PRELIMINARY DRAFT

Specifying 2013 Annual Catch Limits and Accountability Measures for Bottomfish Management Unit Species in American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands and Non-Deep 7 Bottomfish for the Main Hawaiian Islands

October 11, 2012

Content

Tables

Figures

1 Introduction

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 or MSA). Three of the FEPs are archipelagic-based and include the American Samoa Archipelago FEP, the Hawaii Archipelago FEP, and the Mariana Archipelago FEP (which covers federal waters around Guam and the Commonwealth of the Northern Mariana Islands or the CNMI). The fourth FEP covers federal waters of the U.S. Pacific remote island areas (PRIA) which include Palmyra Atoll, Kingman Reef, Jarvis Island, Baker Island, Howland Island, Johnston Atoll, and Wake Island.

In accordance with the Magnuson-Stevens Act, the FEPs and their implementing regulations at 50 CFR 665.4, NMFS must specify, an annual catch limit (ACL) and implement accountability measures (AM) for BMUS, 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. The ACL may not exceed the acceptable biological catch (ABC) recommended by the Council's Science and Statistical Committee (SSC).

On February 7, 2012 (77 FR 6019), NMFS specified the 2012 ACLs for BMUS in American Samoa, Guam and the CNMI, and the ACL for the main Hawaiian Islands (MHI) non-Deep 7 bottomfish as recommended by the Council at its 152nd meeting held October 17-19, 2012. The 2012 ACLs, which are identical to the SSC recommended ABCs are valid from January 1 through December 31, 2012 and are as follows:

- American Samoa bottomfish ACL = 99,200 lb;
- Guam bottomfish ACL = 48,200 lb;
- CNMI bottomfish ACL = 182,500 lb; and
- MHI non-Deep 7 bottomfish ACL = 135,000 lb[1]

For bottomfish in American Samoa, Guam and the CNMI, the ABCs and ACLs are based on a 2007 NMFS Pacific Islands Fisheries Science Center (PIFSC) stock assessment (Moffitt et al., 2007) which used data through 2005. The ABCs and ACLs for the non-Deep 7 bottomfish in the MHI are based on a combination of information sources including State of Hawaii commercial catch data, and information contained in a 2011 stock assessment update for MHI Deep 7 bottomfish prepared by PIFSC (Brodziak et al., 2011). This stock assessment uses data through 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 2011 assessment was used as a proxy for non-Deep 7 bottomfish population dynamics, catchability and other biological parameters, and to estimate potential annual catch limits and their associated probabilities of overfishing for the non-Deep 7 bottomfish stock complex in the MHI.

[1] NMFS recently specified the 2012-13 ACL for the Deep 7 bottomfish complex of the MHI (77 FR 56791, September 14, 2012) which remains valid through August 31, 2013. Therefore, only the non-Deep 7 bottomfish are included in the Hawaii portion of this action.

The data, methods, and procedures considered by NMFS, the Council and its SSC in developing the 2012 ACL specifications were described in an environmental assessment (NMFS, 2012).

1.1 New Information

In May 2012, NMFS Pacific Islands Fisheries Science Center (PIFSC) completed a new stock assessment update for bottomfish in American Samoa, Guam and the CNMI (Brodziak et al., in press). The 2012 stock assessment applies the same production modeling as the previous 2007 assessment (Moffitt et al., 2007) and uses data through 2010. A Bayesian statistical framework is applied to estimate parameters of a production model fit to a time series of annual catch per unit effort (CPUE) statistics. This approach provides 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 CPUE. 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 are evaluated using the Deviance information criterion. The sensitivity of status determination results to catch data and model assumptions is also evaluated. For these island areas, the PIFSC 2012 stock assessment also includes stock projection results for a range of bottomfish catches that would produce probabilities of overfishing in fishing year 2013 and 2014 ranging from 0 percent to 100 percent at five percent intervals.

For the MHI non-Deep 7 bottomfish, new catch data from the 2011 fishing year is now available. Based on this new information, the Council may wish to consider this data and set a new ACL the bottomfish fisheries in American Samoa, Guam, the CNMI and for non-Deep 7 bottomfish in the MHI. A summary of new bottomfish fishery information is presented in Section 2.1 for American Samoa BMUS, Section 2.2 for Guam BMUS, Section 2.3 for CNMI BMUS and Section 2.4 for MHI non-Deep 7 bottomfish.

1.2 The Council's Task

Setting the Annual Catch Limit

The task for the Council is to recommend a new ACL for bottomfish in American Samoa, Guam, and the CNMI and for the non-Deep 7 bottomfish in the MHI. The ACL may not exceed the SSC's recommended ABC. The Council's ACL process described in the FEPs 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 overfishing limit (OFL) and result in overfishing. Given the 2012 stock assessment covers the two year period 2013 and 2014, the Council may choose to set an ACL that covers both fishing years. For the MHI non-Deep 7 bottomfish, catch data from the 2011 fishing year is now available upon which the Council may wish to consider in setting a new ACL for 2013 and 2014. See Tables 12 and 13 for a range of ACLs and the associated probability of overfishing for each island area in fishing year 2013 and 2014.

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

Setting the Accountability Measure

The Council must also recommend in-season accountability measures to prevent an ACL from being exceeded, if possible. In season AMs may include, but are not limited to, closing the fishery, closing specific areas, changing bag limits, or other methods to reduce catch. If in-season AMs are not possible, the Council must employ post-season AMs that make adjustments to an ACL, if it is exceeded.

In 2012, the Council determined that in-season AMs are not possible for any western Pacific bottomfish fishery at this time because, catch statistics are generally not available until at least six months after the data have been collected. For this reason, the Council recommended AM implemented by NMFS requires the Council to 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.

Setting ACLs and AMs for PRIA Bottomfish and Seamount Groundfish

Although required by the FEPs, the Council in 2012, recommended ACLs and AMs not be specified for BMUS in the PRIA because commercial fishing is prohibited out to 50 nautical miles by Presidential Proclamation 8336 (establishing the Pacific Remote Island Marine National Monument (74 FR 1565, January 12, 2009), and because there is no habitat to support such fisheries in the EEZ beyond the monument boundaries. The Council is separately working on a draft amendment to the relevant FEP containing fishery management measures for the Pacific Remote Islands Marine National Monument (as well as the Rose Atoll and Mariana Trench Marine National Monuments). Additionally, the Council recommended ACLs and AMs not be specified for MUS that are currently subject to Federal fishing moratorium which includes three Hawaii seamount groundfish: pelagic armorhead, alfonsin, and raftfish (75 FR 69015, November 10, 2010). The Council may wish to re-iterate that current prohibitions on fishing for these MUS serve as a functional equivalent of an ACL of zero and therefore, recommend ACLs or AMs not be established for these MUS at this time.

2 Summary of New Bottomfish Fishery Information

2.1 American Samoa Bottomfish MUS

2.1.1 Estimation of OFL

According to the PIFSC 2012 bottomfish stock assessment (Brodziak et al., in press), the long-term MSY for American Samoa bottomfish is estimated to be 76,200 ± 14,300 lb, which is lower than the previous MSY estimate of 109,000 ± 29,700 lb reported in the 2007 assessment by Moffitt et al. (2007). Stock projection results, which assume that a two-year bottomfish catch limit would be harvested in its entirety in 2013 and again in 2014, indicates that an ACL set at approximately 108,000 lb would result in a 36 percent probability of overfishing in 2013, rising in 2014 to a 50 percent probability of overfishing (Table 1), the maximum risk allowable under Federal law (74 FR 3178, January 9, 2011). Therefore, while 76,200 lb is the long-term estimate of MSY, 108,000 lb is considered to be the OFL proxy for the two year period. As a reference, estimated average annual total catch during the period 2008-2010 was 30,593 lb with only 9,509 lb landed in 2010, the most recent year for which complete data (i.e., total catch and commercial catch) are available (Table 2). This suggests the fishery would need to harvest nearly four times the recent average catch of 30,593 lb, or 30,000 lb more than MSY in 2013 and again in 2014 for overfishing to occur.

Table 1. American Samoa probability of overfishing in 2013 and 2014

ACL (lb)	% Probability of Overfishing (2013)	% Probability of Overfishing (2014)
33,000	0	0
60,000	5	5
73,000	10	12
81,000	15	18
89,000	20	26
90,200	21	27
91,400	22	29
92,600	23	30
93,800	24	32
95,000	25	33
96,200	26	35
97,400	27	36
98,600	28	38
99,800	29	39
101,000	30	41
102,200	31	43
103,400	32	44
104,600	33	46
105,800	34	47
107,000	35	49
108,000	36	50

Source: Values interpolated from Table 15 in Brodziak et al., (in press)

2.1.2 Stock Status

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

In 2010, the most recent year for which stock status information is available, $F_{2010}/F_{MSY} = 0.09$ while $B_{2010}/B_{MSY} = 1.59$ (Table 12 in Brodziak et al., in press). The production model results indicate that the American Samoa bottomfish complex was not overfished and did not experience overfishing at any point between the periods 1986 and 2010 (Figure 1). Based on stock projections, an annual catch of 108,000 lb in 2013 and again in 2014 would be necessary to produce an F/F_{MSY} ratio of 1.0 (i.e., overfishing).

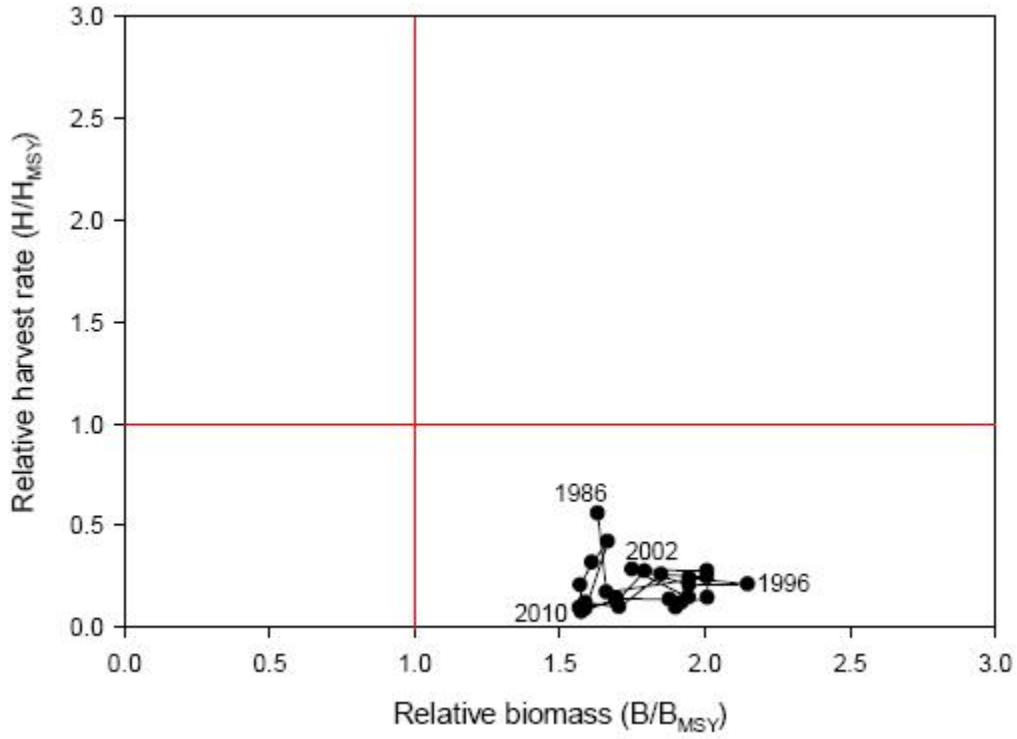

Figure 1. Kobe plot of relative biomass and relative exploitation rate from the best fitting production model for American Samoa, 1986-2010 (Source: Brodziak et al., in press, Figure 25)

Table 2. Annual estimated catch of BMUS in American Samoa 2000-2010

Year	Estimated Total Catch (lb)[1]	Estimated Commercial Catch (lb)[2]
2000	19,816	13,319
2001	37,847	21,439
2002	34,149	16,603
2003	19,199	4,645
2004	17,206	11,469
2005	16,329	5,649
2006	7,913	5,252
2007	21,874	13,092
2008	34,812	24,585
2009	47,458	34,360
2010	9,509	8,667
Ave. Catch 2008-2010	**30,593**	**22,537**

[1]Source: Table 2 in Brodziak et al., (in press)
[2] Source: NMFS WPacFIN website http://www.pifsc.noaa.gov/wpacfin (accessed 10/10/2012)

2.2 Guam Bottomfish MUS

2.2.1 Estimation of OFL

According to the PIFSC 2012 bottomfish stock assessment (Brodziak et al., in press), the long-term MSY for Guam bottomfish is estimated to be 55,000 lb ± 7,900 lb, which is slightly higher than the previous MSY estimate of 53,000 ± 9,500 lb reported in the 2007 assessment by Moffitt et al. (2007). Stock projection results, which assume that a two-year bottomfish catch limit would be harvested in its entirety in 2013 and again in 2014, indicates that an ACL set at approximately 70,400 lb would result in a 34 percent probability of overfishing in 2013, rising in 2014 to approximately a 49 percent probability of overfishing (Table 3) 1 percent below the maximum risk allowable under Federal law (74 FR 3178, January 9, 2011). Therefore, while 55,000 lb is the long-term estimate of MSY, 70,400 lb is considered to be the OFL proxy for the two year period. As a reference, estimated average annual total catch during the period 2008-2010 was 35,499 lb with 28,958 lb landed in 2010, the most recent year for which complete catch data (i.e., total and commercial catch) are available (Table 4). This suggests the fishery would need to harvest nearly twice the recent average catch of 35,499 lb or 15,000 lb more than MSY in 2013 and again in 2014 for overfishing to occur.

Table 3. Guam probabilities of overfishing in 2013 and 2014

ACL (lb)	% Probability of Overfishing (2013)	% Probability of Overfishing (2014)
22,000	0	0
44,000	5	5
51,000	10	11
56,000	15	17
61,000	20	26
61,800	21	28
62,600	22	30

ACL (lb)	% Probability of Overfishing (2013)	% Probability of Overfishing (2014)
63,400	23	31
64,200	24	33
65,000	25	35
65,600	26	37
66,200	27	38
66,800	28	40
67,400	29	41
68,000	30	43
68,500	31	45
69,200	32	46
69,800	33	48
70,400	34	49
71,000	35	51

Source: Values interpolated from Table 17 in Brodziak et al., (in press)

2.2.2 Stock Status

In 2010, the most recent year for which stock status information is available, $F_{2010}/F_{MSY} = 0.47$ while $B_{210}/B_{MSY} = 1.594$ (Table 14 in Brodziak et al., in press). The production model results indicate that during the period 1982 through 2010, the Guam bottomfish complex has not been overfished and has not experienced overfishing, except perhaps in 2000 (Figure 2) Based on stock projections, an annual catch of 70,400 lb in 2013 and again in 2014 would be necessary to produce an F/F_{MSY} ratio of 1.0 (i.e., overfishing).

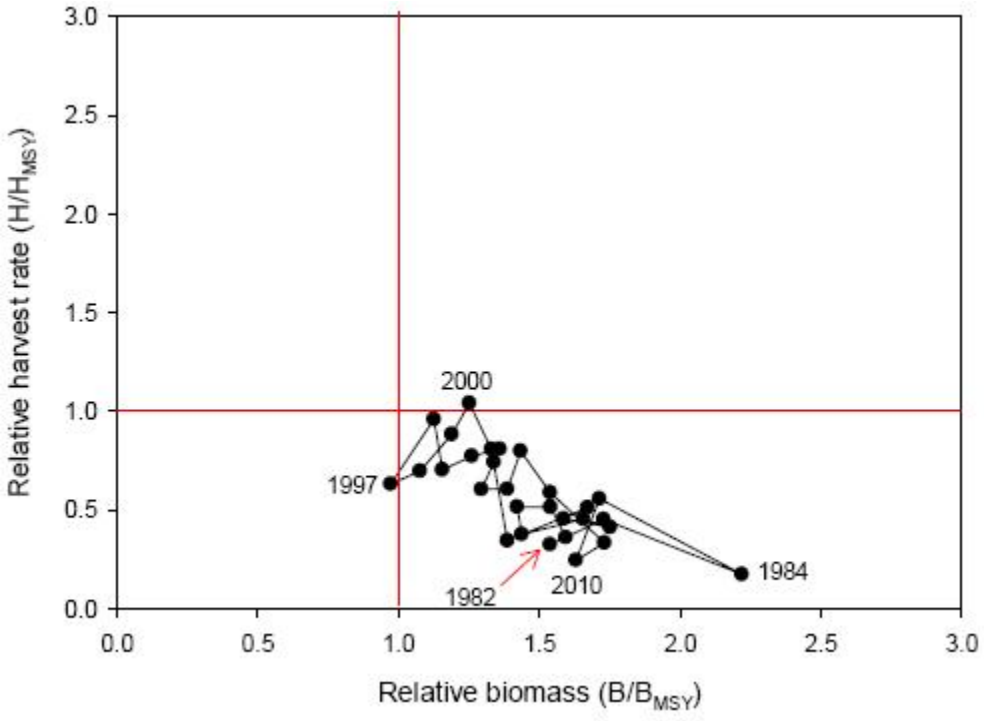

Figure 2. Kobe plot of relative biomass and relative exploitation rate from the best fitting production model for Guam, 1982-2010 (Source: Brodziak et al., in press, Figure 39)

Table 4. Annual estimated catch of BMUS in Guam (2000-2010)

Year	Estimated Total Catch (lb)[1]	Estimated Commercial Catch (lb)[2]
2000	66,000	20,371
2001	54,352	23,690
2002	24,044	17,561
2003	43,253	10,841
2004	36,915	24,947
2005	36,529	23,002
2006	38,054	17,100
2007	27,459	16,074
2008	37,316	11,484
2009	40,222	15,867
2010	28,958	13,810
Ave. Catch 2008-2010	**35,499**	**13,720**

[1]Source: Table 2 in Brodziak et al., (in press).
[2] Source: NMFS WPacFIN website http://www.pifsc.noaa.gov/wpacfin (accessed 10/10/2012)

2.3 CNMI Bottomfish MUS

2.3.1 Estimation of OFL

According to the PIFSC 2012 bottomfish stock assessment (Brodziak et al., in press), the long-term MSY for CNMI bottomfish is estimated to be 172,900 ± 32,200 lb, which is lower than the previous MSY estimate of 200,500 ± 40,500 lb reported in the 2007 assessment by Moffitt et al. (2007). Stock projection results, which assume that a two-year bottomfish catch limit would be harvested in its entirety in 2013 and again in 2014, indicates that an ACL set at approximately 246,000 lb would result in a 34 percent probability of overfishing in 2013, rising in 2014 to approximately a 50 percent probability of overfishing (Table 5) the maximum risk allowable under Federal law (74 FR 3178, January 9, 2011). Therefore, while 172,900 lb is the long-term estimate of MSY, 246,000 lb is considered to be the OFL proxy for the two year period. As a reference, estimated average annual total catch during the period 2008-2010 was 35,314 lb with 22,395 lb landed in 2010, the most recent year for which complete catch data (i.e., total and commercial catch) are available (Table 6). This suggests the fishery would need to harvest nearly seven times the recent average catch of 35,314 lb or 73,000 lb more than MSY in 2013 and again in 2014 for overfishing to occur.

Table 5. CNMI probabilities of overfishing in 2013 and 2014

ACL (lb)	% Probability of Overfishing (2013)	% Probability of Overfishing (2014)
4,000	0	0
130,000	5	5
162,000	10	11
183,000	15	17
203,000	20	26
206,200	21	28
209,400	22	29

ACL (lb)	% Probability of Overfishing (2013)	% Probability of Overfishing (2014)
212,600	23	31
215,800	24	32
219,000	25	34
222,000	26	36
225,000	27	38
228,000	28	39
231,000	29	41
234,000	30	43
237,000	31	45
240,000	32	47
243,000	33	48
246,000	34	50

Source: Values interpolated from Table 16 in Brodziak et al., (in press)

2.3.2 Stock Status

In 2010, the most recent year for which stock status information is available, $F_{2010}/F_{MSY} = 0.09$ while $B_{2010}/B_{MSY} = 1.78$ (Table 13 in Brodziak et al., in press). The production model results indicate that the CNMI bottomfish complex was not overfished and did not experience overfishing at any point between the periods 1986 and 2010 (Figure 3). Based on stock projections, an annual catch of 246,000 lb in 2013 and again in 2014 would be necessary to produce an F/F_{MSY} ratio of 1.0 (i.e., overfishing).

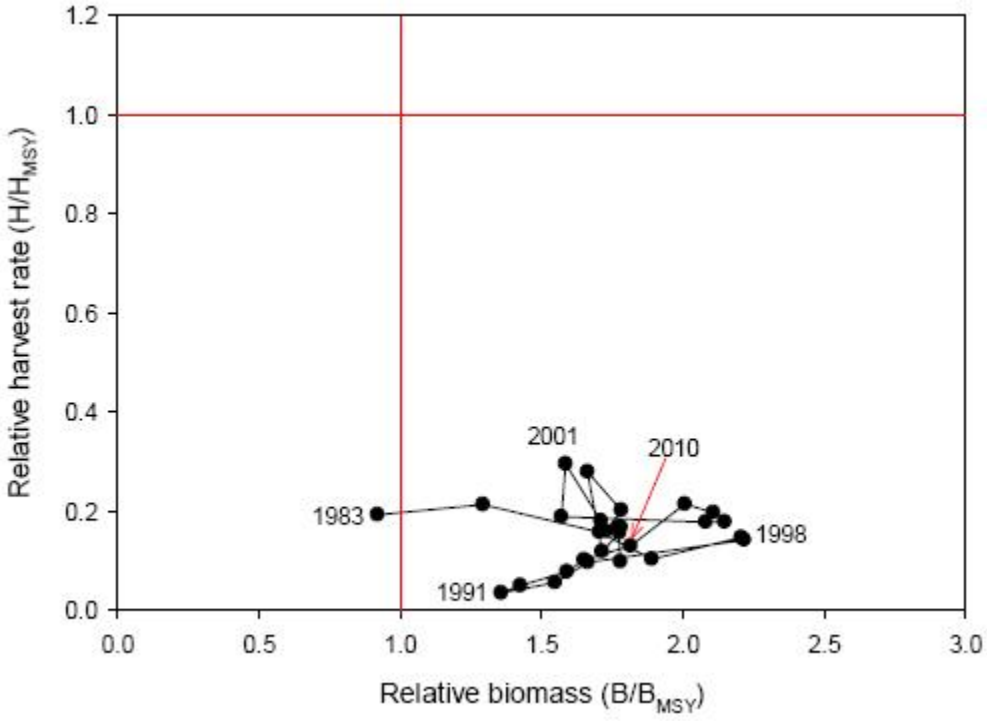

Figure 3. Kobe plot of relative biomass and relative exploitation rate from the best fitting production model for CNMI, 1983-2010 (Source: Brodziak et al., in press, Figure 32)

Table 6. Annual estimated catch of BMUS in CNMI (2000-2010)

Year	Estimated Total Catch (lb)[1]	Estimated Commercial Catch (lb)[2]
2000	45,258	14,968
2001	71,256	25,303
2002	46,765	18,816
2003	41,903	18,063
2004	54,475	12,973
2005	70,404	16,538
2006	29,340	12,262
2007	39,476	18,606
2008	42,070	18,389
2009	41,176	20,418
2010	22,395	14,729
Ave. Catch 2008-2010	**35,314**	**17,845**

[1]Source: Table 2 in Brodziak et al., (in press).
[2] Source: NMFS WPacFIN website http://www.pifsc.noaa.gov/wpacfin (accessed 10/10/2012)

2.4 Hawaii non-Deep 7 Bottomfish

2.4.1 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., 2011, Table 17.1 and shown in Table 8). The 2011 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 2011 assessment includes a modified treatment of unreported catch and 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 2011 bottomfish stock assessment, the Catch 2/CPUE 1 scenario combination represents the best approximation (with a 0.400 probability) of the true state of the bottomfish fishery and Deep 7 bottomfish population dynamics. Under the Catch 2/CPUE 1 scenario combination, the long-term 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.[3]

[3] The results of the 2011 MHI Deep 7 bottomfish stock assessment remain the best available information until a new assessment is conducted.

The 2011 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. 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 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 for MHI Deep 7 bottomfish is an appropriate approach given the fact that only catch data are available for the non-Deep 7 stock complex. Additionally, this catch data indicate 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. (2011). 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. (2011). 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) three recent years when the fishery operated under a catch limit system. The results summarized in Table 6 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 67 percent to 72 percent. Conversely, this demonstrates the proportion of non-Deep 7 bottomfish to the total MHI bottomfish catch ranged from 33 percent to 28 percent.

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., (2011)
[2] Source: Table 6 in Brodziak et al., (2011)

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. (2011).[4]

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, 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., (2011) and shown in Table 8 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.

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 for impact analyses.

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 from 0 through 99% based on 1949-2010 catch data (PDEEP7 = 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

[4] For the purpose of ACL specifications, taape *(Lutjanus kasmira)* and kahala (*Seriola dumerili)* are included under the ACL specifications for Coral Reef Ecosystem (CRE) MUS (77 FR 6019, February 7, 2012). Specifically, catches of taape are 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).

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]
25	277	415	138
30	299	449	150
35	319	479	160
40	341	512	171
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., (2011)

[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. These estimates will continue to apply in future fishing years until a new stock assessment is conducted.

Average Recent Catch

Table 9 below provides a time series of reported commercial catch of each species of the non-Deep 7 species from the MHI between the years 1966-2011. 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. Similarly, the data collection program likely did not distinguish yellowtail kalekale *(Pristipomoides auricilla)* from kalekale (*Pristipomoides sieboldii*) prior to 2001. Based on this approach, the total average catch of all MHI non-Deep 7 species combined for the last five years (2007-2011) was 117,420 lb (±20,308 lb).

Table 9. Reported Commercial catch of MHI non-Deep 7 BMUS (1966-2011)

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

Fishing Year	Uku	Butaguchi	Black ulua	White ulua	Yellowtail kalekale	Total (lb)
1969	57,526	0	0	0	0	57,526
1970	47,405	0	0	0	0	47,405
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

Fishing Year	Uku	Butaguchi	Black ulua	White ulua	Yellowtail kalekale	Total (lb)
2008	92,872	1,193	405	15,856	6	110,331
2009	87,175	1,083	549	13,794	35	102,636
2010	123,250	772	3,348	17,986	27	145,383
2011	109,497	1,385	1,554	18,904	51	131,391
Ave. 2007-2011	**96,349**	**1,063**	**1,326**	**18,652**	**30**	**117,420**
StDev07-11	**20,877**	**244**	**1,214**	**4,826**	**19**	**20,308**

Source: NMFS WPacFIN unpublished data

Figures 4 to 7 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 4 clearly illustrates uku is the primary stock harvested in the fishery.

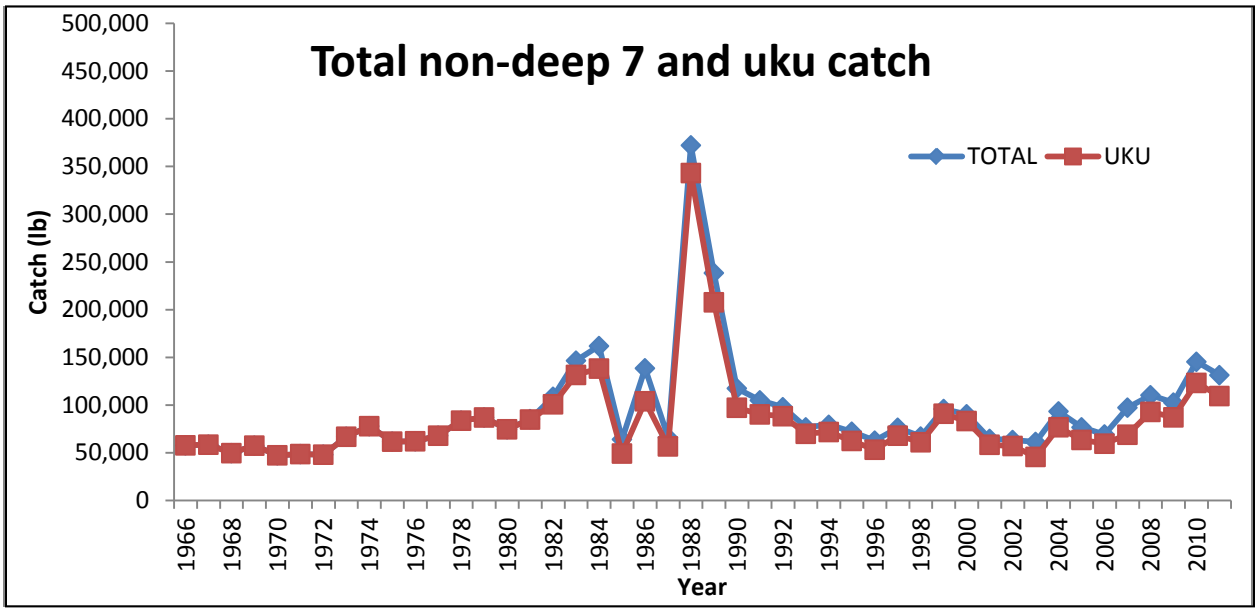

Figure 4. Reported catches of all MHI non-Deep7 bottomfish and uku (1966-2011)
(Source: WPFMC 2012)

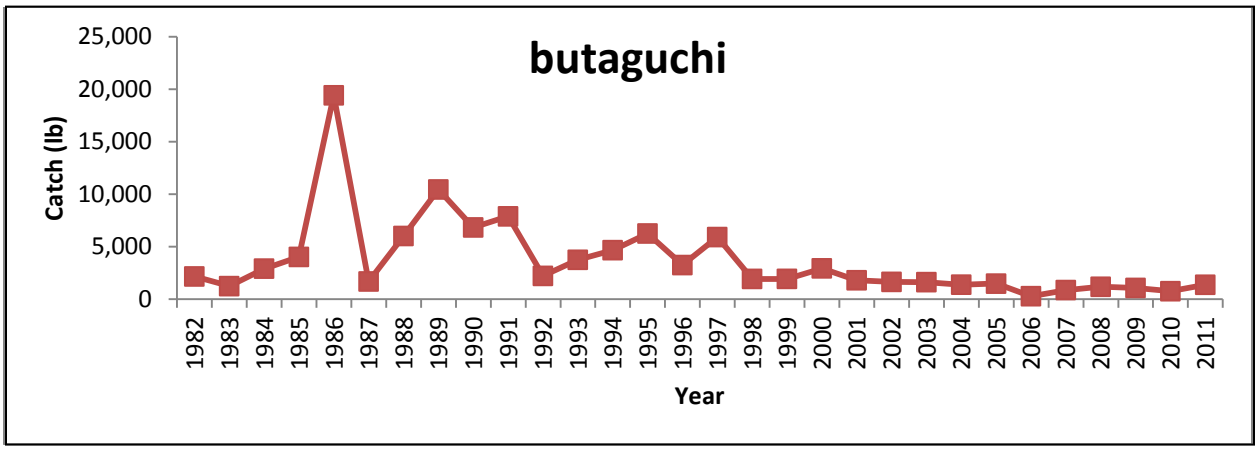

Figure 5. Reported catches of butaguchi in the MHI (1982-2011)
(Source: WPFMC 2012)

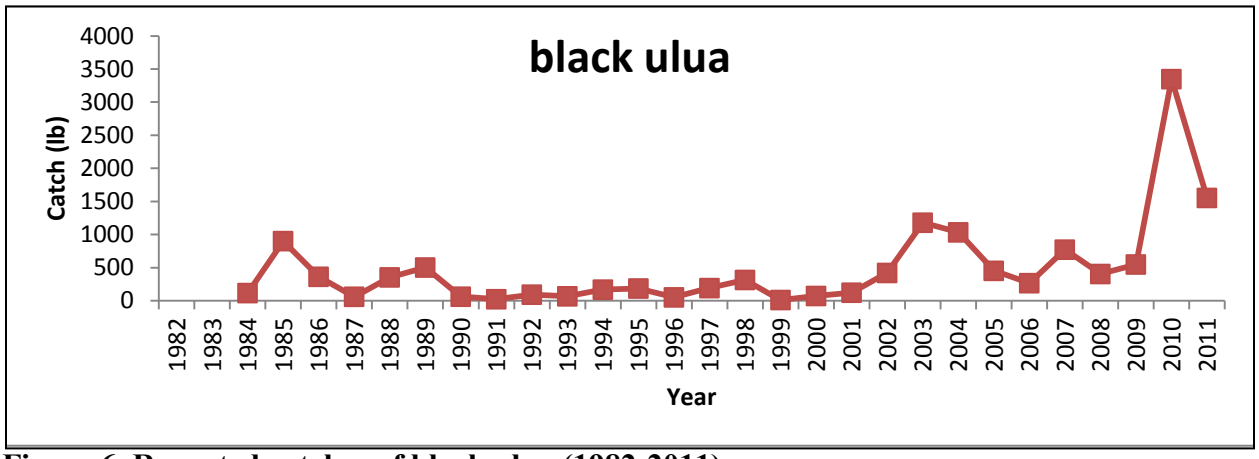

Figure 6. Reported catches of black ulua (1982-2011)
(Source: WPFMC 2012)

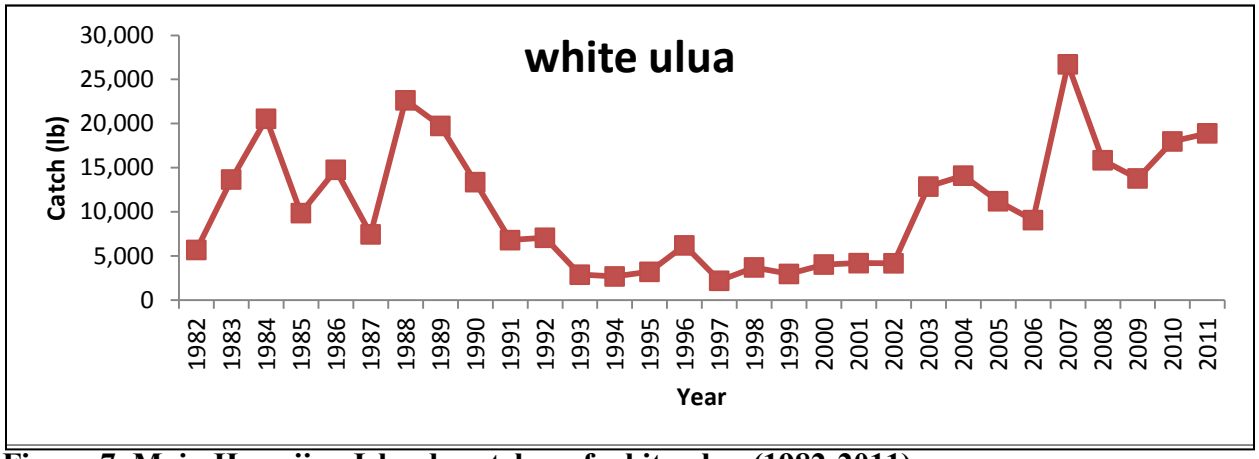

Figure 7. Main Hawaiian Islands catches of white ulua (1982-2011)
(Source: WPFMC 2012)

75th Percentile

Table 10 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 1966-2011. 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. In setting the previous 2012 ABC for the MHI non-Deep 7 bottomfish, the SSC (at its 108th meeting held October 17-19, 2011) 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 1982-2011 only. For similar reasons, catches for yellowtail kalekale were estimated using the catch records between 2001 and 2011.

Table 10. 75th percentiles for the non-Deep 7 BMUS catch from 1966 to 2011

Species	75th Percentile Catch (lb)
Uku	89,797
Butaguchi	4,517
Black ulua	514
White ulua	14,443
Yellowtail kalekale	35
Total non-Deep 7 catch	**109,306**

In setting the previous 2012 ABC, the SSC at its 108th meeting held October 17-19, 2011 stated that it had no basis for choosing one approach (i.e., Set ABC equal to the 50% probability of overfishing (OFL proxy) of entire catch time series (1949-2010) using the analogy method; Set ABC at 1 x mean of recent catch (2007-2011); or Set ABC at 1 x the 75th percentile of the catch (1966-2011). Hence, the SSC recommended taking an average of three approaches. The SSC noted the 2012 ABC 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). Table 11 illustrates the multi-model inference approach using data through 2011.

Table 11. Results of multi-model inference approach for MHI non-Deep 7 BMUS

Method	Associated Catch (lb)
1. 50% probability of overfishing (1949-2010)	192,000
2. Average Catch (2007-2011)	117,420
3. 75th percentile of catch (1966-2011)	109,306
Average	**139,575 ≈ 140,000 ± 45,582**

3 Description of the Alternatives

3.1 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, the CNMI and Hawaii. The ACLs and AMs will be applied in fishing year 2013 and again in 2014. 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 of effort (76 FR 37286, June 27, 2011). However, in-season restrictions are not possible for any western Pacific bottomfish fishery at this time because, catch statistics are generally not available until at least six months after the data have been collected.

Currently, NMFS relies primarily on the fishery data collection programs administered by the respective local resource management agencies to obtain bottomfish catch and effort data. However, these agencies presently do not have the personnel or resources to process catch data in near-real time, and so fisheries statistics are generally not available until at least six months after the data have been collected. 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.

For this reason, under all alternatives considered, as the 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, including non-regulatory monitoring of catch by the local resource management agencies with assistance from NMFS PIFSC, Western Pacific Fisheries Information Network (WPacFIN).

3.2 ACL Alternatives for Bottomfish MUS in 2013 and 2014

3.2.1 Alternative 1: No Action (Status Quo)

In a final rule published on February 7, 2012 (77 FR 6019), NMFS specified the 2012 ACLs for BMUS in American Samoa, Guam and the CNMI, and the ACL for the MHI non-Deep 7 bottomfish. Under this alternative, the ACL for 2013 and 2014 would be identical to the 2012 specifications. The data, methods, and procedures considered by NMFS, the Council and its SSC in developing the ACL specifications are described in a 2012 environmental assessment (NMFS, 2012). The ACLs under the no action alternative and their associated probabilities of overfishing in 2013 and 2014 are presented in Tables 12 and 13.

For American Samoa bottomfish, the 2013 and 2014 ACL would be specified again at 99,200 lb and is associated with a probability of overfishing in 2013 between 28 and 29 percent, rising in 2014 to a probability of overfishing between 38 and 39 percent.

For Guam bottomfish, the 2013 and 2014 ACL would be specified again at 48,200 lb and is associated with probability of overfishing in 2013 between 5 and 10 percent, rising slightly in 2014 to probability of overfishing between 5 and 11 percent.

For CNMI bottomfish, the 2013 and 2014 ACL would be specified again at 182,500 lb and is associated with a probability of overfishing in 2013 between 10 and15 percent, rising slightly in 2014 to a probability of overfishing between 11 and 17 percent.

For MHI non-Deep 7 bottomfish, the 2013 and 2014 ACL would be specified again at 135,000 lb and is associated with a 20 to 25 percent probability of overfishing in both years.

Alternative 1 serves as the baseline for evaluation of environmental impacts.

3.2.2 Alternative 2: Specify ACLs with a probability of overfishing less than 30%

Under Alternative 2, NMFS would specify the 2013 and 2014 ACL at a level that is associated with less than 30 percent probability of overfishing according to most recent NMFS PIFSC stock assessments. The range of possible ACLs under Alternative 2 and their associated probabilities of overfishing in 2013 and 2014 are presented in Tables 12 and 13.

For American Samoa bottomfish, the upper limit of the ACL would be 91,400 lb and is associated with a 22 percent probability of overfishing in 2013, rising to a 29 percent probability of overfishing in 2014.

For Guam bottomfish, the upper limit of the ACL would be 61,800 lb and is associated with a 21 percent probability of overfishing in 2013, rising to a 28 percent probability of overfishing in 2014.

For CNMI bottomfish, the upper limit of the ACL would be 209,400 lb and is associated with a 22 percent probability of overfishing in 2013, rising to a 29 percent probability of overfishing in 2014.

For MHI non-Deep 7 bottomfish, the upper limit of the ACL would be approximately 147,600 lb in both 2013 and 2014 and is associated with probability of overfishing of less than 30 percent in both years.

3.2.3 Alternative 3: Specify ACLs with a probability of overfishing between 30-39%

Under Alternative 3, NMFS would specify the 2013 and 2014 ACL at a level that is associated with a probability of overfishing between 30 and 39 percent according to most recent NMFS PIFSC stock assessments. The range of possible ACLs under Alternative 3 and their associated probabilities of overfishing in 2013 and 2014 are presented in Tables 12 and 13.

For American Samoa bottomfish, the 2013 and 2014 ACL would be set between 92,600 lb and 99,800 lb. An ACL set at 92,600 lb is associated with a 23 percent probability of overfishing in 2013, rising to a 30 percent probability of overfishing in 2014. An ACL set at 99,800 lb is associated with a 29 percent probability of overfishing in 2013, rising to a 39 percent probability of overfishing in 2014.

For Guam bottomfish, the 2013 and 2014 ACL would be set between 62,600 lb and 66,200 lb. An ACL set at 62,600 lb is associated with a 22 percent probability of overfishing in 2013, rising to a 30 percent probability of overfishing in 2014. An ACL set at 66,200 lb is associated with a 27 percent probability of overfishing in 2013, rising to a 38 percent probability of overfishing in 2014.

For CNMI bottomfish, the 2013 and 2014 ACL would be set between 212,600 lb and 228,000 lb. An ACL set at 212,600 lb is associated with a 23 percent probability of overfishing in 2013, rising to a 31 percent probability of overfishing in 2014. An ACL set at 228,000 lb is associated with a 28 percent probability of overfishing in 2013, rising to a 39 percent probability of overfishing in 2014.

For MHI non-Deep 7 bottomfish, the 2013 and 2014 ACL would be set between 150,000 and 168,200 lb and is associated with a 30 to 39 percent probability of overfishing in both years.

3.2.4 Alternative 4: Specify ACLs with a probability of overfishing between 40-45%

Under Alternative 4, NMFS would specify the 2013 and 2014 ACL at a level that is associated with a probability of overfishing between 40 and 45 percent according to most recent NMFS PIFSC stock assessments. The range of possible ACLs under Alternative 4 and their associated probabilities of overfishing in 2013 and 2014 are presented in Tables 12 and 13.

For American Samoa bottomfish, the 2013 and 2014 ACL would be set between 101,000 lb and 103,400 lb. An ACL set at 101,000 lb is associated with a 30 percent probability of overfishing in 2013, rising to a 41 percent probability of overfishing in 2014. An ACL set at 103,400 lb is associated with a 32 percent probability of overfishing in 2013, rising to a 44 percent probability of overfishing in 2014.

For Guam bottomfish, the 2013 and 2014 ACL would be set between 66,800 lb and 68,500 lb. An ACL set at 66,800 lb is associated with a 28 percent probability of overfishing in 2013, rising to a 40 percent probability of overfishing in 2014. An ACL set at 68,500 lb is associated with a 31 percent probability of overfishing in 2013, rising to a 45 percent probability of overfishing in 2014.

For CNMI bottomfish, the 2013 and 2014 ACL would be set between 231,000 lb and 237,000 lb. An ACL set at 231,000 lb is associated with a 29 percent probability of overfishing in 2013, rising to a 41 percent probability of overfishing in 2014. An ACL set at 237,000 lb is associated with a 31 percent probability of overfishing in 2013, rising to a 45 percent probability of overfishing in 2014.

For MHI non-Deep 7 bottomfish, the 2013 and 2014 ACL would be set between 171,000 and 181,000 lb and is associated with a 40 to 45 percent probability of overfishing in both years.

3.2.5 Alternative 4: Specify ACLs with a probability of overfishing between 46-50%

Under Alternative 5, NMFS would specify the 2013 and 2014 ACL at a level that is associated with a probability of overfishing between 46 and 50 percent according to most recent NMFS PIFSC stock assessments. An ACL associated with a 50 percent probability of overfishing is the maximum level allowable under federal law. The range of possible ACLs under Alternative 5 and their associated probabilities of overfishing in 2013 and 2014 are presented in Tables 12 and 13.

For American Samoa bottomfish, the 2013 and 2014 ACL would be set between 104,600 lb and 108,000 lb. An ACL set at 104,600 lb is associated with a 33 percent probability of overfishing in 2013, rising to a 46 percent probability of overfishing in 2014. An ACL set at 108,000 lb is associated with a 36 percent probability of overfishing in 2013, rising to a 50 percent probability of overfishing in 2014.

For Guam bottomfish, the 2013 and 2014 ACL would be set between 69,200 lb and 70,400 lb. An ACL set at 69,200 lb is associated with a 32 percent probability of overfishing in 2013, rising to a 46 percent probability of overfishing in 2014. An ACL set at 70,400 lb is associated with a 34 percent probability of overfishing in 2013, rising to a 49 percent probability of overfishing in 2014.

For CNMI bottomfish, the 2013 and 2014 ACL would be set between 240,000 lb and 246,000 lb. An ACL set at 240,000 lb is associated with a 32 percent probability of overfishing in 2013, rising to a 47 percent probability of overfishing in 2014. An ACL set at 246,000 lb is associated with a 34 percent probability of overfishing in 2013, rising to a 50 percent probability of overfishing in 2014.

For MHI non-Deep 7 bottomfish, the 2013 and 2014 ACL would be set between 183,200 and 192,000 lb and is associated with a 46 to 50 percent probability of overfishing in both years.

3.3 Alternatives Not Considered in Detail

3.3.1 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.

3.3.2 Specification of ACLs for Seamount Groundfish at Hancock Seamount

ACLs also will 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 of the 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.

Table 12. ACL Alternatives and Probabilities of Overfishing Bottomfish Stock Complexes in American Samoa, Guam and the CNMI in 2013 and 2014

	American Samoa Bottomfish			Guam Bottomfish			CNMI Bottomfish		
MSY Estimate	***76,200 ± 14,300 lb***			***55,000 lb ± 7,900 lb***			***172,900 ± 32,200 lb***		
	ACL (lb)	*Probability of Overfishing in 2013 (%)*	*Probability of Overfishing in 2014 (%)*	***ACL (lb)***	*Probability of Overfishing in 2013 (%)*	*Probability of Overfishing in 2014 (%)*	***ACL (lb)***	*Probability of Overfishing in 2013 (%)*	*Probability of Overfishing in 2014 (%)*
Alternative 1 *(Status Quo)*	**99,200**	28-29	38-39	**48,200**	5-10	5-11	**182,500**	10-15	11-17
Alternative 2 (<30%)	**33,000**	0	0	**22,000**	0	0	**40,000**	0	0
	60,000	5	5	**44,000**	5	5	**130,000**	5	5
	73,000	10	12	**51,000**	10	11	**162,000**	10	11
	81,000	15	18	**56,000**	15	17	**183,000**	15	17
	89,000	20	26	**61,000**	20	26	**203,000**	20	26
	90,200	21	27	**61,800**	21	28	**206,200**	21	28
	91,400	22	29				**209,400**	22	29
Alternative 3 (30-39%)	**92,600**	23	30	**62,600**	22	30	**212,600**	23	31
	93,800	24	32	**63,400**	23	31	**215,800**	24	32
	95,000	25	33	**64,200**	24	33	**219,000**	25	34
	96,200	26	35	**65,000**	25	35	**222,000**	26	36
	97,400	27	36	**65,600**	26	37	**225,000**	27	38
	98,600	28	38	**66,200**	27	38	**228,000**	28	39
	99,800	29	39						
Alternative 4 (40-45%)	**101,000**	30	41	**66,800**	28	40	**231,000**	29	41
	102,200	31	43	**67,400**	29	41	**234,000**	30	43
	103,400	32	44	**68,000**	30	43	**237,000**	31	45
				68,500	31	45			
Alternative 5 (46-50%)	**104,600**	33	46	**69,200**	32	46	**240,000**	32	47
	105,800	34	47	**69,800**	33	48	**243,000**	33	48
	107,000	35	49	**70,400**	34	49	**246,000**	34	50
	108,000	36	50	**71,000**	35	51			

Source: Values interpolated from Table 15-17 in Brodziak et al., (in press)

Table 13. ACL Alternatives and Probabilities of Overfishing Non-Deep 7 Bottomfish in the Main Hawaiian Islands in 2013 and 2014

	MHI Non-Deep 7 Bottomfish		
MSY Estimate	***Unknown***		
	ACL (lb)	*Probability of Overfishing in 2013 (%)*	*Probability of Overfishing in 2014 (%)**
Alternative 1 *(Status Quo)*	**135,000**	20-25	20-25
Alternative 2 (<30%)	**6,000**	0	0
	74,000	5	5
	99,000	10	10
	115,000	15	15
	131,000	20	20
	138,000	25	25
	140,400	26	26
	142,800	27	27
	145,200	28	28
	147,600	29	29
Alternative 3 (30-39%)	**150,000**	30	30
	152,000	31	31
	153,000	32	32
	154,000	33	33
	155,000	34	34
	160,000	35	35
	162,200	36	36
	164,400	37	37
	166,600	38	38
	168,200	39	39
Alternative 4 (40-45%)	**171,000**	40	40
	173,000	41	41
	175,000	42	42
	177,000	43	43
	179,000	44	44
	181,000	45	45
Alternative 5 (46-50%)	**183,200**	46	46
	185,400	47	47
	187,600	48	48
	189,800	49	49
	192,000	50	50

Source: Values interpolated from Table 8.

4 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 the CNMI) and the Hawaii Archipelago are included in the proposed action to specify ACLs and AMs. In American Samoa, Guam, and the CNMI, bottomfish fisheries generally target 17 bottomfish management unit species (BMUS) which comprise both shallow and deepwater bottomfish species listed in Tables 14-16. 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 (Table 17). 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 (77 FR 56791, September 14, 2012) so they will not be included in this action. Only non-Deep 7 bottomfish will be included in the Hawaii section of 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 terminal weight is typically 5–6 pounds. The hook leaders are typically 2–3 feet long and separated by about 6 feet along the main line. Depending on island area, hooks may be baited with fish such as the big eye scad (*Selar crumenopthalmus*); however, squid is the bait typically used. Lines are also sometimes supplemented with a chum bag containing chopped fish or squid suspended above the highest hook. Bottom trawls, bottom gillnets, explosives, and poisons are prohibited. In each island area, commercial and non-commercial fisheries for bottomfish occur primarily in nearshore waters from 0-3 nm, except in Hawaii where approximately half of the available the bottomfish habitat is found in the U.S. EEZ 3-200 nm offshore.

Overview of fishery data collection systems in American Samoa, Guam and the CNMI
In American Samoa, the CNMI and Guam, bottomfish fisheries information is collected by local resource management agencies, with assistance from NMFS PIFSC Western Pacific Fisheries Information Network (WPacFIN) through three primary fisheries monitoring programs. They

include: (1) the boat-based creel survey program; (2) the shore-based creel survey program, and (3) the commercial purchase system or trip ticket invoice program.

Boat-based creel survey program

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

Shore-based creel survey program

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

Commercial purchase system

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

Overview of 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).

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 Recreational 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 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, the 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 non-Deep 7 bottomfish catches during a calendar year are not available until at least 6 months after the data have been collected.

In 2008, NMFS established federal permit and reporting requirements for non-commercial bottomfish 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.

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, 11 vessels in the CNMI hold valid federal commercial bottomfishing permits while seven vessels hold federal non-commercial bottomfish permits in Hawaii http://www.fpir.noaa.gov/SFD/SFD_permits_index.html accessed on 10/10/2012). No bottomfish permits have been issued for Guam in 2012 and federal permit or reporting is not 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 3.1, 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.

4.1 American Samoa Bottomfish Fishery, Marine Resources and Potential Impacts

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

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

Bottomfish fishing in federal waters around American Samoa is managed in accordance with the FEP for the American Samoa Archipelago (WPFMC 2009a), developed by the Council, and implemented by NMFS under the authority of the MSA. Bottomfish fisheries occurring from 0 to 3 nm from shore are managed by the 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 Fishery Management Council.

4.1.1 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 2009, American Samoa was struck by a tsunami causing large-scale damage and impacts to the territory's bottomfish fishing fleet resulting in the territorial government requesting disaster assistance under Sections 312 and 315 of the Magnuson-Stevens Act. In 2010, 16 vessels participated in the fishery, dropping to 12 vessels in 2011 (Carroll et al., 2012).

At the present time there are 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 shows that between 2008 and 2010, approximately 30,593 lb of BMUS were caught annually by the American Samoa bottomfish fishery of which 74% (22,537 lb) was sold. In 2010, the most recent year for which complete catch data (i.e., total and commercial catch) are available, NMFS estimates only 9,509 lb of BMUS were caught in American Samoa, of which 8,667 lb were sold. In 2010 the commercial price per pound for BMUS in American Samoa ranged from $2.34 for palu-ula or palu-sega (*Pristipomoides zonatus*) to $3.19 for palu-malau (*Etelis carbunculus*) with the average price per pound for all BMUS combined at $2.52 (WPacFIN website: http://www.pifsc.noaa.gov/wpacfin/as/Data/ECL_Charts/ae3cmain.htm (accessed on 10/10/2012).

Based on the 2010 commercial catch estimate of 22,537 lb and the average price of all BMUS of $2.52 per pound, the annual commercial value of the American Samoa bottomfish fishery in 2010 was $56,573.24. Assuming participation and effort were equal throughout the 16 vessel fleet in 2010, each vessel would have caught approximately 1,409 lb of bottomfish valued at $3,551.

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, fishing for American Samoa BMUS would be subject to an ACL of 99,200 lb for fishing years 2013 and 2014. This is the same ACL specified for 2012. Over the past 11 years, the greatest estimated total annual catch of BMUS in American Samoa occurred in 2009 at 47,458 lb and the average total annual catch for the period 2008-2010 is 30,593 lb (Table 2) of which 74% (22,537 lb) was sold. Both the average annual catch between 2008 and 2010 and the 11 year record high catch of 47,458 lb in 2009 are below the ACL proposed under this alternative.

After 2009's devastating tsunami effects on American Samoa's bottomfishing fleet, the estimated total catch in 2010 was only 9,509 lb, less than 10 percent of the ACL proposed under this alternative. Assuming some rebuilding of the fleet from 2010 through 2012 has occurred, bottomfish catch has likely rebounded somewhat from the 2010 level, but it is highly unlikely that total catch in 2013 or 2014 would approach the historically high 2009 level (47,458 lb), which is less than half the ACL proposed under this alternative.

As there is no in-season closure ability to prevent the ACL from being exceeded, under all alternatives, including the no action alternative, the AM for the American Samoa bottomfish fishery would require a post-season review of the catch data to determine whether the bottomfish ACL for American Samoa was exceeded. If the ACL is exceeded, NMFS, as recommended by the Council, would take action to correct the operational issue that caused the ACL overage. This could include a downward adjustment to the bottomfish ACL in the subsequent fishing year. 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.

The ACL and AMs proposed under this alternative are not expected to result in a change to the conduct of the fishery including gear types, areas fished, effort, or participation. Consequently, implementation of Alternative 1 would not be expected to adversely affect American Samoa bottomfish fishery participants.

Alternative 2: Specify ACLs with a Probability of Overfishing Less Than 30%
Under Alternative 2, fishing for American Samoa BMUS would be subject to an ACL between 33,000 lb and 91,400 lb for the 2013 and 2014 fishing years. Based on past fishery performance, it is possible that the fishery could exceed an ACL if it was set lower than 50,000 lb as 47,458 lb was taken in 2009. However, after 2009's devastating tsunami effects on American Samoa's bottomfishing fleet, the estimated total catch in 2010 was only 9,509 lb. Assuming some rebuilding of the fleet from 2010 through 2012 has occurred, bottomfish catch has likely rebounded somewhat from the 2010 level, but it is highly unlikely that total catch in 2013 or 2014 would approach 33,000 lb, the minimum ACL under this alternative. Consequently, 2013 and 2014 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. As with Alternative 1, no adverse economic impact would result from implementation of Alternative 2.

Alternative 3: Specify ACLs with a Probability of Overfishing Between 30-39%
Under Alternative 3, fishing for American Samoa BMUS would be subject to an ACL between 92,600 and 99,800 lb for the 2013 and 2014 fishing years. This specification would allow catches slightly higher than the current status quo (Alternative 1), and based on recent catch data would be even less likely than the Alternative 1 or 2 ACL specifications to be exceeded in 2013-2014. Impacts to fisheries participants would be generally the same as those described in Alternative 2. The great disparity between the catches recorded in recent years and the Alternative 3 ACLs coupled with the lack of in-season accounting of the catch would eliminate any need for a race to the fish or any change in the conduct of the fishery. No adverse economic impact to fishery participants would result from implementation of Alternative 3.

Alternative 4: Specify ACLs with a Probability of Overfishing Between 40-45%
Under Alternative 4, fishing for American Samoa BMUS would be subject to an ACL between 101,000 lb and 103,400 lb for the 2013 and 2014 fishing years. The Alternative 4 ACL is higher than that of the preceding alternatives and is more than 10 times the post-tsunami 2010 catch. A significant expansion of the bottomfish fleet would be necessary to realize this level of catch. A race to the fish would not be expected, nor would the conduct of the fishery be expected to change under Alternative 4. No adverse economic impact to fishery participants would result from implementation of Alternative 4.

Alternative 5: Specify ACLs with a Probability of Overfishing Between 46-50%
Under Alternative 5, fishing for American Samoa BMUS would be subject to an ACL between 104,600 lb and 108,000 lb for the 2013 and 2014 fishing years. The ACL under this alternative is

the largest allowable under law, as the probability of overfishing in 2014 would be 50%, assuming the entire ACL was caught in 2013 and again in 2014. The ACL under Alternative 5 greatly exceeds recent annual catch levels and is unlikely to be exceeded in the 2013-2014 period. A race to the fish would not be expected, nor would the conduct of the fishery be expected to change under Alternative 5. No adverse economic impact to fishery participants would result from implementation of Alternative 5.

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

The bottomfish fishery in the American Samoa generally targets 17 bottomfish management unit species (BMUS) which comprise both shallow and deepwater bottomfish species (Table 14).

Table 14. 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 (Brodziak et al., in press) conducted by the NMFS Pacific Islands Fisheries Science Center (PIFSC) using data through 2010. Key points from the discussion in Section 2.1 is that PIFSC estimated MSY to be 76,200 ± 14,300 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 2010. Between 2008 and 2010, total harvest of American Samoa BMUS averaged 30,593 lb or 40% 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 poison), or shark damage. Bottomfish fishing is fairly target-specific and to date neither the Council nor the American Samoa DMWR have brought forward any concerns about bycatch in the fishery. NMFS does not have any information to indicate that there are unresolved issues about bycatch in the American Samoa bottomfish fishery.

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

Alternative 1: No Action (Status Quo)
Under the no-action alternative, the ACL for 2013 and 2014 would remain at the 2012 level of 99,200 lb. The fishery would continue to catch bottomfish in the manner that is described above, and catches would continue to be monitored through fisheries monitoring programs administered by the DMWR with assistance from WPacFIN. The level of catch under this alternative is expected to continue as it has in recent years with average total catch estimated to be 30,593 lb for the period 2008-2010, although some decrease in the annual catch may be expected while the fleet continues to recover from the 2009 tsunami. This level of catch is approximately 40% of MSY (76,200 lb) and is sustainable.

While an ACL of 99,200 lb would exceed the long-term MSY, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 12, an ACL would have less than a 38 percent probability of causing overfishing over the two year period of 2013 and 2014. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 1. Monitoring of catch would be conducted annually by the DMWR with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 2: Specify ACLs with a Probability of Overfishing Less Than 30%
Under this alternative, the ACL would be set between 33,000 lb and 91,400 lb in fishing years 2013 and 2014. While an ACL set above 76,200 lb and up to 91,400 lb would exceed the long-term MSY, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 12, this ACL would have less than a 30 percent probability of causing overfishing over the two year period of 2013 and 2014. Additionally, the total catch in 2013 would have to more than double the record 2009 catch of 47,458 lb in order to attain the ACL of 91,400 lb. This is highly unlikely given that the post-tsunami 2010 catch totaled only 9,509 lb. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 2. Monitoring of catch would be conducted annually by the DMWR with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 3: Specify ACLs with a Probability of Overfishing Between 30-39%
Under this alternative, the ACL would be set between 92,600 and 99,800 lb in fishing years 2013 and 2014. While an ACL at this level would exceed the long-term MSY, based on the

probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 12, this ACL would have less than a 40 percent probability of causing overfishing over the two year period of 2013 and 2014. There would be no change to impacts of the fishery on target species, non-target species or bycatch because the fishery is not expected to change in any way with the specification of this catch limit and an AM without an in-season measure. No adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 3. Monitoring of catch would be conducted annually by the DMWR with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 4: Specify ACLs with a Probability of Overfishing Between 40-45%
Under this alternative, the ACL would be set between 101,000 lb and 103,400 lb in fishing years 2013 and 2014. While an ACL at this level would exceed the long-term MSY, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 12, this ACL would have less than a 45 percent probability of causing overfishing over the two year period of 2013 and 2014. As for the preceding alternatives, this ACL is considerably higher than recent catches and its implementation would not be expected to adversely affect target, non-target or bycatch stocks because it is highly unlikely that catch levels would approach the ACL. Monitoring of catch would be conducted annually by the DMWR with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 5: Specify ACLs with a Probability of Overfishing Between 46-50%
Under this alternative, the ACL would be set between 104,600 lb and 108,000 lb in fishing years 2013 and 2014. While an ACL at this level would exceed the long-term MSY, based on probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 12, this ACL would have no more than a 50 percent probability of overfishing over the two year period of 2013 and 2014. As for the preceding alternatives, this ACL is considerably higher than recent catches and its implementation would not be expected to adversely affect target, non-target or bycatch stocks because it is highly unlikely that catch levels would approach the ACL. Monitoring of catch would be conducted annually by the DMWR with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Under all alternatives considered, no new monitoring would be implemented; however, a post-season review of the catch data would be conducted as soon as possible after the fishing year to determine whether the ACL was exceeded. If the ACL is exceeded and affects the sustainability of the stock, NMFS would take action to correct the operational issue that caused the ACL overage, as recommended by the Council, which could include a downward adjustment to the ACL in the subsequent fishing year.

While the lack of in-season catch monitoring ability precludes in-season measures (such as a fishery closure) to prevent the ACL from being exceeded, all of the ACLs considered have less less than a 36 percent probability of causing overfishing for American Samoa BMUS in 2013 and less than a 50% probability of overfishing in 2014.

4.1.3 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).

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

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

All alternatives would implement ACLs and a post-season accounting of the catch relative to the ACL to promote long term sustainability of the fishery stock. The current inability of fishery managers to provide in-season tracking of catch towards an ACL prevents the implementation of

in-season closures, which means that participants in the American Samoa bottomfish fishery would continue to fish as they currently are under the current management regime. However, because this fishery is currently sustainably managed and subject to conservation measures in accordance with various resource conservation and management laws, and because no change would occur in the way fishing is conducted, none of the alternatives would result in a change to distribution, abundance, reproduction, or survival of ESA-listed species or increase interactions with protected resources.

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

On September 22, 2011, NMFS and the U.S. Fish and Wildlife Service (USFWS) determined that the loggerhead sea turtle (*Caretta caretta*) is composed of nine 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.

4.1.4 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 all of the alternatives, fishing for American Samoa BMUS would be subject to an annual catch limit. There is a possibility that an ACL selected within the range considered under Alternative 2 could be exceeded. However, because in-season AMs are not possible, no change to the fishery is anticipated. The ACL is intended to provide for community use of fishing resources, while helping to ensure that fishing is sustainable over the long term. Fishing would continue to be monitored by American Samoa DMWR, NMFS and the Council. 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. The affected fishing community would continue to be a part of the Council decision-making process.

4.2 Guam Bottomfish Fishery, Marine Resources and Potential Impacts

The Mariana Archipelago (approximately 396 square miles) is composed of 15 volcanic islands that are part of a submerged mountain chain stretching nearly 1,500 miles from Guam to Japan, and is comprised of two political jurisdictions: the CNMI and the Territory of Guam, both of which are U.S. possessions. Guam is the southernmost island of the archipelago and 30 miles (48 km) long and 4 mi (6 km) to 12 mi (19 km) wide and is also the largest island in Micronesia with an area of 209 sq. miles (541 km2). Guam's population was estimated to be 171,019 people in 2006, which was more than double the 1970 population of 85,000 people. The population is expected to increase with the relocation of certain elements of the U.S. military from Okinawa to Guam, but the numbers of active duty, dependents and other personnel to be relocated to Guam and the timing of the relocation are still under discussion.

The U.S. EEZ around Guam is approximately 81,470 square miles and extends from 3 to 200 nm offshore. Data collection, compilation, and monitoring responsibilities are shared among territorial and federal agencies.

Bottomfish fishing in federal waters around Guam is managed in accordance with the Fishery Ecosystem Plan for the Mariana Archipelago (Mariana Archipelago FEP) developed by the Council and implemented by NMFS under the authority of the MSA (WPFMC 2009b). The portion of the fishery occurring within 3nm is under the jurisdiction of the Guam Division of Aquatic and Wildlife Resources (DAWR). The management structure of the FEP emphasizes community participation and enhanced consideration of the habitat and ecosystem, and other elements not typically incorporated in fishery management decision-making. Enforcement of federal fishery regulations is handled through a joint federal-territorial partnership. Annual reports on the fisheries are produced by the Western Pacific Regional Fishery Management Council.

4.2.1 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. Currently, there are no federally permitted bottomfish vessels in Guam (NMFS PIRO website http://www.fpir.noaa.gov/SFD/SFD_permits_index.html, accessed 10/10/2012). 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 between 2008 and 2010, approximately 35,499 lb of BMUS was caught annually by the Guam bottomfish fishery of which 39% (13,720 lb) was sold. In 2010, the most recent year for which complete catch data (i.e., total and commercial catch) are available, NMFS estimates 28,958 lb of BMUS were caught in Guam, of which 13,810 lb were sold. In 2010 the commercial price per pound for BMUS ranged from $2.34 for tarakiton attelong or black jack (*Caranx lugubris*) to $4.98 for buninas or onaga (*Etelis coruscans*) with average price per pound for all BMUS combined at $3.45 (WPacFIN website: http://www.pifsc.noaa.gov/wpacfin/guam/dawr/Data/Landings_Charts/gt2b.htm (accessed on 10/10/2012).

Based on the 2010 commercial catch estimate of 13,810 lb and the average price of all BMUS at $3.45 per pound, the annual commercial value of the bottomfish fishery in 2010 was $47,645. 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 2010, each vessel would have caught approximately 60 lb of bottomfish valued at $207.

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, fishing for Guam BMUS would be subject to an ACL of 48,200 lb for fishing years 2013 and 2014. This is the same ACL that was in effect for 2012. Over the past 11 years, total annual catch of BMUS in Guam has exceeded 48,200 lb only twice, once in 2000 and the other in 2001 when 66,000 lb and 54,352 lb were caught, respectively (Table 4).

However, the recent total average catch for 2008-2010 is 35,499 lb or about 74 percent of the ACL proposed under this alternative. Since the ACL specification proposed under this alternative is higher than recent landings, harvests in 2013 and 2014 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, under all alternatives, including the no action alternative, the AM for the Guam bottomfish fishery would require a post-season review of the catch data to determine whether the ACL was exceeded. If the ACL is exceeded, NMFS, as recommended by the Council, would take action to correct the operational issue that caused the ACL overage. This could include a downward adjustment to the bottomfish ACL in the subsequent fishing year. 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.

The ACL and AMs proposed under this alternative are not expected to result in a change to the conduct of the fishery including gear types, areas fished, effort, or participation. Consequently, implementation of Alternative 1 would not be expected to adversely affect Guam bottomfish fishery participants.

Alternative 2: Specify ACLs with a Probability of Overfishing Less Than 30%
Under Alternative 2, fishing for Guam BMUS would be subject to an ACL between 22,000 lb and 61,800 lb for the 2013 and 2014 fishing years. Between 2008 through 2010, total bottomfish catch averaged 35,499 lb and a record 66,000 lb of bottomfish was caught in 2000. Therefore, it is possible that the fishery could attain an ACL set at these levels. 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, and no adverse effect on fishery participants would be expected from implementation of Alternative 2.

Alternative 3: Specify ACLs with a Probability of Overfishing Between 30-39%
Under Alternative 3, fishing for Guam BMUS would be subject to an ACL between 62,600 lb and 66,200 lb for the 2013 and 2014 fishing years. While a total BMUS catch exceeding 60,000 was achieved once in 2000, the fishery has never again realized that level of catch and total bottomfish catch for the period 2008 through 2010 averaged 35,499 lb. Because the ACL specifications proposed under this alternative are higher than any annual total catch in the period 2001-2010, 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, and no adverse effect on fishery participants would be expected from implementation of Alternative 3.

Alternative 4: Specify ACLs with a Probability of Overfishing Between 40-45%
Under Alternative 4, fishing for Guam BMUS would be subject to an ACL between 66,800 lb and 68,500 lb for the 2013 and 2014 fishing years. Because the ACL specifications proposed

under this alternative are higher than any annual total catch in the period 2000-2010, 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, and no adverse effect on fishery participants would be expected from implementation of Alternative 4.

Alternative 5: Specify ACLs with a Probability of Overfishing Between 46-50%
Under Alternative 5, fishing for Guam BMUS would be subject to an ACL between 69,200 lb 74,400 lb for the 2013 and 2014 fishing years. Because the ACL specifications proposed under this alternative are higher than any annual total catch in the period 2000-2010, 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, and no adverse effect on fishery participants would be expected from implementation of Alternative 5.

4.2.2 Target, Non-target and Bycatch Species in Guam

The bottomfish fishery in the Mariana Archipelago, including Guam, generally targets 17 bottomfish management unit species including both shallow and deepwater bottomfish species (Table 15).

Table 15. 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

Mariana Bottomfish MUS (Guam)		
Scientific Name	**English Common Name**	**Local Name Chamorro/Carolinian**
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 (Brodziak et al., in press) conducted by the NMFS Pacific Islands Fisheries Science Center (PIFSC) using data through 2010. Key points from the discussion in Section 2.2 is that PIFSC estimated MSY to be 53,000 ± 9,500 lb and that the production model results suggest that during the period 1982 through 2010, the Guam bottomfish complex has not been overfished and has not experienced overfishing, except perhaps in 2000 when total catch was 66,000 lb. Between 2008 and 2010, harvest of Guam BMUS averaged 35,499 lb, or about 65% 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 has raised concerns about bycatch in the fishery. NMFS does not have any information to indicate that there are large unresolved issues about bycatch in the Guam bottomfish fishery.

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 reef sharks belonging to the family *Carcharhinidae* in the around Guam are subject to an ACL of 6,942, lb (77 FR 6019, February 7, 2012). This limit corresponds to approximately 5 percent of the estimated biomass for this family of sharks 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, the ACL for 2013 and 2014 would remain at the 2012 level of 48,200 lb. The fishery would continue to catch bottomfish in the manner that is described above, and catches would continue to be monitored through fisheries monitoring programs administered by the DAWR with assistance from WPacFIN. The level of catch under this alternative is expected to continue as it has in recent years with average total catch estimated to be 35,499 lb

for the period 2008-2010. This level of catch is approximately 65% of MSY (55,000 lb) and is sustainable. Based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 12, this ACL would have less than an 11 percent probability of causing overfishing in 2013 and 2014. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 1. Monitoring of catch would be conducted annually by the DAWR with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 2: Specify ACLs with a Probability of Overfishing Less Than 30%
Under this alternative, the ACL would be set between 22,000 lb and 61,800 lb in fishing years 2013 and 2014. While an ACL set above 55,000 lb and up to 61,800 lb would exceed the long-term MSY, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 12, this ACL would have less than a 30 percent probability of causing overfishing in 2013 or 2014. 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 the next two years. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 2. Monitoring of catch would be conducted annually by the DAWR with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 3: Specify ACLS with a Probability of Overfishing Between 30-39%
Under this alternative, the ACL would be set between 62,600 lb and 66,200 lb. While an ACL at this level would exceed the long-term MSY, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 12, this ACL would have less than a 39 percent probability of causing overfishing over the two year period of 2013 or 2014. No change in fishing activity is likely to occur under this alternative. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 3. Monitoring of catch would be conducted annually by the DAWR with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 4: Specify ACLs with a Probability of Overfishing Between 40-45%
Under this alternative, the ACL would be set to 68,500 lb. While an ACL at this level would exceed the long-term MSY, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 12, this ACL would have no more than a 39 percent probability of causing overfishing over the two year period of 2013 or 2014. No change in fishing activity is likely to occur under this alternative. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 4. Monitoring of catch would be conducted annually by the DAWR with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 5: Specify ACLs with a Probability of Overfishing Between 46-50%
Under this alternative, the ACL would be set between 69,200 and 70,400 lb. While an ACL at this level would exceed the long-term MSY, based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 12, this ACL would have no more than a 49 percent probability of causing overfishing over the two year period of 2013 and 2014. Catch at this level

is a highly unlikely event and has not been achieved ever in the period 2000-2010. No change in fishing activity is likely to occur under this alternative. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 5. Monitoring of catch would be conducted annually by the DAWR with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Under all alternatives considered, no new monitoring would be implemented; however, a post-season review of the catch data would be conducted as soon as possible after the fishing year to determine whether the ACL was exceeded. If the ACL is exceeded and affects the sustainability of the stock, NMFS would take action to correct the operational issue that caused the ACL overage, as recommended by the Council which could include a downward adjustment to the ACL in the subsequent fishing year.

While the lack of in-season catch monitoring ability precludes in-season measures (such as a fishery closure) that would prevent the ACL from being exceeded, all of the ACLs considered have less than a 34 percent probability of causing overfishing for Guam BMUS in 2013 and less than a 50% probability of overfishing in 2014.

4.2.3 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).

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 Mammal Protection Act Coordination
The MMPA prohibits, with certain exceptions, taking of marine mammals in the U.S., and by persons aboard U.S. flagged vessels (i.e., persons and vessels subject to U.S. jurisdiction). NMFS classifies the Guam bottomfish fishery as a Category III fishery under Section 118 of the MMPA (76 FR 73912, November 29, 2011) as the fishery is one with a low likelihood or no known incidental takings of marine mammals. As a result, 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.

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

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

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

On September 22, 2011, NMFS and the U.S. Fish and Wildlife Service (USFWS) determined that the loggerhead sea turtle (*Caretta caretta*) is composed of nine 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.

4.2.4 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 all of the alternatives, fishing for Guam BMUS would be subject to an annual catch limit. There is a possibility that an ACL selected within the range considered under Alternatives 1, 2 and 3 could be exceeded. However, because in-season AMs are not possible, no change to the fishery is anticipated. The ACL is intended to provide for community use of fishing resources, while helping to ensure that fishing is sustainable over the long term. Fishing would continue to be monitored by Guam DAWR, NMFS and the Council. 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. The affected fishing community would continue to be a part of the Council decision-making process.

4.3 CNMI Bottomfish Fishery, Marine Resources and Potential Impacts

The Mariana Archipelago (approximately 396 square miles of land) is composed of 15 volcanic islands that are part of a submerged mountain chain stretching nearly 1,500 miles from Guam to Japan, and is comprised of two political jurisdictions: the CNMI, and the Territory of Guam, both of which are U.S. possessions. The CNMI is comprised of 14 islands with a total land area of 179 sq. miles spread over 264,000 sq. miles of ocean. The highest elevation is 3,166 feet (965 m). The southern islands (Rota, Saipan and Tinian) are limestone with fringing coral reefs; the northern islands from Farallon de Medinilla to Uracus are volcanic, with active volcanoes on Anatahan, Pagan and Agrihan. Ninety percent of the 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.

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

At the present time, of the estimated 150 bottomfish vessels, only 11 vessels have obtained federal commercial bottomfishing permits and of these fewer have submitted logbook records of fishing activity (NMFS PIRO website http://www.fpir.noaa.gov/SFD/SFD_permits_index.html, accessed 10/10/2012). Therefore, monitoring of the CNMI bottomfish fishery is primarily dependent on data voluntarily provided by fishermen to the CNMI Division of Fish and Wildlife through the boat-based creel survey program. Monitoring of commercial sales data is provided to DFW by fish dealers through the commercial purchase system. Currently, DFW staff resources limit the ability to process data so catch information is not available until at least 6 months to a year after the fishing year has ended.

Table 6 provides the estimated catch of BMUS in the CNMI and shows that between 2008 and 2010 approximately 35,314 lb of BMUS was caught annually by the CNMI bottomfish fishery of which 51% (17,845 lb) was sold. In 2010, the most recent year for which fishing data are available, NMFS estimates 22,395 lb of BMUS were caught in the CNMI, of which 14,729 lb were sold. In 2010 the commercial price per pound for BMUS in the CNMI ranged from $2.14 for agounafon or gray jobfish (*Aprion virescens*) to $4.74 for buninas or onaga (*Etelis*

carbunculus) with the average price per pound for all BMUS combined at $3.21 (WPacFIN website: http://www.pifsc.noaa.gov/wpacfin/cnmi/Data/Landings_Charts/ce3c.htm (accessed on 10/10/ 2012).

Based on the 2010 commercial catch estimate of 14,729 lb and the average price of all BMUS of $3.21 per pound, the annual commercial value of the bottomfish fishery in 2010 was $47,280. While Federal permits are required to fish and retain BMUS throughout the CNMI, less than a dozen of the estimated 150 vessels in the fleet are permitted as commercial fishing vessels, although many more are believed to catch and sell fish. Assuming only 11 of the 150 vessels engaged in commercial fishing for BMUS in 2010, and that fishing effort by each vessel was equal, NMFS estimates each commercial fishing vessel would have caught 1,339 lb valued at $4,298.

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, fishing for CNMI BMUS would be subject to an ACL of 182,500 lb for the 2013 and 2014 fishing years. This is the same ACL specified for 2012. Between 2000 and 2010, the greatest estimated total annual catch of BMUS in the CNMI occurred in 2001 at 71,256 lb and the average total annual catch for the period 2008-2010 is 35,314 lb of which 17,845 51% was sold. At no time between 2000 and 2010 did the annual total catch exceed 182,500 lb.

Since the ACL proposed under this alternative is significantly higher than recent average catch and is more than two and a half times greater than the highest level of catch recorded since 2001 (71,256 lb), catch in 2013 and 2014 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. Consequently, no adverse effects on CNMI bottomfish fishery participants would be expected from implementation of Alternative 1.

The AM for the CNMI bottomfish fishery would require a post-season review of the catch data to determine whether the bottomfish ACL for the CNMI was exceeded. If the ACL is exceeded, NMFS, as recommended by the Council, would take action to correct the operational issue that caused the ACL overage. 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 2: Specify ACLs with a Probability of Overfishing Less Than 30%
Under Alternative 2, fishing for CNMI BMUS would be subject to an ACL of between 40,000 lb and 209,400 lb for the 2013 and 2014 fishing years. Between 2008 through 2010, total bottomfish catch averaged 35,314 lb with a record catch of 71,256 lb caught in 2001. Therefore,

it is possible that the fishery could attain an ACL set lower than 70,000 lb. 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. Consequently, no adverse effects on CNMI bottomfish fishery participants would be expected from implementation of Alternative 2. The AM would be the same as under Alternative 1.

Alternative 3: Specify ACLs with a Probability of Overfishing Between 30-39%

Under Alternative 3, fishing for CNMI BMUS would be subject to an ACL between 212,600 lb and 228,000 lb for the 2013 and 2014 fishing years. As with Alternatives 1 and 2, the ACL proposed under this alternative is also significantly higher than recent average catch and is nearly three times greater than the highest level of catch recorded since 2001 (71,256 lb). Therefore, catch in 2013 and 2014 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. Consequently, no adverse effects on CNMI bottomfish fishery participants would be expected from implementation of Alternative 3. The AM would be the same as under Alternative 1.

Alternative 4: Specify ACLs with a Probability of Overfishing Between 40-45%

Under Alternative 4, fishing for CNMI BMUS would be subject to an ACL between 231,000 lb and 237,000 lb for the 2013 and 2014 fishing years. As with the previous alternatives, the Alternative 4 bottomfish ACL specifications for the CNMI are much higher than recent landings, and harvests are not expected to exceed the ACL. 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. Consequently, no adverse effects on CNMI bottomfish fishery participants would be expected from implementation of Alternative 4. The AM would be the same as under Alternative 1.

Alternative 5: Specify ACLs with a Probability of Overfishing Between 45-50%

Under Alternative 5, fishing for CNMI BMUS would be subject to an ACL between 240,000 lb and 246,000 lb for the 2013 and 2014 fishing years. As with all previous alternatives, the Alternative 5 bottomfish ACL specifications for the CNMI are much higher than recent landings, and harvests are not expected to exceed the ACL. 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. Consequently, no adverse effects on CNMI bottomfish fishery participants would be expected from implementation of Alternative 4. The AM would be the same as under Alternative 1.

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

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

Table 16. Mariana Bottomfish MUS (CNMI)

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

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

The information used in developing the proposed ACL for the CNMI bottomfish stock complex is based on the most recent bottomfish stock assessment (Brodziak et al., in press) conducted by NMFS Pacific Islands Fisheries Science Center (PIFSC) using data through 2010. Key points from the discussion in Section 2.3 are that PIFSC estimated MSY to be 172,900 ± 32,200 lb and that the production model results suggest that the CNMI bottomfish complex was not overfished and did not experience overfishing during the period 1986-2010. Between 2008 and 2010, the average catch of CNMI BMUS was 35,314 lb or about 20% of the long-term 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 reef sharks belonging to the family *Carcharhinidae* in the around the CNMI are subject to an ACL of 5,600, lb (77 FR 6019, February 7, 2012). This limit corresponds to approximately 5 percent of the estimated biomass for this family of sharks around the CNMI.

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

Alternative 1: No Action (Status Quo)
Under the no-action alternative, the ACL for 2013 and 2014 would remain at the same level as for 2012, 182,500 lb. The fishery would continue to catch bottomfish in the manner that is described above, and catches would continue to be monitored through fisheries monitoring programs administered by DFW with assistance from WPacFIN. The current level of catch under this alternative is expected to continue as it currently has in recent years with average total catch estimated to be 35,314 lb for the period 2008-2010. This level of catch is approximately 20% of MSY (172,900 lb) and is sustainable. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 1. Monitoring of catch would be conducted annually and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 2: Specify ACLs with a Probability of Overfishing Less Than 30%
Under this alternative, the ACL would be set between 40,000 lb and 209,400 lb in fishing year 2013 and 2014. While an ACL set above 172,900 lb and up to 209,400 lb would exceed the long-term MSY, based on probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 12, an ACL set at this level would have less than a 30 percent probability of exceeding MSY in 2013 and 2014. Catch in 2013 would have to increase three times the 2001 record catch of 71,256 lb and nearly six times the recent average catch of 35,314 lb. Both scenarios are highly unlikely. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 2. Monitoring of catch would be conducted annually by DFW with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 3: Specify ACLs with a Probability of Overfishing Between 30-39%
Under this alternative, the ACL would be set between 212,600 lb and 228,000 lb. Based on probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 12, this ACL would have less than a 40 percent probability of causing overfishing in 2013 or 2014. 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. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation

of Alternative 3. Monitoring of catch would be conducted annually by DFW with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 4: Specify ACLs with a Probability of Overfishing Between 40-45%
Under this alternative, the ACL would be set between 231,000 lb and 237,000 lb. Based on probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 12, this ACL would have no more than a 45 percent probability of causing overfishing in 2013 or 2014. 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. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 4. Monitoring of catch would be conducted annually by DFW with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 5: Specify ACLs with a Probability of Overfishing Between 46-50%
Under this alternative, the ACL would be set between 240,000 lb and 246,000 lb. Based on probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 12, this ACL would have no more than a 50 percent probability of causing overfishing in 2013 or 2014. 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. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 5. Monitoring of catch would be conducted annually by DFW with assistance from WPacFIN and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Under all alternatives considered, including the proposed action, no new monitoring would be implemented; however, a post-season review of the catch data would be conducted as soon as possible after the fishing year to determine whether the ACL was exceeded. If the ACL is exceeded and affects the sustainability of the stock, NMFS would take action to correct the operational issue that caused the ACL overage, as recommended by the Council which could include a downward adjustment to the ACL in the subsequent fishing year.

While the lack of in-season catch monitoring ability precludes in-season measures (such as fishery closure) to prevent the ACL from being exceeded, the ACLs considered have less than a 34 percent probability of causing overfishing for CNMI bottomfish in 2013 and no more than a 50 percent probability of causing overfishing for CNMI BMUS in 2014.

4.3.3 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).

Applicable ESA Coordination – CNMI Bottomfish Fisheries

In an informal consultation letter dated June 3, 2008, NMFS determined that the continued authorization of bottomfish fisheries of the Mariana Archipelago, including the bottomfish fishery around the CNMI, as managed under the Bottomfish and Seamount Groundfish FMP, was not likely to adversely affect ESA-listed 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 the CNMI. No substantial changes to the bottomfish fishery around the CNMI have occurred since the FEP was implemented that have required further consultation.

Marine Mammal Protection Act Coordination

The MMPA prohibits, with certain exceptions, taking of marine mammals in the U.S., and by persons aboard U.S. flagged vessels (i.e., persons and vessels subject to U.S. jurisdiction). NMFS classifies the CNMI bottomfish fishery as a Category III fishery under Section 118 of the MMPA (76 FR 73912, November 29, 2011) as the fishery is one with a low likelihood or no known incidental takings of marine mammals. As a result, 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.

Potential Impacts to Protected Resources in the CNMI

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

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

If at any time the fishery, environment, or status of a listed species or marine mammal species were to change substantially, or if the fishery were found to be occurring in or near areas that were designated as critical habitat, NMFS would undertake additional consultation as required to comply with requirements of the ESA and the MMPA.
On September 22, 2011, NMFS and the U.S. Fish and Wildlife Service (USFWS) determined that the loggerhead sea turtle population (*Caretta caretta*) is composed of nine 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.

4.3.4 CNMI Fishing Community

Overview

In 1999, the Council identified the 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 all of the alternatives, fishing for CNMI BMUS would be subject to an annual catch limit. However, all potential ACL specifications under all of the alternatives considered are substantially higher than recent harvests so they are not expected be exceeded, and no change to any fishery is anticipated. The ACL is intended to provide for community use of fishing resources, while helping to ensure that fishing is sustainable over the long term. Fishing would continue to be monitored by CNMI DFW, NMFS and the Council. 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 the CNMI. The affected fishing community would continue to be a part of the Council decision-making process.

4.4 Hawaii Bottomfish Fishery, Marine 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 Fishery Management Council, with data collection responsibilities shared by the Hawaii Division of Aquatic Resources (HDAR) and NMFS.

The number of fishermen engaged in commercial bottomfish fishing in the MHI increased dramatically in the 1970s peaking in the 1980s with over 500 vessels active 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 the number rebounded again to 475 vessels in the 2010-11 fishing year (NMFS, 2011). In the 2012-13fishing year, approximately 456 commercial vessels were active in the bottomfish fishery (Jessica Miller, Pers. Comm. July 3, 2012).
Participation in the MHI bottomfish fishery by non-commercial vessels is largely unknown. However, recent information from the HDAR bottomfish registration program estimates there to be approximately 313 non-commercial bottomfish vessels in the State of Hawaii (Jessica Miller, Pers. Comm. July 3, 2012). It is unknown if any of these vessels are actively fishing. Of these vessels, only seven have obtained federal non-commercial bottomfish permits in 2012 (NMFS PIRO website http://www.fpir.noaa.gov/SFD/SFD_permits_index.html, accessed 10/10/2012). 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 to obtain a federal permit.

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 just 7 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 9 shows that MHI non-deep 7 BMUS commercial landings have ranged between 48,064 lb and 145,383 lb from 1966 to 2011. Recent annual commercial landings (2007-2011) were estimated to be 117,420 lb. In 2011, the commercial price per pound for non-Deep 7 bottomfish ranged from $2.37 for white ulua *(Caranx ignoblis*) to $4.55 for black ulua (*Caranx lugubris*) with average price per pound for all BMUS combined at $3.50. The 2011 commercial price per pound for uku (*Aprion virescens*), the primary stock harvested in the fishery was $4.44. (WPacFIN website: http://www.pifsc.noaa.gov/wpacfin/hi/dar/Pages/hi_data_3.php, accessed on 10/10/2012).

Based on estimated 2011 commercial landings of 131,391 lb and the average price of all non-Deep 7 BMUS at $3.50 per pound, the annual commercial value of the bottomfish fishery in 2011 was $459,869. Assuming participation and effort was equal throughout the fleet in 2011 each of the 456 vessels in the fleet would have caught approximately 288 lb of non-Deep 7 bottomfish valued at $1,008.

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, fishing for non-Deep 7 bottomfish would be subject to an ACL of 135,000 lb. for the 2013 and 2014 fishing years. This is the same ACL specified for 2012.

Between 1966 and2011, the greatest estimated commercial catch levels for non-Deep 7 BMUS in MHI was 372,201 lb in 1988 with the second highest catch of 238,500 lb occurring in 1989. Since this time, the fishery has exceeded 135,000 lb only once, and that was in 2010 when 145,383 lb was caught. The average annual catch over the past five years (2007-2011) is 117,420 lb or about 87% of the ACL proposed under this alternative.

The proposed 2013 and 2014 ACL non-Deep 7 bottomfish specifications for the MHI are higher than the commercial catch in every year since 1990, except in 2010. So, under this alternative, catch may potentially exceed this ACL in the 2013 or 2014 fishing years. 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. Consequently, specification of the Alternative 1 ACL for 2013 and 2014 would not be expected to have an adverse effect on participation in the fishery in those years. Fishing would continue to be monitored by HDAR, NMFS and the Council with fisheries statistics becoming available approximately six months or longer after the data has been initially collected. The status of BMUS would continue to be subject to ongoing discussion and review. 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 2: Specify ACLs with a Probability of Overfishing Less Than 30%

Under Alternative 2, fishing for MHI non-Deep 7 BMUS would be subject to an ACL between 6,000 lb and 147,600 lb for the 2013 and 2014 fishing years. Between 2007 and 2011, the annual commercial catch of non-Deep 7 bottomfish averaged 117,420 lb with a low of 102,636 occurring in 2007. Therefore, it is possible that the fishery could attain an ACL that is set lower than 147,600 lb. 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. Consequently, specification of the Alternative 2 ACL for 2013 and 2014 would not be expected to have an adverse effect on participation in the fishery in those years. The AM for Alternative 2 would be the same as for Alternative 1.

Alternative 3: Specify ACLs with a Probability of Overfishing Between 30-39%

Under Alternative 3, fishing for MHI non-Deep 7 BMUS would be subject to an ACL between 150,000 lb and 168,200 lb for the 2013 and 2014 fishing years. Under Alternative 3 it would be less likely that the catch would exceed the ACL compared to Alternatives 1 and 2. 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. Consequently, specification of the Alternative 3 ACL for 2013 and 2014 would not be expected to have an adverse effect on participation in the fishery in those years. The AM for Alternative 3 would be the same as for Alternative 1.

Alternative 4: Specify ACLs with a Probability of Overfishing Between 40-45%
Under Alternative 4, fishing for non-Deep 7 BMUS would be subject to an ACL between 171,000 lb and 181,000 lb for the 2013 and 2014 fishing years. The Alternative 4 ACL is higher than that of Alternative 3, and even less likely to be exceeded by the catch in 2013 or 2014. However like the previous alternatives, because there is no in-season monitoring of progress toward the ACL, there is no possibility of implementing an in-season fishery closure. Consequently, regardless of actual catch levels, conduct of the fishery would not change and specification of the Alternative 4 ACL for 2013 and 2014 would not be expected to have an adverse effect on participation in the fishery in those years. The AM for Alternative 4 would be the same as for Alternative 1.

Alternative 5: Specify ACLs with a Probability of Overfishing Between 46-50%
Under Alternative 5, fishing for non-Deep 7 BMUS would be subject to an ACL between 183,200 and 192,000 lb for the 2013 and 2014 fishing years. The Alternative 5 ACL is the highest of the alternatives, and the least likely to be exceeded by the catch in 2013 or 2014 and like all of the previous alternatives, because there is no in-season monitoring of progress toward the ACL, there is no possibility of implementing an in-season fishery closure. Consequently, regardless of actual catch levels, conduct of the fishery would not change and specification of the Alternative 5 ACL for 2013 and 2014 would not be expected to have an adverse effect on participation in the fishery in those years. The AM for Alternative 5 would be the same as for Alternative 1.

4.4.1 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 17). As previously noted in Section 2.4, 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 17. 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
*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

Hawaii Bottomfish MUS		
Common Name	**Scientific Name**	**Local Name**
*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.
† The ACL for these species is included in the coral reef MUS families, snapper and jacks.

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 9, 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 145,383 lb and occurred 2010. This level of catch was nearly 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

Alternative 1: No Action (Status Quo)
Under the no action alternative, the MHI non-Deep 7 bottomfish ACL for 2013 and 2014 would be set at 135,000 lb. This is the same ACL specified for 2012. The fishery would continue to catch bottomfish in the manner that is described above, and catches would continue to be monitored through fisheries monitoring programs administered by the HDAR. The level of catch under this alternative is expected to continue as it has in recent years with average catch estimated to be 117,420 lb for the period 2007-2011, with uku (*Aprion virescens*) comprising the bulk of the catch. This level of catch is approximately 61% of the OFL proxy (192,000 lb) and is sustainable. Based on the probabilities of overfishing calculated by NMFS PIFSC scientists shown in Table 13, this ACL would have no more than a 25 percent probability of causing overfishing in 2013 and 2014. Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 1. Monitoring of catch

would be conducted annually and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 2: Specify ACLs with a Probability of Overfishing Less Than 30%
Under Alternative 2, fishing for MHI non-Deep 7 BMUS would be subject to an ACL between 6,000 lb and 147,600 lb for the 2013 and 2014 fishing years. Based on the projected results for MHI Deep 7 bottomfish using catch data from the period 1949-2010 provided in Table 8 and interpolated in Table 14, a catch of 149,000 lb of non-Deep 7 bottomfish in 2013 and 2014 is associated with less than a 30% probability of overfishing over the two year period and is likely to be sustainable. The MHI non-Deep 7 catch hasn't exceeded this level since 1989 (Table 9). Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 2. Monitoring of catch would be conducted annually and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 3: Specify ACLs with a Probability of Overfishing Between 30-39%
Under this alternative, the ACL would be set between 150,000 lb and 168,200 lb in fishing year 2013 and 2014. Based on the projection results for MHI Deep 7 bottomfish using catch data from the period 1949-2010 provided in Table 8 and interpolated in Table 14, a catch of 168,200 lb of non-Deep 7 bottomfish is associated with less than a 40% probability of overfishing over the two year period and is likely to be sustainable . As noted above for Alternative 2, the MHI non-Deep 7 catch hasn't exceeded this level since 1989 (Table 9). Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 3. Monitoring of catch would be conducted annually and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 4: Specify ACLs with a Probability of Overfishing Between 40-45%
Under this alternative, the ACL would be set between 171,000 lb and 181,000 lb in fishing year 2013 and 2014. Based on the projection results for MHI Deep 7 bottomfish using catch data from the period 1949-2010 provided in Table 8 and interpolated in Table 14, a catch of 181,000 lb of non-Deep 7 bottomfish is associated with no more than a 45% probability of overfishing over the two year period and is likely to be sustainable. As noted above for Alternative 2, the MHI non-Deep 7 catch hasn't exceeded this level since 1989 (Table 9). Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 4. Monitoring of catch would be conducted annually and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Alternative 5: Specify ACLs with a Probability of Overfishing Between 46-50%
Under this alternative, the ACL would be set between 183,200 lb and 192,000 lb in fishing year 2013 and 2014. Based on the projection results for MHI Deep 7 bottomfish using catch data from the period 1949-2010 provided in Table 8 and interpolated in Table 14, a catch of 192,000 lb of non-Deep 7 bottomfish is associated with no more than a 50% probability of overfishing over the two year period and is likely to be sustainable. As noted above for Alternative 2, the MHI non-Deep 7 catch hasn't exceeded this level since 1989 (Table 9). Consequently, no adverse impacts to target, non-target or bycatch species would be expected to result from implementation of Alternative 5. Monitoring of catch would be conducted annually and stock status would be reviewed periodically by NMFS PIFSC stock assessments.

Under all alternatives considered, no new monitoring would be implemented; however, a post-season review of the catch data would be conducted as soon as possible after the fishing year to determine whether the ACL was exceeded. If the ACL is exceeded and affects the sustainability of the stock, NMFS would take action to correct the operational issue that caused the ACL overage, as recommended by the Council which could include a downward adjustment to the ACL in the subsequent fishing year.
While the lack of in-season catch monitoring ability precludes in-season measures (such as a fishery closure) to prevent the ACL from being exceeded, catching the ACL under any of the alternatives would have no more than a 50 percent probability of overfishing MHI non-Deep 7 bottomfish in 2013 or 2014.

4.4.2 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). Detailed descriptions of these potentially affected species and their life histories can be found in Section 3.3.4 of the Fishey Ecosystem Plan (FEP) for the Hawaii Archipelago (WPFMC, 2009c).

Applicable ESA Coordination – MHI bottomfish fisheries

In 2008, NMFS established 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 establishment 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 Mammal Protection Act Coordination

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. As a result, 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.

Potential Impacts to 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.

All alternatives would implement ACLs and a post season accounting of the catch relative to the ACL that is intended to promote long term sustainability of the fishery stock. However, 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 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.

4.4.3 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 all of the alternatives, fishing for non-Deep 7 bottomfish would be subject to an annual catch limit. There is a possibility that an ACL selected within the range considered under Alternatives 1 and 2 could be exceeded. However, because in-season AMs are not possible, no change to the fishery is anticipated. The ACL is intended to provide for community use of fishing resources, while helping to ensure that fishing is sustainable over the long term. Fishing would continue to be monitored by Hawaii DAR, NMFS and the Council. 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. The affected fishing community would continue to be a part of the Council decision-making process.

5 References

Brodziak et al., in press. Stock assessment update of the Status of the Bottomfish Resources of American Samoa, the Commonwealth of Northern Mariana Islands, and Guam, 2012. National Marine Fisheries Service Pacific Island Fisheries Science Center Internal Report IR-12-022, Honolulu. 126p.

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

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

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

Impact Assessment. 2008. Ecosystem-based fisheries management in the western Pacific. Proceedings from a comprehensive series of workshops convened by the Western Pacific Fishery Management Council. Honolulu, Hawaii. May 2008.

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

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

NMFS. 2012. 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, 2012. 118pp.

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

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

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

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

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