Amendment 4

Fishery Ecosystem Plan for the Mariana Archipelago

Remove the Prohibited Areas for Medium and Large Bottomfish Vessels in the Commonwealth of the Northern Mariana Islands

Including Environmental Assessment and Regulatory Impact Review

RIN 0648-BF37

August 4, 2016

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Abstract:

The Fishery Ecosystem Plan for the Marianas Archipelago (FEP) and implementing federal regulations currently prohibit medium and large vessels (vessels 40 ft and greater) from commercial fishing for bottomfish management unit species (BMUS) in certain federal waters around the Commonwealth of the Northern Mariana Islands (CNMI). The prohibited areas include waters within approximately 50 nm of the Southern Islands (i.e., Rota, Aguigan (also Aguijan), Tinian, Saipan and Farallon de Medinilla) and within 10 nm of Alamagan Island.

The Council established the prohibited areas in 2008 in response to concerns expressed by CNMI fishermen that Guam bottomfish fishermen would travel to fish in CNMI waters after establishment of the large vessel prohibited fishing area in Guam. CNMI fishermen were concerned that such additional fishing by the vessels from Guam would create localized depletion of bottomfish, gear conflicts, and catch competition. Current information indicates that prohibited area may not be needed to ensure the sustainability of the CNMI bottomfish fishery and, in fact, may be constraining it. The Council believes that the prohibited areas may be contributing to the potential underutilization of the bottomfish resource in CNMI, and that removing them may promote optimum yield. Accordingly, the Council has recommended removing the prohibited areas in this Amendment 4 to the FEP.

Other requirements in that fishery, including requirements for the Marianas Trench Marine National Monument, would remain unchanged. The requirements include federal permits, annual catch limits and accountability measures, vessel marking, catch and sales reporting, and the vessel monitoring system. The Council intends Amendment 4 to improve the efficiency and economic viability of the CNMI bottomfish fleet, while ensuring that fishing remains sustainable on an ongoing basis.

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ACRONYMS AND ABBREVIATIONS

ACL – Annual Catch Limit
AM – Accountability Measure
BF M/LVPA – medium and large vessel bottomfish prohibited fishing areas
BMUS – Bottomfish Management Unit Species
CNMI – Commonwealth of the Northern Marianas Islands
Council – Western Pacific Fishery Management Council
EA – Environmental Assessment
EEZ – Exclusive Economic Zone
EFH – Essential Fish Habitat
ESA – Endangered Species Act
FEP – Fishery Ecosystem Plan
FMP – Fishery Management Plan
FR – Federal Register
HAPC – Habitat Areas of Particular Concern
Magnuson-Stevens Act – Magnuson-Stevens Fishery Conservation and Management Act
MMPA – Marine Mammal Protection Act
MPA – Marine Protected Areas
MSY – Maximum Sustainable Yield
NEPA – National Environmental Policy Act
NMFS – National Marine Fisheries Service
NOAA – National Oceanic and Atmospheric Administration
OFL – Overfishing Limit
PIFSC – NMFS Pacific Islands Fisheries Science Center
PIRO – NMFS Pacific Islands Regional Office
VMS – Vessel Monitoring System
WPacFIN – Western Pacific Fisheries Information Network
WPFMC – Western Pacific Fishery Management Council

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1 Introduction

1.1 Background Information

As authorized by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), the Western Pacific Fishery Management Council (Council) and the National Oceanic Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) manage the bottomfish fishery in federal waters in the Commonwealth of the Northern Mariana Islands (CNMI) under the Fishery Ecosystem Plan for the Mariana Archipelago (Mariana FEP). Fig. 1 shows the Mariana Archipelago and the surrounding area.

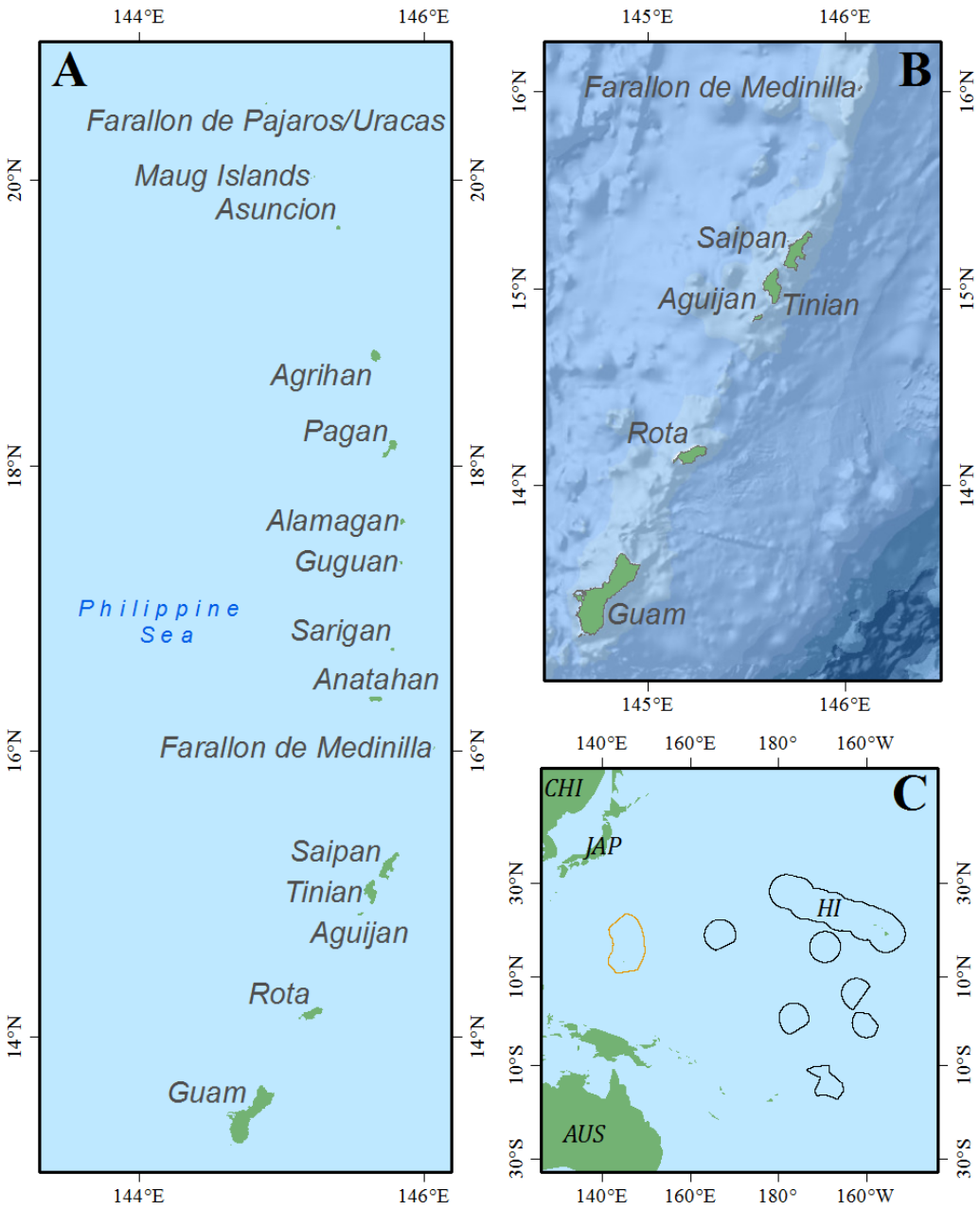

Figure 1. Graphic depicting the Mariana Islands Archipelago and various geographic features. Panel A shows the islands of the Mariana Archipelago; Panel B shows the Southern Islands of the archipelago (Farallon de Medinilla, Siapan, Tinian, Aguigan (Aguijan) and Rota) and Guam; and Panel C shows the location of the United States Exclusive Economic Zone (U.S. EEZ) surrounding the Mariana Islands, shown in orange, within the Western Pacific. The U.S. EEZ around the other U.S. Pacific Islands is shown in black.

Current federal regulations at 50 CFR 665.403 prohibit commercial fishing for bottomfish management unit species (BMUS) by vessels 40 ft (12.3 m) and greater within the U.S. EEZ (0-50 nautical miles, nm) around the CNMI from the southern boundary of the EEZ (south of Rota) to the north latitude of 16° 10’ 47” (halfway between Farallon de Medinilla and Anatahan), and

within the EEZ 0-10 nm around Alamagan (Figure 2). The Council has since determined that these regulations are not necessary to ensure the sustainability of the federal CNMI bottomfish fishery.[1]

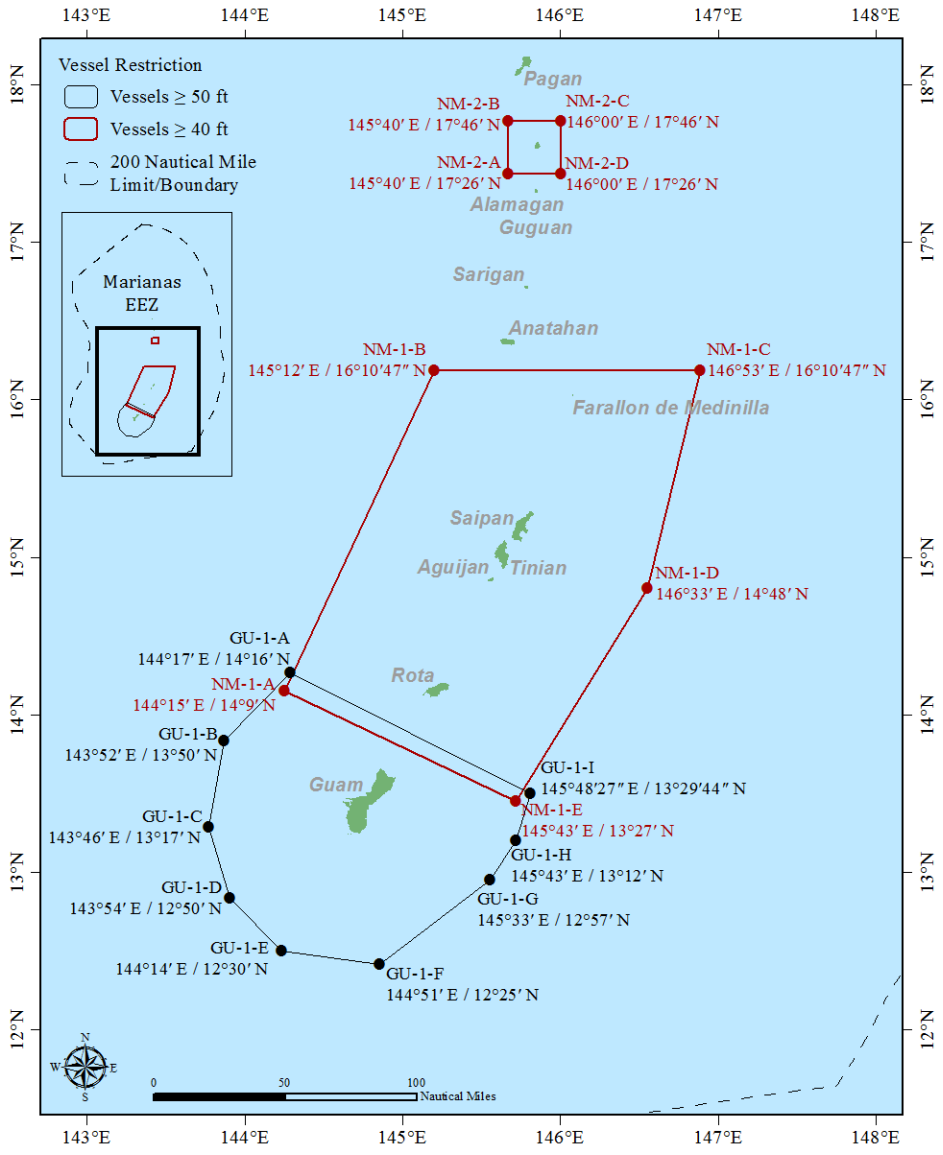

Figure 2. Prohibited fishing areas for medium and large bottomfish vessels in the CNMI and large bottomfish vessels in Guam (50 CFR 665.403)

The Council recommended the establishment of these prohibited fishing areas for medium (40 ft long) and large (equal to or greater than 50 ft) bottomfish vessels around the Southern Islands (Farallon de Medinilla, Siapan, Tinian, Aguigan (Aguijan) and Rota) and Alamagan Island through Amendment 10 to the Fishery Management Plan (FMP) for the Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region. Amendment 10 also required the following monitoring, reporting, and recordkeeping requirements:

[1] Vessels receiving bottomfish are still allowed to operate within these areas.

- Vessels 40 ft and greater fishing commercially for BMUS in the EEZ around CNMI to carry an operational Vessel Monitoring System (VMS) unit.
- Catch and effort logbooks and sales reports for any BMUS sold in CNMI.
- CNMI commercial bottomfish permits for any vessel used to commercially fish for, transship, receive, or land BMUS in the EEZ around the CNMI.

NMFS implemented the Council's recommendation as a final rule on December 12, 2008 (73 FR 75615).

Brief summary of the concerns previously addressed by Amendment 10:

Amendment 10 was precautionary and developed quickly in response to concerns expressed by CNMI fishermen. Specifically, these concerns were that Guam bottomfish fishermen would travel north to fish in CNMI waters as a result of bottomfish spatial restrictions the Council developed for Guam waters. A large-vessel prohibited bottomfish fishing area (BF LVPA) established in 2006 around Guam prompted concern that large bottomfish vessels from Guam would fish on banks and seamounts around the CNMI. Without similar restrictions around CNMI, it was thought that operators of large Guam-based vessels may choose to fish for bottomfish within CNMI's waters. [2] CNMI fishermen thought that large vessels from Guam, which require relatively large catches to cover operational costs, could deplete southern CNMI archipelago area stocks and result in reduced community participation by smaller CNMI botttomfish vessels. Some fishermen also believed that large exports of bottomfish fish from CNMI by the operators of large vessels from Guam could potentially disrupt traditional patterns of supply and consumption of bottomfish in the local CNMI community.

The ten-mile bottomfish fishing closure around Alamagan Island in Amendment 10 was intended to assist the fledging fishing village on that island. Since Amendment 10 was implemented, the Council supported a fishing camp and associated infrastructure on Alamagan via a Community Development Program project, as a result this closure is no longer needed.

Finally, in addition to concerns about competition and stock depletion, Amendment 10 addressed the concern that there was no comprehensive data collection system in place. The Council and NMFS need data to monitor catches, determine the impacts of the CNMI bottomfish fishery on the stock(s) harvested, and to provide details on bycatch (discards) by bottomfish fishing vessels.

Recent fishery management concerns:

There are currently few large vessels available in the archipelago to fish for bottomfish and CNMI bottomfish fishermen and Council advisors have recently indicated that they have come to believe that few, if any, large vessels from Guam would have entered the Mariana Islands bottomfish fishery. As a result, concerns about large vessels depleting stocks and resulting in less community participation appear to be unfounded.

[2] Guam lies approximately 40 nm from Rota –less than one day voyage.

In addition, recent CNMI bottomfish harvests are far below recent annual catch limits (ACL) associated with the fishery. Therefore, current federal regulations at 50 CFR 665.403 that prohibit commercial fishing for BMUS by vessels 40 ft and greater within the M/LVPA may not be necessary to ensure the sustainability of the federal CNMI bottomfish fishery, and may in fact be constraining it from achieving optimal yield. The Council's Mariana Archipelagic FEP Plan Team members have communicated to the Council that the BF M/LVPA are decreasing the efficiency and performance of the fishery, impacting the local bottomfish fishing fleet economically and socially.

Specific concerns the Council and other interested parties have about the current restricted areas include:

- Unnecessarily contain the fishery and its ability to achieve optimum yield.
- Negatively impact fishers' safety at sea by prohibiting larger, safer vessels from where they have historically fished.
- Present an economic barrier to small boat fishermen who wish to upgrade without having to travel more than 100 miles to conduct bottomfish fishing.[3]
- Constrain the availability of fresh local fish because of reduced volume (from vessels less than 40 ft in length who can fish closer to land) and reduced quality (from vessels 40 ft and greater who must endure longer trip times).
- Result in unnecessarily higher per trip costs for the large vessel component of the fleet.

Fishery concern 1: Potential for the regulations to be preventing medium and large vessel participation in the CNMI commercial bottomfish fishery:

The Council is concerned that the BF M/LVPA may be constraining participation in the CNMI and Guam bottomfish fleet by local bottomfish fishers who own vessels 40 ft and greater. At the time Amendment 10 was established, it was thought that non-CNMI bottomfish fishing vessels, some of whom did fish in the northern areas of CNMI, might also fish around the Southern Islands, especially following the closure of certain waters in Guam to larger bottomfish fishing vessels.

Four to six vessels 40 ft and greater fished for bottomfish around CNMI each year between 2000 and 2006 (WPFMC and NMFS 2008). In Guam, there was one bottomfish vessel greater than 50 ft in 2007, two in 2008, and one in 2009 (WPFMC and NMFS 2008). Since the BF M/LVPA were created, the number of federally permitted CNMI-based bottomfish vessels 40 ft and greater decreased from a high of four in 2010 to none in 2014. The number of federally permitted Guam-based bottomfish vessels 50 ft or greater decreased from a high of seven in 2010 to just one in 2014.[4]

We examined bottomfish catches five years prior to and after regulations implementing Amendment 10. In the CNMI between 2004 and 2008, estimated total bottomfish catch totaled

[3] This is the approximate minimum distance that a fisherman from Rota would be required to travel (round trip) in order to go bottomfish fishing in the CNMI.
[4] Source: Sustainable Fisheries Division, Pacific Islands Regional Office, NMFS.

234,721 lb with an average catch of 46,944 lb/year. Between 2009 and 2013, catch totaled 126,163 lb with an average catch of 25,233 lb/year (Table 7).[5] This decline is probably not attributable singularly to the restrictions created by Amendment 10, and may have little to do with it at all. There have been other factors affecting bottomfish fishing in the CNMI and Guam. First, the price of fuel increased substantially after 2010, and a number of factors have depressed the local economy in CNMI, including the closing of the garment industry in mid-2000s. Another factor that may have affected medium and large vessel participation in CNMI bottomfish fishing is an expansion of the safety zones around Farallon de Medinilla (FDM) by the military. [6] Although total bottomfish fishing catch declined after the regulations were implemented, the commercial catch component remained relatively more stable, suggesting that federally permitted vessels in CNMI less than 40 ft were still catching and selling bottomfish.

Fishery concern 2: Potential for the BF M/LVPA to be preventing optimal yield of CNMI's bottomfish fishery resource

The Council is concerned that the BF M/LVPA may also be contributing to the under-utilization of the CNMI bottomfish resource. According to the PIFSC 2015 bottomfish stock assessment update (Yau et al., 2016), the long-term maximum sustainable yield (MSY) for CNMI bottomfish is estimated to be 173,100 ± 32,190 lb, which is higher than the previous MSY estimate of 172,900 ± 32,200 lb reported in the 2012 assessment by Brodziak et al. (2012). However, average estimated catch in the five-year period between 2009 and 2013 was approximately 25,000 lb annually (WPFMC, in prep.). [7] The estimated difference between annual average catch and MSY for the fishery is nearly 150,000 lb.

1.2 Recent Actions in CNMI since Establishment of CNMI BF M/LVPA

Since NMFS implemented Amendment 10 in December 2008 (73 FR 75615), the following changes in CNMI have occurred:

Transfer of nearshore waters to CNMI and submerged lands retained under federal jurisdiction

In 2013, Public Law 113-34 (September 18, 2013) amended Public Law 93-435 (October 5, 1974) to transfer nearshore (0-3 nm) waters from the U.S. to the CNMI.[8] However, Proclamation 9077 (January 15, 2014) retained the following nearshore submerged lands under federal government jurisdiction, and thus these submerged lands are still part of the EEZ:

[5] Source: Yau, et al., 2016.
[6] In the past, fishing has occurred in marine waters to the shoreline around FDM; however, currently nearshore waters within 3 nm of FDM are restricted from public access at all times due to military training practices. A 12 nm danger zone around FDM also prohibits access while in use by the military (U.S. Department of the Navy 2013).
[7] Estimated total landings of the bottomfish species are selected from shore- and boat based expanded creel survey species composition files and from the commercial vendor receipt program – where applicable.
[8] The regulatory language under § 665.402 Management subareas is being changed to reflect this transfer. See Section 7 and Appendix B.

- The submerged lands adjacent to the islands of Farallon de Pajaros (Uracas), Maug, and Asuncion permanently covered by tidal waters up to the mean low water line and extending three geographical miles seaward from the mean high tide line; and
- The submerged lands adjacent to the islands of Tinian and FDM[9] permanently or periodically covered by tidal waters up to the line of mean high tide and extending seaward to a line three geographical miles distant from those areas of the coastline that are adjacent to the leased lands described in the lease.[10]

These nearshore waters transferred to the CNMI, and not retained through Proclamation 9077, are subject to CNMI, and not federal, fishery management requirements. Thus, medium/large vessels fishing in these nearshore areas are only subject to CNMI management requirements.

Creation of Marianas Trench Marine National Monument

In 2013, NMFS implemented regulations for the Mariana Trench National Marine Monument that prohibit commercial fishing in the Islands Unit (the three northern most islands of Farallon de Pajaros, Maug, and Asuncion). Regulations allow non-commercial fishing by permit and customary exchange in non-commercial fisheries in the Islands Unit (78 FR 32996, June 3, 2013) (Figure 6 in Appendix A).

On May 3, 2016, the U.S. Fish and Wildlife Service, in cooperation with NMFS and the CNMI Government, requested public comment on a Draft Environmental Assessment for the proposed Marianas Trench Marine National Monument Northern Islands Submerged Lands Transfer to the Commonwealth of the Northern Marianas Islands. The two alternatives proposed are: no transfer alternative and a preferred alternative that would result in the U.S. Department of Interior conveying the submerged lands to the CNMI government through a patent with a conservation easement that would continue to protect the submerged lands as part of the Monument. The public comment period on the Draft environmental assessment (EA) closed on June 7, 2016.[11]

Establishing ACLs and AMs for the FEPs

In 2011, NMFS established the procedures and timing for specifying ACLs and accountability measures (AMs) for western Pacific fisheries (76 FR 37285, June 2, 2011). NMFS specified these ACLs and AMs for the Mariana FEP fisheries in 2012, and the same limits again for the 2013 and 2014 fishing years. The ACLs may not exceed the acceptable biological catch for each stock or stock complex. This ensures that the ACLs and AMs are set at a level that overfishing does not occur. In addition to these catch limits, the monitoring, reporting, and recordkeeping

[9] FDM nearshore waters are restricted from public access at all times due to safety reasons based on military activities, and within 12 nm while in use by the military.
[10] Lease Agreement Made Pursuant to the Covenant to Establish a Commonwealth of the Northern Mariana Islands in Political Union with the United States of America (January 6, 1983).
[11] http://www.fpir.noaa.gov/newsroom/3_may_public_comment_requested_on_the_transfer_of_submerged_lands_to_CNMI.html

requirements implemented under Amendment 10 also allow for improved accounting of fishery catches in the Mariana Archipelago.

1.3 Purpose and Need for Action

The purpose of this action is to remove unnecessary constraints to participation in the CNMI bottomfish fishery in order to provide opportunities for local CNMI bottomfish fishermen to promote optimum yield from the fishery, and to more efficiently and safely utilize fishery resources. Specifically, removing the BF M/LVPA in the CNMI is intended to:

- Promote more efficient use of the nation's fishery resources while ensuring fishing is sustainable over the short and long term.
- Provide opportunities for fishing by local CNMI owners and operators of fishing vessels 40 ft and greater.
- Increase safety by allowing CNMI bottomfish fishermen who would like to fish closer to home the option to operate vessels 40 ft and greater.
- Provide consistent availability of locally caught bottomfish to CNMI consumers.
- Allow a broader type of fishery participants to catch fish in an economically viable and sustainable manner.
- Promote the long-term viability of CNMI community bottomfish participants, and, at the same time, promote safety at sea for bottomfish fishing vessel operators and crew because of the enhanced fishing opportunities for fishing with large vessels.

The current BF M/LVPA around the Southern Islands and Alamagan Island were precautionary measures originally intended to provide for long-term viability of the CNMI bottomfish fishery. In particular, the Council intended the BF M/LVPA to prevent large vessels from Guam from fishing nearshore CNMI banks historically fished by small-scale CNMI bottomfish fishermen. NMFS and the Council implemented the regulations at the request of members of the CNMI fishing community in response to their concerns that such fishing could result in localized depletion of bottomfish resources.

However, discussions with Mariana Archipelagic FEP Plan Team members, fishermen, and other interested parties, as well as recent catch and participation data from both the CNMI and Guam bottomfish fisheries, indicate that the concerns described above may have been misplaced. The large vessel component of the Guam bottomfish fishing fleet has not and is not expected to increase, and community members in CNMI and Guam are unaware of any Guam fishermen interested in fishing for bottomfish species around CNMI. Furthermore, given the current management regime in the CNMI for bottomfish fishing, fishery scientists and managers have the ability to more closely monitor bottomfish catches and effort. Finally, the recent harvest level for bottomfish has been well below the established ACLs for those species. For these reasons, the Council has determined that the BF M/LVPA are not necessary to ensure sustainable management of the federal CNMI bottomfish fishery.

1.4 Proposed Action

The Council recommends that NMFS remove regulations that prohibit fishing vessels 40 ft and greater from engaging in commercial fishing for BMUS in the EEZ within approximately 50 nm of the Southern Islands of the CNMI (i.e., Rota, Aguigan, Tinian, Saipan and Farallon de Medinilla or FDM) and 10 nm of Alamagan Island.

The reporting and permitting measures implemented under Amendment 10 to the Fishery Management Plan (FMP) for Bottomfish and Seamount Groundfish Fisheries in the Western Pacific Region and described above, would remain in place under Amendment 4 to the Mariana Fishery Ecosystem Plan. The proposed action will not affect the Guam BF LVPA.

Decision to be made

NMFS will use the Amendment and Environmental Assessment (EA) as it makes a decision on whether to approve, partially approve, or disapprove the proposed measure. NMFS will also use the information in the environmental assessment (EA) to evaluate whether an EIS must be prepared.

1.5 Public Review

On May 25, 2016, NMFS published at *www.regulations.gov* a notice of availability and request for public comments on Amendment 4, including a Draft EA and Regulatory Impact Review (81 FR 33196). The comment period ended on July 25, 2016, NMFS did not receive any comments on this amendment.

2 Description of the Alternatives Considered

2.1 Early Public Involvement and Development of the Alternatives

At its June 2013 meeting, the Council's CNMI Marianas Advisory Panel (AP), in response to community input and feedback, recommended the Council remove the prohibition on using a vessel 40 ft or greater to fish in the EEZ within 50 nm around the Southern Islands and within 10nm around Alamagan Island. This had also been a topic of discussion at several previous CNMI AP meetings.[12] Because of the AP recommendation, the Council directed staff at the 157th Council meeting (June 25-28, 2013; Honolulu, HI) to prepare a general options paper regarding re-opening the bottomfish closed areas, which entailed re-engaging Council advisors and the public on the issue.

Staff vetted these options via a publicly-noticed joint AP and Regional Ecosystem Advisory Committee (REAC) meeting in Saipan in August 2013. Council staff held the meeting at the Saipan Multipurpose Center in Susupe on Thursday, August 22, 2013, with 15 to 20 attendees. Given the annual catch of bottomfish has been much less than the established ACL for this CNMI fishery, staff indicated there appears to be no threat to stock sustainability if one or more

[12] Advisory Panel meetings are open to the public and meeting reports are typically located on the Council's website or obtained via a request to the Council.

Guam-based vessels were to fish in these areas. Staff also described existing permit and reporting requirements, the expanding demand for bottomfish in the local (CNMI) market due to increased tourism, and CNMI and Council local fisheries development initiatives. With regard to the issue of removing the bottomfish closures for vessels 40 ft and greater, REAC and AP members developed a consensus request for the Council to removing the medium and large vessel closure.

Council staff also conducted publicly announced fisheries issues scoping meetings in CNMI and Guam in November 2013. At these meetings, staff presented information about existing federal management rules for fishing for BMUS in the Marianas, presented data on the current performance of the fishery, discussed the need for potential rule changes, and solicited general and specific comments on the management of the CNMI and Guam bottomfish fisheries. Council staff also reviewed the entry and exit patterns of bottomfish fishing vessels in CNMI that are required to maintain federal permits and report catches on a per trip basis. Council staff held these meetings Monday, November 18th from 6 to 9 p.m. at the Northern Mariana Island College Classroom NMC D-1 (and a video teleconference link was established to Rota and Tinian Northern Mariana Island College satellite classrooms) and Tuesday, November 19th from 6 to 9 p.m. at the Guam Hilton Hotel Gallery Room.

Findings from these meetings revealed that the number of federal permits issued to vessels 40 ft and greater to fish in the waters around CNMI have been minimal. A couple of the vessels 40 ft and greater are local vessels whose owners report no longer holding federal bottomfish permits because the M/LVPA encompass nearly all of the bottomfish habitat around the Southern Islands and Alamagan Island. Two of the prior permitted bottomfish fishing vessels were longline vessels that had transferred from Honolulu and have since returned to Hawaii to pelagic longline.

Based on the results of these engagements with Council advisory bodies and the public, the Council, at its 158th meeting (October 15-18, 2013; Honolulu, HI) directed staff to develop an options paper specific to removing the 50 nm and 10 nm bottomfish M/LVPA in the EEZ around the Southern Islands and Alamagan, respectively. In the development of the options paper, Council staff worked with NMFS, the CNMI Department of Fish and Wildlife, and Council advisors to obtain additional information. Council staff presented the options paper to the Council at its 159th meeting (March17-18, 2014; Garapan, CNMI). The Council selected: 1) removing the bottomfish area closure around the Southern Islands, and 2) removing the bottomfish area closure around Alamagan Island, as its preliminary preferred alternatives. The third alternative described was the no-action option.

At the 160th Council meeting (June 24-27, 2014; Honolulu, HI), the Council directed staff to prepare a final amendment package for transmittal to NMFS with the proposed action to remove the BF M/LVPA around the Southern Islands and Alamagan. This action would remove the regulations that prohibit commercial fishing vessels 40 ft and greater targeting BMUS from fishing in the EEZ within 50 nm of the Southern Islands of the CNMI and within 10 nm around Alamagan Island.

2.2 Features Common to All Alternatives

Certain regulations will remain in both alternatives. The Marianas Trench Marine National Monument (50 CFR Subpart G) and the Guam large vessel bottomfish prohibited area (50 CFR 665.403) are not affected by this proposed action. CNMI BF vessels 40 ft and greater are and will be required to comply with gear restrictions (50 CFR 65.406), permit (665.404) and reporting and recordkeeping (665.14) requirements.

2.3 Alternative 1: No Action (Status Quo)

Under Alternative 1, NMFS would not change the regulations for bottomfish fishing in federal waters. Regulations prohibiting commercial fishing for BMUS using a vessel 40 ft and greater in the EEZ within 50 nm around the Southern Islands (Rota, Saipan, Tinian, Aguigan, and FDM) and within 10 nm around Alamagan Island would remain in place. This alternative would not meet the purpose and need as described under Section 1.3 to increase efficient use of fishery resources and provide opportunities for CNMI bottomfish fishermen.

Figure 3 depicts the outcome of No Action, the status quo alternative. Table 1 below briefly highlights features of this alternative.

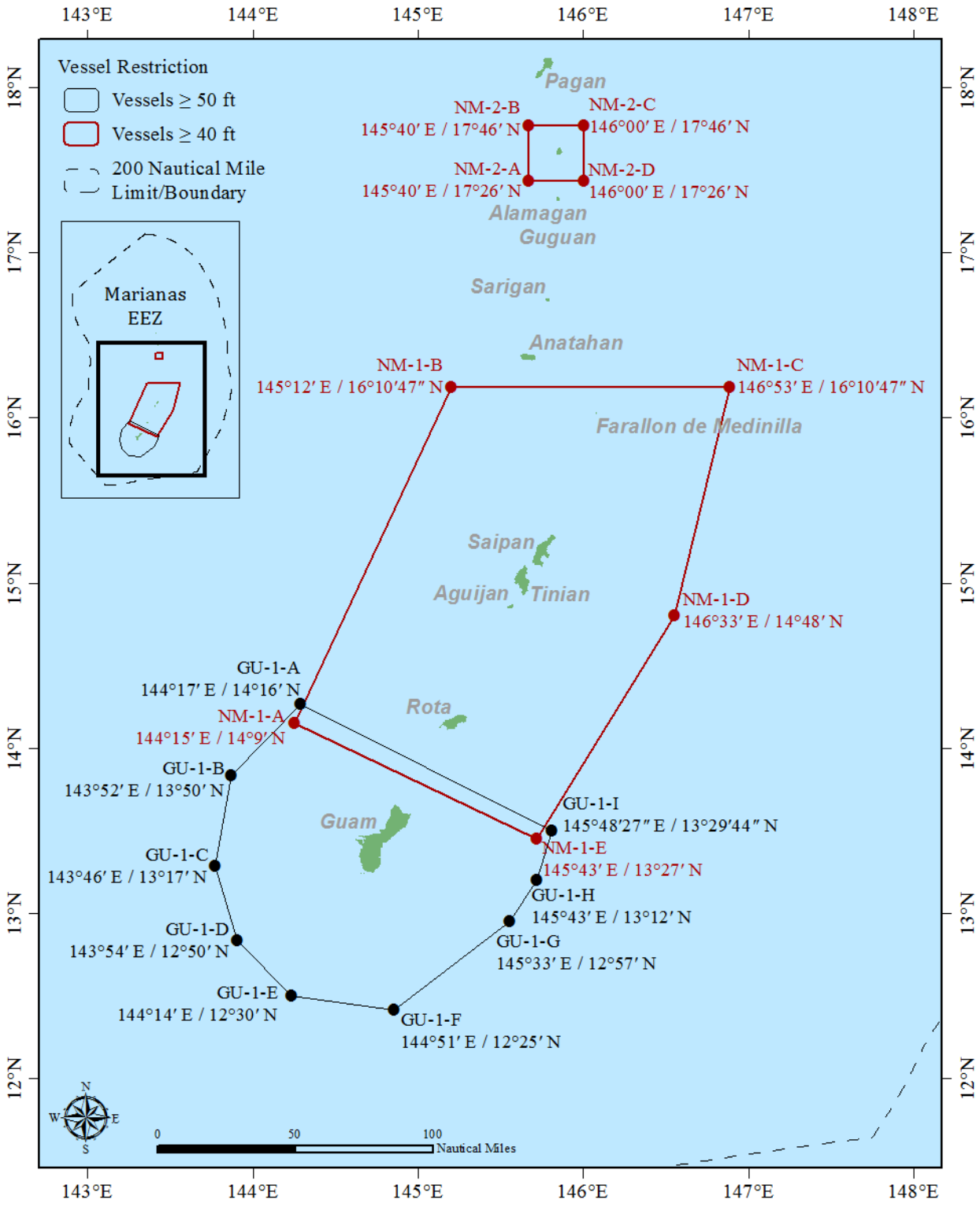

Figure 3. Alternative 1: No Action (Status Quo)

Expected fishery outcome

Under Alternative 1 (no action), CNMI bottomfish resources will continue to be underutilized and participation in the fishery unnecessarily constrained. Fewer locally-caught bottom fish would be available compared to the preferred alternative. Since NMFS implemented Amendment 10 in December 2008, the total number of bottomfish fishing trips has dropped, from 461 trips in 2008 to 85 in 2014. Estimated commercial bottomfish catch decreased from 2009 to 2014, from 41,176 lb to 7,208 lb. [13] For the same years, revenue in the fishery was $131,226 and $23,947, respectively (Table 5 and Table 7). Under this alternative, local fishermen wishing to expand their fishing capacity by utilizing larger, safer vessels, or enter the fishery with such vessels, would also be required to travel outside of the BF M/LVPA. Alternative 1 thus increases the at-sea travel time and costs compared with Alternative 2, and therefore limits the potential of the local fleet to grow.

Also, under this alternative, bottomfish fishermen from Guam using small fishing vessels may commercially fish around the CNMI for bottomfish, provided they obtain a Northern Mariana Islands Bottomfish permit ($54 in 2016) and report catches. As described previously, Guam-based large vessel bottomfish fishermen have not and are unlikely to travel the long distance to fish for MUS.

2.4 Alternative 2 (Council Preferred Alternative)

Remove the BF M/LVPA restriction around the Southern Islands and Alamagan Island to allow commercial fishing for BMUS by a vessel of any size.

Under Alternative 2, NMFS would change the regulations for bottomfish fishing in federal waters. Regulations prohibiting commercial fishing for BMUS using a vessel 40 ft and greater in the EEZ within 50 nm around the Southern Islands (Rota, Saipan, Tinian, Aguigan, and FDM) and 10 nm around Alamagan Island would be removed. This alternative would meet the purpose and need as described under Section 1.1 to increase efficient use of fishery resources and provide opportunities for CNMI bottomfish fishermen.

Figure 4 provides a graphic representation of the outcome of Alternative 2. Table 1 below briefly highlights features of this alternative.

[13] Data collection for this fishery does not allow for distinguishing between trips made inside/outside M/LVPA.

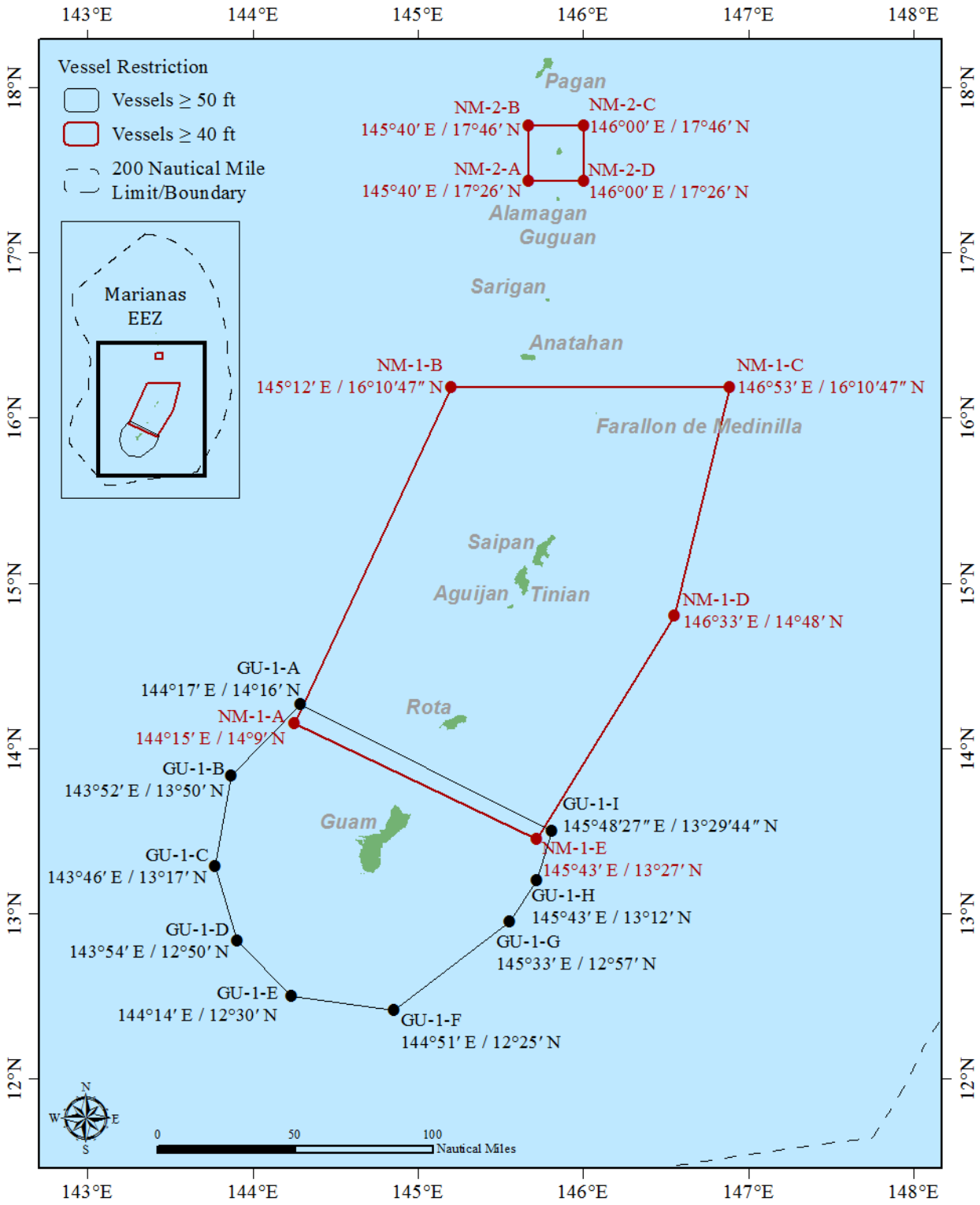

Figure 4. Alternative 2: Remove the prohibited fishing areas for medium and large bottomfish vessels in CNMI (Council Preferred Alternative). In Fig. 4, these areas are delineated in red around the Southern Islands and Alamagan (NM-1-A to NM-1-E). The large vessel prohibited fishing area around Guam (GU-1-A to GU-1-I) would remain in place under Alternative 2.

Expected fishery outcome

Under Alternative 2, CNMI bottomfish resources would be more accessible to commercial fishermen, who could use vessels 40 ft and greater. This may promote optimum yield, could increase participation in the fishery – and thus facilitate greater availability of fresh bottomfish in the CNMI versus the status quo.

Under this alternative, local fishermen wishing to expand their fishing capacity by utilizing larger, safer vessels would be able to bottomfish around the Southern Islands of CNMI and the island of Alamagan. Alternative 2 is the Council's preferred alternative.

Under this alternative, there is the potential for large bottomfish fishing vessels from Guam to travel to the CNMI. However, there are few active bottomfish vessels that are 40 ft or greater on Guam. The Council and NMFS will continue to manage the fishery under a suite of management requirements that include: the specification of ACLs and AMs, post season review of catches and effort including against ACLs, requirements for vessel markings, catch and sales reporting, and federal logbooks. Commercial bottomfish fishing requires a federal permit and the operator of the vessel must maintain and submit reports of catch and fishing effort. Vessels 40 ft and greater are also required to carry an operational fishing VMS unit.

2.5 Alternatives Not Considered in Detail

Based on public interest at previous meetings, the Council, at its 154th meeting (Honolulu; June 2012), directed staff to examine reducing the size of the BF M/LVPA around the CNMI Southern Islands from 50 to 30 nm. To determine the extent of likely bottomfish fishing areas that would become available under that scenario, Council staff worked with NMFS to map assumed bottomfish habitat (areas contained within the 200-fathom contour), within the existing 50-mile closure and the suggested 30-mile closure. The analysis showed that practically no new bottomfish fishing areas would become available to larger vessels if the closure area was reduced to 30 nm. As a result, the Council did not further consider a reduction to 30 nm. If bottomfish fishery operations or the status of the resource changed, the Council could reconsider further management measures at that time.

Table 1. Comparison of features of the alternatives and potential fishery outcomes for proposed changes to the bottomfish medium and large vessel prohibited fishing areas (BF M/LVPA) in the CNMI

Resource or Fishery Management Topic:	**Alternative 1. No Action (Status Quo Baseline) Maintain the BF M/LVPA in the CNMI**	**Alternative 2. Remove the BF M/LVPA in the CNMI** **(Council and NMFS Preferred Alternative)**	**Comments:**
Federal Action under the Alternative	Baseline: Do not change regulations. No change to BF M/LVPA around the Southern Islands and Alamagan Island in the CNMI.	Proposed action: Change regulations. Remove the BF M/LVPA around the Southern Islands and Alamagan Island in the CNMI.	Proposed action would require federal rulemaking. (See Section 7, Draft Proposed Regulations)
Location of the BF M/LVPAs in the CNMI and Prohibition in Brief	Baseline: Commercial bottomfish fishing using a vessel ≥40 ft is prohibited in two BF M/LVPA in the CNMI. One BF M/LVPA extends approximately 50 nm seaward around the Southern Islands (Rota, Aguigan, Saipan, Tinian and FDM). The other BF M/LVPA extends approximately 10 nm seaward around Alamagan Island. (See Figure 2).	There would be no BF M/LVPA in the CNMI.	
Location of the BF LVPAs in Guam and Prohibition in Brief	Baseline: Bottomfish fishing using a vessel ≥50 ft is prohibited in the Guam BF LVPA, which extends approximately 50 nm seaward around Guam. (See Figure 2).	No change.	

Resource or Fishery Management Topic:	**Alternative 1. No Action (Status Quo Baseline) Maintain the BF M/LVPA in the CNMI**	**Alternative 2. Remove the BF M/LVPA in the CNMI** **(Council and NMFS Preferred Alternative)**	**Comments:**
Locations where vessels may be used to fish for bottomfish in federal waters around CNMI	Bottomfish fishing using a vessel ≥ 40 ft may be conducted outside of the BF M/LVPA in areas open to commercial or non-commercial bottomfish fishing. Bottomfish fishing using a vessel < 40 ft may be conducted within the BF M/LVPA and in other areas open to commercial or non-commercial bottomfish fishing.	Bottomfish fishing may be conducted in areas open to commercial or non-commercial bottomfish fishing. Bottomfish fishing would not be restricted in terms of a BF M/LVPA.	Note: Commercial fishing is prohibited in the Islands Unit of the Marianas Trench Marine National Monument. Non-commercial fishing in the Islands Unit of the Monument requires a fishing permit. Bottomfish fishing and/or access to certain CNMI waters with a vessel may be limited under the jurisdiction of other agency authorities (e.g., Departments of Defense).
Locations where vessels may be used to fish for bottomfish in federal waters around Guam	Bottomfish fishing using a vessel ≥50 ft may be conducted outside of the Guam BF LVPA in areas open to commercial or non-commercial bottomfish fishing around Guam. Bottomfish fishing using a vessel < 50 ft may be conducted within the Guam BF LVPA and in other areas open to commercial or non-commercial bottomfish fishing around Guam.	No change.	

Resource or Fishery Management Topic:	**Alternative 1. No Action (Status Quo Baseline) Maintain the BF M/LVPA in the CNMI**	**Alternative 2. Remove the BF M/LVPA in the CNMI** **(Council and NMFS Preferred Alternative)**	**Comments:**
Extent to which bottomfish habitat is available for fishing by vessels in the CNMI	No bottomfish habitat is available for fishing by vessels ≥40 ft around the southern CNMI BF M/LVPA. A small portion of banks and reefs around Alamagan Island is open to fishing for bottomfish by all vessels. No banks are open to commercial bottomfish fishing in the Islands Unit of the Marianas Trench Marine National Monument. A limited amount of bottomfish habitat is available around the FDM because some areas are closed by the military year round due to safety issues. All banks and reefs around CNMI are open to bottomfish fishing by vessels < 40 ft except for areas closed to access and/or fishing by the military (e.g., around FDM) and except that commercial fishing in the Islands Unit is prohibited.	All banks and reefs around the islands in the CNMI would be open to all bottomfish fishing vessels except for areas closed to access and/or fishing by the military, and except for those banks and reefs that are in the Islands Unit of the Mariana Islands Marine National Monument which are closed to commercial fishing.	More banks and reefs would be available to vessels ≥40 ft under this alternative than the status quo.

Resource or Fishery Management Topic:	**Alternative 1. No Action (Status Quo Baseline) Maintain the BF M/LVPA in the CNMI**	**Alternative 2. Remove the BF M/LVPA in the CNMI** **(Council and NMFS Preferred Alternative)**	**Comments:**
Administration and Enforcement	NMFS has administrative costs associated with processing permit applications, and issuing, and tracking permits. NMFS has administrative costs related to logbooks and sales reports. NMFS has costs associated with providing, installing, maintaining, and, as needed, monitoring VMS units for medium and large vessels used for bottomfish fishing in the CNMI. A prohibited fishing area can require time and effort on the part of enforcement to enforce the prohibition on fishing in the BF M/LVPA.	NMFS may experience small increase in permit requests. If trip numbers increase, there may be additional logbooks or sales reports processing. The removal of the prohibited fishing areas in the CNMI would reduce costs to NOAA associated with enforcing a vessel size-based prohibited fishing area.	The preferred alternative represents a minor relief of an enforcement burden.

Resource or Fishery Management Topic:	**Alternative 1. No Action (Status Quo Baseline) Maintain the BF M/LVPA in the CNMI**	**Alternative 2. Remove the BF M/LVPA in the CNMI** **(Council and NMFS Preferred Alternative)**	**Comments:**
Expected Fishery Outcome: CNMI Smaller Vessels (<40 ft)	CNMI bottomfish fishery would continue to be made up of nearly exclusively vessels < 40 ft. Since 2009, there has been an average of 8 permitted vessels/year < 40 ft participating in the CNMI bottomfish fishery. This fishery would likely persist in time.	No large changes. NMFS and the Council do not expect a large number of medium or large bottomfish vessels are likely to enter the CNMI bottomfish fishery. Participation in the CNMI bottomfish fishery by small vessels is expected to continue to be somewhere around 2014 levels.	
Expected Fishery Outcome: CNMI medium and large vessels (≥40 ft)	The regulations would continue to discourage participation in the CNMI bottomfish fishery by vessels ≥40 ft. Fishermen are not likely to upgrade to a larger vessel The number of medium and large-size vessel in the bottomfish fishery would likely remain very low.	No large changes. Fishermen are more likely to upgrade to a larger vessel if prohibited areas are removed. NMFS and the Council do not expect a large number of medium or large bottomfish vessels are likely to enter the CNMI bottomfish fishery. Vessels ≥40 ft may return to levels before the regulation was implemented in 2008. From 2000 to 2006, 4 to 6 vessels 40 ft and greater fished for bottomfish around CNMI.	

Resource or Fishery Management Topic:	**Alternative 1. No Action (Status Quo Baseline) Maintain the BF M/LVPA in the CNMI**	**Alternative 2. Remove the BF M/LVPA in the CNMI** **(Council and NMFS Preferred Alternative)**	**Comments:**
Expected Fishery Outcome: Guam vessels <50 ft	Since NMFS implemented the federal permit requirements in 2008, the number of vessels < 50 ft have ranged from 349 vessels in 2010 to about 248 vessels in 2012.	No change.	
Expected Fishery Outcome: Guam vessels ≥50 ft	In 2014, there were fewer than 3 vessels ≥50 ft.	No change.	
Qualitative comparison of expected annual catches of BMUS in CNMI	Below MSY and within ACLs.	Somewhat higher level of catches. Catches expected to remain below MSY and within ACLs.	

3 Description of the Affected Environment

This section describes the biological and physical resources that could be affected by the proposed action. The focus of the analysis in this EA will be on areas that are and (if the action is approved) may be affected by bottomfish fishing in the CNMI. Bottomfish fishing in Guam is not expected to change as a result of the proposed action.

3.1 General Geographic Setting of the Mariana Archipelago

The Mariana Archipelago is a chain of islands in the western Pacific roughly oriented north-south and approximately 425 miles long (Figure 5). Spanish explorers named the archipelago in the 16th Century in honor of Spanish Queen Mariana of Austria.

The total land area of Guam is approximately 212 square miles and the EEZ around Guam is just over 84,000 square miles. The CNMI consists of 14 main islands. From north to south these are: Farallon de Pajaros, Maug, Asuncion, Agrihan, Pagan, Alamagan, Guguan, Sarigan, Anatahan, Farallon de Medinilla, Saipan, Tinian, Aguigan, and Rota. Only Saipan, Rota, and Tinian are permanently inhabited, with 90% of the population residing on the island of Saipan. The total land area of the CNMI is 176.5 square miles and the EEZ around the CNMI is almost 300,000 square miles.

Guam and the southern islands of the CNMI are limestone, with level terraces and fringing coral reefs. The CNMI's northern islands are volcanic and sparsely inhabited, with active volcanoes on several islands, including Anatahan, Pagan, and Agrihan (the highest, at 3,166 feet). The archipelago has a tropical maritime climate moderated by seasonal northeast trade winds. While there is little seasonal temperature variation, there is a dry season (December to June) and a rainy season (July to November). The rainy season coincides with the northern hemisphere hurricane season, and the Mariana Archipelago is periodically impacted by powerful typhoons.

The Mariana Trench is located to the east of the chain. The trench includes the deepest point in the world's oceans. The vertical measurement from the seafloor to Saipan's highest point (Mount Tapotchau) is 37,752 ft.

In 2009, Proclamation 8335 established the Marianas Trench Marine National Monument (Monument). The Monument includes certain waters and submerged lands around the three northernmost islands of the CNMI (Uracas or Farallon de Pajaros, Maug, and Asuncion), which comprise the "Islands Unit." The Monument also includes the submerged lands of designated volcanic sites and the Marianas Trench (see Figure 6 in Appendix A).

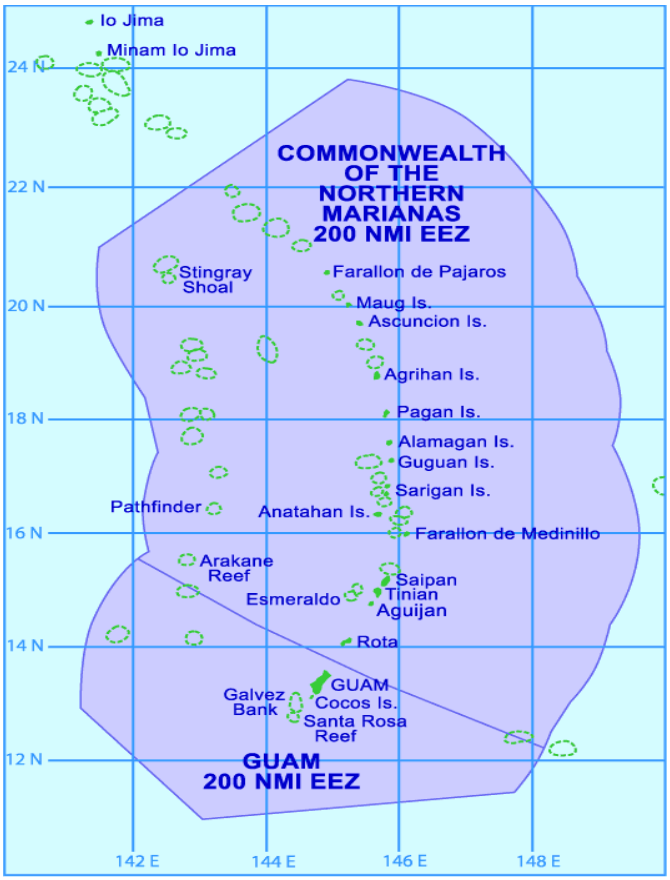

Figure 5. EEZ around Guam and the CNMI
Source: NMFS, Pacific Islands Fisheries Science Center, Western Pacific Fisheries Information Network

3.2 Area of Potential Environmental Effect

The proposed action would primarily affect bottomfish fishing around the three inhabited islands in the CNMI: Rota, Tinian, and Saipan, as well as bottomfish fishing around two uninhabited islands further north: FDM and Alamagan Islands. Aguigan, a small, uninhabited islet close to Tinian Island is also within the proposed action area. Figs. 7 – 10 in Appendix A show the areas surrounding the Southern Islands and Guam. Table 14 lists Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPC) in CNMI.

The proposed action would not directly affect bottomfish fishing around Guam as the Council is not proposing to change existing Guam bottomfish regulations. NMFS and the Council do not expect Guam vessels 50 ft or greater to travel to the CNMI because the cost of a trip to fish within the CNMI is quite high. In addition, transporting fish from CNMI would negatively affect fish quality and provide an additional disincentive. NMFS and the Council are aware that on occasion, vessels from Guam sail or motor to the CNMI and vessel owners do fish around the CNMI. This low level of vessel traffic and fishing around the CNMI by fishermen from Guam is expected to continue whether or not a prohibited medium and large vessel bottomfish fishing area is in place around the CNMI or not.

Because the removal of the BF M/LVPA around the CNMI is not expected to change fishing or vessel activities with respect to vessels from Guam, and because the BF M/LVPA only affects commercial fishing for bottomfish by vessels 40 ft or greater, the area of potential environmental effect will focus primarily on potential impacts to bottomfish. Although Guam bottomfish fisheries and waters are not likely to be affected, Guam bottomfish fishing is described below because catches and interactions with protected species are from the same broad geographic area and the Mariana FEP covers both jurisdictions.

3.3 Overview of the Existing Bottomfish Fisheries Management Program in the Guam and CNMI Bottomfish Management Subareas

The federal fishery management area in the Mariana Archipelago is composed of two management subareas. The Guam management subarea includes all federal waters of the U.S. EEZ from 3 to 200 nm around Guam. The CNMI management subarea includes all federal waters of the U.S. EEZ from 3 to 200 nm around the CNMI, except for the three northern most islands of Uracus, Maug, and Asuncion (Islands Unit), and FDM[14], where federal jurisdiction extends to the shoreline.

Federal regulations implementing Proclamation 8335 prohibits commercial fishing within the Islands Unit of the Monument and establishes management measures for non-commercial fishing, including permit and reporting requirements, eligibility for such permits (WPFMC 2013). Federal regulations governing this fishery are in the Code of Federal Regulations, Title 50, Part 665, Subpart G.

At the island of Tinian, federal waters also extend to the shoreline around certain lands leased by the U.S. government under the Lease Agreement Made Pursuant to the Covenant to Establish a Commonwealth of the Northern Mariana Islands in Political Union with the United States of America, dated January 6, 1983, as amended.

In 2006, NMFS established federal permit and reporting requirements for bottomfish fishing vessels equal to or greater than 50 ft in length fishing in the U.S. EEZ around Guam (71 FR 64474, November 2, 2006). There is no federal permit or reporting requirements for bottomfish vessels less than 50 ft fishing in federal waters around Guam. A similar permit and reporting requirement applies to all commercial bottomfish vessels in the CNMI (73 FR 75615, December 12, 2008). Federal regulations also include requirements for catch and sales reports, vessel identification, VMS, and at-sea observers. The use of poisons, explosives, or intoxicating substances, bottom trawls, and bottom set gillnets are prohibited (Table 2).

The bottomfish fisheries of Guam and the CNMI are also each subject to an annual catch limit (ACL) (quota) to prevent overfishing. The Council and NMFS review the quota annually and NMFS publishes a notice in the Federal Register. For more information on ACLs, go to NMFS website at http://www.fpir.noaa.gov.

[14] FDM nearshore waters within 3 nm are restricted from public access at all-time due to safety reasons based on military activities[14].

Table 2. Federal requirements for bottomfish fishing in Guam and CNMI

Bottomfish Fishing Requirements in Federal Waters	**Guam**		**CNMI**	
	Vessels 50 ft or greater	Vessels < 50 ft	Commercial fishing vessel	Non-commercial fishing vessel
Federal permit	Yes	No	Yes	No, unless fishing within the Islands Unit of the Marianas Trench Marine National Monument
Vessel identification	A bottomfish vessel 50 ft or greater must be identified in compliance with federal vessel identification requirements at 50 CFR 665.16	None required	A commercial bottomfish vessel 40 ft or greater must be identified in compliance with federal vessel identification requirements at 50 CFR 665.16	None required
Logbooks	After each fishing trip, vessel operator must submit logbook reports to NMFS of catch and fishing effort, and transshipping activity, for all bottomfish species.	None required	After each fishing trip, vessel operator must submit logbook reports to NMFS of catch and fishing effort, and transshipping activity, for all bottomfish species.	None required, unless fishing within the Islands Unit of the Marianas Trench Marine National Monument
Sales reports	Reports of fish sold after offloading required	None required	Reports of fish sold after offloading required	None required
Vessel monitoring system (VMS)	None required	None required	Medium and large commercial bottomfish vessels	None required

At-sea observer coverage	Must carry an observer when directed by the NMFS Regional Administrator	None required	Must carry an observer when directed by the NMFS Regional Administrator	None required
Gear restrictions	Bottom trawls and bottom set gillnets are prohibited. The possession or use of any poisons, explosives, or intoxicating substances is prohibited.			

3.4 Fisheries Data Collection and Monitoring in Guam and CNMI

In both Guam and CNMI, federally permitted bottomfish vessels comprise only a small portion of the total estimated vessels participating in bottomfish fisheries of the western Pacific. In 2014, six of the estimated nine vessels participating in the CNMI bottomfish fishery obtained a federal commercial bottomfish permit based on the boat-based creel survey described below (Table 4). In Guam, only one of the estimated 285 bottomfish vessels active in 2014 were large vessels (50 ft or greater), and thus required a federal bottomfish permit. For these reasons, NMFS relies primarily on the fishery data collection programs administered by the respective local resource management agencies to obtain bottomfish catch and effort data.

The CNMI Division of Fish and Wildlife (DFW) and the Guam Division of Aquatic and Wildlife (DAWR) Resources collect bottomfish fisheries information in CNMI and Guam through three primary fisheries monitoring programs, with assistance from NMFS PIFSC Western Pacific Fisheries Information Network (WPacFIN). These monitoring programs in Guam and CNMI are: (1) the boat-based creel survey program; (2) the shore-based creel survey program; and (3) the commercial purchase receipt 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. DFW and DAWR researchers conduct surveys 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 three to eight per month. Surveys are stratified by weekdays, weekend-days and day- and night-time. NMFS WPacFIN applies data expansion algorithms to estimate 100% "coverage," based on port, type of day, and fishing method.

Shore-based creel survey program

The shore-based creel survey program randomly samples inshore fishing trips and consists of two components: participation counts and fishers interviews. DFW and DAWR researchers use a "bus route" method, with predefined stopping points and time constraints, and randomly select survey days that range from two to four times per week. NMFS WPacFIN applies data expansion algorithms to estimate 100% "coverage", based on island region, type of day (e.g.,

weekday/weekend) and fishing method. The shore-based creel surveys cover fishing by persons engaged in commercial, recreational, and subsistence fishing activities.

Commercial purchase receipt system

The commercial purchase receipt system or "trip ticket invoice" program monitors fish sold locally and collects information submitted by vendors (fish dealers, hotels and restaurants) who purchase fish directly from fishers. Each sales invoice submitted to the program usually includes the total trip landings. Only American Samoa has mandatory requirements for vendors to submit invoice reports. All other islands have voluntary programs.

3.5 Mariana Archipelago bottomfish management unit species

The commercial and non-commercial bottomfish fisheries of the Marianas Archipelago harvest a complex of 17 bottomfish fish species (Table 3). The complex includes both shallow and deepwater snappers, and several species of groupers, emperors and jacks. The main species targeted by both the Guam and CNMI bottomfish fisheries is the redgill emperor (*Lethrinus rubrioperculatus*). Table 3 provides the local names of BMUS in Chamorro and Carolinian, the two native languages spoken in Guam and CNMI. The local name for pink snapper is unknown (NA).

Table 3. Mariana Archipelago Bottomfish Management Unit Species

English Common Name	**Local Name Chamorro/Carolinian**	**Scientific Name**
red snapper/silvermouth	lehi/maroobw	*Aphareus rutilans*
gray snapper/jobfish	gogunafon/aiwe	*Aprion virescens*
giant trevally/jack	tarakitu/etam	*Caranx ignobilis*
black trevally/jack	tarakiton attelong/orong	*Caranx lugubris*
blacktip grouper	gadao/meteyil	*Epinephelus fasciatus*
lunartail grouper	bueli/bwele	*Variola louti*
red snapper	buninas agaga/ falaghal moroobw	*Etelis carbunculus*
red snapper	buninas/taighulupegh	*Etelis coruscans*
redgill emperor	mafuti/atigh	*Lethrinus rubrioperculatus*
blueline snapper	funai/saas	*Lutjanus kasmira*
yellowtail snapper	buninas/falaghal-maroobw	*Pristipomoides auricilla*
pink snapper	buninas/falaghal-maroobw	*Pristipomoides filamentosus*
yelloweye snapper	buninas/falaghal-maroobw	*Pristipomoides flavipinnis*
pink snapper	NA	*Pristipomoides seiboldii*
snapper	buninas rayao amiriyu/ falaghal-maroobw	*Pristipomoides zonatus*
amberjack	tarakiton tadong/meseyugh	*Seriola dumerili*

3.6 CNMI Bottomfish Fishery

CNMI's bottomfish fishery consists primarily of small-scale local boats engaged in commercial and subsistence fishing, although a few (generally fewer than five) larger vessels (30– 60 ft) also participate in the fishery. The bottomfish fishery is characterized as deepwater, which fishes at depths greater than 500 ft, or shallow-water, which fishes between 100 and 500 ft. The deepwater fishery is primarily commercial, targeting snappers and groupers (WPFMC 2009). The shallow-water fishery, which targets the redgill emperor (*Lethrinus rubrioperculatus*) is also commercially-oriented, but does include subsistence fishermen (WPFMC 2012). These fishermen also harvest coral reef associated species as well. Hand lines, home-fabricated hand reels and small electric reels are the commonly used gear for small-scale fishing operations, whereas electric reels and hydraulics are the commonly used gear for the larger operations in this fishery. Fishermen generally fish daylight hours, with vessels presumed to return before or soon after sunset, although larger vessels have made multi-day trips to the Northern Islands (Farallon de Medinilla to Farallon de Pajaros in the past).

In the early 1980s, there were over 100 vessels participating in the CNMI bottomfish fishery. Since NMFS and the Council implemented Amendment 10 in 2009, a maximum of 14 commercial fishing vessels have been permitted in the fishery in any one year (2012), and that number fell to just six vessels in 2014. However, CNMI creel survey and commercial dealer reports indicate greater commercial activity in the fishery than permits and logbook reporting would suggest (Table 4 and Table 5). If we were to use only the permitted vessels and their logbook-reported catch for our analysis and not the creel and commercial dealer data, we would greatly underestimate the potential effects of this action.

Table 4 lists permits/year by the year the permits are issued. NMFS issues permits throughout the year and they may be active in the succeeding year. For the purpose of this analysis, Table 4 lists permits to 2014 as this is the most recent year of bottomfish catch data.

Table 4. CNMI Bottomfish vessels and permits

Year	Estimated No. of Vessels[15]	CNMI Bottomfish Permits[16]
2000	72	NA
2001	74	NA
2002	53	NA
2003	59	NA
2004	43	NA
2005	55	NA
2006	46	NA

[15] Source: NMFS WPacFIN internal data report to Mariana Archipelagic FEP Plan Team (March 2015).
[16] Sustainable Fisheries Division, Pacific Islands Regional Office, NMFS. NMFS issued seven CNMI bottomfish permits in 2016, and has issued 15 permits to-date in 2016, only one for a vessel greater than 40 ft.

2007	41	NA
2008	48	NA
2009	43	3
2010	28	12
2011	32	9
2012	21	14
2013	17	5
2014	9	6

Table 5. Number of CNMI bottomfish fishing trips (2000-2014)

Year	Bottomfish Fishing Trips[17]
2000	647
2001	833
2002	370
2003	378
2004	288
2005	508
2006	321
2007	431
2008	461
2009	376
2010	167
2011	182
2012	244
2013	257
2014	85

3.7 CNMI Bottomfish Prices, Catch, and Revenue

3.7.1 CNMI Bottomfish Prices 2013 and 2014

Table 6 provides the commercial price per pound for CNMI BMUS for 2014, the most recent year for which WPFMC annual report data are available. In 2014, BMUS price averaged $3.59 per pound ranged, with a low of $2.03 (gray snapper (*Caranx ignoblis*)) to a high of $6.14 (buninas or onaga (*Etelis coruscans*)).[18]

Table 6. Average commercial price per pound for CNMI BMUS.

[17] NMFS WPacFIN internal data report to Mariana Archipelagic FEP Plan Team (March 2015).
[18] NMFS WPacFIN internal data report to Mariana Archipelagic FEP Plan Team (March 2015).

Scientific Name	English Common Name	Local Name Chamorro/Carolinian	2014
Aphareus rutilans	red snapper/silvermouth	lehi/maroobw	$2.95
Aprion virescens	gray snapper/jobfish	gogunafon/aiwe	$2.03
Caranx ignobilis	giant trevally/jack	tarakitu/etam	$4.00
Caranx lugubris	black trevally/jack	tarakiton attelong/orong	$2.57
Epinephelus fasciatus	blacktip grouper	gadao/meteyil	N/A
Variola louti	lunartail grouper	bueli/bwele	N/A
Etelis carbunculus	red snapper (ehu)	buninas agaga/ falaghal moroobw	$3.90
Etelis coruscans	red snapper (Onaga)	buninas/taighulupegh	$6.14
Lethrinus rubrioperculatus	redgill emperor	mafuti/atigh	$2.75
Lutjanus kasmira	blueline snapper	funai/saas	$2.75
Pristipomoides auricilla	yellowtail snapper	buninas/falaghal-maroobw	$2.98
Pristipomoides filamentosus	pink snapper	buninas/falaghal-maroobw	$2.94
Pristipomoides flavipinnis	yelloweye snapper	buninas/falaghal-maroobw	N/A
Pristipomoides seiboldii	pink snapper	NA	$3.81
Pristipomoides zonatus	snapper	buninas rayao amiriyu/ falaghal-maroobw	$4.21
Seriola dumerili	amberjack	tarakiton tadong/meseyugh	$2.67
Average CNMI BMUS price per pound[19]			**$3.35**

Source: NMFS WPacFIN internal data report to Mariana Archipelagic FEP Plan Team (March 2015).

3.7.2 CNMI Bottomfish Revenue

Table 7 provides the estimated commercial catch and revenue of CNMI BMUS for 2000 through 2014. Because revenue is not reported for BMUS, it was extrapolated using commercial bottomfish and BMUS catch as well as commercial bottomfish revenue.

[19] BMUS revenue/catch from Table 7.

Table 7. Estimated bottomfish and BMUS commercial catch and revenue.

Year	Est. Commercial Bottomfish Catch (lb)	Bottomfish Fishery Revenue ($)	Est. Commercial BMUS Catch (lb)	Estimated BMUS Revenue ($)
2000	45,258	174,709	14,968	57,654
2001	71,256	297,108	25,264	103,988
2002	46,765	183,799	24,518	95,575
2003	41,903	163,200	17,988	70,176
2004	54,474	193,612	12,872	46,467
2005	70,405	259,330	15,780	57,053
2006	28,293	103,750	10,491	38,388
2007	39,476	129,889	16,160	53,254
2008	42,073	135,168	16,965	54,067
2009	41,176	131,226	18,941	60,364
2010	22,396	73,862	13,237	43,579
2011	24,850	73,455	16,271	47,746
2012	15,231	55,310	11,072	40,376
2013	22,510	85,294	17,223	65,676
2014	7,208	23,947	4,080	13,650

Based on an estimated average CNMI BMUS price in 2014 of $3.35 lb and an estimated commercial BMUS catch of 4,080 (Table 7), the estimated ex-vessel revenue of the CNMI bottomfish fishery (BMUS) in 2014 was $13,668. This number is largely consistent with the 2014 fishery revenue reported from BMUS in Table 7. We estimate there were nine commercial bottomfish fishing vessels operating in the 2014 (Table 4). Dividing the estimated 2014 ex-vessel revenue of $13,668 across those nine vessels yields $1,518 per vessel in 2014.

3.7.3 CNMI Bottomfish Fishery Non-target and Bycatch Species

Bottomfish fishing is fairly target specific and fishermen catch few species they were not intending to. We will focus our impacts analysis on bycatch. Bycatch for the CNMI bottomfish fishery are any species caught incidentally while fishing for BMUS that are released. The amount of discards for each individual species caught by bottomfish gear is not available. Fishermen voluntarily report CNMI bottomfish fishing bycatch during creel survey interviews. Only three of the 651 non-charter interviews (0.46% of all interviews) reported bycatch. Twelve of the 350 charter interviews (3.43% of all interviews) reported bycatch.[20] Creel survey reported bycatch is indicated in Table 8. Sharks are rarely recorded in creel survey interviews and there were none reported in 2014. While NMFS logbook data shows that while bottomfish fishermen occasionally catch sharks, the majority are released alive.[21]

[20] The charter fishing sector commonly practices catch-and-release fishing. CNMI currently has very few, if any, charter vessels for either bottomfish or pelagic species. In 2003 and 2004 and most of 2005, there was only a single charter vessel engaged in bottomfish fishing (WPFMC and NMFS 2008).
[21] PIFSC logbook data (2010 to 2013).

Table 8. 2014 CNMI bottomfish bycatch by percentage of total catch of species as indicated in fishermen interviews (2000-2014).

Non-charter					
Species Name	**Interview with Bycatch**	**All Interview**	**Released Alive**	**Total Catch of Species (units)**	**Bycatch as Percent of Bycatch Species**
	3	**651**			**0.46%**
Blackjack			1	57	1.75%
Eel (freshwater)			1	1	100%
Blueline Snapper			4	717	0.56%
Pufferfish			2	5	40%
Dogtooth Tuna			1	51	2.00%
All Species with Bycatch			9	831	1.1%
Compared with All Caught				16,014	0.06%
Charter					
Species Name	**Interview with Bycatch**	**All Interview**	**Released Alive**	**Total Catch of Species (units)**	**Bycatch as Percent of Bycatch Species**
	12	**350**			**3.43%**
Jobfish (uku)			1	41	2.44%
Black Tip Grouper			4	228	1.75%
Flagtail Grouper			4	423	0.95%
Lyretail Grouper			5	85	5.88%
Blueline Snapper			3	313	0.96%
Red Snapper			5	9	55.56%
Emperor (mafute/misc.)			7	237	2.95%
Triggerfish (misc.)			55	929	5.92%
Redgill Emperor			6	333	1.80%
All Species with Bycatch			90	2,598	3.46%
Compared with All Caught				4,075	2.21%

Source: WPacFIN, unpublished data.

3.7.4 Estimation of MSY and OFL and Specification of ACLs

Maximum sustainable yield (MSY) is the largest long-term average catch or yield that can be taken from a stock or stock complex. Overfishing occurs when fishing mortality is higher than the level at which the fishery produces MSY. According to the PIFSC 2015 bottomfish stock assessment update (Yau et al., 2016), the long-term MSY for CNMI bottomfish is estimated to be 173,100 ± 32,190 lb, which is higher than the previous MSY estimate of 172,900 ± 32,200 lb reported in the 2012 assessment by Brodziak et al. (2012).

Stock projection results assume that a two-year bottomfish catch limit would be harvested in its entirety in 2016 and again in 2017. Results indicate that a BMUS ACL set at approximately 250,000 lb would result in a 31.2 percent probability of overfishing in 2016, rising in 2017 to approximately a 50 percent probability of overfishing, the maximum risk allowable under federal law (74 FR 3178, January 9, 2011) (Table 9). Therefore, while the long-term estimate of MSY is 173,100 lb, the OFL proxy for the two-year period is 250,000 lb. As a reference, estimated average annual commercial BMUS total catch during the period 2012-2014 was 10,792 lb with 4,080 lb landed in 2014 (Table 7), far below the MSY.

Table 9. CNMI BMUS probabilities of overfishing in 2016 and 2017 for a range of catches.

ACL (lb)	% Probability of Overfishing (2016)	% Probability of Overfishing (2017)
78,000	1.0	1
134,000	4.7	5
162,000	8.5	10
180,000	12.1	15
208,000	18.7	26
212,000	19.7	28
214,000	20.2	29
218,000	21.3	31
220,000	21.9	32
224,000	23.1	34
228,000	24.2	36
230,000	24.9	37
232,000	25.6	38
236,000	26.8	41
240,000	28.1	43
242,000	28.7	45
246,000	30.0	47
248,000	30.6	48
250,000	31.2	50

Source: Values interpolated from Yau et al., 2016.

Based on the information above, the Council recommended and NMFS implemented a bottomfish multi-species complex ACL of 228,000 lb of bottomfish for the 2015 fishing year (80 FR 52415, August 31, 2015). At the October 2015 meeting, the Council recommended an ACL of 228,000 lb for CNMI bottomfish for fishing years 2016 and 2017. As shown in Table 7, the 2014 estimated commercial BMUS catch was 4,080 lb, far below the CNMI BMUS ACL. Based on the assumed biomass and recent levels of harvest, the Council does not expect catches to exceed the ACL through at least the end of 2017, when the current ACL must be re-specified.

3.7.5 CNMI Bottomfish Stock Status Determination

In stock status determination, NMFS and the Council specify appropriate MSY, target or rebuilding reference points and the values of those reference points. They then estimate the current or recent values of fishing mortality (F) and stock biomass (B) or their proxies, and compare them with their respective reference points. Overfishing occurs when the fishing mortality rate (F/FMSY ratio) is greater than 1.0 for one year or more. In 2013, the most recent year for which stock status information is available, $F_{2010}/F_{MSY} = 0.088$ while $B_{2010}/B_{MSY} = 1.85$ (Table 7 in Yau et al., 2016). 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. Based on stock projections, an annual catch of 250,000 lb in 2016 and again in 2017 would be necessary to produce an F/FMSY ratio of 1.0 (i.e., overfishing) on the second year.

3.8 Guam Bottomfish Fishery

This section provides an overview of the Guam bottomfish fishery as Amendment 10 was developed due to concerns about Guam bottomfish fishermen fishing in the CNMI. For detailed information on this fishery, see the Mariana Archipelago Fishery Ecosystem Plan and the most recent Archipelagic Annual Fishery Ecosystem Report (SAFE Report).

3.8.1 Guam Bottomfish Fishery Background

As in the CNMI, Guam bottomfish fishing is a combination of recreational, subsistence, and small-scale commercial fishing. The fishery is composed of two distinct fisheries targeting species complexes separated by depth and species composition: shallow-water and deepwater bottomfish complexes. Commercially-oriented vessels ("highliners") tend to be greater than 25 ft, and their effort is usually concentrated on the deepwater bottomfish complex. Most fishermen troll for pelagic fish to supplement their bottomfish fishing effort, and most of those who sell their catch also hold jobs outside the fishery (WPFMC 2006).

The shallow water complex (<500 feet) makes up a larger portion of the total bottomfish effort and harvest because of the lower expenditure and relative ease of fishing close to shore (Myers 1997). It is comprised primarily of reef-dwelling species under genus *Lutjanus*, *Lethrinus*, *Aprion*, *Epinephelus*, *Variola*, and *Caranx*. Shallow-water fishermen typically use two to four spinning reels with several hooks, generally size 8/0 circle hooks. Fishermen use a weighted (1-3 lb) fishing line, and position hooks at various depths in the water column above the ocean floor, targeting a mix of coral reef ecosystem and bottomfish species. Participants in the shallow-water

component seldom sell their catch because they fish mainly for recreational or subsistence purposes (WPFMC 2006).

The deepwater complex (>500 feet) consists primarily of groupers and snappers of the genera *Pristipomoides, Etelis, Aphareus*, and *Epinephelus* (WPFMC 2011b). Vessels in the deepwater fishery typically fish during the day. Commercial fishermen generally operate between two to six electric reels with one 6-lb weight on the end. The main line has several 1.5 ft branch lines with hooks attached at 1.5 to 3 ft intervals above the weight, although this configuration may vary. Fishermen also may suspend a light or a chum bag containing chopped bait above the highest hook to attract fish. Squid or cut fish are preferred baits.

Guam's bottomfish fishery can be highly seasonal, with effort significantly increasing when sea conditions are calm, generally during the summer months. During these periods, bottomfish fishing activity increases substantially on the offshore banks to the south of Guam (in federal waters), as well as offshore banks on the east side of the island (in territorial waters), which are more productive fishing areas that is generally inaccessible to small boats during most of the year due to rough seas. As in most bottomfish fisheries, bycatch is minimal.[22]

3.8.2 Guam Bottomfish Participation

Between 2009 and 2014, participation, hours, and trips in the Guam bottomfish fishery averaged 294 vessels, 13,370 hours, and 2,975 trips.[23] As previously described, federal bottomfish fishing permits are only required for vessels 50 ft and greater. There have been fewer than three vessels federally permitted each year since 2012.

3.8.3 Guam Bottomfish Fishery Catch

Between 2000 and 2014, the estimated commercial catch of Guam's bottomfish fishery averaged 15,890 lb (Table 10).[24]

[22] With an overall bycatch (discard) rate of less than 4 percent, most fish caught in the Guam bottomfish fishery are kept, regardless of size or species. However, the charter fishing sector commonly practices catch-and-release fishing, resulting in an overall bycatch rate of 20 percent. There are currently 15 civilian charter vessels on Guam and one charter operation run by the U.S. military from Sumay Cove (WPFMC 2016).
[23] WPacFIN, unpublished data. Includes charter vessels.
[24] Commercial data systems could/would include data from charter vessels that sell their catch. For additional information on Guam charter catches, see the WPRFMC Annual Pelagic Fishery Ecosystem Report (2013), Archipelagic Fishery Ecosystem Annual Report (2012), and the Mariana Archipelago Fishery Ecosystem Plan 2009 Annual Report (2011).

Table 10. Estimated commercial catch and revenue of bottomfish in Guam (2000-2014) and price per pound (2014).

Year	Est. Commercial Bottomfish Catch[25] (lb)	Revenue ($)	BMUS Species Name	2014 Average Price per Pound ($/lb)
2000	21,924	125,895	Amberjack	3.07
2001	26,289	140,078	Black Jack	2.94
2002	18,297	91,876	Jacks	3.09
2003	11,731	58,226	Emperor (mafute)	3.10
2004	25,054	110,345	Snapper	3.25
2005	23,118	102,621	Tagafi (red Snapper)	2.75
2006	17,208	72,671	Uku (gray Snapper)	3.06
2007	16,861	57,938	Bottom Fish	3.40
2008	11,526	45,123	Ehu (squirrelfish Snapper	4.25
2009	16,150	63,683	Gindai (flower Snapper)	4.09
2010	13,181	49,882	Grouper	3.20
2011	16,214	61,808	Kalikali (pink Snapper)	4.02
2012	10,162	36,635	Lehi (silverjaw)	4.16
2013	5,438	19,130	Onaga (longtail Snapper)	5.89
2014	5,210	18,433	Opakapaka (pink Snapper)	4.25

Source: NMFS WPacFIN internal data report to Mariana Archipelagic FEP Plan Team (March 2015).

3.8.4 Guam Bottomfish Prices and Ex-Vessel Revenue

In 2014, the average price per pound of Guam BMUS was $3.53. The snappers such as *Aphareus rutilans, Etelis carbunculus, and Etelis coruscans* tend to command the highest prices per pound. The revenue of the fishery between 2000 and 2014 totaled $1,054,344 with an average of $70,290 per year.

3.8.5 Maximum Sustainable Yield, Overfishing Limit and Annual Catch Limit

According to the PIFSC 2015 bottomfish stock assessment (Yau et al., 2016), the long-term MSY for Guam bottomfish is estimated to be 56,130 lb ± 7,790 lb, which is slightly higher than the previous MSY estimate of 55,000 lb ± 7,900 lb reported in the 2012 assessment update by Brodziak et al. (2012). Stock projection results, which assume that a two-year bottomfish catch limit would be harvested in its entirety in 2016 and again in 2017, indicate that an ACL set at approximately 71,000 lb would result in a 32.1 percent probability of overfishing in 2016. The probability of overfishing would rise in 2017 to approximately 49 percent, one percent below the maximum risk allowable under federal law (74 FR 3178, January 9, 2011). Therefore, while 56,130 lb is the long-term estimate of MSY, 71,000 lb is considered the OFL proxy for the two-year period. As a reference, estimated average annual commercial total catch during the period 2012-2014 was 6,937 lb, with 5,210 lb landed in 2014 (Table 10), far below MSY.

[25] Includes non-BMUS bottomfish species. For a list of species groups see: http://www.pifsc.noaa.gov/wpacfin/guam/dawr/Pages/gdawr_species_grps.php#footnote5

Based on the information above, the Council recommended and NMFS implemented an ACL of 66,800 lb of BMUS for the 2015 fishing year (80 FR 52415, August 31, 2015). At the October 2015 meeting, the Council recommended an ACL of 66,000 lb for fishing years 2016 and 2017. As shown in Table 10, the 2014 estimated commercial bottomfish catch was 5,210 lb, far below the Guam BMUS ACL. Based on the assumed biomass and recent levels of harvest, the Council does not expect catches to exceed the ACL through at least the end of 2017, when the current ACL must be re-specified.

3.8.6 Stock Status Determination

Stock status determinations involve specifying appropriate MSY, target or rebuilding reference points and the values of those reference points; estimating the current or recent values of fishing mortality and stock biomass or their proxies; and comparing them with their respective reference points. In 2013, the most recent year for which stock status information is available, $F_{2013}/F_{MSY} = 0.356$ while $B_{2013}/B_{MSY} = 1.63$ (Table 8 in Yau et al., 2016). The production model results indicate that during the period 1982 through 2013, the Guam bottomfish complex has not been overfished and has not experienced overfishing, except perhaps in 2000. Based on stock projections, an annual catch of 71,000 lb in 2016 and again in 2017 would be necessary to produce an F/F_{MSY} ratio of 1.0 (i.e., overfishing) for year two.

3.9 Economic, Social, and Cultural Characteristics of CNMI's Fisheries

Participants in CNMI's various marine fisheries are not concentrated in specific locales but rather reside in villages and small towns across the islands. Additionally, fishing, seafood, and fishing-related businesses assume extensive social and economic importance throughout the region. For these reasons, the CNMI may be considered a single fishing community. In this regard, the CNMI is like other island communities in the Western Pacific, where the surrounding ocean and its resources have long provided residents with a source of food and opportunities for maritime commerce and recreation. As part of NOAA's ongoing effort to document and monitor fishing-related aspects of life in coastal and island communities around the U.S., the Pacific Islands Fisheries Science Center (PIFSC) recently completed a descriptive profile of the CNMI as a fishing community (Allen and Amesbury 2012). The following sections to describe fishing and fishing-related activities and their role in organizing community life across this island region using this research, as well as a range of additional secondary source materials.

3.9.1 Historical Context

Navigators who undertook voyages of unprecedented distance settled portions of the Marianas Archipelago as early as 3,500 years ago or earlier by navigators (cf. Russell 1998:78, Rainbird 1994). Fishing hooks, spear points, sinkers, lures, and osteal remains from a variety of nearshore and offshore fish species have been recovered from archeological sites around the Mariana Islands. This is indicative of extensive human reliance on the region's marine resources following initial colonization (cf. Amesbury et al. 1986).

Magellan made first contact with indigenous residents of the Marianas in 1621 (Rogers 2011). Legazpi claimed the islands for Spain in 1565 (Carano and Sanchez 1964 as cited in Allen and

Amesbury 2012). Driver's (2000) summary of literature from the contact period notes that the Europeans were impressed by the skills of indigenous residents who trolled from sailing canoes for flying fish, marlin, mahimahi, and skipjack tuna. Fish and other living marine resources were central to the local diet and were used for a variety of customary purposes, including consumption during religious ceremonies, recompense for various crimes, and as gifts for the dying (Driver 2000).

A Jesuit mission was established in the Marianas in 1668, initiating a long period of social change among descendants of the original seafaring settlers. As noted by Taitano (2014), these descendants were known as Chamorrans, a term deriving from the indigenous *chamorri*, meaning "of high caste." The author notes that:

> The term *"Chamurres"* was used by the Legazpi expedition of 1565, and appears in other records from the same period. By the time of the Jesuit missionary expedition led by Diego Luis de San Vitores a century later, the terms *"Chamorris*" and *"Chamorros*" were commonly used to refer to the indigenous population (Taitano 2014).

Social change among the Chamorrans was extensive following contact with Europeans. Small but culturally sophisticated maritime societies underwent extensive change as new diseases were introduced in a context of limited immunity; as new technologies, systems of belief, and economic arrangements were brought by each newly arriving group of foreign visitors and migrants; and as in-migrating social and genetic groups interacted with local societies.

An important fishing-specific change occurred during the early post-contact period as the sailing canoes used by Chamorrans to access offshore banks and sea mounts were systematically destroyed by the Spanish to concentrate the indigenous population in a few settlements. This served the interests of colonial rulers and missionaries who sought religious conversion (Amesbury and Hunter-Anderson 1989). According to Myers (1997), by the mid-19th century only 24 outrigger canoes were being used to fish around Guam, largely within the fringing reef.

Typhoons and tsunami events in the Caroline Islands led the indigenous seafaring people known as Refaluwasch to immigrate to the Mariana archipelago during the early 19th century (Bowers 2001, D'Arcy 2006). Sometimes called Carolinians, members of this culture group migrated primarily to Saipan, where they continue to perpetuate a unique Micronesian language and way of life (cf. Ellis 2012).

The Mariana Islands were politically divided at the end of the Spanish-American War. Guam became an American possession administered by the U.S. Navy and remained so until capture by Japanese forces soon after the attack on Pearl Harbor. The island was retaken by American forces in 1944. A succession of powers – first Germany, then Japan, and finally the United States at the end of World War II governed the remainder of the archipelago (see Allen and Amesbury 2012).

Naval administrators working on Guam during the early 1900s documented a variety of local fishing techniques (cf. Amesbury and Hunter-Anderson 2008). Nets typically were deployed by

groups of residents, and the catch was shared among the participants' extended families. Amesbury et al. (1986) report that fishing activities were relatively limited during this period, occurring primarily along or in readily accessible lagoons and shorelines. New gear and materials were introduced during the early 20th century, including swimming goggles for spear fishing and manufactured hooks and line for pole and line fishing. Perceiving the need for a consistent local supply of pelagic fish, territorial administrators established an offshore fishing program in 1934.

Extensive fishing operations were conducted off Saipan and Tinian during the Japanese occupation of World War II, with extensive participation by fishermen of Okinawan ancestry. Immediately after the war, the lack of capital and limited shoreside infrastructure were challenges to the fisheries (Amesbury et al.1986). Some net fishing was undertaken during this period, most notably by fishermen residing in Merizo and Umatac on Guam.

A cooperative of indigenous fishermen was established on Saipan soon after World War II. According to Spoer (2000:129) approximately100 tons of bonito were harvested in 1948. But infrastructure and marketing conditions were less than ideal, and the firm was soon defunct (cf. Spoehr 2000:129-130).

As described by Allen and Amesbury (2012), some small-scale and traditional fishing activities continued to occur during and after the war years. A small-boat fishing fleet gradually developed in the CNMI during the 1960s and 1970s in conjunction with post-war improvements in hull materials and engine technology, and a small number of residents engaged in small-scale commercial and food-oriented open-ocean fishing activities during that time.

In the early 1980s, U.S. purse seine vessels established a seafood transshipment operation on Tinian, wherein tuna was shipped to American Samoa for canning. A similar operation was established on Saipan in the early 1990s when tuna harvested in the waters of the Federated States of Micronesia was offloaded for air travel from Saipan to destinations in Japan. While extensive volumes of tuna were shipped through Saipan, local economic benefits were minimal (cf. Hamnett and Pintz 1996). Both operations are now defunct.

Garment manufacturing and tourism were the leading forms of economic production in the CNMI during the 1980s and 1990s. Growth in the tourism sector was rapidly attenuated by the Asian economic crisis of the late 1990s, though it remained central to the regional economy during the early 2000s (Allen and Amesbury 2012) and continues to be the primary source of non-governmental employment and revenue throughout the islands. The garment industry has largely vacated the region for reasons described further along in this section.

Subsequent to World War II, the northern Mariana islands were administered by the United States as part of the United Nations Trust Territory of the Pacific Islands. Allen and Amesbury (2012) describes the recent history of the political relationship between the territory and the U.S. government as follows:

> In 1975, the voters of the Northern Marianas chose to join the U.S. as a commonwealth . . . and in 1976 the U.S. Congress passed and the President signed the Covenant to Establish a Commonwealth of the Northern Mariana Islands in

> Political Union with the United States of America (Covenant) (Public Law 94-241). The Covenant defines the political relationship between the CNMI and the United States, with the CNMI as a self-governing entity under the sovereignty of the U.S. The relationship is governed by the Covenant together with those provisions of the U.S. Constitution, treaties and laws of the U.S. applicable to the CNMI. The CNMI government adopted its own constitution in 1977, and the constitutional government took office in 1978 when Dr. Carlos S. Camacho became the first governor of the CNMI . . .The Covenant was fully implemented on November 3, 1986, pursuant to Presidential Proclamation 5564, which conferred United States citizenship on legally qualified CNMI residents. The people of CNMI are U.S. citizens, but they cannot vote in the U.S. presidential election. In 2008, Congress established a nonvoting CNMI delegate's seat in the U.S. House of Representatives; the first CNMI delegate took office in January 2009.

3.9.2 CNMI Fishing Community and Fisheries

The CNMI consists of 14 main islands. From north to south these are: Farallon de Pajaros, Maug, Asuncion, Agrihan, Pagan, Alamagan, Guguan, Sarigan, Anatahan, Farallon de Medinilla, Saipan, Tinian, Aguigan, and Rota. Only Saipan, Rota, and Tinian are permanently inhabited. The total land area of the CNMI is 176.5 square miles (Commonwealth Development Authority 2015), with the EEZ around the CNMI is some 292,712 square miles (Allen and Amesbury 2012). Saipan was home to 48,220 persons at the time of the 2010 Census, with some 3,136 persons residing on Tinian and 2,537 residing on Rota. Overall population density in the region was 296 persons per square mile at the time of the most recent Census (U.S. Census Bureau 2010).

The social and economic interplay between CNMI residents and the surrounding ocean environment is central to an understanding of community life in the archipelago. The islands are relatively small and most towns and villages are located along the coastal zone. As such, the ocean is an ongoing visual presence in the lives of all residents. Because the region is located some 1,800 miles from the nearest continent and over 5,500 miles from North America, goods must be transshipped on or over thousands of miles of ocean. This has led to a relatively high cost of living and limited availability of certain goods and services. The tourism economy is closely related to recreation and leisure opportunities along the coastal zone, and it too is conditioned by distance of travel to the islands. Fishing activities are important across the Commonwealth, and living marine resources are used for commercial sale, household consumption, and as a source of recreation. Various aspects of local and indigenous history, culture, and society are closely related to the surrounding ocean and use of its resources.

Global economic forces have led to significant socioeconomic and demographic change in the CNMI in recent years. For example, the number of tourists visiting the islands nearly tripled between the late 1980s and mid-1990s (Bank of Hawaii 1999). In the CNMI government's Fiscal Year 1997, the industry peaked with approximately 727,000 visitors. These were primarily Japanese tourists, followed by Koreans and U.S. citizens (Marianas Visitors Authority 2012). But the Asian economic crisis and loss of air service between the CNMI and Korea led to a 33 percent decline in the number of persons visiting the region later in the 1990s (Bank of Hawaii 1999). The situation generated a variety of detrimental impacts to businesses across the region.

In FY 2011, the islands received only 338,646 visitors, a drop of 53% over the peak year. These visitors came from a greater diversity of key markets: Japan, Korea, China, Russia and Guam/U.S (Marianas Visitors Authority 2012).The first decade of the 2000s was a particularly notable period of change in the CNMI. Most significantly, the number of persons living in the region declined by over 22 percent between the most recent Census years – from 69,221 persons in 2000 to 53,833 persons in 2010. As described by the Secretariat of the Pacific Community (2009), this unprecedented loss was directly related to evolving macro-social forces in Asia and North America and the subsequent departure of firms in the CNMI garment industry:

> CNMI is experiencing its most challenging economic status since the birth of the Commonwealth in 1976. One of these challenges is the total loss of its garment industry. During the 1980s CNMI successfully capitalized on its status as a free trade area with the USA (while not being subject to the same labor or immigration laws) to establish a garment manufacturing industry whose products could be labelled 'Made in USA'. At its peak, the industry had some 15,000 employees, many of whom were immigrants from China. However, China's accession to the World Trade Organization, and the consequent lifting of restrictions on Chinese imports into the USA, as well as the passing of the Fair Minimum Wage Act of 2007 by the U.S. Congress, put the industry under severe pressure, leading to immediate closures of several factories permanently and others leaving for Third World countries.

Challenging regional economic conditions are also indicated in the recently published Government Accountability Office (GAO) Highlights Report documenting economic changes following from escalation of the minimum wage in the region. The authors note that "in real terms, [the CNMI GDP] decreased by approximately 36 percent between 2006 and 2012." The GAO indicates some improvement in the tourism sector of the region's economy; after years of decline, fiscal years 2012 and 2013 showed an increase in visitor arrivals. However, total visitor arrivals to the CNMI have dropped from a peak of 726,690 in fiscal year 1997 to 433,925 in fiscal year 2013, a decline of 40 percent. The overall assessment suggests that economic challenges will continue for some time (GAO 2014).

Analysis of recent demographic trends clearly indicates that CNMI householders have been struggling in response to regional and international economic downturns. For example, median income among CNMI households dropped from $22,898 in 2000 to $19,958 in 2010, and the local rate of unemployment, which was at 5.5 percent in 2000, rose to 11.2 percent in 2010. Similarly, the percentage of residents living in conditions of poverty increased from 46 percent in 2000 to 51.3 percent in 2010. Notably, the rate of poverty among residents of the U.S. as a whole was 11.3 percent in 2000 and 15.1 percent in 2010 (U.S. Bureau of the Census 2000, 2010). Per capita income among CNMI residents was $9,656 in 2010 – essentially unchanged from the year 2000 Census (GAO 2014; U.S. Bureau of the Census 2000, 2010).

Departure of the garment industry from the CNMI in the mid-2000s also appears to have affected the ethnic composition of the resident population. For example, while the number of resident Chammorans and Carolineans enumerated during the most recent Census years was similar, the frequency distribution of other groups varied extensively during the period. Year 2000 Census

data indicate that approximately 26 percent of CNMI residents were of Filipino ancestry and 22 percent were of Chinese ancestry. At the time of the 2010 Census, however, over 35 percent of enumerated residents identified themselves as Filipino, and only 6.8 percent identified themselves as Chinese.

3.9.3 Contemporary Community Dependence on Fishing and Seafood

A variety of recently completed research products are available to assist in summarizing fishing activities and fishing-related aspects of community life in the CNMI. These and past studies are useful points of reference for analysis of fisheries-related trends and conditions across the region.

Hospital and Beavers (2014) analysis of small boat fishing in the CNMI was conducted as part of NOAA's ongoing work to monitor near- and long-term socioeconomic and operational changes among fishing fleets in the Western and Central Pacific. The research involved implementation of an in-depth cost-earnings survey with 112 fishermen across the CNMI.

Impact Assessment, Inc. (2012) conducted fieldwork on each of the inhabited islands during 2011 and 2012, with the goal of documenting the status of small-scale and traditional fishing activities and related infrastructure in the CNMI, Guam, and American Samoa. The then-active Pelagic Fisheries Research Program at the University of Hawaii at Manoa funded this project.

Kotowicz and Richmond (2013) documented traditional fishing patterns in what is now the Marianas Trench Marine National Monument. This NOAA-funded study was conducted to document traditional indigenous fishing activities as these have occurred in the northern reaches of the Marianas Archipelago over the course of time.

Finally, Allen and Amesbury (2012) examined fishing-related aspects of community life in the CNMI as part of NOAA's strategy to characterize and monitor fishing communities around the nation's coastal zone. Key findings from these and other studies are used here to briefly summarize contemporary human aspects of marine fisheries in the CNMI, and the ways in which fishing and seafood function to organize social life in the region.

Fishing and seafood are indeed important organizing aspects of life on the islands of Saipan, Rota, and Tinian. Although certain elements of traditional Chamorro and Carolinian culture were lost during the post-Contact period, it should be noted here that culture and tradition are dynamic rather than static social phenomena and that human societies universally retain certain values while adopting new approaches on a continual basis.

Contemporary Chamorros and Refulwasch retain certain traditional-indigenous values and concepts, while also accepting and acting on values and concepts that have arrived from outside the region over centuries past. In the context of fishing and community life in the region, such blended values are expressed in a variety of ways. These include but are not limited to: (a) extensive consumption and sharing of seafood in extended family settings; (b) sale of seafood at local markets, with proceeds typically covering the costs of fishing and/or various household expenses; and (c) consumption and communal sharing of seafood during religious festivals, weddings, funerals, christenings, and various holidays (Amesbury and Hunter-Anderson 1989; Rubinstein 2001; Kotowicz and Richmond 2013).

Based on a series of in-depth interviews and oral histories conducted with key fishermen on the main islands of the CNMI, Kotowicz and Richmond (2013) were able to document the nature of 129 trips from the main islands of Saipan, Tinian, and Rota to waters around the northernmost islands of Urucas, Maug, and Ascuncion – now components of the new marine monument. Based on analysis of the resulting information, the authors assert that:

> Residents of the [inhabited] Marianas assign cultural importance and non-use values to the waters and lands of the northern islands, which can be at least partially attributed to their continued visits to this area and to the exchange of [harvested] marine resources between the southern and northern [islands] Kotowicz and Richmond (2013:iii).

Hospital and Beavers' (2014) survey of 112 small boat fishermen in the CNMI confirms the importance of fishing and seafood in the region, and the tendency of local fishermen and their extended families to perpetuate customs that prioritize use of seafood for dietary and cultural purposes. While some local small-boat operators seek to generate income through the harvest and sale of seafood, the costs of fishing tend to constrain net revenues Hospital and Beavers (2014) state that:

> Based on the average disposition of landings in the CNMI, it is clear that for nearly all fishery participants, the social and cultural motivations for fishing far outweigh any economic prospects. In considering fishing profitability, we find that nearly all fishermen supplement their income with other jobs and essentially are subsistence fishermen, selling occasionally to recover trip expenses. Using reported revenues, we found that 58% of fishermen reporting the sale of fish earned fishing revenues of $750 or less, which would not cover overall trip expenditures for the year. Additionally, we find that fish are an important source of food security for fishing families as 86% of survey respondents consider the fish they catch to be an important source of food . . with 91% and 93% affirming likewise for bottomfish and reef fish, respectively . . . We find the CNMI small boat fishery to be a complex mix of subsistence, cultural, recreational, and quasi-commercial fishermen whose fishing behaviors provide evidence of the importance of fishing to the communities of the CNMI (Hospital and Beavers 2014:55).

Interview data collected and analyzed by Impact Assessment, Inc. (IAI 2012) are also indicative of the overarching importance of fishing and seafood to the indigenous and non-indigenous residents of the CNMI. The firm's 2012 report is largely descriptive in nature, intended to update understanding of the nature and extent of small-scale and traditional fishing in the CNMI, Guam, and American Samoa. Using direct observation at harbors and moorings around the islands, and interviews with local harbormasters and fishery managers, the authors enumerated roughly 15 active small fishing vessels on Rota, 20 active vessels on Tinian, and nearly 100 active vessels on Saipan.

At the time of IAI's (2012) study, the Saipan fleet included roughly 60 trailered vessels under 26 feet in length; roughly 30 moored vessels between 16 and 32 feet in length, three charter fishing vessels, and five pelagic fishing vessels over 35 feet in length. Interview work with local fishery managers indicated that captains and crew operating the small fleet of relatively large vessels: (a) travel and harvest primarily within a 100-mile radius of the islands, (b) undertake trips ranging from three to five days in length; and (c) return with landings that are typically comprised of about 40 percent pelagic species and 60 percent bottomfish species. Hospital and Beavers (2014) used the term "highliners" to categorize this group, and IAI (2012) asserted that a relatively large proportion of the fleet's landings were sold to local vendors and business owners in the tourism sector. The authors also describe the existence of specialized fishing operations, the captains and crew of which tend to focus on providing fish for familial and community celebrations:

> Some of the small-boat owner-operators are considered *pescadors* – a term used to refer to fishermen who provide seafood for important community and familial events; especially important are those dedicated to patron saints. *Pescadors* will customarily provide as much as 100 or 200 pounds of reef fish for cooked dishes, and [an undisclosed poundage of] pelagic species for *kelaguen*, a raw fish recipe used extensively during community and family celebrations (IAI 2012:27).

The work of Allen and Amesbury (2012) also describes fishing activities and fishing-related infrastructure, services, and governance in the CNMI. The work underscores the perspective that because fishing, seafood, and related sociocultural and economic activities are pervasive aspects of life on Saipan, Tinian, and Rota, the island region should be considered a fishing community for purposes of fisheries management and assessment of potential management-induced impacts – as prescribed by National Standard 8 of the reauthorized Magnuson-Stevens Fisheries Management and Conservation Act. As such, the authors reiterate the rationale underlying the 1999 decision of the Western Pacific Regional Fishery Management Council to designate the entirety of the CNMI as a fishing community:

> In contrast to most U.S. mainland residents, who [in total] have little contact with the marine environment, a large proportion of the people living in the western pacific region observe and interact daily with the ocean for food, income and recreation . . . fishing also continues to contribute to the cultural integrity and social cohesion of island communities . . . In each island area within the region the residential distribution of individuals who are substantially dependent on or substantially engaged in the harvest or processing of fishery resources approximates the total population distribution. These individuals are not set apart ... from island populations as a whole (Western Pacific Regional Fishery Management Council 1998:52-53 as cited in Allen and Amesbury 2012:2).

Allen and Amesbury (2012) provide extensive description of the history and current status of fishing, fishermen, and use of seafood in the CNMI. Attention is given to strategies used by fishermen and fishing-oriented families to adapt to perennially challenging local economic conditions. These strategies include: (a) readiness to take on additional forms of wage-earning labor (see also Amesbury and Hunter-Anderson 1989); (b) the sharing of a variety of harvested seafood with friends and family; (c) the occasional or (in certain cases) frequent sale of seafood

to cover fishing costs and/or various household expenses; and (d) participation in an overall process of reciprocal sharing of funds, labor, and goods within and between networks of interacting extended families (Allen and Amesbury 2012; Impact Assessment, Inc. 2012).

These findings are similar to those discussed by Amesbury and Hunter-Anderson (1989), who also noted that certain reef fish and shallow-water bottomfish were particularly important items of non-commercial exchange. Notably, Allen and Amesbury (2012) assert that the local harvest of reef fish is insufficient for meeting regional demand, and that various compatible resources are therefore being imported from elsewhere in Micronesia and the Philippines.

In sum, while additional research would be required to determine the overall level of dependence of all CNMI residents on seafood, fishing, and related economic activities, it is patently clear that a sizeable population of residents is directly and/or indirectly dependent on fishing-related activities and various seafood products. Synthesis of available research findings suggests that such dependence is magnified in the contemporary context of widespread economic challenges.

Based on enumeration of small-vessel fleets around Saipan, Tinian, and Rota in 2011 and 2012 (Allen and Amesbury 2012; IAI 2012), but excluding an undoubtedly large number of shore-based harvesters around the islands, many hundreds of local families are in some manner and to some extent dependent on living resources available in the adjacent marine environment. The harvest includes a wide variety of reef fish, reef-associated invertebrate species, neritic-pelagic species, bottomfish, and pelagic species (cf. Allen and Amesbury 2012:51). The resources are variably: (a) consumed, (b) sold, (c) shared, (d) bartered, (e) gifted, (f) subject to customary exchange, (g) used as important commodities in extensive systems of local reciprocal exchange, (h) the targeted subject of ocean-based recreation, (i) constitute the basis of economic production in various fishery support sectors, and (j) function as the dietary focus of important social and cultural functions among indigenous and non-indigenous residents. Inasmuch as all such uses involve the ongoing participation and organization of people and various economic resources, it can be said that fishing and seafood continue to function as elemental aspects of social life across the CNMI.

3.10 Protected Resources in the Mariana Archipelago

A number of species protected under the Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), and Migratory Bird Treaty Act (MBTA) inhabit or use waters around the Mariana Archipelago. Thus, there is the potential for interactions with the CNMI and Guam bottomfish fisheries under both alternatives. This section summarizes the occurrence of potentially affected protected species in the Mariana Archipelago. Additional detailed descriptions of these species and their life histories can be found in Section 3.3.4 of the FEP for the Mariana Archipelago (WPFMC 2009) and is not repeated here.

3.10.1 Listed ESA Species

Table 11 identifies species listed as endangered or threatened under the ESA that are known to occur, or could reasonably be expected to occur, in marine waters around the Mariana Archipelago, and which may have the potential to interact with CNMI and Guam bottomfish

fisheries. They include a number of whales, five sea turtles, reef corals, a shark, and a seabird. There is no critical habitat designated for ESA-listed marine species around CNMI.[26]

In accordance with ESA Section 7(a)(2), on March 8, 2002, NMFS determined in a biological opinion that the probability of an encounter between ESA-listed sea turtles or whale species and the bottomfish fishery is extremely low. The fishery, as managed under the FMP for the Bottomfish and Seamount Groundfish Fisheries in the Western Pacific Region (superseded by the Fishery Ecosystem Plan for the Marianas Archipelago, or Marianas FEP), is not likely to adversely affect these species. On June 3, 2008, NMFS determined that the continuation of the Mariana Archipelago bottomfish fisheries were not likely to adversely affect endangered or threatened species or designated critical habitat under NMFS jurisdiction.

In 2014, NMFS listed four of the six distinct population segments (DPS) of scalloped hammerhead sharks under the ESA (79 FR 38213). Scalloped hammerhead sharks in the CNMI are classified as belonging to the Indo-West Pacific DPS and that DPS are listed as "threatened." ESA Section 9 take prohibitions do not automatically apply to species listed as threatened. This means that activities which harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect these species are not prohibited (but could be at a later date). NMFS concluded that there is insufficient information to determine features essential to conservation within the U.S. EEZ and, therefore, the Agency cannot designate critical habitat at this time for the Indo-West Pacific DPS. There are no documented interactions of bottomfish fishing vessels with scalloped hammerhead sharks.

Also in 2014, NMFS listed 20 species of reef-building corals that occur in the western Pacific Region as threatened under the ESA (79 53852). Fifteen of those species occur in the Indo-Pacific and NMFS considers two of these species to occur in the CNMI. Both species occur at depths shallower than where the shallow (100 to 500 ft) and deepwater (500 ft and greater) bottomfish fishing occur. *Acropora globiceps* is located at depths ranging from zero to eight meters. *Seriatopora aculeata* ranges from three to 40 m in depth.

The Biological Evaluation of Potential Impacts of Mariana Archipelago Coral Reef Ecosystem, Bottomfish, Crustacean, and Precious Coral Fisheries on Reef-Building Coral and the Indo-West Pacific Scalloped Hammerhead Shark Distinct Population Segment (Mariana BE) considered the proposed action of the analysis on the listed coral species and the Indo-West Pacific DPS (NMFS 2015). On April 29, 2015, NMFS concluded that the continued authorization of the coral reef, bottomfish, crustacean, and precious coral fisheries under the FEP, including the proposed action, is not likely to adversely affect the Indo-west Pacific DPS and listed corals.

3.10.2 Candidate Species for ESA-listing

In addition to these listed species, NMFS considers oceanic whitetip as a candidate for listing under the ESA. The range of this species could include the Mariana Archipelago. The petitioners

[26] Although there are no critical habitat designated areas in federal waters, in territorial waters, there are Marine Protected Areas in the CNMI managed by the Division of Fish and Wildlife: five "no-take" marine conservation areas and two species-based reserves. Around Guam, there are five territory marine protected areas and five federal marine protected areas (NOAA 2009).

also requested that NMFS designate critical habitat concurrent with any final listing for this species. The common thresher, bigeye thresher, and smooth hammerhead sharks were also petitioned for listing under the ESA; however, NMFS determined that the listings were not warranted (81 FR 18980, April 1, 2016, and 81 FR 41934, June 28, 2016).

Oceanic whitetip

Oceanic whitetips are found worldwide in warm tropical and subtropical waters between 20° North and 20° South latitude, but can be found up to about 30° North and South latitude during seasonal movements to higher latitudes in the summer months. On September 21, 2015, Defenders of Wildlife petitioned NMFS to list the oceanic whitetip shark as threatened or endangered under the ESA. On January 12, 2016, NMFS announced a positive 90-day finding (81 FRN 1376) on a petition to list the oceanic whitetip shark (*Carcharhinus longimanus*) under the ESA. NMFS must receive public comments by March 14, 2016. NMFS is conducting a status review to inform the 12-month finding, which is statutorily due on September 21, 2016. (http://www.fpir.noaa.gov/PRD/prd_oceanic_whitetip_shark.html).

Table 11. Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the Mariana Archipelago

Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the Marina Archipelago				
Common name	**Scientific Name**	**ESA listing status**	**Occurrence**	**Interactions with the Mariana bottomfish fisheries**
Listed Sea Turtles				
Green sea turtle (Central West Pacific DPS) Haggan Betde	*Chelonia mydas*	Endangered[27]	Most common turtle in the Mariana Archipelago. Foraging and minor nesting confirmed on Guam, Rota, Tinian and Saipan	No interactions observed or reported.
Hawksbill sea turtle Haggan Karai	*Eretmochelys imbricata*	Endangered	Small population foraging around Guam and suspected low level around southern islands of the CNMI. Low level nesting on Guam	No interactions observed or reported.
Leatherback sea turtle	*Dermochelys coriacea*	Endangered	Occasional sightings around Guam. Not known to	No interactions observed or reported

[27] On April 4, 2016, NMFS and FWS issued a final rule to remove the current range-wide listing of the green sea turtle, and in its place list 8 DPSs as threatened and 3 DPSs as endangered. The final rule classifies the green sea turtle in the Mariana Archipelago as the Central West Pacific DPS and the status was changed from threatened to endangered under the ESA (81 FR 20057).

Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the Marina Archipelago				
Common name	**Scientific Name**	**ESA listing status**	**Occurrence**	**Interactions with the Mariana bottomfish fisheries**
			what extent they are present around Guam and CNMI	
Olive ridley sea turtle	*Lepidochelys olivacea*	Threatened	Range across Pacific: not confirmed in the Mariana Archipelago	No interactions observed or reported.
North Pacific Ocean loggerhead sea turtle Distinct Population Segment	*Caretta caretta*	Endangered	No known reports of loggerhead turtles in waters around the Mariana Archipelago	No interactions observed or reported
Listed Marine Mammals				
Blue whale	*Balaenoptera musculus*	Endangered	Extremely rare	No interactions observed or reported
Fin whale	*Balaenoptera physalus*	Endangered	Infrequent sightings	No interactions observed or reported
Humpback whale	*Megaptera novaeangliae*	Endangered	Infrequent sightings Winter in the CNMI	No interactions observed or reported
Sei whale	*Balaenoptera borealis*	Endangered	Infrequent sightings	No interactions observed or reported
Sperm whale	*Physeter macrocephalus*	Endangered	Regularly sighted	No interactions

Endangered and threatened marine species and seabirds known to occur or reasonably expected to occur in waters around the Marina Archipelago				
Common name	**Scientific Name**	**ESA listing status**	**Occurrence**	**Interactions with the Mariana bottomfish fisheries**
				observed or reported
Shark				
Indo-West Pacific DPS of scalloped hammerhead	*Sphyrna lewini*	Threatened	Nursery habitat located at Apra Harbor in Guam, but occurrence is reportedly rare[28]	No interactions observed or reported
Listed Sea Birds				
Newell's Shearwater	*Puffinus auricularis newelli*	Threatened	Rare visitor	No interactions observed or reported
Reef Corals[29]				
	Acropora globiceps	Threatened	Uncommon	No interactions observed or reported
	Acropora retusa (Guam only)	Threatened	Rare	No interactions observed or reported
	Seriatopora aculeata	Threatened	Common	No interactions observed or reported

3.10.3 Marine Mammals

Several species of whales, dolphins and porpoises occur in waters around the Mariana Archipelago and are protected under the MMPA. Additionally, a single dugong, listed as endangered, was observed in Cocos Lagoon, Guam in 1975 (Randall et al. 1975). Several

[28] Source: U.S. Department of the Navy. 2010. Final Environmental Impact Statement Guam and the CNMI Military Relocation. Joint Guam Program Office, 258 Makalapa Drive, Suite 100, Pearl Harbor, HI 96860.
[29] Source for occurrence information: http://www.fpir.noaa.gov/PRD/prd_listed_coral.html

sightings were also reported in 1985 on the southeastern side of Guam (Eldredge 2003). Since that time, no reports of dugong sightings have been made, and no observations of dugongs have been reported for CNMI. Table 12 provides a list of marine mammals known to occur or reasonably expected to occur in waters around CNMI that have the potential to interact with bottomfish fisheries. No interactions with CNMI bottomfish fisheries have been observed or reported.

Table 12. Marine mammals known to occur or reasonably expected to occur in waters around the Mariana Archipelago

Common Name	Scientific Name
Humpback whale*	*Megaptera novaeangliae*
Sperm whale*	*Physeter macrocephalus*
Sei whale*	*Balaenoptera borealis*
Fin whale*	*Balaenoptera physalus*
Blue whale*	*Balaenoptera musculus*
Blainville's beaked whale	*Mesoplodon densirostris*
Bottlenose dolphin	*Tursiops truncatus*
Bryde's whale	*Balaenoptera edeni*
Common dolphin	*Delphinus delphis*
Cuvier's beaked whale	*Ziphius cavirostris*
Dwarf sperm whale	*Kogia sima*
Dugong*	*Dugong*
False killer whale	*Pseudorca crassidens*
Fraser's dolphin	*Lagenodelphis hosei*
Killer whale	*Orcinus orca*
Longman's beaked whale	*Indopacetus pacificus*
Melon-headed whale	*Peponocephala electra*
Minke whale	*Balaenoptera acutorostrata*
Pygmy killer whale	*Feresa attenuata*
Pygmy sperm whale	*Kogia breviceps*
Risso's dolphin	*Grampus griseus*
Rough-toothed dolphin	*Steno bredanensis*
Short-finned pilot whale	*Globicephala macrorhynchus*
Sperm whale	*Physeter macrocephalus*
Spinner dolphin	*Stenella longirostris*
Spotted dolphin	*Stenella attenuata*
Striped dolphin	*Stenella coeruleoalba*

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

3.10.4 Seabirds

The following seabirds are considered residents of the Mariana Archipelago: wedge-tailed shearwater (*Puffinus pacificus*), white-tailed tropicbird (*Phaethon lepturus*), red-tailed tropicbird

(*Phaethon rubricauda*), masked booby (S*ula dactylatra*), brown booby (*Sula leucogaster*), red-footed booby (*Sula sula*), white tern (*Gygis alba),* sooty tern (*Sterna fuscata*), brown noddy (*Anous stolidus*), black noddy (*Anous minutus*), and the great frigatebird (*Fregata minor*). However, according to Wiles et al., (2003), the only resident seabirds on Guam are the brown noddy and the white tern.

The following seabirds in Table 13 have been sighted and are considered visitors (some more common than others) to the Mariana Archipelago; short-tailed shearwater (*Puffinus tenuirostris;* common visitor), Newell's shearwater (*Puffinus auricularis;* rare visitor), Audubon's shearwater (*Puffinus iherminieri*), Leach's storm-petrel (*Oceanodroma leucorhoa*), and the Matsudaira's storm-petrel (*Oceanodroma matsudairae*). Of these, only the Newell's shearwater is listed as threatened under the ESA. There have been no sightings of the endangered short-tailed albatross (*Phoebastria albatrus*) in the Mariana Archipelago although the Mariana Archipelago is within the range of the only breeding colony at Torishima, Japan (WPFMC 2009).

There have been no reports of interactions between seabirds and any of the Mariana Archipelago bottomfish fisheries (WPFMC 2009) and seabird species in the area are not known to prey on bottomfish.

Table 13. Seabirds occurring in the Mariana Archipelago

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

3.11 Essential Fish Habitat and Habitat Areas of Particular Concern

Essential fish habitat (EFH) is defined as those waters and substrate as necessary for fish spawning, breeding, feeding, and growth to maturity. This includes the marine areas and their chemical and biological properties that are utilized by the organism. Substrate includes sediment,

hard bottom, and other structural relief underlying the water column along with their associated biological communities. In 1999, the Council developed and NMFS approved EFH definitions for MUS of the Bottomfish and Seamount Groundfish FMP (Amendment 6), Crustacean FMP (Amendment 10), Pelagic FMP (Amendment 8), and Precious Corals FMP (Amendment 4) (74 FR 19067, April 19, 1999). NMFS approved additional EFH definitions for coral reef ecosystem species in 2004 as part of the implementation of the Coral Reef Ecosystem FMP (69 FR8336, February 24, 2004). EFH definitions were also approved for deepwater shrimp through an amendment to the Crustaceans FMP in 2008 (73 FR 70603, November 21, 2008).

Ten years later, in 2009, the Council developed and NMFS approved five new archipelagic-based FEPs. The plans incorporated and reorganized elements of the Councils' species-based FMPs into spatially-oriented management plans (75 FR 2198, January 14, 2010). EFH definitions and related provisions for all FMP fishery resources were subsequently carried forward into the respective FEPs. In addition to and as a subset of EFH, the Council described HAPC based on the following criteria: ecological function of the habitat is important, habitat is sensitive to anthropogenic degradation, development activities are or will stress the habitat, and/or the habitat type is rare. In considering the potential impacts of a proposed fishery management action on EFH, all designated EFH must be considered.

The designated areas of EFH and HAPC for all FEP MUS by life stage are summarized in Table 30 of the Mariana FEP (WPFMC 2009). The EFH/HAPC designations summarized in Table 14 below remain in effect.

Table 14. EFH and HAPC for Western Pacific FEP MUS

MUS	Species Complex	EFH	HAPC
Mariana Bottomfish MUS	**Shallow-water bottomfish:** Gray snapper (*Aprion virescens*), giant trevally (*Caranx ignoblis*), black trevally (*Caranx lugubris*), blacktip grouper*(Epinephelus fasciatus)*, Lunartail grouper *(Variola louti)*, redgill emperor*(Lethrinus rubrioperculatus)*, taape (*Lutjanus kasmira*), **Deepwater bottomfish:**lehi (*Aphareus rutilans*), red snapper (*Etelis carbunculus*), red snapper (*Etelis coruscans*), yellowtail snapper (*Pristipomoides auricilla*), pink snapper (*P. filamentosus*), yelloweye snapper (*P. flavipinnis*), pink snapper (*P. sieboldii*), gindai (*P. zonatus*), and amberjack (*Seriola dumerili*).	**Eggs and larvae:** the water column extending from the shoreline to the outer limit of the EEZ down to a depth of 400 m (200 fm). **Juvenile/adults:** the water column and all bottom habitat extending from the shoreline to a depth of 400 m (200 fm)	All slopes and escarpments between 40–280 m (20 and 140 fm)

MUS	Species Complex	EFH	HAPC
Mariana Crustaceans MUS	**Spiny and slipper lobster complex (all FEP areas):** Spiny lobster (*Panulirus penicillatus, P.* spp.), ridgeback slipper lobster (*Scyllarides haanii*), Chinese slipper lobster (*Parribacus antarcticus*) **Kona crab (all FEP areas):** Kona crab (*Ranina ranina*)	**Eggs and larvae:** The water column from the shoreline to the outer limit of the EEZ down to a depth of 150 m (75 fm) **Juvenile/adults:** All of the bottom habitat from the shoreline to a depth of 100 m (50 fm)	All banks with summits shallower than 30 m.
Mariana Crustaceans MUS	**Deepwater shrimp (all FEP areas):** (*Heterocarpus* spp.)	**Eggs and larvae:** The water column and associated outer reef slopes between 550 and 700 m **Juvenile/adults:** The outer reef slopes at depths between 300-700 m	No HAPC designated for deepwater shrimp in the Mariana Archipelago.

MUS	Species Complex	EFH	HAPC
Mariana Precious Corals MUS	**Shallow-water precious corals (10-50 fm) all FEP areas:** Black coral (*Antipathes dichotoma*), black coral (*Antipathis grandis*), black coral (*Antipathes ulex*) **Deepwater precious corals (150–750 fm) all FEP areas:** Pink coral (*Corallium secundum*), red coral (*C. regale*), pink coral (*C. laauense*), midway deepsea coral (*C.* sp nov.), gold coral (*Gerardia* spp.), gold coral (*Callogorgia gilberti*), gold coral (*Narella* spp.), gold coral (*Calyptrophora* spp.), bamboo coral (*Lepidisis olapa*), bamboo coral (*Acanella* spp.)	No EFH designated for precious coral in the Mariana Archipelago.	No HAPC designated for precious coral in the Mariana Archipelago.
Mariana Coral Reef Ecosystem MUS	**Coral Reef Ecosystem MUS (all FEP areas)**	EFH for the Coral Reef Ecosystem MUS includes the water column and all benthic substrate to a depth of 100 m (50 fm) from the shoreline to the outer limit of the EEZ	Saipan: Managaha Marine Conservation Area Guam: Cocos Lagoon, Orote Point Ecological Reserve Area, Haputo Point Ecological Reserve Area, Ritidian Point, Jade Shoals

To prevent and minimize adverse bottomfish fishing impacts to EFH, each western Pacific FEP prohibits the use of explosives, poisons, bottom trawl and other non-selective and destructive fishing gear. Weighted lines or baited hooks may contact bottom substrates during bottomfish fishing operations, and may impact EFH and HAPC. However, research studies to date indicate that bottomfish fishing operations, including gear deployment and a low level of anchor loss are not known to have adverse impacts to EFH (Kelley and Moffitt 2004; Kelley and Ikehara 2006).

In addition to the areas mentioned above, in CNMI nearshore waters, the CNMI Division of Fish and Wildlife manages five “no-take” marine conservation areas and two species-based reserves.[30] The CNMI has also implemented additional management measures, such as gillnet and scuba spear fishing bans, in recent years (WPFMC 2011). In Guam nearshore waters, there

[30] http://cnmi-dfw.com/marine-protected-areas.php

are five territory marine protected areas and five federal marine protected areas managed by the U.S. Navy or the National Park Service (NOAA 2009).

4 Environmental Impacts of the Alternatives

This chapter describes the environmental impacts that could result from the implementation of the alternatives. Table 15 provides comparative outcomes summarizing impacts of the alternatives.

Alternative 1 (Status Quo)

Under the No Action Alternative, NMFS would not change the regulations for commercial bottomfish fishing in federal waters. Regulations prohibiting commercial bottomfish fishing using a vessel 40 ft and greater in the EEZ within 50 nm around the Southern Islands (Rota, Saipan, Tinian, Aguigan, and FDM) and within 10 nm around Alamagan Island would remain in place.

Expected fishery outcome: The CNMI and Guam bottomfish fisheries would continue as they are currently operating.

Alternative 2 (Council preferred alternative)

Remove the BF M/LVPA restriction around the Southern Islands and Alamagan Island and allow commercial bottomfish fishing from a vessel of any size.

Under Alternative 2, NMFS would change the regulations for commercial bottomfish fishing in federal waters. Regulations prohibiting commercial bottomfish fishing using a vessel 40 ft and greater in the EEZ within 50 nm around the Southern Islands and within 10 nm around Alamagan Island would be removed.

Expected fishery outcomes: Lifting the BF M/LVPA restrictions would allow larger vessels to fish in the EEZ within 50 nm around the Southern Islands and within 10 nm around Alamagan Island, and thus a few more CNMI bottomfish fishing vessels may enter the fishery. However, the Council and NMFS do not anticipate a large number of new medium or large CNMI vessels would enter the fishery. The impetus for the M/LVPA restrictions was to protect CNMI bottomfish fishermen from an influx of the large bottomfish vessels from Guam, which did not materialize. There are also no indications from the bottomfish fishing community that a large number of medium and large vessels from either CNMI or Guam would enter the bottomfish fishery. Monitoring and reporting requirements of the fishery would remain in place. ACL management would continue. The Council and NMFS expect CNMI harvest amounts to remain far below the currently specified ACL.

Guam bottomfish fishery would continue to operate as is, with no change. It is unlikely that vessels 40 ft and greater would travel to CNMI to fish because of travel distance. If vessels did travel to CNMI, they would be required to obtain a Northern Mariana Islands Bottomfish Permit, submit fishing logbooks, and sales receipts.

Table 15. Potential fishery outcomes and environmental impacts of the alternatives

Resource or Issue:	Alternative 1: No management action (Do not Remove CNMI BF M/LVPA)	Alternative 2: Remove CNMI BF M/LVPA (NMFS and the Council's Preferred Alternative)	Comment:
Location of large vessel bottomfish prohibited fishing areas in the U.S. EEZ around the CNMI.	The BF M/LVPA currently extend seaward approximately 50nm in the EEZ around the Southern Islands (Rota, Saipan, Tinian, and FDM), and approximately 10 nm in the EEZ around Alamagan Island.	The BF M/LVPA around the Southern Islands and Alamagan Island would be removed.	
Location of large vessel bottomfish prohibited fishing area in the U.S. EEZ around Guam.	BF LVPA extends approximately 50 nm around Guam.	No change.	
Expected number of operations with vessels ≥40 ft long fishing around the CNMI	Since NMFS implemented Amd. 10, there have been four or fewer permitted vessels ≥40 ft/yr. In 2014, there were six permitted vessels and none ≥40ft.	Small vessel participants would be able to continue to fish within the BF M/LVPA, or expand to vessels ≥40 ft and still fish in the same fishing grounds.	
Status of fishing operations of fishermen with vessels ≥40 ft fishing around the CNMI	Vessel owners currently have to travel beyond the BF M/LVPA to fish for bottomfish. Very few vessels ≥40 ft are actively harvesting bottomfish resources.	Only a few, if any, new vessels ≥40 ft are anticipated to enter the bottomfish fishery.	Expected to return to levels seen prior to the establishment of the BF M/LVPA in December 2008. In 2006, there were six vessels ≥40 ft.

Resource or Issue:	Alternative 1: No management action (Do not Remove CNMI BF M/LVPA)	Alternative 2: Remove CNMI BF M/LVPA (NMFS and the Council's Preferred Alternative)	Comment:
Guam bottomfish fishery	In 2014, there was one vessel permitted to fish for bottomfish in Guam.	The removal of the CNMI BF M/LVPA is not expected to result in an expansion of the Guam bottomfish fishery.	
Target stocks (BMUS)	Current harvests are sustainable and managed under ACLs and AMs. Catches of BMUS are subject to reporting, monitoring, and annual evaluation. ACLs and AMs are monitored annually. Catches have not exceeded ACLs since ACLs were implemented. Other fishery management measures to help ensure sustainability apply.	<u>Expected catches: CNMI</u> BMUS harvests expected to remain sustainable. Harvests could return to pre-implementation levels (high at year 2007). This level of harvest would be below ACLs. Fishery would continue to be subject to reporting, monitoring, and annual evaluation by the Council, NMFS, and the CNMI Department of Fish and Wildlife. Other fishery management requirements would remain the same. <u>Expected catches: Guam</u> No change.	

Resource or Issue:	Alternative 1: No management action (Do not Remove CNMI BF M/LVPA)	Alternative 2: Remove CNMI BF M/LVPA (NMFS and the Council's Preferred Alternative)	Comment:
Non-target stocks	Bycatch rates in Mariana Archipelago bottomfish fisheries are usually low (<5%) and almost all is released alive. 2014 non-charter CNMI bycatch: • Total interviews: 651 • Interviews with bycatch: 3	Expected catches: CNMI No appreciable negative impact on non-target (shark) populations in this area. Continuing reporting requirement would provide a mechanism to allow fishery managers to ensure that shark populations are not adversely impacted by fishery operations.	The only known non-target mortality associated with the bottomfish fishery is to sharks.
Protected Species: sea turtles	Recent interactions CNMI: No interactions observed or reported Recent interactions: Guam No interactions observed or reported	Expected interactions: CNMI Unlikely to have any measurable impacts on sea turtles. Expected catches: Guam No change.	
Protected Species: seabirds	Recent interactions CNMI: No interactions observed or reported Recent interactions: Guam No interactions observed or reported	Expected interactions: CNMI No change in interactions anticipated. Expected catches: Guam No change.	
CNMI BF fishery impacts under regulations impacts to CNMI Protected Species: listed marine mammals (whales)	Recent interactions CNMI: No interactions observed or reported Recent interactions: Guam No interactions observed or reported	Expected interactions: CNMI No change in interactions anticipated. Expected catches: Guam No change.	

Resource or Issue:	Alternative 1: No management action (Do not Remove CNMI BF M/LVPA)	Alternative 2: Remove CNMI BF M/LVPA (NMFS and the Council's Preferred Alternative)	Comment:
CNMI BF fishery impacts under regulations impacts to CNMI Protected Species: other marine mammals:	Recent interactions CNMI: No interactions observed or reported Recent interactions: Guam No interactions observed or reported	Expected interactions: CNMI No change in interactions anticipated. Expected catches: Guam No change.	
Protected Species/listed corals	Recent interactions CNMI: No interactions observed or reported Recent interactions: Guam No interactions observed or reported	Expected interactions: CNMI No change in interactions anticipated. Expected catches: Guam No change.	
Protected Species/ scalloped hammerhead sharks	Recent interactions CNMI: No interactions observed or reported Recent interactions: Guam No interactions observed or reported	Expected interactions: CNMI No change in interactions anticipated. Expected catches: Guam No change.	
Biodiversity or ecosystem level impacts	Current CNMI bottomfish fishery not known to be adversely affecting biodiversity or ecosystem. Fairly small fishery that is carefully monitored and managed sustainably.	Potential Impacts: Higher levels of fishing effort could result in higher impacts; however, low increase in vessel participation is anticipated and reporting requirements allow for data collection and monitoring.	
CNMI Protected areas/ critical habitat	Impacts CNMI: There are no protected areas or designated critical habitat in the EEZ.	NA.	

Resource or Issue:	Alternative 1: No management action (Do not Remove CNMI BF M/LVPA)	Alternative 2: Remove CNMI BF M/LVPA (NMFS and the Council's Preferred Alternative)	Comment:
Ocean and coastal habitats, benthic habitats and/or EFH and HAPC	Current impacts: Bottomfish fishing operations are not known to have adverse impacts to EFH for Bottomfish, Crustacean, Precious Coral, or Coral Reef MUS.	Potential impacts: No change in impacts anticipated to EFH for Bottomfish, Crustacean, Precious Coral, or Coral Reef MUS.	
Public health and safety at sea	Current impacts: Smaller are more vulnerable to safety issues than larger vessels. Bottomfish fishing complies with all established military safety zone areas including those around FDM.	Potential Impacts: Limited positive impact to the safety at sea of CNMI bottomfish fishery participants who wish to upgrade to a larger vessel and fish the same fishing grounds. Limited safety at sea improvements for vessels ≥40 ft. No change in compliance with military safety zone areas anticipated.	

Resource or Issue:	Alternative 1: No management action (Do not Remove CNMI BF M/LVPA)	Alternative 2: Remove CNMI BF M/LVPA (NMFS and the Council's Preferred Alternative)	Comment:
Fishing communities and fisheries	Current impacts: High operating costs and lower fishing efficiency for medium and large commercial vessels to fish outside of the BF M/LVPA. Small vessel participants constrained from upgrading to larger vessels. Lower levels of bottomfish exports. Traveling outside of the BF M/LVPA to fish for vessels ≥40 ft potentially negatively affects the quantity and quality of the bottomfish catch.	Potential impacts: Reduced operating costs for the medium and large vessel commercial sector of the fishery. Small vessel participants may upgrade to larger vessels that can lead to improved safety and catch quality. Localized depletion of groundfish is possible with new entrants into fishery; however, fishery will continue to be subject to ACLs and AMs. Fishermen will continue to comply with regulations that help monitor and ensure fishing is sustainable. Improved quality and quantity of fresh bottomfish from vessels ≥40 ft, due to fishing closer to shore.	

4.1 Potential impacts to target stocks

Due to the low effort and catch levels seen in the CNMI bottomfish fishery as compared to estimated MSY none of the alternatives are anticipated to cause overfishing of BMUS complex populations throughout their range in the EEZ around the CNMI (Table 9). As shown in Table 6, the CNMI 2014 estimated commercial BMUS catch was 4,080 lb, far below the CNMI BMUS ACL of 228,000 lb of bottomfish (EA, Section 3.7). Based on stock projections, an annual catch of 71,000 lb in 2016 and again in 2017 would be necessary to produce an F/FMSY ratio of 1.0 (i.e., overfishing) for year two. In 2013, the most recent year for which stock status information is available, F_{2010}/F MSY = 0.088. The current federal permit and reporting requirements provide a mechanism for tracking of fishing activity and changes in fishery participation, largely address any concerns for unchecked expansion of this fishery.

Impacts of Alternative 1 (no action) on bottomfish target stocks

Alternative 1 (No Action) mitigates against a medium and large vessel (40 ft or greater) fishery sector in the EEZ waters around the Southern Islands have been historically fished by small-scale fishermen. Thus, Alternative 1 is more likely than Alternative 2 to maintain existing levels of self-recruitment in bottomfish populations around CNMI, as well as to control any potential for local depletion in the Southern Islands currently closed to medium and large vessels. The potential for fishing impacts on bottomfish populations at distant seamounts would be anticipated to be similar to or slightly greater than Alternative 2 as some, but not all, medium and large vessels would be expected to have the capacity to explore and fish the distant seamounts. The federal permitting, catch and commercial sales reporting requirements now in place provides fishery scientists and managers a mechanism to collect fishery data from the fishing fleet. This aids in improved monitoring and stock assessments that are used in current ACL-based management measures that promote optimum yields and maintain a sustainable fishery.

Impacts of Alternative 2 (proposed action) on bottomfish target stocks

As compared to the No Action Alternative, Alternative 2 (removal of the BF M/LVPA) would allow commercial-fishing medium and large bottomfish vessels to reenter the EEZ around the Southern Islands and Alamagan. If this were to occur, it may result in increased harvest of target species. However, in 2014 there were no permitted CNMI-based medium or large commercial bottomfish fishing vessels in operation, and vessels 40 ft and greater have historically not been known to fish within nearshore waters around the Southern Islands. It is not possible to quantify potential adverse impacts from this, such as catch competition with smaller vessels, but such impacts are not expected to increase with the number of large vessels fishing in the newly expanded area. Vessels still only operate two handline stations, thus, catch competition is the same between existing fishermen that may decide to fish with a larger vessel under this proposed action.

If significant expansion of the medium and large vessel fleet occurs, and if these vessels chose to fish in areas closer to shore, then Alternative 2 is less likely than Alternative 1 to maintain existing levels of self-recruitment in bottomfish populations around CNMI. Alternative 1 would

also control any potential for local depletion in the Southern Islands areas that are currently closed to medium and large vessels if significant expansion of these vessels occur. However, as previously noted, we do not predict significant expansion of the larger vessel fleet to occur and larger vessels do not historically fished in nearshore waters where stock recruitment occurs. The current federal permit and reporting requirements provide a mechanism to allow fishery scientists and managers to more closely monitor bottomfish catches and effort than before Amendment 10. For these reasons, the BF M/LVPA are not necessary to ensure sustainable management of the federal CNMI bottomfish fishery.

In terms of bottomfish resources in the wider Mariana ecosystem, Alternative 2 may reduce potential fishing pressure on distant seamounts (greater than 50 nm from the Southern Islands). Bottomfish populations at the more distant seamounts are likely to depend on larvae transported from larger bank fish resources on CNMI's island slopes and recruitment there tends to be variable and unpredictable. Thus, seamount populations of deepwater bottomfish tend to be more sensitive to fishing pressure than island slope resources. Impacts on bottomfish could be further reduced if the government of CNMI were to implement complementary measures for its citizens in CNMI nearshore waters.

4.2 Potential impacts to non-target stocks including fish bycatch

Non-target stocks and bycatch are fish species, or other marine animals, caught incidentally while fishing for the targeted bottomfish stocks. The only practical method of bottomfish fishing for the targeted deepwater snappers around CNMI is through the use of vertical droplines with several branching lines. This is a highly selective method of fishing because it targets depth ranges inhabited by particular bottomfish species. As shown in Table 8, bycatch rates in the CNMI bottomfish fishery is relatively low, and fishermen release almost all bycatch alive. The only known non-target mortality associated with CNMI's bottomfish fishery is to sharks, as reported by fishermen. Sharks are known to be abundant on many seamounts off the CNMI. Though local bottomfish fishermen on occasion hook sharks, they report heavy losses of their catch to shark predation as lines are being retrieved.

Impacts of Alternative 1 (no action) on non-target stocks

Table 8 lists the 2014 bycatch species. There are five species in Table 8, all of which are caught in minimal numbers in the fishery. None of these species are of biological concern. Sharks are rarely recorded in creel survey interviews and there were none reported in 2014. While NMFS logbook data shows that while bottomfish fishermen occasionally catch sharks, the majority are released alive.[31]

Impacts of Alternative 2 (proposed action) on non-target stocks

Bycatch species (Table 8) are caught in minimal numbers in the fishery and NMFS and the Council expect bycatch rates to remain low under the proposed action as the vessels would still use the same bottomfish fishing method. If medium and large bottomfish vessels were not essentially forced to fish distant seamounts where they are more likely to encounter sharks, but

[31] PIFSC logbook data (2010 to 2013).

rather closer to the islands where shark populations may be somewhat smaller, shark mortality in the fishery as a whole may be reduced. The effort from a few larger vessels around the Southern Islands and Alamagan in addition to the vessels less than 40 ft is not expected to result in any appreciable negative impact on shark populations in this area. And, Alternative 2's continuing reporting requirement would provide a mechanism to allow fishery managers to ensure that shark populations are not adversely impacted by fishery operations.

4.3 Potential Impacts to Protected Species

Bottomfish fishing in the region tends to result in fewer protected species interactions than other types of gear. There have been no protected species recorded in CNMI territorial catch and bycatch creel surveys. Although there are no observer data available for the CNMI bottomfish fishery, and there have been no reported or observed physical interactions with any species of sea turtles, whales, or dolphins in the CNMI bottomfish fishery. For comparison, in the bottomfish fisheries based in Hawaii, including during the NMFS 1990-1993 (Nitta 1999) and 2003-2005 Northwestern Hawaiian Islands (NWHI), observers occasionally documented bottlenose dolphins depredating bottomfish catches in the NWHI, but did not record any other type of interactions (Nitta 1999).

Data for nine calendar quarters (2003 to 2005) for the Hawaii-based NWHI bottomfish fishery are available on the PIRO website. From the fourth quarter of 2003 through the fourth quarter of 2005, observer coverage in the bottomfish fleet averaged 22.8 percent, and there were no observed interactions with sea turtles or marine mammals. There were eight observed seabird interactions, including one red footed booby, two unidentified boobies, one brown booby, one black-footed albatross and two Laysan albatrosses, and only the brown booby and black-footed albatross interactions occurred during bottomfish fishing operations. Based on these data, the nature of the gear and fishing operations, and information provided by fishermen, interactions between seabirds and bottomfish fishing operations around the Mariana Archipelago are believed to occur rarely, if at all.

Although there are no specific regulations currently in place aimed at protected species interaction mitigation; regulations prohibit certain destructive gear types more likely to interact with protected species. These prohibitions include the use of bottom trawls, bottom gillnets and explosives and poisons to target bottomfish.

The 2002 Biological Opinion concluded that the probability of an encounter between ESA-listed sea turtle and whale species and the bottomfish fishery is extremely low and that the fishery, as managed under the FMP, is not likely to adversely affect these species (NMFS 2002). On June 3, 2008, NMFS determined that the continuation of the Mariana Archipelago bottomfish fisheries were not likely to adversely affect endangered or threatened species or designated critical habitat under NMFS jurisdiction. On April 29, 2015, NMFS concluded under ESA Section 7 consultation that the federal fisheries authorized under the Mariana FEP are not likely to adversely affect ESA-listed coral species or the Indo-West DPS of the scalloped hammerhead shark (NMFS 2015a and 2015b). The Final 2016 List of Fisheries under the Marine Mammal Protection Act lists the CNMI bottomfish fishery as a Category III fishery, meaning that this fishery has a remote likelihood or no known incidental mortality and serious injuries of marine mammals (81 FR 20550, April 8, 2016). Furthermore, the 2005 EIS for the Bottomfish and

Seamount Groundfish Fishery in the Western Pacific (WPFMC and NMFS 2005) found that the region's bottomfish fisheries as a whole are expected to have no effect on the distribution, survival, or population structure of any seabird species.

Impacts of Alternative 1 (no action) on protected species

There have been no reports of interactions between listed protected species and CNMI bottomfish fisheries.

Impacts of Alternative 2 (proposed action) on protected species

As compared to Alternative 1, Alternative 2 (remove BF M/LPVA) could increase the potential for some types of protected species interactions in nearshore waters because removing the restrictions could result in redistributing medium and large vessel bottomfish fishing effort from distant seamounts. For example, ESA-listed species such as green turtles occur more commonly in nearshore waters. However, due to the pre-existing concentration of small vessel effort in nearshore waters (0-3 nm) and the data available regarding the occurrence of such interactions in the region's bottomfish fisheries, we do not expect that additional effort from a few larger vessels in the area to have any measurable impacts on protected species populations in this area. While there is no information to suggest that additional vessels will enter the fishery, there are a couple of larger vessels in both Guam and CNMI that could enter the fishery if the prohibited areas were removed. The continuing reporting requirement under Alternative 2 would provide a mechanism to allow fishery managers to ensure that protected species are not adversely impacted by fishery operations.

4.4 Potential Impacts to Biodiversity and Ecosystem Functions

To the extent that the CNMI bottomfish fishery has the capacity to adversely impact biodiversity and ecosystem function, we assume any such impacts occur would be in rough proportion to the type and level of fishing effort. The likelihood and magnitude of impacts are also a function of how fishing effort is temporally and geographically distributed (i.e., relative to the distributional aspects of biodiversity and ecosystem function). As seen in Table 8, reported bycatch in CNMI's bottomfish fishery is relatively low, with the majority consisting of fish caught and deliberately released alive from charter vessels.

Bottomfish fishing is not known to be a potential vector for spreading invasive species and the removal of the BF M/LVPA is not going to change bottomfish fishing practices. Because bottomfish vessels in the Mariana Archipelago fish within waters around the CNMI and Guam, continued fishing by these vessels in the waters around the CNMI would not spread species from other areas.

Impacts of Alternative 1 (no action) on biodiversity and ecosystem functions

The current CNMI bottomfish fishery is a small, carefully monitored fishery that is sustainably managed. The fishery is not known to be adversely affecting biodiversity or ecosystem.

Impacts of Alternative 2 (proposed action) on biodiversity and ecosystem functions

Alternative 2 can be expected to affect overall redistribution of fishing effort in the bottomfish fishery relative to Alternative 1 (no action), both geographically and among different types of fisheries (i.e., gear types and target species).

The status quo discourages the renewal or expansion of CNMI's medium and large vessel sector and thereby hinders expansion of the size and fishing capacity of the fleet as a whole. Alternative 2 would remove these barriers and could conceivably result in higher levels of fishing effort that could potentially result in greater impacts on biodiversity and ecosystem function. It would also potentially distribute fishing impacts to the marine ecosystem from large commercial vessels fishing for BMUS in the EEZ within 50 nm around the Southern Islands and 10 nm around Alamagan. Vessels over 50 ft in length are not known to fish within non-restricted waters 0-3 nm around CNMI. Resultant adverse impacts on stocks in nearshore waters cannot be quantified but would obviously increase as the number of vessels fishing in this area increased with a possibility of associated reductions in the catches by smaller vessels.

Although Alternative 2 would have less potential than Alternative 1 for maintaining existing levels of biodiversity, the potential for these effects must be evaluated against the known universe of larger bottomfish fishing vessels available in the CNMI and Guam to enter the fishery in response to the removal of the restricted fishing areas. The Council is not aware of more than one or two latent larger bottomfish fishing vessels, and we therefore expect a shift in effort among the few currently permitted and active vessels rather than an increase in total number of vessels in the fishery. Alternative 2's existing reporting requirements would provide a mechanism to allow fishery managers to ensure that biodiversity and ecosystem function are not adversely impacted by fishery operations.

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

CNMI's bottomfish fishery is a hook-and-line fishery and considered to have low collateral impacts (Chuenpagdee et al. 2003). Because of the nature of bottomfish fishing, the risk of direct impacts from fishing gear to EFH/HAPC and other benthic habitats is negligible. (See Table 14 for EFH and HAPC designations; there are no other protected areas or designated critical habitat in the EEZ in the Marianas.) The use of explosives, poisons, trawl nets, bottom gillnets, and other destructive gears that may adversely affect EFH and HAPC is prohibited under the Marianas FEP. The line used while bottomfish fishing is continuously monitored by an individual fisherman. Fishermen maintain the weight and hooks near, but not on, the bottom because the target species occur from one to 20 m (3 to 66 ft) off the bottom.

Generally, bottomfish fishing vessels drift with gear off the bottom over relatively flat-bottom areas or over deep slopes and do not set anchors during bottomfish fishing, so the fishing gear has minimal impact to bottom habitat. Existing data from studies around Hawaii indicate that bottomfish fishing activities are not significantly impacting the deep-benthic ecosystem in terms of bycatch removal, marine debris or derelict fishing gear, biodiversity, and competitor or predator release (Kelley and Moffitt 2004). In addition, it is believed that bottomfish fishing activities do not significantly impact bottom-dwelling invertebrates such as cnidarians (e.g.,

corals that are not reef-building), sponges, sea stars, and urchins (Kelley and Moffitt 2004). Fishermen avoid coral to prevent damaging their gear. On April 29, 2015, NMFS concluded under ESA Section 7 consultation that the federal fisheries authorized under the Mariana FEP are not likely to adversely affect ESA-listed coral species (NMFS 2015). According to an interagency study, the coral reef ecosystem of the NWHI has been found to be in "pristine" condition (Maragos and Gulko 2002), despite decades of bottomfish fishing activities in the NWHI.

The presence of fishing vessels near shallow and intertidal habitats, including coral reefs[32], also brings some degree of risk of vessel groundings and pollutant spills that could degrade those habitats. A bottomfish fishing vessel striking the bottom could physically destroy habitat in the immediate area. A subsequent breakup of the vessel and release of fuel and oil could result in habitat pollution and mortality of marine life. However, considering that bottomfish fishing vessel groundings are rare events, groundings pose a remote threat to EFH or HAPC.

Indirect impacts to water column EFH or HAPC could occur through pollutant discharges from bottomfish fishing vessels. The day-to-day operations of a fishing vessel can produce a number of waste products, including oil, sewage, and garbage that may affect marine habitat. To the extent that these activities and events are subject to environmental regulations, their effects on EFH and HAPC are likely to be avoided, minimized, or mitigated (Gerry Davis, PIRO, personal communication). Some have theorized that sending a weighted handline with baited hooks and a small chum bag to bottom depths, generally to 50 fathoms and below, may introduce parasites or disease into the water column, but to date no such problems have been reported or documented in Hawaii's bottomfish fisheries (Kelley and Moffitt 2004).

The impacts of bottomfish fishing on competitors, predators, or prey of target species (e.g., kāhala, ulua) are not well understood. Some species may simultaneously be competitors, predators, and prey. However, overall, Kelly and Moffitt (2004) found that at studied sites in the NWHI bottomfish fishing impacts on competitors and prey species were not likely to be significant.

Neither alternative considered by the Council are likely to adversely affect EFH or HAPC for any managed species as they are not likely to lead to substantial physical, chemical, or biological alterations to the habitat of these species or their prey. For the same reason, none of the alternatives are expected to cause substantial damage to the ocean or coastal habitats.

Impacts of Alternative 1 (no action) on EFH/HAPC

The continuation of CNMI's bottomfish fishery in the CNMI would not be expected to adversely affect the EFH and HAPC for any Bottomfish, Crustacean, Precious Coral, or Coral Reef MUS managed under the Mariana FEP.

Impacts of Alternative 2 (proposed action) on EFH/HAPC

[32] The photic zone where coral reefs and reef building organisms are normally found ranges roughly between 0 and 50 to 100 m [164-328 ft]).

No change in impacts anticipated to EFH or HAPC for Bottomfish, Crustacean, Precious Coral, or Coral Reef MUS managed under the Mariana FEP.

4.6 Potential Impacts to Public Health and Safety at Sea

Commercial fisheries have always been one of the most dangerous occupations. According to the National Institute for Occupational Safety and Health, during 1992-2008 the average annual fatality rate for commercial fishermen was 128 deaths per 100,000 workers. For all U.S. workers, this number was only four deaths per 100,000. National Standard 10 instructs the Council and NMFS to promote, to the extent practicable, the safety of human life at sea when considering conservation and management measures. Further, the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires that management measures describe issues related to the safety of human life at sea, including whether and to what extent such measures may affect the safety of participants in the fishery.

Smaller vessels, which are the only ones currently allowed to fish in the EEZ within 50 nm of shore in the subject areas, are subject to a number of risks and dangers. Ben-Yami (2000) highlighted a number of important safety at sea considerations for small fishing vessels. These include bad weather; loss of power (many small fishing boats are powered by an outboard motor and do not carry either a spare engine or sailing rig); fire on board, especially when extra fuel is carried for extended trips; inadequate boat construction standards; unsuitable boats for prolonged fishing trips; economic hardship; inadequate communication capabilities; fishing techniques not suitable for the vessel; and lack of accessible shelters/anchorages. Ben-Yami (2000) also suggested that certain fisheries management strategies may result in safety at sea issues. For example, he cites strategies that incentivize fishermen to take risks, such as limiting fishing time and area, as ones that could contribute to accidents and fatalities.

No data is available for bottomfish fishing vessel accidents and losses according to vessel size in the CNMI, and it is likely that sample sizes would limit useful statistical analysis of such data. However, Wang et al. (2005), in an analysis of trends in U.K. fishing vessel accidents, found that the percentage at which accidents on vessels less than 40 ft (12 m) result in deaths is higher than that for vessels of between 40 ft and 78 ft and those greater than 78 ft. Their results also indicated that vessels under 40 ft had the highest casualty rates and suffered more severe consequences when accidents occurred. Finally, their data showed that fishing vessels less than 40 ft were lost at a much higher rate than other vessel size categories they examined. The authors suggested these findings may be due to the size and stability of smaller vessels, especially when operating in bad weather conditions.

In addition to concerns for the safety at sea of bottomfish fishing participants, the current regulations may limit the availability of fresh local fish – especially bottomfish, which has the potential to impact public health. The quality and quantity of fresh fish is a concern given the small size of the CNMI bottomfish fleet. Pacific Islanders are particularly dependent upon seafood. Though subsistence fish consumption data are not available for CNMI (SPC 2011), Hawaii's seafood consumption rate is more than twice the national average (Kromer Baker et al. 2012).

There are two ways in which the regulations are likely to impact local seafood availability. First, since larger boats are restricted from fishing in the EEZ within 50 nm, those vessels must make relatively long trips in order to reach fishing grounds, fish, and come back. This extended trip time can affect fish quality. Second, the smaller (typically less than 25 ft) vessels that can fish for bottomfish in the EEZ within 50 nm are unable to store much fish and are therefore unable to provide large volumes of fresh bottomfish catch to the local market.

Impacts of Alternative 1 (no action) on public health and safety at sea

Vessels less than 40 ft are more vulnerable to safety issues related to smaller vessels. Alterative 1 does not allow vessels 40 ft or greater to fish in the EEZ within 50 nm, thus larger vessels are at a disadvantage and vessel owners are less likely to upgrade to larger safer vessels.

Compared to Alternative 2, under Alternative 1 traveling outside of the BF M/LVPA to fish potentially negatively affects the quantity and quality of the bottomfish catch.

Bottomfish fishing complies with all established military safety zone areas including those around FDM that restrict public access at all times due military training practices.

Impacts of Alternative 2 (proposed action) on public health and safety at sea

Alternative 2 provides limited positive impact to the safety at sea of CNMI bottomfish fishery participants who wish to upgrade to a larger vessel and fish the same fishing grounds, as well as limited safety at sea improvements for vessels 40 ft or greater that currently fish beyond 50 nm in the EEZ.

Alternative 2 may provide improved quality and quantity of fresh bottomfish by allowing larger vessels to fish in the EEZ within 50 nm.

No change in compliance with military safety zone areas is anticipated under Alternative 2.

4.7 Potential Impacts to Fishery Participants and Communities

A management objective of this action is to promote optimum yield in the CNMI bottomfish fishery. The entire CNMI portion of the Mariana archipelago is a designated fishing community under the Magnuson-Stevens Act. While many residents do not directly participate in CNMI's bottomfish fishery, the alternatives considered here may indirectly affect them. Family members (immediate or extended) or friends may bottomfish or rely on bottomfish fishing for some portion of their income, food consumption, cultural traditions, recreational activities or lifestyle. This is because, as in almost all Pacific Islands, fish and fishing are important to CNMI's heritage and socio-cultural fabric. As such, changes to its fisheries can reverberate throughout the fishing community both positively and negatively.

In terms of numbers of vessels, there are more small vessel fishery participants than medium or large vessel participants. However, medium and large vessel participants tend to be able to supply a larger portion of bottomfish to markets. Therefore, alternatives that strongly impact small vessel participants may have a greater socio-cultural footprint, while alternatives that affect

the larger vessels are more likely to have a greater impact on CNMI's fish markets and consumers.

In addition to the potential impacts described below, the impacts described immediately above in Section 4.6 can also be considered here. It is difficult to confidently predict impacts to fishery participants and fishing communities from some actions. There are often a number of variables that underpin when, where, and why fishermen chose to fish. In the case of this action, for example, the Council and NMFS established the current BF M/LVPA because of the concern that Guam-based large vessels might chose to fish in CNMI waters following a similar prohibition on large bottomfish fishing vessels in Guam waters and that such fishing could lead to depletion of CNMI bottomfish resources. However, this concern may have been misplaced, for reasons described previously, and the restrictions may in fact be constraining the local fishery and resulting in unnecessary social and economic impacts to participants and the community.

Impacts of Alternative 1 (no action) to fishery participants and communities

Under Alternative 1 (no action), the medium and large vessel commercial sector of the bottomfish fishery would continue to incur higher operating costs due to the requirement that they fish outside the BF M/LVPA. Because these grounds are not as familiar as those closer to port, fishing operations are also likely to be less efficient. There are no data to understand the different operating costs incurred by smaller and larger vessels. However, in their study of the Guam bottomfish fishery, Hospital and Beavers (2012) found that highliners, which tend to be larger, incurred higher levels of expenditures. Highliners reported an average yearly expenditure of $12,030 and a median expenditure of $10,100, while non-highliners reported approximately $6,275 in fishing-related expenditures with a median expenditure of $3,478.

In 2014, there were no vessels impacted under the no action alternative. However, it may be that the current restrictions have resulted in few to no large bottomfish fishing vessels being registered in the CNMI. Under Alternative 1, small vessel participants would still be constrained from upgrading their vessels since doing so would mean they would have to fish outside of the M/LVPA, in waters that are relatively unknown to them. As previously mentioned, smaller boats can be less safe than larger vessels and, because of their limited storage capacity, can be less efficient than larger vessels, which can carry more fuel, ice, bait, gear, and catch.

Finally, maintaining the BF M/LVPA will continue to discourage, although not prevent, bottomfish exports, which are more likely to be associated with the medium and large vessel component of the CNMI fishery.

Impacts of Alternative 2 (proposed action) to fishery participants and communities

Under Alternative 2, there would be an opportunity for vessels 40 ft or greater to relocate commercial bottomfish fishing effort to the EEZ within 50 nm around the Southern Islands and 10 nm around Alamagan. This would reduce the operating costs for the medium and large vessel commercial sector of the fishery because they would no longer be required to travel to fish banks outside the BF M/LVPA. It would also make fishing operations safer for those vessels, since

they would no longer be required to travel as far to conduct bottomfish fishing and should make their operations more efficient and profitable, as fresher fish usually command greater prices.

Small vessel participants would no longer be constrained from upgrading and may choose to do so in order to fish from larger vessels, which can be safer and can carry more fuel, ice, bait, gear, and catch.

However, economic impacts (including market and non-market impacts) on small-vessel commercial, recreational and charter fishery participants could be negative if localized depletion of bottomfish occurs from larger vessels being allowed to fish in the EEZ within 50 nm of the Southern Islands and 10 nm of Alamagan Island. If this were to occur, it would disrupt their income, investment value, food supply, recreational opportunities and lifestyles, and over a longer term, make fishing a less attractive occupation to potential new entrants into the fishery. In 2014, there was only one large Guam-based vessel and no large CNMI-based vessels permitted to fish for bottomfish, so localized depletion of CNMI bottomfish resources from large vessels does not appear to be an immediate problem. Currently, there are only a couple of larger vessels that could enter the bottomfish fishery if the prohibited areas were removed; however, there has been no indication that they are interested in entering the fishery. The current federal permit and reporting requirements would continue providing a mechanism for fishery scientists and managers to able to more closely monitor bottomfish catches and effort than before Amendment 10. Finally, recent bottomfish harvests in the CNMI are many times lower than recent ACLs for the fishery, and it is not expected that several additional boats fishing for bottomfish in the area would much change this condition. For these reasons, the BF M/LVPA are not necessary to ensure sustainable management of the CNMI bottomfish fishery.

4.8 Potential Environmental Justice Effects

Executive Order 12898 and White House Council on Environmental Quality guidance instruct agencies to determine, via NEPA, whether a proposed federal action is likely to have disproportionately high and adverse human health or environmental effects on low-income populations, minority populations, or Indian tribes. Where such effects are identified as a result of the proposed action or any alternative, agencies should analyze how environmental and health effects are distributed within the affected community. The memo directed agencies to consider potential effects on sustenance harvests.

Potential for environmental justice effects

This analysis does not indicate that Alternative 2 would result in high and adverse impacts to the environment, including to BMUS resources. NMFS and the Council will continue to manage BMUS resources sustainably under either alternative and BMUS resources will be maintained at sustainable levels. Under Alternative 2, there may be greater availability of sustainably harvested fresh bottomfish to local community members. Regulations covering the fishery will continue to provide for monitoring of bottomfish fishing and harvests. The proposed action would not limit, and may enhance, access to fresh fish by members of minority groups or low income populations. Finally, sustenance fishing for BMUS would be allowed under either alternative, since the current BF M/LVPA in the EEZ that extends to 50nm around the Southern Islands and 10nm around Alamagan does not affect fishing for bottomfish using a vessel less than 40 ft.

4.9 Potential Impacts to Administration and Enforcement

For Amendment 10, NMFS estimated that 50-125 vessels would make 10 to 50 trips per year, and average 1.2 days per trip if the action were implemented. At that rate, the program would generate in the range of 600 to 7,500 daily fishing logbooks per year. However, since the implementation of Amendment 10, the total number of permits that NMFS has issued per year has been quite low, and the number of those vessels that were/are 40 ft and greater has never exceeded four in one year (Table 16).

Table 16. Total bottomfish permits and permitted vessels 40 ft or greater in the CNMI Fishery

Year	Number of Permits	Vessels 40 ft or greater
2009	3	1
2010	12	4
2011	9	1
2012	14	0
2013	5	1
2014	6	0

Source: Sustainable Fisheries Division, Pacific Islands Regional Office, NMFS

However, the current regulations still impose an administrative burden on NMFS to implement and maintain the federal permitting and data collections programs. The cost of the data reporting program includes the processing of fishermen's logbooks for all commercial fishermen and sales reports for vessels 40 ft or greater. Since the Council is not seeking to eliminate permitting, logbook, and reporting requirements, the ongoing burden to administer these regulations would remain, at an estimated annual cost of $1,200 – $3,100.

Production and distribution of logsheets, data coding and entry, data verification and management, system development to support the process, quality control, and fishermen feedback, as well as basic reporting and analysis functions, utilizes existing NMFS staff and office space on Saipan and in Honolulu, at an annual cost of $75K.

There will remain enforcement burdens on NMFS and the USCG for monitoring compliance with the permitting and data reporting requirements for all commercial bottomfish fishing vessels. CNMI enforcement partner capabilities under the Joint Enforcement Agreement (JEA) are limited. In 2008, NMFS and the Council estimated the annual administrative and enforcement costs of the BF M/LVPA at $260-$290 K (WPFMC and NMFS 2008). However, under Alternative 2, these costs are likely to be lower as the BF M/LVPA would no longer exist.

Impacts of Alternative 1 (no action) to administration and enforcement

There are some NMFS administrative costs to manage the federal bottomfish fisheries under the current regulatory scheme, which vary annually depending on the number of permits and logbooks in any given year. Law enforcement agencies have a responsibility to enforce the prohibition on commercial fishing for BMUS using vessels 40 ft or greater in the BF M/LVPA.

Impacts of Alternative 2 (proposed action) to administration and enforcement

Under Alternative 2, there could be an increase in fishery monitoring under proposed new CNMI bottomfish regulations if numbers of permits, trips, trip logs increase because of the preferred action. Law enforcement would have a lower level of responsibility under Alternative 2, as fishing area restrictions would be lifted as they would no longer need to spend effort enforcing medium and large vessel incursions.

4.10 Potential Impacts to Scientific, Historic, Archeological or Cultural Resources

There are no known districts, sites, highways, structures or objects that are listed in or eligible for listing in the National Register of Historic Places within federal waters of the CNMI where bottomfish fishing activities are conducted. In addition, bottomfish fishing in the CNMI is not known to result in adverse impacts to scientific, historic, archeological or cultural resources because fishermen fish for bottomfish on high-relief, deep slopes where such objects would not be found or come to rest.

In 2009, Proclamation 8335 established the Marianas Trench Marine National Monument (Monument). The Monument includes certain waters and submerged lands around the three northernmost islands of the CNMI (Uracas or Farallon de Pajaros, Maug, and Asuncion), which comprise the "Islands Unit." The Monument also includes the submerged lands of designated volcanic vent sites and the Marianas Trench. In 2013, NMFS implemented regulations for the Mariana Trench National Marine Monument that prohibit commercial fishing in the Islands Unit (the three northern most islands of Farallon de Pajaros, Maug, and Asuncion). Regulations allow non-commercial fishing by permit and customary exchange in non-commercial fisheries in the Islands Unit (78 FR 32996, June 3, 2013) (Figure 6 in Appendix A). Generally, bottomfish fishing vessels drift over relatively flat-bottom areas, which has minimal impact to bottom habitat, and thus impacts to Monument areas are likely minimal.

Impacts of Alternative 1 (no action) to scientific, historic, archeological or cultural resources

CNMI bottomfish fishery not known to be affecting scientific, historic, archeological, or cultural resources, including shipwrecks, or the Marianas Trench Marine National Monument. NMFS does not permit commercial bottomfish fishing in the Islands Unit of the Monument. Non-commercial fishing is allowed in the Islands Unit by permit; however, none have been issued to date.

Within the BF M/LVPA, as well as outside of the BF M/LVPA, limited bottomfish fishing may be occurring in some Monument volcanic vent sites by vessels less than 40 ft. Generally, bottomfish fishing vessels drift during fishing, or over deep slopes and do not anchor during bottomfish fishing, so the fishing gear has minimal impact to bottom habitat.

Impacts of Alternative 2 (proposed action) to scientific, historic, archeological or cultural Resources

There is no change anticipated to the impacts on scientific, historic, archeological, or cultural resources, or the Marianas Trench Marine National Monument. Under Alternative 2, bottomfish fishing vessels 40 ft and greater may fish within 50 nm of the Southern Islands. Although this area includes some sites that are in the Volcanic Unit of the Monument, the potential additional commercial bottomfish fishing from vessels 40 ft or greater (none permitted in CNMI in 2014) that could occur in the volcanic units is not expected to have an impact on the seafloor because generally, bottomfish fishing vessels drift over during fishing, which has minimal impact to bottom habitat.

4.11 Cumulative Effects of the Proposed Action

The Magnuson-Stevens Act and NEPA require the Council and NMFS to determine what, if any, cumulative effects may result from the combination of the proposed action and other relevant activities. This section describes the potential cumulative effects of the proposed action and the alternative actions considered. The Council on Environmental Quality's regulations for implementing NEPA defines cumulative effects as the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7 and 1508.25). The intent of the cumulative effects analysis is to capture the total effects of many actions over time that would be missed by evaluating each action individually.

As discussed in the background section, commercial bottomfish fishing is prohibited in the Islands Unit of the Monument and within 3 nm around FDM at all times and within 12 nm during military activities. CNMI bottomfish fishery may fish within the submerged lands within 3 nm around Tinian; however, as described below, proposed military actions may restrict use of this area in the future. As a result of these restrictions, bottomfish fishermen are required to fish outside of the closed areas.

Besides the proposed action, the Council is currently not considering any other fishery management actions in the greater action area. Below we describe several past, present, and reasonably foreseeable future activities in the context of the CNMI bottomfish fishery.

- In 1986, the Council implemented the FMP for the Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region. The FMP established a list of management unit species as well as prohibited destructive fishing techniques (e.g., explosives, trawl nets, poisons). Most other Council bottomfish management actions have been focused on Hawaii's much larger and economically important fishery. CNMI bottomfish management actions have been fairly few, and include, as described above, reporting requirements, spatial restrictions for vessels 40 ft and greater around some of the islands, and VMS requirements for those vessels.

- In 2009, the Council transitioned from fishery management plans to more comprehensive and integrated fishery ecosystem plans, in order to promote and enhance the ability of federal fishery managers to manage for the complex interrelationships that characterize a fishery.

- Since 2011, the Council has managed federal bottomfish resources in the CNMI according to an annual catch limit. The current ACL for CNMI bottomfish is 228,000 lb for the bottomfish multi-species stock complex. While overages can lead to reductions in the ACL in subsequent years, removing the medium and large vessel exclusion is not likely to result in increased fishing pressure on the complex given the current CNMI fishing environment. There are few medium and large vessels available or likely to enter the fishery in the foreseeable future.

4.11.1 Military Operations in the CNMI

The U.S. military has utilized the strategic location of the CNMI over 100 years. The Mariana Archipelago FEP 2009 Annual Report (WPFMC 2011) identified the ongoing and future military buildup on Guam and the CNMI as the most significant action for the Mariana Archipelago. The military is planning to implement some area closures that would be intermittent or permanent. These areas are likely to be in waters under the jurisdiction of the CNMI. The closures would occur with or without approval of the proposed action.

In Guam, the Department of Navy in the Final Supplemental Environmental Impact Statement (EIS) for military relocation in the Marianas Islands proposes to construct and operate a cantonment area, family housing, and a live-fire training range complex on Guam to support the relocation of approximately 5,000 Marines and approximately 1,300 dependents. The EIS states that the use of the proposed live-fire training range complex would result in restricted access to some fishing zones (Naval Facilities Engineering Command Pacific 2015).

The proposed action under the recently released CNMI Joint Military Training Draft EIS/Overseas EIS (U.S. Marine Corps Forces Pacific 2015) includes 20 weeks per year of live-fire training on Tinian and 16 weeks of live-fire training on Pagan. During the live-fire training, public access to the 0-3nm around these islands would be prohibited. This restriction on public access would include the submerged lands under federal jurisdiction around Tinian. If implemented, this restriction would impact bottomfish fishing by restricting access to fishing areas from 0-3 nm that would normally occur in this area. In addition, vessels that normally fish in these areas would be forced to find other fishing locations, thus potentially increasing bottomfish fishing activity in these areas. However, the areas closures would not likely interact with the impacts of the proposed action to result in large and adverse cumulative effects on bottomfish stocks.

The following websites provide the status of the development of the proposed military relocation and training actions: http://www.cnmijointmilitarytrainingeis.com/, http://mitt-eis.com/, http://www.guambuildupeis.us, http://www.pacafdivertmarianaseis.com/.

4.11.2 Climate Change Considerations

The alternatives consider various distances from shore at which larger CNMI and Guam bottomfish fishing vessels could fish. The preferred alternative would reduce the distance that CNMI vessels would have to travel to conduct bottom fishing, which would reduce their greenhouse gas emissions. However, it could incentivize Guam vessels to travel farther from Guam, which would essentially offset those reductions. Given the small size of both fleets, the

preferred alternative would not result in a federal contribution to greenhouse gas emissions greater than 25,000 mt carbon dioxide equivalents.

In general, it has been shown that large-scale climate cycles can impact winds, currents, ocean mixing, temperature regimes, nutrient recharge, and affect the productivity of all trophic levels in the North Pacific Ocean (Polovina et al. 1994). These impacts can result in variability in fish stock size, recruitment, growth rates, or other factors. However, while many expect that the depths at which most bottomfish live will insulate them from any short-term changes in the physical environment, there are no specific studies about the impacts of ocean circulation pattern changes on bottomfish stocks and no available data specific to the impacts of climate change on CNMI bottomfish. In the longer term, potential changes in oceanic circulation, temperature, or other water quality parameters, or changes in productivity due to climate change could affect their reproduction, growth, or survival, but again, few data about the physical environment or the species exists with which to make predictions.

Since the condition of the stock, fishery yield, species interactions, and other fishery outcomes are subject to monitoring, we would expect any climate change based impacts to CNMI bottomfish would be reflected in these reports. Thus, scientists may be able to use these data to infer climate change impacts on the stock complex.

5 Consistency with Applicable Laws

5.1 Consistency with Magnuson-Stevens Act National Standards

Section 301 of the Magnuson-Stevens Act requires that regulations implementing any FMP, FEP or amendment be consistent with the ten national standards listed below.

National Standard 1: Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

The preferred alternative is consistent with National Standard 1 because it would balance the needs of CNMI's small-scale quasi-commercial bottomfish fishery with those of the larger commercial fishery in a manner that allows both sectors to continue fishing at sustainable levels. It continues federal permitting and reporting requirements for all vessels fishing commercially for bottomfish in the EEZ around the CNMI. This provides a mechanism to allow scientists and managers to better monitor and manage the fishery to promote achieving optimum yields on a continuing basis.

National Standard 2: Conservation and management measures shall be based upon the best scientific information available.

The preferred alternative is consistent with National Standard 2 because it was developed using the best available information, including information from CNMI's fishery monitoring systems, previous research on bottomfish stocks, their habitat, and associated resources, vessel observer programs conducted in similar fisheries, and anecdotal information provided by fishery participants and local fishery managers.

National Standard 3: To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

The preferred alternative is consistent with National Standard 3 because although it would directly affect the BMUS stock complex around CNMI, it was developed in coordination with a similar measure for bottomfish fishing around nearby Guam, which is also part of the Mariana Archipelago. The degree of interconnectedness of the bottomfish stocks on the banks around CNMI and Guam has not be quantified to date, but it is believed to be considerable and this measure would provide a coordinated bottomfish management program for the Mariana Archipelago that recognizes the proximity of the island groups, while allowing for management measures to be developed in, and tailored to, the local conditions in each area.

National Standard 4: Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

The preferred alternative is consistent with National Standard 4 because it would not discriminate between residents of different States and it would not allocate or assign fishing privileges among specific CNMI fishermen. It will require fishing vessels from Guam fishing in CNMI water to obtain a federal permit and report catches, but this requirement will apply to all CNMI fishermen as well.

National Standard 5: Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

The preferred alternative is consistent with National Standard 5 because it facilitates efficiency of individual fishing operations via opening fishing access to areas closer to vessel ports providing for shorter trips, less fuel use and reduced cost for other consumables.
It would also increase efficiency by improving existing data collection systems, and the subsequent availability of complete data scientists and managers.

National Standard 6: Conservation and management action shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources and catches.

The preferred alternative is consistent with National Standard 6 because it addresses management concerns around CNMI in a manner that is responsive to the needs and concerns of CNMI's various bottomfish sectors, and CNMI management is coordinated with any management measures for bottomfish around nearby Guam because the FEP is an archipelagic plan.

National Standard 7: Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The preferred alternative is consistent with National Standard 7 because it is the most cost-efficient alternative considered by the Council to meet the management objectives of this action and does not contain and measures that either conflict with, or duplicate existing local or federal regulations. The data provided in the logbooks overlaps with some of the data already collected through the CNMI-based creel survey, but the latter does not cover certain landing points in the CNMI, so the overlap would not be complete, and furthermore, the mandatory logbooks have a higher degree of coverage than the voluntary creel surveys. If the data do overlap, they would be useful in terms of data validation and adjustment.

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

The CNMI and Guam are each defined as fishing communities under the Magnuson-Stevens Act. The preferred alternative is consistent with National Standard 8 because a basis for the action is to provide for the sustained participation of the CNMI fishing community in the fishery and to minimize adverse social and economic impacts on CNMI fishing community members, including fishery participants. In doing so, the action explicitly accounts for the importance of fishery resources to the fishing community.

National Standard 9: Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided minimize the mortality of such bycatch.

The preferred alternative is consistent with National Standard 9 because it does not require any changes to current fishing operations that would increase bycatch or its mortality.

National Standard 10: Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

The preferred alternative is consistent with National Standard 10 because it provides for vessel operators to fish in closer areas than now, that might decrease threats to safety of human life at sea. The EEZ within 50 nm around the Southern Islands and 10 nm around Alamagan would be opened to vessels 40 ft or greater where these vessels have historically fished.

5.2 National Environmental Policy Act

As a consolidated document including an Environmental Assessment, as described in NOAA Administrative Order 216-6, Section 603.a.2, this proposed amendment to the Council's Marianas Archipelago FEP has been written and organized to meet the requirements of the National Environmental Policy Act. This document is part of the administrative record for

rulemaking associated with U.S. Department of Commerce Regulatory Identifier Number (RIN) 0648-AW67.

5.2.1 Alternatives Considered

Section 2 describes the alternatives for the proposed action. The document examines two alternatives. The first alternative is the no action or status quo alternative. The second alternative is to remove the BF M/LVPA around Rota, Saipan, Aguigan, Tinian and FDM for vessels 40 or greater targeting BMUS commercially; and remove the 10 nm area closure to vessels 40 feet and greater in length targeting BMUS commercially around Alamagan.

5.2.2 Affected Environment

Section 3 describes the affected environment for this action. The main focus of the proposed action is the bottomfish fisheries in the waters of the U.S. EEZ surrounding the CNMI.

5.2.3 Impacts of the Alternatives

Section 4 describes the expected impacts of the alternatives considered in this action. The analysis included a description of the baseline (no action) alternative and potential impacts of action alternatives on the fisheries and their target fish stocks, non-target fishes, bycatch, protected resources, EFH and HAPC, and special resources or management areas. Section 4 considered the direct, indirect, short-term, long-term, and cumulative impacts of each alternative. Section 5 addressed the impacts with respect to Environmental Justice and climate change.

5.3 Regulatory Impact Review

Please see Appendix C for the Regulatory Impact Review of this action. To meet the requirements of Executive Order 12866 (E.O. 12866), the National Marine Fisheries Service (NMFS) requires that a Regulatory Impact Review (RIR) be prepared for all regulatory actions that are of public interest. This review provides an overview of the problem, policy objectives, and anticipated impacts of regulatory actions, and ensures that management alternatives are systematically and comprehensively evaluated such that the public welfare can be enhanced in the most efficient and cost effective way.

Based on these findings, this rule is determined to not be significant under E.O. 12866. In accordance with E.O. 12866, the following is set forth: (1) This rule is not expected to have an annual effect on the economy of more than $100 million or to adversely affect in a material way the economy, a sector of the economy, productivity, jobs, the environment, public health or safety; or state, local or tribal governments or communities; (2) This rule is not likely to create any serious inconsistencies or otherwise interfere with any actions taken or planned by another agency; (3) This rule is not likely to materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; (4) This rule is not likely to raise novel or policy issues arising out of legal mandates, or the principles set forth in the Executive Order.

5.4 Administrative Procedure Act

All federal rulemaking is governed under the provisions of the Administrative Procedure Act (APA) (5 U.S.C. Subchapter II) which establishes a "notice and comment" procedure to enable public participation in the rulemaking process. Under the APA, NMFS is required to publish notification of proposed rules in the Federal Register and to solicit, consider and respond to public comment on those rules before they are finalized. The APA also establishes a 30-day wait period from the time a final rule is published until it becomes effective, with rare exceptions. This amendment complies with the provisions of the APA through the Council's extensive use of public meetings, requests for comments, and consideration of comments. The proposed rule associated with this amendment will solicit public comments, which complies with the APA.

5.5 Coastal Zone Management Act

Section 307 of the Federal Coastal Zone Management Act of 1972 requires that all Federal activities that affect any land or water use or natural resource of the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. On May 6, 2016, NMFS submitted this determination for review by the responsible state agencies under section 307 of the CZMA. On June 29, 2016, Guam concurred that this action is consistent with the territory's approved development and resource policies. On July 28, 2016, the CNMI concurred that this action is consistent with the commonwealth's enforceable policies.

5.6 Information Quality Act

The information in this amendment complies with the Information Quality Act and NOAA standards (NOAA Information Quality Guidelines, September 30, 2002) that recognize information quality is comprised of three elements: utility, integrity, and objectivity. National Standard 2 of the Magnuson-Stevens Act states that an FMP's conservation and management measures shall be based upon the best scientific information available. In accordance with this national standard, the information product incorporates the best biological, social, and economic information available to date, including the most recent biological information on, and assessment of, the bottomfish fishery resources and protected resources, and the most recent information available on fishing communities. The policy choices, i.e., proposed management measures, contained in the information product are supported by the available scientific information. The management measures are designed to meet the conservation goals and objectives of the Mariana FEP and the Magnuson-Stevens Act.

The data and analyses used to develop and analyze the measures contained in the information product are presented in this amendment. Furthermore, all reference materials utilized in the discussion and analyses are properly referenced within the appropriate sections of the environmental assessment. The information product was prepared by Council and NMFS staff based on information provided by NMFS PIFSC and NMFS PIRO. The information product was reviewed by PIRO and PIFSC staff, and NMFS Headquarters (including the Office of Sustainable Fisheries). Legal review was performed by NOAA General Counsel Pacific Islands and General Counsel for Enforcement and Litigation for consistency with applicable laws, including but not limited to the Magnuson-Stevens Act, National Environmental Policy Act, Administrative Procedure Act, Paperwork Reduction Act, Coastal Zone Management Act,

Endangered Species Act, Marine Mammal Protection Act, and Executive Orders 13132 and 12866.

5.7 Paperwork Reduction Act

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

5.8 Regulatory Flexibility Act

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

On June 12, 2014, the Small Business Administration issued an interim final rule revising small business size standards, effective July 14, 2014 (79 FR 33647). The rule increased the size standard for finfish fishing from $19.0 to $20.5 million, for shellfish fishing from $5.0 million to $5.5 million, and for other marine fishing from $7.0 million to $7.5 million.

This proposed action would not establish any new reporting, record-keeping, or other compliance requirements and no duplicative, overlapping, or conflicting federal rules have been identified. The proposed action is not expected to affect a substantial number of small entities, place small entities at a significant competitive disadvantage to large entities, or reduce profits for a substantial number of small entities.

5.9 Endangered Species Act

The Endangered Species Act of 1973, as amended, (Public Law 93-205; 87 Stat. 884) prohibits the taking of any endangered species except under limited circumstances. In accordance with ESA Section 7(a)(2), on March 8, 2002, NMFS determined in a biological opinion that the probability of an encounter between ESA-listed sea turtles or whale species and the bottomfish fishery is extremely low and is not likely to adversely affect these species. On June 3, 2008, NMFS determined that the continuation of the Mariana Archipelago bottomfish fisheries were not likely to adversely affect endangered or threatened species or designated critical habitat under NMFS jurisdiction.

As discussed in Section 3.10.1, in 2014, NMFS listed 20 species of reef-building corals, two of which are in the CNMI. In 2014, NMFS also listed four of the six distinct population segments (DPSs) of scalloped hammerhead sharks under the ESA; scalloped hammerhead sharks in the CNMI are classified as belonging to the Indo-West Pacific DPS and listed as “threatened.” (79

FR 38213). On April 2, 2015, NMFS reinitiated consultation under Section 7 of the ESA to evaluate the effects of the Mariana FEP fisheries (coral reef ecosystem, bottomfish, crustacean, precious corals) on ESA-listed species. On April 29, 2015, NMFS concluded that the continued authorization of the coral reef, bottomfish, crustacean, and precious coral fisheries under the FEP is not likely to adversely affect the Indo-west Pacific DPS and listed corals.

Section 3.10.1 describes the threatened and endangered species known to occur in CNMI and Section 4.3 describes the potential impacts the preferred alternative may have on these listed species. There are no known interactions between seabirds and any of the Mariana Archipelago bottomfish fisheries. Based on the gear types used and the low likelihood of fishery interactions occurring under the preferred alternatives, the Council believes that the proposed action will not jeopardize or adversely affect any populations or habitats of species listed as endangered or threatened under the ESA.

5.10 Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) prohibits, with certain exceptions, the take of marine mammals in the U.S. and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the United States. The MMPA gives the Secretary of Commerce authority and duties for all cetaceans (whales, dolphins, and porpoises) and pinnipeds (seals and sea lions, except walruses). The MMPA requires NMFS to prepare and periodically review stock assessments of marine mammal stocks.

As required by the MMPA, NMFS publishes a List of Fisheries (LOF) that classifies each commercial fishery on the LOF into one of three categories under the MMPA based upon the level of mortality and serious injury of marine mammals that occurs incidental to each fishery. The CNMI bottomfish fishery is classified as Category III under Section 118 of the MMPA (79 FR 14418, March 14, 2014), meaning that CNMI bottomfish fisheries have been determined by NMFS to have a remote likelihood of, or no known incidental mortality and serious injury of marine mammals (50 CFR 229.2). According to the provisions of the MMPA, vessel owners and crew that are engaged only in Category III fisheries may incidentally take marine mammals without registering or receiving an Authorization Certificate under the MMPA, but they are required to: 1) report all incidental mortality and injury of marine mammals to NMFS, 2) immediately return to the sea with minimum of further injury any incidentally taken marine mammal, 3) allow vessel observers if requested by NMFS, and 4) comply with guidelines and prohibitions under the MMPA when deterring marine mammals from gear, catch, and private property (50 CFR 229.5, 229.6, 229.7).

This Amendment and EA includes an evaluation of the potential impacts of the proposed action on marine mammals. Section 3.10.3 describes descriptions of marine mammals found around the Mariana Archipelago. Section 4.3 provides an analysis of the anticipated impacts on these species under each of the alternatives considered by the Council. Based on the gear types used and the low likelihood of fishery interactions occurring under the proposed action, the Council believes that the proposed action will not adversely affect any marine mammal populations or habitats.

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7 Draft Proposed Regulations

For the reasons set out in the preamble, NMFS proposes to amend 50 CFR part 665 as follows:

PART 665 -- FISHERIES IN THE WESTERN PACIFIC

1. The authority citation for 50 CFR part 665 reads as follows:

Authority: 16 U.S.C. 1801 et seq.

2. In § 665.402, amend paragraphs (b) and (c) to read as follows:

§ 665.402 Management subareas.

* * * * *

(b) CNMI Management Subarea means the EEZ seaward of the CNMI, with the inner boundary defined as a line coterminous with the seaward boundary of the CNMI.

(c) The outer boundary of each fishery management subarea is a line drawn in such a manner that each point on it is 200 nautical miles from the baseline from which the territorial sea is measured, or is coterminous with adjacent international maritime boundaries. The boundary between the fishery management areas of Guam and CNMI extends to those points which are equidistant between Guam and the island of Rota in the CNMI. CNMI and Guam management subareas are divided by a line intersecting these two points, referenced to the World Geodetic System of 1984: 148° E. long., 12° N. lat., and 142° E. long., 16° N. lat.

* * * * *

3. In § 665.403, revise paragraph (b) to read as follows:

§ 665.403 Bottomfish fishery area management.

* * * * *

(b) Reserved.

* * * * *

4. In § 665.405, revise paragraph (e), remove paragraph (f), (g), and (h) and insert new paragraph (f) to read as follows:

§ 665.405 Prohibitions.

* * * * *

(e) Use a vessel to fish commercially for Mariana bottomfish MUS in the CNMI management subarea without a valid CNMI commercial bottomfish permit registered for use with that vessel, in violation of §665.404(a)(2).
(f) Falsify or fail to make, keep, maintain, or submit a Federal logbook as required under §665.14(b) when using a vessel to engage in commercial fishing for Mariana bottomfish MUS in the CNMI management subarea in violation of §665.14(b).

* * * * *

APPENDIX A - MAPS

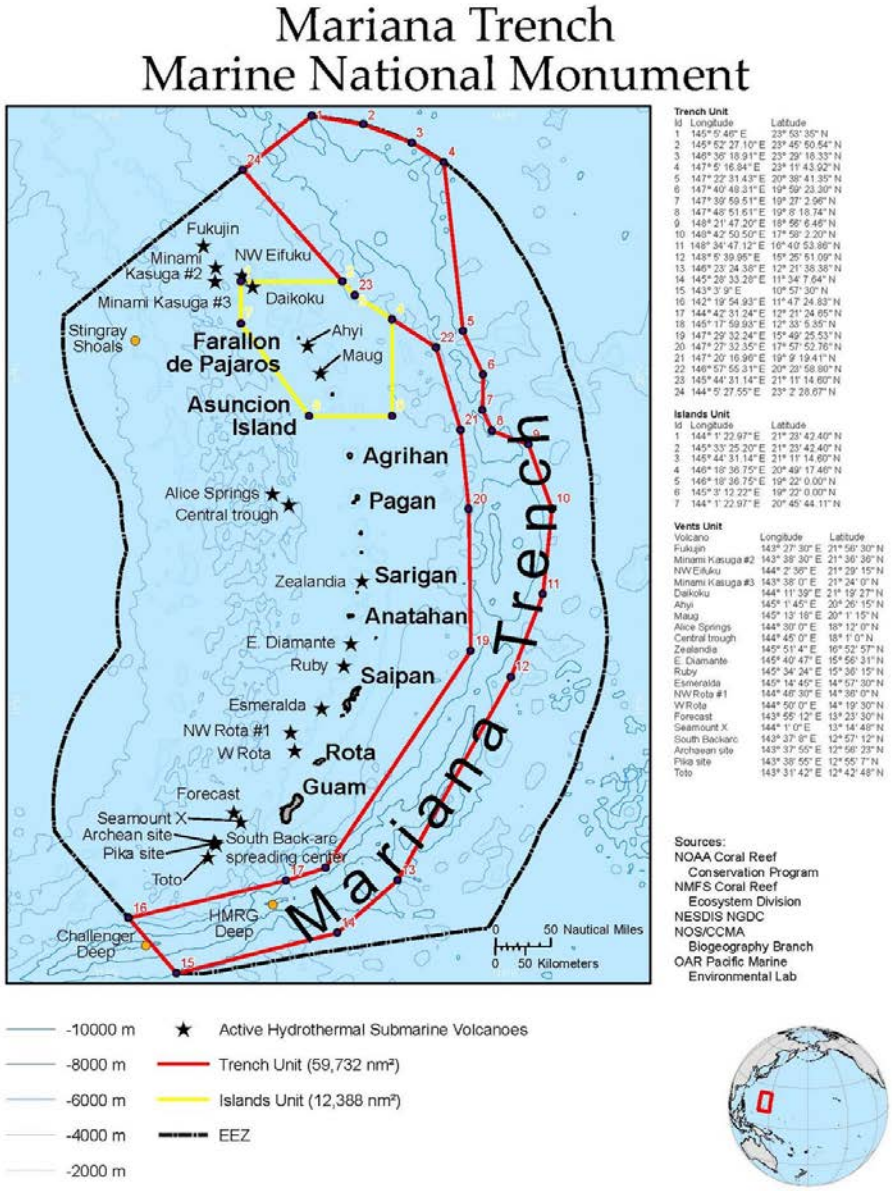

Figure 6. Mariana Trench Marine National Monument
Source: http://www.gop.gov/fdsys/pkg/FR-2009-01-12/pdf/E9-496.pdf

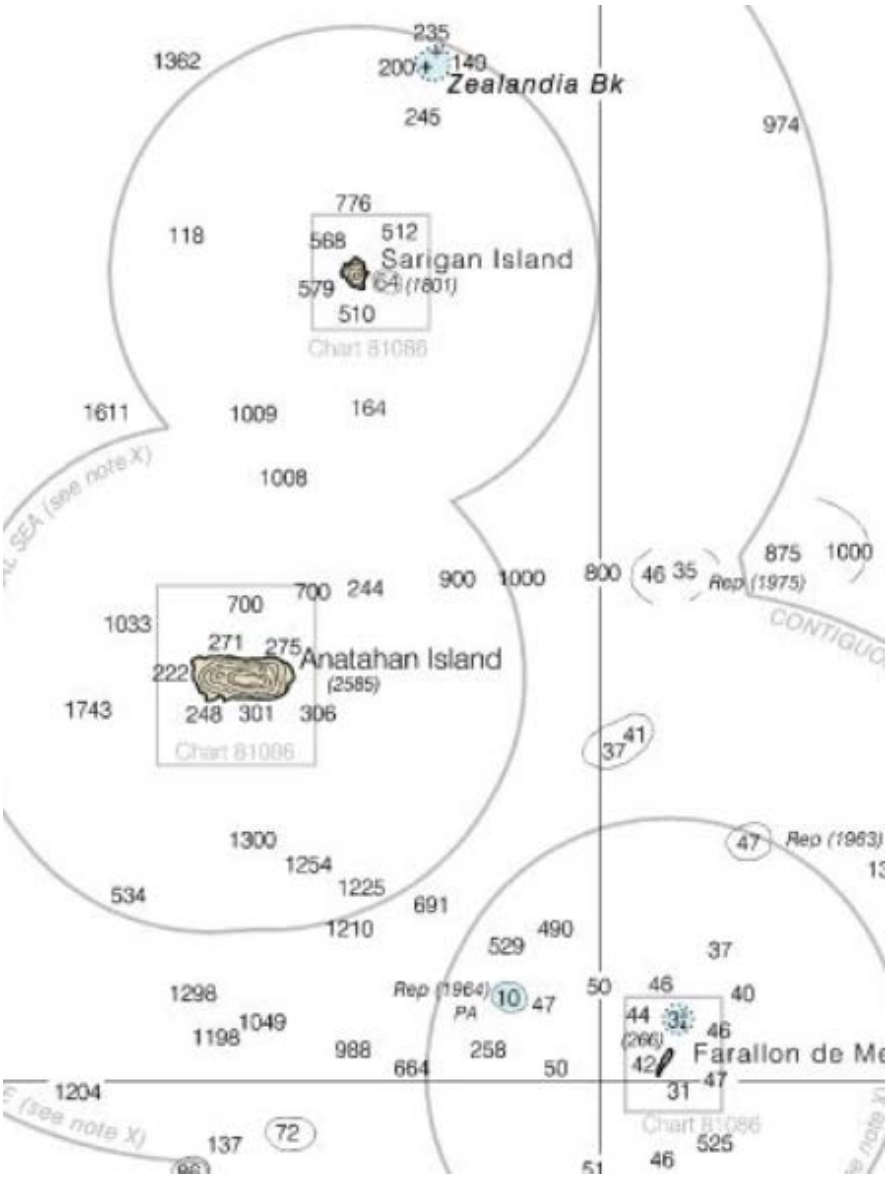

Figure 7. FDM, Anatahan Island, Sarigan Island

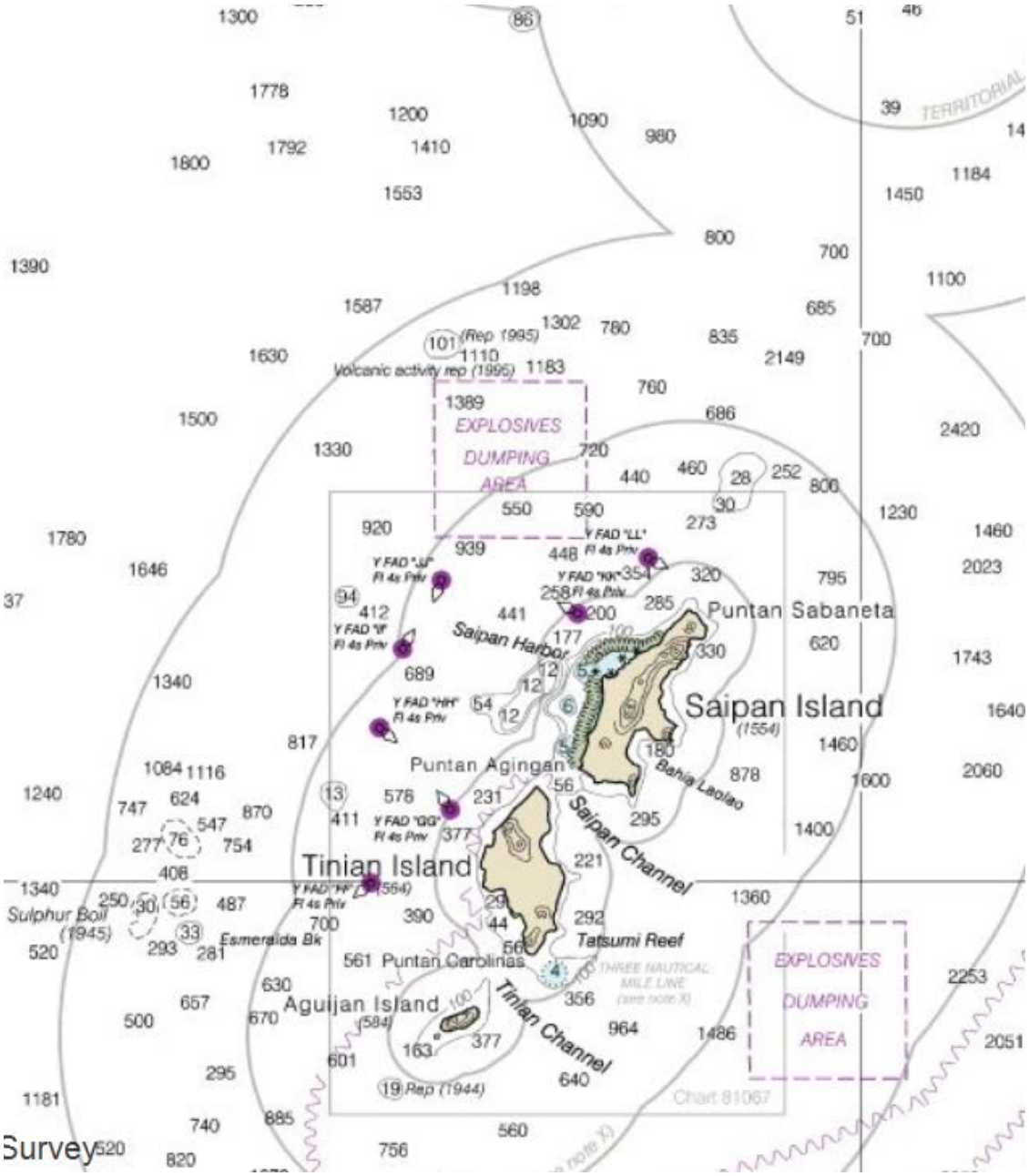

Figure 8. Tinian and Saipan Island

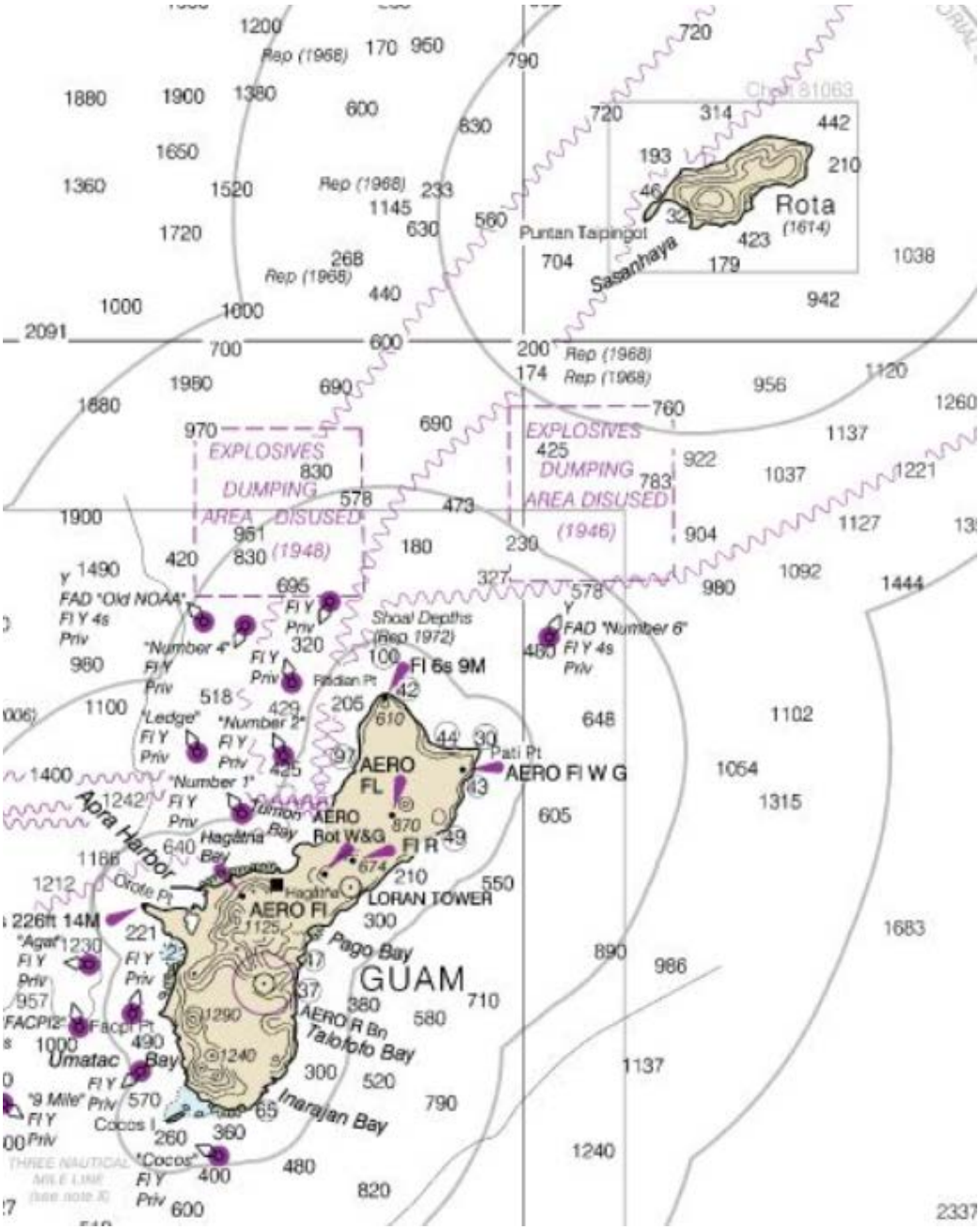

Figure 9. Guam and Rota

APPENDIX B – REDLINE VERSION DRAFT PROPOSED REGULATIONS

For the reasons set out in the preamble, NMFS proposes to amend 50 CFR part 665 as follows:

PART 665 -- FISHERIES IN THE WESTERN PACIFIC

1. The authority citation for 50 CFR part 665 reads as follows:

Authority: 16 U.S.C. 1801 et seq.

2. In § 665.402, amend paragraphs (b) and (c) to read as follows:

§ 665.402 Management subareas.

(a) Guam Management Subarea means the EEZ seaward of the Territory of Guam, with the inner boundary defined as a line coterminous with the seaward boundary of the Territory of Guam.
(b) CNMI Management Subarea means the EEZ seaward of the CNMI, with the inner boundary defined as a line coterminous with the seaward boundary of the CNMI. ~~The CNMI Management Subarea is further divided into subareas with the following designations and boundaries:~~

~~(1) *CNMI Inshore Area* means that portion of the EEZ within 3 nautical miles from the shoreline of the CNMI.~~

~~(2) *CNMI Offshore Area* means that portion of the EEZ seaward of 3 nautical miles from the shoreline of the CNMI.~~

(c) The outer boundary of each fishery management subarea is a line drawn in such a manner that each point on it is 200 nautical miles from the baseline from which the territorial sea is measured, or is coterminous with adjacent international maritime boundaries~~, except that the outer boundary of the CNMI Inshore Area is 3 nautical miles from the shoreline~~. The boundary between the fishery management areas of Guam and CNMI extends to those points which are equidistant between Guam and the island of Rota in the CNMI. CNMI and Guam management subareas are divided by a line intersecting these two points: 148° E. long., 12° N. lat., and 142° E. long., 16° N. lat.

* * * * *

3. In § 665.403, revise paragraph (b) to read as follows:

§ 665.403 Bottomfish fishery area management.

* * * * *

~~(b) CNMI medium and large vessel bottomfish prohibited areas. A medium or large vessel of the United States, as defined in §665.12, may not be used to fish commercially for Mariana bottomfish MUS in the following areas:~~

~~(1) CNMI Southern Islands (Area NM-1). The CNMI Southern Islands prohibited area is defined as the waters of the U.S. EEZ surrounding CNMI that are enclosed by straight lines connecting the following coordinates in the order listed:~~

~~Point~~	~~N. lat.~~	~~E. long.~~
~~NM-1-A~~	~~14°9′~~	~~144°15′~~
~~NM-1-B~~	~~16°10′47″~~	~~145°12′~~
~~NM-1-C~~	~~16°10′47″~~	~~146°53′~~
~~NM-1-D~~	~~14°48′~~	~~146°33′~~
~~NM-1-E~~	~~13°27′~~	~~145°43′~~
~~NM-1-A~~	~~14°9′~~	~~144°15′~~

~~(2) CNMI Alamagan Island (Area NM-2). The CNMI Alamagan Island prohibited area is defined as the waters of the U.S. EEZ surrounding CNMI that are enclosed by straight lines connecting the following coordinates in the order listed:~~

~~Point~~	~~N. lat.~~	~~E. long.~~
~~NM-2-A~~	~~17°26′~~	~~145°40′~~
~~NM-2-B~~	~~17°46′~~	~~145°40′~~
~~NM-2-C~~	~~17°46′~~	~~146°00′~~
~~NM-2-D~~	~~17°26′~~	~~146°00′~~
~~NM-2-A~~	~~17°26′~~	~~145°40′~~

(b) Reserved.

* * * * *

4. In § 665.405, revise paragraph (e), remove paragraph (f), (g), and (h) and insert new paragraph (f) to read as follows:

§ 665.405 Prohibitions.

* * * * *

(e) Use a vessel to fish commercially for Mariana bottomfish MUS ~~shoreward of the outer boundary of~~ in the CNMI management subarea without a valid CNMI commercial bottomfish permit registered for use with that vessel, in violation of §665.404(a)(2).

~~(f) Use a medium or large vessel, as defined in §665.12, to fish for Mariana bottomfish MUS within the CNMI medium and large vessel bottomfish prohibited areas, as defined in §665.403(b).~~

~~(g) Retain, land, possess, sell, or offer for sale, shoreward of the outer boundary of the CNMI management subarea, Mariana bottomfish MUS that were harvested in violation of §665.405(f), except that Mariana bottomfish MUS that are harvested legally may be transferred to a receiving vessel shoreward of the outer boundary of the CNMI medium and large vessel bottomfish prohibited area as defined in §665.403(b).~~

~~(h) Falsify or fail to make, keep, maintain, or submit a Federal logbook as required under §665.14(b) when using a vessel to engage in commercial fishing for Mariana bottomfish MUS shoreward of the outer boundary of the CNMI management subarea in violation of §665.14(b)~~

(f) Falsify or fail to make, keep, maintain, or submit a Federal logbook as required under §665.14(b) when using a vessel to engage in commercial fishing for Mariana bottomfish MUS in the CNMI management subarea in violation of §665.14(b).

* * * * *

APPENDIX C- REGULATORY IMPACT REVIEW

1. Introduction

The regulatory impact review (RIR) is required under Executive Order (E.O.) 12866 (58 FR 51735; October 4, 1993) and E.O. 13563 (76 FR 3821; January 21, 2011). The following statement from E.O. 12866 summarizes the requirements for all regulatory actions:

> In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

This RIR examines the costs and benefits of regulatory actions proposed for the domestic bottomfish fishing fisheries in the waters of the U.S. Exclusive Economic Zone (EEZ) around the Commonwealth of the Northern Mariana Islands (CNMI), under the Fishery Ecosystem Plan for the Mariana Archipelago.

2. Problem Statement and Management Objective

Current federal regulations prohibit commercial fishing for bottomfish management unit species (BMUS) by vessels 40 ft (12.3 m) and greater within specific exclusive economic zone (EEZ) waters from shoreline seaward to 50 nautical miles (nm) around the Southern Islands of CNMI (Rota, Saipan, Tinian, Aguigan (Aguijan), and FDM), and 10 nm around Alamagan. These closed areas, referred as Bottomfish Medium/Large Vessel Prohibited Areas (BF M/LVPA) are depicted in Fig. 2 of the EA. The regulations, which went into effect in January 2009, were intended to prevent large bottomfish fishing vessels based in Guam from traveling to CNMI fishing grounds, potentially negatively fish stocks and local fisheries. The Western Pacific Fishery Management Council has since determined that the concerns that prompted the closures are no longer valid and the prohibition is no longer necessary.

The purpose of this action is to remove unnecessary constraints to participation in the CNMI bottomfish fishery in order to provide opportunities for local CNMI bottomfish fishermen to increase yield from the fishery, and to more efficiently and safely utilize fishery resources. Specifically, removing the BF M/LVPA in the CNMI is intended to:

- Promote more efficient use of the nation's fishery resources while ensuring fishing is sustainable over the short and long term.
- Enhance opportunities for fishing by local CNMI owners and operators of fishing vessels 40 ft and greater.
- Provide consistent availability of locally caught bottomfish to CNMI consumers.

- Allow a broader range of fishery participants to catch fish in an economically viable and sustainable manner.
- Promote the long-term viability of CNMI bottomfish participants, and, at the same time, promote safety at sea for bottomfish fishing vessel operators and crew because of the enhanced fishing opportunities for fishing with medium or large vessels.

3. Description of the Fisheries

Please see Section 3.6, 3.7, and 3.8 of the EA for more details on recent bottomfish fishing activities around the Mariana Islands, specifically by participants based in CNMI and Guam. These sections also provide additional details on historical and recent catch and effort.

CNMI's bottomfish fishery consists primarily of small-scale local boats engaged in commercial and subsistence fishing, although a few (generally fewer than five) larger vessels (30– 60 ft) also participate in the fishery. The bottomfish fishery can be characterized as consisting of two components that fish at different depths. The deepwater component of the bottomfish fishery is primarily composed of commercial boats that fishes at depths greater than 500 ft and target snappers and groupers. The shallow-water, which includes both commercial and subsistence fishing boats that fish between 100 and 500 ft, target redgill emperor. These fishermen also harvest coral reef associated species as well. Hand lines, home-fabricated hand reels and small electric reels are the commonly used gear for small-scale fishing operations, whereas electric reels and hydraulics are the commonly used gear for the larger operations in this fishery. Fishermen generally fish daylight hours, with vessels presumed to return before or soon after sunset, although larger vessels have made multi-day trips to the Northern Islands. In the early 1980's, over 100 vessels participated in the bottomfish fishery in CNMI; an estimated nine vessels fished in 2014, six of which held CNMI permits.

In 2012, the bottomfish fishery as a whole earned $40,376 from 11,072 lb of BMUS caught, and $55,310 for 15,231 lb of all bottomfish species caught. 2013 revenues from 17,223 lb of BMUS were an estimated $65,676 and $85,294 for 22,510 lb of all bottomfish species caught. In 2014, the fishery as a whole earned an estimated $13,650 for 4,080 lb of BMUS caught and $23,947 for the 7,208 lb of all bottomfish species caught. Table 7 of the EA provides estimated annual CNMI bottomfish fishery revenue earned from all bottomfish catch as well from just BMUS catch, from 2000-2014.

Like the CNMI fishery, the Guam-based bottomfish fishery consists of two components, those that fish in the shallower depths and those that fish at deeper depths. The commercial highliner vessels tend to operate in the deep water complex and are larger boats (generally over 25 feet). Between 2009 and 2014, the Guam bottomfish fishery averaged 294 vessels and 2,975 trips. Federal bottomfish fishing permits are only required for vessels 50 ft and greater and since 2012, fewer than three vessels have possessed federal permits. Estimated pounds of bottomfish caught and earnings in the Guam bottomfish fishery between 2012 and 2014 are as follows: 10,162 lb ($36,635) in 2012, 5,438 lb ($19,130) in 2013, and 5,210 lb ($18,433) in 2014.Table 10 of the EA provides the Guam bottomfish fishery's estimated bottomfish landings and revenue from 2000 to 2014.

Fishing Community in CNMI

Section 3.9 of the EA provides greater detail with regard to the socio-economic setting of the CNMI fishing community and larger community as a whole, and these will only be described briefly here.

The CNMI consists of 14 main islands, and the total land area of the CNMI is 176.5 square miles with an EEZ of approximately 292,712 square miles. The 2010 Census estimated the population size of CNMI to be 53,883 (https://www.census.gov/2010census/news/pdf/cb11cn178_ia_cnmi_totalpop_2010map.pdf, accessed April 13, 2016). Participants in the CNMI's various marine fisheries are not concentrated in specific locales but rather reside in villages and small towns across the islands. Fishing, seafood, and fishing-related businesses assume extensive social and economic importance throughout the region, where the ocean and its resources have long provided residents with a source of food.

With regard to fishing and community life in the region, fish caught is sold commercially, shared with extended and family, and shared during religious festivals, funerals, christenings, and various holidays. Small boat fishermen in CNMI are motivated culturally and socially for fishing with economic considerations for fishing being less important (Hospital and Beavers 2014). According to Allen and Amesbury (2012), larger vessels, few in number, primarily fish within 100 miles to shore on a multiday trip, and tend to target bottomfish. These vessels believed to be owner operated with a small crew composed of local residents who are full-time fishermen.

Allen and Amesbury (2012) report that in Saipan, full-time fishermen primarily sell to or through vendors, whereas part-time fishermen tend to sell fish directly to restaurants or to individuals. Buyers may include fish markets, general stores, restaurants, hotels and government agencies. In Tinian and Rota, a handful of restaurants and stores purchase fish directly, and fishermen also go door-to-door to sell fish, typically to an established clientele.

With regard to the greater economy in CNMI, the garment manufacturing industry, which peaked in the 1980's, no longer exists due to global economic forces as well as the passing of the Fair Minimum Wage Act of 2007 by US Congress. The tourism sector has seen some improvement in recent years, but visitor arrivals still remain lower than those seen in the mid 1990's. In 2010, the median household income in CNMI was $19,958. Residents faced a local rate of unemployment of 11.2 percent and rate of poverty of 51.3 percent (U.S. Bureau of the Census 2010).

4. Description of the Alternatives

The Action alternative under consideration would apply to vessels 40 ft and greater in either the CNMI or Guam commercial bottomfish fishery. Table 1 of the EA provides an overview of both the no action alternative and the action alternative and Chapter 2 provides more details and maps for each alternative.

Alternative 1: No Action (Status Quo)

Under the No Action Alternative, NMFS would not change the regulations for bottomfish fishing in federal waters. Regulations prohibiting commercial fishing for BMUS using a vessel 40 ft and greater in the EEZ within 50 nm around the Southern Islands and within 10 nm around Alamagan Island would remain in place.

Alternative 2: Remove the BF M/LVPA restriction around the Southern Islands and Alamagan Island to allow bottomfishing from a vessel of any size (Council Preferred)

Under Alternative 2, NMFS would change the regulations for bottomfish fishing in federal waters. Regulations prohibiting commercial fishing for BMUS using a vessel 40 ft and greater in the EEZ within 50 nm around the Southern Islands and 10 nm around Alamagan Island would no longer be in place.

5. Analysis of Expected Benefits and Costs of the Proposed Action

5.1 Changes in Net Benefits

The analysis emphasizes changes in net benefits to the U.S. national accounts; changes in net benefits that occur to foreign interests are not relevant in the context of this RIR. Benefits accrued as surplus to consumers measure the difference between the amount consumers are willing to pay for products or services and the amount they actually pay. Benefits accrued as surplus to producers measure the difference between the amount producers actually received for providing products or services and the economic cost producers bear to do so. In the case of fish harvesting operations, producer surplus can be measured by the difference between gross revenues and operating costs. Benefits and costs in both the private and public sectors are important with respect to net benefits to the national account; effects in both sectors are accounted for in this analysis to the extent possible. Without information that could affect revenue and operating costs, such as which medium and large vessels would actually fish and where, the economic impacts will be assessed qualitatively.

Alternative 1 - No Action

Under the no-action alternative, the areas that are closed to medium and large commercial BMUS fishing by vessels 40 ft and greater would remain unchanged. There would be no direct cost or benefit beyond the status quo associated with this alternative.

Under the no action alternative, the medium and large bottomfish vessels would fish within the EEZ, but outside the BF M/LVPA, most likely within seamounts.

The continued separation of medium and large bottomfish vessels from the small bottomfish vessels within the current boundary of the BF M/LVPA would ensure a measure of protection for small vessels. This includes minimizing the potential for physical interactions between large and small vessels and localized resource depletion by the proximity of large vessels to small vessels

within the same fishing grounds.

Alternative 2: Remove the BF M/LVPA restriction around the Southern Islands and Alamagan Island to allow commercial fishing for BMUS from a vessel of any size (Council Preferred)

Alternative 2 would allow vessels 40 ft and greater to fish over a greater area relative to the no-action alternative.

Removing the BF M/LVPA would help decrease length of travel time for medium and large bottomfish vessels before fishing. During the time during which they can travel a shorter distance before being allowed to fish, these medium and large bottomfish vessels may see a minor decrease in fuel and labor costs relative to the no action alternative. Alternative 2 could also lead to an increase in landings for these medium and large bottomfish vessels by expanding the areas in which they are allowed to fish.

Owners of small bottomfish vessels, that do not upgrade to a larger size vessel, might see a slight negative impact from this action. These adverse effects could come through the constriction of the area in which they could fish without having to interact with medium and large vessels which would now be able to fish within parts of the BF M/LVPA. The possibility of localized depletion exists as well, but with such few numbers of medium and large bottomfish vessels based in the Marianas, this is unlikely to occur in the near term.

Alternative 2 may have a small positive impact on the amount of bottomfish supplied to the consumers in CNMI and possibly Guam, if the action leads to an increase in bottomfish caught by medium and large Marianas-based bottomfish boats.

Implementing Alternative 2 would increase administration costs slightly and only initially, mainly through the process of modifying maps and providing information to the fishing community through various outreach methods. Enforcement costs might be lower under Alternative 2 compared with the no action alternative.

5.2 Distributional Changes in Net Benefits

NMFS expects the action alternative to have minor distributional effects among medium/large vessels and small vessels. The action alternative generally will provide greater benefits to medium and large vessels that would be allowed to fish in the BF M/LVPA as a result of the proposed action, and could slightly adversely affect the small bottomfish vessels that currently allowed to fish in those areas and do not upgrade to larger boats as a result of this action.

5.3 Changes in Income and Employment

NMFS expects the action alternatives to increase net income earned by medium and large bottomfish vessels that are currently prohibited from commercial fishing within the BF M/LVPA, through a potential increase in revenue and reduction in trip costs. The increase in net income is expected to be great for the preferred alternative that enable these vessels to fish within

greater areas of the BF M/LVPA. The action alternatives might also have a small effect on income and regional employment because the potential increase in medium and large bottomfish vessel fishing activity might generate increase in sales of provisions, supplies, and fuel for this fishery.

The action alternatives might lower revenues for small vessels that currently fish within the BF M/LVPA without competition from medium and large vessels, if there is an increase in catch competition.

5.4 Cumulative Impacts

NMFS does not expect any of the alternatives considered to result in cumulatively significant adverse impacts when considered in conjunction with other existing or future conservation and management measures that affect the CNMI-based fisheries.

6. Summary of the Significance Criteria

E.O. 12866 requires that the Office of Management and Budget review proposed regulatory programs that are considered to be significant. A significant regulatory action is one that is likely to:

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

Based on the costs and benefits discusses in the RIR and the above criteria, the action alternative does not appear to have the potential to constitute a significant action under the E.O. 12866.