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Options for Reclassification of the Bottomfish Management Unit Species of American Samoa and the Marianas Fishery Ecosystem Plans

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CHAPTER 1. Background Information

1.1 Existing Bottomfish Management Unit Species in the Fishery Ecosystem Plan

The original Fishery Management Plan for bottomfish in American Samoa, Guam, and Hawaii (WPRFMC 1986) considered a complex of 60 species from four families: Lutjanidae (snappers), Serranidae (groupers), Carangidae (jacks), and Lethrinidae (emperors). The list was narrowed down to 20 species based on what is substantially landed. The fishery for these species is of high-value due to fresh fish market prices, consumer demand, and cultural attraction in Pacific island communities.

In 2018, the Council took action to refine the management unit species and designated some BMUS species as ecosystem components based on criteria described in the revised National Standard 1 Guidelines for determining whether the species are in need of conservation and management. This resulted in a further reduction of BMUS in the FEP from 16 to 13 in the Marianas and from 17 to 11 in American Samoa. The table below shows the BMUS for American Samoa and the Marianas.

Table 1. Bottomfish management unit species in the American Samoa Fishery Ecosystem Plan

Local name	Common name	Scientific name
palu-gutusiliva	red snapper, silvermouth	*Aphareus rutilans.*
asoama	gray snapper, jobfish	*Aprion virescens.*
tafauli	black trevally, jack	*Caranx lugubris.*
papa, velo	lunartail grouper	*Variola louti.*
palu malau	red snapper	*Etelis carbunculus.*
palu-loa	red snapper	*Etelis coruscans.*
filoa-paomumu	redgill emperor	*Lethrinus rubrioperculatus.*
savane	blueline snapper	*Lutjanus kasmira.*
palu-ènaèna	pink snapper	*Pristipomoides filamentosus.*
palu-sina	yelloweye snapper	*Pristipomoides flavipinnis.*
palu-ula, palu-sega	Snapper	*Pristipomoides zonatus.*

Table 2. Bottomfish management unit species in the Marianas Fishery Ecosystem Plan

Local name	Common name	Scientific name
(1) lehi/maroobw	red snapper, silvermouth	*Aphareus rutilans.*

(2) tarakitu/etam	giant trevally, jack	*Caranx ignobilis.*
(3) tarakiton attelong, orong	black trevally, jack	*Caranx lugubris.*
(4) bueli, bwele	lunartail grouper	*Variola louti.*
(5) buninas agaga', falaghal moroobw	red snapper	*Etelis carbunculus.*
(6) abuninas, taighulupegh	red snapper	*Etelis coruscans.*
(7) mafuti, atigh	redgill emperor	*Lethrinus rubrioperculatus.*
(8) funai, saas	blueline snapper	*Lutjanus kasmira.*
(9) buninas, falaghal-maroobw	yellowtail snapper	*Pristipomoides auricilla.*
(10) buninas, pakapaka, falaghal-maroobw,	pink snapper	*Pristipomoides filamentosus.*
(11) buninas, falaghal-maroobw	yelloweye snapper	*Pristipomoides flavipinnis.*
(12) buninas, falaghal-maroobw	pink snapper	*Pristipomoides sieboldii.*
(13) buninas rayao amariyu, falaghal-maroobw	flower snapper	*Pristipomoides zonatus.*

These species have varying life history characteristics and have different vulnerabilities to the fishery. This would have ramifications on the productivity and the susceptibility of each species (or groups of species) when determining stock status.

1.2 Fishery Description

The territorial bottomfish fishery is predominantly a small boat, single day trip fishery. Bottomfish is caught by both the small-scale commercial and the non-commercial fishery sectors. The fishery utilizes vertical nylon lines with weight at the terminal end and several branch-lines with hooks close to a chum bag to attract bottomfish. The rig is comprised of a fiberglass pole with either a manual or electric reel. The fishery operates mostly near-shore and at the off-shore banks and the ratio of effort near shore versus off shore has varied over time. The target species are comprised of shallow water snappers, emperors, jacks and groups and the deepwater *Etelis* and *Pristipomoides* snappers.

In the 1980s, the bottomfish fishery was much larger and landed a non-trivial amount of catch. In American Samoa, the small commercial fishery was established in the 1970s through the government-subsidized boat-building program called the Dory Project and the Alia Program in the 1980s aimed at developing this fishery. The fishery peaked in 1984 when forty-eight vessels fished for bottomfish and the landings were exported to Hawaii (Itano 1996). These larger boats were able to fish the remote offshore banks landing larger bottomfish species. The bottomfish fishery declined after these programs stopped and the remaining small boat alia fleet fished around the near-shore waters of Tutuila and Manua. In recent decades, the fishery has been fishing for the shallower species due to the limitation of the alia boats from venturing to the off-shore waters (Figure 1A). However, most of these shallow species do not constitute the bulk

of what is sold in the commercial markets (except in 2013 and 2014). The preferred species are the deepwater snappers (Figure 1B).

In CNMI in the late 1980s to early 1990s, there were 12-15 large (~70 ft) vessels based in Saipan that conducted multi-day trips for bottomfish at the Northern Mariana Islands that used electric/hydraulic reels (WPRFMC 2018). This northern island fishery declined in the mid-1990s and the remaining small boats continually operated around the southern islands of Saipan, Rota, and Tinian. The creel data for CNMI does not provide a clear trend in terms of the proportion of shallow versus deep species that are landed (Figure 1C). However, the longer time series from the commercial receipt books show that deep water species are sold in the markets and the 1980s and 1990 are years where the northern island bottomfish fisheries are dominating. The shallow species comprise only a small portion of the commercial fisheries (Figure 1D).

The Guam bottomfish fishery is comprised of small (<25 ft) commercial and non-commercial vessels that fished around the main island of Guam and to some extent the offshore banks of Galvez and Santa Rosa. The bottomfish fisheries used to be mixed shallow and deep species in the 1980s to the early 1990s after which the fisheries mostly land deep snapper species. Guam shows a different trend where the proportion of the deepwater species is increasing over time (Figure 1E). This is when a core group of fishermen started to learn bottom fishing techniques from Hawaii-based bottomfish fishermen particularly in the past 2 decades. The deep-water species, like in CNMI, make up the bulk of the species landed in the commercial sector based on the commercial receipt book data (Figure 1F).

1.3 Current Application of the MSY Control Rules

The Council is required to manage the bottomfish fishery using a biomass based reference point. Amendment 6 to the bottomfish FMP (WPRFMC 2002) described the MSY control rule for the bottomfish fishery on how it would make an overfished and overfishing determination.

The FEP states "*The overfishing criteria and control rules specified are applied to individual species within the multi-species stock whenever possible. Where this is not possible, they will be based on an indicator species for the multi-species stock. It is important to recognize that individual species will be affected differently based on this type of control rule, and it is important that for any given species fishing mortality does not exceed a level that would lead to its becoming depleted. Currently, no indicator species are used for the four bottomfish multi-species stock complexes (American Samoa, CNMI, Guam and Hawaii). Instead, the control rules are applied to each of the four stock complexes as a whole*" (WPRFMC 2009a, 2009b). The current language in the FEP provides the flexibility on how these control rules are applied to the BMUS species. This provides the assessment analyst the flexibility to determine the best approach to apply the control rules and design the assessment appropriately based on the quantity and quality of available data for each species in the complex.

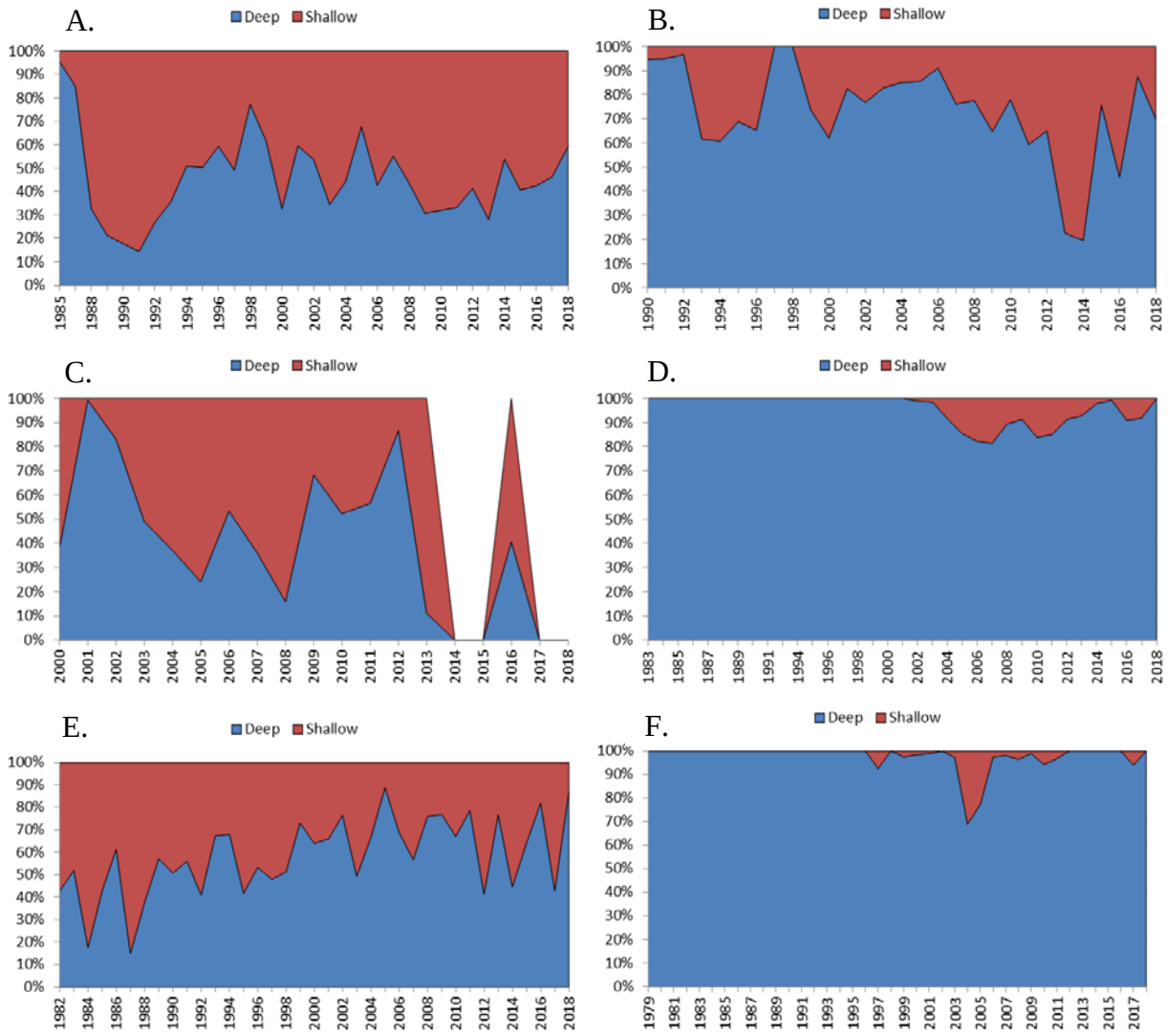

Figure 1. The proportion of estimated catch between the shallow species of BMUS and the deep BMUS from creel surveys (left figures) and commercial receipt books (right figures) in American Samoa (A and B), CNMI (C and D), and Guam (E and F).

1.4 Purpose and Need for Action

The species composition of the BMUS is reflective of what was landed at the time the Bottomfish FMP was developed. The BMUS was refined during the Ecosystem Component Amendment to determine species that are in need of conservation and management. The bottomfish fisheries in the territories have evolved over time with the rise and fall of the large vessels, export of deep snapper species, and a series of fisheries development that occurred over time. There is a need to revisit management unit species to determine whether the current species composition of the complexes remain representative of the fisheries. There is also a need to view the BMUS complex not as single unit with diverse species but potentially as smaller groupings with similar life history characteristics or individual species.

The purpose of this action is to refine the BMUS complex to reflect the current state of the bottomfish fisheries in American Samoa, Guam, and CNMI.

1.5 Action Area

The action area covers marine waters from shoreline to 200 nm of the territories of American Samoa, Guam, and the CNMI. This action covers all waters and associated marine resources within these areas. The EEZ around the State of Hawaii, Wake Island, Johnston Atoll, Howland & Baker, Jarvis and Palmyra & Kingman (the PRIA) is not included in this action.

CHAPTER 2. Development of the Options

2.1 Development of options for the reclassification of the bottomfish management unit species action

At the 180th Council meeting in October 2019, the Guam Advisory Panel (AP) recommended the Council request PIFSC to separate the shallow complex from the deep complex as recommended by the Guam AP at its June meeting. The AP also pointed to the recommendation at the Data 2000 Workshop in 1996 to "investigate methods for separating and analyzing data and information on the shallow and deep bottomfish complexes".

The Council, at its 180th meeting, directed staff to develop an options paper for revision of the BMUS complexes in the American Samoa Archipelago and Mariana (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 the 181st Council meeting in March 2020. Further, the Council requested NMFS PIFSC to immediately develop a new benchmark assessment after the Council takes final action on the BMUS revision amendment package. In addition, the Council requested that, for future benchmark assessments, the WPSAR Steering Committee incorporate into its schedule a data preparation workshop to be held prior to the WPSAR review. Findings from the data preparation workshops could improve CPUE standardization in future assessments, for example. Further, the Council recommends that the workshop include Scientific and Statistical Committee members as well as the fishing community that is knowledgeable of the stock and fishery being assessed.

The options were developed in coordination with the Pacific Island Fisheries Science Center (PIFSC) Stock Assessment Program (SAP). PIFSC-SAP conducted an inventory of available data for each species in the current BMUS. Based on this inventory, a recommendation was provided on how to refine the BMUS list with a higher degree of resolution, therefore, generating an assessment that has finer resolution compared to a single complex.

2.2 Options for Reclassifying the Bottomfish Management Unit Species

The following are the options for consideration.

2.2.1 Option 1: No Action (Status Quo)

Under this option, the BMUS will not be refined to smaller biological units. The complex shall remain a diverse set of species that have varying life history characteristics. The stock assessment that analyzed the BMUS as a single complex (Langseth et al. 2019) remains to be the Best Scientific Information Available and will remain BSIA until 2025. The fishery will be managed as a single fishery under a conservative catch projection estimate that can potentially suppress a sector of a fishery. In the case of Guam, no action ignores the separation of the deep bottomfishing from those considered specializing in the deep bottomfishing and the shallow water mostly non-commercial bottomfishing.

2.2.2 Option 2: Do not Amend the FEP but Generate a New Benchmark Assessment Based on the Data-Informed Reclassification

Under this option, the Council would retain the current language of the FEP that provides flexibility on how to apply the control rules. This provides PIFSC-SAP to apply the appropriate status determination criteria based on the quality and quantity of data available for each BMUS. There is no statutory limitation on how early a new benchmark assessment can be generated. Therefore, the benchmark assessment can be initiated in the soonest practicable time. In the meantime, the current benchmark stock assessment (Langseth et al. 2019) will remain BSIA until the new benchmark assessments based on the new grouping have been WPSAR reviewed. Council staff can then focus on the effort to end overfishing in American Samoa and the overfished status for American Samoa and Guam bottomfish fishery.

In the generation of a new benchmark assessment, PIFSC-SAP will be consulting with the territorial fishery agencies and local fishing communities to define the data that will go into the assessment. This series of data preparatory workshops will seek consensus on the types of data and extent of the data that will be used in the new benchmark to garner buy-in from the partners. The decision on how to refine the BMUS will be done at the data preparatory workshop.

Under this option, the fishery will be analyzed appropriately based on the available data for the BMUS. Through the data preparatory workshop, the fishing community can provide their insights on the changes in the fishery over time. In addition, included in this flexibility is the ability to utilize other methods for the SDC that is deemed appropriate for the species being assessed. The Council would be revising the SDC in the FEP once the benchmark assessment is generated.

2.2.3 Option 3: Amend the American Samoa and Marianas FEP Based on the Data-Informed Reclassification and Generate a New Benchmark Assessment

Under this option, the American Samoa and Marianas FEPs will be amended to establish a subsector of the fisheries comprised of the deep snapper and the fisheries that target the remaining species in the BMUS list. Another iteration of this would be to define the fisheries as single-species fisheries which would generate the finest resolution for the bottomfish fishery.

These sub-options would address the separation of the apparent deep water fishery sector from the apparent shallow-water fishery for bottomfish.

By amending the FEPs defining the bottomfish fishery as either a deep-water subcomplex and single-species fisheries for the remaining species, or single-species fisheries altogether, the Council and PIFSC will lose the flexibility on how to apply the control rule. That is, each defined fishery sector will have a specific status determination criterion and the assessment will have to apply that SDC and the fishery will have to be monitored according to how the fishery is defined.

The current stock assessment will remain as BSIA until a new assessment is generated. The new benchmark assessment will be generated as soon as the amendment is up for final action. This will not happen in the near future because the current priority for the Pacific Island Regional Office Sustainable Fisheries Division is to address the overfishing status for American Samoa and the overfished status for American Samoa and Guam bottomfish fisheries. Finalizing this potential amendment is not a high priority, thus the bottomfish fishery will be subject to a conservative management regime.

When generating the new benchmark assessment, PIFSC-SAP will be following the steps described in option 2

2.3 Advisory Group Action

The Council Advisory Groups need to discuss the pros and cons of these options and recommend the path forward.

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