



WESTERN
PACIFIC
REGIONAL
FISHERY
MANAGEMENT
COUNCIL

9.C.3(1)
182nd CM

PRELIMINARY DRAFT

**Developing a Viable Rebuilding Plan for the American Samoa
Bottomfish Fishery**

Western Pacific Fishery Management Council
1164 Bishop Street, Suite 1400
Honolulu, HI 96813

June 3, 2020

Page left intentionally blank

Contents

Introduction.....	4
Annual Catch Limit and Rebuilding Requirements	4
Discussion Paper Goal	5
Current Situation and Available Information.....	5
Current state of data collection and management	5
NS1 guidelines for overfishing and overfished stock:	5
Current available information	6
Addressing the NS1 requirements:	10
Conclusions from the Available Information.....	14
Management Scenarios and Regulatory Approaches.....	15

Table of Tables

Table 1. Biomass projection from 2020 to 2022 by annual catch in 500 lb increment. Inc = increasing; Dec = decreasing. Highlighted row is the interim measure catch level.	7
Table 2. Biomass (1,000 lb) in 2020 to 2031 corresponding to annual catch (lb) ranging from 0 to 15,000 for American Samoa.	11
Table 3. Summary of the available information for the rebuilding plan.....	15

Table of Figures

Figure 1. Estimated total catch (in pounds) from 2000 to 2018 relative to the MSY, OFL, ABC, and ACL in the American Samoa bottomfish fishery.....	7
Figure 2. Projected biomass from 2020 to 2031 with annual catches from 0 to 3,000 lbs. Horizontal reference line denotes B_{MSY} (272,800 lb).....	9

Introduction

At the 180th meeting of the Western Pacific Regional Fishery Management Council (the Council) in American Samoa, the Pacific Island Fisheries Science Center (PIFSC) presented the 2019 benchmark stock assessment of the bottomfish management species for American Samoa, Guam, and the Commonwealth of Northern Mariana Islands (CNMI) (Langseth et al. 2019). The assessment had undergone the Western Pacific Stock Assessment Review and the panel deemed the assessment useable for fishery management purposes. The WPSAR reports and the peer-reviewed assessment were received by the Council's Scientific and Statistical Committee (SSC) at its 134th meeting in Honolulu. The assessment showed that the BMUS in American Samoa is overfished and overfishing is occurring. The SSC expressed its concerns regarding the assessment results but endorsed the assessment for management results nonetheless.

The Council was informed, through a memo from PIFSC dated January 10, 2020, that the National Marine Fishery Service (NMFS) determined that the 2019 benchmark stock assessment is the best scientific information available (BSIA). This was the basis for the Pacific Island Regional Office to issue a notification on February 10, 2020 informing the Council that there was a change in stock status in American Samoa from not overfishing and not subject to overfishing to the BMUS overfished and subject to overfishing. The notification included the basis for the change in stock status and outlined the Council obligations when this occurs.

Annual Catch Limit and Rebuilding Requirements

In accordance with Section 304(e) of the Magnuson-Stevens Act, and NMFS guidelines implementing National Standard 1 at 50 CFR 600.310(j), the Council is required to:

(1) ***Take immediate action to end overfishing*** in the American Samoa bottomfish fishery. To accomplish this, the Council should begin working with its Scientific and Statistical Committee to ensure that the acceptable biological catch (ABC) for the American Samoa bottomfish stock complex is set appropriately to end overfishing. Given that a substantial amount of bottomfishing may occur in local nearshore waters around American Samoa, the ***Council should also evaluate whether an annual catch limit and accountability measures that apply only to fishing in Federal waters will be adequate to end overfishing in the fishery.***

(2) ***Within two years*** after the date of this notification letter, ***prepare and submit*** for Secretarial review, a fishery management plan, ***plan amendment*** or proposed regulations ***to rebuild the American Samoa bottomfish stock complex and the Guam bottomfish stock complex.*** To meet this deadline, Council actions should be submitted to NMFS within 15 months of this notification letter to ensure sufficient time for the Secretary to review and implement the measures, if approved.

Discussion Paper Goal

The goal of this discussion paper is to elicit conversation amongst members of the SSC and the Council to determine potential approaches to meet the requirements of NS1 50CFR 600.310(j) to end overfishing and develop a plan to address rebuilding. Details from NS1 show the stock should be rebuilt as much as possible in less than ten years.

Current Situation and Available Information

Current state of data collection and management

The American Samoa bottomfish fishery is a data limited fishery. Catch information are taken from the boat-based creel survey, a random-stratified survey system that conducts random effort counts and catch interview. The system is designed to generate an annual estimate of gear level catch and its proportioned to the species composition from that gear. Given that the expansion system is designed for an annual catch level, the data is not available until the four to six months after the fishing season ended. This cannot be used to monitor catch in season due to low sample sizes. The 2019 American Samoa Annual SAFE Report indicated that there are six boats participating in the bottomfish fishery and the likelihood of intercepting these six boats randomly is low thus a finer scale expansion is not possible.

Majority of the fishery also occurs in the territorial waters. The boats are 12-foot aluminum double-hulled alia powered by at least a 40 HP outboard engine. This limits the fishing grounds to the near-shore shallow habitats but there is occasional fishing in federal waters off the coast of Tapu-Tapu west of the island of Tutuila. The off-shore banks are a primary fishing ground for the deep water snappers and these are fished occasionally especially during special community events.

There are no regulations in place in the territorial waters to limit catch. Therefore, the local fishery management agency, the Department of Marine and Wildlife Resources, may promulgate rules to complement the potential federal closure. This is a decision that the local department will have to make. Without the cooperation of the local government and communities, both the ACL specification and the rebuilding plan will be ineffective in ending overfishing and rebuilding the stock back to B_{MSY} .

NS1 guidelines for overfishing and overfished stock:

Below are some of the guidelines from NS1 50CFR 600.310(j) for the overfishing status:

- 1) Council should immediately begin working with its SSC to ensure that the ABC is set appropriately to end overfishing;
- 2) Councils should evaluate the cause of overfishing, address the issue that caused overfishing, and reevaluate their ACLs and AMs to make sure they are adequate;

Below are some of the guidelines from NS1 50CFR 600.310(j) for the overfished status:

- 3) Council must specify a time period for rebuilding the stock or stock complex. This target time for rebuilding (T_{target}) shall be as short as possible considering:
 - a. status and biology of any overfished stock;
 - b. needs of fishing communities;
 - c. interaction of the stock within the marine ecosystem;
- 4) The time period shall not exceed 10 years, except where biology of the stock, other environmental conditions;
- 5) Need to determine the minimum time to rebuild in absence of fishing (T_{min});
- 6) Need to determine the maximum time for rebuilding (T_{max});
 - a. If T_{min} for the stock or stock complex is 10 years or less, then T_{max} is 10 years.
 - b. If T_{min} for the stock or stock complex exceeds 10 years, then one of the following methods can be used to determine T_{max} :
 - i. (i) T_{min} plus the length of time associated with one generation time for that stock or stock complex. “Generation time” is the average length of time between when an individual is born and the birth of its offspring,
 - ii. (ii) The amount of time the stock or stock complex is expected to take to rebuild to B_{MSY} if fished at 75 percent of MFMT, or
 - iii. (iii) T_{min} multiplied by two.
 - c. In situations where T_{min} exceeds 10 years, T_{max} establishes a maximum time for rebuilding that is linked to the biology of the stock
 - d. When selecting a method for determining T_{max} , a Council, in consultation with its SSC, should consider the relevant biological data and scientific uncertainty of that data, and must provide a rationale for its decision based on the best scientific information available.
- 7) Need to determine F_{rebuild} , the fishing mortality associated with achieving T_{target} .

Current available information

Council staff had convened the American Samoa P* Working Group and the group recommended a 20 percent reduction from the Overfishing Limit (OFL) to account for the scientific uncertainty. This results in a P* of 30 percent risk of overfishing which is the Acceptable Biological Catch (ABC) for 2021 to 2024 fishing year. The catch corresponding to this risk level is 2,000 pounds. The average catch from 2016 to 2018 is 18,352 pounds. In order to maximize the catch the ACL will be equal to ABC. Figure 1 shows the catches relative to the potential ACL. The 2,000 pound ACL is exceeded in all years. Therefore, this situation will not prevent or end overfishing given the catch is 9.3times higher than the ACL. The catch even exceeds the OFL.

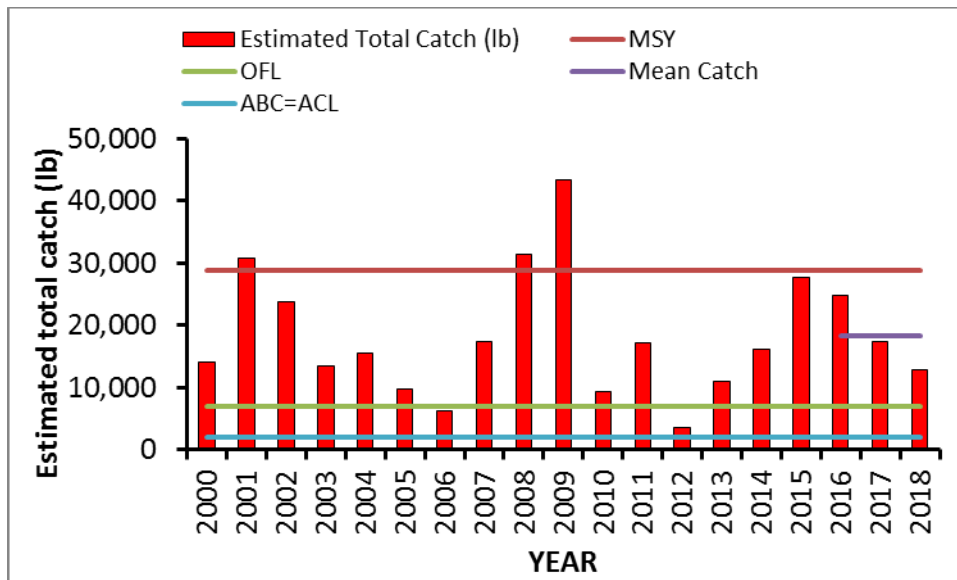


Figure 1. Estimated total catch (in pounds) from 2000 to 2018 relative to the MSY, OFL, ABC, and ACL in the American Samoa bottomfish fishery

At the 135th and 181st SSC and Council meeting, respectively, Brett Schumacher, PIRO SFD staff, presented the analysis to support the implementation of the Interim Measure. The goal of the interim measure is to allow the fishery to operate at a level that reduces (not end) overfishing, and allow the stock biomass to increase on a short term. Table 1 shows the biomass projection calculated by PIFSC Stock Assessment Program from 2020 to 2022 at different catch levels. Between 2020-2021, the maximum catch the fishery can take is 13,000 pounds with a 1 percent increase in biomass beyond which the biomass decreases. He also calculated using ArcGIS that the bottomfish MUS Essential Fish Habitat, used a proxy for fishing distribution, is merely 15-16 percent in federal waters. If the interim measure catch is 13,000 pounds and 15 percent of the fishing effort in the federal waters are closed, that is only 1,950 pounds of catch that is affected by a federal closure while the average catch is 18,352 pounds will likely still occur in the territorial waters. With no in-season AM applied to the territorial waters, the interim measure cannot be effectively implemented.

Table 1. Biomass projection from 2020 to 2022 by annual catch in 500 lb increment. Inc = increasing; Dec = decreasing. Highlighted row is the interim measure catch level.

Annual Catch (lb)	2020	2021	2022	2020-21	% Difference 2020-2021
0	86.66	100.15	114.55	Inc	15.6
500	87.86	100.81	114.89	Inc	14.7
1000	87.18	100.18	114.93	Inc	14.9
1500	86.16	96.91	111.05	Inc	12.5
2000	88.06	98.82	112.39	Inc	12.2
2500	86.89	98.90	110.69	Inc	13.8
3000	86.83	96.88	109.18	Inc	11.6
3500	86.69	96.80	107.57	Inc	11.7

4000	87.46	96.98	107.87	Inc	10.9
4500	86.52	95.14	105.11	Inc	10.0
5000	84.90	93.59	102.14	Inc	10.2
5500	87.42	96.57	105.27	Inc	10.5
6000	87.04	93.82	103.32	Inc	7.8
6500	86.54	93.38	101.70	Inc	7.9
7000	87.85	94.11	100.57	Inc	7.1
7500	86.74	92.33	98.66	Inc	6.4
8000	87.23	92.80	98.65	Inc	6.4
8500	86.60	91.54	97.63	Inc	5.7
9000	86.41	91.06	96.15	Inc	5.4
9500	87.13	91.48	96.22	Inc	5.0
10000	87.13	90.93	95.02	Inc	4.4
10500	86.69	89.63	93.71	Inc	3.4
11000	86.53	89.56	90.85	Inc	3.5
11500	87.82	90.02	92.64	Inc	2.5
12000	87.31	89.22	89.79	Inc	2.2
12500	88.30	88.51	90.07	Inc	0.2
13000	86.80	87.68	87.02	Inc	1.0
13500	87.59	87.32	87.00	Dec	-0.3
14000	87.51	87.01	85.41	Dec	-0.6
14500	86.28	85.24	84.03	Dec	-1.2
15000	86.97	85.30	84.04	Dec	-1.9
15500	85.98	83.83	80.82	Dec	-2.5
16000	86.36	83.61	80.19	Dec	-3.2
16500	86.66	83.29	79.83	Dec	-3.9
17000	85.86	81.84	77.38	Dec	-4.7
17500	86.06	82.66	77.35	Dec	-4.0
18000	86.85	81.56	76.79	Dec	-6.1
18500	87.38	83.05	77.64	Dec	-4.9
19000	87.76	81.63	74.67	Dec	-7.0
19500	87.25	80.91	74.24	Dec	-7.3
20000	86.40	79.62	72.09	Dec	-7.8
20500	87.09	80.31	72.42	Dec	-7.8
21000	87.59	79.96	71.31	Dec	-8.7
21500	86.94	79.51	70.60	Dec	-8.5
22000	86.88	77.14	67.31	Dec	-11.2
22500	86.18	76.17	65.61	Dec	-11.6
23000	87.46	77.67	66.69	Dec	-11.2
23500	86.95	76.15	64.65	Dec	-12.4
24000	87.46	77.04	64.60	Dec	-11.9
24500	87.39	76.00	63.60	Dec	-13.0
25000	86.98	75.02	61.89	Dec	-13.7

25500	87.86	75.28	62.06	Dec	-14.3
26000	87.37	74.18	60.73	Dec	-15.1
26500	87.56	75.12	60.88	Dec	-14.2
27000	87.82	74.51	59.35	Dec	-15.1
27500	86.77	72.96	57.04	Dec	-15.9
28000	87.56	72.18	55.42	Dec	-17.6
28500	86.13	71.19	55.00	Dec	-17.3
29000	87.47	71.15	53.98	Dec	-18.7
29500	87.23	71.79	53.91	Dec	-17.7
30000	86.40	70.21	51.77	Dec	-18.7

Council staff requested PIFSC-SAP for the biomass projections to determine the T_{min} . Figure 2 shows the biomass projection from 2020 to 2031 with the annual catch from 0 to 3,000 pounds. The red line is the B_{MSY} at 272,800 pounds. The fastest rate to get to B_{MSY} is when fishing mortality is zero. At zero fishing mortality it will take 10 years for the stock to rebuild (Table 2). If there will be a catch allowed for the fishery, the maximum amount would be 1,500 pounds that would allow the T_{min} to be within 10 years. Anything above 1,500 pounds will be more than 10 years to rebuild.

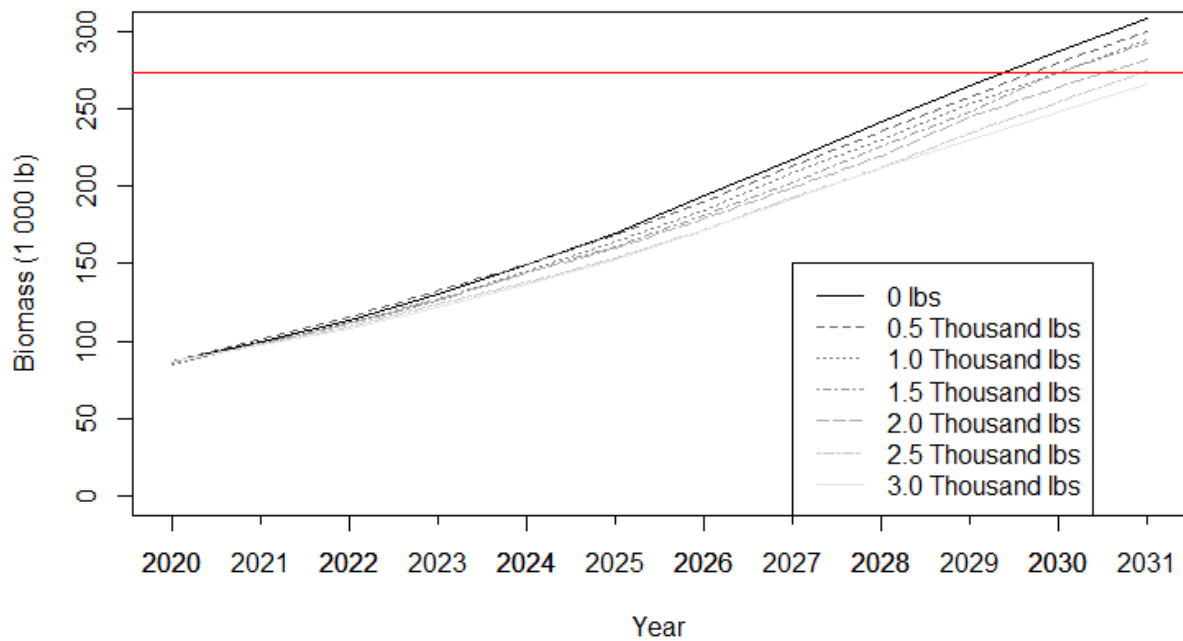


Figure 2. Projected biomass from 2020 to 2031 with annual catches from 0 to 3,000 lbs. Horizontal reference line denotes B_{MSY} (272,800 lb).

Addressing the NS1 requirements:

- 1) Council should immediately begin working with its SSC to ensure that the ABC is set appropriately to end overfishing

In order to meet this requirement, the SSC has an option to set the ABC based on the P* analysis which is at P*=0.30 with a corresponding catch level of 2,000 pounds for 2021-2024. However, as noted earlier, that this level of catch is very restrictive compared to the average catch at 18,352 pounds. Moreover, there is no in-season monitoring and in-season closure mechanism in territorial waters where most of the catch originates from.

- 2) Councils should evaluate the cause of overfishing, address the issue that caused overfishing, and reevaluate their ACLs and AMs to make sure they are adequate

The cause of the current overfishing was the change in the stock status from the 2019 benchmark stock assessment. The current fishery is comprised of six boats. There is hardly any effort occurring. It was raised in several fora that the problem stems from data that is not representative of the fishery. Moreover, the fishery occurs mostly in territorial waters and a federal ACL action does not apply. Fishery can continue from 0-3nm if the local fishery management agency deems it to be open.

Table 2. Biomass (1,000 lb) in 2020 to 2031 corresponding to annual catch (lb) ranging from 0 to 15,000 for American Samoa.

Annual Catch	Biomass											
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
-	87.0	99.4	113.9	130.6	149.3	169.8	193.4	216.5	240.9	264.3	286.9	308.2
500	86.5	100.3	115.1	132.2	149.5	168.7	189.9	212.9	235.1	256.7	279.1	300.1
1,000	85.2	98.1	111.9	127.5	145.6	164.2	184.0	208.7	229.2	252.7	272.8	294.5
1,500	85.6	98.3	111.2	126.3	143.8	160.7	181.2	202.6	225.1	247.6	273.5	292.5
2,000	87.3	97.9	111.4	126.7	143.7	160.4	178.5	198.6	219.7	244.8	263.2	281.9
2,500	87.0	97.2	109.1	123.9	137.6	154.0	172.0	193.1	212.2	233.6	253.9	274.2
3,000	86.4	97.1	108.0	121.6	136.5	152.6	171.4	191.7	212.1	229.4	247.4	265.2
3,500	85.7	95.9	107.8	121.2	135.2	149.5	166.2	185.3	201.4	219.8	238.3	259.2
4,000	85.6	94.0	104.2	115.9	129.1	144.0	159.8	174.6	192.7	211.3	231.7	250.1
4,500	86.1	95.6	107.4	117.5	128.8	143.2	157.8	174.8	192.3	209.3	227.8	244.9
5,000	85.0	93.0	102.7	113.4	127.1	137.6	152.2	167.3	182.1	200.0	217.7	234.7
5,500	86.5	94.0	103.3	113.4	124.2	135.3	148.4	163.2	182.0	197.9	216.4	232.1
6,000	86.8	94.7	102.7	112.8	124.3	133.8	144.2	158.6	173.8	188.3	204.4	218.3
6,500	85.3	92.2	100.0	108.5	117.5	130.0	139.2	151.5	165.2	179.0	195.2	212.6
7,000	84.6	91.9	98.8	106.1	114.5	125.5	133.7	143.7	157.3	170.2	185.0	198.7
7,500	85.7	91.7	97.9	104.6	112.3	120.9	130.7	141.2	152.1	163.8	176.6	189.4
8,000	85.8	91.9	97.1	103.1	111.9	120.9	128.5	137.7	146.7	156.5	167.9	180.6
8,500	85.8	91.3	96.9	103.0	108.6	115.8	123.3	131.8	141.9	150.3	162.2	172.9
9,000	86.3	90.4	95.5	100.5	106.7	112.9	119.6	129.4	138.0	147.5	154.6	166.5
9,500	85.7	89.6	94.2	98.6	103.3	109.2	115.5	122.2	130.3	136.9	144.5	152.2
10,000	85.3	87.7	91.7	95.8	100.7	105.2	110.1	114.8	120.8	128.0	134.1	142.7
10,500	86.0	88.8	91.9	95.9	98.5	101.2	106.3	111.2	114.5	118.4	125.4	131.8
11,000	86.0	87.8	90.8	93.6	96.7	98.4	103.1	106.4	110.4	112.1	118.7	123.6
11,500	84.9	86.1	88.6	89.6	92.8	93.2	96.9	98.8	101.5	103.2	106.6	108.3
12,000	85.5	86.4	87.3	87.7	89.3	89.6	90.4	91.4	93.9	95.5	97.1	101.4

12,500	84.9	85.6	86.5	88.5	89.3	90.6	91.4	92.4	94.6	94.0	95.9	95.2
13,000	85.9	85.4	85.4	85.4	86.8	86.5	86.9	86.0	85.3	85.7	85.7	85.8
13,500	86.2	85.5	85.6	84.1	84.2	82.7	80.9	79.6	78.3	76.6	73.1	70.5
14,000	84.8	84.4	82.0	81.5	78.6	77.4	74.4	71.7	69.8	65.4	61.5	57.8
14,500	86.3	84.9	83.2	80.5	79.6	77.4	73.2	70.2	66.5	62.2	57.7	53.5
15,000	84.5	82.6	80.0	77.2	75.0	71.8	68.2	64.3	58.5	53.7	47.3	41.6

- 3) Council must specify a time period for rebuilding the stock or stock complex. This target time for rebuilding (T_{target}) shall be as short as possible considering: 1) status and biology of any overfished stock; 2) needs of fishing communities; and 3) interaction of the stock within the marine ecosystem;

Based on Table 2, the catch level that can address both preventing overfishing and being able to rebuild the shorted time possible is at 1,500 pounds. A catch at the P^* level will result in a T_{target} at 11 years. However, this level of catch does not address the needs of the community. The average catch again is at 18,352 pounds. Even an interim catch level of 13,000 pounds is not going to meet the “prevent overfishing” requirement. The catch of 13,000 pounds is the maximum catch that allows rebuilding by 1 percent but this will not meet “shortest time possible” requirement. There is only little life history information available for the species in the complex. The issue is which life history information should the SSC and Council use to represent the complex. There is also little information on the interaction of the stock within the marine ecosystem.

- 4) The time period shall not exceed 10 years, except where biology of the stock, other environmental conditions

This is the same as above. There is little information to make decision based on the biology or effects of environmental conditions.

- 5) Need to determine the minimum time to rebuild in absence of fishing (T_{min})

The T_{min} in absence of fishing is 10 years based on Table 2.

- 6) Need to determine the maximum time for rebuilding (T_{max})
 - a. If T_{min} for the stock or stock complex is 10 years or less, then T_{max} is 10 years

For catch levels from 0-1,500 pounds, the T_{max} is 10 years.

- b. If T_{min} for the stock or stock complex exceeds 10 years, then one of the following methods can be used to determine T_{max}
 - i. T_{min} plus the length of time associated with one generation time for that stock or stock complex. “Generation time” is the average length of time between when an individual is born and the birth of its offspring,

For catch levels above 1,500 pounds, the T_{max} will have to be calculated. Under this approach, we don’t have the life history information to make determine the generation time for all of the species and there is no indicator species identified to represent the complex.

- ii. The amount of time the stock or stock complex is expected to take to rebuild to B_{MSY} if fished at 75 percent of MFMT

This information is not readily available in the stock assessment. An additional analysis will have to be conducted to determine the amount of time the complex to get to B_{MSY} at a rate of 75 percent of MFMT. This analysis was requested to the PIFSC-SAP and they are currently running the numbers.

iii. T_{\min} multiplied by two

Table 2 will get us that information but only until an annual catch level of 2,500 pounds. For higher catch levels, Table 2 will have to be expanded to the years where each catch reaches BMSY. This expansion of Table 2 was requested to the PIFSC_SAP and they are currently running the numbers.

- c. In situations where T_{\min} exceeds 10 years, T_{\max} establishes a maximum time for rebuilding that is linked to the biology of the stock

This decision will rely on a lot of life history information which we have very little information on. The Annual SAFE report for American Samoa summarizes the locally available life history information.

- d. When selecting a method for determining T_{\max} , a Council, in consultation with its SSC, should consider the relevant biological data and scientific uncertainty of that data, and must provide a rationale for its decision based on the best scientific information available

Rather than making the actual selection of T_{\max} at the June meeting, the SSC may consider discussing other approaches used in other data limited region on how they dealt with an overfished data limited stock. These are options that Council staff can explore in the development of the rebuilding plan.

- 7) Need to determine F_{rebuild} , the fishing mortality associated with achieving T_{target} .

This information is available from the expanded Table 2. However, the SSC and the Council must consider the needs of the community when selecting F_{rebuild} . This would dictate the level of catch that can be allowed in the fishery. This is an important cultural resource for the communities in American Samoa.

Conclusions from the Available Information

Using the information at hand, in order for the SSC and Council to meet the two NS1 requirements: 1) end overfishing immediately; and 2) develop a plan amendment to rebuild the stock; the catch levels that would meet both goals would be a complete moratorium on BMUS catch with zero pounds of ACL to a maximum of 1,500 pounds. This is summarized in Table 3. This would prevent overfishing from happening but not necessarily end it because we will have to wait for the next assessment to make that determination. These levels of catch do not meet the needs of the community. The average catch exceeds these levels by 9.3 times. A higher catch level would still allow the stock to rebuild but not within 10 years and may still prevent overfishing to a limit of 7,000 pounds. Again, the average catch is 2.6 times higher than the 7,000 pound OFL. All these are hampered by the absence of in-season monitoring and in-season accountability measures in the territorial and federal waters.

Table 3. Summary of the available information for the rebuilding plan.

Catch (lb)	Prevent OF'ing	P* Result	Rebuild Stock	Tmin@10 years	NRT-monitor	In-season AM	Social Impacts
0	Y	Y	Y	Y	N	N	?
1,000	Y	Y	Y	Y	N	N	?
1,500	Y	Y	Y	Y	N	N	?
2,000	Y	Y	Y	N	N	N	?
3,000	Y	N	Y	N	N	N	?
4,000	Y	N	Y	N	N	N	?
5,000	Y	N	Y	N	N	N	?
6,000	Y	N	Y	N	N	N	?
7,000	Y	N	Y	N	N	N	?
8,000	N	N	Y	N	N	N	?
9,000	N	N	Y	N	N	N	?
10,000	N	N	Y	N	N	N	?
11,000	N	N	Y	N	N	N	?
12,000	N	N	Y	N	N	N	?
13,000	N	N	Y	N	N	N	?
14,000	N	N	N	N	N	N	?
15,000	N	N	N	N	N	N	?

Management Scenarios and Regulatory Approaches

MSA and National Standard 1 Guidelines require the Regional Fishery Management Council to end overfishing immediately and have 15 months to develop an amendment to rebuild the stock to BMSY. Council staff reviewed every possible option to support American Samoa in sustaining a viable fishery while meeting the federal requirements to rebuild and end overfishing. Below are the possible scenarios:

1. If purely federal actions, strictly following the guidelines:
 - To end overfishing is not possible because the Territory needs to comply with the requirements and there is no parallel rule making and in-season tracking possible;
 - The ACL will be specified to 1,500 lb maximum in 2021. At the end of the fishing year, the Council will tally the catch (average in the past 3 years is 18,352 lb), the following year the ACL will be 0 lb in 2022.
 - By 2023, the Council must revisit its ACL specification process because the Council is allowed to exceed the ACL twice in a 4 year period. However, the next benchmark is scheduled in 2023. Hopefully the outcome is more positive.
 - For rebuilding, this level of catch (1,500 lb) allows the rebuilding to be 10 years.

- The Council can also consider and outright closure of the federal waters and be done with it until the next assessment comes.
 - The fishery will still continue in Territorial waters.
 - This option is supported by NS1 §600.310(f)(4)(iii) ACLs for State-Federal Fisheries. For stocks or stock complexes that have harvest in state or territorial waters, FMPs and FMP amendments should include an ACL for the overall stock that may be further divided. For example, the overall ACL could be divided into a Federal-ACL and state-ACL. However, NMFS recognizes that Federal management is limited to the portion of the fishery under Federal authority. See 16 U.S.C. 1856. When stocks are co-managed by Federal, state, tribal, and/or territorial fishery managers, the goal should be to develop collaborative conservation and management strategies, and scientific capacity to support such strategies (including AMs for state or territorial and Federal waters), to prevent overfishing of shared stocks and ensure their sustainability.
 - The accountability measure is supported by NS1 §600.310(g)(6)(iii) For stocks or stock complexes that have harvest in state or territorial waters, FMPs and FMP amendments must, at a minimum, have AMs for the portion of the fishery under Federal authority. Such AMs could include closing the EEZ when the Federal portion of the ACL is reached, or the overall stock's ACL is reached, or other measures
2. If the American Samoa government is willing to engage in a formal collaborative management:
 - Same as #1 except that an in-season monitoring and accountability measure will be applied. If the ACL is about to be reached, which would probably be open for only one month, the fishery on the federal and territorial side will close until the next fishing year.
 - This will result in an adverse impact to the fishing community because they are restricted from fishing.
 - This is contingent on whether the American Samoa government is willing to follow the federal approach to managing the bottomfish fishery.
 3. If the Council support American Samoa with their local management needs as an option for the rebuilding plan:
 - It will be the same as #1, overfishing will not immediately end because fishery will occur in the Territorial waters. The rebuilding plan will include improvements in the monitoring of the catch using the electronic reporting app. The Council will also support DMWR in the development of its Fishery Management Plan following the local process rather than the federal process.
 - Whether this approach is acceptable by NMFS is still unknown
 4. Utilize NS1 600.310(h)(2) Flexibility in application of NS1 guidelines.
 - This part of the guidelines states: There are limited circumstances that may not fit the standard approaches to specification of reference points and management measures set forth in these guidelines. These include, among other things, conservation and management of Endangered Species Act listed species, harvests from aquaculture operations, stocks with unusual life history characteristics (e.g., Pacific salmon,

where the spawning potential for a stock is spread over a multi-year period), and stocks for which data are not available either to set reference points based on MSY or MSY proxies, or to manage to reference points based on MSY or MSY proxies. In these circumstances, Councils may propose alternative approaches for satisfying requirements of the Magnuson-Stevens Act other than those set forth in these guidelines. Councils must document their rationale for any alternative approaches in an FMP or FMP amendment, which will be reviewed for consistency with the Magnuson-Stevens Act.

- As part of the rebuilding plan, the Council can invoke this part of the guideline and come up with a different approach like effort based input controls to manage the bottomfish fisheries. Simulations needs to be done if the effort control can allow for stock rebuilding and generate a long term catch that could prevent overfishing not on an annual basis.
5. Explore the utility of a multi-year interim measure request
- Even if there is a rebuilding plan developed from approach #1, there will be lack of progress because the fishery still operates uncontrolled in Territorial waters. There is no stipulation how many times an interim measure can be used but the language in MSA states that “the Council is actively preparing a fishery management plan, plan amendment, or proposed regulations to address the emergency or overfishing on a permanent basis.”
6. Explore the utility of NS 1 600.310(l) on exceptions to requirements to prevent overfishing
- This provision of NS1 allows overfishing of one stock relative to another that is caught on the same fishing operation. This would allow one stock to reach optimum yield for the economic benefits in the lieu of the other.
 - This cannot be used in the American Samoa case because there is only one stock in question. Although one might argue that the shallow portion of the complex maybe more vulnerable and might be driving the overfishing and overfished trend but the assessment was done on a single complex.
 - In order to utilize this provision, the other stock that is being exempted is not supposed to be subject to overfishing or not overfished.