WESTERN
PACIFIC
REGIONAL
FISHERY
MANAGEMENT
COUNCIL

PRELIMINARY DRAFT

Specifying Fishing Year 2016 and 2017 Annual Catch Limits and Accountability Measures for Bottomfish Management Unit Species in American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands

October 2, 2015

Content

1 Background Information 7
1.1 Purpose and Need 9
1.2 Proposed Action 10
1.3 Decisions to be Made 10
1.4 Public Involvement 10
2 Description of the Alternatives Considered 11
2.1 Development of the Alternatives 11
2.1.1 American Samoa Bottomfish MUS 11
2.1.2 Guam Bottomfish MUS 14
2.1.3 CNMI Bottomfish MUS 17
2.2 ACL Alternatives for Bottomfish MUS in 2016 and 2017 20
2.2.1 Alternative 1: No Action (Status Quo) 21
2.2.2 Alternative 2: Specify ACLs equal to the SSC recommended ABCs 21
2.2.3 Alternative 3: Specify ACLs Lower than SSC Recommended ABCs 22
2.3 Alternatives Not Considered in Detail 22
2.3.1 Specification of ACLs Higher than Council Recommendation 22
2.3.2 Specification of In-Season AMs 23
3 Potentially Affected Environment and Potential Impacts of the Proposed ACL specifications 25
3.1 American Samoa Bottomfish Fishery, Marine Resources and Potential Impacts 27
3.1.1 Target, Non-target and Bycatch Species in American Samoa 29
3.1.2 Protected Resources in American Samoa 32
3.1.3 American Samoa Fishing Community 38
3.2 Guam Bottomfish Fishery, Marine Resources and Potential Impacts 39
3.2.1 Target, Non-target and Bycatch Species in Guam 41
3.2.2 Protected Resources in Guam 44
3.2.3 Guam Fishing Community 51
3.3 CNMI Bottomfish Fishery, Marine Resources and Potential Impacts 52
3.3.1 Target, Non-target and Bycatch Species in the CNMI 55
3.3.2 Protected Resources in the CNMI 57
3.3.3 CNMI Fishing Community 64
3.4 Potential Impacts to Essential Fish Habitat and Habitat Areas of Particular Concern .. 65

3.5 Potential Impacts on Fishery Administration and Enforcement 68
3.5.1 Federal Agencies and the Council 68
3.5.2 Local Agencies 69
3.6 Environmental Justice 70
3.7 Climate Change 70
3.8 Additional Considerations 71
3.8.1 Significant Scientific, Cultural or Historical Sites 71
3.8.2 Overall Impacts 71
3.8.3 Cumulative Effects of the Proposed Action 71
4 Consistency with Other Applicable Laws 76
4.1 National Environmental Policy Act 76
4.1.1 Preparers and Reviewers 76
4.1.2 List of Agencies Consulted 76
4.1.3 Public Coordination 77
4.2 Endangered Species Act 77
4.3 Marine Mammal Protection Act 78
4.4 Coastal Zone Management Act 78
4.5 Paperwork Reduction Act 78
4.6 Regulatory Flexibility Act 79
4.7 Administrative Procedures Act 80
4.8 Executive Order 12898: Environmental Justice 80
4.9 Executive Order 12866: Regulatory Impact Review 81
4.10 Information Quality Act 82
5 References 83
Appendix A Range of Catches of Bottomfish in American Samoa, Guam and the CNMI in Fishing Year 2016 and 2017 that would Produce Probabilities of Overfishing of 1-50% 88
Appendix B 121th SSC Determination of Risk of Overfishing of Territorial Bottomfish 91
Appendix C SEEM WG report 98

Tables

Table 1. American Samoa probability of overfishing in 2016 and 2017 for a range of ACLs 12
Table 2. Annual estimated catch of BMUS in American Samoa (2000-2013) 14
Table 3. Guam probabilities of overfishing in 2016 and 2017 for a range of ACLs 15

Table 4. Annual estimated catch of BMUS in Guam (2000-2013) 17

Table 5. CNMI probabilities of overfishing in 2016 and 2017 for a range of ACLs 17

Table 6. Annual estimated catch of BMUS in CNMI (2000-2011) 19

Table 7. ACL Alternatives and Probabilities of Overfishing Bottomfish Stock Complexes in American Samoa, Guam and the CNMI in 2016 and 2017 24

Table 8. American Samoa Bottomfish MUS 30

Table 9. Endangered, and threatened marine species and seabirds known to occur or reasonably expected to occur in waters round the American Samoa Archipelago 32

Table 10. Marine mammals known to occur or reasonably expected to occur in waters around American Samoa 34

Table 11. Seabirds occurring in American Samoa 36

Table 12. Mariana Bottomfish MUS (Guam) 42

Table 13. Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the Mariana Archipelago (Guam) 44

Table 14. Marine mammals known to occur or reasonably expected to occur in waters around the Mariana Archipelago - Guam 47

Table 15. Seabirds occurring in the Mariana Archipelago (Guam) 50

Table 16. Mariana Bottomfish MUS (CNMI) 55

Table 17. Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the Mariana Archipelago (CNMI) 57

Table 18. Marine mammals known to occur or reasonably expected to occur in waters around the Mariana Archipelago (CNMI) 60

Table 19. Seabirds occurring in the Mariana Archipelago (CNMI) 63

Table 20. EFH and HAPC for Western Pacific FEP MUS 66

Table 21. ESA Section 7 consultations for western Pacific bottomfish fisheries 77

Figures

Figure 1. General relationship between OFL, ABC, ACL and ACT..... 9

Figure 2. Kobe plot of relative biomass and relative exploitation rate from the best fitting production model for American Samoa, 1986-2013 (Source: Yau et al., in press, Figure 15) 13

Figure 3. Kobe plot of relative biomass and relative exploitation rate from the best fitting production model for Guam, 1982-2013 (Source: Yau et al., in press, Figure 21) 16

Figure 4. Kobe plot of relative biomass and relative exploitation rate from the best fitting production model for CNMI, 1983-2013 (Source: Yau et al., in press, Figure 18)..... 19

Acronyms

ABC – Acceptable Biological Catch
ACL – Annual Catch Limit
ACT – Annual Catch Target
AM – Accountability Measure
APA – Administrative Procedures Act
BMUS – Bottomfish Management Unit Species
CFR – Code of Federal Regulations
CNMI – Commonwealth of the Northern Mariana Islands
CPUE – Catch Per Unit of Effort
DAWR – Guam Division of Aquatic and Wildlife Resources
DMWR – American Samoa Department of Marine and Wildlife Resources
DFW – Northern Mariana Islands Division of Fish and Wildlife
EA – Environmental Assessment
EC – Ecosystem Component
EEZ – Exclusive Economic Zone
ESA – Endangered Species Act
FEP – Fishery Ecosystem Plan
FMP – Fishery Management Plan
FR – Federal Register
FRFA – Final Regulatory Flexibility Analysis
HDAR – Hawaii Division of Aquatic Resources
HMRFS – Hawaii Marine Recreational Survey
IRFA – Initial Flexibility Analysis
JEA – Joint Enforcement Agreement
MHI – Main Hawaiian Islands
MSA – Magnuson-Stevens Act – Magnuson-Stevens Fishery Conservation and Management Act
MFMT – Maximum Fishing Mortality Threshold
MMPA – Marine Mammal Protection Act
MRFSS – Marine Recreational Fisheries Statistics Survey
MSST – Minimum Stock Size Threshold
MSY – Maximum Sustainable Yield
MUS – Management Unit Species

NEPA – National Environmental Policy Act
Nm – Nautical Miles
NMFS – National Marine Fisheries Service
NOAA – National Oceanic and Atmospheric Administration
NRC – National Research Council
OFL – Overfishing Limit
OLE – Office of Law Enforcement
ONMS – NOAA Office of National Marine Sanctuaries
OY – Optimum Yield
P* - Probability or Risk of Overfishing
PIFSC – NMFS Pacific Islands Fisheries Science Center
PIRO – Pacific Islands Regional Office
RFA – Regulatory Flexibility Analysis
RIR – Regulatory Impact Review
SDC – Status Determination Criteria
SEEM – Social, Economic, and Ecological Considerations, or Management Uncertainty
SSC – Scientific and Statistical Committee
USCG – U.S. Coast Guard
USFWS – U.S. Fish and Wildlife Service
VMS – Vessel Monitoring System
WPacFIN – Western Pacific Fisheries Information Network

1 Background Information

The National Marine Fisheries Service (NMFS) and the Western Pacific Fishery Management Council (Council) manage fisheries for bottomfish management unit species (BMUS) in federal waters of the exclusive economic zone (EEZ; generally 3-200 nautical miles or nm) around the U.S. Pacific Islands through one of four fishery ecosystem plans (FEP) authorized by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). Three of the FEPs are archipelagic-based and include the American Samoa Archipelago FEP, the Hawaii Archipelago FEP, and the Mariana Archipelago FEP (which covers federal waters around Guam and the Commonwealth of the Northern Mariana Islands or the CNMI). The fourth FEP covers federal waters of the U.S. Pacific remote island areas (PRIA) which include Palmyra Atoll, Kingman Reef, Jarvis Island, Baker Island, Howland Island, Johnston Atoll, and Wake Island. In each island area except the PRIA, bottomfish fisheries harvest an assemblage, or complex of species that include emperors, snappers, groupers, and jacks.

General federal regulations for western Pacific bottomfish fisheries in 50 Code of Federal Regulations (CFR) 665 include vessel identification and observer requirements and a prohibition on the use of bottom trawls and bottom set gillnets. In the CNMI, Federal regulations further require commercial fishermen to obtain a federal bottomfishing permit and report all catch, and prohibit fishing vessels greater than 40 ft in length from fishing within 50 nautical miles (nm) around the southern islands of Rota, Tinian and Saipan, and 10 nm around the island of Alamagan. Additionally, all commercial fishing is prohibited within 50 nm around the three northernmost islands, Uracus, Maug, and Asuncion in accordance with Presidential Proclamation 8335 establishing the Mariana Trench Marine National Monument. In Guam, federal regulations prohibit vessels greater than 50 ft in length from fishing for bottomfish management unit species (BMUS) in U.S. EEZ waters within 50 from shore. No bottomfish fishing occurs in the PRIA.

In all island areas, federal requirements also direct NMFS to specify an annual catch limit (ACL) and implement accountability measures (AM) for each bottomfish stock and stock complex[1], as recommended by the Council, and in consideration of the best available scientific, commercial, and other information about the fishery for that stock or stock complex. On August 31, 2015 (80 FR 52415), NMFS specified the 2015 ACLs for BMUS in American Samoa, Guam and the CNMI as follows: American Samoa bottomfish ACL = 101,000 lb, Guam bottomfish ACL = 66,800 lb, and CNMI bottomfish ACL = 228,000 lb.

Overview of the ACL Specification Process

In accordance with the Magnuson-Stevens Act and the FEPs, there are three required elements in the development of an ACL specification. The first requires the Council's SSC to calculate an acceptable biological catch (ABC) that is set at or below the stock or stock complex's overfishing limit (OFL). The OFL is an estimate of the catch level above which overfishing is occurring and corresponds with the maximum fishing mortality threshold (MFMT). 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

[1] The Magnuson-Stevens Act defines the term "stock of fish" to mean a species, subspecies, geographic grouping, or other category of fish capable of management as a unit. Federal regulations at 50 CFR §660.310(c) defines "stock complex" to mean a group of stocks that are sufficiently similar in geographic distribution, life history, and vulnerabilities to the fishery such that the impact of management actions on the stocks is similar.

FEPs includes a five-tiered system of control rules that allows 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 like bottomfish that have estimates of maximum sustainable yield (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, and the acceptable level of risk (as determined by the Council) that catch equal to the ABC would result in overfishing. In plain English, ABC is the maximum value for which the probability or risk of overfishing percentile (P*) is less than 50 percent. In accordance with federal regulations, the probability of overfishing cannot exceed 50 percent and should be a lower value (74 FR 3178, January 9, 2011). Each 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, including assessment information, uncertainty characterization, stock status, and stock productivity and susceptibility. The FEPs also allow 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 SSC recommended ABC. The process includes methods by which the ACL may be reduced from the ABC based on social, economic, and ecological considerations, or management uncertainty[2] (SEEM). An ACL set below the 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 AMs 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. An annual catch target (ACT) may also be used in the system of AMs so that an ACL is not exceeded. An ACT is the management target of the fishery and accounts for management uncertainty in controlling the actual catch at or below the ACL. Post season AMs include a downward adjustments to an ACL if it is exceeded.

If the Council determines an ACL has been exceeded, the Council may recommend as an AM, that NMFS reduce the ACL in the subsequent fishing year by the amount of the overage. In determining whether an overage adjustment is necessary, the Council would consider the magnitude of the overage and its impact on the affected stock's status. Additionally, if an ACL is exceeded more than once in a four-year period, the Council is required to re-evaluate the ACL

[2] Management uncertainty occurs because of the lack of sufficient information about catch (e.g., late reporting, under reporting, and misreporting of landings).

process, and adjust the system, as necessary, to improve its performance and effectiveness. Figure 1 illustrates the relationship between the terms used in this section.

For more details on the specific elements of the ACL specification mechanism and process, see Amendment 1 to the PRIA FEP, Amendment 2 to the American Samoa Archipelago FEP, Amendment 2 to the Mariana FEP, Amendment 3 to the Hawaii Archipelago FEP, and the final implementing regulations at 50 CFR §665.4 (76 FR 37286, June 27, 2011).

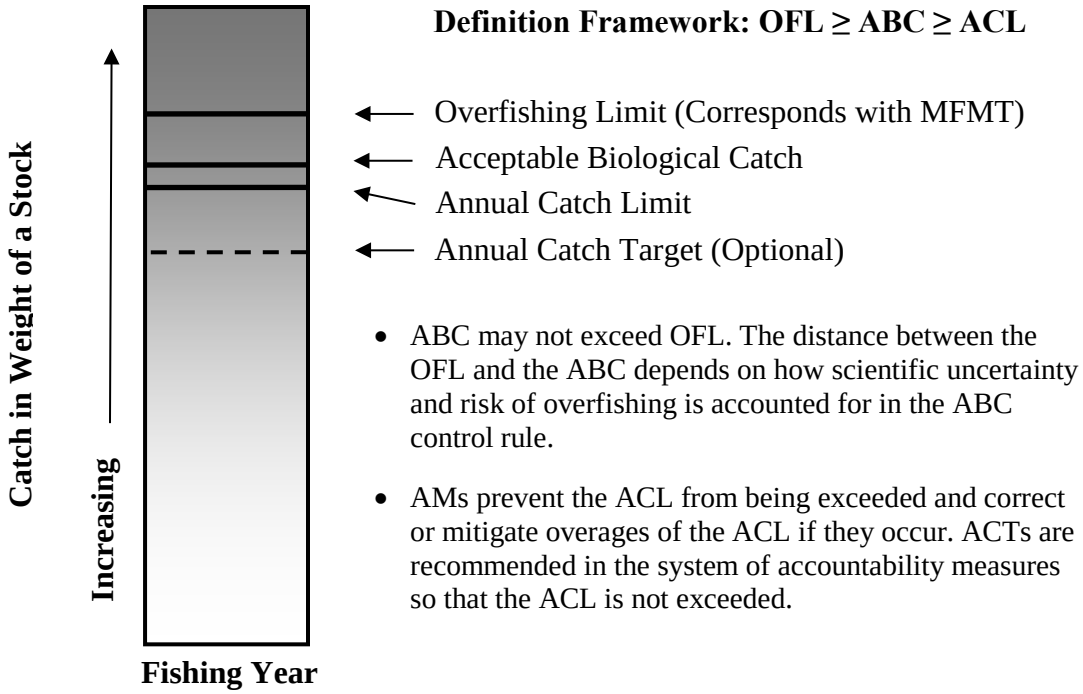

Figure 1. General relationship between OFL, ABC, ACL and ACT

1.1 Purpose and Need

ACLs are needed in order to comply with the Magnuson-Stevens Act and provisions of the FEPs for American Samoa and the Mariana Archipelago that require NMFS to specify an ACL, based on recommendations from the Council, for each stock and stock complex in western Pacific bottomfish fisheries. The fishery management objective of this action is to specify an ACL for all western Pacific BMUS that will prevent overfishing from occurring, and ensure long-term sustainability of bottomfish resources while allowing fishery participants to continue to benefit from its utilization. AMs also are needed to correct or mitigate overages of the ACL should they occur. In American Samoa, CNMI and Guam, BMUS are managed as a single multi-species stock complex. Consistent with the FEPs, ACLs are proposed to be specified at the stock complex level.

1.2 Proposed Action

NMFS will propose to specify an ACL for BMUS in American Samoa, CNMI and Guam. The proposed ACL specifications will be based on the recommendations of the Council which were developed in accordance with the approved ACL mechanism described in the FEPs and implementing federal regulations at 50 CFR §665.4, and in consideration of the best available scientific, commercial, and other information.

The ACL for each stock complex would be specified for the 2016 and the 2017 fishing years, which begin on January 1 and end on December 31 annually. In each island area, catches to be counted towards the ACL for each bottomfish stock complex would be calculated starting on January 1 through December 31 based on catch data collected by local resource management agencies through their respective fishery monitoring programs[3], and by NMFS through federal logbook reporting.

1.3 Decisions to be Made

After considering public comments on the proposed action and alternatives considered, NMFS will specify ACLs and AMs for BMUS in American Samoa, CNMI, and Guam for fishing years 2016 and 2017. The Regional Administrator of the NMFS Pacific Islands Regional Office (PIRO) will also use the information in this environmental assessment to make a determination about whether the selected ACL specifications and AMs would be a major federal action with the potential to have a significant environmental impact that would require the preparation of an environmental impact statement.

1.4 Public Involvement

At its 164th meeting, the Council will consider and discuss issues relevant to ACL and AM specifications for western Pacific bottomfish stocks and stock complexes in American Samoa, Guam, and the CNMI including ABC recommendations of the 121st SSC, and the range of ACLs considered in this document. The 121st SSC and the 164th Council meetings were held October 13-14, 2015 and October 21-22, 2015, respectively. Both meetings were open to the public and advertised through notices in the Federal Register (80 FR 57582, September 24, 2015) and on the Council's website.

[3] Catch data for bottomfish fisheries in each island are collected at the lowest taxonomic level possible by state and territorial fisheries agencies in American Samoa, the CNMI, Guam, and Hawaii. The data are then expanded using algorithms developed by NMFS Pacific Islands Fisheries Science Center (PIFSC), Western Pacific Fisheries Information Network (WPacFIN) to generate estimates of total catches from both commercial and non-commercial sectors.

2 Description of the Alternatives Considered

The alternatives considered in this document are a range of ACLs for the multi-species bottomfish stock complexes of American Samoa, Guam, and CNMI. Although the estimate of OFL and calculation of ABC are part of the ACL mechanism, the establishment of these reference points is not part of the proposed federal action, because the OFL is unknown and has not been determined for any bottomfish stock complex. Additionally, ABCs were previously calculated by the Council's SSC at its 121st meeting, in accordance with the approved ACL mechanism described in the FEPs and implementing federal regulations at 50 CFR §665.4, and considering the best available scientific, commercial, and other information. However, a discussion of OFL and calculation of ABCs is included for informational purposes.

2.1 Development of the Alternatives

The SSC and Council developed the ABC and ACL recommendations in accordance with the Magnuson-Stevens Act and federal regulations at 50 CFR §665.4 that implement the ACL specification mechanism of the FEPs described in Section 1. This section summarizes the data, methods, and procedures considered in SSC and Council deliberations as described in the Council's ACL specification document (WPFMC 2011). A full report of the 121st SSC and 164th Council deliberations can be found on the Council website at www.wpcouncil.org.

The ABC and ACL recommendations for bottomfish in American Samoa, Guam, and CNMI are based on the most recent bottomfish stock assessment updates (Yau et al., in press) conducted by NMFS Pacific Islands Fisheries Science Center (PIFSC). The Yau et al., (in press) stock assessment updates used data though 2013 and applied a Bayesian state space surplus production model to estimate parameters of a Schaefer model fit to a time series of annual CPUE statistics for BMUS in each island area. This approach provided direct estimates of parameter uncertainty for status determination. The surplus production model includes both process error in biomass production dynamics and observation error in the catch-per-unit effort data. A brief summary of the model outputs for bottomfish carrying capacity (K), maximum sustainable yield (MSY) estimates, and stock status is provided in Sections 2.1.1 for American Samoa BMUS, Section 2.1.2 for Guam BMUS and 2.1.3 for CNMI BMUS.

2.1.1 American Samoa Bottomfish MUS

Estimation of OFL

According to the PIFSC 2015 bottomfish stock assessment update (Yau et al., in press), the long-term MSY for American Samoa bottomfish is estimated to be 76,740 ± 14,060 lb, which is higher than the previous MSY estimate of 76,200 ± 14,300 lb reported in the 2012 assessment update by Brodziak et al. (2012). Stock projection results, which assume that a two-year bottomfish catch limit would be harvested in its entirety in 2016 and again in 2017, indicates that an ACL set at approximately 115,000 lb would result in a 30.2 percent probability of overfishing in 2016, rising in 2015 to a 50 percent probability of overfishing (Table 1). The maximum risk allowable under Federal law (74 FR 3178, January 9, 2011) is 50 percent. Therefore, while 76,740 lb is the long-term estimate of MSY, 115,000 lb is considered to be the OFL proxy for

the two year period. As a reference, estimated average annual total catch during the period 2011-2013 was 21,005 lb with 23,630 lb landed in 2013, the most recent year for which complete data (i.e., total catch and commercial catch) are available (Table 2). This suggests that the current fishery is substantially below the overfishing limit and below the MSY by a factor of three.

Table 1. American Samoa probability of overfishing in 2016 and 2017 for a range of ACLs

ACL (lb)	% Probability of Overfishing (2016)	% Probability of Overfishing (2017)
50,000	1.0	1
69,000	4.2	5
80,000	7.7	10
87,000	10.9	15
92,000	13.5	20
97,000	16.6	25
101,000	19.3	30
102,000	19.9	31
103,000	20.7	33
104,000	21.5	34
105,000	22.3	35
106,000	22.9	37
107,000	23.7	38
108,000	24.5	40
109,000	25.4	41
110,000	26.1	42
111,000	26.9	44
112,000	27.8	45
113,000	28.6	47
114,000	29.4	48
115,000	30.2	50

Source: Yau et al. (in press)

Stock Status

Under all the western Pacific FEPs, overfishing of bottomfish occurs when the fishing mortality rate (F) is greater than the fishing mortality rate that produces MSY (F_{MSY}) for one year or more. This threshold is termed the maximum fishing mortality threshold (MFMT) and is expressed as a ratio, $F/F_{MSY} = 1.0$. Thus, if the F/F_{MSY} ratio is greater than 1.0 for one year or more, overfishing is occurring. A stock is considered overfished when its biomass (B) has declined below the level necessary to produce MSY on a continuing basis (B_{MSY}). This threshold is termed the minimum stock size threshold (MSST) and is expressed as a ratio, $B/B_{MSY} = 0.7$. Thus, if the B/B_{MSY} ratio is less than 0.7, the stock complex is considered overfished. Whenever possible, status determination criteria (SDC) of MFMT and MSST are applied to individual species within the multi-species stock complex. When that is not possible, SDCs are applied to indicator species for the multi-species stock complex. With current data, neither approach is possible; therefore, for all island areas, SDCs are applied to the entire bottomfish multi-species complex as a whole.

In 2013, the most recent year for which stock status information is available, $F_{2013}/F_{MSY} = 0.17$ while $B_{2013}/B_{MSY} = 1.98$ (Table 6 in Yau et al., in press). The production model results indicate

that the American Samoa bottomfish complex was not overfished and did not experience overfishing at any point between the periods 1986 and 2013 (Figure 2). Based on stock projections, an annual catch of 102,000 lb in 2016 and again in 2017 would be necessary to produce an F/FMSY ratio of 1.0 (i.e., overfishing) for year 2.

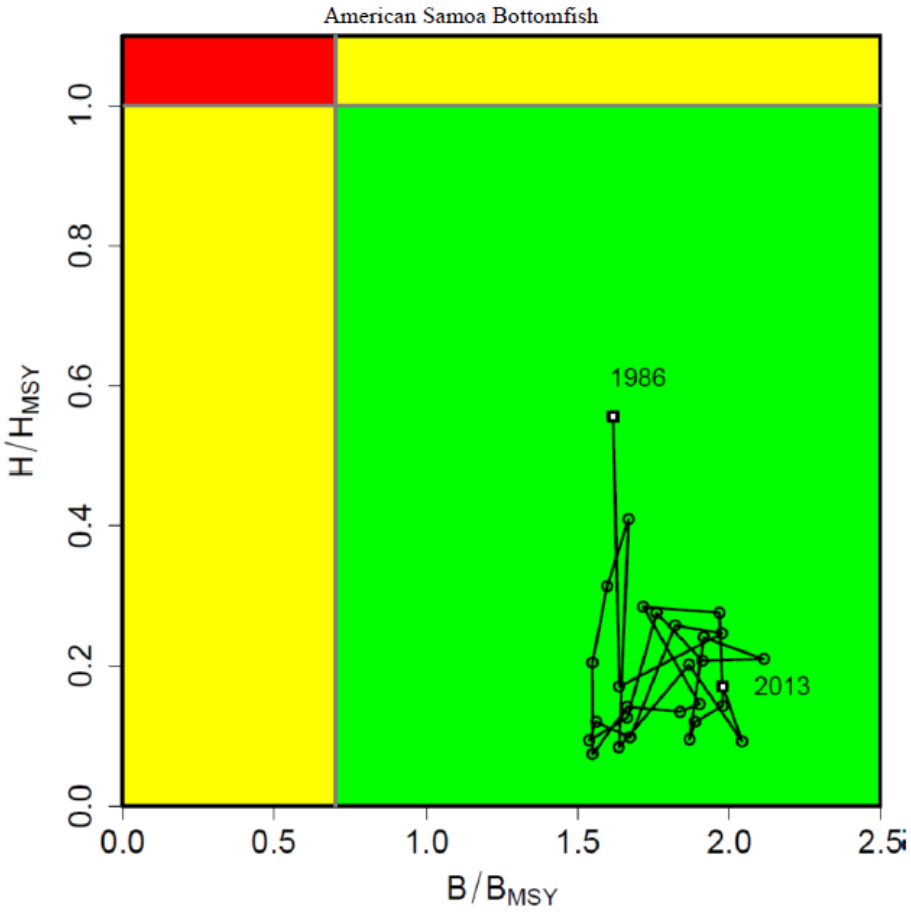

Figure 2. Kobe plot of relative biomass and relative exploitation rate from the best fitting production model for American Samoa, 1986-2013 (Source: Yau et al., in press, Figure 15)

SSC's Calculation of ABC

Since the PIFSC 2015 stock assessment updates used statistical-based models to estimate OFL and uncertainty in OFL for the American Samoa bottomfish stock complex, the assessment qualifies as a Tier 1-2 assessment.[4] Therefore, in accordance with the Council's ACL mechanism, the Council must advise the SSC on the acceptable probability of overfishing or P* to apply in the Tier 1-2 ABC control rule to calculate ABC. P* cannot exceed 50 percent and should be a lower value.

Upon evaluation of the PIFSC 2015 stock assessment, the SSC determined that catch equal to a P* of 37 percent applied in 2017 was appropriate for the fishery and presented its methodologies,

[4] A "Tier 1-2" assessment refers to a stock assessment that has a moderate to high level of information available for a given fish stock. Each FEP describes the specified approach the SSC must use to calculate an ABC for stocks with a Tier 1-2 assessment (76 FR 14367, March 16, 2011).

rationale and findings at the 161st Council meeting (see Appendix B). Based on risk projections contained in Table 1, the SSC determined a catch of 106,000 lb corresponds to a P* of 22.9 percent in 2016 rising to 37 percent in 2017 and set the ABC for the American Samoa bottomfish stock complex at that level for both 2016 and 2017.

Table 2. Annual estimated catch of BMUS in American Samoa (2000-2013)

Year	Estimated Total Catch (lb)[1]	Estimated Commercial Catch (lb)[2]
2000	19,816	13,319
2001	37,847	21,439
2002	34,149	16,603
2003	19,199	4,645
2004	17,206	11,469
2005	16,329	5,649
2006	7,913	5,252
2007	21,874	13,092
2008	34,812	24,585
2009	47,458	34,360
2010	9,509	8,667
2011	26,277	15,413
2012	13,110	3,389
2013	23,630	7,833
Ave. Catch 2011-2013	**21,005**	**8,878**

[1]Source: Table 3 in Yau et al., (in press)
[2] Source: NMFS WPacFIN website http://www.pifsc.noaa.gov/wpacfin (accessed 09/17/2015)

2.1.2 Guam Bottomfish MUS

Estimation of OFL
According to the PIFSC 2015 bottomfish stock assessment (Yau et al., in press), the long-term MSY for Guam bottomfish is estimated to be 56,130 lb ± 7,790 lb, which is slightly higher than the previous MSY estimate of 55,000 lb ± 7,900 lb reported in the 2012 assessment update by Brodziak et al. (2012). Stock projection results, which assume that a two-year bottomfish catch limit would be harvested in its entirety in 2016 and again in 2017, indicates that an ACL set at approximately 71,000 lb would result in a 32.1 percent probability of overfishing in 2016, rising in 2017 to approximately a 49 percent probability of overfishing (Table 3) 1 percent below the maximum risk allowable under Federal law (74 FR 3178, January 9, 2011). Therefore, while 56,130 lb is the long-term estimate of MSY, 71,000 lb is considered to be the OFL proxy for the two year period. As a reference, estimated average annual total catch during the period 2011-2013 was 37,183 lb with 29,848 lb landed in 2013, the most recent year for which complete catch data (i.e., total and commercial catch) are available (Table 4). This suggests the fishery would need to harvest nearly 33 percent more based on the recent average catch to reach MSY. However, in order for overfishing to occur, the fishery has to harvest more than twice the recent average catch in 2016 and again in 2017.

Table 3. Guam probabilities of overfishing in 2016 and 2017 for a range of ACLs

ACL (lb)	% Probability of Overfishing (2016)	% Probability of Overfishing (2017)
33,000	1.2	1
45,000	5.0	5
51,000	8.9	10
55,000	12.3	15
58,000	15.2	20
61,000	18.6	25
62,000	19.8	26
63,000	21.0	29
64,000	22.3	31
65,000	23.7	33
66,000	25.0	36
67,000	26.4	38
68,000	27.8	41
69,000	29.2	44
70,000	30.7	46
71,000	32.1	49

Source: Yau et al., (in press)

Stock Status

In 2013, the most recent year for which stock status information is available, $F_{2013}/F_{MSY} = 0.356$ while $B_{2013}/B_{MSY} = 1.63$ (Table 8 in Yau et al., in press). The production model results indicate that during the period 1982 through 2013, the Guam bottomfish complex has not been overfished and has not experienced overfishing, except perhaps in 2000 (Figure 3) Based on stock projections, an annual catch of 71,000 lb in 2016 and again in 2017 would be necessary to produce an F/F_{MSY} ratio of 1.0 (i.e., overfishing) for year 2.

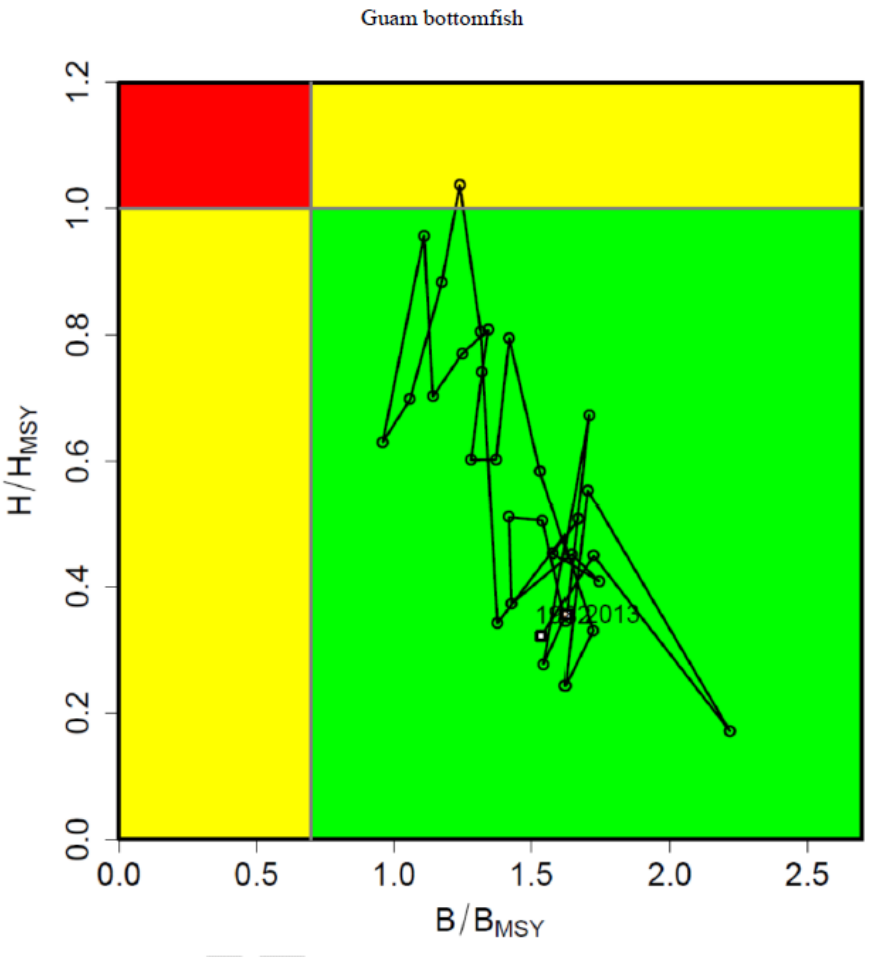

Figure 3. Kobe plot of relative biomass and relative exploitation rate from the best fitting production model for Guam, 1982-2013 (Source: Yau et al., in press, Figure 21)

SSC's Calculation of ABC

Since the PIFSC 2015 stock assessment used statistical-based models to estimate OFL and uncertainty in OFL for the Guam bottomfish stock complex, the assessment qualifies as a Tier 1-2 assessment. Therefore, in accordance with the Council's ACL mechanism, the Council must advise the SSC on the acceptable probability of overfishing or P* to apply in the Tier 1-2 ABC control rule to calculate ABC. P* cannot exceed 50 percent and should be a lower value.

Upon evaluation of the PIFSC 2015 stock assessment, the SSC determined that catch equal to a P* of 36 percent applied in 2017 was appropriate for the fishery and presented its methodologies, rationale and findings at the 161st Council meeting (see Appendix B). Based on risk projections contained in Table xx, the SSC determined a catch of 66,000 lb corresponds to a P* of 25 percent in 2016 rising to 36 percent in 2017 and set the ABC for the Guam bottomfish stock complex at that level for both 2016 and 2017.

Table 4. Annual estimated catch of BMUS in Guam (2000-2013)

Year	Estimated Total Catch (lb)[1]	Estimated Commercial Catch (lb)[2]
2000	66,000	20,371
2001	54,352	23,690
2002	24,044	17,561
2003	43,253	10,841
2004	36,915	24,947
2005	36,529	23,002
2006	38,054	17,100
2007	27,459	16,074
2008	37,316	11,484
2009	40,222	15,867
2010	28,958	13,810
2011	59,618	15,985
2012	22,085	10,000
2013	29,848	4,891
Ave. Catch 2011-2013	**37,183**	**10,292**

[1]Source: Table 3 in Yau et al., (in press).
[2] Source: NMFS WPacFIN website http://www.pifsc.noaa.gov/wpacfin (accessed 09/17/2015)

2.1.3 CNMI Bottomfish MUS

Estimation of OFL

According to the PIFSC 2015 bottomfish stock assessment update (Yau et al., in press), the long-term MSY for CNMI bottomfish is estimated to be 173,100 ± 32,190 lb, which is higher than the previous MSY estimate of 172,900 ± 32,200 lb reported in the 2012 assessment by Brodziak et al. (2012). Stock projection results, which assume that a two-year bottomfish catch limit would be harvested in its entirety in 2016 and again in 2017, indicates that an ACL set at approximately 250,000 lb would result in a 31.2 percent probability of overfishing in 2016, rising in 2017 to approximately a 50 percent probability of overfishing (Table 5) the maximum risk allowable under Federal law (74 FR 3178, January 9, 2011). Therefore, while 173,100 lb is the long-term estimate of MSY, 250,000 lb is considered to be the OFL proxy for the two year period. As a reference, estimated average annual total catch during the period 2011-2013 was 20,009 lb with 29,848 lb landed in 2013, the most recent year for which complete catch data (i.e., total and commercial catch) are available (Table 6). This suggests the fishery would need to harvest nearly eight times the recent average catch of 20,009 lb more than MSY in 2013 and again in 2014 for overfishing to occur.

Table 5. CNMI probabilities of overfishing in 2016 and 2017 for a range of ACLs

ACL (lb)	% Probability of Overfishing (2016)	% Probability of Overfishing (2017)
78,000	1.0	1
134,000	4.7	5

ACL (lb)	% Probability of Overfishing (2016)	% Probability of Overfishing (2017)
162,000	8.5	10
180,000	12.1	15
208,000	18.7	26
212,000	19.7	28
214,000	20.2	29
218,000	21.3	31
220,000	21.9	32
224,000	23.1	34
228,000	24.2	36
230,000	24.9	37
232,000	25.6	38
236,000	26.8	41
240,000	28.1	43
242,000	28.7	45
246,000	30.0	47
248,000	30.6	48
250,000	31.2	50

Source: Yau et al., (in press)

Stock Status

In 2013, the most recent year for which stock status information is available, $F_{2010}/F_{MSY} = 0.088$ while $B_{2010}/B_{MSY} = 1.85$ (Table 7 in Yau et al., in press). The production model results indicate that the CNMI bottomfish complex was not overfished and did not experience overfishing at any point between the periods 1986 and 2013 (Figure 4). Based on stock projections, an annual catch of 250,000 lb in 2016 and again in 2017 would be necessary to produce an F/F_{MSY} ratio of 1.0 (i.e., overfishing) on the second year.

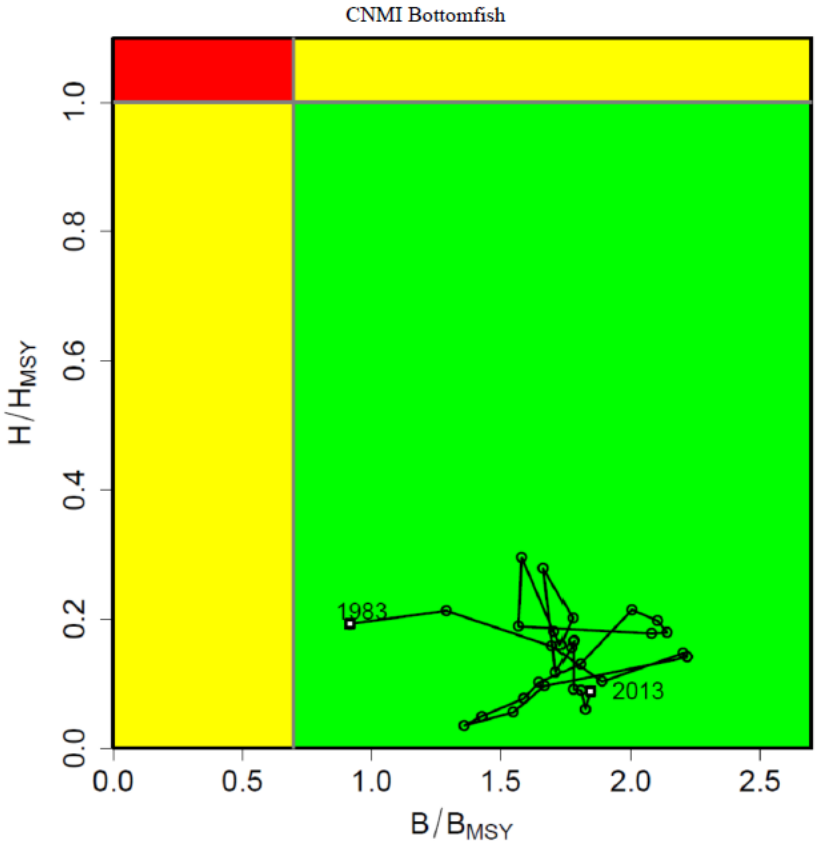

Figure 4. Kobe plot of relative biomass and relative exploitation rate from the best fitting production model for CNMI, 1983-2013 (Source: Yau et al., in press, Figure 18)

SSC's Calculation of ABC

Since the PIFSC 2015 stock assessment used statistical-based models to estimate OFL and uncertainty in OFL for the CNMI bottomfish stock complex, the assessment qualifies as a Tier 1-2 assessment. Therefore, in accordance with the Council's ACL mechanism, the Council must advise the SSC on the acceptable probability of overfishing P* to apply in the Tier 1-2 ABC control rule to calculate ABC. P* cannot exceed 50 percent and should be a lower value.

Upon evaluation of the PIFSC 2015 stock assessment, the SSC determined that catch equal to a P* of 36 percent applied in 2017 was appropriate for the fishery and presented its methodologies, rationale and findings at the 161th Council meeting (see Appendix B). Based on risk projections contained in Table xx, the SSC determined a catch of 228,000 lb corresponds to a P* of 24.2 percent in 2016 rising to 36 percent in 2017 and set the ABC for the CNMI bottomfish stock complex at that level for both 2016 and 2017.

Table 6. Annual estimated catch of BMUS in CNMI (2000-2011)

Year	Estimated Total Catch (lb)[1]	Estimated Commercial Catch (lb)[2]
2000	45,258	14,968
2001	71,256	25,303

Year	Estimated Total Catch (lb)[1]	Estimated Commercial Catch (lb)[2]
2002	46,765	18,816
2003	41,903	18,063
2004	54,475	12,973
2005	70,404	16,538
2006	29,340	12,262
2007	39,476	18,606
2008	42,070	18,389
2009	41,176	20,418
2010	22,395	14,729
2011	22,487	16,930
2012	15,302	11,746
2013	22,510	17,796
Ave. Catch 2011-2013	**20,099**	**15,491**

[1]Source: Table 3 in Yau et al., (in press).
[2] Source: NMFS WPacFIN website http://www.pifsc.noaa.gov/wpacfin (accessed 09/25/2015)

2.2 ACL Alternatives for Bottomfish MUS in 2016 and 2017

Features common to all alternatives
The alternatives considered in this document are limited to ACLs and AMs as they are the management measures to be applied to the fisheries for BMUS in American Samoa, Guam, and the CNMI. The ACLs and AMs will be applied in fishing year 2016 and could be re-specified again for 2017. In accordance with the Magnuson-Stevens Act and the ACL mechanism described in all western Pacific FEPs, the ACL specification may not exceed the ABC recommendation made by the Council's SSC.

In each island area, the fishing year begins January 1 and ends on December 31. NMFS would begin counting catches towards the ACL for each bottomfish stock complex starting on January 1 based on data collected by local resource management agencies through their respective fishery monitoring programs, and by NMFS through federal logbook reporting. Pursuant to 50 CFR 665.4, when an ACL for any stock or stock complex is projected to be reached, based on best available information, NMFS will restrict fishing for that stock or stock complex in federal waters around the applicable U.S. EEZ to prevent the ACL from being exceeded. The restriction may include, but is not limited to, closure of the fishery, closure of specific areas, or restriction of effort (76 FR 37286, June 27, 2011). However, in-season restrictions are not possible for any western Pacific bottomfish fishery at this time because, catch statistics are generally not available until at least six months after the data have been collected (see Sections 2.3.2 and 3.0 for more details on data collection). For this reason, under all ACL alternatives considered, NMFS proposes to implement the Council's recommended AM, which requires the Council to conduct a post-season accounting of the annual catch for a stock complex relative to its ACL immediately after the end of the fishing year or as soon thereafter as possible given the limitations in the data collection and processing methods. Additionally, if landings of any stock complex exceed the specified ACL in a fishing year, the Council as an AM, would take action in accordance with 50

CFR 600.310(g) to correct the operational issue that caused the ACL overage. This may include a recommendation that NMFS implement a downward adjustment to the ACL in the subsequent fishing year, or other measures, as appropriate. As an additional performance measure specified in each FEP, if any ACL is exceeded more than once in a four-year period, the Council is required to re-evaluate the ACL process, and adjust the system, as necessary, to improve its performance and effectiveness. These AM are a continuation of the current AM applied to the four fisheries.

Each alternative also assumes continuation of all existing federal and local resource management laws and regulations, including non-regulatory monitoring of catch by the local resource management agencies with assistance from NMFS PIFSC, Western Pacific Fisheries Information Network (WPacFIN).

2.2.1 Alternative 1: No Action (Status Quo)

In a final rule published in August 31, 2015 (80 FR 52415), NMFS specified the 2015 ACLs for BMUS in American Samoa, Guam and the CNMI, and the ACL for the MHI non-Deep 7 bottomfish as follows: American Samoa bottomfish ACL = 101,000 lb, Guam bottomfish ACL = 66,800 lb, and CNMI bottomfish ACL = 228,000 lb. The No-Action alternative assumes continuation of the current management regime; therefore, under this alternative, the ACL for 2016 and 2017 would be identical to the 2015 specifications. Table 13 lists the ACLs under the no action alternative and their associated probabilities of overfishing in 2016 and 2017.

For American Samoa bottomfish, the 2016 and 2017 ACL would be 101,000 lb and is associated with a probability of overfishing in 2016 at 19.3 percent, rising in 2017 to a probability of 30 percent.

For Guam bottomfish, the 2016 and 2017 ACL would be 66,800 lb and is associated with probability of overfishing in 2016 between 26.4 and 27.8 percent, rising in 2017 to probability of overfishing between 38 and 41 percent.

For CNMI bottomfish, the 2016 and 2017 ACL would be 228,000 lb and is associated with a probability of overfishing in 2016 at 24.2 percent, rising in 2017 to a probability of overfishing at 38 percent.

Alternative 1 serves as the baseline for this environmental impact assessment.

2.2.2 Alternative 2: Specify ACLs equal to the SSC recommended ABCs

Under Alternative 2, Council would specify the 2016 and 2017 ACLs at the level equal to the SSC recommended ABCs. Table 13 lists the ACLs under Alternative 2 and their associated probabilities of overfishing in 2016 and 2017.

For American Samoa bottomfish, the ACL would be 106,000 lb and is associated with a 22.9 percent probability of overfishing in 2016, rising to a 37 percent probability of overfishing in 2017.

For Guam bottomfish, the ACL would be 65,000 lb and is associated with a 25 percent probability of overfishing in 2016, rising to a 36 percent probability of overfishing in 2017.

For CNMI bottomfish, the ACL would be 228,000 lb and is associated with a 24.2 percent probability of overfishing in 2016, rising to a 36 percent probability of overfishing in 2017.

2.2.3 Alternative 3: Apply the SEEM reduction to set the ACL lower than ABC or set the ACL equal to ABC and specify an ACT

Under Alternative 3, Council would specify the 2016 and 2017 bottomfish ACL in each island area at a level lower than the SSC recommended ABC. Table 13 identifies the range of ACLs under Alternative 3 and their associated probabilities of overfishing in 2016 and 2017. The level of reduction will be derived from the evaluation of the social, economic, ecological, and management uncertainties by the SEEM working group that met September 25, 2015 via teleconference (see Appendix C). The SEEM working group recommended a 5 percent reduction for American Samoa and Guam and a 6 percent reduction from CNMI. The Council would use this reduction to either specify the ACL lower than the SSC recommended ABC or set the ACL equal to the ABC and set an Annual Catch Target (ACT) lower than the ABC and ACL.

For American Samoa bottomfish, the 2016 and 2017 ACL/ACT would be set at a level of 102,000 lb and 103,000 lb. An ACL set at 102,000 lb is associated with a 19.99 percent probability of overfishing in 2016, rising to a 31 percent probability of overfishing in 2017. An ACL set at 103,000 lb is associated with a 20.7 percent probability of overfishing in 2016, rising to a 33 percent probability of overfishing in 2017.

For Guam bottomfish, the 2016 and 2017ACL/ACT would be set at 64,000 lb. An ACL set at 64,000 lb is associated with a 22.3 percent probability of overfishing in 2016 rising to a 31 percent probability of overfishing in 2017.

For CNMI bottomfish, the 2016 and 2017 ACL would be set at 216,000 lb. An ACL set at 216,000 lb is associated with a 20.8 percent probability of overfishing in 2016, rising to a 31 percent probability of overfishing in 2017.

2.3 Alternatives Not Considered in Detail

2.3.1 Specification of ACLs Higher than Council Recommendation

Pursuant to federal law, NMFS cannot specify an ACL that exceeds ABC. Therefore, NMFS will not consider in detail any ACL that exceeds the fishing level recommendation of the SSC described in Section 2.1. However, Table 7 identifies a range of ACLs for each island area that are higher than ABC and the Council's ACL recommendations, and which have a probability of overfishing of up to 50 percent, the maximum risk allowed under federal law. If bottomfish catch in 2016 or 2017 exceeds the proposed ACLs described in Alternative 2 and falls within this range, NMFS does not expect overfishing would occur.

2.3.2 Specification of In-Season AMs

To prevent ACLs from being exceeded, federal regulations implementing western Pacific FEPs in 50 CFR 665.4 state that when any ACL is projected to be reached, the Regional Administrator shall inform permit holders that fishing for that stock will be restricted on a specified date. Restrictions may include, but are not limited to, closing the fishery, closing specific areas, changing bag limits, or otherwise restricting effort or catch. However, near-real time processing of catch information cannot currently be achieved in any western Pacific bottomfish fishery except for the MHI Deep 7 bottomfish fishery, which is not included in this action. Therefore, in-season AMs to prevent an ACL from being exceeded (e.g., fishery closures in federal waters) for the four fisheries affected by the proposed specifications are not possible at this time.

While federal permit and reporting is required for commercial bottomfish vessels in CNMI and all bottomfish vessels greater than 50 ft in length in Guam, federally permitted bottomfish vessels comprise only a small portion of the total estimated vessels participating in bottomfish fisheries of the western Pacific. Specifically, of the 10 estimated vessels participating in the CNMI bottomfish fishery in 2014, only 7 were federally permitted. In Guam, only 2 estimated 254 bottomfish vessels were large vessels (greater than 50 ft), thus requiring federal permits in 2014. See the overview of fisheries in Sections 3.1 – 3.4 for more information pertaining to vessel participation in bottomfish fisheries of the western Pacific). For these reasons, NMFS relies primarily on the fishery data collection programs administered by the respective local resource management agencies to obtain bottomfish catch and effort data. However, these agencies presently do not have the personnel or resources to process catch data in near-real time, and so fisheries statistics are generally not available until at least six months after the data have been collected. Substantial resources would also be required to support the establishment of near-real time in-season monitoring capabilities in American Samoa, Guam and the CNMI. Until resources are made available, NMFS anticipates continuing to use only AMs that consist of non-in-season management measures.

Table 7. ACL Alternatives and Probabilities of Overfishing Bottomfish Stock Complexes in American Samoa, Guam and the CNMI in 2016 and 2017

	American Samoa Bottomfish			**Guam Bottomfish**			**CNMI Bottomfish**		
	MSY = 76,740 ± 14,060 lb			***MSY = 56,130 lb ± 7,790 lb***			***MSY = 173,100 lb ± 32,190 lb***		
	Ave. Catch (2011-2013) = 21,005 lb			***Ave. Catch (2011-2013) = 37,183 lb***			***Ave. Catch (2011-2013) = 20,009 lb***		
	ACL (lb)	*Probability of Overfishing in 2016 (%)*	*Probability of Overfishing in 2017 (%)*	***ACL (lb)***	*Probability of Overfishing in 2016 (%)*	*Probability of Overfishing in 2017 (%)*	***ACL (lb)***	*Probability of Overfishing in 2016 (%)*	*Probability of Overfishing in 2017 (%)*
Alternative 1 *(Status Quo)*	**101,000**	19.3	30	**66,800**	26.4-27.8	38-41	**228,000**	24.2	36
Alternative 2 *ACL=ABC*	**106,000**	22.9	37	**66,000**	25	36	**228,000**	24.2	36
Alternative 3 *(Lower than ABC)*	**50,000**	1.0	1	**33,000**	1.2	1	**78,000**	1	1
	69,000	4.2	5	**45,000**	5	5	**134,000**	4.7	5
	80,000	7.7	10	**51,000**	8.9	10	**162,000**	8.5	10
	87,000	10.9	15	**55,000**	12.3	15	**180,000**	12.1	15
	92,000	13.5	20	**58,000**	15.2	20	**194,000**	15.2	20
	97,000	16.6	25	**62,000**	18.6	25	**206,000**	18.1	25
	100,000	18.6	29	**63,000**	21	29	**214,000**	20.2	29
	101,000	19.3	30	**64,000**	22.3	31	**216,000**	20.8	30
	102,000	19.9	31	**65,000**	23.7	33	**218,000**	21.3	31
	103,000	20.7	33				**220,000**	21.9	32
	104,000	21.5	34				**222,000**	22.5	33
	105,000	22.3	35				**224,000**	23.1	34
							226,000	23.6	35
Not Considered in Detail *(Higher than Preferred)*	**110,000**	26.1	42	**67,000**	26.4	38	**236,000**	26.8	41
	111,000	26.9	44	**68,000**	27.8	41	**240,000**	28.1	43
	112,000	27.8	45	**69,000**	29.2	44	**242,000**	28.7	45
	113,000	28.6	47	**70,000**	30.7	46	**246,000**	30	47
	114,000	29.4	48	**71,000**	32.1	49	**248,000**	30.6	48
	115,000	30.2	50				**250,000**	31.2	50

Source: Values based on Yau et al (in press)

3 Potentially Affected Environment and Potential Impacts of the Proposed ACL specifications

This section describes the potentially affected fisheries, fishery resources, protected species, and habitats and the impacts of the proposed ACL and AM specifications on these resources. Climate change and environmental justice are considered, along with potential impacts to fishing communities, special marine areas and other resources, and fishery administration and enforcement.

Bottomfish fishery resources managed under the Fishery Ecosystem Plan (FEP) for American Samoa, and the Mariana Archipelago (Guam and the CNMI) are included in the proposed action to specify ACLs and AMs. In American Samoa, Guam, and the CNMI, bottomfish fisheries generally target 17 bottomfish management unit species (BMUS) which comprise both shallow and deepwater bottomfish species listed in Tables 8, 12 and 16, respectively.

Descriptions of traditional fishing practices indicate that indigenous U.S. Pacific Island cultures harvested the same bottomfish species and used some of the same gears and techniques employed today (WPFMC, 2009a; WPFMC, 2009b; WPFMC, 2009c). Generally, the eteline snappers (*Etelis* and *Pristipomoides spp.*) are found along high-relief, deep slopes, ranging from 80-400 m and are fished with a vertical handline described below, while other species such as jacks, emperors, and lutjanid snappers are caught at shallower depths. The gray jobfish (*Aprion virescens*) can also be caught by vertical handline, but they are frequently fished for by drifting or slowly trolling over relatively flat-bottom areas. Bottomfish fishers generally employ a vertical hook-and-line method of fishing in which weighted and baited lines are lowered and raised with electric, hydraulic, or hand-powered reels. The main line is typically 400–450-pound test, with hook leaders of 80–120-pound test monofilament. The hooks are circle hooks, generally of the Mustad (conventional scale) sizes 11/0, 12/0 and 13/0, and a typical rig uses six to eight hooks branching off the main line. The terminal weight is typically 5–6 pounds. The hook leaders are typically 2–3 feet long and separated by about 6 feet along the main line. Depending on island area, hooks may be baited with fish such as the big eye scad (*Selar crumenopthalmus*); however, squid is the bait typically used. Lines are also sometimes supplemented with a chum bag containing chopped fish or squid suspended above the highest hook. Bottom trawls, bottom gillnets, explosives, and poisons are prohibited. In each island area, commercial and non-commercial fisheries for bottomfish occur primarily in nearshore waters from 0-3 nm.

Overview of fishery data collection systems in American Samoa, Guam and the CNMI
In American Samoa, the CNMI and Guam, bottomfish fisheries information is collected by local resource management agencies, with assistance from NMFS PIFSC Western Pacific Fisheries Information Network (WPacFIN) through three primary fisheries monitoring programs. They include: (1) the boat-based creel survey program; (2) the shore-based creel survey program, and (3) the commercial purchase system or trip ticket invoice program.

Boat-based creel survey program

The boat-based creel survey program collects catch, effort, and participation data on offshore fishing activities conducted by commercial, recreational, subsistence and charter fishing vessels. Surveys are conducted at boat ports or ramps, and data collection consists of two main components - participation counts (trips) and fisher interviews. Survey days are randomly selected and the number of survey days range from 3-8 per month. Surveys are stratified by week-days, weekend-days and day- and night-time. Data expansion algorithms are applied by NMFS WPacFIN to estimate 100% "coverage" and are based on port, type of day, and fishing method (Impact Assessment, 2008).

Shore-based creel survey program

The shore-based creel survey program was established to randomly sample inshore fishing trip information and consists of two components - participation counts and fishers interviews. Participation counts are based on a 'bus route' method, with predefined stopping points and time constraints. Survey days are randomly selected, and range from 2-4 times per week. Data expansion algorithms are applied by NMFS WPacFIN to estimate 100% "coverage" and are based on island region, type of day (e.g. weekday/weekend) and fishing method (Impact Assessment, 2008). The shore-based creel surveys cover fishing by persons engaged in commercial, recreational, and subsistence fishing activities.

Commercial purchase system

The commercial purchase system or "trip ticket invoice" monitor fish sold locally and collects information submitted by vendors (fish dealers, hotels and restaurants) who purchase fish directly from fishers. Each invoice usually compiles daily trip landings. Only American Samoa has mandatory requirements for vendors to submit invoice reports. All other islands have voluntary programs (Impact Assessment, 2008).

Overview of federal permit and reporting requirements

In 2006, NMFS established federal permit and reporting requirements for large vessels greater than 50 ft in length fishing in the U.S. EEZ around Guam (71 FR 64474, November 2, 2006). Federal permit and reporting requirements are also in place for all commercial bottomfishing vessels fishing in the U.S. EEZ around the CNMI (73 FR 75615, December 12, 2008). All permitted vessel operators are required to submit catch information to NMFS within 72 hours after landing. In 2014, 7 vessels in the CNMI have a federal commercial bottomfishing permit. In Guam, 2 large vessel bottomfish permits have been issued in 2014. (Kawamoto and Sender 2015). Federal permit or reporting is not required in American Samoa. As previously noted in Section 2.3.4, federally permitted bottomfish vessels comprise only a small portion of the total estimated vessels participating in bottomfish fisheries of the western Pacific.

Overview of the proposed ACL management system

Once the proposed ACL specifications are implemented, catches of all BMUS would be counted toward the BMUS ACL regardless of whether catch occurred in federal or local waters. However, as noted in Section 2.3, local resource management agencies presently do not have the personnel or resources to process catch data in near-real time, and so fisheries statistics are generally not available until at least six months after the data has been collected. Therefore, in-season AMs (e.g., fishery closure) are not possible at this time. However, as an AM, post-season

accounting of catch towards every ACL specification would occur, and if an ACL is exceeded and affects the sustainability of that stock or stock complex, NMFS would take action to correct the operational issue that caused the ACL overage, as recommended by the Council, which could include a downward adjustment to the ACL for that stock or stock complex in the subsequent fishing year.

3.1 American Samoa Bottomfish Fishery, Marine Resources and Potential Impacts

The Samoa Archipelago is located in the western portion of the South Pacific Ocean and consists of seven major volcanic islands, several small islets and two coral atolls. The largest islands in this chain are Upolu (approximately 436 square miles) and Savaii (approximately 660 square miles) which belong to the Independent State of Samoa with a population of approximately 178,000 people. The Territory of American Samoa includes Tutuila (approximately 55 square miles of land), the Manua Island group of Ofu, Olosega and Tau (with a total land area of less than 20 square miles), and two coral atolls (Rose Atoll and Swains Island). The largest island, Tutuila, is the center of government and business and features Pago Pago Harbor, the deepest and one of the most sheltered bays in the South Pacific. More than 90 percent of American Samoa's population (approximately 68,000 people) lives on Tutuila.

The U.S. EEZ around American Samoa is approximately 156,246 square miles and extends from 3-200 nm from shore with data collection responsibilities shared by various territorial and federal agencies. Because of the steepness of the offshore slope around Tutuila and other islands, most of the available benthic habitat is composed of fringing coral reefs, a limited reef slope, and a few offshore banks (Craig et al., 2005).

Bottomfish fishing in federal waters around American Samoa is managed in accordance with the FEP for the American Samoa Archipelago (WPFMC 2009a), developed by the Council, and implemented by NMFS under the authority of the MSA. Bottomfish fisheries occurring from 0 to 3 nm from shore are managed by the Territory of American Samoa. The management structure of the FEP emphasizes community participation and enhanced consideration of the habitat and ecosystem, and other elements not typically incorporated in fishery management decision-making. Enforcement of federal fishery regulations is handled through a joint Federal-Territorial partnership and the Council is required to produce an annual performance report on the fishery.

Overview of American Samoa's Bottomfish Fishery

The American Samoa bottomfish fishery consists of fewer than 30 part-time relatively small commercial vessels landing between 6,000–35,000 lbs annually. Most vessels are aluminum *alia* (pronounced ah-lee-ah) catamarans less than 32 feet long, outfitted with outboard engines and wooden hand reels that are used for both trolling and bottomfish fishing. Because few boats carry ice, they typically fish within 20 miles of shore (WPFMC, 2009a). In 2009, American Samoa was struck by a tsunami causing large-scale damage and impacts to the territory's bottomfish fishing fleet resulting in the territorial government requesting disaster assistance under Sections 312 and 315 of the Magnuson-Stevens Act. In 2010, 16 vessels participated in the fishery, dropping in 2011 to just 12 vessels (Carroll et al., 2012). In 2013, the vessels that reported landing BMUS increased to 17 vessels (WPacFIN unpublished data from the bottomfish annual report module).

At the present time there is no federal permit or reporting requirements for bottomfish fishing in federal waters around American Samoa. Therefore, monitoring of the American Samoa bottomfish fishery is dependent on data voluntarily provided by fishermen to the American Samoa Department of Marine and Wildlife Resources (DMWR), through the boat-based creel survey program. Additionally, monitoring includes review of commercial sales data provided to DMWR by fish dealers through the mandatory commercial purchase system. Currently, because of limited DMWR staff resources, catch information is not available until at least 6 months to a year after the fishing year has ended.

Table 2 shows that between 2011 and 2013, the American Samoa bottomfish fishery caught an average of 21,005 lb of BMUS annually of which 42 percent (8,878 lb) was sold. Based on the 2013 commercial catch estimate of 7,833 lb and the average price of all BMUS at $3.22 per pound, the annual commercial value of the American Samoa bottomfish fishery in 2013 was $25,222. Assuming participation and effort were equal throughout the 17 vessel fleet in 2013, each vessel would have sold approximately 461 lb of bottomfish valued at $1,484.

Potential Impacts of the Proposed ACL specification and AM on American Samoa's Bottomfish Fishermen

Alternative 1: No Action (Status Quo)
Under the no-action alternative, fishing for American Samoa BMUS would be subject to an ACL of 101,000 lb for fishing years 2016 and 2017. This is the same ACL specified for 2015. Between 2000 and 2013, the greatest estimated total annual catch of BMUS in American Samoa occurred in 2009 at 47,458 lb while the average total annual catch for the period 2011-2013 is 21,005 lb (Table 2). Both the average recent catch (2011-2013) and the 14 year record high catch of 47,458 lb in 2009 are below the ACL proposed under this alternative.

After 2009's devastating tsunami effects on American Samoa's bottomfishing fleet, the estimated total catch in 2010 dropped to 9,509 lb, rebounding in 2011 to an estimated 26,277 lb. Assuming some rebuilding of the fleet continued until 2013, bottomfish catch is likely to continue increasing; however, it is unlikely that total catch in 2016 or 2017 would approach the historically high 2009 level (47,458 lb), which is less than half the ACL proposed under this alternative.

Because there is no data that would allow NMFS to implement an in-season closure to prevent the ACL from being exceeded, under all alternatives considered, including the no action alternative, the AM for the American Samoa bottomfish fishery would require a post-season review of the catch data to determine whether the bottomfish ACL for American Samoa was exceeded. If the ACL is exceeded, NMFS, as recommended by the Council, would take action to correct the operational issue that caused the ACL overage. This could include a downward adjustment to the bottomfish ACL in the subsequent fishing year to help ensure the fishery remains sustainable. NMFS cannot speculate on operational measures or the magnitude of the overage adjustment that might be taken; therefore, the fishery and environmental impacts of future actions such as changes to the ACL or AM would be evaluated separately, once details are available.

NMFS does not expect the ACL and AMs proposed under this alternative to result in a change to the conduct of the fishery including gear types, areas fished, effort, or participation. Consequently, NMFS does not expect implementation of Alternative 1 to adversely affect American Samoa bottomfish fishermen.

Alternative 2: Specify ACLs equal to the SSC recommended ABCs

Under Alternative 2, fishing for American Samoa BMUS would be subject to an ACL of 106,000 lb for the 2016 and 2017 fishing years as recommended by the Council. This specification would allow catch slightly higher than the current status quo (Alternative 1). Given the current state of American Samoa's bottomfish fleet, it is unlikely that total catch in 2016 or 2017 would approach the proposed ACL. Because there is no data that would allow NMFS to implement an in-season closure to prevent the ACL from being exceeded, the AM under this alternative would be the same as those described under Alternative 1. Therefore, the impacts to fishermen would be similar to those described in Alternative 1.

Alternative 3: Apply the SEEM reduction to set the ACL lower than ABC or set the ACL equal to ABC and specify an ACT

Under Alternative 3, fishing for American Samoa BMUS would be subject to an ACL/ACT between 102,000 and 103,000 lb for the 2016 and 2017 fishing years. Based on past fishery performance shown in Table 2, it is unlikely that total catch in 2016 or 2017 would approach the historically high 2009 level (47,458 lb), which is less than half the ACL proposed under this alternative.

After 2009's devastating tsunami effects on American Samoa's bottomfishing fleet, the estimated total catch in 2010 dropped to 9,509 lb, rebounding in 2011 to an estimated 26,277 lb. Assuming some rebuilding of the fleet continued until 2013, bottomfish catch is likely to continue increasing; however, it is unlikely that total catch in 2016 or 2017 would approach the historically high 2009 level (47,458 lb), which is less than half the ACL proposed under this alternative.

Therefore, over the next two years, the fishery is not expected to attain a catch between 102,000 lb and 103,000 lb and an ACL within this range is not expected to result in a race to the fish.

Additionally, because there is no data that would allow NMFS to implement an in-season closure to prevent the ACL from being exceeded, an ACL under this alternative is not expected to result in a change to the conduct of the fishery including gear types, areas fished, effort, or participation. In short, impacts to fisheries participants would be generally the same as those described under the Alternative 1 and 2 and no adverse economic impact to fishery participants would likely result from implementation of any ACL under Alternative 3. However, if the Council decides to set the ACL equal to the ABC and set an ACT, any overage will not result in a downward adjustment as long as the overage does not exceed the ACL.

3.1.1 Target, Non-target and Bycatch Species in American Samoa

The bottomfish fishery in the American Samoa generally targets 17 bottomfish management unit species (BMUS) which comprise both shallow and deepwater bottomfish species (Table 8).

Table 8. American Samoa Bottomfish MUS

American Samoa Bottomfish MUS		
Scientific Name	**English Common Name**	**Samoan Name**
Aphareus rutilans	red snapper/silvermouth	palu-gutusiliva
Aprion virescens	gray snapper/jobfish	asoama
Caranx ignobilis	Giant trevally/jack	sapoanae
Caranx lugubris	Black trevally/jack	tafauli
Epinephelus fasciatus	blacktip grouper	fausi
Variola louti	lunartail grouper	papa, velo
Etelis carbunculus	red snapper	palu malau
Etelis coruscans	red snapper	palu-loa
Lethrinus amboinensis	ambon emperor	filoa-gutumumu
Lethrinus rubrioperculatus	redgill emperor	filoa-paomumu
Lutjanus kasmira	blueline snapper	savane
Pristipomoides auricilla	yellowtail snapper	palu-i'usama
Pristipomoides filamentosus	pink snapper	palu-'ena'ena
Pristipomoides flavipinnis	yelloweye snapper	palu-sina
Pristipomoides seiboldii	pink snapper	palu
Pristipomoides zonatus	snapper	palu-ula, palu-sega
Seriola dumerili	amberjack	malauli

Current impacts of the fishery: target, non-target and bycatch species

The information used in developing the proposed ACL for the American Samoa bottomfish stock complex is based on the most recent bottomfish stock assessment (Yau et al., in press) conducted by the NMFS Pacific Islands Fisheries Science Center (PIFSC) using data through 2013. Key points from the discussion in Section 2.1.1 is that PIFSC estimated MSY to be 76,740 ± 14,060 lb and that the production model results indicate that the American Samoa bottomfish complex was found to be healthy, was not overfished and did not experience overfishing between the period 1986 and 2013. Between 2007 and 2011, total harvest of American Samoa BMUS averaged 21,005 lb annually or about 27% of the long term MSY.

While the boat-based and shore-based creel survey programs administered by DMWR provide for the collection of bycatch information, detailed information is not currently available. This may indicate that most of the fish that are caught are retained. However, like other Pacific Islands, discards, if they occur, are usually due to legal requirements, cultural reasons (i.e., taboo), or practical reasons such as toxicity (e.g., ciguatera poison), or shark damage. Bottomfish fishing is fairly target-specific and to date neither the Council nor the American Samoa DMWR have brought forward any concerns about bycatch in the fishery. NMFS does not have any information to indicate that there are unresolved issues about bycatch in the American Samoa bottomfish fishery.

Potential Impacts of the Proposed ACL specification and AM on Target, Non-target and Bycatch Species in American Samoa

Alternative 1: No Action (Status Quo)
Under the no-action alternative, the ACL for 2016 and 2017 would be set at 101,000 lb. This is the same ACL specified for 2015. The fishery would continue to catch bottomfish in the manner that is described above, and catches would continue to be monitored through fisheries monitoring programs administered by the DMWR with assistance from WPacFIN. The level of catch under this alternative is expected to continue as it has in recent years with average total catch estimated to be 21,005 lb for the period 2011-2013.

While an ACL of 101,000 lb would exceed the long-term MSY, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 1, an ACL of 101,000 lb would result in a 19.3 percent probability of overfishing in 2016, rising in 2017 to a 30 percent probability of overfishing. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 1. Monitoring of catch would be conducted annually by the DMWR with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 2: Specify ACLs equal to the SSC recommended ABCs
Under Alternative 2, fishing for American Samoa BMUS would be subject to an ACL of 106,000 lb for the 2016 and 2017 fishing years as recommended by the Council. While this ACL exceeds the long-term MSY of 76,200 lb, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 1, this ACL would have a 22.9 percent probability of causing overfishing in 2016, rising in 2017to a 37 percent probability of overfishing.

Based on past fishery performance shown in Table 2 fishery would need to harvest more than double the 2009 record catch of 47,458 lb in 2013 and 2014 to attain the ACL and more than 7,000 lb over the ACL for overfishing to occur. This level of catch is highly unlikely given that the 2010 post-tsunami catch totaled only 9,509 lb rising in 2013 to 23,630 lb. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 2. Monitoring of catch would be conducted annually by the DMWR with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 3: Apply the SEEM reduction to set the ACL lower than ABC or set the ACL equal to ABC and specify an ACT
Under Alternative 3, fishing for American Samoa BMUS would be subject to an ACL/ACT between 102,000 and 103,000 lb for the 2016 and 2017 fishing years. While some of the ACLs in this alternative would exceed the long-term MSY of 76,200 lb, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 1, none would result in a probability of overfishing greater than 40 percent. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 3. Like Alternatives 1 and 2, monitoring of catch would be conducted annually by the DMWR with

assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Under all alternatives considered including the preferred alternative, no new monitoring would be implemented; however, a post-season review of the catch data would be conducted as soon as possible after the fishing year to determine whether the ACL was exceeded. If the ACL is exceeded and affects the sustainability of the stock, NMFS would take action to correct the operational issue that caused the ACL overage, as recommended by the Council, which could include a downward adjustment to the ACL in the subsequent fishing year. While the lack of in-season catch monitoring ability precludes in-season measures (such as a fishery closure) to prevent the ACL from being exceeded, none of the ACLs considered have greater than a 41 percent probability of overfishing American Samoa bottomfish in 2013 and 2014.

3.1.2 Protected Resources in American Samoa

A number of protected species are known or believed to occur in the waters around American Samoa and there is, therefore, the potential for interactions with the bottomfish fishery. The bottomfish fisheries of the western Pacific region have been evaluated for impacts on protected species and are managed in compliance with the requirements of the MSA, the Marine Mammal Protection Act (MMPA), the Endangered Species Act (ESA), the Migratory Bird Treaty Act, and other applicable statutes. Detailed descriptions of these potentially affected species and their life histories can be found in section 3.3.4 of the Fishery Ecosystem Plan (FEP) for the American Samoa Archipelago (WPFMC 2009a).

Listed species and ESA review of American Samoa Bottomfish Fisheries
Table 9 identifies species listed as endangered or threatened under the ESA known to occur or could reasonably be expected to occur in marine waters around American Samoa and which may have the potential to interact with fisheries. They include a number of whales, five sea turtles, and a seabird. There is no critical habitat designated for ESA-listed marine species around American Samoa.

Table 9. Endangered, and threatened marine species and seabirds known to occur or reasonably expected to occur in waters round the American Samoa Archipelago

Endangered, and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the American Samoa Archipelago				
Common name	**Scientific Name**	**ESA listing status in American Samoa**	**Occurrence in American Samoa**	**Interactions with the American Samoa bottomfish fishery**
Listed Sea Turtles				
Green sea turtle (laumei enaena and fonu)	*Chelonia mydas*	Threatened	Frequently seen. Nest at Rose Atoll. Known to migrate to feeding grounds.	No interactions observed or reported.
Hawksbill sea	*Eretmochelys*	Endangered	Frequently seen.	No interactions

Endangered, and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the American Samoa Archipelago				
Common name	**Scientific Name**	**ESA listing status in American Samoa**	**Occurrence in American Samoa**	**Interactions with the American Samoa bottomfish fishery**
turtle (laumei uga)	*imbricata*		Nest at Rose Atoll and Swain's Island.	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.
South Pacific Loggerhead sea turtle Distinct Population Segment	*Caretta caretta*	Endangered	Not known to occur in American Samoa	No interactions observed or reported.
Listed Marine Mammals				
Blue whale	*Balaenoptera musculus*	Endangered	No known sightings.	No interactions observed or reported.
Fin whale	*Balaenoptera physalus*	Endangered	No known sightings.	No interactions observed or reported.
Humpback whale (tafola or i`a manu)	*Megaptera novaeangliae*	Endangered	Most common during Sept. and October. Southern humpback whales mate and calve from June – Sept.	No interactions observed or reported.
Sei whale	*Balaenoptera borealis*	Endangered	No known sightings.	No interactions observed or reported.
Sperm whale	*Physeter marcocephalus*	Endangered	Occurs in all months except. Feb. and March.	No interactions observed or reported.
Listed Sea Birds				
Newell's Shearwater	*Puffinus auricularis newelli*	Threatened	Uncommon visitor	No interactions observed or reported.

Applicable ESA Coordination – American Samoa Bottomfish Fisheries

In a biological opinion covering the Fishery Management Plan (FMP) for Bottomfish and Seamount Groundfish Fisheries of the Western Pacific, dated March 8, 2002, NMFS determined

that bottomfish and seamount groundfish fisheries of the western Pacific region (including the bottomfish fishery of American Samoa) that operate in accordance with regulations implementing the FMP were not likely to adversely affect ESA-listed sea turtle and marine mammal species or their designated critical habitat.

In 2009, the Council recommended and NMFS approved the development of five archipelagic-based fishery ecosystem plans (FEP) including the American Samoa Archipelago FEP. The FEP incorporated and reorganized elements of the Council's species-based FMPs, including the Bottomfish and Seamount Groundfish Fisheries FMP into a spatially-oriented management plan (75 FR 2198, January 14, 2010). All applicable regulations concerning bottomfish fishing were retained through the development and implementation of the FEP for American Samoa. No substantial changes to the bottomfish fishery around American Samoa have occurred since the FEP was implemented that have required further consultation for species covered under the 2002 biological opinion.

On July 3, 2014, NMFS published a final rule that listed four distinct population segments (DPSs) of scalloped hammerhead shark under the ESA (79 FR 38213). The threatened Indo-West Pacific DPS is the only DPS that occurs around American Samoa. On September 10, 2014, NMFS published a final rule that listed 20 species of reef-building corals as threatened under the ESA (79 FR 53852). Of the 20 listed species, six are thought to occur in American Samoa. On April 9, 2015, NMFS determined that the continued authorization of the coral reef, bottomfish, crustacean, and precious coral fisheries under the FEP for American Samoa is not likely to adversely affect the Indo-West Pacific DPS of scalloped hammerhead shark and reef-building corals.

Marine Mammals

Several whales, dolphins and porpoises occur in waters around American Samoa and are protected under the Marine Mammal Protection Act (MMPA). Table 10 provides a list of marine mammals known to occur or reasonably expected to occur in waters around American Samoa.

Table 10. Marine mammals known to occur or reasonably expected to occur in waters around American Samoa

Marine mammals known to occur or reasonably expected to occur in waters around American Samoa		
Common Name	**Scientific Name**	**Interactions with the American Samoa bottomfish Fishery**
Humpback whale* (tafola or i`a 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.
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.

*Species is also listed under the Endangered Species Act.
Sources: NMFS PIRO and PIFSC unpublished data; Council website: http://www.wpcouncil.org

Marine Mammal Protection Act Coordination

The MMPA prohibits, with certain exceptions, taking of marine mammals in the U.S., and by persons aboard U.S. flagged vessels (i.e., persons and vessels subject to U.S. jurisdiction). NMFS classifies the American Samoa bottomfish fishery as a Category III fishery under Section 118 of the MMPA (76 FR 73912, November 29, 2011) as the fishery is one with a low likelihood or no known incidental takings of marine mammals. As a result, NMFS concludes that the American Samoa bottomfish fishery, as currently conducted, would not affect marine mammals in a manner not previously considered or authorized by the commercial taking exemption under section 118 of the MMPA.

Sea Turtles

There are five Pacific sea turtles designated under the Endangered Species Act (ESA) as either threatened or endangered (Table 9). Green and hawksbill sea turtles are most likely to frequent nearshore habitat when foraging around American Samoa. The breeding populations of Mexico's olive ridley sea turtles (*Lepidochelys olivacea*) are currently listed as endangered, while all other olive ridley populations are listed as threatened. This species is rare in American Samoa but one dead olive ridley turtle was found to have been injured by a shark and may have previously laid eggs. Leatherback sea turtles (*Dermochelys coriacea*) and hawksbill turtles (*Eretmochelys imbricata*) are also classified as endangered. Green sea turtles (*Chelonia mydas*) are listed as threatened (the green sea turtle is listed as threatened throughout its Pacific range, except for the endangered population nesting on the Pacific coast of Mexico), and loggerhead (*Caretta caretta*) sea turtles in the South Pacific Ocean were recently identified as a distinct population segment and listed as endangered. These five species of sea turtles are highly migratory, or have a highly migratory phase in their life history (NMFS 2001). There have been no reported or observed interactions with sea turtles in the American Samoa commercial bottomfish fishery.

Seabirds

Seabirds found on and around American Samoa that could potentially interact with fisheries are listed in Table 11.

Table 11. Seabirds occurring in American Samoa

Residents (i.e., breeding)		
Samoan name	**Common name**	***Scientific name***
ta'i'o	Newell's shearwater	*Puffinus auricularis newelli (ESA:Threatened) (uncommon visitor)*
ta'i'o	Wedge-tailed shearwater	*Puffinus pacificus*
ta'i'o	Audubon's shearwater	*Puffinus lherminieri*
ta'i'o	Christmas shearwater	*Puffinus nativitatis*
ta'i'o	Tahiti petrel	*Pterodroma rostrata*
ta'i'o	Herald petrel	*Pterodroma heraldica*
ta'i'o	Collared petrel	*Pterodroma brevipes*

Residents (i.e., breeding)		
Samoan name	**Common name**	***Scientific name***
fua'o	Red-footed booby	*Sula sula*
fua'o	Brown booby	*Sula leucogaster*
fua'o	Masked booby	*Sula dactylatra*
tava'esina	White-tailed tropicbird	*Phaethon lepturus*
tava'e'ula	Red-tailed tropicbird	*Phaethon rubricauda*
atafa	Great frigatebird	*Fregata minor*
atafa	Lesser frigatebird	*Fregata ariel*
gogouli	Sooty tern	*Sterna fuscata*
gogo	Brown noddy	*Anous stolidus*
gogo	Black noddy	*Anous minutus*
laia	Blue-gray noddy	*Procelsterna cerulea*
manu sina	White tern / Common fairy-tern	*Gygis alba*

Source: WPFMC 2003 (updated in WPFMC 2009a).

Newell's shearwater (*Puffinus auricularis newelli*) is listed as threatened under the ESA. Generally known with other shearwaters and petrels as ta`i`o in Samoan, this species breeds only in colonies on the main Hawaiian Islands. Newell's shearwater has been sighted once in American Samoa and appears to be an uncommon visitor to the archipelago. Additionally, there have been no reports of interactions between the American Samoa bottomfish fishery and seabirds. Since the proposed action would not modify fishing operations, NMFS expects that the fishery, as conducted under the proposed action, would not affect ESA listed seabirds.

Potential Impacts to Protected Resources in American Samoa

None of the alternatives considered would modify operations of the American Samoa bottomfish fishery in any way that would be expected to affect endangered or threatened species or critical habitat in any manner not considered in previous ESA or MMPA consultations.

All alternatives would implement ACLs and a post-season accounting of the catch relative to the ACL to promote long term sustainability of the fishery stock. The current inability of fishery managers to provide in-season tracking of catch towards an ACL prevents the implementation of in-season closures, which means that participants in the American Samoa bottomfish fishery would continue to fish as they currently are under the current management regime. However, because this fishery is currently sustainably managed and subject to conservation measures in accordance with various resource conservation and management laws, and because no change would occur in the way fishing is conducted, none of the alternatives would result in a change to distribution, abundance, reproduction, or survival of ESA-listed species or increase interactions with protected resources.

If at any time the fishery, environment, or status of a listed species or marine mammal species were to change substantially, or if the fishery were found to be occurring in or near areas that were designated as critical habitat, NMFS would undertake additional consultation as required to comply with requirements of the ESA and the MMPA.

On September 22, 2011, NMFS and the U.S. Fish and Wildlife Service (USFWS) determined that the loggerhead sea turtle (*Caretta caretta*) is composed of nine DPSs that may be listed as threatened or endangered under the ESA (76 FR 58868). Specifically, NMFS and USFWS determined that the loggerhead sea turtles in the South Pacific Ocean, which encompasses waters around American Samoa, are a distinct population segment (DPS) that is endangered and at risk of extinction. However, due to the dearth of sightings/observations of loggerhead sea turtles, inclusive of the South Pacific Ocean DPS around American Samoa, and because none of the alternatives considered would modify operations of the American Samoa bottomfish fishery in any way, there is no additional information that would change the conclusions of the March 8, 2002 biological opinion which determined that the American Samoa bottomfish fishery is not likely to adversely affect ESA-listed species known to occur in the waters around American Samoa or their designated critical habitat.

On March 23, 2015, NMFS and USFWS published a proposed rule finding that the green sea turtle is composed of 11 DPSs and proposed to replace the current range-wide listing with listing of the DPSs as threatened or endangered (80 FR 15272). The population around American Samoa is part of the Central South Pacific DPS, which is proposed to be listed as endangered. However, none of the alternatives considered would modify operations of the American Samoa bottomfish fishery in any way, and there is no additional information that would change the conclusions of the March 8, 2002 biological opinion which determined that the American Samoa bottomfish fishery is not likely to adversely affect green sea turtles.

3.1.3 American Samoa Fishing Community

Overview

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)".

National Standard 8 of the Magnuson-Stevens Act requires that conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and the rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (a) provide for the sustained participation of such communities and (b) to the extent practicable, minimize adverse economic impacts on such communities.

The Council, in 1998, 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 MSA on April 19, 1999 (64 FR 19067).

Potential Impacts of the Proposed ACL specifications and AM on the American Samoa Fishing Community

No change to the American Samoa bottomfish fishery is expected under any of the alternatives. The proposed ACL specifications, which are are intended to provide for the longterm availability of bottomfish resources to the American Samoa fishing community, are substantially higher than recent harvests. Thus, the Council does not believe there will be any disruption to the fishery that would result in any social or economic impacts to the American Samoa fishing community.

In terms of management, American Samoa BMUS would continue to be subject to an annual catch limit and post-season review of fishery performance against the ACL. Under the management system, ongoing monitoring of catch toward the ACL and future ACL adjustments are expected to benefit people who rely on fishing by providing additional review of fishing and catch levels, which, in turn, should enhance the sustainability of the fishery.

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 at both the Council's deliberations and NMFS's proposed rulemaking stage.

3.2 Guam Bottomfish Fishery, Marine Resources and Potential Impacts

The Mariana Archipelago (approximately 396 square miles) is composed of 15 volcanic islands that are part of a submerged mountain chain stretching nearly 1,500 miles from Guam to Japan, and is comprised of two political jurisdictions: the CNMI and the Territory of Guam, both of which are U.S. possessions. Guam is the southernmost island of the archipelago and 30 miles (48 km) long and 4 mi (6 km) to 12 mi (19 km) wide and is also the largest island in Micronesia with an area of 209 sq. miles (541 km2). Guam's population was estimated to be 159,358 people in 2010, which was almost double the 1970 population of 85,000 people. The population is expected to increase with the relocation of certain elements of the U.S. military from Okinawa to Guam, but the numbers of active duty, dependents and other personnel to be relocated to Guam and the timing of the relocation are still under discussion. The U.S. EEZ around Guam is approximately 81,470 square miles and extends from 3 to 200 nm offshore. Data collection, compilation, and monitoring responsibilities are shared among territorial and federal agencies.

Bottomfish fishing in federal waters around Guam is managed in accordance with the Fishery Ecosystem Plan for the Mariana Archipelago (Mariana Archipelago FEP) developed by the Council and implemented by NMFS under the authority of the MSA (WPFMC 2009b). The portion of the fishery occurring within 3nm is under the jurisdiction of the Guam Division of Aquatic and Wildlife Resources (DAWR). The management structure of the FEP emphasizes community participation and enhanced consideration of the habitat and ecosystem, and other elements not typically incorporated in fishery management decision-making. Enforcement of federal fishery regulations is handled through a joint Federal-Territorial partnership and the Council is required to produce an annual performance report on the fishery.

Overview of Guam's Bottomfish Fishery

Bottomfishing on Guam is a combination of recreational, subsistence, and small-scale commercial fishing. It can be separated into two distinct fisheries targeting species complexes separated by depth and species composition: shallow-water and deep-water complexes. The shallow water complex (<500 feet) makes up a larger portion of the total bottomfish effort and harvest and is comprised primarily of reef-dwelling species under genus *Lutjanus*, *Lethrinus*,

Aprion, *Epinephelus*, *Variola*, *Cephalopholis* and *Caranx*. The deepwater complex (>500 feet) consists primarily of groupers and snappers of the genera *Pristipomoides*, *Etelis*, *Aphareus*, *Epinephelus*, and *Cephalopholis* (WPFMC, 2011). The majority of participants in Guam's bottomfish fishery are either subsistence or part-time commercial that operate boats less than 25 feet in length and primarily target the shallow water bottomfish complex. Approximately 254 vessels participated in the Guam bottomfish fishery in 2014, the most recent year vessel numbers are available (WPacFIN unpublished data extracted from the Guam Bottomfish Module).

Vessels longer than 50 ft are prohibited from fishing for bottomfish in Federal waters within 50 nm around Guam, although these larger vessels must have a federal permit and file logbooks when fishing seaward of the closed area which helps resource managers monitor harvests. There is no federal permit or reporting requirements for bottomfish vessels less than 50 ft fishing in federal waters around Guam.

As of 2014, there are 2 federally permitted bottomfish vessels in Guam. Therefore, monitoring of the Guam bottomfish fishery is dependent on data voluntarily provided by fishermen to DAWR through the boat-based creel survey program. Monitoring of commercial sales data is provided to DAWR by fish dealers through the commercial purchase system. Currently, DAWR staff resources limit the ability to process data so catch information is not available until at least 6 months to a year after the fishing year has ended.

Table 4 shows that between 2011 and 2013, the Guam bottomfish fishery caught an average of 37,183 lb of BMUS annually of which 28 percent (10,292 lb) was sold. The Guam bottomfish fishery caught a total of 292,848 lb of BMUS in 2013. The 2013 average commercial price per pound for BMUS is $3.52.

Based on the 2013 commercial catch estimate of 4,891 lb and the average price of all BMUS at $3.52 per pound, the annual commercial value of the bottomfish fishery in 2013 was $17,216. Assuming that all 254 vessels engaged in commercial fishing and that fishing effort by each vessel was equal throughout the fleet in 2013, each vessel would have sold approximately 19 lb of bottomfish valued at $67.

Potential Impacts of the Proposed ACL specification and AM on Guam's Bottomfish Fishermen

Alternative 1: No action (Status Quo)

Under the no action alternative, fishing for Guam BMUS would be subject to an ACL of 66,800 lb for fishing years 2016 and 2017. This is the same ACL specified for 2015. Between 2000 and 2013, total annual catch of BMUS in Guam came close to but did not exceed 66,800 lb only twice, once in 2000 and the other in 2011 when 66,000 lb and 59,618 lb were caught, respectively (Table 4). In more recent years, total annual catch fluctuated between 22,000 and 60,000 lb with the recent average catch for 2011-2013 around 37,183 lb.

So, under this alternative, catch in 2016 or 2017 may potentially more than 50 percent of the ACL at 66,800 lb. However, because there is no data that would allow NMFS to implement an in-season closure to prevent the ACL from being exceeded, under all alternatives, including the

no action alternative, the AM for the Guam bottomfish fishery would require a post-season review of the catch data to determine whether the ACL was exceeded. If the ACL is exceeded, NMFS, as recommended by the Council, would take action to correct the operational issue that caused the ACL overage. This could include a downward adjustment to the bottomfish ACL in the subsequent fishing year to help ensure the fishery remains sustainable. NMFS cannot speculate on the operational measures or the magnitude of the overage adjustment that might be taken; therefore, the fishery impacts of future actions such as changes to the ACL or AM would be evaluated separately, once details are available. However, if an ACL is exceeded a second time, the Council is required to re-evaluate the ACL process, and adjust the system, as necessary, to improve its performance and effectiveness.

NMFS does not expect the ACL and AMs proposed under this alternative to result in a change to the conduct of the fishery including gear types, areas fished, effort, or participation. Consequently, NMFS does not expect implementation of Alternative 1 to adversely affect Guam bottomfish fishermen.

Alternative 2: Specify ACLs equal to the SSC recommended ABCs
Under Alternative 2, fishing for Guam BMUS would be subject to an ACL of 66,000 lb for the 2016 and 2017 fishing years. This specification reduces the catch by 400 lb than the current status quo (Alternative 1). An ACL of 66,000 lb is equal to the 2000 record catch of 66,000 lb and is unlikely to be reached in 2016 or 2017 due to reduced fishery participation. In earlier years, there were approximately more than 300 boats documented to have caught and landed BMUS. Recent years, showed only 254 boats documented to have landed BMUS. Because there is no data that would allow NMFS to implement an in-season closure to prevent the ACL from being exceeded, the AM under this alternative would be the same as under Alternative 1; therefore, the impacts to fishermen would be similar to those described in Alternative 1.

Alternative 3: Apply the SEEM reduction to set the ACL lower than ABC or set the ACL equal to ABC and specify an ACT
Under Alternative 3, fishing for Guam BMUS would be subject to an ACL/ACT 64,000 lb for the 2016 and 2017 fishing years. Based on past fishery performance shown in Table 4, it is possible that the fishery could exceed this ACL since historically 66,000 lb was taken in 2000. However, because there is no data that would allow NMFS to implement an in-season closure ability to prevent the ACL from being exceeded, an ACL under this alternative is not expected to result in a change to the conduct of the fishery including gear types, areas fished, effort, or participation. In short, impacts to fisheries participants would be generally the same as those described under the Alternative 1 and no adverse economic impact to fishermen would likely result from implementation of any ACL under Alternative 3.

3.2.1 Target, Non-target and Bycatch Species in Guam

The bottomfish fishery in the Mariana Archipelago, including Guam, generally targets 17 bottomfish management unit species including both shallow and deepwater bottomfish species (Table 12).

Table 12. Mariana Bottomfish MUS (Guam)

Mariana Bottomfish MUS (Guam)		
Scientific Name	**English Common Name**	**Local Name Chamorro/Carolinian**
Aphareus rutilans	red snapper/ silvermouth	lehi/maroobw
Aprion virescens	gray snapper/jobfish	gogunafon/aiwe
Caranx ignobilis	giant trevally/jack	tarakitu/etam
C. lugubris	black trevally/jack	tarakiton attelong/orong
Epinephelus fasciatus	blacktip grouper	gadao/meteyil
Variola louti	lunartail grouper	bueli/bwele
Etelis carbunculus	red snapper/Ehu	buninas agaga/falaghal moroobw
Etelis coruscans	red snapper/Onaga	buninas/taighulupegh
Lethrinus rubrioperculatus	redgill emperor	mafuti atigh
Lethrinus amboinensis	ambon emperor	mafuti/loot
Lutjanus kasmira	blueline snapper	funai/saas
Pristipomoides auricilla	yellowtail snapper	buninas/falaghal-maroobw
Pristipomoides filamentosus	pink snapper/ opakapaka	buninas/falaghal-maroobw
Pristipomoides flavipinnis	yelloweye snapper/ yelloweye okpakapaka	buninas/falaghal-maroobw
Pristipomoides seiboldi	pink snapper/kalekale	N/A
Pristipomoides zonatus	Snapper/gindai	buninas rayao amiriyu/falaghal-maroobw
Seriola dumerili	amberjack	tarakiton tadong/meseyugh

Current impacts of the fishery: target, non-target and bycatch species

The information used in developing the proposed ACL for the Guam bottomfish stock complex is based on the most recent bottomfish stock assessment (Yau et al., in press) conducted by the NMFS Pacific Islands Fisheries Science Center (PIFSC) using data through 2013. Key points from the discussion in Section 2.1.2 is that PIFSC estimated MSY to be 56,130 ± 7,790 lb and that the production model results suggest that during the period 1982 through 2013, the Guam bottomfish complex has not been overfished and has not experienced overfishing, except perhaps in 2000 when total catch was 66,000 lb. Between 2011 and 2013, total harvest of Guam BMUS averaged 37,183 lb annually, or about 66% of the long-term MSY.

While the boat-based and shore-based creel survey programs administered by Guam DAWR provide for the collection of bycatch information, no such information is currently available indicating that most of the fish caught are retained. However, like other Pacific Islands, discards, if they occur, are usually due to cultural reasons (i.e., taboo) or practical reasons such as toxicity (e.g., ciguatera and poison), or shark damage. Bottomfish fishing is fairly target-specific, and to date, neither the Council nor the Guam DAWR has raised concerns about bycatch in the fishery.

NMFS does not have any information to indicate that there are large unresolved issues about bycatch in the Guam bottomfish fishery.

Potential Impacts of the Proposed ACL specification and AM on Target, Non-target and Bycatch Species in Guam

Alternative 1: No action (Status Quo)
Under the no-action alternative, the ACL for 2016 and 2017 would be set at 66,800 lb. This is the same ACL specified for 2015. The fishery would continue to catch bottomfish in the manner that is described above, and catches would continue to be monitored through fisheries monitoring programs administered by the DAWR with assistance from WPacFIN. The level of catch under this alternative is expected to continue as it has in recent years with average total catch estimated to be 37,183 lb for the period 2011-2013, which is approximately 66% of MSY (56,130 lb) and is sustainable. However, Tibbats and Flores (2012) showed that 59,618 lb was caught in 2011 which is more than double the previous years' catch and exceeds MSY by 3,488 lb.

While an ACL of 66,800 lb would exceed the long-term MSY, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 3, an ACL of 66,800 lb would result in a 26.4 to 27.8 percent probability of overfishing in 2016, rising in 2017 to an 38 to 41 percent probability of overfishing. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 1. Monitoring of catch would be conducted annually by the DAWR with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 2: Specify ACL equal to SSC recommended ABC
Under Alternative 2, fishing for Guam BMUS would be subject to an ACL of 66,000 lb for the 2016 and 2017 fishing years. While this ACL exceeds the long-term MSY of 56,130 lb, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 3, this ACL would have a 25 percent probability of causing overfishing in 2016, rising in 2017 to a 36 percent probability of overfishing.

Based on past fishery performance shown in Table 4, the fishery has come close but has never achieved this level of catch and would need to harvest nearly twice the recent average total catch of 37,183 lb in 2016 and again in 2017 for overfishing to occur. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 2. Monitoring of catch would be conducted annually by the DMWR with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 3: Apply the SEEM reduction to set the ACL lower than ABC or set the ACL equal to ABC and specify an ACT
Under Alternative 3, fishing for Guam BMUS would be subject to an ACL/ACT of 64,000 lb for the 2016 and 2017 fishing years. While the ACLs in this alternative would exceed the long-term MSY of 55,000 lb, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 3, none would result in a probability of overfishing 22.3 percent in 2016, rising to 31 percent in 2017. Consequently, no adverse impacts to target, non-target or

bycatch species would be expected to result from implementation of Alternative 3. Like Alternatives 1 and 2, monitoring of catch would be conducted annually by the DAWR with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Under all alternatives considered including the preferred alternative, no new monitoring would be implemented; however, a post-season review of the catch data would be conducted as soon as possible after the fishing year to determine whether the ACL was exceeded. If the ACL is exceeded and affects the sustainability of the stock, NMFS would take action to correct the operational issue that caused the ACL overage, as recommended by the Council, which could include a downward adjustment to the ACL in the subsequent fishing year. However, it the Council decides to set the ACL equal to ABC and set an ACT at 64,000 lb, no downward adjustment will be applied unless the overage exceeded the ACL. While the lack of in-season catch monitoring ability precludes in-season measures (such as a fishery closure) that would prevent the ACL from being exceeded, none of the ACLs considered have greater than a 40 percent probability of causing overfishing for Guam bottomfish in 2016 and 2017.

3.2.2 Protected Resources in Guam

A number of protected species are reported from the waters around the Mariana Islands and there is, therefore, the potential for interactions with the bottomfish fisheries of Guam. The bottomfish fisheries of the western Pacific region have been evaluated for impacts on protected resources and are managed in compliance with the requirements of the MSA, the Marine Mammal Protection Act (MMPA), the Endangered Species Act (ESA), the Migratory Bird Treaty Act, and other applicable statutes. Additional detailed descriptions of potentially affected protected resources and their life histories can be found in Section 3.3.3 of the FEP for the Mariana Archipelago (WPFMC 2009b).

Listed species and ESA review of Guam's Bottomfish Fisheries
Table 20 identifies species listed as endangered or threatened under the ESA that are known to occur, or could reasonably be expected to occur, in marine waters around the Mariana Archipelago, including Guam, and which may have the potential to interact with fisheries. They include a number of whales, five sea turtles, and a seabird. There is no critical habitat designated for ESA-listed marine species around Guam.

Table 13. Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the Mariana Archipelago (Guam)

Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the Marina Archipelago (Guam)				
Common name	**Scientific Name**	**ESA listing status in Guam**	**Occurrence in Guam**	**Interactions with the Guam bottomfish fishery**
Listed Sea Turtles				
Green sea turtle Haggan Betde	*Chelonia mydas*	Threatened	Most common turtle in the Mariana	No interactions observed or reported.

Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the Marina Archipelago (Guam)				
Common name	**Scientific Name**	**ESA listing status in Guam**	**Occurrence in Guam**	**Interactions with the Guam bottomfish fishery**
			Archipelago. Foraging and minor nesting confirmed on Guam, Rota, Tinian and Saipan.	
Hawksbill sea turtle Haggan Karai	*Eretmochelys imbricata*	Endangered	Small population foraging around Guam and suspected low level around southern islands of the CNMI. Low level nesting on Guam.	No interactions observed or reported.
Leatherback sea turtle	*Dermochelys coriacea*	Endangered	Occasional sightings around Guam. Not known to what extent they are present around Guam and CNMI.	No interactions observed or reported.
Olive ridley sea turtle	*Lepidochelys olivacea*	Threatened	Range across Pacific: not confirmed in the Mariana Archipelago.	No interactions observed or reported.
North Pacific Loggerhead sea turtle Distinct Population Segment	*Caretta caretta*	Endangered	No known reports of loggerhead turtles in waters around the Mariana Archipelago.	No interactions observed or reported.
Listed Marine Mammals				
Blue whale	*Balaenoptera musculus*	Endangered	Extremely rare.	No interactions observed or reported.
Fin whale	*Balaenoptera physalus*	Endangered	Infrequent sightings.	No interactions observed or reported.

Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the Marina Archipelago (Guam)				
Common name	**Scientific Name**	**ESA listing status in Guam**	**Occurrence in Guam**	**Interactions with the Guam bottomfish fishery**
Humpback whale	*Megaptera novaeangliae*	Endangered	Infrequent sightings. Winter in the CNMI.	No interactions observed or reported.
Sei whale	*Balaenoptera borealis*	Endangered	Infrequent sightings.	No interactions observed or reported.
Sperm whale	*Physeter macrocephalus*	Endangered	Regularly sighted.	No interactions observed or reported.
Listed Sea Birds				
Newell's Shearwater	*Puffinus auricularis newelli*	Threatened	Rare visitor.	No interactions observed or reported.

Applicable ESA Coordination – Guam Bottomfish Fisheries

In an informal consultation letter dated June 3, 2008, NMFS determined that the continued authorization of bottomfish fisheries of the Mariana Archipelago, including the bottomfish fishery around Guam, as managed under the Bottomfish and Seamount Groundfish FMP, was not likely to adversely affect ESA-listed sea turtle and marine mammal species or their designated critical habitat.

In 2009, the Council recommended and NMFS approved the development of five archipelagic-based fishery ecosystem plans (FEP) including the Mariana Archipelago FEP. The FEP incorporated and reorganized elements of the Council's species-based FMPs, including the Bottomfish and Seamount Groundfish Fisheries FMP, into a spatially-oriented management plan (75 FR 2198, January 14, 2010). All applicable regulations concerning bottomfish fishing were retained through the development and implementation of the FEP for the Mariana Archipelago, including Guam. No substantial changes to the bottomfish fishery around Guam have occurred since the FEP was implemented that have required further consultation for species covered under the 2008 informal consultation.

On July 3, 2014, NMFS published a final rule that listed four distinct population segments (DPSs) of scalloped hammerhead shark under the ESA (79 FR 38213). The threatened Indo-West Pacific DPS is the only DPS that occurs around Guam. On September 10, 2014, NMFS published a final rule that listed 20 species of reef-building corals as threatened under the ESA (79 FR 53852). Of the 20 listed species, three are thought to occur in the Mariana Archipelago. On April 29, 2015, NMFS determined that the continued authorization of the coral reef, bottomfish, crustacean, and precious coral fisheries under the FEP for the Mariana Archipelago is not likely to adversely affect the Indo-West Pacific DPS of scalloped hammerhead shark and reef-building corals.

Marine Mammals

Several species of whales, dolphins and porpoises, and the dugong occur in waters around Guam and are protected under the Marine Mammal Protection Act (MMPA). Table 22, provides a list of marine mammals known to occur or reasonably expected to occur in waters around the Mariana Archipelago that have the potential to interact with the bottomfish fishery. A single dugong, listed as endangered, was observed in Cocos Lagoon, Guam in 1975 (Randall et al., 1975). Several sightings were reported in 1985 on the southeastern side of Guam (Eldredge 2003). Since that time, no reports of dugong sightings have been made.

Table 14. Marine mammals known to occur or reasonably expected to occur in waters around the Mariana Archipelago - Guam

Marine mammals known to occur or reasonably expected to occur in waters around the Mariana Archipelago (Guam)		
Common Name	**Scientific Name**	**Interactions with the Guam Bottomfish Fishery**
Humpback whale*	*Megaptera novaeangliae*	No interactions observed or reported.
Sperm whale*	*Physeter macrocephalus*	No interactions observed or reported.
Sei whale*	*Balaenoptera borealis*	No interactions observed or reported.
Fin whale*	*Balaenoptera physalus*	No interactions observed or reported.
Blue whale*	*Balaenoptera musculus*	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.
Dugong*	*Dugong dugong*	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.

Marine mammals known to occur or reasonably expected to occur in waters around the Mariana Archipelago (Guam)		
Common Name	**Scientific Name**	**Interactions with the Guam Bottomfish Fishery**
Longman's beaked whale	*Indopacetus pacificus*	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.
Sperm whale	*Physeter macrocephalus*	No interactions observed or reported.
Spinner dolphin	*Stenella longirostris*	No interactions observed or reported.
Spotted dolphin	*Stenella attenuata*	No interactions observed or reported.
Striped dolphin	*Stenella coeruleoalba*	No interactions observed or reported.

*Species is also listed under the Endangered Species Act.
Source: Eldredge 2003, Randall et al., 1975, Guam DAWR, 2005, Council website: http://www.wpcouncil.org

Marine Mammal Protection Act Coordination

The MMPA prohibits, with certain exceptions, taking of marine mammals in the U.S., and by persons aboard U.S. flagged vessels (i.e., persons and vessels subject to U.S. jurisdiction). NMFS classifies the Guam bottomfish fishery as a Category III fishery under Section 118 of the MMPA (76 FR 73912, November 29, 2011). A Category III fishery is one with a low likelihood or no known incidental takings of marine mammals. Because the proposed action would not modify vessel operations or other aspects of any fishery, NMFS does not anticipate that these fisheries, as conducted under the proposed action, would affect marine mammals in any manner not previously considered or authorized by the commercial fishing take exemption under section 118 of the MMPA.

Sea Turtles

There are five Pacific sea turtles designated under the Endangered Species Act (ESA) as either threatened or endangered. Green sea turtles are most likely to frequent nearshore habitat when

foraging around Guam and other areas in the Mariana Islands. The breeding populations of Mexico's olive ridley sea turtles (*Lepidochelys olivacea*) are currently listed as endangered, while all other olive ridley populations are listed as threatened. Leatherback sea turtles (*Dermochelys coriacea*) and hawksbill turtles (*Eretmochelys imbricata*) are also classified as endangered. Green sea turtles (*Chelonia mydas*) are listed as threatened (the green sea turtle is listed as threatened throughout its Pacific range, except for the endangered population nesting on the Pacific coast of Mexico), and loggerhead (*Caretta caretta*) sea turtles in the North Pacific Ocean were recently identified as a distinct population segment and listed as endangered. These five species of sea turtles are highly migratory, or have a highly migratory phase in their life history (NMFS, 2001).

Based on nearshore surveys conducted jointly between the CNMI–DFW and NMFS around the Southern Mariana Islands (Rota and Tinian 2001; Saipan 1999), an estimated 1,000 to 2,000 green sea turtles forage in these areas (Kolinski et al., 2001). Nesting beaches and seagrass beds on Tinian and Rota are in good condition but beaches and seagrass beds on Saipan have been impacted by hotels, golf courses and general tourist activities. Nesting surveys for green sea turtles have been done on Guam since 1973 with the most consistent data collected between 1990 and 2001 (Cummings, 2002). Survey results show nesting in Guam to be generally increasing with 1997 having the most numerous nesting females at 60 (Cummings 2002). From October 1, 2006 through July 31, 2008, 55 green turtle nests were counted at various beaches during opportunistic surveys throughout Guam (DAWR, 2009). Aerial surveys done in 1990–2000 also found an increase in green sea turtle sightings around Guam with over 200 turtles counted in 2000 (Cummings, 2002). There have been occasional sightings of leatherback turtles around Guam (Eldredge, 2003); however, the extent to which leatherback turtles are present around the Mariana Archipelago is unknown. There are no known reports of loggerhead sea turtles in waters around the Mariana Archipelago (WPFMC, 2009b). Olive ridley sea turtles are believed to occasionally transit the area (Starmer et al., 2005). There have been no reported or observed interactions with sea turtles in the Mariana Archipelago bottomfish fisheries.

Seabirds

The following seabirds are considered residents of the Mariana Archipelago: wedge-tailed shearwater (*Puffinus pacificus*), white-tailed tropicbird (*Phaethon lepturus*), red-tailed tropicbird (*Phaethon rubricauda*), masked booby (S*ula dactylatra*), brown booby (*Sula leucogaster*), red-footed booby (*Sula sula*), white tern (*Gygis alba),* sooty tern (*Sterna fuscata*), brown noddy (*Anous stolidus*), black noddy (*Anous minutus*), and the great frigatebird (*Fregata minor*). However, according to Wiles (2003), the only resident seabirds on Guam are the brown noddy and the white tern.

The following seabirds in Table 22 have been sighted and are considered visitors (some more common than others) to the Mariana Archipelago; short-tailed shearwater (*Puffinus tenuirostris;* common visitor), Newell's shearwater (*Puffinus auricularis;* rare visitor), Audubon's shearwater (*Puffinus iherminieri*), Leach's storm-petrel (*Oceanodroma leucorhoa*), and the Matsudaira's storm-petrel(*Oceanodroma matsudairae*). Of these, only the Newell's shearwater is listed as threatened under the ESA. There have been no sightings of the endangered short-tailed albatross (*Phoebastria albatrus*) in the Mariana Archipelago although the Mariana Archipelago is within the range of the only breeding colony at Torishima, Japan (WPFMC, 2009b).

There have been no reports of interactions between seabirds and any of the Mariana Archipelago bottomfish fisheries (WPFMC, 2009b) and the species is not known to prey on bottomfish. Since the proposed action would not modify fishing operations, NMFS expects that the fishery, as conducted under the proposed action, would not affect ESA listed seabirds.

Table 15. Seabirds occurring in the Mariana Archipelago (Guam)

Seabirds of the Mariana Archipelago (R= Resident/Breeding; V= Visitor; Vr=rare visitor; Vc= Common visitor)		
	Common name	***Scientific name***
Vr	Newell's shearwater	*Puffinus auricularis newelli (ESA: Threatened)*
Vr	Wedge-tailed shearwater	*Puffinus pacificus*
V	Audubon's shearwater	*Puffinus lherminieri*
Vc	Short-tailed shearwater	*Puffinus tenuirostris (common visitor)*
V	Leach's storm-petrel	*Oceanodroma leucorhoa*
Vr	Matsudaira's storm-petrel	*Oceanodroma matsudairae*
Vr	Red-footed booby	*Sula sula*
Vr	Brown booby	*Sula leucogaster*
V	Masked booby	*Sula dactylatra*
Vr	White-tailed tropicbird	*Phaethon lepturus*
Vr	Red-tailed tropicbird	*Phaethon rubricauda*
Vr	Great frigatebird	*Fregata minor*
Vr	Sooty tern	*Sterna fuscata*
R	Brown noddy	*Anous stolidus*
V	Black noddy	*Anous minutus*
R	White tern / Common fairy-tern	*Gygis alba*

Source: WPFMC 2009b

Potential Impacts to Protected Resources in Guam

None of the alternatives considered would modify operations of the Guam bottomfish fishery in any way that would be expected to affect endangered or threatened species or critical habitat in any manner not previously considered in previous ESA or MMPA consultations.

The current inability of fishery managers to conduct in-season tracking of the progress of the catch towards an ACL prevents in-season closure ability. This means participants in the Guam bottomfish fishery would continue to fish as they currently do under the current management regime. However, because this fishery is currently sustainably managed and subject to conservation measures in accordance with various resource conservation and management laws, and because no change would occur in the way fishing is conducted, none of the alternatives would result in a change to distribution, abundance, reproduction, or survival of ESA-listed species or increase interactions with protected resources.

If at any time the fishery, environment, or status of a listed species or marine mammal species were to change substantially, or if the fishery were found to be occurring in or near areas that were designated as critical habitat, NMFS would undertake additional consultation as required to comply with requirements of the ESA and the MMPA.

On September 22, 2011, NMFS and the U.S. Fish and Wildlife Service (USFWS) determined that the loggerhead sea turtle (*Caretta caretta*) is composed of nine DPSs that may be listed as threatened or endangered under the ESA (76 FR 58868). Specifically, NMFS and USFWS determined that the loggerhead sea turtles in the North Pacific Ocean, which encompasses waters around Guam, are a distinct population segment (DPS) that is endangered and at risk of extinction. However, because loggerhead sea turtles, inclusive of the North Pacific Ocean DPS are not known to occur around the Mariana Archipelago, and because none of the alternatives considered would modify operations of the Guam bottomfish fishery in any way, there is no additional information that would change the conclusions of the June 3, 2008 informal consultation which determined that the Guam bottomfish fishery was not likely to adversely affect ESA-listed marine species or their designated critical habitat.

On March 23, 2015, NMFS and USFWS published a proposed rule finding that the green sea turtle is composed of 11 DPSs and proposed to replace the current range-wide listing with listing of the DPSs as threatened or endangered (80 FR 15272). The population around Guam is part of the Central West Pacific DPS, which is proposed to be listed as endangered. However, none of the alternatives considered would modify operations of the Guam bottomfish fishery in any way, and there is no additional information that would change the conclusions of the June 3, 2008 informal consultation which determined that the Guam bottomfish fishery is not likely to adversely affect green sea turtles.

3.2.3 Guam Fishing Community

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)”.

National Standard 8 of the Magnuson-Stevens Act requires that conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and the rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (a) provide for the sustained participation of such communities and (b) to the extent practicable, minimize adverse economic impacts on such communities.

The Council, in 1998, identified Guam as a fishing community and requested the Secretary of Commerce concur with this determination. Guam was recognized in regulation as a fishing community under the MSA on April 19, 1999 (64 FR 19067).

Potential Impacts of the Proposed ACL specifications and AM on the Guam Fishing Community

No change to the Guam bottomfish fishery is expected under any of the alternatives. The proposed ACL specifications, which are are intended to provide for the longterm availability of bottomfish resources to the American Samoa fishing community, are almost twice the amount of recent harvests. Thus, the Council does not believe there will be any disruption to the fishery that would result in any social or economic impacts to the Guam fishing community.

In terms of management, Guam BMUS would continue to be subject to an annual catch limit and post-season review of fishery performance against the ACL. Under the management system, ongoing monitoring of catch toward the ACL and future ACL adjustments are expected to benefit people who rely on fishing by providing additional review of fishing and catch levels, which, in turn, should enhance the sustainability of the fishery.

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 at both the Council's deliberations and NMFS's proposed rulemaking stage.

3.3 CNMI Bottomfish Fishery, Marine Resources and Potential Impacts

The Mariana Archipelago (approximately 396 square miles of land) is composed of 15 volcanic islands that are part of a submerged mountain chain stretching nearly 1,500 miles from Guam to Japan, and is comprised of two political jurisdictions: the CNMI, and the Territory of Guam, both of which are U.S. possessions. The CNMI is comprised of 14 islands with a total land area of 179 sq. miles spread over 264,000 sq. miles of ocean. The highest elevation is 3,166 feet (965 m). The southern islands (Rota, Saipan and Tinian) are limestone with fringing coral reefs; the northern islands from Farallon de Medinilla to Uracus are volcanic, with active volcanoes on Anatahan, Pagan and Agrihan. Ninety percent of the 48,220 residents (2010 estimate) live on the island of Saipan and almost all the rest on Tinian and Rota. The population fell by 50% compared to the 2005 estimate due to changes in immigration laws. After government removal of residents following volcanic activity, only a half dozen people remain in the northern islands.

The U.S. EEZ around CNMI is approximately 292,717 square miles, but unlike other U.S. Pacific islands, federal jurisdiction extends from the shoreline to 200 nm offshore. For this reason, the federal bottomfish management area around the CNMI is further divided into the inshore area (0-3 nmi) and the offshore area (3-200 nmi). Bottomfish fishery data collection, compilation and monitoring responsibilities are shared among territorial and federal agencies. Bottomfish fishing in federal waters around the CNMI is managed in accordance with the Fishery Ecosystem Plan for the Mariana Archipelago (Mariana Archipelago FEP) developed by the Council and implemented by NMFS under the authority of the MSA (WPFMC 2009b). However, the Council is working to incorporate locally developed regulations for CNMI near-shore fisheries into federal management measures in the Mariana Archipelago Fishery Ecosystem Plan (WPFMC 2011; Council website). This FEP includes a management structure that emphasizes community participation and enhanced consideration of the habitat and ecosystem, and other elements not typically incorporated in fishery management decision-

making. Enforcement of federal fishery regulations is handled through a joint Federal-Territorial partnership and the Council is required to produce an annual performance report on the fishery.

Overview of the CNMI Bottomfish Fishery

CNMI's bottomfish fishery still consists primarily of small-scale local boats engaged in commercial and subsistence fishing, although a few (generally <5) larger vessels (30– 60 ft) also participate in the fishery. The bottomfish fishery can be broken down into two sectors: deep-water (>500 ft) and shallow-water (100–500 ft) fisheries. The deep-water fishery is primarily commercial, targeting snappers and groupers (WPFMC, 2009) while, the shallow-water fishery, which targets the redgill emperor (*Lethrinus rubrioperculatus*) is mostly commercial, but also includes subsistence fishermen (WPFMC, 2011). Hand lines, home-fabricated hand reels and small electric reels are the commonly used gear for small-scale fishing operations, whereas electric reels and hydraulics are the commonly used gear for the larger operations in this fishery. Fishing is often conducted during daylight hours, although larger vessels have made multi-day trips to the Northern Islands (north of Saipan) in the past.

CNMI's bottomfish fishery continues to show a high turnover with changes in the number of participants in the fishery. In the early 1980s, there were over 100 vessels participating in the fishery. In 2014, only 10 vessels reported bottomfish landings which are offloaded at Saipan or other CNMI commercial ports. (WPacFIN unpublished data, CNMI Bottomfish Module).

To help conserve bottomfish fishery resources at nearshore seamounts and banks, any vessel greater than 40 ft in length overall is prohibited from engaging in fishing for bottomfish within 50 nm around the CNMI's Southern Islands and within 10 nm around the island of Alamagan in the Northern Islands. Additionally, a federal bottomfishing permit is required for any vessel used in commercially fishing for BMUS in the EEZ around the CNMI which includes both inshore and offshore waters. Other requirements affecting the CNMI's bottomfish fishery can be found in the Mariana Archipelago FEP (WPFMC, 2009b).

Of the estimated 10 vessels reported to engage in bottomfish fishing in 2014, only 7 vessels were federally permitted. The monitoring of the total CNMI bottomfish fishery is primarily dependent on data voluntarily provided by fishermen to the CNMI Division of Fish and Wildlife through the boat-based creel survey program. Monitoring of commercial sales data is provided to DFW by fish dealers through the commercial purchase system. Currently, DFW staff resources limit the ability to process data so catch information is not available until at least 6 months to a year after the fishing year has ended.

Table 6 shows that between 2011 and 2013, the CNMI bottomfish fishery caught an average of 20,099 lb of BMUS annually of which 77 percent (15,491 lb) was sold. In 2013, the commercial price per pound for BMUS in the CNMI is $3.79.

Based on the 2013 commercial catch estimate of 17,796 lb and the average price of all BMUS at $3.79 per pound, the annual commercial value of the bottomfish fishery in 2013 was $67,446. Assuming that the 10 vessels engaged in commercial fishing for BMUS in 2013, and that fishing effort by each vessel were equal, NMFS estimates each commercial fishing vessel would have caught 1,779 lb valued at $6,742.

Potential Impacts of the Proposed ACL specification and AM on CNMI's Bottomfish Fishermen

Alternative 1: No Action (Status Quo)
Under the no action alternative, fishing for CNMI BMUS would be subject to an ACL of 228,000 lb for the 2016 and 2017 fishing years. This is the same ACL specified for 2015. Between 2000 and 2013, the greatest total annual catch of BMUS in the CNMI occurred in 2001 at 71,256 lb (Table 6). After 2001, total annual catch declined slightly, rebounded back to 70,000 lb in 2005, and declined again with the average total annual catch for the period 2011-2013 at 20,099 lb. Since the ACL proposed under this alternative is more than three times greater than the highest level of catch ever recorded, harvest in 2016 and 2017 is not expected to exceed the ACL, and the ACL is not expected to result in a race to the fish over each of the next two years.

Because there is no data that would allow NMFS to implement an in-season closure to prevent the ACL from being exceeded, under all alternatives including the no action alternative, the AM for the CNMI bottomfish fishery would require a post-season review of the catch data to determine whether the bottomfish ACL for the CNMI was exceeded. If the ACL is exceeded, NMFS, as recommended by the Council, would take action to correct the operational issue that caused the ACL overage to help ensure the fishery remains sustainable. This could include a downward adjustment to the bottomfish ACL in the subsequent fishing year. NMFS cannot speculate on the operational measures or the magnitude of the overage adjustment that might be taken; therefore, the fishery impacts of future actions such as changes to the ACL or AM would be evaluated separately, once details are available.

NMFS does not expect the ACL and AMs proposed under this alternative to result in a change to the conduct of the fishery including gear types, areas fished, effort, or participation. Consequently, NMFS does not expect implementation of Alternative 1 to adversely affect CNMI bottomfish fishermen.

Alternative 2: Specify ACLs equal to the SSC recommended ABC
Under Alternative 2, fishing for CNMI BMUS would be subject to an ACL of 228,000 lb for the 2016 and 2017 fishing years as recommended by the Council. This specification is the same as Alternative 1 but the risk of overfishing level is different. In Brodziak et al. 2012, a catch level of 228,000 lb is associated with a 28 and 39 percent risk of overfishing for 2013 and 2014, respectively. The most recent stock assessment update by Yau et al. (in press), a catch level of 228,000 lb is associated with a 24.2 and 36 percent risk of overfishing, lower than the previous stock assessment update.

Based on past fishery performance, the bottomfish fleet is very unlikely to achieve the ACL in 2016 or 2017. Because there is no data that would allow NMFS to implement an in-season closure, the AM under this alternative would be the same as under Alternative 1. Therefore, the impacts to fishermen would be similar to those described in Alternative 1.

Alternative 3: Apply the SEEM reduction to set the ACL lower than ABC or set the ACL equal to ABC and specify an ACT

Under Alternative 3, fishing for CNMI BMUS would be subject to an ACL/ACT of 216,000 lb for the 2016 and 2017 fishing years. Based on past fishery performance shown in Table 6, the bottomfish fleet is very unlikely to achieve the ACL in 2016 or 2017. Because there is no data that would allow NMFS to implement an in-season closure to prevent the ACL from being exceeded, an ACL under this alternative is not expected to result in a change to the conduct of the fishery including gear types, areas fished, effort, or participation. No adverse economic impact to fishermen would result from implementation of any ACL under Alternative 3.

3.3.1 Target, Non-target and Bycatch Species in the CNMI

The bottomfish fishery in the Mariana Archipelago, including CNMI, generally targets 17 bottomfish management unit species including both shallow and deepwater bottomfish species (Table 16).

Table 16. Mariana Bottomfish MUS (CNMI)

Mariana Bottomfish MUS (CNMI)		
Scientific Name	**English Common Name**	**Local Name Chamorro/Carolinian**
Aphareus rutilans	red snapper/ silvermouth	lehi/maroobw
Aprion virescens	gray snapper/jobfish	gogunafon/aiwe
Caranx ignobilis	giant trevally/jack	tarakitu/etam
C. lugubris	black trevally/jack	tarakiton attelong/orong
Epinephelus fasciatus	blacktip grouper	gadao/meteyil
Variola louti	lunartail grouper	bueli/bwele
Etelis carbunculus	red snapper/Ehu	buninas agaga/falaghal moroobw
Etelis coruscans	red snapper/Onaga	buninas/taighulupegh
Lethrinus rubrioperculatus	redgill emperor	mafuti atigh
Lethrinus amboinensis	ambon emperor	mafuti/loot
Lutjanus kasmira	blueline snapper	funai/saas
Pristipomoides auricilla	yellowtail snapper	buninas/falaghal-maroobw
Pristipomoides filamentosus	pink snapper/ opakapaka	buninas/falaghal-maroobw
Pristipomoides flavipinnis	yelloweye snapper/ yelloweye okpakapaka	buninas/falaghal-maroobw
Pristipomoides seiboldi	pink snapper/kalekale	N/A
Pristipomoides zonatus	Snapper/gindai	buninas rayao amiriyu/falaghal-maroobw
Seriola dumerili	amberjack	tarakiton tadong/meseyugh

Current impacts of the fishery: target, non-target and bycatch species

The information used in developing the proposed ACL for the CNMI bottomfish stock complex is based on the most recent bottomfish stock assessment (Yau et al., in press) conducted by NMFS Pacific Islands Fisheries Science Center (PIFSC) using data through 2013. Key points from the discussion in Section 2.1.3 are that PIFSC estimated MSY to be 173,100 ± 32,190 lb

and that the production model results suggest that the CNMI bottomfish complex was not overfished and did not experience overfishing during the period 1986-2013. Between 2011 and 2013, the average catch of CNMI BMUS was 20,099 lb or about 12% of the long-term MSY.

Almost all of the fishes caught in the CNMI are considered food fishes and available data show less than 1 percent of the total catch from the non-charter bottomfish sector is bycatch (WPFMC, 2006). In the charter sector, bycatch rises to a little more than 7 percent and is mostly attributed to smaller food fishes that were released alive.

Potential Impacts of the Proposed ACL Specification and AM on Target, Non-target and Bycatch Species in the CNMI

Alternative 1: No Action (Status Quo)
Under the no-action alternative, the ACL for 2016 and 2017 would be set at 228,000 lb. This is the same ACL specified for 2015. The fishery would continue to catch bottomfish in the manner that is described above, and catches would continue to be monitored through fisheries monitoring programs administered by DFW with assistance from WPacFIN. The current level of catch under this alternative is expected to continue as it currently has in recent years with average total catch estimated to be 20,099 lb for the period 2011-2013. This level of catch is approximately 12% of MSY (173,100 lb) and is sustainable.

While an ACL of 228,000 lb would exceed the long-term MSY, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 5, an ACL of 228,000 lb would result in less than a 24.2 percent probability of overfishing in 2016, rising in 2017 to a 36 percent probability of overfishing. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 1. Monitoring of catch would be conducted annually by the DFW with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 2: Specify ACLs equal to the SSC recommended ABC
Under Alternative 2, fishing for CNMI BMUS would be subject to an ACL of 228,000 lb for the 2016 and 2017 fishing year. While this ACL exceeds the long-term MSY of 173,100 lb, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 5, this ACL would have a 24.2 percent probability of causing overfishing in 2016, rising in 2017 to a 36 percent probability of overfishing.

Based on past fishery performance shown in Table 6, the fishery would need to harvest more than three times the record 2001 catch of 71,256 to attain the ACL and more than 18,000 lb over the ACL in 2016 and 2017 for overfishing to occur. This level of catch is extremely unlikely. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 2. Monitoring of catch would be conducted annually by the DFW with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 3: Apply the SEEM reduction to set the ACL lower than ABC or set the ACL equal to ABC and specify an ACT

Under Alternative 3, fishing for CNMI BMUS would be subject to an ACL/ACT of 216,000 lb for the 2016 and 2017 fishing years. While some of the ACLs in this alternative would exceed the long-term MSY of 173,100 lb, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 5, none would result in a probability of overfishing greater than 30 percent. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 3. Like Alternatives 1 and 2, monitoring of catch would be conducted annually by the DFW with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Under all alternatives considered including the preferred alternative, no new monitoring would be implemented; however, a post-season review of the catch data would be conducted as soon as possible after the fishing year to determine whether the ACL was exceeded. If the ACL is exceeded and affects the sustainability of the stock, NMFS would take action to correct the operational issue that caused the ACL overage, as recommended by the Council, which could include a downward adjustment to the ACL in the subsequent fishing year. However, if the Council decided to set the ACL equal to ABC and set an ACT at 216,000 lb, no overage adjustment will be applied unless the overage exceeded the ACL. While the lack of in-season catch monitoring ability precludes in-season measures (such as a fishery closure) that would prevent the ACL from being exceeded, none of the ACLs considered have greater than a 39 percent probability of causing overfishing for CNMI bottomfish in 2016 and 2017.

3.3.2 Protected Resources in the CNMI

A number of protected species are reported from the waters around the Mariana Islands and there is, therefore, the potential for interactions with the bottomfish fisheries of the CNMI. The bottomfish fisheries of the western Pacific region have been evaluated for impacts on protected resources and are managed in compliance with the requirements of the MSA, the Marine Mammal Protection Act (MMPA), the Endangered Species Act (ESA), the Migratory Bird Treaty Act, and other applicable statutes. Additional detailed descriptions of potentially affected protected resources and their life histories can be found in Section 3.3.4 of the FEP for the Mariana Archipelago (WPFMC 2009b).

Listed species and ESA review of the CNMI Bottomfish Fisheries

Table 24 identifies species listed as endangered or threatened under the ESA that are known to occur or could reasonably be expected to occur in marine waters around the Mariana Archipelago, including the CNMI which may have the potential to interact with fisheries. They include a number of whales, five sea turtles, and a seabird. There is no critical habitat designated for ESA-listed marine species around Guam.

Table 17. Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the Mariana Archipelago (CNMI)

Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the Mariana Archipelago (CNMI)				
Common name	**Scientific Name**	**ESA listing status in the CNMI**	**Occurrence in the CNMI**	**Interactions with the CNMI bottomfish fishery**
Listed Sea Turtles				

Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the Mariana Archipelago (CNMI)				
Common name	**Scientific Name**	**ESA listing status in the CNMI**	**Occurrence in the CNMI**	**Interactions with the CNMI bottomfish fishery**
Green sea turtle	*Chelonia mydas*	Threatened	Most common turtle in the Mariana Archipelago. Foraging and minor nesting confirmed on Guam, Rota, Tinian and Saipan.	No interactions observed or reported.
Hawksbill sea turtle	*Eretmochelys imbricata*	Endangered	Small population foraging around Guam and suspected low level around southern islands of the CNMI. Low level nesting on Guam.	No interactions observed or reported.
Leatherback sea turtle	*Dermochelys coriacea*	Endangered	Occasional sightings around Guam. Not known to what extent they are present around Guam and CNMI.	No interactions observed or reported.
Olive ridley sea turtle	*Lepidochelys olivacea*	Threatened	Range across Pacific: Not confirmed in the Mariana Archipelago	No interactions observed or reported.
North Pacific loggerhead sea turtle Distinct Population Segment	*Caretta caretta*	Endangered	No known reports of loggerhead turtles in waters around the Mariana Archipelago.	No interactions observed or reported.
Listed Marine Mammals				
Blue whale	*Balaenoptera musculus*	Endangered	Extremely rare	No interactions observed or reported.

Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the Mariana Archipelago (CNMI)				
Common name	**Scientific Name**	**ESA listing status in the CNMI**	**Occurrence in the CNMI**	**Interactions with the CNMI bottomfish fishery**
Fin whale	*Balaenoptera physalus*	Endangered	Infrequent sightings.	No interactions observed or reported.
Humpback whale	*Megaptera novaeangliae*	Endangered	Infrequent sightings. Winter in the CNMI.	No interactions observed or reported.
Sei whale	*Balaenoptera borealis*	Endangered	Infrequent sightings.	No interactions observed or reported.
Sperm whale	*Physeter macrocephalus*	Endangered	Regularly sighted; most abundant large cetaceans in the region.	No interactions observed or reported.
Listed Sea Birds				
Newell's Shearwater	*Puffinus auricularis newelli*	Threatened	Rare visitor	No interactions observed or reported.

Applicable ESA Coordination – CNMI Bottomfish Fisheries

In an informal consultation letter dated June 3, 2008, NMFS determined that the continued authorization of bottomfish fisheries of the Mariana Archipelago, including the bottomfish fishery around the CNMI, as managed under the Bottomfish and Seamount Groundfish FMP, was not likely to adversely affect ESA-listed sea turtle and marine mammal species or their designated critical habitat.

In 2009, the Council recommended and NMFS approved the development of five archipelagic-based fishery ecosystem plans (FEP) including the Mariana Archipelago FEP. The FEP incorporated and reorganized elements of the Council's species-based FMPs, including the Bottomfish and Seamount Groundfish Fisheries FMP, into a spatially-oriented management plan (75 FR 2198, January 14, 2010). All applicable regulations concerning bottomfish fishing were retained through the development and implementation of the FEP for the Mariana Archipelago, including the CNMI. No substantial changes to the bottomfish fishery around the CNMI have occurred since the FEP was implemented that have required further consultation for species covered under the 2008 informal consultation.

On July 3, 2014, NMFS published a final rule that listed four distinct population segments (DPSs) of scalloped hammerhead shark under the ESA (79 FR 38213). The threatened Indo-West Pacific DPS is the only DPS that occurs around CNMI. On September 10, 2014, NMFS published a final rule that listed 20 species of reef-building corals as threatened under the ESA (79 FR 53852). Of the 20 listed species, three are thought to occur in the Mariana Archipelago. On April 29, 2015, NMFS determined that the continued authorization of the coral reef,

bottomfish, crustacean, and precious coral fisheries under the FEP for the Mariana Archipelago is not likely to adversely affect the Indo-West Pacific DPS of scalloped hammerhead shark and reef-building corals.

Marine Mammals

Several whales, dolphins and porpoises, occur in waters around CNMI and are protected under the Marine Mammal Protection Act (MMPA). Table 25, provides a list of marine mammals known to occur or reasonably expected to occur in waters around the Mariana Archipelago that have the potential to interact with the CNMI bottomfish fishery

Table 18. Marine mammals known to occur or reasonably expected to occur in waters around the Mariana Archipelago (CNMI)

Marine mammals known to occur or reasonably expected to occur in waters around the Mariana Archipelago (CNMI)		
Common Name	**Scientific Name**	**Interactions with the CNMI bottomfish fishery**
Humpback whale*	*Megaptera novaeangliae*	No interactions observed or reported.
Sperm whale*	*Physeter macrocephalus*	No interactions observed or reported.
Sei whale*	*Balaenoptera borealis*	No interactions observed or reported.
Fin whale*	*Balaenoptera physalus*	No interactions observed or reported.
Blue whale*	*Balaenoptera musculus*	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.

Marine mammals known to occur or reasonably expected to occur in waters around the Mariana Archipelago (CNMI)		
Common Name	**Scientific Name**	**Interactions with the CNMI bottomfish fishery**
Longman's beaked whale	*Indopacetus pacificus*	No interactions observed or reported.
Melon-headed whale	*Peponocephala electra*	No interactions observed or reported.
Minke whale	*Balaenoptera acutorostrata*	No interactions observed or reported.
Northern elephant Seal	*Mirounga angustirostris*	No interactions observed or reported.
Pilot whale	*Globicephala malaena*	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.
Spinner dolphin	*Stenella longirostris*	No interactions observed or reported.
Spotted dolphin	*Stenella attenuata*	No interactions observed or reported.
Striped dolphin	*Stenella coeruleoalba*	No interactions observed or reported.

*Species is also listed under the Endangered Species Act.
Source: Eldredge, 2003; Randall et al., 1975; Berger et al., 2005; Council website: http://www.wpcouncil.org

Marine Mammal Protection Act Coordination

The MMPA prohibits, with certain exceptions, taking of marine mammals in the U.S., and by persons aboard U.S. flagged vessels (i.e., persons and vessels subject to U.S. jurisdiction). NMFS classifies the CNMI bottomfish fishery as a Category III fishery under Section 118 of the MMPA (76 FR 73912, November 29, 2011). A Category III fishery is one with a low likelihood or no known incidental takings of marine mammals. Because the proposed action would not modify vessel operations or other aspects of any fishery, NMFS does not anticipate that these fisheries, as conducted under the proposed action, would affect marine mammals in any manner not previously considered or authorized by the commercial fishing take exemption under section 118 of the MMPA.

Sea Turtles

There are five Pacific sea turtles designated under the Endangered Species Act (ESA) as either threatened or endangered. Green sea turtles are most likely to frequent nearshore habitat when foraging around the CNMI and other areas in the Mariana Islands. The breeding populations of Mexico's olive ridley sea turtles (*Lepidochelys olivacea*) are currently listed as endangered, while all other olive ridley populations are listed as threatened. Leatherback sea turtles (*Dermochelys coriacea*) and hawksbill turtles (*Eretmochelys imbricata*) are also classified as endangered. Green sea turtles (*Chelonia mydas*) are listed as threatened (the green sea turtle is listed as threatened throughout its Pacific range, except for the endangered population nesting on the Pacific coast of Mexico). Loggerhead (*Caretta caretta*) sea turtles in the North Pacific Ocean were recently identified as a distinct population segment and listed as endangered. These five species of sea turtles are highly migratory, or have a highly migratory phase in their life history (NMFS 2001).

Based on nearshore surveys conducted jointly between the CNMI–DFW and NMFS around the Southern Mariana Islands (Rota and Tinian 2001; Saipan 1999), an estimated 1,000 to 2,000 green sea turtles forage in these areas (Kolinski et al., 2001). Nesting beaches and seagrass beds on Tinian and Rota are in good condition but beaches and seagrass beds on Saipan have been impacted by hotels, golf courses and general tourist activities. Intensive monitoring in occurred on Saipan at seven beaches from March 4 to August 31, 2009 resulting in 16 green turtle nests documented. Rapid assessments at Rota beaches Okgok and Tatgua on July 12, 2009 yielded 13 nests. On Tinian, from July 22-31, 2009, 36 nests at five beaches were documented (Maison et. al 2010). There have been no leatherback turtles reported in the CNMI and the extent to which leatherback turtles are present around the Mariana Archipelago is unknown. There are no known reports of loggerhead sea turtles in waters around the Mariana Archipelago (WPFMC 2009b). Olive ridley sea turtles are believed to occasionally transit the area (Starmer et al. 2005). There have been no reported or observed interactions with sea turtles in the Mariana Archipelago bottomfish fisheries.

Seabirds

The following seabirds in Table 26 are considered residents of the Mariana Archipelago: wedge-tailed shearwater (*Puffinus pacificus*), white-tailed tropicbird (*Phaethon lepturus*), red-tailed tropicbird (*Phaethon rubricauda*), masked booby (S*ula dactylatra*), brown booby (*Sula leucogaster*), red-footed booby (*Sula sula*), white tern (*Gygis alba),* sooty tern (*Sterna fuscata*), brown noddy (*Anous stolidus*), black noddy (*Anous minutus*), and the great frigatebird (*Fregata minor*).

The following seabirds in Table 26 have been sighted and are considered visitors (some more common than others) to the Mariana Archipelago; short-tailed shearwater (*Puffinus tenuirostris;* common visitor), Newell's shearwater (*Puffinus auricularis;* rare visitor), Audubon's shearwater (*Puffinus iherminieri*), Leach's storm-petrel (*Oceanodroma leucorhoa*), and the Matsudaira's storm-petrel (*Oceanodroma matsudairae*). Of these, only the Newell's shearwater is listed as threatened under the ESA. There have been no sightings of the endangered short-tailed albatross (*Phoebastria albatrus*) in the CNMI although the CNMI is within the range of the only breeding colony at Torishima, Japan (WPFMC, 2009b). There have been no reports of interactions between seabirds and any of the Mariana Archipelago bottomfish fisheries (WPFMC 2009b) and the species is not known to prey on bottomfish. Since the proposed action would not modify

fishing operations, NMFS expects that the fishery, as conducted under the proposed action, would not affect ESA listed seabirds.

Table 19. Seabirds occurring in the Mariana Archipelago (CNMI)

Seabirds of the Mariana Archipelago (R= Resident/Breeding; V= Visitor; Vr=rare visitor; Vc= Common visitor)		
	Common name	***Scientific name***
Vr	Newell's shearwater	*Puffinus auricularis newelli (ESA:Threatened) rare visitor*
R	Wedge-tailed shearwater	*Puffinus pacificus*
V	Audubon's shearwater	*Puffinus lherminieri*
Vc	Short-tailed shearwater	*Puffinus tenuirostris (common visitor)*
V	Leach's storm-petrel	*Oceanodroma leucorhoa*
V	Matsudaira's storm-petrel	*Oceanodroma matsudairae*
V	Red-footed booby	*Sula sula*
R	Brown booby	*Sula leucogaster*
R	Masked booby	*Sula dactylatra*
R	White-tailed tropicbird	*Phaethon lepturus*
R	Red-tailed tropicbird	*Phaethon rubricauda*
R	Great frigatebird	*Fregata minor*
R	Sooty tern	*Sterna fuscata*
R	Brown noddy	*Anous stolidus*
R	Black noddy	*Anous minutus*
R	White tern / Common fairy-tern	*Gygis alba*

Source: WPFMC 2009b

Potential Impacts to Protected Resources in the CNMI

None of the alternatives considered would modify operations of the CNMI bottomfish fishery in any way that would be expected to affect endangered or threatened species or critical habitat in any manner not previously considered in previous ESA or MMPA consultations.

All of the alternatives would implement ACLs and a post season accounting of the catch relative to the ACL. The current inability of in-season tracking of catch towards an ACL prevents in-season closure ability, meaning participants in the CNMI bottomfish fishery would continue as they do under the current management regime. However, because this fishery is currently sustainably managed and subject to conservation measures in accordance with various resource conservation and management laws, and because no change would occur in the way fishing is conducted, none of the alternatives would result in a change to distribution, abundance, reproduction, or survival of ESA-listed species or increase interactions with protected resources.

If at any time the fishery, environment, or status of a listed species or marine mammal species were to change substantially, or if the fishery were found to be occurring in or near areas that were designated as critical habitat, NMFS would undertake additional consultation as required to comply with requirements of the ESA and the MMPA.

On September 22, 2011, NMFS and the U.S. Fish and Wildlife Service (USFWS) determined that the loggerhead sea turtle population (*Caretta caretta*) is composed of nine DPSs that may be listed as threatened or endangered under the ESA (76 FR 58868). Specifically, NMFS and USFWS determined that the loggerhead sea turtles in the North Pacific Ocean, which includes waters around the CNMI, are a distinct population segment (DPS) that is endangered and at risk of extinction. However, because loggerhead sea turtles, inclusive of the North Pacific Ocean DPS, are not known to occur around the Mariana Archipelago, and because none of the alternatives considered would modify operations of the CNMI bottomfish fishery in any way, there is no additional information that would change the conclusions of the June 3, 2008 informal consultation which concluded that the CNMI bottomfish fishery was not likely to adversely affect ESA-listed marine species or their designated critical habitat.

On March 23, 2015, NMFS and USFWS published a proposed rule finding that the green sea turtle is composed of 11 DPSs and proposed to replace the current range-wide listing with listing of the DPSs as threatened or endangered (80 FR 15272). The population around CNMI is part of the Central West Pacific DPS, which is proposed to be listed as endangered. However, none of the alternatives considered would modify operations of the CNMI bottomfish fishery in any way, and there is no additional information that would change the conclusions of the June 3, 2008 informal consultation which determined that the CNMI bottomfish fishery is not likely to adversely affect green sea turtles.

3.3.3 CNMI Fishing Community

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)”.

National Standard 8 of the Magnuson-Stevens Act requires that conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and the rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (a) provide for the sustained participation of such communities and (b) to the extent practicable, minimize adverse economic impacts on such communities.

The Council, in 1998, identified the CNMI as a fishing community and requested the Secretary of Commerce concur with this determination. The CNMI was recognized in regulation as a fishing community under the MSA on April 19, 1999 (64 FR 19067).

Potential Impacts of the Proposed ACL specifications and AM on the Guam Fishing Community

No change to the CNMI bottomfish fishery is expected under any of the alternatives. The proposed ACL specifications, which are are intended to provide for the longterm availability of bottomfish resources to the CNMI fishing community, are substaintially higher than recent harvests. Thus, the Council does not believe there will be any disruption to the fishery that would result in any social or economic impacts to the CNMI fishing community.

In terms of management, CNMI BMUS would continue to be subject to an annual catch limit and post-season review of fishery performance against the ACL. Under the management system, ongoing monitoring of catch toward the ACL and future ACL adjustments are expected to benefit people who rely on fishing by providing additional review of fishing and catch levels, which, in turn, should enhance the sustainability of the fishery.

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 at both the Council's deliberations and NMFS's proposed rulemaking stage.

3.4 Potential Impacts to Essential Fish Habitat and Habitat Areas of Particular Concern

Essential fish habitat (EFH) is defined as those waters and substrate as necessary for fish spawning, breeding, feeding, and growth to maturity. This includes the marine areas and their chemical and biological properties that are utilized by the organism. Substrate includes sediment, hard bottom, and other structural relief underlying the water column along with their associated biological communities. In 1999, the Council developed and NMFS approved EFH definitions for management unit species (MUS) of the Bottomfish and Seamount Groundfish FMP (Amendment 6), Crustacean FMP (Amendment 10), Pelagic FMP (Amendment 8), and Precious Corals FMP (Amendment 4) (64 FR 19067, April 19, 1999). NMFS approved additional EFH definitions for coral reef ecosystem species in 2004 as part of the implementation of the Coral Reef Ecosystem FMP (69 FR 8336, February 24, 2004). EFH definitions were also approved for deepwater shrimp through an amendment to the Crustaceans FMP in 2008 (73 FR 70603, November 21, 2008).

In addition to and as a subset of EFH, the Council described habitat areas of particular concern (HAPC) based on the following criteria: ecological function of the habitat is important, habitat is sensitive to anthropogenic degradation, development activities are or will stress the habitat, and/or the habitat type is rare. HAPC had been defined for bottomfish, crustaceans, pelagic, and coral reef species in Guam, CNMI, and American Samoa and for bottomfish, pelagic, and coral reef species in the Pacific Remote Island Areas.

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

The designated areas of EFH and HAPC for all FEP MUS by life stage are summarized in Table 20. In considering the potential impacts of a proposed fishery management action on EFH, all designated EFH must be considered.

Table 20. EFH and HAPC for Western Pacific FEP MUS

MUS	Species Complex	EFH	HAPC
Bottomfish MUS	**American Samoa, Guam and CNMI bottomfish species:** lehi (*Aphareus rutilans*) uku (*Aprion virescens*), giant trevally (*Caranx ignoblis*), black trevally (*Caranx lugubris*), blacktip grouper *(Epinephelus fasciatus)*, Lunartail grouper *(Variola louti)*, ehu (*Etelis carbunculus*), onaga (*Etelis coruscans*), ambon emperor *(Lethrinus amboinensis)*, redgill emperor *(Lethrinus rubrioperculatus)*, taape (*Lutjanus kasmira*), yellowtail kalekale (*Pristipomoides auricilla*), opakapaka (*P. filamentosus*), yelloweye snapper (*P. flavipinnis*), kalekale (*P. sieboldii*), gindai (*P. zonatus*), and amberjack (*Seriola dumerili*).	**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)
	Hawaii bottomfish species: uku (*Aprion virescens*), thicklip trevally (*Pseudocaranx dentex*), giant trevally (*Caranx ignoblis*), black trevally (*Caranx lugubris*), amberjack (*Seriola dumerili*), taape (*Lutjanus kasmira*), ehu (*Etelis carbunculus*), onaga (*Etelis coruscans*), opakapaka (*Pristipomoides filamentosus*), yellowtail kalekale (*P. auricilla*), kalekale (*P. sieboldii*), gindai (*P. zonatus*), hapuupuu (*Epinephelus quernus*), lehi (*Aphareus rutilans*)	**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 fathoms) **Juvenile/adults:** the water column and all bottom habitat extending from the shoreline to a depth of 400 meters (200 fm)	All slopes and escarpments between 40–280 m (20 and 140 fm) Three known areas of juvenile opakapaka habitat: two off Oahu and one off Molokai

MUS	Species Complex	EFH	HAPC
Seamount Groundfish MUS	**Hawaii Seamount groundfish species (50–200 fm):** armorhead (*Pseudopentaceros wheeleri*), raftfish/butterfish (*Hyperoglyphe japonica*), alfonsin (*Beryx splendens*)	**Eggs and larvae:** the (epipelagic zone) water column down to a depth of 200 m (100 fm) of all EEZ waters bounded by latitude 29°–35° **Juvenile/adults:** all EEZ waters and bottom habitat bounded by latitude 29°–35° N and longitude 171° E–179° W between 200 and 600 m (100 and 300 fm)	No HAPC designated for seamount groundfish
Crustaceans MUS	**Spiny and slipper lobster complex (all FEP areas):** spiny lobster (*Panulirus marginatus*), spiny lobster (*P. penicillatus, P.* spp.), ridgeback slipper lobster (*Scyllarides haanii*), Chinese slipper lobster (*Parribacus antarcticus*) **Kona crab :** Kona crab (*Ranina ranina*)	**Eggs and larvae:** the water column from the shoreline to the outer limit of the EEZ down to a depth of 150 m (75 fm) **Juvenile/adults:** all of the bottom habitat from the shoreline to a depth of 100 m (50 fm)	All banks in the NWHI with summits less than or equal to 30 m (15 fathoms) from the surface
	Deepwater shrimp (all FEP areas): (*Heterocarpus* spp.)	**Eggs and larvae:** the water column and associated outer reef slopes between 550 and 700 m **Juvenile/adults:** the outer reef slopes at depths between 300-700 m	No HAPC designated for deepwater shrimp.

MUS	Species Complex	EFH	HAPC
Precious Corals MUS	**Shallow-water precious corals (10-50 fm) all FEP areas:** black coral (*Antipathes dichotoma*), black coral (*Antipathis grandis*), black coral (*Antipathes ulex*) **Deep-water precious corals (150–750 fm) all FEP areas:** Pink coral (*Corallium secundum*), red coral (*C. regale*), pink coral (*C. laauense*), midway deepsea coral (*C.* sp nov.), gold coral (*Gerardia* spp.), gold coral (*Callogorgia gilberti*), gold coral (*Narella* spp.), gold coral (*Calyptrophora* spp.), bamboo coral (*Lepidisis olapa*), bamboo coral (*Acanella* spp.)	EFH for Precious Corals is confined to six known precious coral beds located off Keahole Point, Makapuu, Kaena Point, Wespac bed, Brooks Bank, and 180 Fathom Bank EFH has also been designated for three beds known for black corals in the Main Hawaiian Islands between Milolii and South Point on the Big Island, the Auau Channel, and the southern border of Kauai	Includes the Makapuu bed, Wespac bed, Brooks Banks bed For Black Corals, the Auau Channel has been identified as a HAPC
Coral Reef Ecosystem MUS	**Coral Reef Ecosystem MUS (all FEP areas)**	EFH for the Coral Reef Ecosystem MUS includes the water column and all benthic substrate to a depth of 50 fm from the shoreline to the outer limit of the EEZ	Includes all no-take MPAs identified in the CREFMP, all Pacific remote islands, as well as numerous existing MPAs, research sites, and coral reef habitats throughout the western Pacific

The proposed ACL specification and AM would not have a direct effect on EFH or HAPC in any of the subject island areas because bottomfish fisheries are not known to have adverse effects on EFH or HAPC for any MUS. None of the alternatives considered are expected to result in substantial changes to the way the bottomfish fisheries in American Samoa, Guam, and CNMI are conducted.

3.5 Potential Impacts on Fishery Administration and Enforcement

3.5.1 Federal Agencies and the Council

Fisheries in federal waters are currently managed by the Council in accordance with the approved fishery ecosystem plans (FEP), and NMFS PIRO is responsible for implementing and enforcing fishery regulations that implement the FEPs. NMFS PIFSC conducts research and reviews fishery data provided through logbooks and fishery monitoring systems administered by state and territorial resource management agencies. The Council, PIRO and PIFSC collaborate with local agencies in the administration of fisheries of the western Pacific through other activities including coordinating meetings, conducting research, developing information,

processing fishery management actions, training fishery participants, and conducting educational and outreach activities for the benefit of fishing communities.

NOAA's Office of Law Enforcement (OLE) is responsible for enforcement of the nation's marine resource laws, including fisheries and protected resources. OLE, Pacific Islands Division oversees enforcement of federal regulations in American Samoa, Guam, and the CNMI and enters into Joint Enforcement Agreements (JEA) with each participating state and territory. OLE provides updates to the Council and advises the Council and NMFS on enforcement issues.

The U.S. Coast Guard's (USCG) Fourteenth District (Honolulu) jurisdiction is the U.S. EEZ as well as the high seas in the Western and Central Pacific. At over 10 million square miles, its area of responsibility is the largest of any USCG District. The USCG patrols the region with airplanes, helicopters, and surface vessels, as well as monitors vessels through vessel monitoring systems (VMS). The USCG also maintains patrol assets on Guam. . The USCG has a non-voting representative on the Council who reports updates at meetings and advises the Council on enforcement issues.

Potential impacts to federal agencies
The proposed ACL and AM specifications would not require a change to monitoring or collecting fishery data. However, monitoring of catch data towards an ACL would be conducted by PIFSC in collaboration with local resource management agencies and the Council and is expected to result in improved timeliness in processing species specific catch reporting on an annual basis. No changes to the role of local or Federal law enforcement agents including the USCG would be required in association with implementing these specifications. The ACL and AM specifications would not result in any change to the conduct of the fishery which could increase risk to human safety at sea.

3.5.2 Local Agencies

Currently, local marine resource management agencies in each of the four areas are responsible for the conservation and management of bottomfish habitats and fishery resources. These agencies monitor catches through licenses and fishery data collection programs, conduct surveys of fishermen and scientific surveys of fish stocks, establish and manage marine protected areas, provide outreach and educational services, serve on technical committees and enforce local and federal resource laws through JEAs, among other responsibilities. Representatives of local fishery resource agencies serve on the Council, providing updates, advice, and voting on fishery management actions of the Council.

Potential impacts to local agencies
The specification of ACLs and AMs for bottomfish fisheries of American Samoa, Guam, and the CNMI is not expected to result in changes to fishery monitoring by the local resource management agencies. However, monitoring of catch data towards an ACL would continue to be conducted by PIFSC in collaboration with local resource management agencies and the Council and, is expected to result in improved timeliness in species specific catch reporting on an annual basis.

No change to enforcement activities is required in association with implementing these specifications because there is no fishery closure recommended for any of the areas. Additionally, the ACL and AM specifications would not result in any change to the fishery that would pose an additional risk to human safety associated with bottomfish fishing in local waters.

Substantial additional administrative resources would be required in the future to support the establishment of in-season monitoring capabilities in American Samoa, Guam, the Northern Mariana Islands, should such monitoring become necessary. Until additional resources are made available, and until more intensive monitoring is considered necessary, only AMs that review whether an ACL is exceeded, and possible overage adjustments to the ACL, are being considered at this time.

3.6 Environmental Justice

NMFS considered the effect of the proposed ACL specifications and AMs on Environmental Justice communities that include members of minority and low-income groups. The ACLs would apply to everyone that catches bottomfish, and no new monitoring is required for the ACL specification or the AM to be implemented. The environmental review in this EA showed that the proposed specifications of ACLs and provisions for post-season harvest reviews as the AMs in the western Pacific bottomfish fisheries are not expected to result in a change to the way the fisheries are conducted. The ACLs and AMs are intended to provide for sustainability of BMUS which is, in turn, expected to benefit these resources and the human communities that rely on their harvest. The proposed specifications are not likely to result in any adverse impacts to the environment that could have disproportionate or adverse effects on members of Environmental Justice communities in American Samoa, Guam, or the CNMI,.

3.7 Climate Change

Changes in the environment from global climate change have the potential to affect bottomfish fisheries. Effects of climate change may include: sea level rise; increased intensity or frequency of coastal storms and storm surges; changes in rainfall (more or less) that can affect salinity nearshore or increase storm runoff and pollutant discharges into the marine environment; increased temperatures resulting in coral bleaching; and hypothermic responses in some marine species (IPCC 2007). Increased carbon dioxide uptake can increase ocean acidity which can disrupt calcium uptake processes in corals, crustaceans, mollusks, reef-building algae, and plankton, among other organisms (Houghton et al., 2001;The Royal Society 2005; Caldeira and Wickett, 2005; Doney, 2006; Kleypas et al., 2006). Climate change can also lead to changes in ocean circulation patterns which can affect the availability of prey, migration, survival, and dispersal (Buddenmeier et al., 2004). Damage to coastal areas due to storm surge or sea level rises as well as changes to catch rates, migratory patterns, or visible changes to habitats are among the most likely changes that would be noted first. Climate change has the potential to adversely affect some organisms, while others could benefit from changes in the environment.

The impacts from climate change may be difficult to discern from other impacts; however, monitoring of physical conditions and biological resources by a number of agencies will continue to occur and will allow fishery managers to continually make adjustments in fishery management regimes in response to changes in the environment.

The efficacy of the proposed ACL and AM specifications in providing for sustainable levels of fishing for bottomfish is not expected to be adversely affected by climate change, although there are no specific studies examining the potential effects of climate change on Pacific Island bottomfish MUS. Recent catch and biological status of the species informed the development of the ACLs and AMs. Monitoring would continue, and if stocks were affected by environmental factors, ACLs could be adjusted in the future.

The proposed specifications are not expected to result in a change to the manner in which the fisheries are conducted, so no change in greenhouse gas emissions is expected.

3.8 Additional Considerations

3.8.1 Significant Scientific, Cultural or Historical Sites

NMFS does not expect the proposed ACLs and AMs to have an affect on objects or places listed in the National Registry of Historical Places as no such areas exist in the U.S. EEZ. While fishing may occur in areas of potential scientific, cultural, or historical interest, Pacific Island bottomfish fisheries currently are not knonw to cause loss or destruction to any such resources, and fishing operations are not expected to change under the ACL specifications and AMs.

3.8.2 Overall Impacts

When compared against recent fishing harvests, ACLs would be higher than previous catch history but are considered an acceptable level of catch that is part of an overall management scheme intended to prevent overfishing and provide for long-term sustainability of the target stocks. The ACL specifications were developed using the best available scientific information, in a manner that accords with the fishery regulations, and after considering catches, participation trends, and estimates of the status of the fishery resources. The AMs are also not likely to cause adverse impacts to resources because they would not result in changes to the fishery that could have an environmental effect. Bottomfish resources would benefit from post-season data review because of the additional management oversight the AMs provide. For these reasons, the proposed ACLs and AMs are not expected to result in adverse, irreversible, or irretrievable impacts to the environment.

3.8.3 Cumulative Effects of the Proposed Action

Recent ACL and AM specifications for other western Pacific fisheries

NMFS recently specified ACLs for the Deep 7 bottomfish in the MHI (77 FR 56791, September 14, 2012), which can be obtained at the Council or NMFS' websites. Additionally, in all four areas, NMFS will propose specifying the 2013 ACL and AMs for coral reef ecosystem MUS, precious corals MUS, and crustaceans, as recommended by the Council. The proposed ACLs and AMs for 2013 for these fisheries are identical to those NMFS specified in 2012 (77 FR 6019, February 7, 2012).

None of the proposed ACLs or AMs for bottomfish would conflict with or reduce the efficacy of existing bottomfish resource management by local resource management agencies, NMFS, or the Council. The proposed ACL specifications and AMs would also not conflict with ACL and AM

specifications for other fisheries in any of the three archipelagic areas because the ACLs apply to specific fishery resources and the proposed bottomfish ACLs and AMs are not anticipated to result in a change to any fishery in any of the areas. Specifically, NMFS does not anticipate that participants in one fishery would change their fishing to another target MUS, or such that ACLs in one fishery would adversely affect the stock status of MUS in another fishery.

Foreseeable fishery management actions

Ecosystem Component Species Amendment

In the foreseeable future, the Council may re-evaluate the need for conservation and management for bottomfish fisheries in federal waters and may recommend NMFS remove certain species from the FEPs and/or re-classify species as "ecosystem component" (EC) species. To be considered for possible classification as an EC species, the species should be: 1) a non-target species; 2) a stock that is determined not to be subject to overfishing, approaching overfished, or overfished; 3) not likely to become subject to overfishing or overfished; and 4) generally not retained for sale or personal use. Various methods for categorizing species and EC components have been preliminarily discussed at Council meetings. These include, but are not limited to, species that are caught exclusively or predominately in state/territorial waters, species that occur infrequently in the available time series, species that are non-native to an FEP area, and species associated with ciguatoxin poisoning that are generally discarded.

In accordance with National Standard 1 guidelines found in 50 CFR §600.310(d), EC species are not considered to be "in the fishery" and thus, do not require specification of an ACL. EC species may, but are not required to remain in the FEP for data collection purposes, for ecosystem considerations related to the specification of optimum yield for associated BMUS, as considerations in the development of conservation and management measures for associated BMUS fisheries, and/or to address other ecosystem issues. However, until such time a particular BMUS is classified as an EC species, it will remain in the fishery and be subject to the ACL requirements. The specification of ACLs for BMUS and AMs for the bottomfish fisheries would not affect the consideration or a decision about whether or not to designate any species to the EC classification. The current proposed management action is intended to ensure sustainable fishing.

Management of Non-Commercial Fishing in the PRIA Marine National Monument

In January 2009, President George W. Bush issued Presidential Proclamation 8336 establishing the Pacific Remote Islands Marine National Monument (74 FR 1565, January 12, 2009) under the authority of the Antiquities Act of 1906 (16 U.S.C. 431). Pursuant to Proclamation 8336, commercial fishing is prohibited, and NMFS shall not allow removal of any feature of the monument, including fishery resources. Therefore, this provision currently serves as a functional equivalent of an ACL of zero for BMUS in the PRIA.

Proclamation 8336 also provides a process to permit non-commercial fishing in the PRIA Monument under the authority of the Magnuson-Stevens Act. In response to this provision, the Council is separately working on an amendment to the PRIA FEP recommending management measures that would allow non-commercial and recreational charter fishing subject to Federal permits and logbook reporting requirements to aid in the monitoring of fishing activities. The Council further recommends a prohibition on all fishing within 12 nautical miles (nm) of the

Pacific Remote Islands, subject to Department of Interior authority to allow non-commercial fishing under its authorities, in consultation with NOAA and the Council.

Because the proposed 2013 ACLs and AMs for coral reef, crustacean and precious coral fisheries are identical to those NMFS specified in 2012, NMFS' environmental assessment and finding of no significant impact determination (FONSI) for these fisheries remains valid. Although the Council is considering an amendment to allow non-commercial fishing within the Islands Unit of the Marianas Trench Marine National Monument (MNM), and 12 nautical miles (nm) seaward of the islands that comprise the Rose Atoll and Pacific Remote Islands MNMs, that action has not been reviewed or approved by the Secretary of Commerce. Even if approved, non-commercial fishing for these MUS in the Islands Unit of the Marians Trench would be subject to the ACLs specified for the Mariana Archipelago. Similarly, non-commercial fisheries for these MUS in the Rose Atoll would be subject to the ACLs for American Samoa. NMFS does not expect non-commercial fishing for crustaceans, precious corals and coral reef MUS to occur in the PRIA MNM because the Council's amendment would prohibit fishing within 12 nm of the PRIA and benthic habitat features that may support BMUS, and other non-pelagic MUS, including crustaceans, precious corals and coral reef MUS are not likely to occur beyond 12 nm, except at Kingman Reef where limit habitat to support fishing may potentially exist beyond 12 nm. However, because Kingman Reef is over 900 miles from the nearest fishing port in Honolulu and presents such limited fishing potential, fishing for non-pelagic species does not presently occur there. Additionally, fish caught outside of the Monument while on a trip that entered into the Monument cannot be sold. Therefore, this recommendation, if approved by the Secretary of Commerce, would effectively preclude fishing for all MUS except for pelagic MUS. For these reasons, NMFS does not expect any environmental effects not already considered in the prior EAs and FONSIs. Therefore, there is no change in the environmental or regulatory environment considered in the EA and FONSI.

The proposed specification of bottomfish ACLs for other U.S. Pacific Islands would not affect the consideration or decision regarding fishery management measures for non-commercial fisheries in the PRIA.

Other Foreseeable NOAA Actions

Stony Corals

On December 7, 2012, NMFS published a proposal to list 66 species of stony coral under the ESA (77 FR 73220). Fifty-four of the coral species are proposed as threatened and 12 as endangered. Of the 54 threatened species, three occur in Hawaii, 28 in CNMI and between 27-30 and 41 and 43 in Guam, American Samoa, respectively. Of the 12 endangered species, one is found in CNMI and three in American Samoa. No species proposed for endangered status occur in Hawaii or Guam.

Most stony corals are generally found in relatively shallow waters and help produce the carbonate structures known as coral reefs. While the majority of coral reef ecosystem habitat (less than 100 m) is generally found within State and territorial waters, some species proposed

for listing may occur in federal waters around the U.S. Pacific Islands, particularly in CNMI where federal waters begins at the shoreline.
The FEPs for American Samoa, the Mariana Archipelago, Hawaii and the PRIA identify the following fishing activities that could impact bottom habitat upon which stony corals may be found:

- Anchor damage from vessels attempting to maintain position over productive fishing habitat; and
- Heavy weights and line entanglement occurring during normal hook-and-line fishing operations.

To minimize impacts to bottom habitat, the current management bottomfish regime prohibits the use of bottom trawls, bottom-set nets, explosives, and poisons, and available research findings indicate bottomfish fishing under these measures do not cause significant fishing-related impacts to the benthic habitat (Kelly and Ikehara, 2006).

Specifying ACLs will not have an environmental outcome that would affect the agency's decision of whether to list any of these species.

National Marine Sanctuaries
NOAA's Office of National Marine Sanctuaries (ONMS) has initiated a review of the Hawaiian Humpback Whale National Marine Sanctuary in the main Hawaiian Islands which may include revisions to its management plan and regulations to fulfill the purposes and policies of the National Marine Sanctuaries Act (75 FR 40579, July 14, 2010). As there are no in-season management measures proposed, the way the fishery is conducted is not expected to change and, therefore, the proposed ACL specification and AMs would not have an environmental effect that could affect future decisions about possible changes to the sanctuary management plan nor would the proposed action affect sanctuary resources.

Foreseeable actions by others
One activity that has the potential to affect Guam's fishery resources is the Guam military buildup. This activity, was previously slated to involve three major components which include: (1) development of facilities and infrastructure to support approximately 8,000 Marines and their 9,000 dependents being relocated from Okinawa, Japan to the island of Guam and additional operations and training activities; (2) construction of a new deep-draft wharf generally within Apra Harbor, Guam to support transient nuclear aircraft carriers; and (3) development of facilities and infrastructure to support and establishment of air missile defense system on Guam. Other activities would include improvements to off-base roads and bridges to support increased traffic as well as utilities (water and power) to support increased demands by the military (JPOG, 2010). As a result of the recent natural disasters and their effects in Japan, the economic conditions in Japan and the US, and changing political priorities, these proposed actions are being revised. The Navy is now preparing a Supplemental EIS and the scoping materials indicate that the Guam military buildup will involve substantially fewer personnel than was originally proposed. There is likely to continue to be a need to upgrade infrastructure, but the overall project footprint and intensity are likely to be downsized.

As construction and associated human activities have the potential to affect the nearshore marine environment, measures to minimize and mitigate impacts of these activities on the human environment are being addressed through ongoing consultations between the military, the Governments of Guam and the CNMI and other Federal agencies. Because of the reduced scale and the expected mitigation of impacts and the fact that bottomfish fishing occurs offshore, the potential impacts of the buildup on bottomfish and bottomfish habitat are not expected to result in adverse impacts to the fishery, or interact with the proposed ACL and AMs to reduce their efficacy in ensuring the fishery is sustainably managed.

4 Consistency with Other Applicable Laws

4.1 National Environmental Policy Act

NOAA Administrative Order (NAO 216-6, Environmental Review Procedures, in accordance with NEPA, requires the consideration of effects of proposed agency actions and alternatives on the human environment and allows for involvement of interested and affected members of the public before a decision is made. This EA has been written and organized to meet the requirements of NEPA. The NMFS Regional Administrator will use the analysis in this EA to determine whether the proposed action would have a significant environmental impact, which would require the preparation of an EIS.

This EA describes the purpose and need for action in Section 1.1. Background as to the technical development of the ACL and AM specifications is provided in Section 2 which also provides a description of the range of alternatives considered. The affected environment and potential effects of the alternatives are described in Section 3.

4.1.1 Preparers and Reviewers

Council staff
Marlowe Sabater, Marine Ecosystem Scientist, WPFMC
Asuka Ishizaki, Protected Species Coordinator, WPFMC
Rebecca Walker, GIS Specialist/Habitat Coordinator, WPFMC
Christopher Hawkins, Social Scientist, WPFMC

NMFS staff
Phyllis Ha, NEPA Specialist, PIRO, SFD NEPA
Jarad Makaiau, Fishery Policy Analyst, PIRO, SFD
Michelle McGregor, Regional Economist, PIRO, SFD

4.1.2 List of Agencies Consulted

The proposed action described in this EA was developed in coordination with various federal and local government agencies that are represented on the Western Pacific Fishery Management Council. Specifically, agencies that participated in the deliberations and development of the proposed management measures and considered the potential environmental impacts include:

- American Samoa Department of Marine and Wildlife Resources
- Guam Department of Agriculture, Division of Aquatic and Wildlife Resources
- Northern Mariana Islands Department of Land and Natural Resources, Division of Fish and Wildlife
- U.S. Coast Guard
- U.S. Fish and Wildlife Service
- U.S. Department of State

4.1.3 Public Coordination

The public has been aware of the requirement to manage selected fisheries in the western Pacific region under ACLs and AMs through Council outreach and fishery management activities and through the development of NMFS national and local regulations concerning ACLs and AMs for several years. The development of the proposed ACL and AM specifications for American Samoa, Guam, and the CNMI covered by this EA has taken place at public meetings of the SSC and the Council. In addition, the Council advertised the Council's focus on developing Federal annual catch limits at its public meetings and described in media releases, newsletter articles, and on the its website. The Council at its 164th meeting held October 21-22, 2015 received several public comments in support of ACL specifications and AMs..

NMFS is seeking public comment on the proposed rule to specify ACLs and implement AMs for the bottomfish fisheries in American Samoa, the CNMI, Guam and Hawaii. Instructions on how to comment on the proposed rule can be found by searching on RIN XXXXXXXX at www.regulations.gov, or by contacting the responsible official or Council at addresses on the cover page.

4.2 Endangered Species Act

The Endangered Species Act (ESA) provides for the protection and conservation of threatened and endangered species. Section 7(a)(2) of the ESA requires federal agencies to ensure that any action authorized, funded, or carried out by such agencies is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of the critical habitat of such species.

Pursuant to Section 7 of the ESA, NMFS has evaluated the bottomfish fisheries managed under the western Pacific FEPs for potential impacts on ESA-listed species under the jurisdiction of NMFS. Table 32 summarizes ESA Section 7 consultations for bottomfish fisheries managed under the FEPs for American Samoa, the Marianas (including Guam and the CNMI).

Table 21. ESA Section 7 consultations for western Pacific bottomfish fisheries

Fishery	Consultation	NMFS Determination
American Samoa bottomfish fishery	March 8, 2002, Biological Opinion	Not likely to adversely affect any ESA-listed species or critical habitat
Guam deep bottomfish fishery	June 3, 2008, Letter of Concurrence	Not likely to adversely affect any ESA-listed species or critical habitat
Guam shallow bottomfish fishery	June 3, 2008, Letter of Concurrence	Not likely to adversely affect any ESA-listed species or critical habitat
CNMI deep bottomfish fishery	June 3, 2008, Letter of Concurrence	Not likely to adversely affect any ESA-listed species or critical habitat
CNMI shallow	June 3, 2008, Letter of	Not likely to adversely affect any

Fishery	Consultation	NMFS Determination
bottomfish fishery	Concurrence	ESA-listed species or critical habitat

Because the proposed action is not expected to modify vessel operations or other aspects of any fishery, NMFS does not expect the bottomfish fisheries in American Samoa, Guam, the CNMI, and Hawaii as conducted under the proposed action, to have an effect on ESA listed species or any designated critical habitats that was not considered in prior consultations.

4.3 Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) prohibits, with certain exceptions, the take of marine mammals in the U.S. 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 gives NMFS the authority and duties for all cetaceans (whales, dolphins, and porpoises) and pinnipeds (seals and sea lions, except walruses). Under section 118 of the MMPA, NMFS must publish, at least annually, a List of Fisheries that classifies U.S. commercial fisheries into one of three categories. Specifically, the MMPA mandates that each fishery be classified according to whether it has a frequent, occasional, or remote likelihood of, or no known, incidental mortality or serious injury of marine mammals.

The bottomfish fisheries in each island area are listed as Category III fisheries under Section 118 of the MMPA (76 FR 73912, November 29, 2011). A Category III fishery is one with a low likelihood or no known incidental takings of marine mammals. Because the proposed action would not modify vessel operations or other aspects of any fishery, NMFS does not anticipate that these fisheries, as conducted under the proposed action, would affect marine mammals in any manner not previously considered or authorized by the commercial fishing take exemption under section 118 of the MMPA.

4.4 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) requires a determination that a recommended management measure has no effect on the land, water uses, or natural resources of the coastal zone or is consistent to the maximum extent practicable with an affected state's enforceable coastal zone management program. On November 20, 2012, NMFS sent a letter to the appropriate state government agencies in American Samoa, Guam, and the CNMI informing them of its determination that the proposed action is consistent, to the maximum extent practicable, with their respective coastal zone management programs. No other jurisdiction has responded as of the date of this document.

4.5 Paperwork Reduction Act

The purpose of the Paperwork Reduction Act is to minimize the paperwork burden on the public resulting from the collection of information by or for the Federal government. It is intended to ensure the information collected under the proposed action is needed and is collected in an efficient manner (44 U.S.C. 3501(1)). The proposed action would not establish any new

permitting or reporting requirements; therefore it is not subject to the provisions of the Paperwork Reduction Act.

4.6 Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) (5 U.S.C. 601 *et seq.*) requires government agencies to assess and present the impact of their regulatory actions on small entities including small businesses, small organizations, and small governmental jurisdictions; and to determine ways to minimize adverse impacts. The assessment is done via the preparation of an Initial Regulatory Flexibility Analyses (IRFA) and Final Regulatory Flexibility Analysis (FRFA) for each proposed and final rule, respectively. Under the RFA, an agency does not need to conduct an IRFA or FRFA if a certification can be made that the proposed rule, if adopted, will not have a significant adverse economic impact on a substantial number of small entities.

The purpose and need for action is described in Section 1.2. Section 2.0 describes the management alternatives considered to meet the purpose and need for action. Section 3.0 provides a description of the fisheries that may be affected by this action and analyzes environmental impacts of the alternatives considered.

Under the proposed action, NMFS would specify an ACL for the bottomfish multi-species stock complexes in American Samoa, the CNMI and Guam and for the non-Deep 7 stock complex in the MHI in fishing years 2013 and could be re-specified again for fishing year 2014. If the ACL for any stock complex is exceeded, NMFS would take action to correct the operational issue that caused the ACL overage, as recommended by the Council which could include a downward adjustment to the ACL in the subsequent fishing year.

American Samoa

In 2011, 12 vessels engaged in fishing for BMUS in American Samoa. The 2011 average gross revenue per vessel was $3,902 based on an average price of $2.99 per pound, and a total estimated commercial catch of 15,670 lb. In general, the relative importance of BMUS to commercial participants as a percentage of overall fishing or household income is unknown, as the total suite of fishing and other income-generating activities by individual operations across the year has not been examined.

Guam

In 2010, approximately 300 vessels engaged in fishing for BMUS in American Samoa fishing. The 2011 average gross revenue per vessel was $200 based on an average price of $3.77 per pound, and a total estimated commercial catch of 15,985 lb. In general, the relative importance of BMUS to commercial participants as a percentage of overall fishing or household income is unknown, as the total suite of fishing and other income-generating activities by individual operations across the year has not been examined.

CNMI

In 2011, approximately 40 vessels engaged in fishing for BMUS in the CNMI; however, based on the number of permit holders, only 11 were estimated to engage in commercial fishing. The 2011 average gross revenue per vessel was $4,340 based on an average price of $2.82 per pound, and a total estimated commercial catch of 16,930 lb. In general, the relative importance of

BMUS to commercial participants as a percentage of overall fishing or household income is unknown, as the total suite of fishing and other income-generating activities by individual operations across the year has not been examined.

4.7 Administrative Procedures Act

All federal rulemaking is governed under the provisions of the Administrative Procedures Act (APA) (5 U.S.C. Subchapter II) which establishes a "notice and comment" procedure to enable public participation in the rulemaking process. Under the APA, NMFS is required to publish notification of proposed rules in the Federal Register and to solicit, consider and respond to public comment on those rules before they are finalized. The APA also establishes a 30-day wait period from the time a final rule is published until it becomes effective, with rare exceptions.

The specification of ACLs for BMUS in American Samoa, Guam, and the CNMI and non-Deep 7 bottomfish in the MHI complies with the provisions of the APA through the Council's extensive use of public meetings, requests for comments, and consideration of comments in developing ACL and AM recommendations. Additionally, NMFS will publish a proposed rule announcing the proposed ACL and AM specifications described in this document which will include requests for public comments. After considering public comments, NMFS expects to publish a final rule that would then become effective 30 days after publication.

4.8 Executive Order 12898: Environmental Justice

On February 11, 1994, President William Clinton issued Executive Order 12898 (E.O. 12898), "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." E.O. 12898 provides that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." E.O. 12898 also provides for agencies to collect, maintain, and analyze information on patterns of subsistence consumption of fish, vegetation, or wildlife. That agency action may also affect subsistence patterns of consumption and indicate the potential for disproportionately high and adverse human health or environmental effects on low-income populations, and minority populations. A memorandum by President Clinton, which accompanied E.O. 12898, made it clear that environmental justice should be considered when conducting NEPA analyses by stating the following: "Each Federal agency should analyze the environmental effects, including human health, economic, and social effects of Federal actions, including effects on minority populations, low-income populations, and Indian tribes, when such analysis is required by NEPA."

Each action alternative would result in a catch limit for bottomfish stock complexes in American Samoa, Guam and CNMI and the non-Deep 7 bottomfish stock complex in the MHI. Bottomfish fishery participants in all of the areas would be advised of the catch limits, but that would be the extent of the impact of the ACL specifications on fishery participants. The AM for the bottomfish fishery at this time is the requirement for fishery managers to review catches to

compare them against ACLs. If an ACL were exceeded, the Council would review the reasons for the overage and then would be able to consider whether an adjustment to the ACL is needed.

The proposed action is expected to result in enhanced monitoring of bottomfish fishery catches. The proposed action is also intended to ensure that fishing for bottomfish species remains sustainable. There are no high or adverse environmental impacts expected from the proposed action so no disproportionately high and adverse effects to members of minority populations or low-income populations, would occur. As there would be no change to any fishery, the proposed action would not affect sustenance fishing by members of minority or low-income groups.

4.9 Executive Order 12866: Regulatory Impact Review

A "significant regulatory action" means any regulatory action that is likely to result in a rule that may –

1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal government or communities;
2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

The specification of ACLs and AMs for bottomfish fisheries of the western Pacific is exempt from the procedures of E.O. 12866 because this action contains no implementing regulations and would be not significant under E.O. 12866 because it will not: have an annual effect on the economy of $100M, create a serious inconsistency or otherwise interfere with an action taken or planned by another agency, materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof, or raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order. A Regulatory Impact Review (RIR) has been prepared which provides an overview of the problem, policy objectives, and anticipated impacts of the proposed action, and ensures that management alternatives are systematically and comprehensively evaluated such that the public welfare can be enhanced in the most efficient and cost effective way (Appendix D).

Based on analysis provided in the RIR, the proposed action is not expected to have an adverse effect of $100 million or more, create a serious inconsistency or otherwise interfere with an action taken by another agency, materially alter the budgetary impact of programs or rights or obligations of recipients, or raise novel legal or policy issues. Therefore, it is not considered to be a significant regulatory action.

4.10 Information Quality Act

The Information Quality Act requires federal agencies to ensure and maximize the quality, objectivity, utility, and integrity of information disseminated by federal agencies. To the extent feasible, the information in this document is current. Much of the information was made available to the public during the deliberative phases of developing the proposed specifications during meetings of the Council over the past several years. The information was also improved based on the guidance and comments from the Council's advisory groups.

Council and NMFS staff prepared the document based on information provided by NMFS Pacific Islands Fisheries Science Center (PIFSC) and NMFS Pacific Islands Regional Office (PIRO), and after considering the Council's recommendations. While no public comment was provided at Council meetings, additional public comments on the document will be accepted during the comment period for the proposed specifications. The process of public review of this document provides an opportunity for the public to comment on the information contained in this document, as well as for the provision of additional information regarding the potential specifications and environmental effects.

5 References

Berger, G.M., J. Gourley, and G. Schroer. 2005. Comprehensive Wildlife Conservation Strategy for the CNMI. 390 pp.

Brodziak, J., R. Moffitt, and G. DiNardo. 2009. Hawaiian Bottomfish Assessment Update for 2008. National Marine Fisheries Service Pacific Islands Fisheries Science Center, Honolulu, Administrative Report H-09-02. Honolulu, 93 p.

Brodziak, J., D. Courtney, L. Wagatsuma, J. O'Malley, H-H. Lee, W. Walsh, A. Andrews, R. Humphreys, and G. DiNardo. 2011. Stock assessment of the Main Hawaiian Islands Deep7 Bottomfish Complex through 2010. National Marine Fisheries Service Pacific Islands Fisheries Science Center, Honolulu.

Brodziak, J. J. O'Malley, B. Richards, and G. DiNardo. (2012). Stock Assessment Update of the Status of Bottomfish Resources of American Samoa, the Commonwealth of the Northern Mariana Islands and Guam, 2010. National Marine Fisheries Service Pacific Islands Fisheries Science Center, Internal Report IR-12-022. Honolulu, 126 pp.

Buddemeier, R.W., J.A. Kleypas, and R.B. Aronson. 2004. Coral Reefs and Global Climate Change: Potential Contributions of Climate Change to Stresses on Coral Reef Ecosystems. Pew Center on Global Climate Change, Arlington, VA. 56 pp.

Burnham K. and D. Anderson. 2002. Model selection and multi-model inference: a practical information-theoretic approach. Springer New York.

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).

Carretta, J.V., K.A Forney, E. Olsen, K. Martien, M.M. Muto, M.S Lowry, J. Barlow, J. Baker, B. Hanson, D. Lynch, L. Carlswell, R.L. Brownell, Jr., J. Robbins, D.K. Mattila, K. Ralls and M.C. Hill. 2010. Draft U.S. Pacific Marine Mammal Stock Assessments: 2010. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southwest Fisheries Science Center. NOAA-TM-NMFS-SWFW-xxx.

Carroll, B., Fenner, D., TuiSamoa, N., Aitaoto, T., and Ochavillo, D. 2012. Chapter 1: American Samoa Fishery Ecosystem Report. *In: WPRFMC 2012*. Archipelagic Fishery Ecosystem Annual Report. Sabater, M. (Ed.) Western Pacific Regional Fishery Management Council. Honolulu, Hawaii 96813 USA.

Craig, P., G. Dinonato, D. Fenner, and C. Hawkins. 2005. The state of coral reef ecosystems in American Samoa. *In:* J. Waddell (Ed), The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2005. NOAA Tech. Memo. NOS NCC11.

Chambers J, W. Cleveland, B. Kleiner , and P. Tukey. 1983. Graphical Methods for Data Analysis. Duxbury Press, Boston.

Cleveland, W.S. 1993. Visualizing Data. Hobart Press, Summit, New Jersey

Division of Aquatic and Wildlife Resources (DAWR). 2009. Final Annual Progress Report for the Guam Sea Turtle Recovery Project. Award Period 8/1/2006 – 7/31/2008. NOAA Fisheries Grant number NA06NMF4540214. 25 pp.

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

Eldredge, L.G. 2003. The marine reptiles and mammals of Guam. Micronesia, 35-36:653-60.

Guam Division of Aquatic and Wildlife Resources (GDAWR). 2005. Guam Comprehensive Wildlife Conservation Strategy.

HDAR (Hawaii Division of Aquatic Resources). 2011. Bottomfish news. Volume 11. June October 2011.

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. [http://www.grida.no/climate/ipcc_tar/wg1/index.htm] [Also see: Summary for Policymakers and Technical Summary, 98 pp.]

Hospital J. and C. Beavers. 2012. Economic and social characteristics of bottomfish fishing in the main Hawaiian Islands. Pacific Islands Fish. Sci. Cent., Natl. Mar. Fish. Serv., NOAA, Honolulu, HI 96822-2396. Pacific Islands Fish. Sci. Cent. Admin. Rep. H-12-01, 44 p. + Appendix.

IPCC, 2007: Summary for Policymakers. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M.Tignor and H.L. Miller (Eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Joint Program Office Guam. 2010. Final Environmental Impact Statement. Guam and CNMI Military Relocation: Relocating Marines from Okinawa, Visiting Aircraft Carrier Berthing, and Army Air and Missile Defense Task Force. July 2010. U.S. Department of the Navy.

Kawamoto, K. and D. Gonzales. 2005. Summary of Reported Main Hawaiian Island Catch Disposition in the Bottomfish Fishery, 2003-2004. Pacific Islands Fisheries Science Center Internal Report IR-05-023. 9pp.

Kawamoto, K. and K. Sender. 2015. Assessment of Fishing Activities by Non-longline Federal Permit Holders in the U.S. Exclusive Economic Zone around the U.S. Pacific Islands. Pacific Islands Fisheries Science Center Internal Report IR-15-012. 14pp.

Kelley, C. and R. Moffit. 2004. The impacts of bottomfishing on the Raita and West St. Rogatien Reserve Preservation Areas in the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. Unpublished report, Hawaii Undersea Research Laboratory, 49 pp.

Kelley, C. and W. Ikehara. 2006. The impacts of bottomfishing on Raita and West St. Rogatien Banks in the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543:305-317.

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 U.S. Geological Survey.

Kolinski, S.P., D.M. Parker, L.I. Ilo, and J.K. Ruak. 2001. An assessment of the sea turtles and their marine and terrestrial habitats at Saipan, Commonwealth of the Northern Mariana Islands. Micronesia, 34(1): 55–72.

Maison, K.A., Kinan Kelly, I. and K.P. Frutchey. 2010. Green Turtle Nesting Sites and Sea Turtle Legislation throughout Oceania. U.S. Dep. Commerce, NOAA Technical Memorandum. NMFS-F/SPO-110, 52 pp.

Moffitt, R. B., J. Brodziak and T. Flores. 2007. Status of the Bottomfish Resources of American Samoa, Guam, and Commonwealth of the Northern Mariana Islands, 2005. National Marine Fisheries Service Pacific Islands Fisheries Science Center Administrative Report H-07-04, Honolulu, 52 p.

NMFS (National Marine Fisheries Service). 2011. Environmental Assessment for Annual Catch Limit Specifications and Accountability Measures for Pacific Islands Bottomfish Fisheries in 2012 and 2013, including a Regulatory Impact Review. National Marine Fisheries Service, Pacific Islands Regional Office. December 13, 2011. 118 p.

NMFS. 2001. Final Environmental Impact Statement for the Fishery Management Plan for Pelagic Fisheries of the Western Pacific Region.

Oleson, E. M., C. H. Boggs, K. A. Forney, M. B. Hanson, D. R. Kobayashi, B. L. Taylor, P. R. Wade, and G. M. Ylitalo. 2010. Status review of Hawaiian insular false killer whales (*Pseudorca crassidens*) under the Endangered Species Act. U.S. Dept. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-PIFSC-22, 140 p. + Appendices.

Randall, R.H., R.T. Tsuda, R.S. Jones, M.J. Gawel, J.A. Chase, and R. Rechebei. 1975. Marine biological survey of the Cocos barrier reefs and enclosed lagoon. University of Guam Marine Laboratory Technical Report 17. 160 pp.

Starmer, J., C. Bearden, R. Brainard, T. de Cruz, R. Hoeke, P. Houk, S. Holzwarth, S. Konlinski, J. Miller, R. Schroeder, M. Timmers, M. Trianni, and P. Vroom. 2005. The state of coral reef ecosystems of the Commonwealth of the Northern Mariana Islands. *In:* J. Waddell (Ed), The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2005. NOAA Tech. Memo. NOS NCC11.

The Royal Society, 2005: *Ocean Acidification Due to Increasing Atmospheric Carbon Dioxide*. The Royal Society, London, -60.

Tibbats, B. and Flores, T. 2012. Chapter 2: Guam Fishery Ecosystem Report. In: WPRFMC 2012. Archipelagic Fishery Ecosystem Annual Report. Sabater, M. (Ed.). Western Pacific Fishery Management Council. Honolulu, Hawaii 96813 USA

Wiles, G.J. 2003. A checklist of birds recorded in Guam's marine habitats. *Micronesia* 35–36:665–679.

WPFMC (Western Pacific Fishery Management Council). 2012. Specifying 2013 Annual Catch Limits and Accountability Measures for the Bottomfish Management Unit Species in American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and non-Deep 7 Bottomfish for the Main Hawaiian Islands. Preliminary Draft. October 11, 2012. 67 p.

WPFMC 2011. Mariana Archipelago Fishery Ecosystem Plan 2009 Annual Report. Honolulu, HI. April 2011.

WPFMC. 2009a. Fishery Ecosystem Plan for the American Samoa Archipelago. Honolulu, HI. September 24, 2009.

WPFMC. 2009b. Fishery Ecosystem Plan for the Mariana Archipelago. Honolulu, Hawaii. September 24, 2009.

WPFMC. 2009c. Fishery Ecosystem Plan for the Hawaii Archipelago. Honolulu, Hawaii. September 24, 2009.

WPFMC. 2007. Amendment 14 to the Fishery Management Plan for Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region including a Final Supplemental Environmental Impact Statement, a Regulatory Impact Review and an Initial Regulatory Flexibility Analysis.

WPFMC. 2006. 2005 Annual Report on Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region. Western Pacific Fishery Management Council. June 2006.

WPFMC. 2003. Amendment 11 to the Fishery Management Plan for Pelagic Fisheries of the Western Pacific Region. Measure to limit pelagic longline fishing effort in the exclusive economic zone around American Samoa. Honolulu, HI. December 1, 2003.

Appendix A Range of Catches of Bottomfish in American Samoa, Guam and the CNMI in Fishing Year 2016 and 2017 that would Produce Probabilities of Overfishing of 1-50%

American Samoa

Catch (lbs) of American Samoa bottomfish in 2016 and 2017	Risk of overfishing (H>HMSY) in 2016	Risk of overfishing (H>HMSY) in 2017	Harvest rate in 2016	Relative biomass (B/BMSY) in 2017	Risk of being overfished (B<0.7*BMSY) in 2017
50,000	1.0%	1%	0.09	1.69	0.5%
69,000	4.2%	5%	0.13	1.64	0.7%
80,000	7.7%	10%	0.15	1.60	0.8%
87,000	10.9%	15%	0.16	1.58	0.9%
92,000	13.5%	20%	0.17	1.56	1.0%
97,000	16.6%	25%	0.18	1.55	1.0%
98,000	17.2%	27%	0.18	1.55	1.1%
99,000	18.0%	28%	0.18	1.54	1.1%
100,000	18.6%	29%	0.18	1.54	1.1%
101,000	19.3%	30%	0.19	1.54	1.1%
102,000	19.9%	31%	0.19	1.53	1.1%
103,000	20.7%	33%	0.19	1.53	1.2%
104,000	21.5%	34%	0.19	1.53	1.2%
105,000	22.3%	35%	0.19	1.52	1.2%
106,000	22.9%	37%	0.19	1.52	1.2%
107,000	23.7%	38%	0.20	1.52	1.3%
108,000	24.5%	40%	0.20	1.51	1.3%
109,000	25.4%	41%	0.20	1.51	1.3%
110,000	26.1%	42%	0.20	1.51	1.3%
111,000	26.9%	44%	0.20	1.50	1.3%
112,000	27.8%	45%	0.21	1.50	1.4%
113,000	28.6%	47%	0.21	1.50	1.4%
114,000	29.4%	48%	0.21	1.50	1.4%
115,000	30.2%	50%	0.21	1.49	1.5%

Commonwealth of Northern Mariana Islands

Catch (lbs) of CNMI bottomfish in 2016 and 2017	Risk of overfishing (H>HMSY) in 2016	Risk of overfishing (H>HMSY) in 2017	Harvest rate in 2016	Relative biomass (B/BMSY) in 2017	Risk of being overfished (B<0.7*BMSY) in 2017
78,000	1.0%	1%	0.07	1.69	1.7%
134,000	4.7%	5%	0.13	1.60	2.3%
162,000	8.5%	10%	0.15	1.56	2.7%
180,000	12.1%	15%	0.17	1.54	3.0%
194,000	15.2%	20%	0.18	1.51	3.1%
206,000	18.1%	25%	0.20	1.50	3.3%
208,000	18.7%	26%	0.20	1.49	3.4%
210,000	19.1%	27%	0.20	1.49	3.4%
212,000	19.7%	28%	0.20	1.49	3.4%
214,000	20.2%	29%	0.20	1.48	3.5%
216,000	20.8%	30%	0.21	1.48	3.5%
218,000	21.3%	31%	0.21	1.48	3.5%
220,000	21.9%	32%	0.21	1.48	3.6%
222,000	22.5%	33%	0.21	1.47	3.7%
224,000	23.1%	34%	0.21	1.47	3.7%
226,000	23.6%	35%	0.21	1.47	3.7%
228,000	24.2%	36%	0.22	1.46	3.8%
230,000	24.9%	37%	0.22	1.46	3.8%
232,000	25.6%	38%	0.22	1.46	3.8%
234,000	26.2%	40%	0.22	1.45	3.9%
236,000	26.8%	41%	0.22	1.45	3.9%
238,000	27.4%	42%	0.23	1.45	4.0%
240,000	28.1%	43%	0.23	1.45	4.0%
242,000	28.7%	45%	0.23	1.44	4.1%
244,000	29.3%	46%	0.23	1.44	4.1%
246,000	30.0%	47%	0.23	1.44	4.2%
248,000	30.6%	48%	0.24	1.43	4.2%
250,000	31.2%	50%	0.24	1.43	4.3%

Guam

Catch (lbs) of Guam bottomfish in 2016 and 2017	Risk of overfishing (H>HMSY) in 2016	Risk of overfishing (H>HMSY) in 2017	Harvest rate in 2016	Relative biomass (B/BMSY) in 2017	Risk of being overfished (B<0.7*BMSY) in 2017
33,000	1.2%	1%	0.15	1.50	1.0%
45,000	5.0%	5%	0.20	1.42	1.6%
51,000	8.9%	10%	0.23	1.39	2.0%
55,000	12.3%	15%	0.25	1.36	2.2%
58,000	15.2%	20%	0.26	1.34	2.4%
61,000	18.6%	25%	0.27	1.32	2.7%
62,000	19.8%	26%	0.28	1.32	2.8%
63,000	21.0%	29%	0.28	1.31	2.9%
64,000	22.3%	31%	0.29	1.30	3.1%
65,000	23.7%	33%	0.29	1.30	3.2%
66,000	25.0%	36%	0.30	1.29	3.3%
67,000	26.4%	38%	0.30	1.28	3.4%
68,000	27.8%	41%	0.31	1.28	3.5%
69,000	29.2%	44%	0.31	1.27	3.6%
70,000	30.7%	46%	0.32	1.27	3.7%
71,000	32.1%	49%	0.32	1.26	3.9%

Appendix B 121th SSC Determination of Risk of Overfishing of Territorial Bottomfish

WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

P* Working Group Meeting
September 23-24, 2015
1:00 pm to 5:00 pm
Pelagic Suite Conference Room – Council Office
Teleconference: 1-888-4823560 (Access Code: 5228220)

Participants: Bob Humphreys (NMFS PIFSC), Ariel Jacobs (NMFS – PIRO)
Council staff: Marlowe Sabater (WPRFMC)
On Conference Call / WebEx: Domingo Ochavillo (SSC member, Chair), Todd Miller (SSC member), Frank Camacho (SSC member), Michael Trianni (NMFS-PIFSC), Eric Cruz (NMFS-PIFSC), Trey Dunn (DFW), Mike Tenorio (DFW), Jack Ogumoro (Island Coordinator), Sarah Ellgen (NMFS – PIRO)

DRAFT REPORT

Wednesday, September 23, 2015
Meeting Started: 1:25pm

1. **Introductions**
   Domingo Ochavillo opened the meeting and welcomed the working group participants. The participants made self-introductions. The working group adopted the agenda with some changes where agenda item 4 was skipped because 4.a is not directly related to the P* scoring while 4.b had been part of the review required for the scoring of the different dimensions. There was no need to review the information that will be presented.

   Council staff thanked the working group members for the scoring of the different dimensions particularly the productivity and susceptibility dimensions. This is the first P* analysis that utilized a standardized set of criteria for the productivity and susceptibility dimensions based on Patrick et al. 2009. The P* Working Group also consulted with the bottomfish fishermen in the Marianas to score the susceptibility attributes for the 17 species in the complex.

2. **Recommendations from previous Council meetings**
   Council staff presented the recommendations from the 163rd Council meeting. At this meeting, the Council heard a presentation on the 2015 Draft Bottomfish Stock Assessment Updates for American Samoa, Guam, and Commonwealth of Northern Mariana Islands (Yau et al. 2015). The Council recommended the WPSAR peer-review of the assessment update and a special session of the SSC to make a best available science determination. The Council also recommended that staff convene a P* and a SEEM working group to evaluate the scientific and management uncertainties.

Staff presented the events following the 163rd Council meeting where the WPSAR Tier-3-Panel Review was held on August 11-12, 2015 to review the stock assessment updates. The WPSAR panel deemed the updates appropriate for management. The 120th SSC was held on September 16, 2015 and concurred with the WPSAR panel and endorsed the assessment update as best scientific information available (BSIA) for the bottomfish fisheries in American Samoa, Guam and CNMI. The SSC concurred with the panel, that the data was acceptable for management purposes.

The succeeding meetings will use the SSC-determined BSIA as a basis for the P* analysis.

3. **Overview of the P* process**
   Council staff provided an overview of the P* process. The Fishery Ecosystem Plans required the Council to revisit the P* analysis once new information becomes available. The P* process determines the risk level to which the fishery will be managed based on the scientific uncertainties surrounding the stock assessment and the stock it described. There are 4 dimensions in the P* analysis: 1) Assessment Information; 2) Uncertainty Characterization; 3) Stock Status; and 4) Productivity-Susceptibility. Each dimension has criteria scored by working group members. The total scores will be deducted from the 50% risk of overfishing described in Yau et al 2015. The catch that corresponds to the final P* corresponds to the potential Acceptable Biological Catch that the SSC will specify at its 121st Meeting in October 2015.

4. **Discussion of the Scoring of the P* Dimensions and Criteria**
   a. **Assessment information** – The working group discussed the scores under the Assessment Information Dimension.

Quantitative assessment provides estimates of exploitation and B; includes MSY-derived benchmarks; no spatially-explicit information	**AS**	**GU**	**CNMI**
Reliable catch history - whether there is a good estimate of total catch which includes non-commercial/recreational catch	1	0.5	0.5
Standardized CPUE - if the CPUE has been standardized to control for effects other than abundance fluctuations	1	1	1
Species-specific data - whether data for individual species has been incorporated in the model	1	1	1
All sources of mortality accounted for – (whether?) if ALL types of mortality like discards, bycatch, natural, fishing etc. are considered in the model	1	0.5	0.5
Fishery independent survey – whether (an) independent estimate of abundance has been considered in the assessment	1	0.5	0.5
Tagging data – (whether?) movement information, spatial distribution patterns, population estimation from mark-recapture has been considered in the assessment	1	1	1
Spatial analysis - whether area specific information e.g. spatially explicit CPUE information was considered in the assessment	1	1	1
Total Assessment Aspect Score	**7**	**4**	**4**
DIMENSION SCORE EQUIVALENT	**4.0**	**3.6**	**3.6**

Reliable catch history – Guam and CNMI received score(s) on the reliable catch history criterion as 0.5 (partially captured) and were deemed partially reliable. Guam used the creel survey information which had sufficient catch and effort interviews and is one of the fisheries adequately documented by the survey. The CNMI data used was the commercial purchase data which only accounts for the commercial sector of the fishery and not the non-commercial. American Samoa had a bigger reduction score because the data was deemed unreliable because it does not represent total catch and is poor in capturing the commercial and non-commercial fisheries. It was reported that there were significant landings in Aunuu which is not captured in the creel surveys and also fishing for special events like funerals and weddings.

Standardized CPUE – Since the assessment used nominal CPUE, all three scored (1). No standardizations were performed in this assessment.

Species specific data – the assessment was conducted on a complex of 17 species from various families and depth distribution hence all scored (1)

All sources of mortality accounted for – there (are) no known empirically-based mortality estimates from discards and bycatch. Fishery-based mortality is estimated entirely from the catch and CPUE data hence only a partial score (0.5) was assigned to the Marianas. American Samoa scored (1) because the sources of mortality estimates for American Samoa were deemed virtually non-existent.

Fishery independent data – fishery independent data was used from the 1980's Raioma cruise in the Marianas. The Polovina and Ralston (1986) methods were used by Moffitt and Humphreys (2009) for the MSY estimates which were in turn used to condition the assessment results. These were the Our Living Oceans estimates which were the basis for the fishery independent MSY in the assessment. The Marianas scored this assessment aspect as (0.5) but American Samoa scored it a (1) because the estimates were just derived from the Marianas estimates and extrapolated to habitat size.

Tagging data – there is no large scale tagging data available for the BMUS in American Samoa and Marianas. There is a tagging program implemented by the Pacific Island Fisheries Group in the Marianas but this is only small scale and not incorporated in the assessment update

Spatial analysis – there is no spatial analysis in the actual assessment update although there is some spatial data on the 1980 Raioma cruise and the recent RV OES (2014, 14-04) cruise.

b. Uncertainty characterization

Description	**AS**	**GU**	**CNMI**
Complete. Key determinant – uncertainty in both assessment inputs and environmental conditions included (0)			
High. Key determinant – reflects more than just uncertainty in future			

recruitment (2.5) Medium. Uncertainties are addressed via statistical techniques and sensitivities, but full uncertainty is not carried forward in projections (5) Low. Distributions of Fmsy and MSY are lacking (7.5) None. Only single point estimates; no sensitivities or uncertainty evaluations (10)	5	5	5
DIMENSION SCORE	**5**	**5**	**5**

The uncertainty characterization did not change between 2012 and 2015 since this was a simple update to the Brodziak et al. 2012 assessment update with 3 years of additional data. All areas had a score of (5) points leading to a 5 point reduction since uncertainties were not carried forward in the project. It utilized nominal CPUE and no standardizations were applied.

c. Stock status

Stock Status Description	Biomass level & Fishing level	AS	GU	CNMI
Neither overfished nor overfishing (0).	Stock > MSST & BMSY, F < MFMT	0	0	0
Neither overfished nor overfishing (2).	Stock > MSST, F < MFMT			
Neither overfished nor overfishing (4).	Stock ≥ MSST, F ≤ MFMT			
Stock is not overfished, overfishing is occurring (6)	Stock > MSST, F > MFMT			
Stock is overfished, overfishing is not occurring (8)	Stock < MSST, F ≤ MFMT			
Stock is overfished, overfishing is occurring (10)	Stock < MSST, F > MFMT			
	DIMENSION SCORE	**0**	**0**	**0**

The stock status did not change between 2012 and 2015. The stock remains not overfished and is not experiencing overfishing. The reference points actually increased slightly with the addition of 3 additional years of data. All three areas scored a (0) point reduction.

d. Productivity and susceptibility – the 2015 P* Analysis utilized a standardized criteria for evaluating the productivity and susceptibility of the different species in the BMUS complex. The productivity and susceptibility attributes were adopted from Patrick et al. 2009.

Species (common name)	Component	Average PS Score		
		AS	GU	CNMI
Caranx lugubris (black trevally)	Deep	4.2	5.7	4.9
Aphareus rutilans (lehi)	Deep	4.3	5.8	5.4
Etelis carbunculus (ehu)	Deep	4.9	6.0	6.3
Etelis coruscans (onaga)	Deep	5.1	6.7	6.1

Pristipomoides auricilla (yellowtail snapper)	Deep	3.9	5.5	5.2
Pristipomoides filamentosus (opakapaka)	Deep	4.3	6.1	5.9
Pristipomoides flavipinnis (yelloweye opakapaka)	Deep	4.1	5.6	5.4
Pristipomoides seiboldi (kalekale)	Deep	3.0	5.3	5.5
Pristipomoides zonatus (gindai)	Deep	3.9	5.8	5.6
Aprion virescens (uku)	Shallow/Deep	4.5	5.7	5.3
Caranx ignobilis (giant trevally)	Shallow	4.8	5.8	5.7
Epinephelus fasciatus (black tip grouper)	Shallow	3.7	4.8	5.2
Lethrinus amboinensis (ambon emperor)	Shallow	3.4	5.2	5.0
Lethrinus rubrioperculatus (red gill emperor)	Shallow	4.0	5.2	3.6
Lutjanus kasmira (blue lined snapper)	Shallow	2.6	5.0	4.5
Variola louti (lunar tail grouper)	Shallow	4.4	5.3	5.0
Seriola dumerilii (amberjack)	Shallow/Deep	3.7	6.2	4.8
	DIMENSION SCORE	**4.1**	**5.6**	**5.3**

Expert panel members from the Life History Program of PIFSC (Bob Humphreys, Brett Taylor, and Michael Trianni) provided the productivity scores while bottomfish fishermen were requested to score the susceptibility attributes (Anthony Flores, Jack Villagomez and James Borja).

The working group did not go over the individual scores for each productivity/susceptibility attribute to species combination. The group discussed similarities in the scoring and the rationale behind the scores:

- Rate of population increase – currently the Western Pacific has no information on this attribute hence scored as (5) across all species;
- Estimated total mortality – currently no estimate, scored (5) across the all species;
- Fecundity – all species bear millions of eggs released in the water column hence scored (0) across all species
- Breeding patterns – the species in the complex are all broadcast spawners hence a score of (0);
- Recruitment pattern – currently unknown hence a score of (5);
- Maximum age – utilized information on the Hawaii and Guam samples from the bomb radiocarbon work;
- Maximum size – utilized BioSampling Program data;
- VBGF – score (5) as moderate but some species are unknown which also received a score of (5);
- Mean trophic level – was interpreted as high productivity if planktonic feeder; moderate if an omnivore; and low productivity if a piscivore

Other jurisdictions had similar thinking regarding the scores. The raw scoring of each of the productivity and susceptibility attributes per species can be found in Appendix 1.1 and 1.2.

5. **Public comment** – There was no public comment

6. **Summary of scores and P* recommendations –** Below are the final point reduction for the Territory Bottomfish P* Analysis. The P* Working Group recommended a reduction of risk of overfishing level to 36% for Guam and CNMI and 37% for American Samoa.

P* DIMENSIONS	**Am. Samoa**	**Guam**	**CNMI**
Dimension 1: Assessment information	4	3.6	3.6
Dimension 2: Uncertainty characterization	5	5	5
Dimension 3: Stock status	0	0	0
Dimension 4: Productivity-Susceptibility	4.1	5.6	5.3
Total risk reduction score	*13.1*	*14.2*	*13.9*
Risk of overfishing level (P*)	**37**	**36**	**36**

The Working Group also recommended some improvements to the P* Analysis:

- Consider applying a weighting factor for some of the productivity and susceptibility attributes because some may be more important than others or may have more information than others

- Need to further refine the default scoring of (5) to differentiate the actual score of (5) with information versus a (5) if no information. A member recommended (5*) if there is no information compared to (5) for a moderate productivity attribute

- Some technical corrections were brought up – (1) *Aphareus furca* should be *Aphareus rutilans*; (2) *Seriola dumerilii* and *Aprion virescens* should be both a shallow and deep component while *Variola louti* should be a shallow component not deep

The meeting adjourned at 3:15 PM.

REFERENCES

Brodziak, J., J. O'Malley, B. Richards, and G. DiNardo. 2012. Stock assessment update of the status of the bottomfish resources of American Samoa, the Commonwealth of the Northern Mariana Islands, and Guam, 2012. Pacific Islands Fish. Sci. Cent., Natl. Mar. Fish. Serv., NOAA, Honolulu, HI 96822-2396. Pacific Islands Fish. Sci. Cent. Admin. Rep. H-12-04, 124 p.

Moffitt, R., and R. Humphreys. 2009. Unit 17 - Western Pacific Bottomfish and Groundfish Fisheries. p. 231-236 in DOC, NOAA, NMFS Our Living Oceans – Report on the Status of U.S. Living Marine Resources, 6th edition. U.S. Dep. Commer., NOAA Tech. Memo. NMFSF/SPO-80, 369 p.

Patrick, W. S., Spencer, P., Ormseth, O. A., Cope, J. M., Field, J. C., Kobayashi, D. R., Gedamke, T., Cortes, E., Bigelow, K., Overholtz, O., Link, J., & Lawson, P. (2009). Use of productivity and susceptibility indices to determine stock vulnerability, with example

applications to six US fisheries. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. NOAA Technical Memorandum NMFS-F/SPO-101, p. 90

Polovina, J., and Ralston, S. 1986. An approach to yield assessment for unexploited resources with application to the deep slope fishes of the Marianas. Fishery Bulletin, 84(4): 759-770.

Yau. A., M. Nadon, B. Richards, J. Brodziak, and E. Fletcher. 2015. Stock Assessment Updates of the Bottomfish Management Unit Species of American Samoa, the Commonwealth of the Northern Mariana Islands, and Guam in 2015 Using Data through 2013. Pacific Islands Fish. Sci. Cent., Natl. Mar. Fish. Serv., NOAA, Honolulu, HI 96822-2396. Pacific Islands Fish. Sci. Cent. NOAA Tech. Memo. xxxx

Appendix C SEEM WG report

WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

Social, Economic, Ecological, Management Uncertainty (SEEM) Working Group Meeting
September 25, 2015
1:00 pm to 5:00 p.m.
Council Office – Pelagic Suite Conference Room
Teleconference: 1-888-4823560 (Access Code: 5228220)

In-person Participants: Craig Severance (Chair), Justin Hospital (NMFS-PIFSC), Cindy Grace-McCaskey (NMFS-PIFSC), Minling Pan (NMFS-PIFSC)
On Conference Call / WebEx: Ariel Jacobs and Sarah Ellegen (NMFS – PIRO SFD) (Observers)
Council staff: Christopher Hawkins, Marlowe Sabater

DRAFT REPORT

Friday, September 25, 2015
Meeting Started: 1:10 p.m.

7. Introductions

Craig Severance opened the meeting and welcomed the working group participants. Participants made the round of introductions. Council staff thanked the working group members for their participation in the ACL specification process for territorial bottomfish.

With the Chair's permission, Christopher Hawkins reviewed the agenda and the purpose of the meeting. He also quoted the SEEM sections of the Council's annual catch limit (ACL) specification process document. Finally, he noted that pre-meeting communication was directed towards the Council's Island Coordinators, the leadership of the territorial Advisory Panels, and other Council Family – to encourage local participation in this process.

8. Review of the overfishing limit and P* for territorial bottomfish fisheries

Marlowe Sabater described the first stages of the Council's ACL specification process: the Council received a risk of overfishing projection (Yau, et. al 2015). The catch associated with 50% risk of overfishing (the overfishing limit or OFL) is 115,000 lbs. (American Samoa), 250,000 lbs. (CNMI) and 71,000 lbs. (Guam). A scientific uncertainty ("P*") working group is recommending the Council incorporate additional precaution, beyond the 50% risk of overfishing, to 37% (American Samoa), 36% (CNMI), and 36% (Guam) based on their collective assessment of the four P* dimensions: assessment information, uncertainty characterization, stock status, productivity-susceptibility.

9. Discussion of ACL-relevant social, economic, ecological, and management uncertainty factors in the fisheries

As described by Christopher Hawkins in pre-meeting communication, and again at the outset of the meeting, the Council created the SEEM process to identify any social, economic, ecological, and management uncertainty factors that may warrant additional precaution (further to precaution levels recommended by the P* working group), as well as percentages associated with them. The Chair suggested the group discuss and note such issues sequentially by SEEM dimension across all island areas.

Social

The group agreed that these fisheries are all important to the sociocultural fabric of the islands, but the group could produce few specific reasons or examples that would argue for reducing the allowable harvest. One such example is the fact that these island areas are subject to dynamic natural events, such as hurricanes and tsunamis. These events, which are not rare in the islands, can impact electrical power, bulk goods transport, and other aspects of modern life. If such impacts were to occur, fishing is one of the only immediate ways to obtain fresh food.

Economic

Bottomfishing does not play a large role in the economies of the island areas. However, the group noted that bottomfish prices are highest among all the local fisheries and a higher percentage of bottomfish are sold (versus retained) than other species. In the CNMI it was noted that bottomfish tend to be more important in some of the smaller islands, such as Tinian and Rota, than on Saipan, and that casino development, which is a real possibility in the next few years, is expected to increase the demand for local fish, especially bottomfish.

Ecological

The group discussed the shallow-water component of the bottomfish management unit species. Shallow-water bottomfish are often found in mid-level coral reef habitats and some can be considered coral-reef associated species. The group expressed some concern that run-off and other land-based sources of pollution due to development and modification of natural systems and processes is impacting and could further impact shallow-water bottomfish.

The group noted it does not have enough information about the linkages between, or ecological status of, those species that bottomfish eat and what eat them in the island areas to inform any predator-prey concerns or reductions.

Management Uncertainty

The group was most concerned about issues associated with management of bottomfish. In American Samoa, relatively large amounts of federal and local funding have recently been allocated and/or distributed for bottomfish fishery development in the Territory. Whether these efforts will increase catch, and to what extent, is unknown at this time. Across all of the island areas, there is no real time tracking of catch, as data on catch is typically available six months to one year later and little local capacity to manage and enforce the bottomfish fisheries. The group felt that these issues, coupled with the long timeframes inherent in the regulatory process, may argue for some additional precaution in terms of setting the ACL.

10. Evaluation of whether reductions to Allowable Biological Catch are warranted

During the meeting, several working group members mentioned the large gap between reported catches and the harvest amount associated with the OFL (for all three areas), as well as the inability of managers to address management uncertainty factors, make it difficult to recommend any additional precaution. However, all agreed that the Council should err on the side of caution, especially since fish are one of the few natural resources available in these island areas.

11. Final Recommendation

The group agreed that rather than score factor by factor, each member should assign one score for each of the SEEM dimensions for each of the territories and that those scores would be averaged. Scores were based on a 0-10 scale, where a 0 score indicated the member felt no reduction was necessary and each number represents a percent. Finally, per the Council's approved ACL specification procedures, the group added the averaged scores to arrive at a recommended reduction percentage (Table 1).

Table 22. Working Group member scores.

	WG Member	Social	Economic	Ecological	Management	Sum
AS	1	1	0	0	3	
	2	0	2.5	0	5	
	3	0	0	0	3	
	4	0	0	1	2	
	5	0	0	0	5	
	6	2	1	1	5	
	Average	0.5	0.6	0.3	3.8	**5.3%**
	WG Member	**Social**	**Economic**	**Ecological**	**Management**	**Sum**
GU	1	1	0	0	3	
	2	0	2.5	0	2.5	
	3	0	0	0	3	
	4	0	0	3	0	
	5	0	0	0	5	
	6	2	2	1	5	
	Average	0.5	0.8	0.7	3.1	**5.0%**
	WG Member	**Social**	**Economic**	**Ecological**	**Management**	**Sum**
CNMI	1	2	0	0	3	
	2	0	2.5	0	2.5	
	3	0	0	0	3	
	4	0	0	2	0	
	5	0	0	0	10	
	6	2	3	1	5	
	Average	0.7	0.9	0.5	3.9	**6.0%**

These numbers are driven largely by working group members' concerns with the management uncertainty factors described above. Table 2 shows the relationship of the SEEM scores to the P* scores in terms of the total recommended reduction.

Table 23. Initial overfishing limit (5) and final recommended limit, inclusive of P* and SEEM recommended reductions.

	Am. Samoa	**Guam**	**CNMI**
Overfishing limit %	50%	50%	50%
Scientific uncertainty (P*) % reduction	13.1%	14.2%	13.9%
SEEM % reduction	5.3%	5%	6%
Combined % reduction from OFL	18.4%	19.2%	19.9%
Risk of overfishing percent associated with total risk reduction from P* and SEEM	31.6%	30.8%	30.1%

If the Council chooses to accept these recommendations, it may elect to set the ACL directly based on the reductions described in Table 2 (i.e, ACL = OFL – (P* reductions + SEEM reductions), or it may elect to set the ACL equal to ABC and use the SEEM reductions as the basis for an annual catch target.

-Meeting adjourned 4:00 p.m.-