rarely occur. The latest status information of the protected species that may be affected by fisheries can be found in the annual SAFE reports (WPFMC 2009 and WPFMC 2025). NMFS anticipates no impact to protected species given the administrative nature of this action and that interactions are already rare. As described for Alternative 1, the number of observed takes of marine mammals by the American Samoa bottomfish fishery inside the U.S. EEZ around American Samoa is below the PBR in the period covered by the most recent stock assessment.

4.2.4 Potential Effects of Alternative 2 on the Physical Environment and EFH

Under Alternative 2, the American Samoa BMUS list would change, but fishing methods would remain consistent, and the fishery would continue to have limited interactions with the physical environment and EFH. The latest descriptions of the physical environment and EFH, including HAPCs, that may be affected by the fisheries can be found in the annual SAFE reports (WPFMC 2009 and WPFMC 2024). Moreover, there is no anticipated impact to the physical environment given the administrative nature of this action. There is negligible impact to EFH by reclassifying MUS as ECS because the EFH footprint of these species overlaps with EFH for species that would remain a part of the BMUS list; this habitat would therefore remain protected. For species being added as MUS in the American Samoa FEP, there is a slight positive impact because we NMFS would develop new EFH designations for species that did not have any existing previously.

4.2.5 Potential Effects of Alternative 2 on the Human Communities

Given that fishing activities for all participants would be relatively consistent with operations under the current management structure, NMFS anticipates no impact on the human communities under Alternative 3.

4.3 Alternative 3

Under Alternative 3, NMFS and the Council would amend the American Samoa FEP to revise the current BMUS list (see Table 1), reclassifying six of the former BMUS as ECS, one unlisted species as BMUS, and one unlisted species as ECS. Alternative 3 would reduce the current list of 11 BMUS to a new BMUS list of six species. The species reclassified as ECS would be identified as not in need of conservation and management based on the NS1 Guidelines. Similarly, those species added to the BMUS list would be identified as in need of conservation and management. The Council considers the proposed reclassifications based on recommendations from the Action Team and its Plan Team, which considered the hierarchical cluster analyses (Ahrens et al. 2022; Ahrens 2024. With respect to utilizing the ten factors described in 50 CFR 600.305(c)(1) of the NS1 guidelines, as discussed in Section 2.1.2, this alternative would prioritize factor (iii), which pertains to whether listing a species in an FMP could improve the status of the stock. Thus, the action team developed Alternative 3 based on

species with data sufficient for a formal, species specific stock assessment to determine stock status. Table 3 provides the proposed BMUS list under Alternative 3.

4.3.1 Potential Effects of Alternative 3 on Target and Non-Target Species

Alternative 3 revises the BMUS in the American Samoa FEP. Similar to Alternative 2, given the administrative nature of the proposed action, the likely impacts to target and non-target species would be relatively similar to what the fishery has been experiencing in recent years. Regarding the revised MUS, impacts to target and non-target species are anticipated to range from no impact to slight positive. The BMUS list would be changed to be focus on species for which adequate data are available to inform stock status and subsequent management. Additionally, this list removes shallow- and intermediate-depth species, focusing on deep-water species predominantly caught in federal waters. This would facilitate more effective and administratively efficient management efforts for BMUS going forward. For SDC, ACL/AMs, EFH, monitoring and bycatch, and fishing communities for the target and non-target species, NMFS anticipates impacts consistent with Alternative 2.

4.3.2 Potential Effects of Alternative 3 on Bycatch

Under Alternative 3, the American Samoa BMUS list would change but would have negligible impacts on fishing operations given the administrative nature of the proposed action. Thus, NMFS expects that the fishery would continue to be highly target specific and have limited bycatch. Additionally, similar to Alternative 2, there would likely be no impact to any of the MSA components.

4.3.3 Potential Effects of Alternative 3 on Protected Species

Under Alternative 3, the American Samoa BMUS list would change, but we expect that the fishery to have limited interactions with ESA or MMPA-listed species, similar to Alternative 2. Interactions with sea turtles, listed marine mammals, listed sharks, listed corals, listed seabirds would remain rare. The latest status information on the protected species that may be affected by this fishery can be found in the annual SAFE reports (WPFMC 2009 and WPFMC 2025). NMFS anticipates no impact to protected species given the administrative nature of this action and that interactions are already rare. As described for Alternatives 1 and 2, the number of observed takes of marine mammals by the American Samoa bottomfish fishery inside the U.S. EEZ around American Samoa is below the PBR in the period covered by the most recent stock assessment.

4.3.4 Potential Effects of Alternative 3 on the Physical Environment and EFH

Under Alternative 3, the American Samoa BMUS list would change, but fishing methods would remain consistent, and the fishery would continue to have limited interactions with the physical environment and EFH; again, this is comparable to anticipated impacts under Alternative 2. The latest descriptions of the physical environment and EFH, including HAPCs, that may be affected by the fisheries can be found in the annual SAFE reports (WPFMC 2009 and WPFMC 2025). The administrative nature of this action would likely result in no adverse impacts on the physical environment. There would be a negligible impact on EFH by reclassifying MUS as ECS because the EFH footprint of these species overlaps with EFH for species that would remain a part of the BMUS list; this habitat would therefore remain protected. For species being added as MUS in the American Samoa FEP, there is a slight positive impact because NMFS would develop new EFH designations for species that did not have any existing previously.

4.3.5 Potential Effects of Alternative 3 on the Human Communities

NMFS anticipates no impact on the human communities under Alternative 3 under the assumption that fishing activities for all participants would be relatively consistent with current fishery operations and related management.

5 REFERENCES

Ahrens R, Nadon M, Bohaboy E, Carvalho F, O'Malley J, Jones TT. 2022. Hierarchical cluster analyses of the American Samoa and Guam boat-based creel data. Pacific Islands Fisheries Science Center, PIFSC Internal Report, IR-22-001, 20 p.

Allen GR. 1985. FAO species catalogue. Snappers of the world. An annotated and illustrated catalogue of lutjanid species known to date. FAO, Rome, Italy.

American Samoa Code Annotated. Title 24 – Ecosystem Protection and Development, Chapter 03 – Office of Marine and Wildlife Resources and Chapter 09 – Fishing. Retrieved 30 September 2022 from the American Samoa Bar Association at https://asbar.org/regulation/24-0905-dealers -records/.

Anderson WD Jr., Allen GR. 2001. Lutjanidae. Jobfishes. p. 2840-2918. In: KE Carpenter, V Niem (eds.) FAO species identification guide for fishery purposes. The living marine resources of the Western Central Pacific. Vol. 5. Bony fishes part 3 (Menidae to Pomacentridae). FAO, Rome.

Caldeira, K. and M.E. Wickett. 2005. Ocean model predictions of chemistry changes from carbon dioxide emissions to the atmosphere and ocean. Journal of Geophysical Research, 110 (C09S04).

Carpenter KE, Niem VH. 2001. FAO Species Identification Guide for Fishery Purposes. The Living Marine Resources of the Western Central Pacific Volume 5: Bony Fishes Part 3 (Menidae to Pomacentridae). FAO, Rome, 2791-3380.

Chan HL, Pan M. 2019. Tracking economic performance indicators for small boat fisheries in American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands. U.S. Dept. of Commerce, NOAA Technical Memorandum NOAA-TM-NMFS-PIFSC-79, 76 p. https://doi.org/10.25923/8etp-x479.

Dombrow C, Hospital J. 2023. Economic and social characteristics of the American Samoa small boat fishery 2021. PIFSC Administrative Report, H-23-05, 92 p. doi:10.25923/hqca-xs29.

Doney, S.C., 2006. The dangers of ocean acidification. Scientific American, 294 (3): 58-65.

Everson AR. 1984. Spawning and gonadal maturation of the ehu, Etelis carbunculus, in the Northwestern Hawaiian Islands. In: Grigg RW and Tanoue KY (eds.) Proceedings of the Second Symposium on Resource Investigations in the Northwestern Hawaiian Islands, Vol. 2, May 25-27, 1983, University of Hawaii, Honolulu, Hawaii, p. 128-148. UNIHI-SEAGRANT-MR-84-01.

Everson AR, Williams HA, Ito BM. 1989. Maturation and reproduction in two Hawaiian Eteline snappers, uku, *Aprion virescens*, and Onaga, *Etelis coruscans*. Fish. Bull. 87:877-888.

Fry GC, Brewer DT, Venables WN. 2006. Vulnerability of deepwater demersal fishes to commercial fishing: Evidence from a study around a tropical volcanic seamount in Papua New Guinea. Fish Res 81:126-141.

Gaither, M.R., S.A. Jones, C. Kelley, S.J. Newman, L. Sorenson, and B.W. Bowen. 2011. High connectivity in the deepwater snapper *Pristipomoides filamentosus* (Lutjanidae) across the Indo-Pacific with isolation of the Hawaiian Archipelago. PLoS One 6(12):e28913.

Haight, W.R., J.D. Parrish, and T.A. Hayes. 1993. Feeding ecology of deepwater lutjanid snappers at Penguin Bank, Hawaii. Transactions of the American Fisheries Society, 122:3, 328-347. doi:10.1577/1548-8659(1993)122<0328:FEODLS>2.3.CO;2.

Hordyk A, Ono K, Valencia S, Loneragan N, Prince J. 2015. A novel length-based empirical estimation method of spawning potential ratio (SPR), and tests of its performance, for small-scale, data-poor fisheries. ICES Journal of Marine Science 72(1): 217–231. doi:10.1093/icesjms/fsu004

Hospital J, Schumacher B, Ayers A, Leong K, Severance C. 2019. A Structure and Process for Considering Social, Economic, Ecological, and Management Uncertainty Information in Setting of Annual Catch Limits: SEEM*. Pacific Islands Fisheries Science Center, PIFSC Internal Report, IR-19-011, 31 p.

Houghton, J.T., Y. Ding, D.J. Griggs, M. Noguer, P.J. van der Linden, and D. Xiaosu (eds.) 2001. IPCC Third Assessment Report: Climate Change 2001: The Scientific Basis. Cambridge University Press, Cambridge, UK, 944 pp.

Ikehara, W. 2006. Bottomfish management and monitoring in the main Hawaiian Islands. Shotton, R. (ed), Rome (Italy):FAO. No. 3/2, p. 289-300.

Itano D. 1996. The development of small-scale fisheries for bottomfish in American Samoa (1961-1987). SPC Fisheries Newsletters #76-77.

Kelley C, Mundy B, Grau EG. 1997. The use of the Pisces V submersible to locate nursery grounds of commercially important deepwater snappers, family, Lutjanidae, in Hawaii. In: Programme and Abstracts, Marine Benthic Habitats Conference, Noumea, New Caledonia, November 10-16, 1997, 62 p.

Kelley C, Moffitt R, Smith JR. 2006. Mega- to micro-scale classification and description of bottomfish essential fish habitat on four banks in the Northwestern Hawaiian Islands. Atoll. Res. Bull. 543: 319-332.

Kleiber, D., and K. Leong. 2018. Cultural fishing in American Samoa. Pacific Islands Fisheries Science Center, PIFSC Administrative Report, H-18-03, 21 p. https://doi.org/10.25923/fr4m-wm95.

Kleiber D, Leong K. 2018. Cultural fishing in American Samoa. Pacific Islands Fisheries Science Center, PIFSC Administrative Report, H-18-03, 21 pp. doi:10.25923/fr4m-wm95.

Kleypas, J.A., R.A. Feely, V.J. Fabry, C. Langdon, C.L. Sabine, and L.L. Robbins. 2006. Impacts of Ocean Acidification on Coral Reefs and Other Marine Calcifiers: a Guide for Future Research. Workshop Report, National Science Foundation, National Oceanic and Atmospheric Administration, and the US Geological Survey. 88 pp.

Langseth, B., J. Syslo, A. Yau, and F. Carvalho. 2019. Stock assessments of the bottomfish management unit species of Guam, the Commonwealth of the Northern Mariana Islands, and American Samoa, 2019. NOAA Technical Memorandum, NMFSPIFSC-86. 165 p. + supplement. doi:10.25923/bz8b-ng72.

Leis JM. 1987. Review of the early life history of tropical groupers (Serranidae) and snappers (Lutjanidae). In: Polovina JJ, Ralston S (eds) Tropical snappers and groupers: biology and fisheries management. Westview Press, Boulder, pp 189–237.

Leis JM, Lee K. 1994. Larval development in the lutjanid subfamily Etelinae (Pisces): the genera *Aphareus*, *Aprion*, *Etelis* and *Pristipomoides*. Bull Mar Sci 55(1):46–125.

Leis JM, Carson-Ewart BM. 2004. The larvae of Indo-Pacific coastal fishes: an identification guide to marine fish larvae, 2nd edn. Brill, Leiden.

Levine, A., and S. Allen. 2009. American Samoa as a fishing community. NOAA Technical Memorandum, NOAA-TM-NMFS-PIFSC-19, 74 p.

Macpherson M, Cope J, Lynch P, Furnish A, Karp M, Berkson J, Lambert D, Brooks L, Sagarese S, Siegfried K, Dick E, Tribuzio C, Kobayashi D. 2022. National Standard 1 Technical Guidance on Managing with ACLs for Data-Limited Stocks: Review and Recommendations for Implementing 50 CFR 600.310(h)(2) Flexibilities for Certain Data Limited Stocks. U.S. Dep. Commer., NOAA Tech. Memo., NMFS-F/SPO-237, 33 p.

Minton, D., 2017. Non-fishing effects that may adversely affect essential fish habitat in the Pacific Islands region, Final Report. NOAA National Marine Fisheries Service, Contract AB-133F-15-CQ-0014. 207 pp.

Misa WFXE. 2008. Identifying preferred habitats for Hawaii's deep commercial bottomfish species. University of Hawaii, B.S. thesis. 30 p.

Misa WFXE, Drazen JC, Kelley CD, Moriwake VN. 2013. Establishing species–habitat associations for 4 eteline snappers with the use of a baited stereo-video camera system. Fish. Bull. 111:293–308. doi: 10.7755/FB.111.4.1.

Moffitt, R. 2003. Biological data and stock assessment methodologies for deep-slope bottomfish resources in the Hawaiian archipelago. Paper presented at the Workshop on the Management of Deepwater Artisanal and Small Scale Fisheries.

Moffitt RB, Parrish FA. 1996. Habitat and life history of juvenile Hawaiian pink snapper, *Pristipomoides filamentosus*. Pac Sci 50(4):371–381.

Nadon MO. 2017. Stock assessment of the coral reef fishes of Hawaii, 2016. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TMNMFS-PIFSC-60, 212 p. doi: 10.7289/V5/TM-PIFSC-60.

Nadon MO, Oshima MC, Bohaboy EC, Carvalho F. 2023. Stock assessment of American Samoa bottomfishes, 2023. U.S. Dept. of Commerce, NOAA Technical Memorandum NOAA-TM-NMFS-PIFSC-143, 239 p. https://doi.org//10.25923/0sd4-9a69.

Newman SJ, Steckis RA, Edmonds JS, Lloyd J. 2000. Stock structure of the goldband snapper *Pristipomoides multidens* (Pisces: Lutjanidae) from the waters of northern and western Australia by stable isotope ratio analysis of sagittal otolith carbonate. Mar Ecol Prog Ser 198, 239–247. http://www.jstor.org/stable/24855846

Newman SJ, Williams AJ, Wakefield CB, Nicol SJ, Williams AJ, Taylor BM, O'Malley JM. 2016 Review of the life history characteristics, ecology and fisheries for deep-water tropical demersal fish in the Indo-Pacific region. Rev Fish Biol Fisheries 26:537–562. DOI 10.1007/s11160-016-9442-1.

NMFS (National Marine Fisheries Service). 2002. Endangered Species Act Section 7 Consultation on the Fishery Management Plan for the Bottomfish and Seamount Groundfish Fisheries in the Western Pacific Region. NMFS, Sustainable Fisheries Division, Southwest Region, Pacific Islands Area Office. Honolulu, HI. 66 p

NMFS. 2006. Instruction 03-201-15: Guidance to Refine the Description and Identification of Essential Fish Habitat. Silver Spring, MD.

NMFS. 2015. Biological Evaluation. Potential Impacts of American Samoa Coral Reef, Bottomfish, Crustacean, and Precious Coral Fisheries on Reef-Building Corals and IndoWest Pacific Scalloped Hammerhead Shark Distinct Population Segment. NMFS, Pacific Islands Region, Sustainable Fisheries Division. Honolulu, HI. 33 p.

NMFS. 2017. Environmental Assessment. Specification of 2016-2017 Annual Catch Limits and Accountability Measures for American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands Bottomfish Fisheries. National Marine Fisheries Service, Pacific Islands Regional Office, Honolulu, HI.

NMFS. 2019a. Biological Evaluation: Potential Effects of Bottomfish Fisheries in American Samoa, Guam and Northern Mariana Islands on Oceanic Whitetip Shark, Giant Manta Ray, and Chambered Nautilus. NMFS, Pacific Islands Region. Honolulu, HI. 33 p.

NMFS. 2019b. Endangered Species Act Section 7 Consultation on the Continued Operation of bottomfish fisheries of American Samoa, Guam and the Northern Mariana Islands - Section 7(a)(2) and 7(d) Determinations; Likelihood of Jeopardy and Commitment of Resources during Consultation. NMFS, Pacific Islands Region. Honolulu, HI. 14 p.

NMFS. 2020a. Interim Measures to Address Overfishing in the American Samoa Bottomfish Fishery in 2020 and 2021: Final Environmental Assessment, including a Regulatory Impact Review. NMFS, Pacific Islands Region. Honolulu, HI. 135 p.

NMFS. 2020b. Section 7(a)(2) and 7(d) Extension. Determinations on the continued operation of bottomfish fisheries of American Samoa, Guam, and the Northern Mariana Islands under Section 7 of the ESA. NMFS PIRO, Honolulu, HI, August 11, 2020. 12 pp.

NMFS. 2020c. Section7(a)(2) and 7(d) Extension. Determinations on the continued operation of bottomfish fisheries of American Samoa, Guam, and the Northern Mariana Islands under Section 7 of the ESA. NMFS PIRO, Honolulu, HI, December 15, 2020. 12 pp.

Parrish FA. 1989. Identification of habitat of juvenile snappers in Hawaii. Fishery Bulletin 87: 1001-1005.

Parrish FA, Hayman NT, Kelley C, Boland RC. 2015. Acoustic tagging and monitoring of cultured and wild juvenile crimson jobfish (*Pristipomoides filamentosus*) in a nursery habitat. Fishery Bulletin 113(3): 234-241. doi:10.7755/FB.113.3.1

Ralston S, Polovina JJ. 1982. A multispecies analysis of the commercial deep-sea handline fishery in Hawaii. Fishery Bulletin 80(3): 435-448

Ralston SV, Williams HA. 1988. Depth distributions, growth, and mortality of deep slope fishes from the Mariana Archipelago. U.S. Dept. of Commerce, NOAA Technical Memorandum NOAA-TM-NMFS-SWFC-113, 47 p

Raynal, J., A. Levine, and M.T. Comeros-Raynal. 2016. American Samoa's Marine Protected Area System: Institutions, Governance, and Scale. Journal of International Wildlife Law & Policy, 19(4), pp. 301-316. doi: 10.1080/13880292.2016.1248679.

The Royal Society. 2005. Ocean acidification due to increasing atmospheric carbon dioxide. The Royal Society, London. 60 p.

Restrepo VR, G.G. Thompson GG, Mace PM, Gabriel WL, Low LL, MacCall AD, Methot RD, Powers JE, Taylor BL, Wade PR, Witzig JF. 1998. Technical Guidance on the Use of Precautionary Approaches to Implementing National Standard 1 of the Magnuson Stevens Fishery Conservation and Management Act. U.S. Dep. Commer., NOAA Tech. Memo. NMFS–F/SPO–31, 54 p.

Stobutzki I, Bellwood D. 1997. Sustained swimming abilities of the late pelagic stages of coral reef fishes. Marine Ecology Progress Series 149: 35-41

Weng, KC. 2013. A pilot study of deepwater fish movement with respect to marine reserves. Animal Biotelemetry 2013, 1:17. http://www.animalbiotelemetry.com/content/1/1/17

Winker H, Carvalho F, Kapur, M 2018. Jabba: Just Another Bayesian Biomass Assessment. Fisheries Research 204: 275–288. doi: 10.1016/j.fishres.2018.03.010.

WPFMC (Western Pacific Fishery Management Council). 1986. Fishery Management Plan for Bottomfish and Seamount Fisheries of the Western Pacific Region. Western Pacific Fishery Management Council. Honolulu, HI. 314 pp.

WPFMC. 1998. Magnuson-Stevens Act Definitions and Required Provisions. Amendment 6 to the Bottomfish and Seamount Groundfish Fishery Management Plan; Amendment 8 to the Pelagic Fishery Management Plan; Amendment 10 to the Crustacean Fishery Management Plan; and Amendment 4 to the Precious Coral Fishery Management Plan. Western Pacific Regional Fishery Management Council, Honolulu, HI.

WPFMC. 2009. Fishery Ecosystem Plan for the American Samoa Archipelago. Western Pacific Regional Fishery Management Council. Honolulu, HI.

WPFMC 2011. Omnibus Amendment for the Western Pacific Region to Establish a Process for Specifying Annual Catch Limits and Accountability Measures. Honolulu: Western Pacific Regional Fishery Management Council.

WPFMC and NMFS. 2011. Omnibus Amendment for the Western Pacific Region to Establish a Process for Specifying Annual Catch Limits and Accountability Measures, including an Environmental Assessment. February 24, 2011.

WPFMC. 2016. Amendment 4 to the Fishery Ecosystem Plan for the Hawaii Archipelago. Revised Descriptions and Identification of Essential Fish Habitat and Habitat Areas of Particular Concern for Bottomfish and Seamount Groundfish of the Hawaiian Archipelago. Western Pacific Regional Fishery Management Council, Honolulu, HI.

WPFMC. 2020. Annual Stock Assessment and Fishery Evaluation Report for the Mariana Archipelago Fishery Ecosystem Plan 2020. T Remington, M Sabater, A Ishizaki (Eds.) Honolulu: Western Pacific Regional Fishery Management Council.

WPFMC. 2021. Draft Omnibus Fishery Ecosystem Plan Amendment for the Western Pacific Region for Compliance with Standardized Bycatch Reporting Methodology Guidance. 8 September 2021. Honolulu: Western Pacific Regional Fishery Management Council.

WPFMC. 2022. Annual Stock Assessment and Fishery Evaluation Report for the American Samoa Archipelago Fishery Ecosystem Plan 2021. T Remington, M Sabater, M Seeley, A Ishizaki (Eds.). Honolulu: Western Pacific Regional Fishery Management Council.

WPFMC. 2023. Annual Stock Assessment and Fishery Evaluation Report for the American Samoa Archipelago Fishery Ecosystem 2022. Remington T, Seeley M, Ishizaki A (Eds.) Honolulu: Western Pacific Regional Fishery Management Council.

WPFMC. 2024. Annual Stock Assessment and Fishery Evaluation Report for the American Samoa Archipelago Fishery Ecosystem 2023. Remington T, DeMello J, Ishizaki A (Eds.) Honolulu: Western Pacific Regional Fishery Management Council.

Wren JLK, Kobayashi DR, Jia Y, Toonen RJ. 2016. Modeled population connectivity across the Hawaiian archipelago. PLoS ONE 11(12): e0167626. doi:10.1371/journal.pone.0167626.

Ziemann D, Kelley C. 2004. Detection and Documentation of Bottomfish Spillover from the Kahoolawe Island Reserve. Final Report submitted to the Kahoolawe Island Reserve Commission.

APPENDIX A. MANAGEMENT UNIT SPECIES AND NATIONAL STANDARD 1 FACTORS

Appendix A provides the MUS for each area, and the NS1 factors that correspond to each. The Council recommended the MUS lists to NMFS based on the process described in Section 2.1, Development of the Alternatives.

NS1 Factors

1. The stock is an important component of the marine environment.
2. The stock is caught by the fishery.
3. Whether an FMP can improve or maintain the condition of the stock.
4. The stock is a target of a fishery.
5. The stock is important to commercial, recreational, or subsistence users.
6. The fishery is important to the Nation or to the regional economy.
7. The need to resolve competing interests and conflicts among user groups and whether an FMP can further that resolution.
8. The economic condition of a fishery and whether an FMP can produce more efficient utilization.
9. The needs of a developing fishery, and whether an FMP can foster orderly growth.
10. The extent to which the fishery is already adequately managed by states, by state/federal programs, or by federal regulations pursuant to other FMPs or international commissions, or by industry self-regulation, consistent with the requirements of the Magnuson-Stevens Act and other applicable law.

American Samoa Bottomfish Management Unit Species

Scientific Name	Common Name	Samoan name	Family	NS1 Factors Met
Caranx lugubris	Black trevally, jack	tafauli	Carangidae	1,2,4,6,8,9,10
Lethrinus rubrioperculatus	Redgill emperor	filoa-paomumu	Lethrinidae	1,2,4,5,6,8,9,10
Aphareus rutilans	Red snapper, silvermouth	palu-gutusiliva	Lutjanidae	1,2,4,6,8,9,10
Aprion virescens	Grey snapper, jobfish	asoama		1,2,4,5,6,8,9,10
Etelis carbunculus	Red snapper	palu malau		1,2,4,6,8,9,10
Etelis coruscans	Red snapper	palu-loa		1,2,4,6,8,9,10
Lutjanus kasmira	Blueline snapper	savane		1,2,4,5,6,8,9,10

Scientific Name	Common Name	Samoan name	Family	NS1 Factors Met
Pristipomoides filamentosus	Pink snapper	palu-`ena`ena		1,2,4,6,8,9,10
Pristipomoides flavipinnis	Yelloweye snapper	palu-sina		1,2,4,6,8,9,10
Pristipomoides zonatus	Snapper	palu-ula, palu-sega		1,2,4,6,8,9,10
Variola louti	Lunartail grouper	papa, velo	Serranidae	1,2,4,5,6,8,9,10

APPENDIX B. PIFSC HIERARCHICAL CLUSTER ANALYSES

Under development.

APPENDIX C. AVAILABLE EFH INFORMATION

Under development.

Table C.1. Relevant life history and habitat information for the various life stages of proposed revised American Samoa Archipelago BMUS.

Species	Eggs/Larvae	Juvenile	Adult
Aphareus rutilans	**Eggs:** pelagic, spherical, and small (0.77–0.85 mm). **Larvae:** pelagic and distributed off the edge of continental shelves and offshore from oceanic islands. Larvae remain planktonic to at least 54 mm (Leis 1987; Leis and Lee 1994; Leis and Carson-Ewart 2004)	A single juvenile was collected at 40 m off Kaneohe Bay, Oahu on a shallow sediment flat. (Parrish 1989)	Seamounts and continental slope habitats with a wide depth range (100–300 m) and no apparent bottom habitat preference. In the Mariana Archipelago, it was caught between 119–229 m during surveys. Aggregations of *A. rutilans* were found near areas of prominent relief features such as headlands, showing a preference for habitats with hard substrates. Gonochoristic broadcast spawners that form spawning aggregations that coincide with warmer water temperatures. A large school (>100 individuals) was sighted on a bottom camera in Hawaii. (Allen 1985; Misa et al. 2008; Parrish 1989; Ralston and Williams 1988; Richards pers. comm. 2022)
Etelis boweni	Newly described cryptic species. Habitat is assumed to be similar to *E. carbunculus* due to co-occurrence in catch.		

Species	Eggs/Larvae	Juvenile	Adult
Etelis carbunculus	**Eggs**: pelagic, spherical, and small (0.77–0.85 mm). **Larvae**: pelagic and distributed off the edge of continental shelves and offshore from oceanic islands. Larvae remain planktonic at least to 50 mm. (Leis 1987; Leis and Lee 1994; Leis and Carson-Ewart 2004)	Juveniles settle directly in adult habitats (depth and habitat). Juvenile *E. carbunculus* < 22 cm SL were caught during fishing surveys in depths between 183–313 m depth and 15 cm FL fish were observed during submersible dives off North Oahu and East Oahu at depths of 274–290 m and 300 m, respectively. Juveniles were observed very close to the bottom either solitary or in small groups. Cavities that provide shelter appear to be particularly important to this species. (Parrish 1989; Kelley et al. 1997; Kelley et al. 2006; Ikehara 2006; Weng 2013; WPFMC 2016)	Adults are found on the hard substrate deepwater slopes in areas of high structural complexity. They inhabit seamounts and continental slope habitats with greatest abundance between 200–310 m on hard bottom, low slope habitats and do not exhibit any ontogenetic habitat shifts. Individuals are found solitarily or in small groups. *E. carbunculus* were recorded during 90 BotCam drop camera deployments in the MHI at depths of 192–325 m and in temperatures ranging from 10.70 °C – 19.11 °C and averaging 14.58 °C. Individuals recorded as deep as 515 m from the *Pisces* submersible in Hawaii. Adults require shelter and therefore are rarely observed venturing up into the water column. There is currently no information to suggest that they travel great distances outside a small home range. (Allen 1985; Drazen, unpub. data; Everson 1984; Haight 1989; Misa et al. 2013; Ralston and Polovina 1982; Weng 2013)

Species	Eggs/Larvae	Juvenile	Adult
Etelis coruscans	**Eggs:** pelagic, spherical, and small (0.77–0.85 mm) and larvae hatch at about 1.7–2.2 mm. **Larvae:** pelagic and distributed off the edge of continental shelves and offshore from oceanic islands until at least 22 mm. PLD is assumed to range between 40–180 days. (Leis 1987; Leis and Lee 1994; Leis and Carson-Ewart 2004)	Juveniles are thought to settle directly to adult habitats and were observed very close to the bottom or hiding in cavities. (Ikehara 2006)	Seamounts and continental slope habitats with the greatest abundance between 200–310 m on hard bottom habitats with larger fish occupying relatively higher slope habitats than smaller fish. Adults in Hawaii form benthopelagic schools up to tens of meters off the bottom. In the Mariana Archipelago, it was caught between 155–320 m. Gonochoristic broadcast spawners that form spawning aggregations that coincide with warmer water temperatures. There is currently no information to suggest that they travel great distances outside a small home range. (Allen 1985; Everson et al. 1989; Misa et al. 2013; Weng 2013)
Paracaesio kuskarii	There is no specific information about this species. **Eggs:** All lutjanid eggs are pelagic, small (0.77–0.85 mm diameter) and spherical. **Larvae:** Larvae of lutjanids hatch at about 1.7–2.2 mm, and have a large yolk sac. (Leis 1987; Leis and Carson-Ewart 2004)	There is no specific information for this species.	Occurs over rocky bottoms at depths of 100–310 m. (Allen 1985; Carpenter and Niem 2001)

Species	Eggs/Larvae	Juvenile	Adult
Paracaesio stonei	There is no specific information for this species. **Eggs:** All lutjanid eggs are pelagic, small (0.77–0.85 mm diameter) and spherical. **Larvae:** Larvae of lutjanids hatch at about 1.7–2.2 mm, and have a large yolk sac. (Leis 1987; Leis and Carson-Ewart 2004)	There is no specific information for this species.	Bathydemersal; depth range 200–320 m. (Allen 1985; Fry et al. 2006)
Pristipomoides argyrogrammicus	There is no specific information for this species. **Eggs:** All lutjanid eggs are pelagic, small (0.77–0.85 mm diameter) and spherical. **Larvae:** Larvae of lutjanids hatch at about 1.7–2.2 mm, and have a large yolk sac. (Leis 1987; Leis and Carson-Ewart 2004)	There is no specific information for this species.	Occurs over rocky bottoms at depths between about 70–300 m. In the Mariana Archipelago, it was caught between 183–293 m during surveys. (Allen 1985; Ralston and Williams 1988)

Species	Eggs/Larvae	Juvenile	Adult
Pristipomoides auricilla	**Eggs:** pelagic, spherical, and small (0.77–0.85 mm). **Larvae:** pelagic and distributed off the edge of continental shelves and offshore from oceanic islands. Larvae remain planktonic to at least 54 mm. (Leis and Lee 1994; Leis and Carson-Ewart 2004)	There is no specific information for this species.	Seamounts and continental slope habitats and generally occur over rocky reefs and hard bottoms at depths between 90–360 m but are most abundant between 180–270 m. In the Mariana Archipelago, it is frequently caught between 90–270 m. They form small to medium-sized benthopelagic schools that swim relatively close to the bottom. Gonochoristic broadcast spawners that form spawning aggregations that coincides with warmer water temperatures. (Allen 1985; Ralston and Williams 1988)

Species	Eggs/Larvae	Juvenile	Adult
Pristipomoides filamentosus	**Eggs:** pelagic, spherical, and small in size (0.77–0.85 mm). **Larvae:** pelagic and distributed off the edge of continental shelves and offshore from oceanic islands. Larvae remain planktonic to at least 54 mm. A PLD of 60–180 days was suggested which is based on estimated ages of juveniles from other studies. Juveniles first appear in juvenile habitat at 70–100 mm FL. (Moffitt and Parrish 1996; Leis and Lee 1994; Leis and Carson-Ewart 2004).	Juveniles occupy nursery areas consisting of flat, featureless, sandy substrate in shallow water (30 m) for the first two years before moving into adult habitats. (Misa et al. 2013; Parish 1989; Parrish et al. 2015)	Seamounts and continental slope habitats. Adult greatest abundance is between 90–210 m on hard bottom, low slope habitats. In the Mariana Archipelago, it was caught between 110–229 m during surveys. They utilize mostly physical habitats that are abundant and not easily disturbed. Individuals are found in areas of high relief at depths of 100–400 m, and at night, they migrate into shallower flat, shelf areas, where they are found at depths of 30-80 m. Gonochoristic broadcast spawners that form spawning aggregations which coincides with warmer water temperatures. (Allen 1985; Misa et al. 2013; Moffitt and Parrish 1996; Parrish 1989; Parrish et al. 1997; Ralston and Williams 1988; Ziemann and Kelley 2004)
Pristipomoides flavipinnis	**Eggs** are pelagic, spherical, and small (0.77–0.85 mm). **Larvae**: pelagic and distributed off the edge of continental shelves and offshore from oceanic islands. (Leis and Carson-Ewart 2004)	There is no specific information for this species.	Generally occur over rocky reefs and hard bottoms at depths between 90–360 m but are most abundant between 180–270 m. In the Mariana Archipelago, it was caught between 123–274 m during surveys. Gonochoristic broadcast spawners that form spawning aggregations that coincides with warmer water temperatures. (Allen 1985; Ralston and Williams 1988)

Species	Eggs/Larvae	Juvenile	Adult
Pristipomoides multidens	There is no specific information for this species. **Eggs:** All lutjanid eggs are pelagic, small (0.77-0.85 mm diameter) and spherical. **Larvae:** Larvae of lutjanids hatch at about 1.7-2.2 mm, and have a large yolk sac. Individuals of Pristipomoides remain pelagic to considerable size. (Leis 1987; Leis and Lee 1994; Leis and Carson-Ewart 2004)	Juveniles were found in flat, featureless, sandy habitats in mixed schools with *Nemipterus* sp. in areas distinctly separate from the adult habitats. (Newman et al. 2016)	A schooling fish that inhabits hard bottom areas with vertical relief and large epibenthos. Depth ranges from 60 to at least 200 m and are concentrated in depths from 80–150 m. (Newman et al. 2000)
Pristipomoides sieboldii	**Eggs**: pelagic, spherical, and small in size (0.77–0.85 mm). **Larvae**: pelagic and distributed off the edge of continental shelves and offshore from oceanic islands. Larvae remain planktonic to at least 54 mm. (Leis and Lee 1994; Leis and Carson-Ewart 2004)	There is no specific information for this species.	Seamounts and continental slope habitats with the greatest abundance between 180–270 m but no affinity to a specific habitat; however, a habitat shift to hard bottom, high slope from other habitat types was observed within the size class of 25–35 cm. In the Mariana Archipelago, it was caught between 146–274 m during surveys. Often observed in large schools. Gonochoristic broadcast spawners that form spawning aggregations that coincides with warmer water temperatures. (Allen 1985; Misa et al. 2013; Ralston and Williams 1988)

Species	Eggs/Larvae	Juvenile	Adult
Pristipomoides zonatus	**Eggs**: pelagic, spherical, and small in size (0.77–0.85 mm). **Larvae**: pelagic and distributed off the edge of continental shelves and offshore from oceanic islands. (Leis and Carson-Ewart 2004)	Juveniles are thought to settle directly in adult habitats and were observed very close to the bottom either solitary or in small groups. (Kelley et al. 1997)	Seamounts and continental slope habitats with a preference for hard substrate and high slopes such as escarpments with high vertical relief. Preferred depth in Hawaii is 200–259 m and at Johnston Atoll 215–250 m. In the Mariana Archipelago, it was caught between 128–293 m during surveys. Gonochoristic broadcast spawners that form spawning aggregations that coincides with warmer water temperatures. (Allen 1985, Misa 2008, Ralston and Williams 1988)