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Environmental Assessment
for
Annual Catch Limit Specifications and Accountability Measures for Pacific Islands Bottomfish Fisheries in 2012 and 2013

Including a Regulatory Impact Review

December 13, 2011

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Abstract

NMFS proposes to specify an annual catch limit (ACL) and accountability measures (AM) for the multi-species bottomfish stock complexes in American Samoa, the Northern Mariana Islands, and Guam, and for the non-Deep 7 bottomfish stock complex in the main Hawaiian Islands (MHI). The Western Pacific Fishery Management Council recommended ACLs and AMs in October 2011. The ACLs and AMs would be applicable in fishing years 2012 and 2013, which begin January 1 and end December 31, annually. The purpose of the action is to comply with provisions of the fishery ecosystem plans (FEP) for American Samoa, the Mariana Archipelago, and Hawaii which require NMFS to specify an ACL for western Pacific bottomfish fisheries, implement AMs that prevent ACLs from being exceeded, and correct or mitigate overages of ACLs if they occur. The proposed ACLs are as follows: American Samoa bottomfish (ACL = 99,200 lb), Guam bottomfish (ACL = 48,200 lb), CNMI bottomfish (ACL = 182,500), and MHI non-Deep 7 bottomfish (ACL = 135,000 lb).

The proposed ACL specifications for each bottomfish fishery were developed based on stock assessments and other information prepared by NMFS Pacific Islands Fisheries Science Center, and developed by the Council in accordance with the approved ACL mechanism described in each FEP, and in consideration of the best available scientific, commercial, and other information.

Currently, near-real time processing of catch information cannot be achieved in any western Pacific bottomfish fishery. Therefore, in-season AMs to prevent an ACL from being exceeded (e.g., fishery closures in federal waters) are not possible at this time. For this reason, the AM being proposed for all bottomfish fisheries is a post-season accounting of the catch each fishing year and evaluation of whether an ACL has been exceeded. Consistent with regulations implementing western Pacific FEPs, if landings exceed the specified ACL in a fishing year, the Council 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.

This environmental assessment (EA) evaluates the potential environmental impact of the proposed ACL specifications in fishing years 2012 and 2013. The EA includes a description of the information and methods used by the Council to develop the proposed ACLs. The analysis in this EA indicates that the proposed ACL specifications and AMs are not expected to result in a change to the conduct of any western Pacific bottomfish fishery, so there would be no large or adverse environmental effects on target, non-target, or bycatch species, or on protected species that may interact with these fisheries. The proposed ACLs and AMs are not expected to conflict with ongoing fishery management activities or programs conducted by other federal agencies, local resource management agencies or communities, or result in any impacts to coastal or marine areas, including designated essential fish habitat, habitat areas of particular concern, critical habitat, marine protected areas, or unique areas. The specification of ACLs and implementation of AMs are part of a suite of management measures in the bottomfish fisheries of the western Pacific intended to provide for sustainable harvest of bottomfish fishery resources while preventing overfishing from occurring, which would have positive long-term impacts on fishery resources, participants, and fishing communities.

NMFS is seeking public comment on the proposed rule to specify ACLs and implement AMs for the bottomfish fisheries of the western Pacific. Instructions on how to comment on the proposed rule can be found by searching on RIN 0648-XA674 at www.regulations.gov, or by contacting the responsible official or Council at the above address.

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Acronyms

ABC – Acceptable Biological Catch
ACL – Annual Catch Limit
ACT – Annual Catch Target
AM – Accountability Measure
BMUS – Bottomfish Management Unit Species
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
FEP – Fishery Ecosystem Plan
FMP – Fishery Management Plan
FR – Federal Register
HDAR – Hawaii Division of Aquatic Resources
MHI – Main Hawaiian Islands
Magnuson-Stevens Act – Magnuson-Stevens Fishery Conservation and Management Act
MFMT – Maximum Fishing Mortality Threshold
MSST – Minimum Stock Size Threshold
MSY – Maximum Sustainable Yield
MUS – Management Unit Species
NMFS – National Marine Fisheries Service
NOAA – National Oceanic and Atmospheric Administration
OFL – Overfishing Limit
OY – Optimum Yield
PIFSC – NMFS Pacific Islands Fisheries Science Center
PIRO – Pacific Islands Regional Office
SSC – Scientific and Statistical Committee
WPacFIN – Western Pacific Fisheries Information Network

1 Background Information

Fisheries for bottomfish management unit species (BMUS) in federal waters of the exclusive economic zone (EEZ; generally 3-200 nmi) around the U.S. Pacific Islands are governed by one of four fishery ecosystem plans (FEP) developed by the Western Pacific Fishery Management Council (Council) and implemented by the National Marine Fisheries Service (NMFS) under the authority of 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 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 bottomfish fisheries in 50 CFR 665 include vessel identification and observer requirements and a prohibition on the use of bottom trawls and bottom set gillnets. In the CNMI, commercial fishers are subject to permit and reporting requirements and vessels greater than 40 ft in length are prohibited from fishing around the southern islands of Rota, Tinian and Saipan, and the island of Alamagan. In Guam, fishing for BMUS by vessels greater than 50 ft in length is prohibited in the EEZ waters within 50 nautical miles from shore.

Prior to 2010, the Northwestern Hawaiian Island (NWHI) bottomfish fishery, which historically accounted for nearly half of the bottomfish landed in Hawaii, operated under a limited entry system with permit, reporting and observer requirements. However, in 2009, the NWHI fishery was closed in accordance with the Presidential Proclamation establishing the Papahanaumokuakea Marine National Monument (Monument), which prohibits commercial fishing, although sustenance fishing for bottomfish is allowed to continue in accordance with Monument regulations (71 FR 51134, August 29, 2006).

At present, bottomfish fishing managed under the Hawaii FEP only occurs in the main Hawaiian Islands (MHI). In Hawaii, non-commercial bottomfish fishers are subject to bag limits and federal permit and reporting requirements when fishing in federal waters, while commercial fishers are required to report catch and effort information to the State of Hawaii pursuant to state law. For the past 4 years, the MHI bottomfish fishery has been subject to an annual catch limit.

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.

[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.

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 Scientific and Statistical Committee (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. 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 FEPs includes a five-tiered system of control rules that allows for different levels of scientific information to be considered. 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 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 (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 that make adjustments to an ACL if it is exceeded. 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

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

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.

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 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 and Amendment 3 to the Hawaii Archipelago FEP, and the final implementing regulations at 50 CFR §665.4 (76 FR 37286, June 27, 2011).

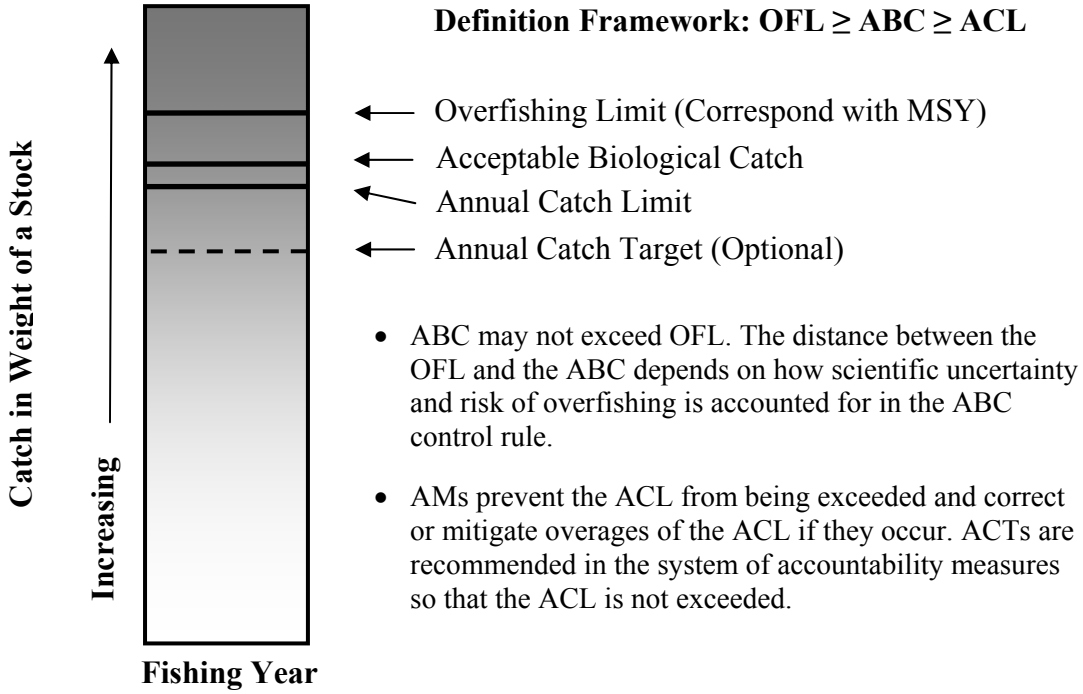

Figure 1. Relationship between OFL, ABC, ACL and ACT

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, the Mariana Archipelago, and Hawaii that require NMFS to specify an ACL 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. In the MHI, BMUS are managed as two separate stock complexes, the MHI Deep 7 stock complex[3] and the MHI non-Deep 7 stock complex[4]. Consistent with the FEPs, ACLs are proposed to be specified at the stock complex level.

1.2 Proposed Action

NMFS proposes to specify an ACL for BMUS in American Samoa, CNMI and Guam. Additionally, NMFS proposes to specify an ACL for the non-Deep 7 BMUS in the MHI. The proposed ACL specifications are 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 2012 and the 2013 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[5], and by NMFS through federal logbook reporting.

Pursuant to 50 CFR 665.4, when an ACL for a stock complex is projected to be reached, based on best available information, NMFS will restrict fishing for that 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 in effort (76 FR 37286, June 27, 2011). However, in-season restrictions are not possible for any fishery at this time because, catch statistics are generally not available until at least six months after the data has been collected (see Section 2.3.3 for more details on data collection). For this reason, NMFS also 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. If landings of any stock complex exceed the specified ACL in a fishing year, the Council would take action in accordance with 50 CFR 600.310(g) to correct the operational issue that caused the ACL overage. NMFS would implement the Council's recommended action, which could include a downward adjustment to the ACL for that stock complex in the subsequent fishing year, or other measures, as appropriate.

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[3] MHI Deep 7 bottomfish include onaga (*Etelis coruscans*), ehu (*Etelis carbunculus*), gindai (*Pristipomoides zonatus*), kalekale (*Pristipomoides sieboldii*), opakapaka (*Pristipomoides filamentosus*), lehi (*Aphareus rutilans*), and hapuupuu (*Epinephelus quernus*).

[4] MHI non-Deep 7 bottomfish include uku *(Aprion virescens)*, white ulua *(Caranx ignoblis)*, black ulua *(Caranx lugubris)*, taape *(Lutjanus kasmira)*, yellowtail kalekale *(Pristipomoides auricilla)*, butaguchi (*Pseudocaranx dentex)* and kahala (*Seriola dumerili).*

[5] 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, except in Hawaii where total catch is based only on catch reported by the commercial fishing sector, as required under State law.

Additionally, as a 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.

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, and for the non-Deep 7 BMUS in the MHI for fishing years 2012 and 2013. 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 152nd meeting, the Council considered and discussed issues relevant to ACL and AM specifications for western Pacific bottomfish stocks and stock complexes in American Samoa, Guam, the CNMI, and Hawaii, including ABC recommendations of the 108th SSC, and the range of ACLs considered in this document. The 108th SSC and the 152nd Council meetings were held October 17-19, 2011 and October 19-22, 2011, respectively. Both meetings were open to the public and advertised through notices in the Federal Register (76 FR 60004; September 28, 2011) and on the Council's website.

NMFS is seeking public comment on the proposed rule to specify ACLs and implement AMs for the bottomfish fisheries in American Samoa, CNMI, Guam and Hawaii. Instructions on how to comment on the proposed rule can be found by searching on RIN 0648-XA674 at www.regulations.gov, or by contacting the responsible official or Council at addresses on the cover page.

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 and the non-Deep 7 bottomfish stock complex of Hawaii. 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 108th 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 108th SSC and 152nd 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 (Moffitt et al., 2007) conducted by NMFS Pacific Islands Fisheries Science Center (PIFSC). The Moffitt et al., (2007) stock assessment used data though 2005 and applied a Bayesian statistical framework 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. Alternative models with differing prior assumptions about carrying capacity and the ratio of initial stock biomass (at the beginning of the assessment time period) to carrying capacity were evaluated using the Akaike Information Criterion. The sensitivity of status determination results to prior distributions and model assumptions was also evaluated. 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.

The ABC and ACL recommendations for the non-Deep 7 bottomfish in the MHI are based on information contained the stock assessment update for MHI Deep 7 bottomfish that was prepared by PIFSC in 2010 (Brodziak et al., in press). This stock assessment uses data though 2010 and includes projections to determine catch limits and their associated probabilities of overfishing for the MHI Deep 7 bottomfish stock complex. The information in the 2010 assessment was used as a proxy for non-Deep 7 bottomfish population dynamics, catchability and other biological parameters, and to determine catch limits and their associated probabilities of overfishing for the non-Deep 7 bottomfish stock complex in the MHI. A brief description of the 2010 MHI Deep 7 stock assessment and rationale for applying its findings to the non-Deep 7 bottomfish by analogy are described in Section 2.1.4.

2.1.1 American Samoa Bottomfish MUS

NMFS/Council Estimation of OFL

OFL has not been estimated for the multi-species bottomfish stock complex of American Samoa. However, a maximum sustainable yield (MSY) was estimated by the PIFSC through a 2007 stock assessment using data though 2005 (Moffitt et al., 2007). A brief summary of the model outputs for bottomfish carrying capacity (K), MSY estimates, and stock status is provided below.

For American Samoa BMUS, carrying capacity (K) estimates from the set of credible models indicated that K ranged from 432 to 906 thousand pounds. The posterior means for intrinsic growth rate (r) suggested that estimates of r were between 0.45 and 0.48. Estimates of initial ratio of biomass to carrying capacity were between 0.64 and 0.80 over the set of credible models. The posterior mean of MSY was MSY = 109,000 lb ± 29,700 lb. The biomass status of the American Samoa bottomfish complex in 2005 was healthy, with a probability of $p>0.99$ that biomass was above B_{MSY} based on the best-fitting model. Similarly, the probability that the harvest rate in 2005 exceeded the overfishing threshold was $p<0.01$. Estimates of American Samoa bottomfish biomass have fluctuated around 800 thousand pounds since 1988 (Figure 2). Biomass increased moderately in the 1990s and has been relatively stable since then. Estimates of exploitation rate decreased to less than 5% in the late-1980s and remained low until 2004 when they increased to about 8%. Estimates of relative biomass indicate that the biomass of the American Samoa bottomfish complex has been above B_{MSY} during 1986-2005. Similarly, estimates of relative exploitation rate indicate that the annual harvest rate has been below H_{MSY} since 1986. Lower bounds of the 80% confidence intervals for relative biomass show that the annual probability of biomass being at or above B_{MSY} was 90% or greater throughout the time period. Similarly, upper bounds of the 80% confidence intervals for relative exploitation rate indicate that the annual probability of harvest rate being at or below H_{MSY} was 90% or greater.

<u>Stock Status</u>

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, SDCs were applied to the entire multi-species complex as a whole.

In 2005, the most recent year for which stock status information was available, $F_{2005}/F_{MSY} = 0.31$ while $B_{2005}/B_{MSY} = 1.75$ (Table 4 in Moffitt et al., 2007). Therefore, the production model results indicate that the American Samoa bottomfish complex was not overfished and did not experience overfishing between the periods 1986-2005.

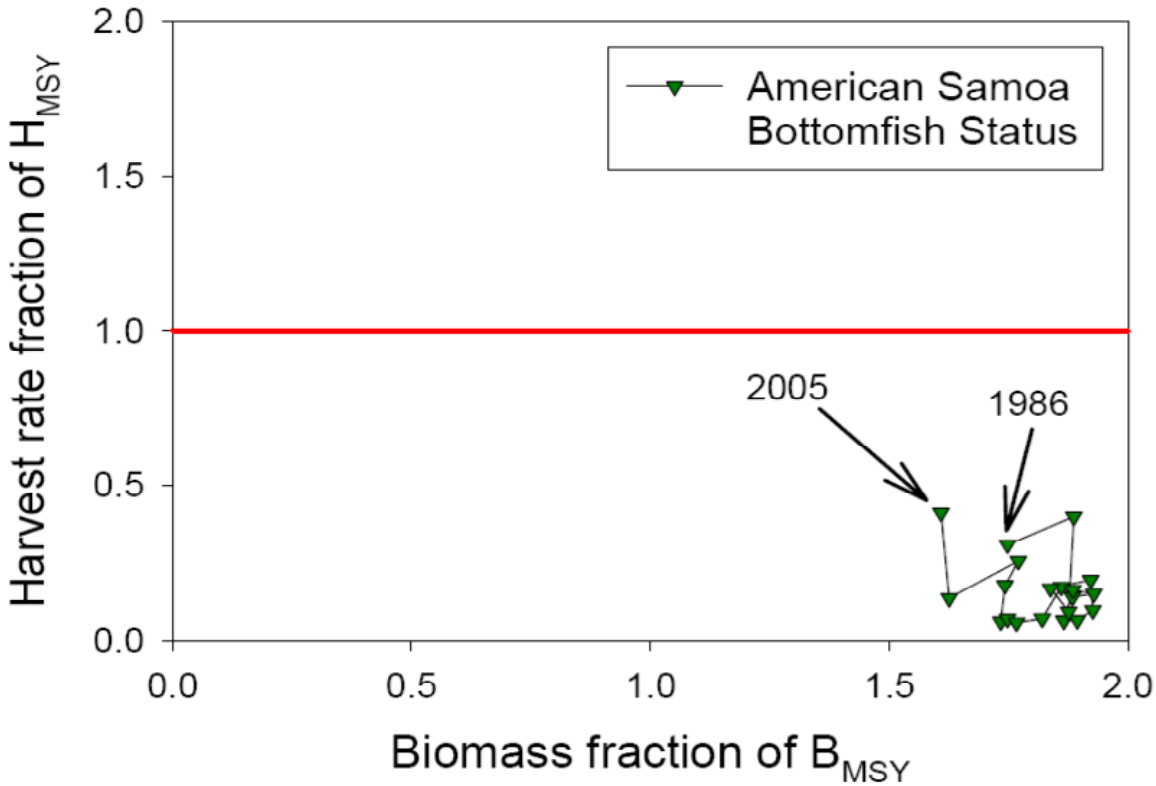

Figure 2. Estimates of relative biomass and relative exploitation rate from the best fitting production model for American Samoa, 1986-2005 (Source Moffitt et al. 2007)

SSC's Calculation of ABC

At its 108th meeting held October 17-19, 2011, the SSC considered the bottomfish stock assessment model described in Moffitt et al., (2007), including the upper and lower bounds of the MSY point estimate and estimates of parameter uncertainty for status determination. The SSC noted that because the assessment did not undergo the Western Pacific Stock Assessment Review (WPSAR) process, the assessment could not be considered as complying with the Tier 2 ABC Control Rule because scientific uncertainty in assessment parameters was not independently evaluated.

For this reason, the SSC did not apply the Tier 2 ABC control rule. Instead, the SSC applied the Tier 4 control rule as described in the American Samoa FEP which sets ABC = 0.91*MSY. Applying this rule, ABC for the American Samoa multi-species bottomfish stock complex was set at 99,200 lb or 9,800 lb less than the point estimate of MSY. The American Samoa FEP projects that the application of this control rule will result in a fishing mortality rate of 0.70 F_{MSY}.

Given the posterior mean of MSY = 109,000 lb ± 29,700 lb, and assuming the variability about the MSY is equally distributed (Central Limit Theorem), probabilities that a particular level of catch would exceed the MSY in 2012 were calculated by PIFSC stock assessment scientists (Brodziak pers. comm. September 14, 2011). The catches associated with probability values ranging from 2% to 98% of exceeding the MSY of 109,000 lb for the American Samoa BMUS

are shown in Table 1. Based on this table, an ABC of 99,200 lb is associated with a 25-30% probability of exceeding MSY in fishing year 2012.

Table 1. Probability of exceeding MSY for American Samoa BMUS in 2012

Probability of exceeding MSY	Catch (lb)
0.02	79,894
0.05	84,646
0.10	89,992
0.15	93,705
0.20	96,526
0.25	99,051
0.30	101,278
0.35	103,357
0.40	105,288
0.45	107,218
0.50	109,000
0.55	110,782
0.60	112,713
0.65	114,643
0.70	116,722
0.75	118,950
0.80	121,474
0.85	124,296
0.90	128,008
0.95	133,354
0.98	138,106

Council ACL and AM Recommendations

At its 152nd meeting held October 17-19, 2011, the Council recommended setting the ACL for the American Samoa multi-species bottomfish stock complex equal to the SSC's recommended ABC of 99,200 lb. In recommending the ACL for American Samoa BMUS, the Council also considered annual estimated commercial landings between 2000 and 2009 (Table 2). The Council did not recommend reducing ACL from ABC on the basis of social, economic, or ecological considerations (see the SEEM analysis described in the American Samoa FEP) because average recent catch of bottomfish (2006-2009) is about 19,326 lb, or about 18% of MSY, and is less than the standard deviation in the estimate of MSY which is ±29,700 lb. Additionally, the Council noted that catch in 2012 would need to increase by over five times the average recent catch level of 19,326 lb in order to attain the proposed ACL of 99,200 lb (WPFMC 2011). This is highly unlikely given past fishery performance of the American Samoa bottomfish fishery in the last decade in which bottomfish catch has never exceeded 35,000 lb.

Table 2. Annual estimated landings of BMUS in American Samoa (2000-2009)

Fishing Year	Estimated Commercial Landing (lb)
2000	13,319
2001	21,439
2002	16,603
2003	4,645
2004	11,469
2005	5,649
2006	5,252
2007	13,092
2008	24,585
2009	34,375
Ave. 2006-2009 only	**19,326**

Source: http://www.pifsc.noaa.gov/wpacfin; Based on estimated commercial landings data

2.1.2 Guam Bottomfish MUS

NMFS/Council Estimation of OFL

OFL has not been estimated for the multi-species bottomfish stock complex of Guam. However, maximum sustainable yield (MSY) was estimated by the PIFSC through a 2007 stock assessment (Moffitt et al., 2007). A brief summary of the model outputs for bottomfish carrying capacity (K), MSY estimates, and stock status is provided below.

For Guam BMUS, the posterior means for carrying capacity (K) from the set of credible models indicated that estimates of K ranged from 347 to 591 thousand pounds. The posterior means for intrinsic growth rate suggested that estimates of r were between 0.47 and 0.58 while estimates of the initial ratio of biomass to carrying capacity were between 0.64 and 0.76. The posterior mean of MSY was MSY = 53,000 ± 9,500 pounds. Based on the best-fitting model, the biomass status of the Guam bottomfish complex in 2005 was positive with a probability of $p>0.99$ that biomass was above B_{MSY}. Similarly, the probability that the harvest rate in 2005 exceeded the overfishing threshold was $p<0.01$. Estimates of Guam bottomfish biomass have fluctuated between 250-300 thousand pounds since 1982 (Figure 3).

Biomass declined in the late-1980s to 2000, and has increased since then. Estimates of exploitation rate increased from less than 10% in the early-1980s to a peak of 27% in 2000. Since 2000, exploitation rates have decreased to about 10% in 2005. Estimates of relative biomass (B_{YEAR}/B_{MSY}) indicate that biomass of the Guam bottomfish complex was above B_{MSY} during 1982-2005. Lower bounds of the 80% confidence intervals for relative biomass show that the annual probability that biomass exceeded B_{MSY} was 90% or greater throughout the time period (Figure 3). Similarly, the estimates of relative exploitation rate (H_{YEAR}/H_{MSY}) indicate that the annual harvest rate has been below H_{MSY} since 1982, with the exception of 2000. Upper bounds of the 80% confidence intervals for relative exploitation rate show that the annual probability that harvest rate was below H_{MSY} was 90% or greater, with the exception of the year 2000 when there was roughly a 50% chance that exploitation rate was at or above H_{MSY}.

Figure 3 shows the relationship between harvest rate as a fraction of Harvest at MSY, and Biomass as a fraction of Biomass at MSY.

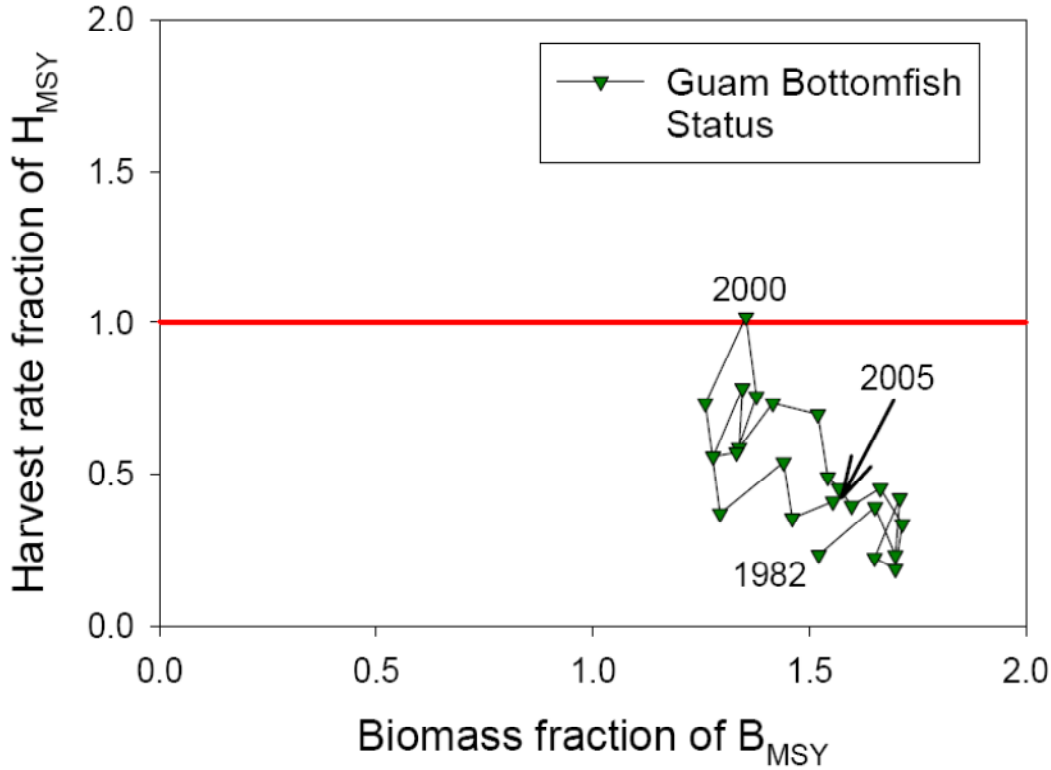

Figure 3. Estimates of relative biomass and relative exploitation rate from the best fitting production model for Guam, 1982-2005 (Source Moffitt et al. 2007)

Stock Status

In 2005, the most recent year for which stock status information was available, $F_{2005}/F_{MSY} = 0.41$ while $B_{2005}/B_{MSY} = 1.56$ (Table 4 in Moffitt et al., 2007). Therefore, the production model results indicate that the Guam bottomfish complex has not been overfished since 1982 and has not experienced overfishing, except perhaps in 2000 (Figure 3).

SSC's Calculation of ABC

At its 108th meeting held October 17-19, 2011, the SSC considered the stock assessment model described in Moffitt et al., (2007), including the upper and lower bounds of the MSY point estimate and estimates of parameter uncertainty for status determination. The SSC noted that because the assessment did not undergo the Western Pacific Stock Assessment Review (WPSAR) process, the assessment could not be regarded as consistent with the Tier 2 ABC Control Rule because scientific uncertainty in assessment parameters was not independently evaluated.

For this reason, the SSC did not apply the Tier 2 ABC control rule. Instead, the SSC applied the Tier 4 control rule as described in the Mariana Archipelago FEP which sets ABC = 0.91*MSY.

Applying this rule, ABC for the Guam multi-species bottomfish stock complex was set at 48,200 lb or 4,800 lb less than the point estimate of MSY. The Mariana Archipelago FEP expects that the application of this control rule would result in a fishing mortality rate of 0.70 F_{MSY}.

Given the posterior mean of MSY = 53,000 lb ± 9,500 lb, and assuming the variability about the MSY is equally distributed (Central Limit Theorem), probabilities that a particular level of catch would exceed the MSY in 2012 were calculated by PIFSC scientists (Brodziak pers. comm. September 14, 2011). The catches associated with probability values ranging from 2% to 98% of exceeding the MSY of 53,000 lb for Guam BMUS are shown in Table 3. Based on this table, an ABC of 48,200 lb would be associated with a 15-20% probability of exceeding MSY in fishing year 2012.

Table 3. Probability of exceeding MSY for Guam BMUS in 2012

Probability of exceeding MSY	Catch (lb)
0.02	43,690
0.05	45,210
0.10	46,920
0.15	48,108
0.20	49,010
0.25	49,818
0.30	50,530
0.35	51,195
0.40	51,813
0.45	52,430
0.50	53,000
0.55	53,570
0.60	54,188
0.65	54,805
0.70	55,470
0.75	56,183
0.80	56,990
0.85	57,893
0.90	59,080
0.95	60,790
0.98	62,310

Council ACL and AM Recommendations

At its 152nd meeting held October 17-19, 2011, the Council recommended setting ACL for the Guam multi-species bottomfish stock complex equal to the SSC recommended ABC of 48,200 lb. In recommending the ACL for Guam BMUS, Council also considered annual estimated landings between 2000 and 2009 (Table 4). The Council did not recommend reducing ACL from the ABC after considering social, economic, ecological considerations (see the SEEM analysis as described in the Mariana FEP) because average recent catch of bottomfish (2006-2009) is about

35,081 lb, or about 66% of MSY, with the highest catch in the period 2006-2009 of 39,000 lbs, or 80 % of the proposed ACL (WPFMC 2011). Additionally, based on past performance records, the fishery has not realized catches of over 48,000 lb since 2001, and is not expected to attain that level of catch in 2012.

Table 4. Annual estimated landings of BMUS in Guam (2000-2009)

Fishing Year	Estimated Total Landing (lb)
2000	65,871
2001	51,035
2002	23,881
2003	42,650
2004	36,920
2005	36,471
2006	37,850
2007	26,508
2008	36,933
2009	39,033
Ave. 2006-2009 only	**35,081**

Source: http://www.pifsc.noaa.gov/wpacfin; Based on total estimated boat-based landings

2.1.3 CNMI Bottomfish MUS

NMFS/Council Estimation of OFL

OFL has not been estimated for the multi-species bottomfish stock complex of the CNMI. However, maximum sustainable yield (MSY) was estimated by the PIFSC through a 2007 stock assessment (Moffitt et al., 2007). A brief summary of the model outputs for bottomfish carrying capacity (K), MSY estimates, and stock status is provided below.

For CNMI BMUS, carrying capacity (K) estimates from the set of credible models indicated that K ranged from 1027 to 1713 thousand pounds. Estimates of intrinsic growth rate suggested that r was roughly 0.57. Estimates of the initial ratio of biomass to carrying capacity were 0.45 over the set of credible models, indicating that the model had no information to change the prior assumption for this parameter. The posterior mean of MSY was MSY = 200.5 ± 40.5 thousand pounds. The biomass status of the CNMI bottomfish complex in 2005 appeared to be healthy with a probability of $p>0.99$ that biomass was above B_{MSY} over the set of credible models. Similarly, the probability that the harvest rate in 2005 exceeded the overfishing threshold was $p<0.06$. Estimates of CNMI bottomfish biomass have fluctuated around 1.3 million pounds since 1988.

Bottomfish biomass in the CNMI increased in the mid-1990s and has been relatively stable since then. Estimates of exploitation rate decreased from about 5% in the early 1980s to less than 5% in the early 1990s. Since then exploitation rates have increased to around 5%. Estimates of relative biomass indicate that biomass of the CNMI bottomfish complex has been above B_{MSY} since 1984 (Figure 4). Similarly, the estimates of relative exploitation rate indicate that the annual harvest rate was below H_{MSY} during 1983- 2005. Lower bounds of the 80% confidence

intervals for relative biomass show that the annual probability that biomass exceeded B_{MSY} was 90% or greater throughout most of the time period. Similarly, upper bounds of the 80% confidence intervals for relative exploitation rate indicate that the annual probability of harvest rate being at or below HMSY was 90% or greater. Figure 4 shows the relationship between harvest rate as a fraction of Harvest at MSY, and Biomass as a fraction of Biomass at MSY.

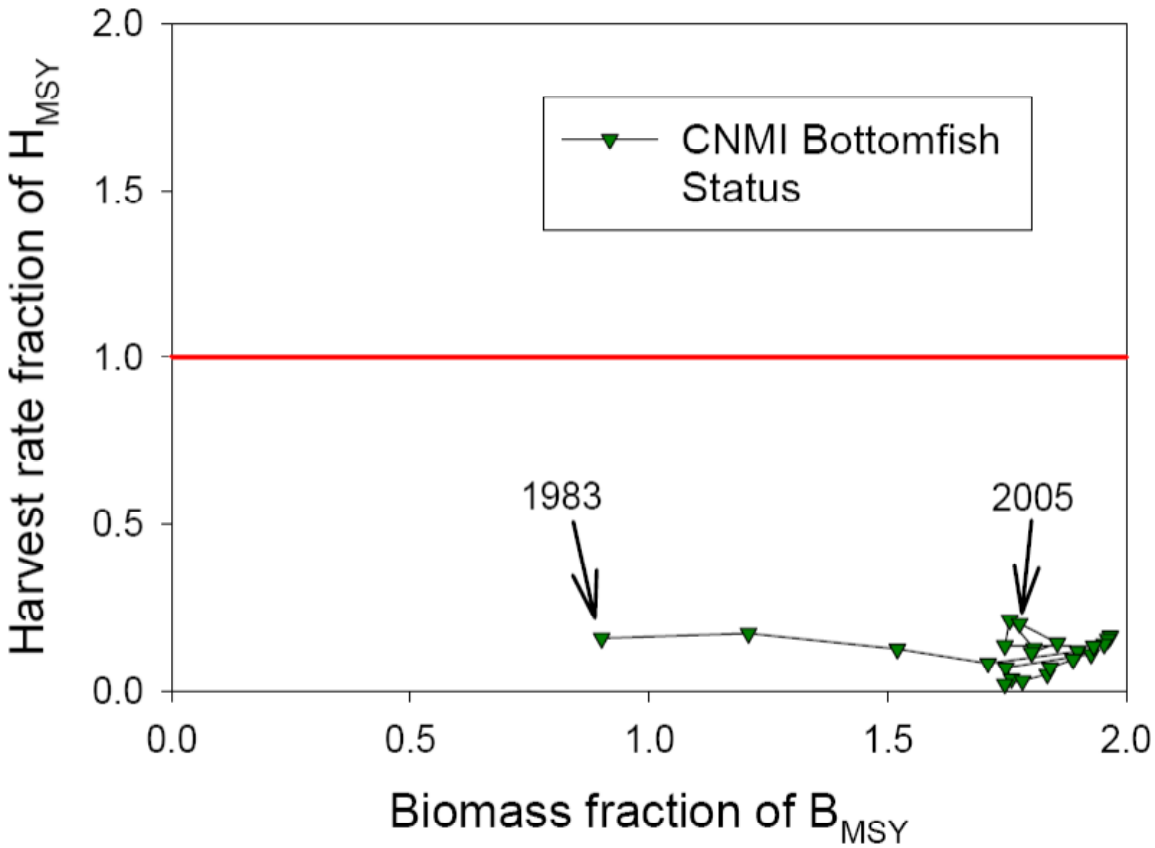

Figure 4. Estimates of relative biomass and relative exploitation rate from the best fitting production model for the CNMI, 1983-2005(Source Moffitt et al.2007)

Stock Status

In 2005, the most recent year for which stock status information was available, $F_{2005}/F_{MSY} = 0.22$ while $B_{2005}/B_{MSY} = 1.73$ (Table 4 in Moffitt et al., 2007). Therefore, the production model results indicate that the CNMI bottomfish complex was not overfished and did not experience overfishing during 1983- 2005 (Figure 4).

SSC's Calculation of ABC

At its 108th meeting held October 17-19, 2011, the SSC considered the assessment model described in Moffitt et al., (2007), including the upper and lower bounds of the MSY point estimate and estimates of parameter uncertainty for status determination. The SSC noted that because the assessment did not undergo the Western Pacific Stock Assessment Review (WPSAR) process, the assessment did not comply with the Tier 2 ABC Control Rule because scientific uncertainty in assessment parameters was not independently evaluated.

For this reason, the SSC did not apply the Tier 2 ABC control rule. Instead, the SSC applied the Tier 4 control rule as described in the Mariana Archipelago FEP which sets ABC = 0.91*MSY. Applying this rule, ABC for the CNMI multi-species bottomfish stock complex was set at 182,500 lb or 18,000 lb less than the point estimate of MSY. The Mariana Archipelago FEP projects the application of this control rule would result in a fishing mortality rate of 0.70 F_{MSY}. Given the posterior mean of MSY = 200,500 ± 40,500 lb, and assuming the variability about the MSY is equally distributed (Central Limit Theorem), probabilities that a particular level of catch would exceed the MSY in 2012 were calculated by PIFSC scientists (Brodziak pers. comm. September 14, 2011). The catches associated with probability values ranging from 2% to 98% of exceeding the MSY of 200,500 lb for CNMI BMUS are shown in Table 5. Based on this table, an ABC of 182,500 lb is associated with a 15-20% probability of exceeding MSY in fishing year 2012.

Table 5. Probability of exceeding MSY for CNMI BMUS in 2012

Probability of exceeding MSY	Catch (lb)
0.02	160,810
0.05	167,290
0.10	174,580
0.15	179,643
0.20	183,490
0.25	186,933
0.30	189,970
0.35	192,805
0.40	195,438
0.45	198,070
0.50	200,500
0.55	202,930
0.60	205,563
0.65	208,195
0.70	211,030
0.75	214,068
0.80	217,510
0.85	221,358
0.90	226,420
0.95	233,710
0.98	240,190

Council ACL and AM Recommendations

At its 152nd meeting held October 17-19, 2011, the Council recommended setting ACL for the CNMI multi-species bottomfish stock complex equal to the SSC recommended ABC of 182,500 lb. In recommending the ACL for CNMI BMUS, Council also considered annual estimated landings between 2000 and 2009 (Table 6). The Council did not recommend reducing ACL from ABC for social, economic, and ecological considerations described in the Mariana FEP because

average recent catch of bottomfish in the CNMI (2006-2009) is about 17,419 lb or about 9% of MSY and is less than the standard deviation in the estimate of MSY which is ±40,500 lb. Additionally, the Council noted catch in 2012 would need to increase over ten times the average recent catch level of 17,419 lb order to attain the proposed ACL of 182,500 lb, which is highly unlikely given past fishery performance in the last decade (WPFMC 2011).

Table 6. Annual Estimated Landings of BMUS in CNMI (2000-2009)

Fishing Year	Estimated Commercial Landing (lb)
2000	14,968
2001	25,303
2002	18,816
2003	18,063
2004	12,973
2005	16,538
2006	12,262
2007	18,606
2008	18,389
2009	20,418
Ave. 2006-2009 only	**17,419**

Source: http://www.pifsc.noaa.gov/wpacfin; Based on estimated commercial landings data

2.1.4 Hawaii non-Deep 7 Bottomfish MUS

NMFS/Council Estimation of OFL

In 2011, NMFS Pacific Islands Fisheries Science Center completed a stock assessment for the Deep 7 bottomfish stock complex using data from 1949-2010 to produce projection results of a range of commercial catches of Deep 7 bottomfish that would produce probabilities of overfishing ranging from zero percent to 100 percent, and at five-percent intervals in fishing year 2011-12, and in 2012-13 (Brodziak et al., in press, Table 17.1 and shown in Appendix 1). The 2010 stock assessment uses similar commercial fishery data as in the previous 2008 stock assessment that assessed the entire Hawaii multi-species bottomfish stock complex as a whole (Brodziak et al. 2009); however, the 2010 assessment includes a modified treatment of unreported catch and catch per unit of effort (CPUE) standardization, as well as new research information on the likely life history characteristics of Deep 7 bottomfish (A. Andrews, PIFSC, unpublished 2010 research).

According to the 2010 stock assessment, the Catch 2/CPUE 1 scenario combination represents the best approximation (with a 0.400 probability) of the true state of nature of the bottomfish fishery and Deep 7 bottomfish population dynamics. Under the Catch 2/CPUE 1 scenario combination, the long-term maximum sustainable yield (MSY) of the MHI Deep 7 bottomfish stock complex is estimated to be 417,000 lb. The assessment model also estimates that the commercial catch associated with a 50 percent probability of overfishing the MHI Deep 7 bottomfish complex in fishing year 2011-12 and again in fishing year 2012-13 is 383,000 lb. Therefore, while the long-term MSY for the Deep 7 bottomfish fishery is 417,000 lb, the overfishing limit (OFL) for the 2011-12 and 2012-13 fishing years is estimated to be 383,000 lb.

The 2010 MHI Deep 7 bottomfish stock assessment does not include an evaluation of stock status or the risk of overfishing for any of the remaining BMUS in the MHI (hereinafter, the MHI non-Deep 7 bottomfish)[6]. Therefore, biological reference points, including estimates of MSY and OFL for the MHI non-Deep 7 bottomfish are unknown. However, the stock assessment projection results for the MHI Deep 7 bottomfish stock complex (Appendix 1) can be used to develop an OFL proxy for the MHI non-Deep 7 bottomfish stock complex, and a range of commercial non-Deep 7 bottomfish catches that would produce probabilities of overfishing ranging from zero percent to 100 percent in fishing year 2012. This approach relies on the assumption that population dynamics, catchability and other parameters of the non-Deep7 bottomfish are similar in relative scale to the Deep 7 bottomfish (Brodziak, pers. com. March 31, 2011). In general, MHI non-Deep 7 bottomfish are coral reef associated species and are more productive compared to MHI Deep 7 bottomfish. However, non-Deep 7 bottomfish are also harvested by a greater range of gear methods, which results in levels, and rates of exploitation that have not been assessed quantitatively or qualitatively in any previous stock assessment.

While a separate stock assessment for MHI non-Deep 7 bottomfish is the preferred approach, until one is produced, estimating a proxy for OFL and probabilities of overfishing for this stock complex based on projection results of the Catch 2/CPUE 1 scenario combination for MHI Deep 7 bottomfish is an appropriate approach given the fact that only catch data is available for the non-Deep 7 stock complex. Additionally, this catch data indicates that reported commercial catches of MHI Deep 7 bottomfish in proportion to the total reported commercial catches of all MHI bottomfish (Deep 7 + non-Deep 7) are relatively stable over time as reported in Tables 5 (Estimates of total Deep 7 catches) and Table 6 (Estimates of total bottomfish catches) contained in Brodziak et al. (in prep). Therefore, reported commercial catches of MHI non-Deep 7 bottomfish in proportion to total reported commercial catches of all MHI bottomfish are also stable over time.

Table 7 summarizes the average proportion of the reported commercial catches (C) of MHI Deep 7 bottomfish relative to the total reported commercial catches of all MHI bottomfish for three time periods: (1) 1949-2010; (2) 2000-2009; and 2008-2010 as presented in Tables 5 and 6 in Brodziak et al. (in prep). The proportion of MHI Deep 7 catch (P_{DEEP7}) to the total MHI bottomfish catch is also provided and is calculated using the following equation:

$$P_{DEEP7(t)} = C_{DEEP7(t)} / C_{\text{Total BMUS}(t)}$$

These three time periods were chosen because they reflect the nature of the Hawaii bottomfish fishery over (1) the entire available catch history; (2) the recent decade; and (3) the last three years when the fishery operated under a catch limit system. The results summarized in Table 7 clearly demonstrates that the proportion of Deep 7 to the total reported commercial catches of all MHI bottomfish (Deep 7 + non-Deep 7) has been relatively stable over time with ranges from 0.666 percent to 0.72 percent of the total bottomfish catch.

[6] MHI non-Deep 7 bottomfish include uku *(Aprion virescens)*, white ulua *(Caranx ignoblis)*, black ulua *(Caranx lugubris)*, taape *(Lutjanus kasmira)*, yellowtail kalekale *(Pristipomoides auricilla)*, butaguchi (*Pseudocaranx dentex)* and kahala (*Seriola dumerili).*

Table 7. Proportion of reported commercial catches of MHI Deep 7 and total reported commercial MHI bottomfish catch over time under Catch 2/CPUE 1 scenario

	t = 1949-2010	t =2000-2009	t =2008-2010
Catch of Deep 7 bottomfish[1]	281.3	234.3	221.5
Catch of Total BMUS[2]	422.1	325.3	330.7
Proportion of Deep 7 (P_{DEEP7})	0.666	0.720	0.700

[1] Source: Table 5 in Brodziak et al., (in press)
[2] Source: Table 6 in Brodziak et al., (in press)

Because two Hawaii BMUS, taape *(Lutjanus kasmira)* and kahala (*Seriola dumerili),* are specifically excluded from the NMFS Hawaii bottomfish stock assessment parameters, their catch information is not included in the total bottomfish estimates used in Table 6 of Brodziak et al. (in prep).

To estimate an OFL proxy for the MHI non-Deep 7 bottomfish stock complex and a range of commercial non-Deep 7 bottomfish catches that would produce probabilities of overfishing ranging from zero percent to 100 percent in fishing year 2012, the commercial catch values for MHI Deep 7 bottomfish associated with Catch 2/ CPUE Scenario 1 as presented in Table 17.1 of Brodziak et al., (in press) and shown in Appendix 1 can be divided by the P_{DEEP7} values in Table 7 above. The results of this calculation will derive the total commercial catch equivalent of all MHI bottomfish (Deep 7 + non-Deep 7) and the corresponding probabilities of overfishing all MHI bottomfish in 2012. To derive the level of catch that would produce the corresponding probability of overfishing for MHI non-Deep 7 bottomfish (excluding taape and kahala), the level of catch for MHI Deep 7 bottomfish is simply subtracted from the level of catch for all MHI bottomfish.

Table 8 summarizes the results of this calculation for the time period 1949-2010. This time period is identical to the time period used to produce projection results for the Deep 7 stock complex and is the baseline to which impact analyses will be compared.

Table 8. Commercial catch (1000 pounds) of MHI Deep 7 BMUS, MHI non-Deep 7 BMUS and all MHI BMUS combined that would produce probabilities of overfishing in 2012 from 0 through 99% based on 1949-2010 catch data (P_{DEEP7} = 0.666)

Probability of Overfishing[1]	Catch of MHI Deep 7 BMUS[1]	Catch of All MHI BMUS *(Deep 7 + non-Deep 7)*[2]	Catch of MHI non-Deep 7 BMUS[2]
0	11	17	6
5	147	221	74
10	197	296	99
15	229	344	115
20	255	386	131
25	277	415	138
30	299	449	150
35	319	479	160
40	341	512	171

Probability of Overfishing[1]	Catch of MHI Deep 7 BMUS[1]	Catch of All MHI BMUS *(Deep 7 + non-Deep 7)*[2]	Catch of MHI non-Deep 7 BMUS[2]
45	361	542	181
50	383	575	192
55	407	611	204
60	429	644	215
65	455	683	228
70	481	722	241
75	513	779	266
80	549	824	275
85	597	896	299
90	665	998	333
95	783	1176	393
99	1001	1503	502

[1] Source: Table 17.1 in Brodziak et al., (in press)
[2] Excludes Hawaii BMUS taape *(Lutjanus kasmira)* and kahala (*Seriola dumerili)*

Based on Table 8 above, the catch limit associated with a 50 percent probability of overfishing the MHI Deep 7 bottomfish complex in fishing year 2011-12 and again in fishing year 2012-13 is 383,000 lb. The catch limit associated with a 50 percent probability of overfishing the MHI non-Deep 7 bottomfish complex in fishing year 2012 and again in 2013 is 192,000 lb and is the OFL proxy.

SSC's Calculation of ABC

At its 108th meeting held October 17-19, 2011, the SSC considered the use of the 2010 MHI Deep 7 bottomfish stock assessment to establish by analogy, a range of commercial non-Deep 7 bottomfish catches that would produce probabilities of overfishing fishing year 2012 for the three time periods (1949-2010). In addition to the catch projections for the time period 1949-2010, the SSC also considered catch projections for the time periods 2000-2009 and the time period 2008-2010 as shown in Table 9 and Table 10, respectively.

Table 9. Commercial catch (1000 pounds) of MHI Deep 7 BMUS, MHI non-Deep 7 BMUS and all MHI BMUS combined that would produce probabilities of overfishing in 2012 from 0 through 99% based on 2000-2010 catch data (P_{DEEP7} = 0.72)

Probability of Overfishing[1]	Catch of MHI Deep 7 BMUS[1]	Catch of All MHI BMUS *(Deep 7 + non-Deep 7)*[2]	Catch of MHI non-Deep 7 BMUS[2]
0	11	15	4
5	147	204	57
10	197	274	77
15	229	318	89
20	255	354	99
25	277	385	108
30	299	415	116
35	319	443	124
40	341	474	133

Probability of Overfishing[1]	Catch of MHI Deep 7 BMUS[1]	Catch of All MHI BMUS *(Deep 7 + non-Deep 7)*[2]	Catch of MHI non-Deep 7 BMUS[2]
45	361	501	140
50	383	532	149
55	407	565	158
60	429	596	167
65	455	632	177
70	481	668	187
75	513	713	200
80	549	763	214
85	597	829	232
90	665	924	259
95	783	1088	305
99	1001	1390	389

[1] Source: Table 17.1 in Brodziak et al., (in press)
[2] Excludes Hawaii BMUS taape *(Lutjanus kasmira)* and kahala (*Seriola dumerili)*

Table 10. Commercial catch (1000 pounds) of MHI Deep 7 BMUS, MHI non-Deep 7 BMUS and all MHI BMUS combined that would produce probabilities of overfishing in 2012 from 0 through 99% based on 2008-2010 catch data (PDEEP7 = 0.700)

Probability of Overfishing[1]	Catch of MHI Deep 7 BMUS[1]	Catch of All MHI BMUS *(Deep 7 + non-Deep 7)*	Catch of MHI non-Deep 7 BMUS
0	11	16	5
5	147	210	63
10	197	281	84
15	229	327	98
20	255	364	109
25	277	396	119
30	299	427	128
35	319	456	137
40	341	487	146
45	361	515	154
50	383	547	164
55	407	581	174
60	429	613	184
65	455	650	195
70	481	687	206
75	513	733	220
80	549	784	235
85	597	853	256
90	665	950	285
95	783	1119	336
99	1001	1430	429

Based on Tables 9 and 10 above, the catch limit associated with a 50 percent probability of overfishing MHI non-Deep 7 bottomfish complex in fishing year 2012 and again in 2013 is 149,000 lb for the time period 2000-2009, and 164,000 lb for the time period 2008-2010.

However, because this approach is based on analogy, and MSY-based reference points for non-Deep 7 bottomfish have not been derived from statistically-based stock assessment models, the SSC also considered setting ABC in accordance with the Tier 5 ABC control rule as described in the Hawaii FEP. The Tier 5 ABC control rule directs the SSC to multiply the average catch from a time period where there is no quantitative or qualitative evidence of declining abundance ("Recent Catch") by a factor based on a qualitative estimate of relative stock size or biomass (B) in the year of management. When it is not possible to analytically determine B relative to the biomass necessary to produce the maximum sustainable yield (MSY) from the fishery (B_{MSY}), the process allows for an approach based on informed judgment, including expert opinion and consensus-building methods. Table 11 provides a summary of the Council's default ABC control rule for data poor stocks.

Table 11. Tier 5 ABC Control Rule (Data poor, Ad hoc Approach to Setting ABCs)

If estimate of B is above B_{MSY}	ABC = 1.00 x Recent Catch
If estimate of B is above minimum stock size threshold (MSST), but below B_{MSY}	ABC = 0.67 x Recent Catch
If estimate of B is below MSST (i.e. overfished)	ABC = 0.33 x Recent Catch

In defining "Recent Catch" to apply in the ABC control rule, the SSC considered two approaches: (1) average catch over the past five years (2006-2010) as shown in Table 12; and (2) catch corresponding with the 75th percentile of the available time series shown in Table 13.

<u>Approach 1: Average Recent Catch</u>
Table 12 provides a time series of reported commercial catch of each species of the non-Deep 7 species from the MHI between the years 1966-2010. Prior to 1982, the commercial data collection program did not distinguish various species of Carangids (jacks) such as butaguchi, (*Pseudocaranx dentex)*, black ulua *(Caranx lugubris)*, and white ulua *(Caranx ignoblis)*; therefore catches for these species prior to 1982 are zero. Catches of yellowtail kalekale *(Pristipomoides auricilla)* are insignificant and have not exceeded 50 lb. Based on this approach, the total average catch of all MHI non-Deep 7 combined for the last five years (2006-2010) was 104,984 lb.

Table 12. Reported commercial catch of MHI non-Deep 7 (1966-2010)

Fishing Year	Uku	Butaguchi	Black ulua	White ulua	Yellowtail kalekale	Total (lb)
1966	57,833	0	0	0	0	57,833
1967	58,540	0	0	0	0	58,540
1968	49,664	0	0	0	0	49,664
1969	57,526	0	0	0	0	57,526
1970	47,405	0	0	0	0	47,405

Fishing Year	Uku	Butaguchi	Black ulua	White ulua	Yellowtail kalekale	Total (lb)
1971	48,697	0	0	0	0	48,697
1972	48,064	0	0	0	0	48,064
1973	66,857	0	0	0	0	66,857
1974	77,918	0	0	0	0	77,918
1975	61,722	0	0	0	0	61,722
1976	62,115	0	0	0	0	62,115
1977	67,951	0	0	0	0	67,951
1978	83,702	0	0	0	0	83,702
1979	87,031	0	0	0	0	87,031
1980	74,651	0	0	0	0	74,651
1981	84,859	0	0	481	0	85,340
1982	100,860	2,175	0	5,694	0	108,730
1983	131,631	1,255	0	13,673	0	146,559
1984	138,276	2,921	117	20,553	0	161,867
1985	49,251	4,034	902	9,868	0	64,055
1986	104,019	19,414	363	14,774	0	138,570
1987	56,725	1,698	61	7,458	0	65,942
1988	343,177	6,026	354	22,643	0	372,201
1989	207,734	10,454	503	19,744	0	238,434
1990	97,235	6,840	62	13,375	0	117,512
1991	90,266	7,895	24	6,806	0	104,991
1992	88,389	2,229	93	7,075	0	97,786
1993	69,948	3,760	68	2,891	0	76,667
1994	71,802	4,678	169	2,691	0	79,340
1995	62,456	6,264	186	3,214	0	72,121
1996	53,237	3,260	52	6,210	0	62,759
1997	67,957	5,923	192	2,203	0	76,276
1998	61,088	1,943	315	3,715	0	67,061
1999	90,968	1,946	12	2,976	0	95,901
2000	83,318	2,947	73	4,044	0	90,382
2001	58,436	1,814	122	4,199	5	64,576
2002	57,155	1,659	421	4,183	1	63,420
2003	45,704	1,635	1,180	12,873	0	61,391
2004	76,815	1,394	1,034	14,112	43	93,399
2005	63,505	1,493	453	11,213	25	76,688
2006	59,569	298	267	9,076	32	69,241
2007	68,953	880	773	26,722	0	97,328
2008	92,872	1,193	405	15,856	6	110,331
2009	87,175	1,083	549	13,794	35	102,636

Fishing Year	Uku	Butaguchi	Black ulua	White ulua	Yellowtail kalekale	Total (lb)
2010	123,250	772	3,348	17,986	27	145,383
Ave. 2006-2010	**86,364**	**845**	**1069**	**16,687**	**20**	**104,984**

Source: NMFS WPacFIN unpublished data

Figures 5-9 illustrate the reported commercial catches of uku (*Aprion virescens*) and all non-Deep 7 bottomfish, butaguchi, (*Pseudocaranx dentex)*, black ulua *(Caranx lugubris)*, and white ulua *(Caranx ignoblis)* over the available time series. Figure 5 clearly illustrates uku is the primary stock harvested in the fishery.

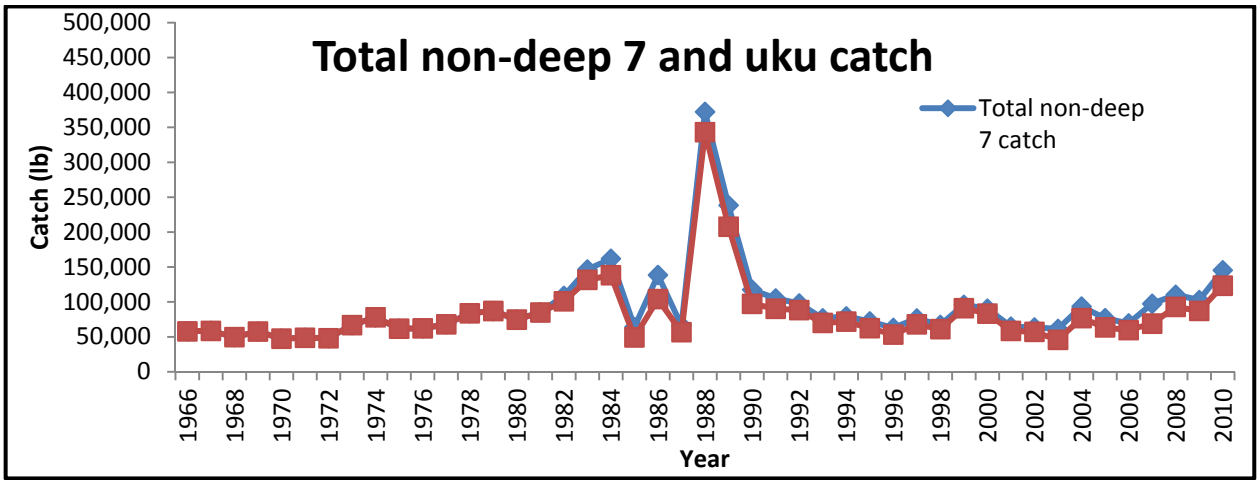

Figure 5. Reported catches of all MHI non-Deep7 bottomfish and uku (1966-2010)

(Source: WPFMC 2011)

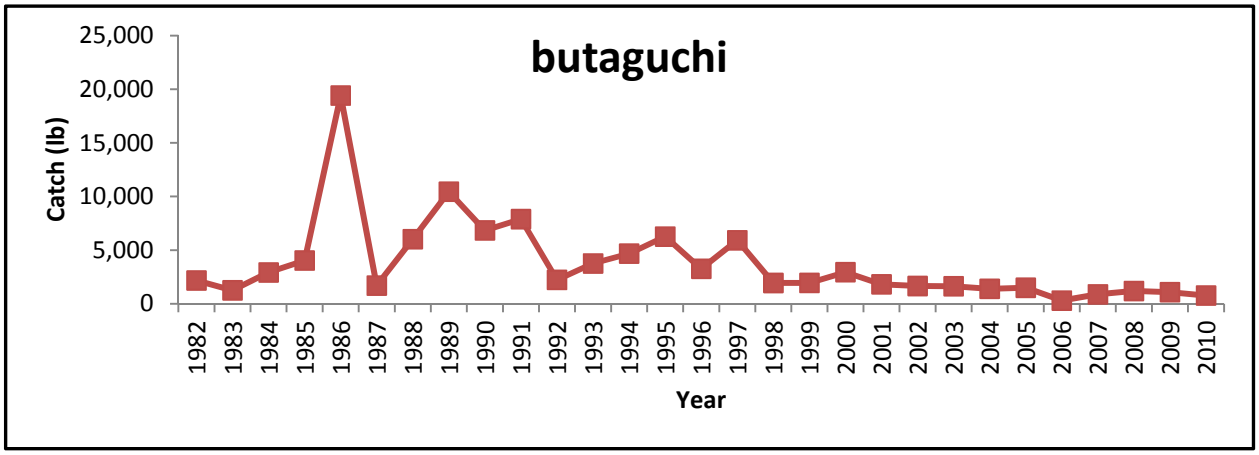

Figure 6. Reported catches of butaguchi in the MHI between 1982-2010

(Source: WPFMC 2011)

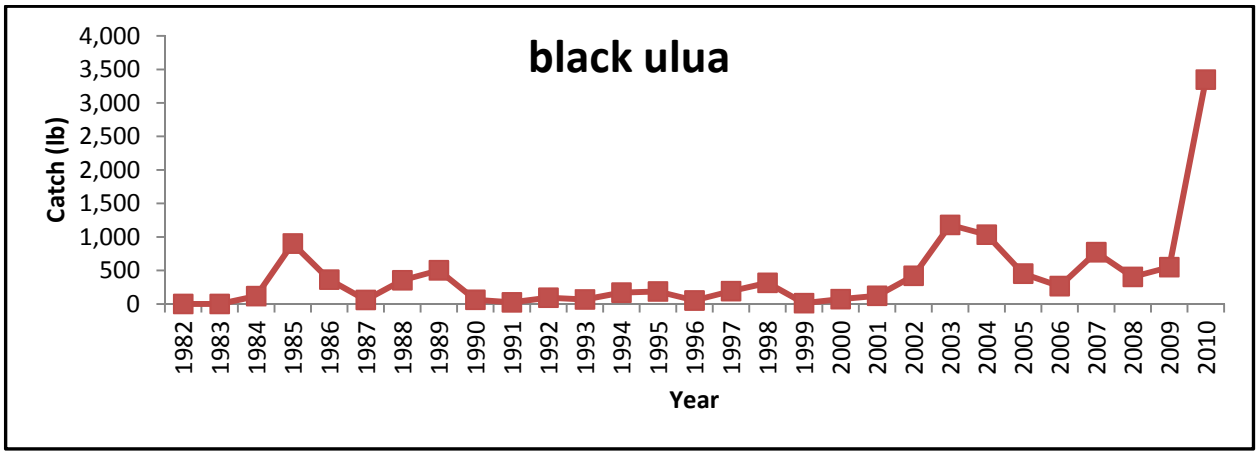

Figure 7. Reported catches of black ulua (1982-2010)

(Source: WPFMC 2011)

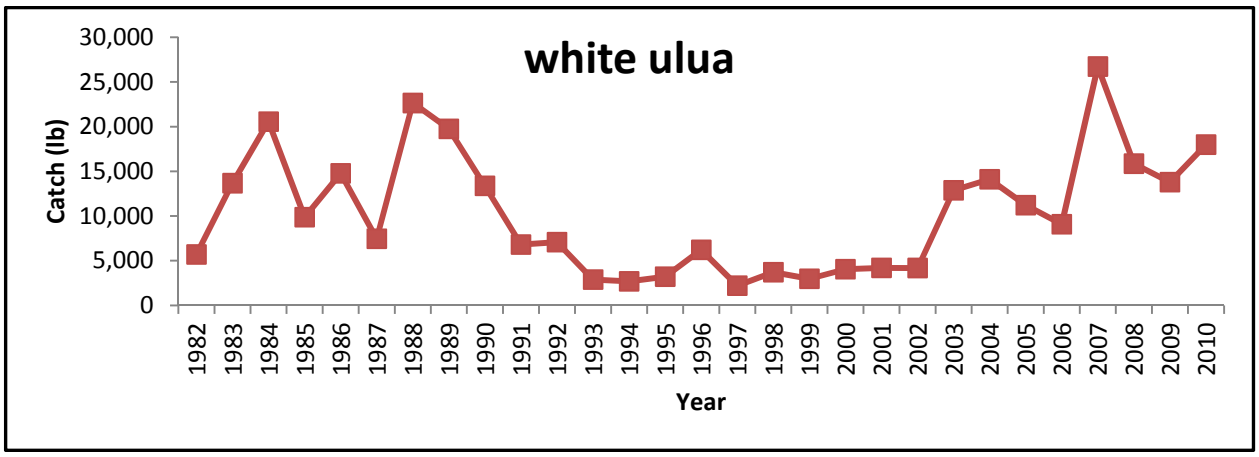

Figure 8. Main Hawaiian Islands catches of white ulua (1982-2010)

(Source: WPFMC 2011)

<u>Approach 2: 75th Percentile Approach</u>

Table 13 provides the 75th percentile of the catch for each species individually and for the MHI non-Deep 7 stock complex as a whole based on data from 1966-2010. The 75th percentile is the value of an array (in this case the level of catch in terms of pounds) below which 75% of the observations may be found. The SSC noted that the 75th percentile is a non-parametric approach, that is, a distribution free method and does not rely on assumptions that the data are drawn from a given probability distribution. The SSC also noted that non-parametric measures are a better way to summarize data with considerable inter-annual variability as opposed to averaging (Chambers et al., 1983; Cleveland 1993).

As noted previously, prior to 1982, the commercial data collection program did not distinguish various species of Carangids (jacks) such as butaguchi, black ulua, and white ulua; therefore catches for these species from which the 75th percentile was derived included data from 1982-2010 only.

Table 13. 75th Percentiles for the non-Deep7 bottomfish catch from 1966 to 2010

Species	75th Percentile catch (lb)
Uku	88,389
Butaguchi	4,677
Black ulua	477
White ulua	14,032
Yellowtail Kali[1]	30
Total non-Deep 7 catch	107,608

[1] The 75th percentile for yellowtail kalekale was estimated for the catch between 2001 and 2010

Upon reviewing the five approaches presented at the 108th meeting, the SSC stated that it had no basis for choosing one approach over another. Hence, the SSC recommended taking an average of the following three ABC estimates: 1) ABC associated with the 50% probability of overfishing (OFL proxy) of entire catch time series (1949-2010) using the analogy method; 2) ABC from 1*mean of recent catch (2006-2010); and (3) ABC from the 1*75th percentile of the catch (1966-2010).

The SSC noted the ABCs could be derived using three different approaches and gave equal weight to each of the three methods. The SSC also determined it applicable to "model average" the estimates to derive an overall estimate that explicitly takes into account the uncertainty associated with the three estimates. This approach is known as multi-model inference (Burnham and Anderson 2002). Applying the multi-model inference approach, the SSC recommended ABC for MHI non-Deep 7 bottomfish be set at 135,000 lb (Table 14). Based on baseline projection results for the Deep 7 stock complex shown in Table 8, the ABC for non-Deep 7 bottomfish is associated with a 20-25% probability of overfishing.

Table 14. Results of SSC multi-model inference approach for MHI non-Deep 7 Bottomfish

Method	Associated Catch (lb)
1. 50% probability of overfishing (1949-2010)	192,000
2. Average Catch (2006-2010)	104,984
3. 75th percentile of catch (1966-2010)	107,608
Average	**134,864 lb**

Council ACL and AM Recommendations

At its 152nd meeting held October 17-19, 2011, the Council recommended setting ACL equal to ABC of 135,000 lb for the MHI non-Deep 7 bottomfish stock complex. The Council noted that this would provide a 57,000 lb buffer between the ACL and the OFL proxy of 192,000 lb shown in Table 14.

For the purpose of ACL specifications for Hawaii non-Deep 7 bottomfish, taape *(Lutjanus kasmira)* and kahala (*Seriola dumerili)* are not included as they were specifically excluded from the NMFS Hawaii bottomfish stock assessment parameters. Instead, ACLs for these species are being considered under the ACL specification for Coral Reef Ecosystem (CRE) MUS currently in development. Specifically, catches of taape would be included in the CRE ACL specification

for the family Lutjanidae (coral reef-associated snappers) while catches of kahala would be included in the CRE ACL specification for the family Carangidae (coral reef-associated jacks).

2.2 ACL Alternatives for Bottomfish MUS in 2012 and 2013

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, CNMI and Hawaii. 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.

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 in effort (76 FR 37286, June 27, 2011). However, in-season restrictions are not possible for any fishery at this time because, catch statistics are generally not available until at least six months after the data has been collected (see Section 2.3 for more details on data collection). For this reason, under all alternative considered, as an AM, the Council would determine as soon as possible after the fishing year whether an ACL for any stock or stock complex had been exceeded. If landings of a stock or stock complex exceed the specified ACL in a fishing year, the Council would take action in accordance with 50 CFR 600.310(g) to correct the operational issue that caused the ACL overage. NMFS would implement the Council's recommended action, which could include a downward adjustment to the ACL for that stock complex in the subsequent fishing year, or other measures, as appropriate. Additionally, as a performance measure specified in each FEP, if an 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. Each alternative also assumes continuation of all existing federal and local resource management laws and regulations.

2.2.1 Alternative 1: No Action (Status Quo)

Under this alternative, NMFS would not specify an ACL for any BMUS in any island area and AMs that provide review and corrections after an ACL is exceeded would not be necessary. However, this alternative would not be in compliance with the Magnuson-Stevens Act or the provisions of the FEPs which require ACLs be specified for all stocks and stock complexes. Alternative 1 serves as the baseline for the environmental impact assessment.

2.2.2 Alternative 2: Specify ACLs equal to the SSC recommended ABC (Preferred)

Under this alternative, the ACL for BMUS in American Samoa, Guam and CNMI, and the ACL for the MHI non-Deep 7 bottomfish would be set equal to the ACL recommended by the Council, which is equal to the ABC recommended by its SSC. Table 15 lists the Council recommended ACLs for BMUS in American Samoa, Guam and CNMI relative to ABC, the MSY estimates provided by Moffitt et al. (2007) and the associated probability of exceeding MSY as shown in Tables 1, 3, and 5, respectively. Additionally, Table 15 also lists the

recommended ABC and ACL values for the MHI non-Deep 7 bottomfish (excluding kahala and taape) relative to the OFL proxy derived from projection results using the 1949-2010 catch data (P_{DEEP7} = 0.666) as shown in Table 8.

Table 15. SSC and Council recommended ABCs and ACLs relative to MSY for American Samoa, Guam and CNMI BMUS and OFL proxy for MHI non-Deep 7 bottomfish

BMUS	MSY/OFL proxy (lb)	SSC Recommended ABC	Council Recommended ACL	Probability of Exceeding MSY/ OFL proxy	Average Recent Catch (2006-2009)
American Samoa BMUS	109,000	99,200	99,200	25-30%	**19,326**
Guam BMUS	53,000	48,200	48,200	15-20%	**35,081**
CNMI BMUS	200,500	182,500	182,500	15-20%	**17,419**
MHI non-Deep 7 BMUS	192,000[1]	135,000	135,000	20-25%	**104,984[2]**

[1] Indicates the OFL proxy (e.g., the catch associated with a 50% probability of overfishing)
[2]Average recent catch for MHI non-Deep 7 bottomfish includes data from 2006-2010)

2.2.3 Alternative 3: Specify ACLs below the SSC's recommended ABC

Under this alternative, the ACL for BMUS in American Samoa, Guam and the CNMI would be set at the lower bound of the MSY value estimated in Moffitt et al. (2007) which is lower than the SSC recommended ABC. Specifically for American Samoa BMUS, the point estimate of MSY is 109,000 ±29,700 lb. Therefore, the lower bound of the MSY estimate is 79,300 lb. For Guam BMUS, the point estimate of MSY is 53,000 ± 9,500 lb resulting in a lower bound MSY of 43,500 lb. For CNMI BMUS, the point estimate of MSY is 200,500 ±40,500 lb resulting in a lower bound MSY of 160,000 lb. These ACLs are associated with less than a 2% probability of exceeding MSY as shown in Tables 1, 3, and 5, respectively. Additionally, under this alternative, the ACL for MHI non-Deep 7 bottomfish would be set at the value associated with the 75th percentile of the total catch based on data from 1966-2010 which is 107,608 lb as listed in Table 13. As shown in Table 8, a catch of 107,608 lb of non-Deep 7 bottomfish is associated with a probability of overfishing between 10-15%.

2.3 Alternatives Not Considered in Detail

2.3.1 Specification of ACLs for PRIA BMUS

Although required by the PRIA FEP, ACLs will not be specified for any BMUS in the PRIA because commercial fishing is prohibited out to 50 nautical miles by Presidential Proclamation 8336 which established the Pacific Remote Island Marine National Monument (74 FR 1565,

January 12, 2009), and there is no bottomfish habitat beyond the monument boundaries. ACLs for non-commercial bottomfish fisheries within the boundaries of the PRIA monument may be developed in the future through a separate action in accordance with Proclamation 8336, if the Secretary of Commerce determines non-commercial fishing can be allowed, and managed as a sustainable activity. Therefore, until such determination is made, the existing prohibition is a functional equivalent of an ACL of zero for BMUS in the PRIA.

2.3.2 Specification of ACLs for Seamount Groundfish at Hancock Seamount

ACLs will also not be specified for the three Hawaii seamount groundfish MUS, pelagic armorhead (*Pseudopentaceros wheeleri*), alfonsin (*Beryx splendens*), and raftfish (*Hyperoglyphe japonica*). Within the U.S. EEZ, these MUS are found exclusively at the Hancock Seamounts, which is located at the northwestern edge Northwestern Hawaiian Islands. Although no domestic fishery has ever targeted these stocks, prior to the passage of the Fishery Conservation and Management Act of 1976 (now called the Magnuson-Stevens Act), foreign vessels harvested and depleted the pelagic armorhead stock throughout its range, which includes the Emperor Seamount Chain and the Hawaiian Ridge Seamount Chain (within which the Hancock Seamounts are found).

To aid in recovery of pelagic armorhead, NMFS established four consecutive 6-year fishing moratoria for the three seamount groundfish at the Hancock Seamounts starting in 1986. In 1997, NMFS officially declared pelagic armorhead to be overfished. In 2010, NMFS implemented a permanent fishing prohibition on all three seamount groundfish MUS at the Hancock Seamounts until the pelagic armorhead stock is rebuilt. Alfonsin and raftfish were included in the prohibition because armorhead may be caught while fishing for these species. Since fishing for seamount groundfish at Hancock Seamounts has been prohibited for the last 25 years, and because fishing will remain prohibited until NMFS determines armorhead is rebuilt, the moratorium is a functional equivalent of an ACL of zero for all three Hawaii seamount groundfish MUS.

2.3.3 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 be achieved in any western Pacific bottomfish fishery. Therefore, in-season AMs to prevent an ACL from being exceeded (e.g., fishery closures in federal waters) are not possible at this time.

While federal permit and reporting requirements have recently been implemented for the commercial bottomfish fishery in CNMI, and non-commercial bottomfish fishery in Hawaii, federally permitted bottomfish vessels comprise only a small percentage of the total estimated vessels participating in bottomfish fisheries of the western Pacific. Specifically, of the 150 estimated vessels participating in the CNMI bottomfish fishery, only 10 are commercial fishing

vessels that are required to be federally permitted. In Guam, only 5 of the estimated 250+ vessels are large vessels (greater than 50 ft) and require federal permits. Similarly, of the 200 non-commercial vessels participating in the MHI bottomfish fishery, only 22 are federally permitted indicating that the majority of non-commercial fishers may only operate in local territorial or State waters (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). Therefore, 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 has been collected. While the State of Hawaii has the capability to monitor and track the catch of seven preferentially-targeted bottomfish species (i.e. Deep 7 bottomfish) in near real time towards their specified catch limits, additional resources would be required to extend these capabilities to non-Deep 7 bottomfish. Significant 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, only AMs that consist of non-in-season management measures are being recommended at this time.

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

This section describes the affected fishery and fishery resources, other biological and physical resources, and potential 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, the Mariana Archipelago (Guam and CNMI) and the Hawaii Archipelago are included in the proposed action to specify ACLs and AMs. In American Samoa, Guam, and CNMI, bottomfish fisheries generally target 17 bottomfish management unit species (BMUS) which comprise both shallow and deepwater bottomfish species listed in Table 16. In Hawaii, the bottomfish fishery harvests an assemblage, or complex, of 14 species that include nine snappers, four jacks (trevally) and a single species of grouper. The target species of the MHI bottomfish fishery and the species of primary management concern are six deep-water snappers and the grouper. Termed the "Deep 7 bottomfish," NMFS recently specified ACLs for these seven species (76 FR 54715, September 2, 2011) so they will not be included in this action. Only non-Deep 7 bottomfish will be included in this action.

Bottomfish gear and fishing strategies are highly selective for desired species and sizes. 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. Bottomfishers 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 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. The use of 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, except in Hawaii where approximately half of available bottomfish habitat is found in the U.S. EEZ 3-200 nm offshore.

Overview of fishery data collection systems in American Samoa, Guam and CNMI

In American Samoa, 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 and fishing method (Impact Assessment, 2008). The shore-based creel surveys cover fishing by persons engaged in commercial, recreational, 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 fishery data collection systems in Hawaii
In Hawaii, the majority of bottomfish fisheries information is collected from the commercial fishing sector through a mandatory license and monthly reporting system administered by the State of Hawaii. Under state law, anyone who takes marine life for commercial purposes is required to obtain a commercial marine license (CML) and submit a catch report (popularly known as a "C3" form) on a monthly basis. Required information collected includes day fished, area fished, fishing method used, hours fished per method, and species caught (number/pounds caught and released).

In 2008, NMFS established federal permit and reporting requirements for non-commercial fishing in federal waters around the MHI (73 FR 18451, April 4, 2008). Vessel operators are required to submit catch information to NMFS within 72 hours after landing. Currently, 22 vessels in Hawaii hold valid federal non-commercial bottomfishing permits.

Recreational catch information for some bottomfish fisheries are also opportunistically collected through the Hawaii Marine Recreational Fishing Survey (HMRFS) and annual catch amounts are reported through NMFS Marine Fisheries Statistics Survey (MRFSS) at http://www.st.nmfs.noaa.gov/st1/index.html. However, a 2006 review of MRFSS by the National Resource Council (NRC) noted that the catch estimation method was not correctly

matched with the catch sampling survey design, leading to potential bias in the estimates. Based on this finding, the Council in 2006 recommended that that MRFSS catch estimates should not be used as a basis for management or allocation decisions. In 2008, NMFS established the National Saltwater Angler Registry Program as part of the Marine Recreational Information Program to improve recreational fisheries information (73 FR 79705, December 30, 2008).

Except for HMRFS data, NMFS WPacFIN obtains all bottomfish fisheries information in the western Pacific in accordance with cooperative agreements with the state and territorial fisheries agencies in American Samoa, CNMI, Guam, and Hawaii and provides access to this data on their website http://www.pifsc.noaa.gov/wpacfin. Generally, with the exception of the Deep 7 bottomfish MUS that are more comprehensively tracked, complete data for BF catches during a calendar year are not available until at least 6 months after the year has ended.

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). In Hawaii, federal permits and reporting is required for all non-commercial bottomfishing vessels. All permitted vessel operators are required to submit catch information to NMFS within 72 hours after landing. Currently, 5 vessels in Guam and 10 vessels in CNMI hold valid federal bottomfishing permits while 22 vessels hold non-commercial bottomfish permits in Hawaii. No federal permit or reporting is required in American Samoa.

Overview of the proposed ACL management system

If the proposed ACL specifications were 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. 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, Affected 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 Fishery Ecosystem Plan 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 territorial government. 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. Annual reports on the fisheries are produced by the Western Pacific Regional Fishery Management Council.

Overview of American Samoa's Bottomfish Fishery

The American Samoa bottomfish fishery is primarily a commercial fishery; recreational and subsistence bottomfishing are rare (WPFMC 2011). The bottomfish fishing fleet 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. In recent years, a growing number of fishermen have been acquiring larger (> 35 ft) vessels with capacity for chilling or freezing fish and a much greater fishing range. However, 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. The tsunami damaged or destroyed 17 bottomfish fishing vessels. The number of vessels actively engaged in bottomfish fishing is now estimated to be less than 30.

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. Monitoring of commercial sales data is provided to DMWR by fish dealers through the mandatory commercial purchase system. Currently, DMWR 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 2 provides the estimated commercial landings of BMUS in American Samoa between 2000 and 2009. BMUS commercial landings in American Samoa have ranged between 4,645 lb and 34,375 lb in the years 2000 to 2009. Recent annual commercial landings (2006-2009) were estimated to be 19,326 lb. In 2009, the commercial price per pound for BMUS in American Samoa ranged from $2.49 for gindai (*Pristipomoides zonatus*) to $2.83

for silvermouth snapper (*Aphareus rutilans*) with average price per pound for all BMUS combined at $2.64 (WPacFIN website: http://www.pifsc.noaa.gov/wpacfin/as/Pages/as_data_8.php, accessed October 31, 2011).

Based on 2009 commercial landing estimate of 34,375 lb and the average price of all BMUS at $2.64 per pound, the annual commercial value of the bottomfish fishery in 2009 was $90,750. Assuming participation and effort was equal throughout the fleet in 2009, and assuming that all 30 commercial vessels were operating in 2009, each of the vessels would have caught approximately 1,146 lb of bottomfish valued at $3,025.

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

Alternative 1: No Action (Status Quo)
Under the no-action alternative, which is the baseline alternative, American Samoa bottomfish fishery would not be managed using annual catch limits, accountability measures would not be needed, and fishing would continue to be monitored by American Samoa Department of Marine and Wildlife Resources (DMWR), NMFS and the Council with fisheries statistics becoming available approximately six months or longer after the data have been initially collected. The status of BMUS would continue to be subject to ongoing discussion and review, but without active management in place for a quota.

Alternative 2: Specify ACLs equal to the SSC recommended ABC (Preferred)
Under Alternative 2, fishing for American Samoa BMUS would be subject to an ACL of 99,200 lb for the 2012 as well as the 2013 fishing years. Between 2000 and 2009, the highest estimated commercial landings level for BMUS in American Samoa was 34,373 lb in 2009; the proposed ACL specification exceeds this by almost threefold. Since 2012 and 2013 bottomfish ACL specifications for American Samoa are much higher than recent commercial landings, harvests are not expected to exceed the ACL, and the ACL are not expected to result in a race to the fish over each of the next two years. As there is no in-season closure ability to prevent the ACL from being exceeded, the proposed ACL is not expected to result in a change to the conduct of the fishery including gear types, areas fished, effort, or participation.

The AM for 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. 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.

Alternative 3: Set ACL below the SSC recommended ABC
Under Alternative 3, fishing for American Samoa BMUS would be subject to an ACL of 79,300 lb for the 2012 as well as the 2013 fishing years. Since 2012 and 2013 bottomfish ACL specifications under Alternative 3 for American Samoa are much higher than recent commercial

landings, harvests are not expected to exceed the ACL. Impacts to fisheries are generally the same as those described in Alternative 2, except that the probability of exceeding ACL is slightly higher under Alternative 3.

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

In American Samoa, Guam and CNMI, bottomfish fisheries generally target 17 bottomfish management unit species (BMUS) which comprise both shallow and deepwater bottomfish species (Table 16).

Table 16. 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 (Moffitt et al., 2007) conducted by NMFS Pacific Islands Fisheries Science Center (PIFSC) using data through 2005. Key points from the discussion in Section 2.1.1 is that PIFSC estimated MSY to be 109,000 ± 29,700 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 2005. Between 2006 and 2009, harvest of American Samoa BMUS averaged 19,326 lb or 18% of the MSY. Therefore, it is highly likely that American Samoa bottomfish stocks are very healthy.

While the boat-based and shore-based creel survey programs administered by DMWR provide for the collection of bycatch information, no such information is 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 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 American Samoa DMWR have brought forward any concerns about bycatch in the fishery and 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, an ACL would not be specified for the American Samoa bottomfish fishery and AMs would not be necessary. 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 DMWR. The current level of catch under this alternative is expected to continue as it currently has in recent years with average catch estimated to be 19,326 lb for the period 2006-2009. This level of catch is approximately 18% of MSY (109,000 lb) and is sustainable. Monitoring of catch would be conducted annually and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 2: Specify ACLs equal to the SSC recommended ABC (Preferred)
Under this alternative, ACL would be set to 99,200 lb in fishing year 2012 and 2013. Based on probabilities of exceeding MSY calculated by NMFS PIFSC scientists shown in Table 1, this ACL would have less than a 30 percent probability of exceeding MSY in 2012. Additionally, catch in 2012 would need to increase nearly three times the 2009 catch of 34,375 lb in order to attain the ACL of 99,200 lb. This is highly unlikely given past fishery performance in the last decade has never exceeded 35,000 lb.

Alternative 3: Set ACL below the SSC recommended ABC
Under this alternative, ACL would be set equal to the lower bound of the MSY estimate of 109,000 ±29,700 lb. Therefore, the ACL would be equal to 79,300 lb. Based on probabilities of exceeding MSY calculated by NMFS PIFSC scientists shown in Table 1, this ACL would have less than a two percent probability of exceeding MSY in 2012. However, given past fishery performance, even an ACL set at this level would not constrain the fishery in terms of catch because it is still substantially above the current catch. No change in fishing activity is likely to occur under this alternative, and even if the fishery were to attain the catch limit, this ACL is expected to provide for long-term sustainability of the bottomfish resource. There would be no change to impacts on target species or bycatch because the fishery is not expected to change in any way with the specification of a catch limit and an AM without an in-season measure.

Under all alternatives considered, including the preferred alternative, no new monitoring would be implemented; however, under Alternatives 2 and 3, 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.

The impacts of an ACL specification for American Samoa BMUS are expected to be beneficial because it would establish a limit on the amount of fish that could be harvested annually where none previously existed. While the lack of in-season catch monitoring ability precludes in-season measures (such as fishery closure) to prevent the ACL from being exceeded, the ACLs considered have less than a 30 percent probability of exceeding MSY for American Samoa BMUS in 2012 and 2013. The additional level of post season review of the catch would also provide an enhanced level of management review of the fishery and would provide an opportunity for the Council to refine ACL and AM specifications, as needed. Over the long term, management of the fishery using ACLs and AMs is intended to prevent overfishing from occurring.

3.1.2 Affected 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 17 identifies species listed as endangered or threatened under the ESA that is 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 17. 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 turtle (laumei uga)	*Eretmochelys imbricata*	Endangered	Frequently seen. Nest at Rose Atoll and Swain's Island.	No interactions observed or reported.

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**
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	*Caretta caretta*	Endangered Distinct Population Segment	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 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 under the ESA.

Marine Mammals

Several whales, dolphins and porpoises occur in waters around American Samoa and are protected under the Marine Mammal Protection Act (MMPA). Table 18 provides a list of marine mammals known to occur or reasonably expected to occur in waters around American Samoa. See Section 4.3 for more information on the MMPA determination.

Table 18. 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

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 Category III fisheries 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. NMFS concludes that the American Samoa bottomfish fishery, as currently conducted under the proposed action, 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 17). 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 recently 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 of American Samoa

Seabirds found on and around American Samoa that could potentially interact with fisheries are listed in Table 19.

Table 19. 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*
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; therefore, NMFS concludes that the fishery, as currently conducted under the proposed action, would not affect ESA listed seabirds.

Potential Impacts to Affected 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 previously considered in previous ESA or MMPA consultations.

While Alternatives 2 and 3 would implement ACLs and a post season accounting of the catch relative to the ACL, managing the bottomfish fishery using an ACL and AM would be an addition to the current fishery management regime (Alternative 1: Status Quo) that is intended to promote long term sustainability of the fishery stock. Additionally, 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, including the preferred alternative (Alternative 2), 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 distinct population segments (DPS) that constitute ''species'' 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.

3.1.3 Affected American Samoa 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.

Overview

In 1999, the Council identified American Samoa as a fishing community. The Secretary of Commerce approved this definition on April 19, 2009 (64 FR 19067).

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

Under the no-action alternative, which is the baseline alternative, the American Samoa bottomfish fishery would not be managed using annual catch limits, accountability measures would not be needed, and fishing would continue to be monitored by American Samoa DMWR, NMFS and the Council. The affected fishing community would continue to be a part of the Council decision-making process.

Under Alternatives 2 and 3, fishing for American Samoa BMUS would be subject to an annual catch limit. The ACL specifications considered are substantially higher than recent harvests so they are not expected to be exceeded, and no change to any fishery is anticipated. The proposed ACL of 99,200 lb is intended to provide for community use of fishing resources, while helping to ensure that fishing is sustainable over the long term. Ongoing monitoring of catches 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, would enhance sustainability of the bottomfish fishery of American Samoa.

3.2 Guam Bottomfish Fishery, Affected 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 171,019 people in 2006, which was more than double the 1970 population of 85,000 people. The population is expected to continue to increase substantially with the relocation of the U.S. military from

Okinawa to Guam by 2014 that will include an estimated 8,000 Marines, 9,000 family members, and 12,000 to 15,000 contract workers.

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. Annual reports on the fisheries are produced by the Western Pacific Regional Fishery Management Council.

Overview of Guam's Bottomfish Fishery

Bottomfish fishing on Guam is a combination of recreational, subsistence and small-scale commercial fishing. The fishery can be highly seasonal with effort increasing when sea conditions are calm, generally during the summer months. The Guam bottomfish fishery has three main components based on target depths: shallow-water (60-150 ft), mid-water (200 to 300 ft) and deep water (700 to 900 ft). In 2006, there were approximately 260 bottomfish vessels on Guam including 12 large highliners. Approximately 30 boats are in the shallow-water fishery and most are recreational or subsistence fishermen who make day trips and seldom sell their catch. Less than 20% of the total shallow-water marine resources are taken from Federal waters because offshore banks are deep, remote, less accessible due to weather, and subject to strong currents.

The Guam mid-water bottomfish fleet consists of approximately 12 vessels 20-30 ft in length that can make overnight trips to banks and reefs within 30nm of Guam. The Guam deep-water bottomfish fishermen are primarily commercial. There are about 12 vessels over 25 ft in length that make two-day trips to offshore banks and seamounts. Vessels longer than 50 ft are prohibited from fishing for bottomfish in Federal waters within 50 nm around Guam; and these larger vessels must have a federal permit and file logbooks which help resource managers monitor harvests.

Presently, there is no federal permit or reporting requirements for bottomfish vessels less than 50 ft fishing in federal waters around Guam. Therefore, monitoring of this sector of the 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 BMUS commercial landings in Guam have ranged between 23,881 lb and 65,871 lb from 2000 to 2009. Recent annual commercial landings (2006-2009) were estimated to be 35,081 lb. In 2009, the commercial price per pound for BMUS in Guam ranged from $2.55 for black jack (*Caranx lugubris*) to $4.98 for onaga (*Etelis coruscans*) with average price per pound for all BMUS combined at $3.30 (WPacFIN website: http://www.pifsc.noaa.gov/wpacfin/guam/dawr/Pages/gdawr_data_3.php, accessed October 31, 2011). Based on the 2009 commercial landings estimate of 39,033 lb and the average price of all BMUS at $3.30 per pound, the annual commercial value of the bottomfish fishery in 2009 was $128,809. Assuming that only 230 of the 260 vessels engaged in commercial fishing and that fishing effort by each vessel was equal throughout the fleet in 2009, each vessel would have caught approximately 170 lb of bottomfish valued at $561.

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

Alternative 1: No Action (Status Quo)
Under the no-action alternative, which is the baseline alternative, Guam's bottomfish fishery would not be managed using annual catch limits, accountability measures would not be needed, and fishing would continue to be monitored by Guam Division of Aquatic Resources (DAWR), NMFS and the Council with fisheries statistics becoming available approximately six months or longer after the data have been initially collected. The status of Guam BMUS would continue to be subject to ongoing discussion and review, but without active management in place.

Alternative 2: Specify ACLs equal to the SSC recommended ABC (Preferred)
Under Alternative 2, fishing for Guam BMUS would be subject to an ACL of 48,200 lb for the 2012 as well as the 2013 fishing years. Between 2000 and 2009, the highest estimated commercial landings level for BMUS in Guam was 65,871 lb in 2000 and commercial landings for 2006 through 2009 averaged 35,081 lb. Since 2012 and 2013 bottomfish ACL specification for Guam is higher than recent commercial landings, harvests are 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. As there is no in-season closure ability to prevent the ACL from being exceeded, the proposed ACL is not expected to result in a change to the conduct of the fishery including gear types, areas fished, effort, or participation.

The AM for Guam bottomfish fishery would require a post-season review of the catch data to determine whether the bottomfish ACL for Guam 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. 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.

Alternative 3: Set ACL below the SSC recommended ABC
Under Alternative 3, fishing for Guam BMUS would be subject to an ACL of 43,500 lb for the 2012 as well as the 2013 fishing years. Since 2012 and 2013 bottomfish ACL specifications for Guam are higher than recent commercial landings, harvests are not expected to exceed the ACL.

Fisheries impacts are generally the same as those described in Alternative 2, except the probability of exceeding the ACL is slightly higher under Alternative 3.

3.2.1 Affected Target, Non-target and Bycatch Species in Guam

The bottomfish fishery in the Mariana Archipelago, including Guam, generally targets 17 bottomfish management unit species which comprise both shallow and deepwater bottomfish species (Table 20).

Table 20. 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 (Moffitt et al., 2007) conducted by NMFS Pacific Islands Fisheries Science Center (PIFSC) using data through 2005. Key points from the discussion in Section 2.1.2 is that PIFSC estimated MSY to be 53,000 ± 9,500 lb and that the production model results suggest that the Guam bottomfish complex has not been overfished since 1982 and has not experienced overfishing, except perhaps in 2000 when catch was 65,871 lb. Between 2006 and 2009, average catch of Guam BMUS 35,081 lb or 66% of MSY. Therefore, it is highly likely that Guam bottomfish stocks remain healthy.

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

There are anecdotal reports that certain types of sharks are killed prior to fishing in offshore banks of Guam and the CNMI to reduce depredation on their catches. The specific species of sharks involved and the extent of the practice is currently not known. If it is occurring, sharks would not be considered "bycatch" of the fishery, and the practice would be limited to conduct by particular fishermen. The harvest of non-pelagic sharks in the federal fisheries of the western Pacific is likely to be subject to catch limits beginning in 2012 in accordance with the FEPs and the recent proposed ACLs applicable to the coral reef fisheries. According to the Council's recommendation, the limit may be 5% of estimated shark biomass around Guam.

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, an ACL would not be specified for the Guam a bottomfish fishery and AMs would not be necessary. 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 DAWR. The current level of catch under this alternative is expected to continue as it currently has in recent years with average catch estimated to be 35,081 lb for the period 2006-2009. This level of catch is approximately 66% of MSY (53,000 lb) and is sustainable. Monitoring of catch would be conducted annually and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 2: Specify ACLs equal to the SSC recommended ABC (Preferred)
Under this alternative, ACL would be set to 48,200 lb in fishing year 2012 and 2013. Based on probabilities of exceeding MSY calculated by NMFS PIFSC scientists shown in Table 3, this ACL would have less than a 20 percent probability of exceeding MSY in 2012. Additionally, based on past performance records, the fishery has not realized catches of over 48,000 lb since 2001, and is not expected to attain that level of catch in 2012.

Alternative 3: Set ACL below the SSC recommended ABC
Under this alternative, the ACL would be set equal to the lower bound of the MSY estimate of 53,000 ±9,500 lb. Therefore, the ACL would be equal to 43,500 lb. Based on probabilities of exceeding MSY calculated by NMFS PIFSC scientists shown in Table 3, this ACL would have less than a two percent probability of exceeding MSY in 2012. However, given past fishery performance, even an ACL set at this level would not constrain the fishery in terms of catch because it would be set above the current levels of catch. No change in fishing activity is likely to occur under this alternative and even if the fishery were to attain the catch limit, this ACL is

expected to provide for long-term sustainability of the bottomfish resource. There would be no change to impacts on target species or bycatch because the fishery is not expected to change in any way with the specification of a catch limit and an AM without an in-season measure.

Under all alternatives considered, including the preferred alternative, no new monitoring would be implemented; however, under Alternatives 2 and 3, 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.

The impacts of an ACL specification for Guam BMUS are expected to be beneficial because it would establish a limit on the amount of fish that could be harvested annually where none previously existed. 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, the ACLs considered have less than a 20 percent probability of exceeding MSY for Guam BMUS in 2012 and were developed with the intent of preventing overfishing from occurring. Additionally, the post-season review of catch relative to the proposed ACL is the AM which is also designed to prevent the fishery from becoming overfished. The additional level of post season review of the catch would also provide an enhanced level of management review of the fishery and would provide an opportunity for the Council to refine the ACL and AM specifications, as needed.

3.2.2 Affected 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).

<u>Listed species and ESA review of Guam's Bottom Fisheries</u>
Table 21 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 21. 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 Archipelago. Foraging and minor nesting confirmed on Guam, Rota, Tinian and Saipan.	No interactions observed or reported.
Hawksbill sea turtle Haggan Karai	*Eretmochelys imbricata*	Endangered	Small population foraging around Guam and suspected low level around southern islands of 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	*Caretta caretta*	Endangered Distinct Population Segment	No known reports of loggerhead turtles in waters around the Mariana Archipelago.	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**
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.
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 marine 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.

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. See Section

4.3 for more information on the MMPA determination. 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 22. 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.
Longman's beaked whale	*Indopacetus pacificus*	No interactions observed or reported.
Melon-headed whale	*Peponocephala electra*	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**
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

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 Category III fisheries 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. NMFS concludes that the Guam bottomfish fishery, as currently conducted under the proposed action, 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. 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 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 23 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; therefore, NMFS concludes that the fisheries, as currently conducted under the proposed action, would not affect ESA listed seabirds.

Table 23. 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 Affected 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.

While Alternatives 2 and 3 would implement ACLs and a post season accounting of the catch relative to the ACL, managing the bottomfish fishery using an ACL and AM would be an addition to the current fishery management regime (Alternative 1: Status Quo) that is intended to promote long term sustainability of the fishery stock. Additionally, 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, including the preferred alternative (Alternative 2) 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 distinct population segments (DPS) that constitute ''species'' 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.

3.2.3 Affected Guam Fishing Community

Overview

In 1999, the Council identified Guam as a fishing community. The Secretary of Commerce approved this definition on April 19, 2009 (64 FR 19067).

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

Under the no-action alternative, which is the baseline alternative, the Guam bottomfish fishery would not be managed using annual catch limits, accountability measures would not be needed, and fishing would continue to be monitored by Guam DAWR, NMFS and the Council. The affected fishing community would continue to be a part of the Council decision-making process.

Under Alternatives 2 and 3, fishing for Guam BMUS would be subject to an annual catch limit. The ACL specifications considered are higher than recent harvests so they are not expected to be exceeded, and no change to any fishery is anticipated. The proposed ACL of 48,200 lb is intended to provide for community use of fishing resources, while helping to ensure that fishing is sustainable over the long term. Ongoing monitoring of catches 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, would enhance sustainability of the bottomfish fishery of Guam.

3.3 CNMI Bottomfish Fishery, Affected 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 80,362 residents (2005 estimate) live on the island of Saipan and almost all the rest on Tinian and Rota. 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. Annual reports on the fisheries are produced by the Council.

Overview of CNMI Bottomfish Fishery

The CNMI bottomfish fishery can be broken down into two sectors: shallow-water (100 to500 ft) and deepwater (greater than 500 ft). There are estimated to be approximately 150 locally-based small vessels (less than 24 ft) used for commercial, subsistence, and recreational fishing in both sectors. Fishermen operating in the shallow-water sector (fishing in depths shallower than 500 feet) are the largest portion of the CNMI bottomfish fishery. They primarily target the red-gill emperor (*Lethrinus rubrioperculatus*) and reef fishes. Skiffs are used to fish around the islands and banks from Rota to Zealandia Bank, north of Sariguan. Fishermen deploy fishing lines as hand lines or use home-fabricated hand reels or electric reels. Fishing is often conducted during daylight hours.

A smaller sector of primarily small-scale commercial fishermen operates in waters deeper than 500 feet for snappers and groupers. Generally fewer than ten vessels between 30 and 60 ft sporadically participate in the deepwater bottomfish fishery. Vessels are generally less than 25 feet in length with trips limited to one day and within a 30-mile radius. The larger vessels make multi-day trips to the Northern Islands (north of Saipan), focusing effort from Esmeralda Bank to Zealandia, and generally target deep water species, particularly onaga (*Etelis coruscans*), *Pristipomoides*, and groupers such as *Epinephelus octofasciatus* on seamounts and banks. Landings are offloaded at Saipan or other CNMI commercial ports and may be exported by air to Japan when flights are available. Vessels greater than 40 ft in length are capable of making 10 day fishing trips.

To help conserve bottomfish fishery resources at nearshore seamounts and banks, the Council recently prohibited commercial fishing for bottomfish by vessels greater than 40 ft in length overall in waters around CNMI's Southern Islands or in waters closer than 10 nm around the small-scale Alamagan fishing station in the Northern Islands. Vessels over 40 feet long are required to carry Vessel Monitoring Systems to record their locations, and all commercial bottomfishing vessels must be Federally permitted and submit catch reports. Sales reports are also required for all commercial bottomfish sales by medium and large vessels harvesting

bottomfishes in EEZ waters around CNMI. Other requirements affecting CNMI's bottomfish fishery can be found in the Mariana Archipelago FEP (WPFMC 2009b).

At the present time, a federal bottomfishing permit is required for any vessel used in commercially fishing BMUS in the EEZ around the CNMI which includes both inshore and offshore waters. However, of the estimated 150 bottomfish vessels, only 10 vessels have obtained federal permits and fewer have submitted logbook records of fishing activity. Therefore, monitoring of the CNMI bottomfish fishery is primarily dependent on data voluntarily provided by fishermen to 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 provides the estimated commercial landings of BMUS in CNMI between 2000 and 2009 and shows that landings have ranged between 12,262 lb and 25,303 lb from 2000 to 2009. Recent annual commercial landings (2006-2009) were estimated to be 17,419 lb. In 2009, the commercial price per pound for BMUS in CNMI ranged from $2.08 for gray jobfish (*Aprion virscens*) to $4.27 for onaga (*Etelis coruscans*) with average price per pound for all BMUS combined at $2.81 (WPacFIN website: http://www.pifsc.noaa.gov/wpacfin/cnmi/Pages/cnmi_data_2.php, accessed October 31, 2011). Based on the 2009 commercial landings estimate of 20,418 lb and the average price of all BMUS at $2.81 per pound, the annual commercial value of the bottomfish fishery in 2009 was $57,375. Assuming all 150 vessels participated in the commercial fishery and effort was equal throughout the fleet in 2009, each vessel would have caught approximately 136 lb of bottomfish valued at $382.

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

Alternative 1: No Action (Status Quo)
Under the no-action alternative, which is the baseline alternative, the CNMI bottomfish fishery would not be managed using annual catch limits, accountability measures would not be needed, and fishing would continue to be monitored by CNMI Division of Fish and Wildlife (DFW), NMFS and the Council with fisheries statistics becoming available approximately six months or longer after the data have been initially collected. The status of BMUS would continue to be subject to ongoing discussion and review.

Alternative 2: Specify ACLs equal to the SSC recommended ABC (Preferred)
Under Alternative 2, fishing for CNMI BMUS would be subject to an ACL of 182,500 lb for the 2012 as well as the 2013 fishing years. Between 2000 and 2009, the highest estimated commercial landings level for BMUS in CNMI was 25,303 lb in 2001. Commercial landings from 2006 through 2009 averaged 17,419 lb and the proposed ACL specification exceeds this recent average by more than tenfold. Since 2012 and 2013 bottomfish ACL specifications for CNMI are much higher than recent commercial landings, harvests are 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.

As there is no in-season closure ability to prevent the ACL from being exceeded, the proposed ACL is not expected to result in a change to the conduct of the fishery including gear types, areas fished, effort, or participation.

The AM for CNMI bottomfish fishery would require a post-season review of the catch data to determine whether the bottomfish ACL for 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. 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.

Alternative 3: Set ACL below the SSC recommended ABC
Under Alternative 3, fishing for CNMI BMUS would be subject to an ACL of 160,000 lb for the 2012 as well as the 2013 fishing years. Since 2012 and 2013 bottomfish ACL specifications for CNMI are much higher than recent commercial landings, harvests are not expected to exceed the ACL. Impacts are generally the same as those described in Alternative 2, except the probability of exceeding the ACL is slightly higher under Alternative 3.

3.3.1 Affected 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 which comprise both shallow and deepwater bottomfish species (Table 24).

Table 24. 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

Mariana Bottomfish MUS (CNMI)		
Scientific Name	**English Common Name**	**Local Name Chamorro/Carolinian**
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 (Moffitt et al., 2007) conducted by NMFS Pacific Islands Fisheries Science Center (PIFSC) using data through 2005. Key points from the discussion in Section 2.1.3 are that PIFSC estimated MSY to be 200,500 ± 40,500 lb and that the production model results suggest that the CNMI bottomfish complex was not overfished and did not experience overfishing during the period 1986-2005. Between 2006 and 2009, the average catch of CNMI BMUS was 17,419 lb or less than 9% of MSY. Therefore, it is highly likely that CNMI bottomfish stocks remain healthy.

Almost all of the fishes caught in the CNMI are considered food fishes and available accounts show no bycatch in the non-charter bottomfish sector and some bycatch in the charter sector, mostly attributed to smaller fishes that were released alive (WPFMC 2005 (2005 Bottomfish Annual Report) cited in NMFS 2009).

There are anecdotal reports that certain types of sharks are killed prior to fishing in offshore banks of Guam and the CNMI to reduce depredation on their catches. The specific species of sharks involved and the extent of the practice is currently not known. If it is occurring, sharks would not be considered "bycatch" of the fishery, and the practice would be limited to conduct by particular fishermen. The harvest of non-pelagic sharks in the federal fisheries of the western Pacific is likely to be subject to catch limits beginning in 2012 in accordance with the FEPs and the recent proposed ACLs applicable to the coral reef fisheries. According to the Council's recommendation, the limit may be 5% of estimated shark biomass around CNMI.

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

<u>Alternative 1: No Action (Status Quo)</u>
Under the no-action alternative, an ACL would not be specified for the CNMI bottomfish fishery and AMs would not be necessary. 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 DMWR. The current level of catch under this alternative is expected to continue as it currently has in recent years with average catch estimated to be 17,416 lb for the period 2006-2009. This level of catch is approximately 9% of MSY (200,500 lb) and is sustainable. Monitoring of catch would be conducted annually and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 2: Specify ACLs equal to the SSC recommended ABC
Under this alternative, the ACL would be set to 182,500 lb in fishing year 2012 and 2013. Based on probabilities of exceeding MSY calculated by NMFS PIFSC scientists shown in Table 5, this ACL would have less than a 20 percent probability of exceeding MSY in 2012. Additionally, catch in 2012 would need to increase nine times the 2009 catch of 20,418 lb in order to attain the ACL of 182,500 lb. This is highly unlikely given past fishery performance in the last decade has never exceeded 25,000 lb.

Alternative 3: Set ACL below the SSC recommended ABC
Under this alternative, the ACL would be set equal to lower bound of the MSY estimate of 200,500 ±40,500 lb. Therefore, the ACL would be equal to 160,000 lb. Based on probabilities of exceeding MSY calculated by NMFS PIFSC scientists shown in Table 5, this ACL would have less than a two percent probability of exceeding MSY in 2012. However, given past fishery performance, even an ACL set at this level would not constrain the fishery in terms of catch because it would be set substantially above the current level of catch. No change in fishing activity is likely to occur under this alternative and even if the fishery were to attain the catch limit, this ACL is expected to provide for long-term sustainability of the bottomfish resource. There would be no change to impacts on target species or bycatch because the fishery is not expected to change in any way with the specification of a catch limit and an AM without an in-season measure.

Under all alternatives considered, including the proposed action, no new monitoring would be implemented; however, under Alternatives 2 and 3, 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.

The impacts of an ACL specification for CNMI BMUS are expected to be beneficial because it would establish a limit on the amount of fish that could be harvested annually where none previously existed. While the lack of in-season catch monitoring ability precludes in-season measures (such as fishery closure) to prevent the ACL from being exceeded, the ACLs considered have less than a 20 percent probability of exceeding MSY for CNMI BMUS in 2012 and 2013. The post-season review of the catch would also provide an enhanced level of management review of the fishery and would provide an opportunity for the Council to refine ACL and AM specifications, as needed.

3.3.2 Affected 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 25 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 25. 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				
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 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.

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**
North Pacific loggerhead sea turtle	*Caretta caretta*	Endangered Distinct Population Segment	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.
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 CNMI, as managed under the Bottomfish and Seamount Groundfish FMP, was not likely to adversely affect ESA-listed marine 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 CNMI. No substantial changes to the bottomfish fishery around CNMI have occurred since the FEP was implemented that have required further consultation.

Marine Mammals

Several whales, dolphins and porpoises, occur in waters around CNMI and are protected under the Marine Mammal Protection Act (MMPA). Table 26, 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. See Section 4.3 for more information on the MMPA determination.

Table 26. 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. 2005Council website: http://www.wpcouncil.org

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 Category III fisheries 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. NMFS concludes that the CNMI bottomfish fishery, as currently conducted under the proposed action, 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. 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 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 the Mariana Archipelago bottomfish fisheries.

Seabirds

The following seabirds in Table 27 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 27 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 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; therefore, NMFS concludes that the fisheries, as currently conducted under the proposed action, would not affect ESA listed seabirds.

Table 27. 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 Affected 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.

While Alternatives 2 and 3 would implement ACLs and a post season accounting of the catch relative to the ACL, managing the bottomfish fishery using an ACL and AM would be an addition to the current fishery management regime (Alternative 1: Status Quo) that is intended to promote long term sustainability of the fishery stock. Additionally, 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, including the proposed action (Alternative 2), 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 distinct population segments (DPS) that constitute ''species'' 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.

3.3.3 Affected CNMI Fishing Community

Overview

In 1999, the Council identified CNMI as a fishing community. The Secretary of Commerce approved this definition on April 19, 2009 (64 FR 19067).

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

Under the no-action alternative, which is the baseline alternative, the CNMI bottomfish fishery would not be managed using annual catch limits, accountability measures would not be needed, and fishing would continue to be monitored by CNMI DFW, NMFS and the Council. The affected fishing community would continue to be a part of the Council decision-making process.

Under Alternatives 2 and 3, fishing for CNMI BMUS would be subject to an annual catch limit. The ACL specifications considered are substantially higher than recent harvests so they are not expected to be exceeded, and no change to any fishery is anticipated. The proposed ACL of 182,500 lb is intended to provide for community use of fishing resources, while helping to ensure that fishing is sustainable over the long term. Ongoing monitoring of catches 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, would enhance sustainability of the bottomfish fishery of CNMI.

3.4 Hawaii Bottomfish Fishery, Affected Resources and Potential Impacts

The Hawaiian Islands are made up of 137 islands, islets, and coral atolls that extend for nearly 1,500 miles from Kure Atoll in the northwest to the Island of Hawaii in the southeast. The Hawaiian Islands are often grouped into the Northwestern Hawaiian Islands (Nihoa to Kure) and the Main Hawaiian Islands (Hawaii to Niihau). The total land area of the 19 primary islands and atolls is approximately 6,423 square miles. The majority (70 percent) of the 1.3-million people

residing in Hawaii live on the island of Oahu. The seven other main Hawaiian Islands are Hawaii, Maui, Molokai, Lanai, Kahoolawe (uninhabited), Kauai, and Niihau.

Bottomfish fishing in federal waters around Hawaii is managed under the Fishery Ecosystem Plan for the Hawaiian Archipelago (Hawaii FEP), developed by the Council, and implemented by NMFS under the authority of the MSA. Until recently, the fisheries for Hawaiian bottomfish operated in two management subareas: (1) the inhabited main Hawaiian Islands (MHI) with their surrounding reefs and offshore banks; and (2) the Northwestern Hawaiian Islands (NWHI), an approximately 1,200-nm long chain of largely uninhabited islets, reefs, and shoals. In 2009, the NWHI fishery was closed in accordance with the Presidential Proclamation establishing the Papahanaumokuakea Marine National Monument (Monument), which prohibits commercial fishing, although sustenance fishing for bottomfish is allowed to continue in accordance with Monument regulations (71 FR 51134, August 29, 2006). At present, bottomfish fishing managed under the Hawaii FEP only occurs in the MHI.

Overview of Hawaii's Bottomfish Fishery

The MHI bottomfish fishery harvests an assemblage, or complex, of 14 species that include nine snappers, four jacks or trevally and a single species of grouper. However, the target species of the fishery, and the species of primary management concern are six deep-water snappers and the grouper. Termed the "Deep 7 bottomfish," they include onaga (*Etelis coruscans*), ehu (*Etelis carbunculus*), gindai (*Pristipomoides zonatus*), kalekale (*Pristipomoides sieboldii*), opakapaka (*Pristipomoides filamentosus*), lehi (*Aphareus rutilans*), and hapuupuu (*Epinephelus quernus*). These seven species account for approximately 72% of the total bottomfish landed in Hawaii annually between 2000 and 2009 (Table 7). The non-Deep 7 species comprise the remainder of the catch.

Requirements for the MHI bottomfish fishery include vessel identification, non-commercial fishing permits, non-commercial catch and effort logbooks, a non-commercial bag limit of five Deep 7 bottomfish per trip, and the specification of an annual catch limit (ACL) for all stocks or stock complexes in the fishery, including accountability measures (AMs) for adhering to the catch limit. For management purposes, the fishing year for the MHI Deep 7 bottomfish complex begins on September 1 and ends on August 31 the following year. For MHI non-Deep 7 bottomfish, the fishing year begins January 1 and ends on December 31.

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-state partnership. Annual reports on the fisheries are produced by the Western Pacific Regional Fishery Management Council, with data collection responsibilities shared by DAR and NMFS.

The number of fishermen engaged in commercial bottomfish fishing in the MHI increased dramatically in the 1970s peaking in 1980s with over 500 active vessels annually. However, participation in the fishery then declined in the early 1990s, rebounded somewhat in the late 1990s, but in 2003 reached its lowest level since 1977, with 325 vessels (WPFMC, 2007). The decline in vessels and fishing effort during this period may have been due to the long-term

decrease in catch rates in the bottomfish fishery and a shift of fishing effort towards tuna and other pelagic species. However, since a catch limit system was implemented in the 2007-08 fishing year, participation in the commercial fishery sector has fluctuated but appears to be gradually increasing. In the 2007-2008 fishing year, 351 vessels were actively engaged in the fishery, increasing to 468 vessels in fishing year 2008-09. Fishing year 2009-10 saw a slight decline to 451 vessels but rebounded again to 475 vessels in the 2010-11 fishing year (NMFS, 2011).

Participation in the MHI bottomfish fishery by non-commercial vessels is largely unknown. However, recent information from the Hawaii Division of Aquatic Resources bottomfish registration program estimates there to be approximately 203 non-commercial bottomfish vessels in the State of Hawaii (HDAR 2011). Of these vessels, only 22 have obtained federal non-commercial bottomfish permits in 2011. This is likely because most of the non-commercial participants may only fish in state waters (0-3 nmi offshore), and therefore, are not required obtain federal permits.

When the federal non-commercial bottomfish permit was implemented in 2008, NMFS issued nearly 100 permits. However, since non-commercial fishermen are subject to a five fish per trip bag limit, the subsequent decrease in federal non-commercial permits from nearly a 100 to 22 is likely attributed to fishermen electing to obtain a state CML, which is comparable in cost to the federal permit, but does not subject them to the 5 fish per trip bag limit. This development may explain the rise in commercial vessel participation and corresponding decline in federal non-commercial permits in recent years. Ongoing cost-earning surveys conducted by PIFSC indicated that approximately 25 percent of CML holders do not sell bottomfish (J. Hospital, pers. comm., June 21, 2011) indicating that they are actually non-commercial, giving some credence to this theory.

Table 12 shows that MHI non-deep 7 BMUS commercial landings have ranged between 48,064 lb and 145,383 lb from 1966 to 2010. Recent annual commercial landings (2006-2010) were estimated to be 104,984 lb. In 2010, the commercial price per pound for non-Deep 7 bottomfish ranged from $1.89 for black jack (*Caranx lugubris*) to $3.92 for uku (*Aprion virescens*) with average price per pound for all BMUS combined at $2.68 (WPacFIN website: http://www.pifsc.noaa.gov/wpacfin/hi/dar/Pages/hi_data_3.php, accessed October 31, 2011). Based on estimated commercial landings of 145,383 lb and the average price of all non-Deep 7 BMUS at $2.68 per pound, the annual commercial value of the bottomfish fishery in 2010 was $389,626. Assuming participation and effort was equal throughout the fleet in 2010 each of the 475 vessels in the fleet would have caught approximately 306 lb of non-Deep 7 bottomfish valued at $820.

Potential Impacts of the Proposed ACL specification and AM on Hawaii's Bottomfish Fishery Participants

Alternative 1: No Action (Status Quo)

Under the no-action alternative, which is the baseline alternative, the Hawaii non-Deep 7 bottomfish fishery would not be managed using annual catch limits, accountability measures would not be needed, and fishing would continue to be monitored by Hawaii Division of Aquatic Resources (HDAR), NMFS and the Council with fisheries statistics becoming available

approximately six months or longer after the data have been initially collected. The status of BMUS would continue to be subject to ongoing discussion and review.

Alternative 2: Specify ACLs equal to the SSC recommended ABC (Preferred)
Under Alternative 2, fishing for MHI non-Deep 7 BMUS would be subject to an ACL of 135,000 lb for the 2012 as well as the 2013 fishing years. Between 1966 and 2010, the highest estimated commercial landing levels for non-Deep 7 BMUS in MHI were 372,201 lb in 1988 and 238,434 lb in 1989. Commercial landings from 2006 through 2010 averaged 104,984 lb. The proposed 2012 and 2013 ACL non-Deep 7 bottomfish specifications for MHI are higher than most recent commercial landings; however, commercial landings in 2010, at 145,383 lb, did exceed the proposed ACL. So harvests may potentially exceed ACL for either the 2012 or 2013 fishing seasons. However, as there is no in-season closure ability to prevent the ACL from being exceeded, the proposed ACL is not expected to result in a change to the conduct of the fishery including gear types, areas fished, effort, or participation.

The AM for MHI non-Deep 7 bottomfish fishery would require a post-season review of the catch data to determine whether the bottomfish ACL was exceeded. If the ACL were 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. 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.

Alternative 3: Set ACL below the SSC recommended ABC
Under Alternative 3, fishing for MHI non-Deep 7 BMUS would be subject to an ACL of 107,608 lb for the 2012 as well as the 2013 fishing years. Impacts are generally the same as those described in Alternative 2, except the probability of exceeding ACL is slightly higher under Alternative 3.

3.4.1 Affected Target, Non-target and Bycatch Species in Hawaii

The MHI bottomfish fishery harvests an assemblage, or complex, of 14 species that include nine snapper species, four jack or trevally species, and a single species of grouper (Table 28). As previously noted in Section 1.3, NMFS has already specified ACLs for the Deep 7 bottomfish (76 FR 54715, September 2, 2011). Therefore, this action only provides ACL specifications and AMs for MHI non-Deep 7 bottomfish.

Table 28. Hawaii Bottomfish MUS

Hawaii Bottomfish MUS		
Common Name	**Scientific Name**	**Local Name**
*Silver jaw jobfish	*Aphareus rutilans*	lehi
Grey jobfish	*Aprion virescens*	uku
Giant trevally	*Caranx ignobilis*	white ulua
Black jack	*Caranx lugubris*	black ulua

Hawaii Bottomfish MUS		
Common Name	**Scientific Name**	**Local Name**
*Sea bass	*Epinephelus quernus*	hapuupuu
*Red snapper	*Etelis carbunculus*	ehu
*Longtail snapper	*Etelis coruscans*	onaga, ulaula
Blue stripe snapper	*Lutjanus kasmira*	taape
Yellowtail snapper	*Pristipomoides auricilla*	yellowtail, kalekale
*Pink snapper	*Pristipomoides filamentosus*	opakapaka
*Pink Snapper	*Pristipomoides sieboldii*	kalekale
*Snapper	*Pristipomoides zonatus*	gindai
Thick lipped trevally	*Pseudocaranx dentex*	pig ulua, butaguchi
Amberjack	*Seriola dumerili*	kahala

* Indicates a Deep 7 bottomfish, which is not included in the current ACL and AM specification.

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

Based on the projection results for MHI Deep 7 bottomfish using catch data from the period 1949-2010 provided in Table 8, the level of catch associated with a 50% probability of overfishing the MHI non-Deep 7 bottomfish (OFL proxy) is 192,000 lb. The time period 1949-2010 was selected as the baseline projection as it is identical to the time period used to produce projection results for the Deep 7 stock complex in the MHI.

Based on commercial catch data reported in Table 12, this level of catch has not been exceeded since 1989 when 238,434 lb was landed. Since that time, commercial catch of non-Deep 7 bottomfish generally remained under 100,000 lb until 2008 when landings were 110,331 lb. The highest reported landings of MHI non-Deep 7 bottomfish was 145,000 lb and occurred 2010. This level of catch is 47,000 lb less than the OFL proxy of 192,000 lb. This information suggests the fishery for MHI non-Deep 7 bottomfish has operated at sustainable levels for the past 20 years.

Bycatch in the MHI bottomfish fishery was summarized by Kawamoto and Gonzales (2005) using 2003 and 2004 catch and effort data. Overall bycatch in the MHI bottomfish fishery is low with only 8.5 percent of the catch listed as bycatch. Very few of the targeted Deep 7 species catch is reported as bycatch. The majority of the BMUS bycatch is composed of jacks (kahala, butaguchi and white ulua). Kahala were released likely because the fish are known to be ciguatoxic and have little or no market value in Hawaii (WPFMC 2007). Numerous instances of sharks damaging fish have been reported as resulting in discards.

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

<u>Alternative 1: No Action (Status Quo)</u>

Under the no-action alternative, an ACL would not be specified for the Hawaii non-Deep 7 bottomfish fishery and AMs would not be necessary. The fishery would continue to catch non-Deep 7 bottomfish in the manner that is described above, and catches would continue to be monitored through commercial catch report system administered by HDAR. The current level of catch under this alternative is expected to continue as it currently has in recent years with

average catch estimated to be approximately 105,000 lb for the period 2006-2010, with uku (*Aprion virescens*) comprising the bulk of the catch. While catch of non-Deep 7 bottomfish reached 145,000 lb in 2010, based on the projection results for MHI Deep 7 bottomfish using catch data from the period 1949-2010 provided in Table 8, a catch of 145,000 lb of non-Deep 7 bottomfish in 2012 is associated with a 25-30% probability of overfishing and is likely to be sustainable. Under this alternative, monitoring of catch would continue to be conducted annually.

Alternative 2: Specify ACLs equal to the SSC recommended ABC
Under this alternative, the ACL would be set at 135,000 lb in fishing year 2012 and 2013. Based on the projected results for MHI Deep 7 bottomfish using catch data from the period 1949-2010 provided in Table 8, a catch of 135,000 lb of non-Deep 7 bottomfish in 2012 is associated with a 20-25% probability of overfishing and is likely to be sustainable.

Alternative 3: Set ACL below the SSC recommended ABC
Under this alternative, ACL would be set at the value associated with the 75th percentile of the total catch based on data from 1966-2010 which is 107,608 as listed in Table 13. Based on the projection results for MHI Deep 7 bottomfish using catch data from the period 1949-2010 provided in Table 8, a catch of 107,608 lb of non-Deep 7 bottomfish is associated with a 10-15% probability of overfishing and is likely to be sustainable.

Under all alternatives considered, including the proposed action, no new monitoring would be implemented; however, under Alternatives 2 and 3, 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.

The impacts of an ACL specification for Hawaii non-Deep 7 bottomfish are expected to be beneficial because it would establish a limit on the amount of fish that could be harvested annually where none previously existed. 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, catching the ACL would have less than a 25 percent probability of overfishing MHI non-Deep 7 bottomfish in 2012 and is expected to prevent overfishing from occurring. The post-season review of the catch would also provide an enhanced level of management review of the fishery and would provide an opportunity for the Council to refine ACL and AM specifications, as needed.

3.4.2 Affected Protected Resources in Hawaii

A number of protected species are documented as occurring in the waters around the Hawaiian Islands and there is the potential for interactions with the bottomfish fisheries of the MHI. The Hawaii bottomfish fisheries 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.

Hawaiian monk seals and bottlenose dolphins are the only species of marine mammal that have been identified as potentially impacted by Hawaii's bottomfish fisheries. More detailed information about the species and potential interactions is available in a 2008 Biological Opinion on the bottomfish fishery by NMFS under section 7 of the ESA (NMFS 2008).

ESA listed species and ESA review of Hawaii Bottomfish Fisheries

Table 29 lists endangered or threatened species occurring in the waters around Hawaii. They include a number of whales, seabirds, the Hawaiian monk seal, and five listed sea turtles. Although there is currently no critical habitat designated for ESA-listed marine species around the main Hawaiian Islands, a proposal to designate portions of the nearshore marine environment around the main Hawaiian Islands as monk seal critical habitat is currently under review.

Table 29. Endangered, threatened marine species and seabirds occurring in the waters of the Hawaiian Archipelago

Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters of the Hawaiian Archipelago				
Common name	**Scientific Name**	**ESA listing status in Hawaii**	**Occurrence in Hawaii**	**Interactions with the MHI bottomfish fishery**
Listed Sea Turtles				
Green sea turtle	*Chelonia mydas*	Threatened	Most common turtle in the Hawaiian Islands. Most nesting occurs in the northwestern Hawaiian Islands. Foraging and haulout in the MHI.	No interactions observed or reported, but collisions are possible.
Hawksbill sea turtle	*Eretmochelys imbricata*	Endangered	Small population foraging around Hawaii and low level nesting on Maui and Hawaii Islands.	No interactions observed or reported.
Leatherback sea turtle	*Dermochelys coriacea*	Endangered	Not common in Hawaii.	No interactions observed or reported.
Olive ridley sea turtle	*Lepidochelys olivacea*	Threatened	Range across Pacific:	No interactions observed or reported.
North Pacific loggerhead sea turtle	*Caretta caretta*	Endangered Distinct Population Segment	Not common in Hawaii.	No interactions observed or reported.

Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters of the Hawaiian Archipelago				
Common name	**Scientific Name**	**ESA listing status in Hawaii**	**Occurrence in Hawaii**	**Interactions with the MHI bottomfish fishery**
Listed Marine Mammals				
Hawaiian Monk seal	*Monachus schauinslandi*	Endangered	Endemic tropical seal. Occurs throughout the archipelago. Population in decline.	No interactions observed or reported, and no hooking of seals attributed to MHI bottomfish fishery.
Blue whale	*Balaenoptera musculus*	Endangered	No sightings or strandings reported in Hawaii but acoustically recorded off of Oahu and Midway Atoll.	No interactions observed or reported.
Fin whale	*Balaenoptera physalus*	Endangered	Infrequent sightings in Hawaii waters.	No interactions observed or reported.
Humpback whale	*Megaptera novaeangliae*	Endangered	Migrate through the archipelago and breed during the winter. Est. 6,000-10,000 individuals.	No interactions observed or reported.
Sei whale	*Balaenoptera borealis*	Endangered	Worldwide distribution. Primarily found in cold temperate to subpolar latitudes. Rare in Hawaii.	No interactions observed or reported.
Sperm whale	*Physeter macrocephalus*	Endangered	Found in tropical to polar waters worldwide, most abundant cetaceans in the region. Sighted off the NWHI and the MHI.	No interactions observed or reported.
Listed Sea Birds				

Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters of the Hawaiian Archipelago				
Common name	**Scientific Name**	**ESA listing status in Hawaii**	**Occurrence in Hawaii**	**Interactions with the MHI bottomfish fishery**
Newell's Shearwater	*Puffinus auricularis newelli*	Threatened	Rare. Breeds only in colonies on the MHI where it is threatened by predators and urban development.	No interactions observed or reported.
Hawaiian petrel	*Pterodroma phaeopygia*	Endangered	Rare	No interactions observed or reported.
Short-tailed Albatross	*Phoebastria albatrus*	Endangered	Found on Midway in the NWHI.	No interactions observed or reported.

Applicable ESA Coordination – MHI bottomfish fisheries

In 2008, NMFS proposed regulations to amend the Bottomfish and Seamount Groundfish Fisheries of the Western Pacific that would implement measures to end overfishing of MHI bottomfish that included the establishment of a total allowable catch system, permit and reporting requirements for non-commercial bottomfish vessels and a bag limit of five of any combination "Deep 7" species per person per trip. In a biological opinion covering the action dated March 18, 2008, NMFS determined that except for the Hawaiian green sea turtles, the fishing activities conducted under the implementing regulations are not likely to adversely affect any other ESA-listed marine species that may be found in federal waters of the MHI, or result in the destruction or adverse modification of critical habitat. However, for green sea turtles, NMFS determined that there is a potential for them to be killed by vessel transiting State waters en route to and from federal waters around the MHI and authorized an incidental take of up to two green sea turtles per year. To date, no takes have ever been observed or reported to have occurred in this fishery.

In 2009, the Council recommended and NMFS approved the development of five archipelagic-based fishery ecosystem plans (FEP) including the Hawaii 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 Hawaii Archipelago, No substantial changes to the bottomfish fishery around Hawaii have occurred since the FEP was implemented that have required further consultation.

Marine Mammals

Several whales, dolphins and porpoises, occur in waters around Hawaii and are protected under the Marine Mammal Protection Act (MMPA). Table 30, provides a list of marine mammals known to occur or reasonably expected to occur in waters around the Hawaiian Archipelago that

have the potential to interact with the MHI bottomfish fishery. See Section 4.3 for more information on the MMPA determination.

Table 30. Non-ESA-listed marine mammals occurring in Hawaii

Non-ESA-listed marine mammals known to occur or reasonably expected to occur in waters around the Hawaiian Archipelago		
Common Name	**Scientific Name**	**Interactions with MHI bottomfish fishery**
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.
Dall's porpoise	*Phocoenoides dalli*	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.
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.
Pantropical spotted dolphin	*Stenella attenuate*	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.

Non-ESA-listed marine mammals known to occur or reasonably expected to occur in waters around the Hawaiian Archipelago		
Common Name	**Scientific Name**	**Interactions with MHI bottomfish fishery**
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.

Source: Council website: http://www.wpcouncil.org

On November 17, 2010, NMFS published a proposed rule to list the Hawaiian insular false killer whale as an endangered species under the ESA (75 FR 70169). NMFS is also proposing to designate areas in the main Hawaiian Islands as monk seal critical habitat. Specific areas proposed include terrestrial and marine habitats from 5 m inland from the shoreline extending seaward to the 500 m depth contour around Kaula Island, Niihau, Kauai, Oahu, Maui Nui (including Kahoolawe, Lanai, Maui and Molokai) and Hawaii Island (76 FR 32026, June 2, 1011). The final determination on whether to list the Hawaiian insular false killer whale as an endangered species and to designate critical habitat in the MHI has not been made. If these actions are approved, NMFS will initiate consultation, as appropriate, in accordance with Section 7 of the ESA to ensure that Hawaii's fisheries are not likely to jeopardize the continued existence of the species, or result in the destruction or adverse modification of critical habitat.

The MHI bottomfish fishery is listed 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. NMFS concludes that the MHI bottomfish fishery, as currently conducted under the proposed action would not affect marine mammals in any manner not considered or authorized under the Marine Mammal Protection Act.

Sea Turtles

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. Additionally, the loggerhead sea turtle (*Caretta caretta*) population in the North Pacific Ocean was recently identified as a distinct population segment and listed 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). The green turtle is the only species regularly seen in EEZ waters around Hawaii.

In its 2008 Biological Opinion on the MHI bottomfish fishery, NMFS determined that although sea turtles may be found within the MHI area and could interact with the fishery, there have been no reported or observed interactions with sea turtles in the history of the bottomfish fishery.

Hawksbill, leatherback and olive ridley turtles are likely to be rare in the action area. NMFS concluded that the bottomfish fishery is not likely to adversely affect hawksbill, leatherback, loggerhead or olive ridley turtles. The opinion noted that mortalities of green turtles sometimes occur from collisions with vessels around the MHI, and this is likely responsible for up to two green sea turtle mortalities per year. The resulting mortality is not likely to jeopardize the species because green sea turtles have been rapidly increasing in numbers in recent years when bottomfish fishing was occurring at a higher level of effort than the current fishery, and they are extremely unlikely to be hooked or entangled by bottomfish fishing gear. Since the 2008 Biological Opinion was completed there have been no reported or observed interactions with sea turtles in the MHI bottomfish fishery.

Seabirds

Seabirds found on and around Hawaii that could potentially interact with fisheries are listed in Table 31. Seabirds listed as threatened or endangered under the ESA are managed by the USFWS. The short-tailed albatross, which is listed as endangered under the ESA, is a migratory seabird that has nested in the NWHI and could be present in the waters of the Hawaii Archipelago. Other listed seabirds found in the region are the endangered Hawaiian petrel (*Pterodroma phaeopygia)* and the threatened Newell's shearwater (*Puffinus auricularis newelli*). Non-listed seabirds known to be present in Hawaii include the blackfooted albatrosses (*Phoebastria nigripes*); Laysan albatross (*P. immutabilis*); wedge-tailed (*Puffinus pacificus*), sooty (*P. griseus*) and fleshfooted (*P. carneipes*) shearwaters, as well as the masked booby (*Sula dactylatra*), brown booby (*Sula leucogaster*), and red-footed booby *(Sula sula*). Most of these seabirds forage far from the islands and are unlikely to interact with the bottomfish fishery. In addition, bottomfish fishing gear is deployed close to the vessel and does not afford much opportunity for seabirds to attack the bait. When bottomfish fishing, a weighted mainline is deployed vertically over the side of the vessel and it sinks rapidly beyond the range of a diving seabird. It is retrieved rapidly with electric or hydraulic pullers. The time that bait is within the range of a diving seabird is limited, and the proximity of the vessel hull is a significant deterrent. There have been no reports of interactions between the Hawaii bottomfish fishery and seabirds; therefore, NMFS concludes that the fishery, as currently conducted under the proposed action, would not affect ESA listed seabirds.

Table 31. Seabirds occurring in the Hawaiian Islands

Seabirds of the Mariana Archipelago (R= Resident/Breeding; V= Visitor; Vr=rare visitor; Vc= Common visitor)		
	Common name	***Scientific name***
R	Hawaiian petrel	*Pterodroma phaeopygia (ESA: Endangered)*
R	Newell's shearwater	*Puffinus auricularis newelli (ESA:Threatened)*
R	Short-tailed albatross	*Phoebastria albatrus (ESA: Endangered)*
R	Black-footed albatross	*Phoebastria nigripes*
R	Laysan albatross	*Phoebastria immutabilis*
R	Wedge-tailed shearwater	*Puffinus pacificus*
V	Audubon's shearwater	*Puffinus lherminieri*
Vc	Short-tailed shearwater	*Puffinus tenuirostris (common visitor)*
R	Christmas shearwater	*Puffinus nativitatis*

Seabirds of the Mariana Archipelago (R= Resident/Breeding; V= Visitor; Vr=rare visitor; Vc= Common visitor)		
	Common name	***Scientific name***
V	Leach's storm-petrel	*Oceanodroma leucorhoa*
V	Matsudaira's storm-petrel	*Oceanodroma matsudairae*
R	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 2009c

Potential Impacts to Affected Protected Resources in the MHI

None of the ACL or AM alternatives considered would modify operations of the Hawaii 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.

While Alternatives 2 and 3 would implement ACLs and a post season accounting of the catch relative to the ACL, managing the bottomfish fishery using an ACL and AM would be an addition to the current fishery management regime (Alternative 1: Status Quo) that is intended to promote long term sustainability of the fishery stock. Additionally, the current inability of managers to implement in-season tracking of catch towards an ACL prevents in-season closure ability, meaning participants in the MHI 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, including the preferred alternative (Alternative 2) 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*) population is composed of nine distinct population segments (DPS) that constitute ''species'' 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 Hawaiian Archipelago are a DPS that is endangered and at risk of extinction. In its biological opinion dated March 18, 2008, NMFS determined that given the lack of sightings/observations of loggerhead sea turtles in federal waters around the MHI, the probability of an encounter of loggerhead sea turtles with the MHI bottomfish fishery is extremely low. Therefore, NMFS concluded that the MHI bottomfish fishery is not likely to adversely affect the species. Although, the North Pacific loggerhead has been listed as a DPS and may be found in federal waters in the MHI, there have been no reported or observed incidental take of a loggerhead sea turtle in the history of the fishery. Because none of the alternatives considered would modify operations of the MHI bottomfish fishery in any way, there is no additional information that would change the conclusions of the 2008 biological opinion which concluded the MHI bottomfish fishery was not likely to adversely affect ESA-listed marine species or their designated critical habitat, except for green sea turtles for which NMFS has authorized an incidental take of up to two green sea turtles per year.

3.4.3 Affected Hawaii Fishing Community

Overview

In 2002, the Council identified each of the islands of Kauai, Niihau, Oahu, Maui, Molokai, Lanai and Hawaii as a fishing community for the purposes of assessing the effects of fishery conservation and management measures on fishing communities, providing for the sustained participation of such communities, minimizing adverse economic impacts on such communities, and for other purposes under the Magnuson-Stevens Act. The Secretary of Commerce subsequently approved these definitions on August 5, 2003 (68 FR 46112).

Potential Impacts of the Proposed ACL specifications and AM on Fishing Communities of Hawaii

Under the no-action alternative, which is the baseline alternative, fishing for non-Deep 7 bottomfish in Hawaii would not be managed using annual catch limits, accountability measures would not be needed, and fishing would continue to be monitored by Hawaii DAR, NMFS and the Council. The affected fishing community would continue to be a part of the Council decision-making process.

Under Alternatives 2 and 3, fishing for non-Deep 7 bottomfish would be subject to an annual catch limit. The ACL specifications are generally higher than average harvests for the period 2006-2010; however, no change to the fishery is anticipated. There is a possibility that the proposed ACL of 135,000 lb may be exceeded as catch of non-Deep 7 bottomfish in 2010 was approximately 145,000 lb and is associated with less than a 30 percent probability of overfishing. 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. The proposed ACLs are intended to provide for community use of fishing resources, while helping to ensure that the bottomfish fishery is sustainable over the long term. Ongoing monitoring 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, would enhance sustainability of the bottomfish fisheries of Hawaii.

3.5 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) (74 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 FR8336, 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).

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. 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. In considering the potential impacts of a proposed fishery management action on EFH, all designated EFH must be considered.

The designated areas of EFH and HAPC for all FEP MUS by life stage are summarized in Table 36. The Council is currently reviewing habitat information relevant to Hawaii bottomfish and seamount groundfish and may refine these EFH/HAPC designations if warranted (76 FR 13604, March 14, 2011).

Table 32. 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 large adverse effects on EFH or HAPC for any MUS and none of the alternatives considered are expected to result in substantial changes to the way the bottomfish fisheries in American Samoa, Guam, CNMI and Hawaii are conducted.

3.6 Potential Impacts on Fishery Administration and Enforcement

3.6.1 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 fishery 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, the CNMI and Hawaii and enters into Joint Enforcement Agreements (JEA) with each participating state and territory.

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 VMS. The USCG also maintains patrol assets on Guam.

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 is expected to result in improved timeliness in processing species specific catch reporting on an annual basis. No changes to the role of law enforcement agents or the US Coast Guard would be required in association with implementing these specifications. The ACL and AM specifications would not result in any change or risk to human safety at sea.

3.6.2 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.

Potential impacts to local agencies
The specification of ACLs and AMs for bottomfish fisheries of American Samoa, Guam, the CNMI, and Hawaii 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, 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 coral reef 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 and the Northern Mariana Islands. Until additional resources are made available, only AMs that review whether an ACL is exceeded, and other post-season review, are possible at this time.

3.7 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 bottomfishes, 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 result in any large adverse impacts to the environment that could have disproportionately large or adverse effects on members of Environmental Justice communities in American Samoa, Guam, the CNMI, or Hawaii.

3.8 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, mollusk, 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. 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 fishery is conducted, so no change in greenhouse gas emissions is expected.

3.9 Additional Considerations

3.9.1 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 large 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 large, irreversible, or irretrievable impacts to the environment.

3.9.2 Cumulative Effects of the Proposed Action

Recent ACL and AM specifications for other western Pacific fisheries

In all four areas, the Council is developing ACL and AM recommendations for coral reef ecosystem MUS, precious corals MUS, and crustaceans. NMFS recently specified ACLs for the Deep 7 bottomfish in the MHI, which can be obtained at the Council or NMFS' websites. None of the ACLs or AMs 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 for American Samoa, Guam, CNMI BMUS and Hawaii non-Deep 7 bottomfish would also not conflict with future ACL and AM specifications in any of the three archipelagic areas because the ACLs apply to specific fishery resources and the ACLs and AMs are not anticipated to result in a large change to the fisheries in any of the areas.

Foreseeable fishery management actions

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 not determined 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 and 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.

Other Foreseeable NOAA Actions

Monk Seals

NMFS currently has two proposals concerning the Hawaiian monk seal population that occur in federal waters of the exclusive economic zone (EEZ; generally 3-200 nmi) around the Hawaiian Islands. The first is a proposal to revise designated critical habitat for endangered Hawaiian monk seals to include areas in the MHI (76 FR 32026, June 2011). The second considers monk seal management, research and enhancement activities including the translocation of up to 60 monk seal pups from the NWHI to the MHI (76 FR 51945, August 19, 2011).

A specification of an annual catch limit is not expected to affect a decision of whether or where to establish critical habitat for monk seals in the main Hawaiian Islands because an ACL without an in-season measure would mostly likely result only in monitoring harvest limits in the fishery. At this point in time there is insufficient information in the proposal to allow NMFS to evaluate the potential impact of a designation of critical habitat on the MHI non-Deep 7 bottomfish fisheries as a whole; however, a designation of critical habitat for monk seals in the MHI is not expected to affect the efficacy of using ACLs and AMs to promote long-term sustainability of the MHI bottomfish fishery. The proposed ACL specifications and AMs would also not affect the quality of habitat being considered for designation as monk seal critical habitat because no change to the conduct of the existing MHI bottomfish fishery is likely to occur with the specification of ACLs and AMs for non-Deep 7 species.

While recent quantitative fatty acid signature analysis results indicate that monk seals consume a wide range of species including two commercially targeted deepwater-slope bottomfish species (Carretta et al., 2010); under current levels of fishing pressure in the MHI, the monk seal population is growing, pupping is increasing, and the pups appear to be foraging successfully. Considering that monk seal foraging success appears to be higher in the MHI than in the NWHI despite higher fishing pressure in the MHI, competition for forage with the MHI bottomfish fishery does not appear to be adversely impacting monk seals in the MHI.

The conduct of fishing is not expected to change, and so there is no likely immediate environmental outcome. If critical habitat were to be established in the MHI, NMFS would initiate consultation, as appropriate, in accordance with Section 7 of the ESA to ensure that all Hawaii fisheries, including the MHI bottomfish fishery is not likely to result in the destruction or adverse modification of critical habitat.

The proposed translocation of Hawaiian monk seals from the NWHI to the MHI is also not expected to affect the manner in which non-Deep 7 bottomfish are harvested. There could be an increase in the potential for interactions with monk seals because there may be more monk seals in waters of the MHI where the bottomfish fishery operates. The proposed translocation of monk

seals would, therefore, represent a change in the conditions in which the fishery is taking place, so if the translocation of seals were approved, NMFS would re-evaluate the effects of the MHI bottomfish fishery on the Hawaiian monk seal population. The proposed ACL specifications for non-Deep 7 bottomfish in the MHI would not have a large and adverse effect on monk seals because the catch limit is intended to ensure that harvests are sustainable over the long term. If conditions change in the environment that would affect target stocks, then NMFS and the Council would need to consider those conditions in developing future ACL specifications. Sections 3.4.2 and 4.2 describe ESA consultations regarding monk seals and other ESA-listed species that considered cumulative impacts on protected species survival and recovery.

Hawaiian Insular False Killer Whale

NMFS is also considering listing the Hawaiian insular false killer whale as an endangered species based on its possible status as an endangered distinct population segment (75 FR 70169, November 17, 2010). The MHI bottomfish fishery is not known to interact with insular false killer whales; however, NMFS has identified several species of Hawaii bottomfish that could be prey of the species (Oleson et al., 2010). The proposal to specify ACLs would not result in a change to the way the fishery is conducted and, therefore, is not expected to affect the agency's decision of whether to list the insular false killer whale as endangered. ACL specifications would not change the likelihood of interactions, or affect the survival, distribution or behavior of the species in any way. Due to the potential overlap between the whales and the MHI bottomfish fishery, however, if this species is listed, NMFS will initiate consultation, as appropriate, in accordance with Section 7 of the ESA to ensure that all Hawaii fisheries are not likely to jeopardize the continued existence of the species or result in the destruction or adverse modification of critical habitat.

Bumphead Parrotfish and Corals

NMFS has initiated a status review of the bumphead parrotfish or *Bolbometopon muricatum* (75 FR 16713, April 4, 2010) and 82 species of coral (75 FR 6616, February 10, 2010) to determine whether listing of these species under the Endangered Species Act (ESA) is warranted. Specifying ACLs will not have an environmental outcome that would affect the agency's decision of whether to list any of these species. It would not change the likelihood of interactions, or affect the survival, distribution or behavior of the species in any way. As fishing for some species of bottomfish occurs in the coral reef ecosystem, if these species are listed, NMFS will initiate consultation, as appropriate, in accordance with Section 7 of the ESA to ensure that bottomfish fisheries of the western Pacific region are not likely to jeopardize the continued existence of the bumphead parrotfish or any species of coral or result in the destruction or adverse modification of critical habitat.

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.

Additionally, NOAA's Office of National Marine Sanctuaries (ONMS) is proposing to add five additional discrete geographical areas to the Fagatele Bay National Marine Sanctuary and change the name of the sanctuary to the American Samoa National Marine Sanctuary (FR 76 65566, October 21, 2011). The proposed ACL specification and AMs would not result in environmental effects that could, in turn, affect future decisions about changes to the sanctuary nor would the proposed action affect sanctuary resources.

Foreseeable actions by others

Many other non-fishing related activities occur in the same areas where bottomfish resources may be found or where the fisheries may take place. One activity that has the potential to affect the Guam's fishery resources is the Guam military buildup. This activity, involves 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).

Dredging activities have the potential to result in direct localized impact to bottomfish resources within Apra Harbor through loss of habitat, and indirect impacts through increased turbidity and sedimentation during and immediately after dredging occurs. Other support activities, including highway and utilities improvements may also the potential to impact marine resources through run-off and sedimentation if conducted on and around nearshore areas. 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.

Increased numbers of military and support personnel also have the potential to result in an increase in use of nearshore waters, including more vessel activity, as well as add to the number of people participating in the fishery. All harvests of BMUS around each island area would be counted toward the attainment of the annual catch limit. The potential increase in fishery participants around Guam is not expected to interact with the proposed ACL specifications in a way that would affect either the fishery or environment because the ACLs are based on limits to harvest of bottomfish stocks and the resource management objective (preventing overfishing through the use of ACLs and AMs) would not be affected by a change in the number of fishery participants. Furthermore, entry of participants into the fishery in Guam as a result of the buildup is likely to be gradual; and, since the ACL specification and AM recommendations would be reviewed annually, the Council and NMFS would modify the fishery management program, as needed, in response to changes in the fishery.

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

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4.1.2 Coordination with others

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
- Hawaii Department of Land and Natural Resources, Division of Aquatic 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, the CNMI, and Hawaii 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.

NMFS is seeking public comment on the proposed rule to specify ACLs and implement AMs for the bottomfish fisheries in American Samoa, CNMI, Guam and Hawaii. Instructions on how to comment on the proposed rule can be found by searching on RIN 0648-XA674 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 Fishery Ecosystem Plans for potential impacts on ESA-listed species under the jurisdiction of NMFS. Table 33 summarizes ESA section 7 consultations for bottomfish fisheries managed under the FEPs for American Samoa, the Marianas (including Guam and CNMI) and Hawaii.

Table 33. 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

Fishery	Consultation	NMFS Determination
CNMI deep bottomfish fishery	June 3, 2008, Letter of Concurrence	Not likely to adversely affect any ESA-listed species or critical habitat
CNMI shallow bottomfish fishery	June 3, 2008, Letter of Concurrence	Not likely to adversely affect any ESA-listed species or critical habitat
MHI bottomfish fishery	March 18, 2008, Biological Opinion	Likely to adversely affect green sea turtles only; but not likely to jeopardize the continued existence of any ESA-listed species or adversely modify critical habitat

Because the proposed action is not expected to modify vessel operations or other aspects of any fishery, NMFS concludes that the bottomfish fisheries in American Samoa, Guam, CNMI, and Hawaii as currently conducted under the proposed action, would not have an effect on ESA listed species or any designated critical habitats that was not considered in prior consultations, and that no further consultation is required at this time.

On November 17, 2010, NMFS published a proposed rule to list the Hawaiian insular false killer whale as an endangered species under the ESA (75 FR 70169). NMFS is also proposing to designate areas in the MHI as monk seal critical habitat. Specific areas proposed include terrestrial and marine habitats from 5 m inland from the shoreline extending seaward to the 500 m depth contour around Kaula Island, Niihau, Kauai, Oahu, Maui Nui (including Kahoolawe, Lanai, Maui and Molokai) and Hawaii Island (76 FR 32026, June 2, 1011). Additionally, the agency is also evaluating whether to list the bumphead parrotfish and a number of coral species under the ESA, although nothing specific has been proposed as of this date. If new species are listed, or if critical habitat is designated in areas that may be affected by federal fisheries, NMFS will re-initiate consultation, as appropriate, under Section 7 of the ESA to determine the impact of fishing activities on listed species and their critical habitat as required by law.

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 the Secretary of Commerce 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 concludes that these fisheries, as currently conducted under the proposed action, would not negatively affect marine mammals in any manner not previously considered or authorized 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 16, 2011, NMFS sent a letter to the appropriate state government agencies in American Samoa, Guam, Hawaii 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.

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 and 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.

The proposed action would specify an ACL for the bottomfish multi-species stock complex in American Samoa, CNMI and Guam for fishing year 2012. The proposed action would also specify an ACL for the non-Deep 7 BMUS in the MHI in fishing year 2012. 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 2009, approximately 30 vessels engaged in fishing for BMUS in American Samoa. The 2009 average gross revenue per vessel was $3,025 based on an average price of $2.83 per pound, and harvest of 34,375 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 2009, approximately 260 vessels engage in fishing for BMUS in Guam; however, only 230 are estimated to engage in commercial fishing. The 2009 average gross revenue per vessel was $561 based on an average price of $3.30 per pound, and harvest of 39,033 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 2009, approximately 150 vessels engage in fishing for BMUS in the CNMI. The 2009 average gross revenue per vessel was $382 based on an average price of $2.81 per pound, and harvest of 20,418 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.

Hawaii
In 2010, approximately 475 vessels engage in fishing for non-Deep 7 bottomfish in the MHI. The 2010 average gross revenue per vessel was $820 based on an average price of $2.68 per pound, and harvest of 145,383 lb. In general, the relative importance of non-Deep 7 bottomfish 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.

Based on available information, NMFS has determined that all vessels participating in bottomfish fisheries in American Samoa, Guam, CNMI and Hawaii are small entities under the Small Business Administration definition of small entity, i.e., they are engaged in the business of fish harvesting, are independently owned or operated, are not dominant in their field of operation and have annual gross receipts not in excess of $4 million. Therefore, there are no disproportionate economic impacts between large and small entities. Furthermore, there are no disproportionate economic impacts among the universe of vessels based on gear, home port, or vessel length. For these reasons, an initial regulatory flexibility analysis is not required and none has been prepared.

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 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 recommendations. Additionally, NMFS will publish a proposed rule announcing the proposed ACL specifications described in this document which will include requests for public comments. After considering public comments, NMFS will publish a final rule which will 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, low-income populations, would occur. As there would be no change to the fishery, the proposed action would not affect sustenance fishing by members of minority and low-income groups.

4.9 Executive Order 12866

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 for bottomfish fisheries of the western Pacific has been determined to 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 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 B).

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. However, there is expected to be an increased interest on the part of fishermen regarding catch limits, especially where specified ACLs are low because of the limits to the data used in developing ACLs.

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 Council deliberations and public comments at Council meetings. Additional 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.

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Appendix A Range of Catches of Deep 7 Bottomfish in Fishing Year 2012 and 2013 that would Produce Probabilities of Overfishing of 0-99%

Table 17.1 Stock assessment projection results showing the total allowable commercial catches (1000 pounds) of Deep 7 bottomfish in fishing years 2012 and 2013 that would produce probabilities of overfishing in 2012 of 0%, 5%, 10% …, 50% and greater under baseline catch Scenario II and CPUE Scenario I.

Catch Scenario II and CPUE Scenario I				
Probability of Overfishing Deep7 Bottomfish in the Main Hawaiian Islands in Fishing Year 2012	Total Allowable Commercial Catch (1000 pounds) of Deep7 Bottomfish in Fishing Years 2012 and 2013	Probability of Overfishing Deep7 Bottomfish in the Main Hawaiian Islands in Fishing Year 2013	Median Ratio of Deep7 Bottomfish Exploitable Biomass in 2013 to BMSY	Probability That Deep7 Bottomfish Biomass in 2013 Is Greater Than the Minimum Stock Size Threshold (0.7*BMSY)
0	11	0	1.05	0.92
0.05	147	0.02	1.03	0.91
0.10	197	0.09	1.02	0.90
0.15	229	0.14	1.02	0.90
0.20	255	0.19	1.01	0.89
0.25	277	0.24	1.01	0.89
0.30	299	0.29	1.01	0.89
0.35	319	0.34	1.00	0.88
0.40	341	0.39	1.00	0.88
0.45	361	0.45	1.00	0.88
0.50	383	0.50	0.99	0.88
0.55	407	0.56	0.99	0.87
0.60	429	0.60	0.99	0.87
0.65	455	0.66	0.98	0.87
0.70	481	0.71	0.98	0.86
0.75	513	0.76	0.97	0.86
0.80	549	0.81	0.97	0.85
0.85	597	0.86	0.96	0.84
0.90	665	0.91	0.95	0.83
0.95	783	0.96	0.93	0.81
0.99	1001	0.99	0.90	0.77

Source: Brodziak et al. (in press)

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Appendix B Regulatory Impact Review

Regulatory Impact Review
for Proposed Annual Catch Limit Specifications and Accountability Measures for Pacific Island Coral Reef Ecosystem Fisheries in 2012 and 2013

1. Introduction

This document is a regulatory impact review (RIR) prepared under Executive Order (E.O.) 12866, "Regulatory Impact Review." The regulatory philosophy of E.O. 12866 stresses that in deciding whether and how to regulate, agencies should assess all costs and benefits of all regulatory alternatives and choose those approaches that maximize the net benefits of all regulatory alternatives and choose those approaches that maximize the net benefits to the society. To comply with E.O. 12866, NMFS prepares an RIR for all regulatory actions that are of public interest. The RIR provides a review of the problems, policy objectives, and anticipated impacts of regulatory actions.

This RIR is for the proposed annual catch limit (ACL) specifications and accountability measures (AM) for Bottomfish Fisheries of American Samoa, Guam, the Northern Mariana Islands, and Hawaii in 2012 and 2013.

2. Problems and Management Objective

In order to comply with the Magnuson-Stevens Act and provisions of the FEPs for American Samoa, the Mariana Archipelago, and Hawaii, NMFS must specify an ACL for each stock and stock complex in western Pacific bottomfish fisheries.

The management objective is to specify an ACL for all western Pacific bottomfish management unit species (BMUS) in order to prevent overfishing from occurring, and ensure long-term sustainability of the resource while allowing fishery participants to continue to benefit from its utilization. AMs are also needed to correct or mitigate overages of the ACL, should overages occur.

3. Description of the Fisheries

The management action will affect U.S. subsistence, recreational and commercial fishermen who fish for BMUS species in American Samoa, Guam, the CNMI and Hawaii. The descriptions of these fisheries are provided in Sections 3.1, 3.2, 3.3, and 3.4 of the Environmental Assessment (EA). These include general information about the BMUS fisheries for each of the four regions, fishing practices, vessel characteristics, and most recent price and landing information.

4. Description of the ACL Alternatives for the Bottomfish MUS in 2012 and 2013

Proposed ACLs:

The proposed ACLs for BMUS under each of the preferred and non-preferred alternatives for American Samoa, CNMI, Guam, and Hawaii are described in Section 2.2 of the EA and summarized in Sections 4.1-4.3 of the RIR below.

Accountability Measures:

Under all action alternatives considered, the Council would determine as soon as possible after the fishing year, whether or not an ACL for any stock or stock complex had been exceeded. If landings of a stock or stock complex exceed the specified ACL in a fishing year, the Council would take action in accordance with 50 CFR 600.310(g) to correct the operational issue that caused the ACL overage. NMFS would implement the Council's recommended action, which could include a downward adjustment to the ACL for that stock complex in the subsequent fishing year, or other measures, as appropriate. Additionally, as a performance measure specified in each FEP, if an 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. Each alternative also assumes continuation of all existing federal and local resource management laws and regulations.

4.1 Alternative 1: No Action (Status Quo)

Under the No Action Alternative, NMFS would not specify an ACL for any BMUS in any island area and AMs would not be necessary. However, this alternative would not be in compliance with the Magnuson-Stevens Act or the provisions of the FEPs which require ACLs be specified for all stocks and stock complexes.

4.2 Alternative 2: Specify ACLs equal to the SSC recommended ABC (Preferred)

Under Alternative 2, the 2012 and 2013 ACL for BMUS in American Samoa, Guam, CNMI, and the ACL for the MHI non-Deep 7 bottomfish would be set equal to the ACL recommended by the Council. These all equal the SSC's recommended ABC.

The ACLs for BMUS would be specified as follows: 99,200 lb for American Samoa BMUS, 48,200 lb for Guam BMUS, 182,500 for CNMI BMUS, and 135,000 lb for MHI non-Deep 7 BMUS.

4.3 Alternative 3: Specify ACLs below the SSC's recommended ABC

Under this alternative, the 2012 and 2013 ACLs for BMUS in American Samoa, Guam, and the CNMI would be specified as follows: 79,300 lb for American Samoa BMUS, 43,500 lb for Guam BMUS, and 160,000 lb for CNMI BMUS. The ACLs proposed under Alternative 3 are associated with a less than 2% probability of exceeding MSY. In addition, the ACL for MHI

non-Deep 7 bottomfish would be set at 107,608 lb and is associated with a probability of overfishing between 10-15%. These ACLs are all lower than the SSC's recommended ABC.

5 Analysis of the Alternatives

This section describes the potential economic effects of all alternatives that were considered and evaluates the impacts of each action alternative relative to the no-action alternative.

5.1 Alternative 1: No Action (Status Quo)

Under Alternative 1, the no-action alternative, BMUS fisheries in American Samoa, Guam, CNMI, and Hawaii would not be managed using annual catch limits and accountability measures would not used. Fishing would continue to be monitored by each of four local resource management agencies (American Samoa Department of Marine and Wildlife Resources, Guam Division of Aquatic and Wildlife Resources, CNMI Division of Fish and Wildlife, and Hawaii Division of Aquatic Resources), NMFS and the Council. Fisheries statistics would continue to be made available approximately six months or longer after the data have been initially collected. The status of BMUS, including species of special management interest to the Council would continue to be subject to ongoing discussion and fisheries scientific and management review.

This alternative would not be in compliance with the Magnuson-Stevens Act or the provisions of the FEPs which require ACLs be specified for all stocks and stock complexes.

5.2 Alternative 2: Specify ACLs equal to the SSC recommended ABC (Preferred)

Under Alternative 2, fishing for American Samoa BMUS would be subject to an ACL of 99,200 lb for the 2012 as well as the 2013 fishing years. Fishing for Guam BMUS would be subject to an ACL of 48,200 lb, while the ACL for CNMI BMUS would be set at 182,500 lb for the 2012 and the 2013 fishing years. The ACL for the MHI Deep 7 bottomfish would be set at 135,000 lb for both fishing years.

Between 2000 and 2009, the highest estimated commercial landings level for BMUS in American Samoa was 34,373 lb; the proposed ACL specification exceeds this by almost threefold. For those same years, the highest estimated commercial landings level for BMUS in Guam was 65,871 lb, and averaged 35,081 lb between 2006 and 2009. The most recent commercial landings were lower than the proposed ACL specification for Guam BMUS, but commercial landings in 2000 and 2001 did exceed this proposed ACL. Between 2000 and 2009, the highest estimated commercial landings level for BMUS in CNMI was 25,303 lb. Commercial landings of BMUS in CNMI from 2006 through 2009 averaged 17,419 lb and the proposed ACL specification exceeds this recent average by more than tenfold. Since 2012 and 2013 bottomfish ACL specifications for American Samoa, Guam and CNMI are higher than recent commercial landings, harvests are not expected to exceed the ACL.

Between 1966 and 2010, the highest estimated commercial landing levels for non-Deep 7 BMUS in MHI were 372,201 lb in 1988 and 238,434 lb in 1989. Commercial landings from 2006 through 2010 averaged 104,984 lb. The proposed 2012 and 2013 ACL non-Deep 7 bottomfish

specifications for MHI are higher than most recent commercial landings, however, commercial landings in 2010, at 145,383 lb, did exceed the proposed ACL. So harvests may potentially exceed ACL for either the 2012 or 2013 fishing seasons.

The AM for BMUS fisheries in American Samoa, Guam, CNMI and for the non-Deep 7 bottomfish fishery in MHI would require a post-season review of the catch data to determine whether any of those ACLs had been exceeded. If any ACL had been 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. 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.

Under Alternative 2, as with the other action alternative, the inability of fishery management entities to conduct in-season tracking of catch in relation to the ACLs, resulted in the Council and NMFS not considering in-season closures. This means that participants in American Samoa, Guam, and CNMI BMUS fisheries as well as in the MHI non Deep 7 bottomfish fishery would be able to fish throughout the entire season. The ACLs as specified under Alternative 2, (as well as under Alternative 3) would not change the conduct of the fishery each year, including gear types, areas fished, effort, or participation. Even if the post-season assessment determines that ACL overages had occurred and that downward adjustments to that ACL are needed for the following fishing year, the lack of ability in assessing catch levels during the ongoing fishing season would not result in any impact to these fisheries which could still continue. Therefore, due to the lack of an in-season fishery closure, bottomfish fishery participants should not face any direct adverse economic impacts in 2012 and 2013 as a result of the proposed ACL and AMs. Indirect adverse economic effects could result should catch restrictions occur as a result of the specified ACLs. NMFS cannot predict which MUS would be affected or the magnitude of the overage adjustment that might be taken; therefore, the fishery and economic impacts of future actions such as changes to ACLs or AMs would be evaluated separately, once those future actions are available for consideration.

As the choice of the ACL under Alternative 2 would have little, if any, impact on BMUS fishing activities, this suggests that there should be no change in the amount of BMUS fish supplied to local markets or available for subsistence and cultural sharing practices in 2012 and 2013 as a result of this action.

Incremental costs associated with this alternative are expected to be incurred by the requirement for the Federal agency to conduct post-season fishery review in order to determine whether one or more ACLs had been exceeded and then would incur costs related to corresponding activities to address the overage. These costs may include, but are not limited to Council costs of documentation preparation, meetings, public hearings, and information dissemination. NMFS administrative costs of document preparation, meetings and reviews supporting rulemaking or otherwise respond to Council proposal. Although each alternative would have the same costs involved with post-season fishery performance review, the other incremental costs are expected to be higher when the potential to exceed one or more ACLs is higher, so Alternative 2 is more

likely to incur lower public and private administrative costs than Alternative 3, but higher than the no action alternative. It should be noted that none of the administrative activities under any of the alternatives would be substantially higher than the ongoing costs that the Council and its organizational bodies would bear in response to continuing to comply with national requirements under the MSA that call for the Council to develop and recommend appropriate ACLs and AMs, and for NMFS to implement the specifications.

5.3 Alternative 3: Specify ACLs below the SSC's recommended ABC

Under this alternative, the 2012 and 2013 ACLs for BMUS in American Samoa, Guam, and the CNMI would be specified as follows: 79,300 lb for American Samoa BMUS, 43,500 lb for Guam BMUS, and 160,000 lb for CNMI BMUS. In addition, the ACL for MHI non-Deep 7 bottomfish would be set at 107,608 lb.

Since 2012 and 2013 BMUS ACL specifications under Alternative 3 for American Samoa, Guam, and CNMI are all higher than recent commercial landings, harvests are not expected to exceed the ACL. Impacts to fisheries are generally the same as those described in Alternative 2, except that the probability of exceeding ACL in each region is slightly higher under Alternative 3.

Impacts are generally the same as those described in Alternative 2, except that the probability of exceeding an ACL, and therefore triggering AMs, is slightly higher under Alternative 3.

Among the action alternatives, it is not possible to provide a quantitative assessment of which would provide a greater net benefit. While Alternative 3 may incur higher incremental costs in implementing AMs, because of the higher likelihood of triggering AMs, the additional level of post season review of the catch would also provide an enhanced level of management review of the fishery and further help the fishery from becoming overfished.

6. Distributional Changes in Net Benefit

The action alternatives are expected to have no distributional effects among large and small vessels or by geographic region, because the proposed measures should not cause an adverse economic impacts to fishermen in 2012 and 2013, as described earlier.

7. Changes in Income and Employment

The action alternatives are not expected to cause adverse economic impacts to fishermen in 2012 and 2013; therefore, changes in income and regional employment are unlikely to occur as a direct consequence of the proposed measures.

8. Determination of a Significant Regulatory Action

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 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. However, there is expected to be an increased interest on the part of fishermen regarding catch limits, especially where specified ACLs are low because of the limits to the data used in developing ACLs.

9. Impacts on Small Entities

This section provides a description of the economic impacts of the proposed alternative on small entities as well as that of the alternatives that were considered in the amendment but not selected.

The reasons why the action is being considered, the objectives of, and the legal basis for the proposed action are addressed in Section 1.0 of the EA. NMFS does not believe that the proposed regulations would conflict with or duplicate other Federal regulations. Sections 3.1, 3.2, 3.3, and 3.4 of the EA provide descriptions of the fisheries that may be affected by this action.

The proposed action would specify an annual catch limit (ACL) for each BMUS in American Samoa, Guam, the Northern Mariana Islands, and MHI non Deep 7 bottomfish fishery for fishing years 2012 and 2013. The ACLs would be set as follows: 99,200 lb for American Samoa BMUS, 48,200 lb for Guam BMUS, and 182,500 lb for CNMI BMUS. The ACL for the MHI Deep 7 bottomfish would be set at 135,000 lb for both fishing years. If the ACL for any of these fisheries 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 for that stock or stock complex in the subsequent fishing year.

NMFS does not have annual revenue information on a per-vessel basis, but assumes that all commercial BMUS fishery participants to be small entities based on the SBA size standard for defining a small business entity in this industry with average annual receipts less than $4.0 million. The proposed action of specifying ACL and AMs is expected to have little, if any, direct adverse economic impact, as described in the EA and the RIR. There are no disproportionate economic impacts between large and small entities. Furthermore, there are no disproportionate economic impacts among the universe of vessels based on gear, home port, or vessel length.

NMFS is recommending that the Office of General Counsel for Department of Commerce certify to the Chief Counsel for Advocacy of the Small Business Administration that the proposed action would not have a significant economic impact on a substantial number of small entities.