

**Supplemental Environmental Assessment for the  
Implementation of the Decisions of the Fifth Regular  
Annual Session of the Commission for the Conservation  
and Management of Highly Migratory Fish Stocks in the  
Western and Central Pacific Ocean:**

**Specific Analysis on Bigeye Tuna Catch Limits in  
Longline Fisheries in 2009, 2010, and 2011**

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## LIST OF ABBREVIATIONS AND ACRONYMS

CCM	Commission Members, Cooperating Non-Members, and Participating Territories
CEQ	Council on Environmental Quality
CMM	Conservation and Management Measure
CNMI	Commonwealth of the Northern Mariana Islands
Convention	Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean
Convention Area	Area of Application of the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPO	eastern Pacific Ocean
ESA	Endangered Species Act
FMP	Fishery Management Plan
HAPC	Habitat Areas of Particular Concern
HMS	Highly Migratory Species
IATTC	Inter American Tropical Tuna Commission
IUCN	International Union for the Conservation of Nature
MMPA	Marine Mammal Protection Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSY	Maximum Sustainable Yield
mt	metric tons
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NWR	National Wildlife Refuge
PMUS	Pelagic Management Unit Species
PNG	Papua New Guinea
RIR	Regulatory Impact Review
USFWS	United States Fish and Wildlife Service
VMS	vessel monitoring system

WCPFC	Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, also known as the Western and Central Pacific Fisheries Commission
WCPFCIA	Western and Central Pacific Fisheries Convention Implementation Act
WCPO	Western and Central Pacific Ocean
WPRFMC	Western Pacific Regional Fishery Management Council

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## Chapter 1 Background and Purpose and Need

The National Marine Fisheries Service (NMFS) prepared an Environmental Assessment (EA) to analyze the effects on the human environment that could result from implementation of two rules to implement certain decisions made by the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC) at its Fifth Regular Session, in Busan, Republic of Korea, in December 2008. One rule implements specific management measures for the U.S. purse seine fleet operating in the western and central Pacific Ocean (WCPO) (hereafter “U.S. Purse Seine Rule”). The other rule implements a specific catch limit established by the WCPFC for bigeye tuna (*Thunnus obsesus*) for the U.S. longline fleets in the WCPO (hereafter “U.S. Longline Rule”).

NMFS issued the EA (“Environmental Assessment for the Implementation of the Decisions of the Fifth Regular Annual Session of the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean: Fishing Restrictions and Observer Requirements in Purse Seine Fisheries for 2009-2011 and Turtle Mitigation Requirements in Purse Seine Fisheries and Bigeye Tuna Catch Limits in Longline Fisheries in 2009, 2010, and 2011”) in draft form in conjunction with the issuance of the proposed U.S. Purse Seine Rule on June 1, 2009, for public review and comment. Two comment letters were received, one of which included comments on the EA, including several comments pertaining to the U.S. Longline Rule.

NMFS issued the proposed U.S. Longline Rule on July 8, 2009, for public review and comment, reissuing the EA in draft form. NMFS received six comment letters, two of which raised issues pertaining to the EA.

On August 4, 2009, NMFS issued the final U.S. Purse Seine Rule as well as the EA (July 2009 version), finding of no significant impact for the U.S. Purse Seine Rule, and an Errata sheet, indicating several corrections to the draft EA. In the final rule, NMFS indicated that the specific comments pertaining to the U.S. Longline Rule would be addressed, as appropriate, in the context of the U.S. Longline Rule.

This Supplemental EA has been prepared to address those comments received on the U.S. Longline Rule that can be answered by additional environmental analysis or information. The Supplemental EA has been prepared pursuant to the provisions of the National Environmental Policy Act (NEPA; 42 U.S.C. 4321, *et seq.*) and related authorities, such as the Council on Environmental Quality’s (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508) and the National Oceanic and Atmospheric Administration’s (NOAA) Environmental Review Procedures for Implementing NEPA (NAO 216-6). This document supplements the EA<sup>1</sup> and refers to

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<sup>1</sup> In order to distinguish the Supplemental EA from the EA, this document refers to the EA (July 2009 version) as “the original EA” throughout.

specific sections of the EA, where appropriate; as a supplement it is meant to be read in conjunction with the original EA.

The following sections in this chapter provide a summary of the specific issues being analyzed in this Supplemental EA, the organization of this document, and the purpose of and need for the U.S. Longline Rule.

## **1.1 Overview of Substantive Comments on the U.S. Longline Rule that Can Be Answered by Additional Environmental Analysis or Information**

Issue #1 (New Alternative):

Several comments questioned the way bigeye tuna catches would be attributed to various fisheries under the proposed rule – specifically, how the longline fisheries of the three U.S. Participating Territories to the WCPFC would be distinguished from the other U.S. longline fisheries. Under the proposed rule, bigeye tuna catches would be attributed primarily based on where the catch is landed. The comments suggested that permit type should be the primary criterion for distinguishing among the fisheries (e.g., American Samoa Longline Limited Access Permit versus Hawaii Longline Limited Access Permit). One comment was phrased thus:

In the case of a vessel landing bigeye tuna and other fish species in Hawaii that has both a Hawaii limited entry permit and American Samoa limited entry permit or any future territorial permits, the catch should be assigned based on a determination of which permit program the vessel was attributing its catches with respect to the landing involved.

NMFS recognizes that, as indicated in these comments, a vessel with an American Samoa Longline Limited Access Permit does indeed have a connection to the longline fishery of American Samoa, and accordingly, NMFS has developed a new alternative. Alternative 5, explained in detail in Chapter 2, is almost identical to Alternative 3 in the original EA, but provides for bigeye tuna caught by fishing vessels registered for use under a valid American Samoa Longline Limited Access Permit, regardless of where it is landed, to be assigned to the longline fishery of American Samoa provided that: (1) the fish were not caught in the portion of the U.S. Exclusive Economic Zone (EEZ) around the Hawaiian Archipelago, and (2) they are landed by a U.S. vessel operated in compliance with one of the permits required under the regulations implementing the Pelagics Fishery Management Plan (FMP) and the West Coast Highly Migratory Species (HMS) FMP.

Issue #2 (Transferred Effects):

Several comments stated that the original EA does not analyze a certain type of effect reported to occur in some situations from fishery closures, termed “market transferred effects.” These market transferred effects are those that could occur when fishing effort is shifted from one market to another (e.g., from the Hawaii-based deep-set longline fishery

to foreign longline fisheries as a result of catches in the former fishery being constrained by the annual limits). These “market transferred effects” can cause impacts on the environment if the fishery where increased effort occurs functions differently or is under a different management regime. According to the comments, market transferred effects from fishing effort being transferred from the Hawaii-based longline fishery to foreign fisheries after the catch limit is reached could result in serious adverse environmental effects, such as increased protected species interactions.

NMFS has provided further information and analysis about these possible effects, as presented in Chapters 3 and 4 of this Supplemental EA.

Issue #3 (Alternatives Excluded from Detailed Analysis):

A comment indicated that the original EA does not provide sufficient explanation of the alternatives for the U.S. Longline Rule that were initially considered but excluded from detailed analysis. The original EA states that these generally described alternatives would be more appropriately considered, if the Regional Fishery Management Councils find appropriate, through the Magnuson-Stevens Fishery Conservation and Management Act (MSA; 16 U.S.C. 1801, *et seq.*) process.

In order to respond to this comment, Chapter 2 of this Supplemental EA contains additional discussion of the U.S. Longline Rule alternatives that were initially considered but excluded from detailed analysis.

Issue #4 (Protected Resources):

Several comments stated that the original EA included outdated and cursory information on protected resources and that updated and more detailed information should be included.

In order to respond to this comment, Chapter 3 of this Supplemental EA contains additional information on protected resources.

## **1.2 Organization of this Document**

Chapter 1: (*Background and Purpose and Need*) Provides background information for this Supplemental EA and sets forth the purpose of and need for the U.S. Longline Rule.

Chapter 2: (*Proposed Action and Alternatives*) Describes the new U.S. Longline Rule alternative – Alternative 5 – and provides a summary of the alternatives analyzed in the original EA.

Chapter 3: (*Affected Environment*) Includes descriptive information needed to analyze Alternative 5 and to respond to the substantive comments on the U.S. Longline Rule that can be answered by additional environmental analysis or information.

Chapter 4: (*Environmental Consequences*) Sets forth the analysis of direct, indirect, and cumulative impacts that could result from implementation of Alternative 5 and compares the effects of Alternative 5 to those of the other alternatives analyzed in the original EA.

Chapter 5: (*Comment Summary and Response*) Presents a detailed summary of all the comments received regarding the U.S. Longline Rule-related aspects of the original EA, and provides responses to each comment.

### **1.3 Purpose and Need**

The WCPFC adopted a Conservation and Management Measure (CMM) for Bigeye and Yellowfin Tuna in the Western and Central Pacific Ocean (CMM 2008-01) at its Fifth Regular Session, in Busan, Republic of Korea, in December 2008. The provisions of the CMM are based on an objective to achieve a 30% reduction in fishing mortality on WCPO bigeye tuna<sup>2</sup> and a reduction in the risk of overfishing WCPO yellowfin tuna (*Thunnus albacares*) in a three-year period, commencing in 2009. With respect to bigeye tuna, the CMM is based in part on the finding by the WCPFC Scientific Committee that WCPO bigeye tuna is experiencing a fishing mortality rate greater than the rate associated with maximum sustainable yield (MSY). With respect to yellowfin tuna, the CMM is based on the finding by the WCPFC Scientific Committee that WCPO yellowfin tuna is being fished at capacity. CMM 2008-01 has the stated objective of reducing, over the period 2009-2011, the fishing mortality rate for bigeye tuna in the WCPO by at least 30% from the annual average during the period 2001-2004 or 2004 and ensuring that there is no increase in fishing mortality for WCPO yellowfin tuna beyond the annual average during the period 2001-2004 or 2004.

One of the provisions of CMM 2008-01 requires the United States to implement a specific limit for bigeye tuna caught by longline fleets from 2009 through 2011. The U.S. Longline Rule would ensure NMFS' timely implementation of the annual catch limit for bigeye tuna established by the WCPFC for the U.S. longline fleets for each of the years 2009 through 2011. As prescribed by Paragraph 33 of CMM 2008-01, for 2009, the limit would be equal to the amount landed by the Hawaii and west coast longline fleets in 2004, less 10%. The amount landed in 2004, which is specified in CMM 2008-01 based on information provided by the United States to the WCPFC, was 4,181 metric tons (mt). Consequently, the calculated reduction (less 10%) results in an annual limit of 3,763 mt. Under CMM 2008-01, the longline fisheries of Participating Territories, including American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands (CNMI), have separate annual bigeye tuna catch limits of 2000 mt for 2009-2011. However, if these Participating Territories are undertaking responsible development of their domestic fisheries, the bigeye tuna catch limits do not apply.

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<sup>2</sup> As discussed in Chapter 3 of the original EA, the stock structure of bigeye tuna in the Pacific Ocean is not well known. The WCPFC has to date treated bigeye tuna in the WCPO as a single and entire stock, both in terms of stock assessments and management decisions. The WCPFC decisions and this document, consequently, deal with bigeye tuna in the WCPO, and the term "WCPO bigeye tuna" is used throughout this document to refer to that stock. The same is true with WCPO yellowfin tuna.

The Western and Central Pacific Fisheries Convention Implementation Act (WCPFCIA; Pub. L. 109-479, Sec 501, et seq., and codified at 16 U.S.C. 6901 et seq.) authorizes the Secretary of Commerce, in consultation with the Secretary of State and the Secretary of the Department in which the Coast Guard is operating, to develop such regulations as are needed to carry out the obligations of the United States under the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (Convention). The authority to promulgate regulations to implement the provisions of the Convention and WCPFC decisions, such as regulations to implement CMMs, has been delegated by the Secretary of Commerce to NMFS. To comply with the international obligations of the United States, NMFS is issuing the U.S. Longline Rule under the WCPFCIA pertaining to the U.S. longline fleets for the discrete and limited purpose of implementing the catch limit.

As stated in the original EA, the purpose of the U.S. Longline Rule is for NMFS to ensure the timely implementation by the United States of the bigeye tuna catch limit established by the WCPFC in CMM 2008-01. The need for the rule is to satisfy the international obligations of the United States as a Contracting Party to the Convention, pursuant to the WCPFCIA, and to make effective a CMM provision that requires immediate implementation.



## Chapter 2 Proposed Action and Alternatives

This chapter provides a detailed description of the proposed action analyzed in this Supplemental EA – NMFS’ new alternative for the U.S. Longline Rule, Alternative 5 – as well as a description of the three action alternatives and the No-Action, or baseline, alternative, analyzed in the original EA. The chapter concludes with a section providing more detailed information on the alternatives for the U.S. Longline Rule initially considered but excluded from detailed analysis.

### 2.1 Alternative 5 (New Alternative)

Although the bigeye tuna limits established in CMM 2008-01 are termed “catch” limits, the baseline amount of bigeye tuna specified for the United States in the CMM, from which the limit is derived, is from information provided to the WCPFC by the United States. That information is expressed in terms of bigeye tuna that are retained on board, not captured, per se. Consistent with U.S. recordkeeping and reporting conventions, the U.S. Longline Rule would establish a limit on retained catches (as a proxy for catches) of bigeye tuna.

For the purpose of implementing the bigeye tuna catch limits of CMM 2008-01, NMFS would distinguish the longline fisheries of the three Participating Territories from the other longline fisheries of the United States, based upon a combination of the types of federal longline fishing permits registered to the fishing vessel and where the bigeye tuna are landed. Specifically, bigeye tuna landed in any of the three Participating Territories, with certain provisos, will be treated as fish that are harvested in support of the development of the Participating Territory’s domestic fisheries and will be assigned to the longline fishery of that Participating Territory. As well, bigeye tuna that are captured by a fishing vessel registered for use under a valid American Samoa Longline Limited Access Permit, with certain provisos, will be treated as fish that are harvested in support of the development of American Samoa’s domestic fisheries and will be assigned to the longline fishery of American Samoa. The provisos in both these cases are that the bigeye tuna must not have been captured in the portion of the EEZ around the Hawaiian Archipelago, and they must be landed by a U.S. fishing vessel operated in compliance with a permit issued under 50 CFR 660.707 or 665.21. Any bigeye tuna assigned to the longline fisheries of any of the three Participating Territories as described above will not be subject to the limit. All other bigeye tuna captured by longline gear in the Convention Area (see Figure 1 below) by U.S. longline vessels and retained will be subject to the limit.

Once NMFS determines in any of the years 2009, 2010, or 2011 that the limit is expected to be reached by a specific future date in that year, NMFS will publish a notice in the *Federal Register* announcing that specific restrictions will be effective on that specific future date until the end of the calendar year. NMFS will publish the notice at least seven calendar days before the effective date of the restrictions to provide fishermen advance notice of the restrictions. NMFS will also endeavor to make publicly available, such as on

a web site, regularly updated estimates and/or projections of bigeye tuna catches in order to help fishermen plan for the possibility of the limit being reached.

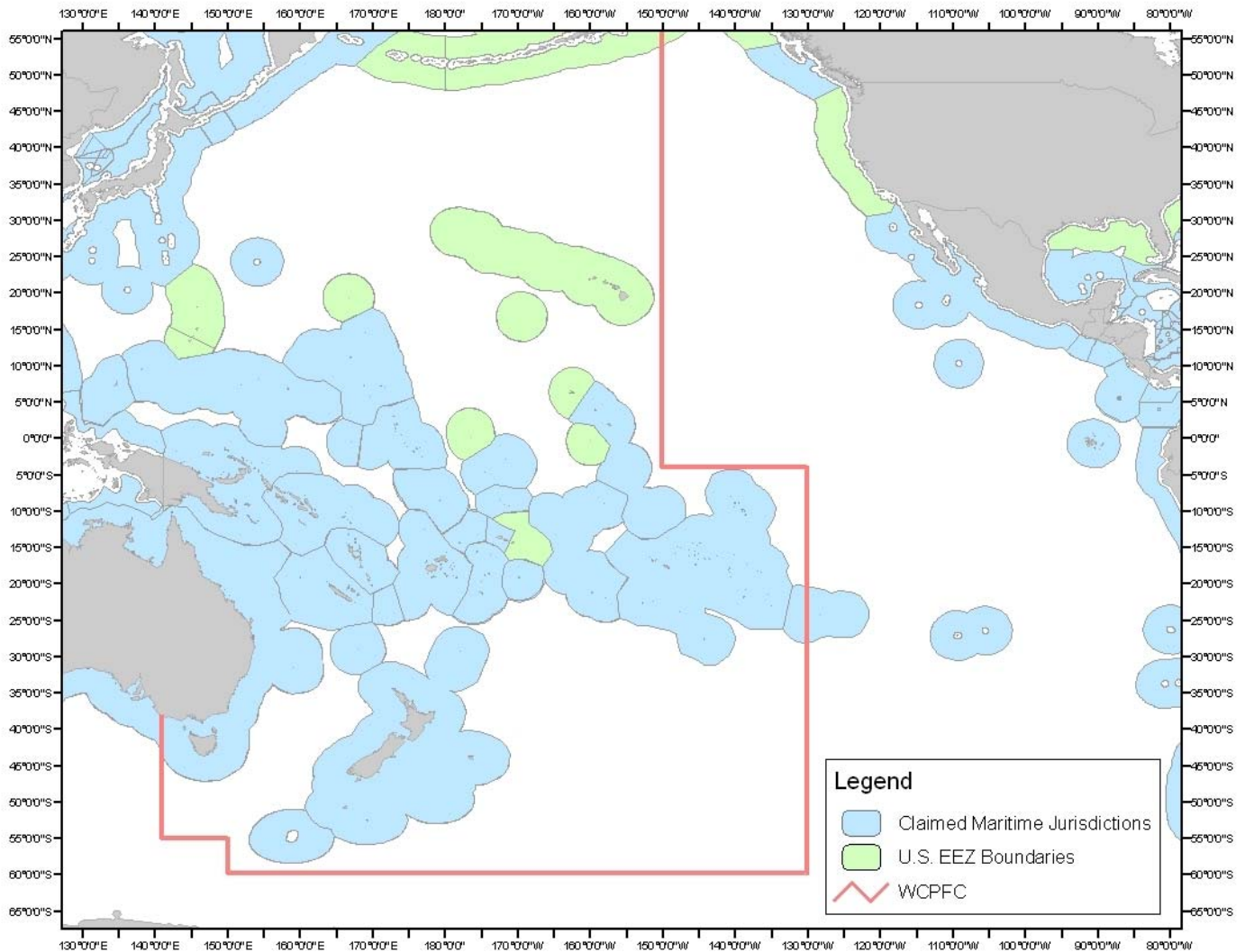
Under Alternative 5, starting on the announced date and extending through the last day of that calendar year, it will be prohibited to use a U.S. fishing vessel to retain on board, transship, or land bigeye tuna captured in the Convention Area by longline gear, except any bigeye tuna already on board a fishing vessel upon the effective date of the restrictions may be retained on board, transshipped, and/or landed, provided that they are landed within 14 days after the restrictions become effective. In the case of a vessel that has declared to NMFS pursuant to 50 CFR 665.23(a) that the current trip type is shallow-setting, the 14-day limit is waived, but the number of bigeye tuna retained on board, transshipped, or landed must not exceed the number on board the vessel upon the effective date of the restrictions, as recorded by the NMFS observer on board the vessel. Furthermore, bigeye tuna captured by longline gear may be retained on board, transshipped, and/or landed if they are captured by a fishing vessel registered for use under a valid American Samoa Longline Limited Access Permit or if they are landed in American Samoa, Guam, or the CNMI. However, the bigeye tuna must not have been caught in the portion of the EEZ surrounding the Hawaiian Archipelago, and, they must be landed by a U.S. fishing vessel operated in compliance with a valid permit issued under 50 CFR 660.707 or 665.21.

Starting on the announced date and extending through the last day of that calendar year, it will also be prohibited to transship bigeye tuna caught in the Convention Area by longline gear to any vessel other than a U.S. fishing vessel operated in compliance with a valid permit issued under 50 CFR 660.707 or 665.21.

These restrictions do not apply to bigeye tuna caught by longline gear outside the Convention Area, such as in the eastern Pacific Ocean (EPO). However, to help ensure compliance with the restrictions related to bigeye tuna caught by longline gear in the Convention Area, under Alternative 5, two additional, related, prohibitions will be in effect starting on the announced date and extending through the last day of that calendar year. First, it will be prohibited to fish with longline gear both inside and outside the Convention Area during the same fishing trip, with the exception of a fishing trip that is in progress at the time the announced restrictions go into effect. In that exceptional case, the vessel, unless on a declared shallow-setting trip, will still be required to land any bigeye tuna taken within the Convention Area within 14 days of the effective date of the restrictions, as described above. Second, if a vessel is used to fish using longline gear outside the Convention Area and the vessel enters the Convention Area at any time during the same fishing trip, the longline gear on the fishing vessel must be stowed in a manner so as not to be readily available for fishing while the vessel is in the Convention Area.



**Figure 1 Convention Area: high seas (in white); areas under U.S. jurisdiction (in green); and foreign jurisdictions (“claimed maritime jurisdictions,” in blue)**



Source: NMFS unpublished data.

## **2.2 The Alternatives Analyzed in the Original EA**

The original EA analyzed three action alternatives as well as the No-Action, or baseline alternative, which are described below.

### **2.2.1 Alternative 1: The No-Action Alternative to the U.S. Longline Bigeye Tuna Catch Limit Rule**

Under Alternative 1, the catch limit for WCPO bigeye tuna established by the WCPFC for the U.S. longline fishery would not be implemented and U.S. longline fleets operating in the Convention Area could continue targeting and landing bigeye tuna after the amount specified in CMM 2008-01 has been landed in any of the years 2009-2011. The fleets would continue to operate under the relevant FMPs with limited entry and a variety of

other regulatory measures currently in place (observers, reporting, vessel monitoring system (VMS), endangered species mitigation, etc.).

### **2.2.2 Alternative 2: Closure of the Deep-Set Sector**

Under Alternative 2, the rule to ensure NMFS' timely implementation of the bigeye tuna catch limit established by the WCPFC for applicable U.S. longline fleets would prohibit deep-set fishing operations (which target tunas) after a catch limit of 3,763 metric tons has been reached in any of the calendar years 2009 through 2011, as well as prohibit the retention on board and landing of bigeye tuna by longline vessels (e.g., by vessels engaged in shallow-setting).<sup>3</sup>

Once NMFS determines in any of the years 2009, 2010, or 2011 that the limit is expected to be reached by a specific future date in that year, NMFS would publish a notice in the *Federal Register* announcing that the fishery will be closed on that specific date and will remain closed until the end of the calendar year. NMFS would publish the notice at least seven calendar days before the effective date of the restrictions to provide fishermen advance notice of the restrictions. NMFS would also endeavor to make publicly available, such as on a web site, regularly updated estimates and/or projections of bigeye tuna landings in order to help fishermen plan for a possible fishery closure.

Starting on the closure date and extending through the last day of that calendar year, it would be prohibited to use a U.S. fishing vessel to deploy longline gear in the Convention Area, to retain on board bigeye tuna or yellowfin tuna captured by longline gear in the Convention Area, or to land or transship bigeye tuna or yellowfin tuna captured by longline gear in the Convention Area, with the following exceptions:

First, any bigeye tuna or yellowfin tuna already on board a fishing vessel upon the start of the closure may be retained on board, transshipped, and/or landed, provided that it is landed within 14 days after the start of the closure. In the case of a vessel that has declared to NMFS pursuant to 50 CFR 665.23(a) that the current trip type is shallow-setting, the 14-day limit would be waived, but the number of bigeye tuna or yellowfin tuna retained on board, transshipped, or landed could not exceed the number on board the vessel upon the start of the closure, as recorded by the NMFS observer on board the vessel.

Second, any bigeye tuna or yellowfin tuna captured by longline gear could be retained on board, transshipped, or landed, if it is landed in American Samoa, Guam, or the CNMI, provided that it was not caught in the portion of the EEZ surrounding the Hawaiian Archipelago and that it is landed by a U.S. fishing vessel operated in compliance with a valid permit issued under the FMP for the Pelagic Fisheries of the Western Pacific

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<sup>3</sup> As discussed in more detail in Chapter 3, Section 3.3 of the original EA, the deep-set component of the longline fishery targets tuna species at depths ranging from 100 to 300 meters; the shallow-set component targets swordfish at depths less than 100 meters.

Region (Pelagics FMP) or the FMP for U.S. West Coast Fisheries for Highly Migratory Species (West Coast HMS FMP).

Third, vessels could continue to deploy longline gear in a shallow-set manner to target swordfish, provided that no bigeye tuna are landed or retained on board.

The purpose of the prohibitions with respect to yellowfin tuna would be to prevent vessels from targeting yellowfin tuna during the closure, which could potentially result in a large number of unutilized bigeye tuna mortalities, which would undermine the objective of the closure.

These restrictions would not apply to bigeye tuna caught by longline gear outside the Convention Area, such as in the EPO. However, to ensure compliance with the restrictions in the Convention Area, NMFS would prohibit vessels from fishing with longline gear in areas both within and outside the Convention Area during the same fishing trip.

### **2.2.3 Alternative 3: Prohibition on Retention, Landing, or Transshipping of Bigeye Tuna**

Under Alternative 3, in order to ensure the timely implementation of the United States with the WCPO bigeye tuna catch limit for the U.S. longline fleets established by the WCPFC, vessels would be prohibited from retaining on board, landing or transshipping any catch of bigeye tuna in the limit's area of application, once the limit has been reached for the calendar year. However, any bigeye tuna already on board a vessel at the time of the closure may be retained on board and landed and any bigeye tuna could be retained on board, transshipped, or landed in American Samoa, Guam, or the CNMI, provided that it was not caught in the portion of the EEZ surrounding the Hawaiian Archipelago and that it is landed by a U.S. fishing vessel operated in compliance with a valid permit issued under the Pelagics FMP or West Coast HMS FMP. In other words, it would differ from Alternative 2 only in that fishing vessels would be allowed to continue deep-set longlining in the affected area after the limit is reached, provided that no bigeye tuna are retained or landed. As for Alternative 2 and Alternative 5, these restrictions would not apply to bigeye tuna caught by longline gear outside the Convention Area, such as in the EPO. However, to ensure compliance with the restrictions in the Convention Area, NMFS would prohibit vessels from fishing with longline gear in areas both within and outside the Convention Area during the same fishing trip.

### **2.2.4 Alternative 4: Closure of the Deep-Set and Shallow-Set Sectors**

Under Alternative 4, in order to ensure the timely implementation of the WCPO bigeye tuna catch limit for the U.S. longline fishery established by the WCPFC, both the shallow-set and deep-set components would be closed once the annual limit of 3,763 mt of bigeye tuna has been reached for the calendar year (i.e., no U.S. vessel would be allowed to conduct longline fishing operations in the Convention Area). However, any bigeye tuna already on board a vessel at the time of the closure may be retained on board

and landed and any bigeye tuna could be retained on board, transshipped, or landed in American Samoa, Guam, or the CNMI, provided that it was not caught in the portion of the EEZ surrounding the Hawaiian Archipelago and that it is landed by a U.S. fishing vessel operated in compliance with a valid permit issued under the Pelagics FMP or West Coast HMS FMP. As for the other action alternatives, these restrictions would not apply to bigeye tuna caught by longline gear outside the Convention Area, such as in the EPO. However, to ensure compliance with the restrictions in the Convention Area, NMFS would prohibit vessels from fishing with longline gear in areas both within and outside the Convention Area during the same fishing trip.

### ***2.3 Differences Between Alternative 5 and the Other Action Alternatives***

As described above, Alternative 5 is similar to Alternative 3, which was the preferred alternative in the proposed U.S. Longline Rule. The difference is that, under Alternative 5, bigeye tuna captured by a vessel registered for use under an American Samoa Longline Limited Access Permit would be considered to be fish caught as part of the American Samoa longline fishery, regardless of where the fish are landed, and thus would not be subject to the limit or to the prohibitions established once the limit is reached. However, for such bigeye tuna to be considered part of the American Samoa longline fishery, they must not have been caught in the portion of the EEZ surrounding the Hawaiian Archipelago, and must be landed by a U.S. fishing vessel operated in compliance with a valid permit issued under 50 CFR 660.707 or 665.21.

### ***2.4 Alternatives to the U.S. Longline Rule Excluded from Detailed Analysis***

As stated in Chapter 1 of this Supplemental EA, the purpose of the U.S. Longline Rule is to ensure the timely implementation (prior to the limit being reached in 2009) by the United States of the bigeye tuna catch limit established by the WCPFC in CMM 2008-01. The need for the rule is to satisfy the international obligations of the United States as a Contracting Party to the Convention, pursuant to the WCPFCIA, and to make effective a CMM provision that requires immediate implementation. All of the action alternatives that NMFS analyzed in depth in the original EA and this Supplemental EA meet the purpose of, and need for, the U.S. Longline Rule.

The original EA in Section 2.2.3 indicated that NMFS considered other alternative methods of implementing the WCPO bigeye tuna catch limit, such as time and/or area closures, other limitations on fishing effort, allocation of the catch limit among vessels, and non-calendar-year catch limits. NMFS did not develop these alternatives in detail. NMFS discussed these alternatives internally and purely on a conceptual basis.

These alternatives would exceed the scope of the purpose of and need for the rule because they could not be implemented prior to the United States reaching the limit established by the WCPFC for 2009. These alternatives would require detailed consideration of many factors, ideally including the national standards established under

the MSA and the objectives set forth in the relevant FMPs. Thus, because these alternatives would exceed the limited purpose of and need for the U.S. Longline Rule to ensure the United States' timely implementation of the bigeye tuna catch limit established by the WCPFC, NMFS excluded these alternatives from further consideration.



## **Chapter 3      Affected Environment**

This chapter supplements the information compiled in Chapter 3 of the original EA, in order to provide the background information regarding the affected environment that is needed to analyze Alternative 5 and to respond to the substantive comments on the U.S. Longline Rule that can be answered by additional environmental analysis or information. Section 3.1 provides supplemental information on the U.S. fisheries in the WCPO, particularly, the fisheries of the U.S. Participating Territories to the WCPFC. Section 3.2 includes background information on a specific type of effect raised in comments to the original EA termed “market transferred effects,” and Section 3.3 presents additional information on protected resources.

### **3.1    *Fishing Fleets***

#### **3.1.1    Additional Information for the Hawaii Longline Fleet**

This information supplements the information provided in Section 3.3.1.2 and in Table 7 of the original EA.

The Hawaii Longline Limited Entry Program has a cap of 164 permits. There are currently 131 active permits in the fleet (NMFS 2009c). Permits may be sold or transferred. However, obtaining a Hawaii Longline Limited Access Permit via a sale entails an economic burden ranging in the thousands of dollars. A Hawaii Longline Limited Access Permit may be transferred: (1) to a different person for registration for use with the same or another vessel; or (2) for use with another U.S. vessel under the same ownership (50 CFR 665.21).

Other requirements to being able to fish under the Hawaii Longline Limited Access Permit include: carrying a VMS on board the vessel; carrying a NMFS observer (100% coverage for shallow-set trips and 20% coverage for deep-set trips); maintaining logbooks of catch and effort; and marking the vessel and its gear in a specific manner.

Table 1, Table 2, and Table 3 provide information regarding bigeye tuna catches and landings in Hawaii and American Samoa by the Hawaii-based longline fleet. Table 1 breaks down the Hawaii fleet’s bigeye tuna retained catch by area, shows the total retained catches of bigeye tuna landed in Hawaii from 2006-2008, and identifies the retained catch from deep-setting for vessels in the fleet with both a Hawaii Longline Limited Access Permit and an American Samoa Longline Limited Access Permit (hereafter, “dual permit vessels”). Table 2 shows the total landings of bigeye tuna in Hawaii and American Samoa by dual permit vessels. Table 3 identifies the number of Hawaii-based longline vessels, the longline bigeye tuna retained catch in the Hawaii longline fishery, by area, and percentages of the bigeye tuna caught within the EEZ surrounding the Hawaiian Archipelago out of the total retained catch by the Hawaii-based longline fleet over the twelve-year period from 1996-2007.

**Table 1 Retained catches of bigeye tuna in the Hawaii longline fishery by area**

<b>Year</b>	<b>Number of active vessels</b>	<b>Bigeye tuna retained from WCPO (deep set and shallow set) (mt)</b>	<b>Bigeye tuna retained from EPO (deep set and shallow set) (mt)</b>	<b>Total landings (mt)</b>	<b>Bigeye tuna retained – EPO as % of total</b>	<b>Bigeye tuna retained from WCPO – deep set (mt)</b>	<b>Bigeye tuna retained from WCPO – shallow set (mt)</b>	<b>Number of dual permit vessels</b>	<b>Dual permit deep set Hawaii landed WCPO bigeye tuna (mt)</b>	<b>% dual permit deep set WCPO bigeye tuna landings as % of total WCPO deep-set bigeye tuna landings</b>
2006	127	4,376	79	4,455	2	4,319	56	10	184	4%
2007	129	5,399	417	5,816	7	5,356	43	12	444	8%
2008	127	4,624	1,275	5,899	22	4,568	56	11	466	10%
Avg.	128	4,800	590	5,390	10.3	4,657	55	11	365	7%

Source: NMFS unpublished data provided by the Pacific Islands Fisheries Science Center based on vessel logbook data (estimates are subject to change as estimation methods are improved) and NMFS 2009a.



**Table 2 Total landings of bigeye tuna in Hawaii and American Samoa by dual-permitted vessels**

Year	Total dual permit vessel bigeye tuna landings in Hawaii and American Samoa (mt)	Dual permit vessel total bigeye tuna landings in Hawaii (mt)	Dual permit vessel total bigeye tuna landings in American Samoa (mt)	% dual permit vessel bigeye tuna landings in Hawaii	% dual permit vessel landings of bigeye tuna in American Samoa
2006	230	184	46	80%	20%
2007	518	444	74	86%	14%
2008	503	466	37	93%	7%
Avg.	417	365	52	86%	8%

Source: NMFS unpublished data provided by the Pacific Islands Fisheries Science Center based on vessel logbook data (estimates are subject to change as estimation methods are improved).

**Table 3 Retained catch of bigeye tuna for the U.S. Hawaii longline fleet from 1996-2007 by area**

Year	Number of active vessels	Number of bigeye tuna caught in the portion of the U.S. EEZ around the Hawaiian Archipelago	Number of bigeye tuna caught outside the portion of the U.S. EEZ around the Hawaiian Archipelago	Percentage of bigeye tuna caught in the portion of the U.S. EEZ around the Hawaiian Archipelago
1996	103	45,212	18,354	71%
1997	105	51,565	28,219	65%
1998	114	43,352	55,428	44%
1999	119	38,875	41,397	48%
2000	125	29,206	45,287	39%
2001	101	45,449	33,275	58%
2002	100	60,669	80,178	43%
2003	110	48,830	58,296	46%
2004	125	57,919	84,043	41%
2005	124	59,553	69,793	46%
2006	127	53,182	65,483	45%
2007	129	55,277	104,159	35%
Total		589,089	683,912	46%

Source: Western Pacific Regional Fishery Management Council (WPRFMC) 2009

The following sections describe the longline fisheries of the U.S. Participating Territories to the WCPFC.

### 3.1.2 American Samoa Longline Fishery

The longline method of pelagic fishing was introduced to American Samoa by fishers from neighboring independent Samoa in 1995. Prior to this, the pelagic fishery was largely a troll fishery. Initially, most of the longline vessels were small, locally built, twin-hulled vessels called alia. These vessels deploy as many as ten miles of mainline from a hand-cranked reel. Trips typically last for a single day, and the target species, albacore (*Thunnus alalunga*), is sold to the local canneries. By 2004 the number of alia had fallen dramatically and mono-hull vessels larger than 15 meters in length that take multiple-day trips now dominate the fishery.

#### Management

The American Samoa Longline Limited Entry Program was established under Amendment 11 to the Pelagics FMP. The final regulations implementing the program were published in the *Federal Register* on May 24, 2005 (70 FR 29646) and codified at 50 CFR 665.36. In order to use longline gear to catch pelagic fish in the EEZ around American Samoa, fishermen are required to have an American Samoa Longline Limited Access Permit on board the vessel. That permit is also required to land pelagic fish in American Samoa caught with longline gear in the EEZ around American Samoa, or to transship pelagic fish within the EEZ around American Samoa caught by longline gear in the EEZ around American Samoa or on the high seas. The American Samoa Longline Limited Entry Program allows for as many as 60 vessels. Permits are issued by vessel size class and permit holders are restricted to using vessels within their size class or smaller. The class sizes are as follows: Class A vessels are 40 feet long or smaller; Class B (and B-1) vessels are longer than 40 feet, but no longer than 50 feet; Class C (and C-1) vessels are longer than 50 feet, but no longer than 70 feet; and Class D (and D-1) vessels are longer than 70 feet.<sup>4</sup>

Permits are subject to renewal. To be eligible to renew a permit one must land specific amounts of Pacific pelagic management unit species (PMUS) harvested in the EEZ around American Samoa using longline gear during the three consecutive calendar years beginning with the year after the permit was issued. The three-year total for vessels in Class A or Class B must be at least 1,000 pounds of PMUS and the three-year total for vessels in Class C or Class D must be at least 5,000 pounds of PMUS.

The initially-issued permits include all in Class A, B, C, or D. The regulations allow Class A permits to be upgraded in limited amounts to permits of Class B-1, C-1, and D-1, in the four calendar years after the initial permits were issued (2006-2009), for a total of 14 upgrades to Class B-1, 6 upgrades to Class C-1, and 6 upgrades to Class D-1. The number of Class A permits is reduced when Class A permits are replaced by B-1, C-1, or D-1 permits. Thereafter, if any Class A, B, C, or D permit becomes available, NMFS

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<sup>4</sup> Class A vessels are 12 meters or less; Class B (and B-1) vessels are longer than 12 meters, but no longer than 15 meters; Class C (and C-1) vessels are longer than 15 meters, but no longer than 21 meters; and Class D (and D-1) vessels are longer than 21 meters.

shall re-issue that permit accordingly. The American Samoa Longline Limited Access Permit has a stipulation on the concentration of ownership of permits. No more than 10% of the maximum number of permits, of all size classes combined, may be held by the same permit holder.

The holder of an American Samoa Longline Limited Access Permit may transfer the permit to another individual, partnership, corporation, or other entity. Class A permits may only be transferred (by sale, gift, bequest, intestate succession, barter, or trade) to: (1) a family member; (2) a western Pacific community located in American Samoa that meets the criteria set forth in section 305(I)(2) of the Magnuson-Stevens Act, 16 U.S.C. 1855(I)(2); and (3) any person with documented participation in the pelagic longline fishery on a Class A size vessel in the EEZ around American Samoa prior to March 22, 2002. Class B, C, and D permits may only be transferred (by sale, gift, bequest, intestate succession, barter, or trade) to: (1) a western Pacific community located in American Samoa that meets the criteria set forth in section 305(I)(2) of the Magnuson-Stevens Act, 16 U.S.C. 1855(I)(2), and its implementing regulations; or (2) any person with documented participation in the pelagic longline fishery in the EEZ around American Samoa. Class B-1, C-1, and D-1 permits may not be transferred to a different owner for 3 years from the date of initial issuance, except by bequest or intestate succession if the permit holder dies during those 3 years. After the initial 3 years, Class B-1, C-1, and D-1 permits may be transferred only in accordance with the restrictions for Class B, C, and D permits, as mentioned above.

In 2009, NMFS determined that 24 of the original 60 limited access permits had expired. Because of this, on January 28, 2009, NMFS announced the availability of 22 American Samoa Longline Limited Access Permits with 13 available for Class A, 4 for Class B, 4 for Class C, and one for Class D (74 FR 4942) and received 25 applications. Based on the permit eligibility criteria, 16 were re-issued by NMFS to qualified applicants (11 Class A permits, 4 Class C permits and 1 Class D permit). Six permits remain available and two permits recently expired, bringing the total number of valid American Samoa Longline Limited Access Permits to 52.

The Western Pacific Regional Fishery Management Council (WPRFMC) is currently considering an amendment to the American Samoa pelagic longline fishery management program that would re-open the application process for all vessel size classes for one year. This amendment, if formally proposed and then approved by NMFS, would provide all eligible individuals a second opportunity to apply for and receive permits for the American Samoa longline fishery, which could potentially change the total number of permits from the current limit of 60. The WPRFMC identified 138 potentially eligible applicants when initially developing the American Samoa Longline Limited Entry Program. The current proposal to re-open the application process would maintain the existing permit eligibility criteria needed to obtain an American Samoa Longline Limited Access Permit set forth at 50 CFR 665.36(e). These criteria require: (1) any U.S. national or U.S. citizen or company, partnership, or corporation, on or prior to March 21, 2002, to have owned a vessel that was used during the time of their ownership to harvest PMUS

with longline gear in the EEZ around American Samoa; and (2) that fish was landed in American Samoa prior to March 22, 2002, or prior to June 28, 2002, provided that the person or business provided to NMFS or the WPRFMC, prior to March 22, 2002, a written notice of intent to participate in the pelagic longline fishery in the EEZ around American Samoa.

The primary regulations and mitigation measures for this fishery, as set forth at 50 CFR Part 665, are summarized in Table 4.

**Table 4 Requirements in the American Samoa longline fishery**

<b>Longline Requirements</b>
<ul style="list-style-type: none"><li>• A vessel of the United States must be registered for use under a valid American Samoa longline limited access permit (50 CFR 665.36) if that vessel is used:  (1) To fish for PMUS using longline gear in the EEZ around American Samoa; or (2) to land shoreward of the outer boundary of the EEZ around American Samoa Pacific PMUS that were harvested using longline gear in the EEZ around American Samoa; or (3) to transship shoreward of the outer boundary of the EEZ around American Samoa Pacific PMUS that were harvested using longline gear in the EEZ around American Samoa or on the high seas (50 CFR 665.21(c));</li> <li>• All U.S. vessels that fish on the high seas are required to have a permit issued by NMFS in accordance with the High Seas Fishing Compliance Act of 1995 (16 U.S.C. 5501–5509). Permits are valid for five years and require that vessels fish on the high seas in accordance with international conservation and management measures recognized by the United States;</li><li>• The holder of a size Class C or D American Samoa Longline Limited Access permit and master of the vessel must carry and operate a VMS unit on board whenever the vessel is at sea;</li><li>• NMFS may notify the permit holder of the obligation to carry an observer aboard the vessel;</li><li>• Sea turtle mitigation requirements: Any owner or operator of a U.S. longline vessel that has a freeboard of more than 3 feet (0.91 meters) must carry aboard the vessel line clippers, dip nets, and dehookers meeting the specified minimum design standards. Any owner or operator of a U.S. longline vessel that has a freeboard of 3 feet (0.91 meters) or less must carry aboard their vessels line clippers capable of cutting the vessel’s fishing line or leader within approximately 1 foot (0.3 meters) of the eye of an embedded hook, as well as wire or bolt cutters capable of cutting through the vessel's hooks. If a sea turtle is observed to be hooked or entangled in fishing gear, vessel owners and operators must use the required mitigation gear to comply with the designated handling requirements;</li><li>• Each year, both the owner and the operator of an American Samoa Longline Limited Access Permit must attend and be certified for completion of a workshop conducted by NMFS on interaction mitigation techniques for sea turtles, seabirds, and other protected species;</li><li>• The operator of any fishing vessel with an American Samoa Longline Limited Access Permit must maintain on board the vessel an accurate and complete record of catch, effort, and other data; and</li><li>• Any person subject to the requirements of 50 CFR 665.21(c) must maintain on board the vessel an accurate and complete NMFS transshipment logbook containing report forms.</li></ul>

## Catch, Effort, and Revenue

Table 5 includes general information on the overall performance of the American Samoa longline fishery from 1996 to 2007.

**Table 5 Performance of the American Samoa longline fishery**

Year	Total (tuna plus non tuna PMUS) Catch (mt)	Tuna Catch (mt)	Swordfish Catch (mt)	Number of Active Vessels	Number of Trips	Number of Hooks (million)
1996	165	142	0.94	12	NA	0.16
1997	408	362	1.83	21	NA	0.52
1998	549	506	1.68	26	NA	1.0
1999	480	431	1.03	29	NA	1.2
2000	800	744	0.52	37	NA	1.6
2001	3,599	3,530	5.96	62	NA	5.8
2002	6,971	6,806	14.86	58	NA	13.2
2003	4,960	4,774	14.58	49	NA	13.9
2004	4,040	3,826	9.00	41	NA	11.8
2005	3,921	3,703	7.48	36	402	11.2
2006	5,293	4,983	37.95	31	331	14.3
2007	6,542	6,320	12.66	29	377	17.6

Source: WPRFMC 2009

<sup>a</sup> NA stands for Not Available.

Albacore continued to dominate the catch in 2007. The catch composition for 2007 was as follows: 81% albacore (*Thunnus alalunga*), 9% yellowfin tuna (*Thunnus albacares*), 3% bigeye tuna (*Thunnus obesus*), 3% wahoo (*Acanthocybium solanderi*), and 2% skipjack tuna (*Katsuwonus pelamis*) (WPRFMC 2009).

## Economics

This fleet differs from the Hawaii-based longline fleet in having two discrete components based on vessel size and fishing technology: small-scale vessels (mostly alia) less than 12 meters in length, generally fishing within 25 nautical miles from shore; and larger monohull vessels, mostly over 15 meters in length, fishing throughout the EEZ. The recent entry of numerous large (>15 meters) longline vessels resulted in a dramatic increase in longline fishing effort as well as a shift of fishing effort in waters between 50 and 200 nautical miles from shore. On average, the alia fleet has three person crews, while the large vessel fleet generally has six person crews. As of September 25, 2009, 52 vessels had permits under the American Samoa Longline Limited Entry Program outlined in the FMP (NMFS 2009c). Out of the 52 permitted vessels, 11 also held Hawaii longline permits (permitted under the Hawaii Longline Limited Access Permit). There has been a total of 10, 12, and 11 dual permitted vessels for the years 2006, 2007, and 2008, respectively. Permit data as of September 25, 2009 shows that out of the 11 dual permit vessels three vessels are permitted under Class C and eight are permitted under Class D (NMFS 2009c). Four permit holder hold multiple American Samoa Longline Limited

Access Permits, ranging from 2-4 permits per each of these permit holders (NMFS 2009c).

The fishery is based almost entirely on albacore caught for the two local canneries.<sup>5</sup> The economics of the American Samoa large vessel longline fleet is dependent on albacore prices at the American Samoa canneries. The small resident population means that the domestic market is limited, as are the opportunities for air freighting fresh fish to lucrative markets in Japan, Hawaii, or the U.S. mainland. There may, however, be opportunities for shipping frozen fish to markets in the U.S. mainland and Japan. The development of exporting fresh sashimi-grade fish for distant markets would have to take into account the economics of vessel operation in American Samoa, possible reconfiguration of some boats, increased ice supply, and the cost of providing air freight service.<sup>6</sup> The large vessels land their catch as frozen, gilled, and gutted product. The canneries only export to the U.S. market.

The alia fleet lands its catch as whole fresh product, with the albacore going to the canneries and other species marketed locally.

The second highest adjusted revenue for tuna was recorded in 2007 at \$13.8 million, a 17% increase since 2006. For non-tuna PMUS adjusted revenue decreased to \$198,255 in 2007 from \$566,636 in 2006 (WPRFMC 2009). Since 1998 price-per-pound for tuna has been decreasing. In 2007 the price-per-pound for tunas was \$0.99, a \$0.05 decrease since 2006, while the price-per-pound of non-tuna PMUS fell to \$0.75, a \$0.08 decrease since 2006 (WPRFMC 2009). Table 6 shows the change in price per pound for tuna and for non-tuna species over a period of eleven years (1996-2007).

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<sup>5</sup> Chicken of the Sea, the second largest cannery, is in the process of closing its cannery in American Samoa and relocating to the U.S. mainland, which is affecting about 2,000 workers (Sagapolutele 2009).

<sup>6</sup> While the viability of exporting fresh fish has been demonstrated in several neighboring countries, including Samoa, Tonga, and Fiji, the economics of operating large longline vessels in those countries is believed to be very different from that in American Samoa, with labor costs being much higher in the latter.

**Table 6 1996-2007 average price/pound in U.S. dollars for tuna and non-tuna species in American Samoa**

Year	Tuna: Adjusted Price/Pound (\$)	Non Tuna: Adjusted Price/Pound (\$)
1996	\$1.79	\$2.05
1997	\$1.61	\$2.12
1998	\$1.51	\$2.10
1999	\$1.45	\$1.88
2000	\$1.30	\$1.64
2001	\$1.35	\$1.64
2002	\$1.11	\$1.37
2003	\$1.15	\$1.25
2004	\$1.13	\$1.12
2005	\$1.09	\$1.05
2006	\$1.04	\$0.83
2007	\$0.99	\$0.75

Source: WPRFMC 2009

### 3.1.3 Guam and the CNMI Longline Fishery

During the last few years, there have been a small number of vessels with permits for longline fishing based out of Guam and the CNMI. Due to the limited number of vessels in the fishery, data regarding these vessels is confidential.

Vessels in the fisheries of U.S. Participating Territories may transship their catch (which tends to be vessel-to-vessel and is rare) to a receiving vessel. A receiving vessel must be of the United States and must be registered for use with a valid receiving vessel permit if that vessel is used to land or transship, within the Western Pacific Fishery Management Area, PMUS that were harvested using longline gear (50 CFR 665.21(e)).

## 3.2 Transferred Effects

Market transferred effects can be described as indirect effects from a proposed action “when regional regulation to control externalities in one market leads to increased market production and environmental damages [or other environmental consequences] in another market” (Rausser, Hamilton, Kovach et al. 2009). For example, if a regulation to limit fishing activity for a product in one region causes fishing activity to increase in another region to meet the overall market demand for the regulated product, and that increased fishing activity leads to environmental consequences – beneficial or adverse – a transferred effect has occurred. Quantifying such transferred effects can be difficult because factors such as variations in global production, variations in demand for the regulated good, and the effects that the regulation of one market may have on the global market as a whole, must be taken into consideration (Rausser, Hamilton, Kovach et al. 2009).



However, these transferred effects have been documented for the swordfish (*Xiphias gladius*) sector of the longline fishery, in particular, the swordfish sector of the Hawaii-based longline fishery (Rausser, Hamilton, Kovach et al. 2009; Sarmiento 2006). According to recent studies, the closure of this sector of the Hawaii-based longline fishery from 2001-2004 led to an increase in foreign fishing activity to provide imports of fresh swordfish to the United States, which in turn caused additional sea turtle interactions (Rausser, Hamilton, Kovach et al. 2009; Sarmiento 2006).

### **3.3 Protected Resources**

This section provides additional information on protected resources in the WCPO.

#### **3.3.1 Sea Turtles**

The following information on leatherback turtles (*Dermochelys coriacea*) supplements Section 3.6.1.1.1 of the original EA and is taken directly as excerpts from Sections 5.3 through 5.3.3 of the Biological Opinion for Amendment 18 to the Pelagics FMP.<sup>7</sup> The citations and references have been omitted in this section but can be found in the original document (NMFS 2008).

...It is difficult to characterize the global status and trend of the leatherback turtle as a whole because the species consists of many discrete populations that may increase or decrease independently of one another. The most recent leatherback 5-year status review does not make a determination regarding global status and trends, but rather limits its conclusions to the status and trends of populations for which information is available. Some populations are stable or increasing, but other populations for which information is available are either decreasing or have collapsed, while there is not sufficient information to determine status and trends of many populations. The available information is not sufficient to determine the status and trend of the species as a whole.

The global leatherback population is not homogeneous because natal homing of female leatherbacks to nesting beaches maintains regional population structure. Leatherback populations occur in at least the Western Pacific, the Eastern Pacific, the Indian Ocean, Florida, the Caribbean, Africa, and Brazil, with further population structure at smaller spatial scales in some areas (e.g., the Caribbean). All 18 leatherbacks sampled so far in bycatch of the Hawaii-based shallow-set longline fishery are from the Western Pacific population. Of the 12 leatherbacks sampled so far in bycatch of the deep-set component of the Hawaii-based longline fishery, 1 individual was determined to be from the eastern Pacific population.

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<sup>7</sup> The material in these excerpts and the excerpts that follow has been condensed from the original, as appropriate.

Western Pacific leatherbacks nest primarily in Papua Indonesia (formerly Irian Jaya, hereafter referred to as Papua), Papua New Guinea (PNG), and the Solomon Islands. Minor nesting occurs on Vanuatu and possibly elsewhere in the region. The total number of nests per year in the Western Pacific population was estimated at 5,067 – 9,176 for the period 1999-2006. Based on 5,067 – 9,176 Western Pacific nests, estimates of nesting females (844 – 3294) and breeding females (2,110 – 5,735) in this population were derived, but the authors recommended using nest numbers instead of estimated female numbers because of uncertainty in the assumptions. Estimates suggest that during 1999-2006, two-thirds of the nesting occurred in Papua, most of the remainder occurred in PNG and the Solomon Islands, and a small fraction (about 1%) occurred in Vanuatu. Of the 28 nesting sites identified in these 4 countries, nesting data for more than 5 years are only available for the Jamursba-Medi site (hereafter referred to as the ‘Jamursba-Medi component’ of the Western Pacific population). The status and trends at Jamursba-Medi are described below, followed by a description based on the little information that is available for the other sites (hereafter collectively referred to as the ‘non-Jamursba-Medi component’ of the Western Pacific population).

The largest nesting site for the Western Pacific population is at Jamursba-Medi, with an estimated mean of 2,733 nests annually in 1999-2006, making up approximately 38% of the total estimated nesting for the Western Pacific population during this time period. Nest data were not collected consistently or reliably until the early 1990s, hence most reports of Jamursba-Medi nesting trends start at that time. However, anecdotal reports from the early 1980s suggest that nesting at Jamursba-Medi declined during the decade preceding initiation of nest counts in 1993. Nesting during the 1999-2007 period has fluctuated annually, with the overall trend stable or slightly declining. These nesting data may be overestimates: Nesting data collected from the same beaches during the same seasons and years by Japanese turtle researcher Hiroyuki Suganuma were 31 – 38% lower for 2003 – 2007.

Besides Jamursba-Medi, Dutton et al. reported leatherback nesting at 27 other sites in the Western Pacific region (6 in Papua, 10 in PNG, 8 in the Solomon Islands, and 3 in Vanuatu). Approximately 62% of the leatherback nesting in 1999-2006 occurred at these 27 sites, while the remaining 38% occurred at Jamursba-Medi, the largest nesting site. The largest of the non-Jamursba-Medi sites is Wermon, 30 kilometers east of Jamursba-Medi. Wermon produced approximately 30% of all Western Pacific nests in 1999-2006. Leatherback nesting at Wermon occurs primarily between November and March, the opposite of Jamursba-Medi. Nest counts have been carried out at Wermon since 2002, thus data are available for the 5 year period from 2002–03 (Nov-Oct) to 2006-07 (Nov-Oct): 2002-03 = 1,788 nests, 2003-04 = 2,881 nests, 2004-05 = 2,080 nests, 2005-06 = 1,345 nests, and 2006-07 = 1,319 nests. Since the first complete survey in 2002-03, nesting levels at Wermon have been variable, with fewer nests during the last 2 years (2005-06, 2006-07) than in previous years.

The Huon Coast of PNG hosts an estimated 50% of leatherback nesting in that country. Anecdotal information in Quinn et al., Quinn and Kojis, and Bedding and Lockhart suggest that 200 to 300 females nested annually between Labu Tali and Busama on the Huon Coast in the late 1980s, but less than 50 females nested annually in 2005-06 and 2006-07 at this location. Further south along the Huon Coast, an estimated 260 females nested at Kamiali during the 2001-02 nesting season, but only 30 were counted during the 2006-07 nesting season on the same section of beach. Current monitoring data indicate continuing impacts to leatherbacks from egg harvesting, beach erosion and wave inundation, and domestic dog predation. The Solomon Islands support leatherback nesting that 30 years ago was widely distributed across at least 61 beaches. Dutton et al. estimated that approximately 640 – 700 nests were laid annually in the Solomon Islands in 1999 – 2006. No information exists regarding population trends over time, but it is believed that local consumption of turtles and eggs has reduced nesting populations over the last few decades. Leatherback turtles have only recently been reported nesting in Vanuatu. Petro et al., reviewed archival data and unpublished reports, and interviewed residents of coastal communities, all of which suggested that leatherback nesting has declined in recent years. There appears to be low levels of scattered nesting on at least 4 or 5 beaches with a total of approximately 50 nests laid per year. Adult leatherbacks are opportunistically hunted for meat in some areas. In addition, leatherback eggs are occasionally collected from these beaches.

The total number of Pacific leatherbacks susceptible to longline fishing was estimated at 32,000 individuals in 2000. The total number of adult females in the Jamursba-Medi component of the Western Pacific population was estimated at 1,515 for the period 2005-07 by Snover, which is estimated to make up 38% of the population, giving a total number of adult females in the Western Pacific population of  $1,515/0.38 = 3,987$ . This estimate lies within the range of 2,110 – 5,735 breeding females estimated for this population by Dutton et al. However, due to the uncertainty of the assumptions used to derive sea turtle population estimates, in this opinion NMFS uses nesting or nesting female data as population indices, as recommended by Dutton et al.

Adult leatherbacks range more widely across oceanic habitat than any other reptile, including into subpolar waters. Recent tagging studies have shown that adults sometimes migrate to highly productive upwelling areas near continental shelves, such as off Oregon and Washington.

Adult leatherbacks typically feed on pelagic soft-bodied animals, especially jellyfish, siphonophores, and tunicates. Despite the low nutritive value of their prey, leatherbacks grow rapidly and attain large sizes, hence they must consume enormous quantities of prey. Most water content of the prey is expelled before swallowing to maximize nutritive value per unit volume. Leatherbacks feed from near the surface to depths exceeding 1,000 meters, including nocturnal

feeding on tunicate colonies within the deep scattering layer. Although leatherbacks can dive deeper than any other reptile, most dives are < 80 meters.

Leatherback turtles have most likely already been affected by anthropogenic climate change. The global mean temperature has risen 0.76°C over the last 150 years, and the linear trend over the last 50 years is nearly twice that for the last 100 years. As global temperatures continue to increase, so will sand temperatures, which in turn will alter the thermal regime of incubating nests and alter natural sex ratios within hatchling cohorts, presumably toward a heavier female bias. Sea level rose approximately 15 centimeters during the 20<sup>th</sup> century and further increases are expected, resulting in inundation of nesting beaches. While under natural conditions beaches can move landward or seaward with fluctuations in sea level, extensive shoreline hardening (e.g., seawalls) inhibits this natural process.

The following section on loggerhead turtles (*Caretta caretta*) supplements Section 3.6.1.1.2 in the original EA and is taken directly as excerpts from Sections 5.2 through 5.2.3 of the Biological Opinion for Amendment 18 to the FMP for Pelagic Fisheries of the Western Pacific Region. The citations and references have been omitted in this section but can be found in the original document (NMFS 2008).

... The most recent loggerhead 5-year status review does not make a determination regarding global status and trends, but rather limits its conclusions to the status and trends of populations for which information is available. Some populations are increasing, but most populations for which information is available are decreasing, while there is not sufficient information to determine status and trends of many populations. The available information is not sufficient to determine the status and trend of the species as a whole.

Natal homing of female loggerheads to nesting beaches maintains regional population structure, and loggerhead populations occur in at least the North Pacific, South Pacific, the Western North Atlantic, the Western South Atlantic, the East Atlantic, the Mediterranean, and the Indian Ocean. Of the 125 loggerheads sampled so far in bycatch of the Hawaii-based shallow-set longline fishery, all have been determined to be from the North Pacific population, based on genetic analyses. North Pacific loggerheads nest exclusively in Japan, where monitoring of loggerheads nesting began in the 1950s on some beaches, and grew to encompass all known nesting beaches starting in 1990. In recent years, approximately 60% of the total nests in Japan have been laid on Yakushima. Hence, the total for 2008 is estimated in this opinion at 6,500 nests based on the best available data from STAJ at the time this opinion was completed. However, the actual total for 2008 may exceed 10,000 nests, after the STAJ data are tallied and verified.

For the 19-year period 1990-2008, the total number of nests per year for the North Pacific population ranged between 2,064 – 6,638 nests (using 6,500 as the

2008 total, not 10,000). Assuming a clutch frequency of 3.49 per female per year, the number of nesting females per year during 1990-2008 was 591 – 1,902. The total number of adult females in the population was estimated at 2,915 for the period 2005-07 by Snover.

Few population estimates are available, especially for Pacific populations. However, in order to estimate loggerhead and leatherback bycatch in Pacific longline fisheries, Lewison et al. made several assumptions regarding numbers of nesting females, remigration interval, the proportion of nesting-age females to the total population, and sex ratio, leading to a total population estimate across all life stages in 2000 for Pacific loggerheads (North Pacific and South Pacific populations combined) of 335,000 individuals (all ages, both sexes). In addition, they estimated that approximately 20% of the population (67,000) was in size classes susceptible to longline fishing. Due to the uncertainty of the assumptions used to derive sea turtle population estimates, in this opinion NMFS uses nesting or nesting female data as population indices. Nesting data from the 2 nesting beaches that have been monitored since the 1950s suggest that the North Pacific loggerhead population declined by 50-90% in the latter half of the 20<sup>th</sup> century. However, from 1999 to 2005, annual nests more than doubled, before declining in 2006 and 2007. Preliminary data for 2008 indicate at least a similar number of nests as the early 1990s.

Loggerhead life history is characterized by early development in the oceanic (pelagic) zone followed by later development in the neritic zone over continental shelves. The oceanic developmental period may last for over a decade, followed by recruitment to the neritic zone where maturation is reached. Adults forage primarily in neritic zones rather than oceanic zones, but adult migrations across oceanic zones may be undertaken for reproduction. Given that the action area is oceanic, the main aspects of North Pacific loggerhead life history affecting their vulnerability to Hawaii-based shallow-set longline fishing are juvenile foraging behavior in the oceanic zone, and migration across the oceanic zone, as discussed below.

Loggerhead life history is characterized by early development in the oceanic (pelagic) zone followed by later development in the neritic zone over continental shelves. The oceanic developmental period may last for over a decade, followed by recruitment to the neritic zone where maturation is reached. Adults forage primarily in neritic zones rather than oceanic zones, but adult migrations across oceanic zones may be undertaken for reproduction.

Loggerheads are a slow-growing species that reach sexual maturity at 25 to 37 years of age, depending on the subpopulation. Generation time for the North Pacific population is estimated at 33 years.

Loggerhead turtles are probably already being affected by anthropogenic climate change. The global mean temperature has risen 0.76°C over the last 150

years, and the linear trend over the last 50 years is nearly twice that for the last 100 years. Warmer temperatures within the nest chamber produce females while cooler ones produce males. Loggerheads nesting in the U.S. are already skewed towards females. As global temperatures increase, so will sand temperatures, which in turn will alter the thermal regime of incubating nests and alter natural sex ratios within hatchling cohorts, likely toward a larger proportion of females. Sea level rose approximately 15 centimeters during the 20<sup>th</sup> century and further increases are expected, resulting in inundation of nesting beaches. While under natural conditions beaches can move landward or seaward with fluctuations in sea level, extensive shoreline hardening (e.g., seawalls) inhibits this natural process. Erosion due to increased typhoon frequency and extreme temperatures are documented and known to cause high nest mortality. Lower breeding capacity of North Pacific loggerheads in years following higher sea surface temperatures may reflect reduced ocean productivity during warmer years, an indirect effect of climate change on this species.

Nesting trends through 2008, presented by Dr. Yoshimasa Matsuzawa at the Symposium for North Pacific Loggerhead Turtle Conservation in Japan, convened in Kagoshima, Japan, December 7, 2008, indicated a total of 10,847 nests. This is considerably higher than the 7,700 nests that the 2008 Biological Opinion (see information above) assumed before the nesting season was finished and all data compiled (Y. Matsuzawa, Sea Turtle Association of Japan, Senior Scientist, personal communication 2009).

### **3.3.1.1 Sea Turtle Interactions with Longline Fisheries**

The following section supplements Section 3.6.1.1.6 of the original EA. Paragraph three in Section 3.6.1.1.6.2 sets forth observed sea turtle interactions with the Hawaii-based deep-set and shallow-set longline fisheries in 2008. Table 16 in the original EA identifies the number of the sea turtle fisheries interactions for the two sectors of the Hawaii longline fleet, the shallow-set component and the deep-set component. Section 3.3.1.2 of the original EA describes in detail the management requirements for the Hawaii longline fleet. Specifically, Table 7 sets forth requirements for the two sectors of the Hawaii-based longline fleet – the shallow-set and deep-set components. The following table (Table 7) shows the sea turtle mitigation measures required for the entire Hawaii longline fleet. Also required to comply with these sea turtle mitigation measures under 50 CFR 665.32 are other longline vessels:

- With freeboards of more than 3 feet. Any owner or operator of a longline vessel with a permit issued under 50 CFR 665.21 other than a Hawaii Longline Limited Access Permit must carry aboard the vessel line clippers, dip nets, and dehookers.
- With freeboards of 3 feet or less. Any owner or operator of a longline vessel with a permit issued under 50 CFR 665.21 other than a Hawaii Longline Limited Access Permit must carry aboard their vessels line clippers capable of cutting the vessels fishing line or leader within approximately 1 foot of the eye of an embedded hook, as well as wire or bolt cutters capable of cutting through the vessel's hooks.

**Table 7 Sea turtle mitigation measures required for the Hawaii longline fleet (50 CFR 665.32)**

- Annually, owners and operators of longline vessels registered to a Hawaii Longline Limited Access Permit must attend and be certified in the Protected Species Workshop held by PIRO on mitigation, handling, and release techniques for sea turtles, seabirds, and marine mammals;
- Vessel owners and operators must follow specific guidelines for handling, dehooking, resuscitating, and releasing sea turtles that interact with longline fishing gear;
- The vessel owner and operator must have the following turtle handling/dehooking gear on board the vessel:
  - 1) Long-handled line clipper
  - 2) Long-handled dip net
  - 3) Long-handled dehooker for ingested hooks (may substitute for item 4)
  - 4) Long-handled dehooker for external hooks
  - 5) Long-handled device to pull an “inverted V”
  - 6) Tire
  - 7) Short-handled dehooker with bite guard for ingested hooks (may substitute for item 8)
  - 8) Short-handled dehooker for external hooks
  - 9) Long-nose or needle-nose pliers
  - 10) Wire or bolt cutters
  - 11) Monofilament line cutters
  - 12) At least two of the following mouth openers and gags:
    - Block of hard wood
    - Set of three canine mouth gags
    - Set of two sturdy canine chew bones
    - Set of two rope loops covered with hose
    - Hank of rope
    - Set of four PVC splice couplings
    - Large avian oral speculum (to be used to hold a turtle's mouth open and control the head with one hand while removing a hook with the other); and
- No sea turtle, including a dead turtle, may be consumed or sold.

The following is taken directly as excerpts from Sections 5.3 through 5.3.3 of the Biological Opinion for Amendment 18 to the FMP for Pelagic Fisheries of the Western Pacific Region. The citations and references have been omitted in this section but can be found in the original document (NMFS 2008).

The Hawaii-based shallow-set fishery interacts mostly with adult leatherback turtles. Western Pacific leatherbacks nesting during the northern summer (Jun-Aug) in Papua go northeast on their way to productive temperate waters off of the west coast of the U.S. Primary foraging depth overlaps with fishing depth of the Hawaii-based shallow-set fishery. Approximately 69% of the observed

leatherback interactions in the Hawaii-based longline fishery (shallow-set and deep-set component combined) from 1994 to early 2008 were in the shallow-set component.

The following is taken directly as excerpts from Sections 5.2.2 and 5.2.3 of the Biological Opinion for Amendment 18 to the FMP for Pelagic Fisheries of the Western Pacific Region. The citations and references have been omitted in this section but can be found in the original document (NMFS 2008).

The main aspects of North Pacific loggerhead life history affecting their vulnerability to Hawaii-based shallow-set longline fishing are juvenile foraging behavior in the oceanic zone, and migration across the oceanic zone, as discussed below. The Hawaii-based shallow-set fishery interacts mostly with juvenile loggerhead turtles, typically 50 – 80 centimeters carapace length. In the oceanic zone of the central North Pacific Ocean, foraging juvenile loggerheads congregate in the boundary between the warm, vertically-stratified, low chlorophyll water of the subtropical gyre and the vertically-mixed, cool, high chlorophyll transition zone water. This boundary area is referred to as the Transition Zone Chlorophyll Front, and is favored foraging habitat for both juvenile loggerhead turtles and swordfish, hence bringing the loggerheads into contact with the shallow-set fishery. Data collected from stomach samples of juvenile loggerheads indicate a diverse diet of pelagic food items. In addition to the geographic overlap of juvenile loggerheads with the shallow-set fishery, tagging studies indicate that juvenile loggerheads are shallow divers that forage frequently at depths fished by shallow-set gear (<100 meters). Because juvenile loggerheads forage within the action area, and they often forage at depths fished by the shallow-set fishery, this species is the most susceptible of the Pacific sea turtle species to interactions with shallow-set gear: About 75% of the bycaught turtles observed in the shallow-set fishery from 1994 to early 2008 were loggerheads, whereas only 10% of the deep-set observed bycatch was loggerheads during this period. Because deep-set gear is typically set >100 meter depth, loggerheads rarely encounter it. The opposite occurs with olive ridleys, which have little bycatch in the shallow-set fishery but make up the majority of the turtle bycatch in the deep-set fishery.

North Pacific loggerhead range spans the entire north Pacific Ocean, hence migration of juveniles and adults between terrestrial (nesting), near-shore, and pelagic habitats may result in criss-crossing of the action area during all life stages, thereby exposing an individual loggerhead to shallow-set longlining for many years or even decades. Juveniles are likely more abundant than adults in the action area, as most loggerhead bycatch is from this life history stage in the Hawaii-based shallow-set longline fishery. However, adult loggerhead interactions occasionally occur in the fishery.

In the North Pacific, longline fisheries operating out of Hawaii were estimated to kill hundreds of loggerheads a year before the fishery was closed in 2001, and



then modified and reopened with measures to minimize bycatch and post-hooking mortality in 2004.

### **3.3.2 Marine Mammals**

The following section supplements Section 3.6.1.2.1.3 of the original EA. The primary impacts of the Hawaii-based longline fleet on the Central North Pacific stock of humpback whales (*Megaptera novaeangliae*) could result from direct interactions with the fishing gear. Fishery effects on humpback whales could result from entanglement and subsequent injury or death of individuals that interact with the longline gear. Humpback whales are present in the Hawaii portion of the action area as they migrate to and from and occur in waters surrounding the Hawaiian Islands during the winter months. However, the activities of the longline fishery generally take place at locations where humpback whales are uncommon. Thus, interactions between the Hawaii-based longline fleet and humpback whales are rare and unpredictable events.

Since 2001, there have been only five observed interactions between the species and the entire Hawaii-based longline fleet (Forney and Kobayashi, 2007; McCracken and Forney, 2008). During this same time period, the Central North Pacific stock of humpback whales has been steadily increasing in abundance (Allen and Angliss, 2009). One interaction per year with adult humpback whales was observed in the Hawaii deep-set longline fishery in 2001, 2002, and 2004 (Forney and Kobayashi, 2007). The fourth and fifth interactions were observed in the Hawaii shallow-set longline fishery in 2006 and 2007 (McCracken and Forney, 2008). In each instance, efforts were taken to disentangle the whale, and all whales were either released or able to break free from the gear without noticeable impairment to the animals' ability to swim or feed. NMFS intends to have the Alaska Scientific Review Group review the interaction records for Hawaii during the upcoming winter meeting for incorporation into the 2010 draft reports.

### **3.3.3 Seabirds**

Section 3.6 of the original EA identifies all the species found in the Convention Area listed as threatened or endangered under the Endangered Species Act (ESA; 16 U.S.C. 1531 *et seq.*). Section 3.6 is subdivided into sections specific to sea turtles, marine mammals, and seabirds. All three sections list and describe the species listed as threatened or endangered under the ESA and further describe the interactions between the species and the different fishing fleets. This section supplements Section 3.6.1.3 of the original EA.

Table 20 of the original EA lists the seabird species listed as threatened or endangered in the WCPO. These two species are the Short-tailed albatross (*Phoebastria albatrus*), listed as endangered under the ESA, and the Newell's shearwater (*Puffinus auricularis newelli*), listed as threatened under the ESA. Sections 3.1.1.1.3.1.1 and 3.1.1.1.3.1.2 of the original EA summarize the biology and population status of these two species in the Pacific Ocean. The most current fishery interaction report lists no reported fishery

interactions for the first two quarters in 2009 with either of these two species in the Hawaii longline fishery, including the shallow-set and deep-set sectors (NMFS 2009b).

In 2008 the Hawaii shallow-set and deep-set longline sectors combined had a total of 103 seabird interactions, out of which 40 involved Black-footed albatross (*Phoebastria nigripes*), 47 involved Laysan albatross (*Phoebastria immutabilis*), one involved a red-footed booby (*Sula sula*), 14 involved shearwater species, and one involved an unidentified seabird (NMFS 2009b). The latest status assessment conducted by the U.S. Geological Survey concludes that the Laysan albatross is not at risk of decline because of fishery bycatch while the Black-footed albatross may be at risk of decline because of fishery bycatch (Arata, Sievert, and Naughton 2009).



## Chapter 4 Environmental Consequences

This chapter analyzes the environmental consequences that could result from the implementation of Alternative 5, the new alternative for the U.S. Longline Rule. Section 4.1 presents the analyses of the direct, indirect, and cumulative impacts, while Section 4.2 compares the potential environmental impacts of implementing Alternative 5 to the potential environmental impacts of implementing the other alternatives studied in the original EA.

### 4.1 *Alternative 5: Direct, Indirect, and Cumulative Impacts*

#### 4.1.1 Direct and Indirect Effects<sup>8</sup> to the Affected Fisheries

Section 2.1 of this Supplemental EA describes Alternative 5. This alternative is similar to Alternative 3, analyzed in the original EA. Under both of these alternatives, U.S. vessels would be prohibited from retaining on board, landing, or transshipping any catch of bigeye tuna captured by longline gear in the limit's area of application, once the limit has been reached for the calendar year.<sup>9</sup> However, under Alternative 5, bigeye tuna caught by a vessel registered for use under an American Samoa Longline Limited Access Permit would be considered to be fish caught as part of the American Samoa longline fishery, and thus would not be subject to the limit or to the prohibitions established once the limit is reached. For such bigeye tuna to be considered part of the American Samoa longline fishery, they must not have been caught in the portion of the EEZ surrounding the Hawaiian Archipelago, and must be landed by a U.S. fishing vessel operated in compliance with a valid permit issued under 50 CFR 660.707 or 665.21. Section 4.1.1.1 describes the potential effects that all of the vessels in the Hawaii longline fleet could experience under Alternative 5.<sup>10</sup> Section 4.1.1.2 sets forth the potential effects that the subset of vessels in the Hawaii longline fleet – those with both an American Samoa Longline Limited Access Permit and a Hawaii Longline Limited Access Permit (the “dual permit vessels”) – could experience.

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<sup>8</sup> Similar to the CEQ's regulations for implementing NEPA at 40 CFR 1508.8, the terms effects and impacts as used in this document are synonymous. The choice of which term to use when is based solely on NMFS' stylistic preference for this document.

<sup>9</sup> The original EA indicated that the limit for 2009 could be reached or exceeded in the third quarter of 2009. Current estimates indicate that the limit could be reached or exceeded in December 2009.

<sup>10</sup> As discussed in the original EA, although the catch limit applies to both the Hawaii longline fleet and west-coast based longline vessels, there have been very few active west-coast based vessels in the Convention Area in recent years.

#### **4.1.1.1 Direct and Indirect Effects to All Affected Vessels**

Alternative 5 would be expected to cause changes to the fishing patterns and practices of the Hawaii longline fleet. If and when the bigeye tuna catch limit is reached in a given year and the prohibitions are consequently put into effect, affected fishing businesses would be expected to cease fishing for the remainder of the calendar year or, if they typically engage in deep-setting, shift from deep-setting for bigeye tuna in the WCPO to the next best opportunity. Although those opportunities cannot be predicted with certainty, three opportunities that would appear to be attractive to vessels in the fishery include shallow-setting (i.e., for swordfish), deep-setting for bigeye tuna in other areas, specifically the EPO, and deep-set longline fishing in the Convention Area for species other than bigeye tuna. Making such shifts would bring costs to the affected fishing operations, but the magnitude of those costs cannot be projected.

A fourth opportunity, which is discussed in more detail in the following section, is for vessels that do not have dual permits to engage in transshipping activities with the dual permit vessels (i.e., the vessels with dual permits could catch bigeye tuna outside of the EEZ of the Hawaiian Archipelago and transship their catch to vessels without dual permits who could then land the catch in Hawaii).

Because the limit would be set on a calendar year basis, the prohibitions would be expected to go into effect towards the end of the calendar year. The establishment of a competitive limit could cause a “race to fish” effect in that part of the year prior to the prohibitions going into effect. This race to fish effect could also be expected in the time period between when announcement of the prohibition is made and when the prohibition takes place, leading to some potential safety and operational effects; vessel owners could forego maintenance or fish in unsafe weather or ocean conditions in order to compete for their share of the limit. However, due to the limited time period that the prohibitions would be in effect and the other opportunities available to the affected vessels, it is unlikely that any race to fish effect would be pronounced.

This alternative would be expected to bring costs to the affected fishing operations (e.g., through lost revenues and/or greater operating costs associated with the next-best opportunity that they engage in), as well as economic impacts to forward- and backward-linked economic sectors, including businesses that supply fishing vessels and businesses that market the fish. Detailed discussion of these economic impacts is included in the Regulatory Impact Review (RIR) as revised (NMFS 2009d) for the rule.

Vessels could continue to land bigeye tuna in American Samoa, Guam, or the CNMI. However, the bigeye tuna must not have been caught in the portion of the EEZ surrounding the Hawaiian Archipelago, and they must be landed by a U.S. fishing vessel operated in compliance with a valid permit issued under 50 CFR 660.707 or 665.21.

#### **4.1.1.2 Direct and Indirect Effects to Dual Permit Vessels**

As stated above, under Alternative 5, bigeye tuna caught by dual permit vessels outside the EEZ surrounding the Hawaiian Archipelago would not be counted against the limit, and these vessels would be allowed to continue to use longline gear to fish for bigeye tuna in the Convention Area (but not in the portion of the EEZ around the Hawaiian Archipelago) and land the bigeye tuna in Hawaii (or transship it to vessels that subsequently land it in Hawaii) after the limit is reached and the prohibitions go into effect. This subset of the Hawaii longline fleet would have this opportunity while the rest of the fleet would not, so it could be faced with new motivations that might lead it to alter its fishing patterns relative to its historical patterns. The following discussion focuses on the potential shifts in fishing patterns for this subset of vessels.

As stated in Chapter 3, Table 1 of this Supplemental EA, there have been 10-12 vessels with dual permits in each of the three full years that the American Samoa Longline Limited Entry program has been in place (2006-2008), and there were 11 dual permit vessels as of September 25, 2009.

Once the limit is reached in a given calendar year and until the end of the year, the number of U.S. longline vessels that could continue to fish for bigeye tuna for the Hawaii market in the Convention Area would be constrained to those with dual permits (bigeye tuna could be landed elsewhere and shipped to the Hawaii market, but that has not been demonstrated to be cost-effective to date). The supply of U.S. longline-caught bigeye tuna and other longline-caught species to the Hawaii market would be dampened accordingly, and prices for these products could be expected to increase. However, various other factors besides quantity of local product influence the price of fresh bigeye tuna in the Hawaii market, so it is not clear if and to what degree price would be influenced by the limit being reached.

According to a study based on data from 1994-1996, seasonal changes in the quality of bigeye tuna had a greater impact on the price of bigeye tuna landed in Hawaii than the volume of landings (Pan and Pooley 2004) (it should be noted that once the limit is reached under this alternative, landings volumes could be reduced to levels below the range observed in the course of that study). Preliminary analysis of more recent data suggests that other factors may contribute more to bigeye tuna price changes in the Hawaii market than seasonal changes, including the availability of yellowfin tuna (a substitute product) and the location of catch (EPO versus WCPO) (NMFS unpublished data).

Overall, this alternative could lead to some changes in the fishing patterns of individual dual permit vessels, as described below.

As indicated in Table 2 in Chapter 3, about 20% of the bigeye tuna catch of the dual permit vessels was landed in American Samoa in 2006, 14% of their bigeye tuna catch was landed in American Samoa in 2007, and 7% of their bigeye tuna catch was landed in American Samoa in 2008. The remainders in each year – that is, the majority – was

landed in Hawaii. Should bigeye tuna price in the Hawaii market increase after the catch limit is reached, these vessels would have an incentive to land more bigeye tuna in Hawaii. On the other hand, because any fishing for bigeye tuna after the limit is reached would need to take place outside of the EEZ surrounding the Hawaiian Archipelago, the dual permit vessels may decide to increase their fishing effort for bigeye tuna in areas nearer to American Samoa. However, given that the trend from 2006 through 2008 shows that the percentage of bigeye tuna catch landed in American Samoa has been decreasing for these vessels, it is unlikely that there would be a large market for additional fresh-caught bigeye tuna landed in American Samoa, and the cost of transporting bigeye tuna caught farther away from Hawaii to the Hawaii market may be prohibitive. Vessels in the American Samoa fishery primarily target albacore, so any shift in fishing effort in areas nearer to American Samoa may primarily be an increase in effort on albacore.

Over the twelve-year period from 1996-2007, 46% of the bigeye tuna caught by the Hawaii-based longline fleet was caught inside the EEZ surrounding the Hawaiian Archipelago (Table 3) (WPRFMC 2009). Using catch as a proxy for effort and given that the average number of active vessels in the Hawaii longline fleet during that period was 115 (see Table 8 in the original EA) and using 11 as the number of dual permit vessels (the average of the number of dual permit vessels for 2006-2008) (or about 10% of the Hawaii fleet – that is, of vessels with Hawaii Longline Limited Access Permits) during the years when the catch limit is in place, the maximum estimated shift in fishing effort for bigeye tuna from inside the EEZ surrounding the Hawaiian Archipelago to outside the EEZ surrounding the Hawaiian Archipelago under Alternative 5 could be 4.6%. This percentage is based on the assumption that dual permit vessels would shift their entire effort to areas outside the EEZ surrounding the Hawaiian Archipelago both before and after the catch limit is reached so that none of their catch would be counted as part of the catch limit. Due to the productivity of the fishing grounds inside the EEZ surrounding the Hawaiian Archipelago, this assumption is unlikely, but is presented here to set forth an approximation for the maximum possible shift in spatial fishing effort.

Prior to the limit being reached in a given year, dual permit holders would not be expected to behave any differently than they would under the No-Action Alternative, unless the Hawaii longline fleet as a whole (or a substantial portion of it) collectively responds to the impending limit and cooperates to put off the limit being reached while maximizing their returns. For example, dual permit vessels could transship their catches outside the EEZ of the Hawaiian Archipelago at sea to vessels that then steam to port and land the catch (e.g., to vessels in the fleet that do not have dual permits). This would allow vessels in the fleet to engage in substantial fishing activity that would not contribute to the catch limit.

After the limit is reached in a given year, two factors would be likely to influence – in opposite directions – the behavior of operators of vessels with dual permits. First, once the limit is reached and the prohibitions are put into effect, these vessels would not be allowed to fish in the portion of the EEZ around the Hawaiian Archipelago. This constraint on operational flexibility would be expected to dampen their profitability and thus bring a negative influence on their incentive to fish (relative to the amount of fishing

effort they would exert under the No-Action Alternative). A factor likely to act in the opposite direction is that once the limit is reached, the supply of locally caught bigeye tuna, and other longline-caught products, to the Hawaii market would be constrained accordingly. This could be expected to affect prices of bigeye tuna and other longline-caught products in the positive direction, as mentioned above, enhancing profitability and thus bringing a positive influence on dual permit holders' incentive to fish. Any increase in fishing effort by these vessels would, of course, be constrained for practical reasons – the potential amount of fishing effort per vessel per unit of time is not limitless. However, substantial increases are possible. For example, dual permit vessels could transship their catches at sea to vessels that then steam to port and land the catch (e.g., to vessels that do not have dual permits, whose fishing opportunities would have been more severely constrained than those of dual permit vessels). This would allow the dual permit vessels to spend considerably more time actually fishing than they would under the No-Action Alternative.

It is not possible to predict which of these two countervailing factors would have a stronger influence. Thus, it can only be predicted that fishing effort by individual dual permit vessels prior to the limit being reached, would likely be the same as or greater than under the No-Action Alternative. After the limit is reached, fishing effort by individual dual permit vessels could be greater than, less than, or the same as under the No-Action Alternative, and the spatial distribution of their fishing effort would shift from the EEZ around the Hawaiian Archipelago to other areas (relative to the distribution under the No-Action Alternative).

Assuming that there is some increase in the price of bigeye tuna and other longline-caught species in the Hawaii market once the limit is reached, fishing businesses could be motivated to obtain dual permits for their vessels. The number of dual permit vessels would therefore be expected to increase as a result of implementation of Alternative 5, but there would be constraints to such growth.

As stated in Chapter 3 of this Supplemental EA, there are currently eight American Samoa Longline Limited Access Permits that are unassigned. It is also possible for a vessel owner with an American Samoa Longline Limited Access Permit to transfer the permit to a vessel owner with a Hawaii Longline Limited Access Permit, as described in Chapter 3 and as specified at 50 CFR 665.36, which would allow the transferee to become a dual permit vessel. However, vessel owners and operators must meet the specific requirements outlined in Chapter 3.

Vessel owners and operators with an American Samoa Longline Limited Access Permit could potentially obtain a Hawaii Longline Limited Access Permit and become dual permit vessels. However, the cost of obtaining such a permit could be prohibitive. A vessel owner with a Hawaii Longline Limited Access Permit may also transfer the permit to a vessel owner with an American Samoa Longline Limited Access Permit. However, while foreign-built vessels can participate in the American Samoa longline fleet, foreign-built vessels cannot participate in the Hawaii longline fleet (46 U.S.C. 12108(c)(2)).



As stated in Chapter 3, the current regulatory limit for the number of American Samoa Limited Access Longline Permits is 60 and the current regulatory limit for the number of Hawaii Longline Limited Access Permits is 164. Therefore, the number of dual permits could increase to a maximum of 60, though this would be unlikely due to the requirements and restrictions described above.

#### **4.1.1.3 Summary of Effects to the Affected Vessels**

As stated in the RIR (NMFS 2009d), should there be an increase in retained catches of bigeye tuna in the Convention Area under the No-Action Alternative, implementation of the U.S. Longline Rule could result in a maximum of 34% less bigeye tuna being caught in the Convention Area over the three-year period (2009-2011) that the rule would be in effect if the entire Hawaii-based longline fleet ceased fishing once the catch limit is reached. The four identified alternative opportunities available to the entire fleet (shallow-setting (i.e., for swordfish); deep-setting for bigeye tuna in other areas, specifically the EPO; deep-set longline fishing in the Convention Area for species other than bigeye tuna; and receiving transshipments of bigeye tuna from dual permit vessels), indicate that the actual reduction in bigeye tuna catch in the Convention Area as a result of the rule would be less than 34%. The additional opportunities available to dual permit vessels (fishing for bigeye tuna outside of the EEZ surrounding the Hawaiian Archipelago and landing bigeye tuna in Hawaii) would decrease the actual reduction in bigeye tuna catch even further. However, given that even the dual permit vessels would experience operational constraints once the catch limit is reached (i.e., dual permit vessels could not conduct fishing activities for bigeye tuna in the EEZ surrounding the Hawaiian Archipelago), even if the fishing effort of dual permit vessels increases, Alternative 5 would be expected to lead to some reduction in bigeye tuna catch in the Convention Area over the No-Action Alternative.

There may be other unforeseeable opportunities available to individual vessels affected by the U.S. Longline Rule that could lead to additional increases in the amount of bigeye tuna caught in the Convention Area once the limit is reached. Thus, although implementation of the rule would cause some changes to the fishing patterns and behavior of vessels in the Hawaii-based longline fleet, the overall effects to affected vessels would not be expected to be substantial.

#### **4.1.2 Effects to Bigeye Tuna and Yellowfin Tuna and Other Principal Target Stocks**

Implementation of the U.S. Longline Rule under Alternative 5 would lead to a direct reduction in fishing mortality on WCPO bigeye tuna, because a catch limit would be imposed where one currently does not exist, and thus, there would be some direct beneficial impacts on the stock. However, those impacts are likely to be negligible because: (1) the limit would be in effect for only three years, after which fishing rates and fishing mortality rates contributed by the U.S. longline fisheries on the stock would be expected to rebound to the levels under No-Action; (2) after the limit is reached, all of the longline vessels in the fleet could transfer their effort to other areas, such as the EPO, or

to other species, mitigating any diminishing effect of the prohibition on fishing mortality rates (as stated in Chapter 3, Section 3.4 of the original EA, the stock structure of bigeye tuna in the Pacific Ocean is not well known, but there is some degree of mixing between the EPO and the WCPO, so any fishing mortality in the EPO would likely affect the status of the stock in the WCPO and fishing for other species in the Convention Area would result in at least some bigeye tuna being incidentally caught); and (3) dual permit vessels could continue fishing for bigeye tuna in the Convention Area outside of the EEZ surrounding the Hawaiian Archipelago.

Under this alternative, longline vessels would still be used to both deep-set and shallow-set in the Convention Area. The amount of bigeye tuna incidentally caught (and discarded) in the shallow-set fishery would likely be very small. However, given that bigeye tuna is one of the most commonly caught species in the deep-set fishery, it is likely (unless fishing methods are radically modified to reduce catch rates) that substantial amounts of bigeye tuna would be caught in any deep-setting that occurs in the Convention Area after the limit is reached. Moreover, the dual permit vessels could continue targeting bigeye tuna in the Convention Area after the limit is reached.

The opportunity costs of deep-setting for species other than bigeye tuna is not known; that is, it is not known whether it would be an economically viable activity for any of the affected vessels. The opportunity cost of simply shifting to the EPO to deep-set for bigeye would seem to be almost certainly less, so substantial deep-setting in the Convention Area by vessels without dual permits in the Convention Area after the limit is reached would not be expected. However, the dual permit vessels could continue to fish for bigeye tuna in the Convention Area.

Any reduction in deep-setting effort for bigeye tuna would have beneficial impacts on the stock of yellowfin tuna, which is also caught by deep-set longlining. However, yellowfin tuna could continue to be retained, landed, and transshipped under Alternative 5. Moreover, should fishing effort shift to the EPO, this could affect the stock of EPO yellowfin tuna, which is subject to overfishing. Although there is not a distinct boundary between WCPO yellowfin tuna and EPO yellowfin tuna, an increase in effort on EPO yellowfin tuna could lead to additional adverse effects on this stock. However, the overall effects on WCPO bigeye tuna and WCPO yellowfin tuna would be so minor, that any effects to ecosystem function and biodiversity would not be expected.

As stated above, dual permit vessels could constitute about 10% of the Hawaii-based longline fleet. Should these vessels shift all or some of their fishing effort for bigeye tuna to outside the EEZ surrounding the Hawaiian Archipelago so that this catch would not be counted as part of the limit, the rest of the vessels in the fleet would each have a larger share of the catch limit than otherwise, so the catch limit would be reached later in the year than under the other action alternatives analyzed in the original EA. Thus, any potential beneficial impacts on the stocks of bigeye tuna and yellowfin tuna would be less under this alternative than under the other action alternatives.

As stated in the RIR (NMFS 2009d), under the No-Action Alternative, the total retained catches of bigeye tuna from the Convention Area by vessels affected by the U.S. Longline Rule could be up to 5,300 mt in 2009, 5,700 mt in 2010, and 6,200 mt in 2011.<sup>11</sup> Thus, assuming that the retained catch of the dual permit vessels is 10% of the total catch (and Table 1 in Chapter 3 of this Supplemental EA indicates that it is likely less than 10%, comparing the amount of bigeye tuna caught by dual permit vessels through deep-setting in the WCPO to the amount of bigeye tuna caught by the entire Hawaii-based longline fleet through deep-setting in the WCPO), should all of the catch of bigeye tuna for the dual permit vessels take place outside the EEZ surrounding the Hawaiian Archipelago, 530 mt of bigeye tuna that is not subject to the catch limit could be caught and retained by dual permit vessels in 2009; 570 mt of bigeye tuna that is not subject to the catch limit could be retained in 2010; and 620 mt of bigeye tuna that is not subject to the catch limit could be retained in 2011.<sup>12</sup>

Should the number of dual permit vessels increase as a result of this alternative or the fishing effort of dual permit vessels increase to meet market demand, these numbers could increase accordingly. If the number 60 is used as the maximum number of possible dual permit vessels under the current regulatory regime, dual permit vessels could constitute about 50% of the Hawaii-based longline fleet. If dual permit vessels conduct all of their fishing operations outside the EEZ surrounding the Hawaiian Archipelago, using the projected numbers for bigeye tuna catch under the No-Action Alternative, 2,650 mt of bigeye tuna that is not subject to the catch limit could be caught and retained by dual permit vessels in 2009, 2,850 mt of bigeye tuna that is not subject to the catch limit could be caught and retained in 2010, and 3,100 mt of bigeye tuna that is not subject to the catch limit could be caught and retained in 2011. However, it is unlikely that these numbers for additional bigeye tuna catch would be reached for the following two reasons: (1) due to the restrictions and costs of becoming a dual permit vessel, discussed in Section 3.1 and Section 4.1.1.2 of this Supplemental EA, it is improbable that the number of dual permit vessels would reach the maximum possible number of 60; and (2) these numbers indicate that the total bigeye tuna catch would be greater than the amount projected under the No-Action Alternative, which would not be favored by market conditions. Moreover, it is already the fourth quarter of 2009, so the maximum amount of bigeye tuna catch in the Convention Area is already less for 2009 than the amount predicted under the No-Action Alternative.

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<sup>11</sup> The RIR as revised (NMFS 2009d) described two No-Action Alternative scenarios. Under the less conservative No-Action Alternative scenario, the increasing trend in bigeye tuna catch for the Hawaii-based longline fishery that has been observed in recent years would continue. The projected numbers for bigeye tuna catch under the less conservative No-Action Alternative are used for the purposes of this analysis.

<sup>12</sup> This information is presented solely to provide a projection for the additional retained catch of bigeye tuna under Alternative 5 (“additional” as compared to the amount that would be retained if all vessels ceased fishing once the catch limit is reached). It is unlikely that the dual permit vessels would shift all of their fishing effort to fishing grounds outside of the EEZ surrounding the Hawaiian Archipelago for the entire duration of the catch limit. Moreover, this Supplemental EA is being issued in the fourth quarter of 2009.

It is reasonable to conclude that the maximum increase in bigeye tuna catch over the catch limit under this alternative would be an amount making the total bigeye tuna catch for the affected fleets no more than the amount under the No-Action Alternative (or an increase over that catch limit of 1,537 mt or less for 2009, 1,937 mt or less for 2010, and 2,437 or less for 2011). The increase in bigeye tuna catch over the catch limit under this alternative would be greater than the increase under the other action alternatives analyzed in the original EA. For the other action alternatives, incidental catch of bigeye tuna from shallow-setting for swordfish in the Convention Area and deep-setting for other species, as well as any shift in fishing effort to targeting bigeye tuna in the EPO would contribute to the increase. Under Alternative 5, the fishing activities of dual permit vessels outside the EEZ surrounding the Hawaiian Archipelago would also contribute to the increase. However, the overall bigeye tuna catch would likely be less than the amount under the No-Action Alternative, due to the costs, restrictions, and requirements involved in shifting to other opportunities or having additional vessels become dual permit vessels and the operational constraints imposed on the dual permit vessels under this alternative (e.g., bigeye tuna must be caught outside of the EEZ surrounding the Hawaiian Archipelago), as discussed above. As discussed in Chapter 3 of the original EA, overfishing of the WCPO bigeye tuna stock is likely occurring, meaning that if it continues, the stock size can be expected to decline to levels smaller than those needed to produce MSY. Thus, Alternative 5 could lead to some minor beneficial effects on bigeye tuna that would not be experienced under the No-Action Alternative.

The other principal target stock for U.S. longline fleets in the Convention Area is swordfish. As stated in Chapter 3 of the original EA, the stock status of North Pacific swordfish is currently neither overfishing nor overfished, so it is unlikely that any shift in fishing effort to targeting swordfish after the prohibition is in effect would cause detrimental impacts to the stock. The International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific (ISC) issued a recent report consistent with NMFS' stock status determination for North Pacific swordfish. The report identifies two stock divisions within the North Pacific stock – the WCPO and EPO stocks – and states that “these stocks of swordfish are healthy and well above the level required to sustain recent catches” (ISC 2009). Moreover, as shown in Figure 12 in Chapter 4 of the original EA, in the Convention Area for the years 2005-2008, the majority of swordfish was landed by the fleets in the beginning of the calendar year. Therefore, since the catch limit would likely be reached toward the end of the calendar year, it is unlikely that any shift in effort to the shallow-set sector would cause large increases in swordfish mortality.

#### **4.1.3 Effects to Secondary Target Stocks**

Alternative 5 would not be expected to cause large changes to the overall amount of secondary target stocks caught by the U.S. longline fleets operating in the Convention Area (relative to catch amounts under the No-Action Alternative). Both the deep-set and shallow-set sectors of the fishery would remain open, and any transfer of effort would be expected to result in catch rates of secondary target stocks that are similar to existing conditions. Should vessels cease fishing during the prohibition, effects to secondary target stocks would be beneficial.

The U.S. longline fleets that would be directly affected by the U.S. Longline Rule (the Hawaii and west coast-based fleets) do not currently target albacore, although the American Samoa fleet does. The stock status (with respect to the status determination criteria established under the MSA, and as determined by NMFS) of North Pacific albacore is currently unknown, while the stock status of South Pacific albacore is neither overfished nor subject to overfishing. The American Samoa fleet targets South Pacific albacore, while the Hawaii-based fleet does not target but takes some North Pacific albacore. As stated above, should the dual permit vessels shift their fishing effort to locations closer to American Samoa as a result of the rule, there could be some increased fishing effort towards targeting South Pacific albacore. Should vessels cease fishing as a result of the rule, effects to North Pacific albacore would likely be beneficial. However, as stated in the original EA, the U.S. Longline Rule could cause vessels to shift their fishing effort from targeting bigeye tuna to targeting North Pacific albacore tuna. Due to the other opportunities available to affected vessels, as discussed above, any such shift to targeting albacore likely would be minor.

#### **4.1.4 Effects to Protected Resources**

Alternative 5 could lead to a shift of fishing effort to other areas and to other species. If this transfer of fishing effort leads to an increase in fishing activity in areas where there is a greater incidence of protected resources, the potential for the fleet to interact with protected resources could be increased. However, any effects in terms of catches and fishing mortality rates to protected species are expected to be small compared to, for example, typical year-to-year variations in catches among species driven by changing oceanic and economic conditions. Thus, any effects that may occur as a result of Alternative 5 would be minor. To the extent that there could be a slight reduction in fishing effort, any effects to ESA-listed species or critical habit of these species would be beneficial, since there would be a reduced risk of interaction with the protected resource.

NMFS has completed several previous ESA consultations for the U.S. longline fisheries in the Convention Area. They are as follows:

- (1) Biological Opinion on adoption of (1) proposed HMS FMP; (2) continued operation of HMS fishery vessels under permits pursuant to the HSFCA; and (3) ESA regulation on the prohibition of shallow longline sets east of the 150° West longitude (NMFS 2004).
- (2) Biological Opinion for the FMP for U.S. west coast fisheries for HMS and its effect on the endangered short-tailed albatross (*Phoebastria albatrus*) and the endangered brown pelican (*Pelecanus occidentalis*) (USFWS 2004).
- (3) Biological Opinion on continued authorization of the Hawaii-based pelagic, deep-set, tuna longline fishery based on the FMP for pelagic fisheries of the western Pacific region (NMFS 2005).

(4) Biological Opinion on management modifications for the Hawaii-based shallow-set longline swordfish fishery – implementation of Amendment 18 to the FMP for pelagic fisheries of the western Pacific region (NMFS 2008).

(5) Biological Opinion for the effects of the Hawaii-based domestic longline fleet on the short-tailed albatross (*Phoebastria albatrus*) (USFWS 2002).<sup>13</sup>

The U.S. Longline Rule under Alternative 5 would not cause any impacts to ESA-listed threatened or endangered species that have not been addressed in prior or ongoing consultations.

As stated in Chapter 3 of the original EA, pursuant to the regulations implementing the Marine Mammal Protection Act (MMPA; 16 U.S.C. § 1361, *et seq.*) at 50 CFR Part 229, the Hawaii longline fishery is classified as a Category I fishery. This means that the fishery has the potential for frequent incidental mortality and serious injury to marine mammals. However, it is unlikely that the proposed action would affect the number of interactions between the fishery and marine mammals. As discussed above, any effects in terms of catches and fishing mortality rates to protected species from shifts in fishing effort from the Alternative 5 are expected to be small compared to, for example, typical year-to-year variations in catches among species driven by changing oceanic and economic conditions.

Alternative 5 would not cause any impacts to the National Wildlife Refuges (NWRs) or National Monuments described in Chapter 3, Section 3.6.3 of the original EA. Any geographical shifts in fishing effort likely would be minor and would not be expected to affect these areas.

The U.S. Longline Rule under Alternative 5 would not cause any adverse impacts to areas designated as Essential Fish Habitat (EFH) or Habitat Areas of Particular Concern (HAPC), as described in Chapter 3, Section 3.6.2 of the original EA, or to ocean and coastal habitats. Any changes to fishing practices and any geographical shifts in fishing effort likely would be minor and unlikely to affect these areas.

Indeed, there could be a shift of 4.6% of the Hawaii-based longline fleet's overall fishing effort from within the EEZ surrounding the Hawaiian Archipelago to outside the EEZ surrounding the Hawaiian Archipelago, as stated in Section 4.1.1.2 (the amount of shift could increase if the number of dual permit vessels increases), which could lead to a reduction in fishing effort near NWRs, National Monuments, or areas designated as EFH or HAPC that are within the EEZ surrounding the Hawaiian Archipelago.

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<sup>13</sup> The Incidental Take Statement in this biological opinion expired on December 31, 2006; USFWS and NMFS are currently consulting regarding impacts of the longline fishery to the short-tailed albatross and expect this consultation to be completed by the end of 2009. See Informal Consultation for the Western and Central Pacific Fisheries Convention Implementation Act Proposed Rulemaking, Letter from USFWS to NMFS, January 28, 2009.

#### **4.1.5 Environmental Justice**

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” states that “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” As discussed above, the overall environmental effects from implementation of the U.S. Longline Rule would be minor and beneficial and generally would be distributed evenly among the affected vessels. However, the economic impacts on the dual permit vessels would be less than on the other vessels in the affected fleets (please see the RIR). Overall, though, because the environmental effects from implementation of the U.S. Longline Rule under Alternative 5 would be minor and beneficial, this rule would not lead to substantial adverse human health or environmental effects on any population – minority, low income, or otherwise.

#### **4.1.6 Transferred Effects**

As stated in Chapter 1 of this Supplemental EA, comments to the original EA indicated that potential market transferred effects from implementation of the U.S. Longline Rule under any of the action alternatives should have been analyzed in the original EA. Thus, this Supplemental EA includes this separate section to analyze the potential market transferred effects that could arise from implementation of the U.S. Longline Rule under Alternative 5 or any of the other action alternatives.

As discussed in Chapter 3, Section 3.2, market transferred effects can arise from actions such as implementation of the U.S. Longline Rule under any of the action alternatives. The RIR (NMFS 2009) discusses the possibility of increased imports of bigeye tuna from the Asia-Pacific market if the supply of bigeye tuna from the Hawaii-based longline fleet is substantially constrained as a result of the catch limit being reached. Should the U.S. Longline Rule lead to an increase of imports of bigeye tuna to meet market demand from fisheries that have less stringent environmental regulations or that function in an area that could cause more environmental impacts (e.g., more interactions with protected species), adverse transferred effects, such as impacts to protected resources could result. As indicated in Chapter 3, Section 3.2, the closure of the swordfish sector of the Hawaii longline fishery led to an increase in foreign fishing activity to provide imports of fresh swordfish to the United States, which in turn caused additional sea turtle interactions.

While quantification of any transferred effects is not possible at this time, any adverse transferred effects stemming from the U.S. Longline Rule likely would be minor. The specific behavior of the fleets that would be affected by the U.S. Longline Rule cannot be predicted with certainty, but as discussed above and in the original EA, it is likely that dual permit vessels would continue fishing for bigeye tuna in the Convention Area to meet the demand for bigeye tuna in the Hawaii market, and it is also likely that other affected vessels would fish for bigeye tuna in the EPO and continue to supply the Hawaii market. This would decrease the likelihood for increased imports of bigeye tuna in the

Hawaii market. Moreover, due to the projected limited time that the prohibition for longline vessels would be in place (approximately three months or less for each of the years 2009, 2010, and 2011, as stated in Chapter 1 of the original EA), any potential environmental impacts from transferred effects likely would be small compared to typical year-to-year variations in fishing effort driven by changing oceanic and economic conditions.

#### **4.1.7 Cumulative Impacts**

This section presents the cumulative impacts analysis for the implementation of the U.S. Longline Rule under Alternative 5. This section is similar to Chapter 5 of the original EA, but includes additional information regarding other actions that was not available at the time of the writing of the original EA.

A cumulative impact is defined by the CEQ's regulations at 40 CFR 1508.7 as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." And further: "cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

Before beginning a cumulative impacts analysis, the geographic area of the analysis and the time frame for the analysis must be identified to determine the appropriate scope for the analysis (CEQ 1997). The geographic area of the analysis here is the Pacific Ocean area as described in Chapter 3 of this Supplemental EA, Chapter 3 of the original EA, and Section 5.1.1 of the original EA. The time frame for this analysis is from the present to some years into the future.

##### **4.1.7.1 Past, Present, and Reasonably Foreseeable Future Actions**

This section describes the other actions that have the potential to affect the same resources as the U.S. Longline Rule. The analysis of cumulative impacts is presented in the following section. For the purposes of this cumulative impacts analysis, the past actions are all the fishery management actions and the actions of the fleets that have been taken in the affected environment to date, which together have resulted in the current management regime, current fishing patterns, and have affected the current status of the stocks. The effects of those actions are reflected in the baseline, as described in Chapter 3 of this Supplemental EA, Chapter 3 of the original EA, and Section 5.1.1 of the original EA.

###### **4.1.7.1.1 Other Present Actions**

The other present actions would include specific actions being taken to manage the fisheries in the Convention Area and are described below.



The U.S. Purse Seine Rule that was analyzed in the original EA went into effect on August 3, 2009.<sup>14</sup> This rule implements fishing restrictions and observer requirements in 2009-2011 and turtle mitigation requirements for the U.S. WCPO purse seine fishery.

The WPRFMC is considering several amendments to the FMP for the Pelagic Fisheries of the Western Pacific Region at this time that would manage fishing activities. In particular, Amendment 18 to the FMP for Pelagic Fisheries in the Western Pacific Region, Management Modifications for the Hawaii-based Shallow-set Longline Swordfish Fishery that Would Remove Effort Limits, Eliminate the Set Certificate Program, and Implement New Sea Turtle Interaction Caps (Amendment 18), aims to provide increased opportunities for sustainable harvest of swordfish and other fish species, while continuing to avoid jeopardizing the existence and/or recovery of threatened and endangered sea turtles or their habitat.

NMFS is also in the process of developing a rule to implement specific provisions of the Convention (see the proposed rule at 74 FR 23965 (May 22, 2009)). The rule would impose specific regulatory requirements on U.S. HMS fleets operating in the Convention Area. The proposed requirements include the following: obtaining fishing authorizations; submitting vessel information; carrying and using VMS units; accepting observers; accepting transshipment inspectors; accepting boarding and inspection; vessel marking; maintaining and submitting information about fishing effort and catch; and at-sea transshipments of HMS from purse seine vessels.

#### ***4.1.7.1.2 Reasonably Foreseeable Future Actions***

The categories of reasonably foreseeable future actions identified here are: (1) future fishery management actions, or actions taken by fishery managers; (2) actions that contribute to changes in oceanic conditions, or natural reactions to anthropogenic actions; and (3) potential changes to current fishing operations, or actions taken by fishermen.

It is reasonably foreseeable that WCPFC Commission Members, Cooperating Non-Members, and Participating Territories (CCMs) will implement requirements similar to those in the U.S. Longline Rule and the U.S. Purse Seine Rule to implement the recent decisions of the WCPFC. Given that the U.S. Longline Rule and U.S. Purse Seine Rule are for a limited duration (three years) it is also reasonably foreseeable that the WCPFC would adopt CMMs similar (in the sense that fishing mortality on these stocks would somehow be constrained) to CMM 2008-01 for bigeye tuna and yellowfin tuna that would require implementation for 2012 and beyond.<sup>15</sup>

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<sup>14</sup> The sea turtle mitigation requirements went into effect on October 5, 2009.

<sup>15</sup> Paragraph 46 of CMM 2008-01 specifically states that the effectiveness of the measure will be reviewed annually and that alternative measures could be adopted in order to achieve the WCPFC's conservation goals.

Other future fishery management actions in the first category include actions taken by the United States and other nations to manage their fisheries in the Convention Area, and to some extent, Pacific Ocean as a whole, particularly HMS fisheries. In the United States, such actions will be driven by a variety of factors, including a number of different statutes with different mandates (e.g., the MSA for federal fisheries generally, the ESA with respect to threatened and endangered marine species, the South Pacific Tuna Act to implement the South Pacific Tuna Treaty or terms and conditions as a result of a renegotiated Treaty – after 2013, the WCPFCIA to implement the decisions of the WCPFC, and the Tuna Conventions Act to implement the decisions of the Inter-American Tropical Tuna Commission (IATTC)). Internationally and as a whole, such actions would be driven largely by, in addition to local issues and mandates, internationally agreed measures, including those adopted by the WCPFC and the IATTC.

It is not possible to predict what other specific management measures will be implemented by other nations or what additional management measures will be implemented by the United States, but for the most part, given the biological status of many of the target stocks of HMS in the Pacific Ocean, they can be reasonably expected to be conservative in the sense that they will constrict fishing capacity, effort, and/or catch. The consequence of these measures being implemented in the fisheries in the WCPO and the Pacific Ocean would be, generally, to improve the status of affected resources (not necessarily relative to their current status, but relative to their future status under the baseline). What is not clear is how the benefits of conservation and management measures imposed by the various regulatory institutions will accrue to the various users of fleets. Ideally conservation benefits would be broadly based. However, at this time, this is difficult to predict.

One specific action that may be undertaken under the MSA is Amendment 20 to the FMP for the Pelagic Fisheries of the Western Pacific Region. The WPRFMC took action on it in October 2009, and if approved and implemented by NMFS, the amendment would establish annual longline bigeye tuna catch limits of 2,000 mt for each of American Samoa, Guam, and the CNMI, which is consistent with the provisions of CMM 2008-01 with respect to Participating Territories. It would also establish criteria to determine whether a vessel operating under a charter agreement with one of the territories is integral to the territory's domestic fleet. If a chartered vessel is deemed to be integral, its catches would be assigned to the territory's fishery for the purpose of reporting to the WCPFC, in accordance with CMM 2008-01. Amendment 20 would not be consistent with the catch attribution scheme established in the U.S. Longline Rule; in other words, certain aspects of the U.S. Longline Rule would have to be modified in order to accommodate the provisions of Amendment 20.

The second category of future actions are actions that contribute to changes in oceanographic conditions. As discussed in Chapter 3, Section 3.1.1 of the original EA, there is substantial evidence that changing climate conditions may be causing observed changes in marine systems. Any changes in climate patterns would likely be associated with changes in oceanographic patterns that would have the potential to impact fishery and other biological resources. The target and non-target species that interact with the

fisheries subject to this action tend to be highly migratory, wide-ranging organisms that are biologically tied to temperature regimes. Such species would be expected to respond to global or regional changes in climate and oceans in various aspects of their physiology and behavior. Examples include shifts in their geographic ranges, in the spatial (both horizontal and vertical) and temporal aspects of their migration patterns, and in their reproductive patterns. There could be interactive effects among species, such as local depletion of a given species resulting in less forage available for its predators. Species that nest on land, including seabirds and turtles, could be subject to impacts resulting from other types of climate-driven changes, such as sea level. Sea turtles, for example, as a species that exhibits temperature-dependent sex determination, might experience changes in hatchling sex ratios as a result of changes in atmospheric and oceanic temperatures. Sea turtle populations might also lose nesting habitat due to sea level rise.

Roessig, Woodley, Cech et al. (2004) discussed the potential impacts of climate change on marine and estuarine fishes and fisheries as follows:

Possible oceanic condition scenarios would produce three expected responses by motile fish: (1) areas where favorable conditions exist will increase in size, allowing a species to expand its range and/or proliferate; (2) areas where favorable conditions exist may move, causing a population's numbers to decline in certain areas and increase in others, effectively shifting the population's range; and (3) favorable conditions for a species may disappear, leading to a population crash and possible extinction. Each species has its physiological tolerance limits, optima, and ecological needs, thus within a community you can expect different responses from different organisms. Because marine and estuarine systems are complex, and our knowledge of how they work is in its infancy, we can only speculate at the possible consequences of global climate change on their fishable stocks and the people who depend on them.

The third category of future actions are potential changes to current fishing operations as a result of changing environmental, market, or other conditions.

#### **4.1.7.2 Discussion of Impacts**

As discussed throughout this chapter, the overall effects to fisheries, target and secondary target stocks, and protected resources from the U.S. Longline Rule under Alternative 5 are expected to be minor and could be beneficial. The objective of the rule is to implement a catch limit from a conservation and management measure. As discussed above, the other present actions and the first category of reasonably foreseeable future management actions have the same objective and would be expected to cause beneficial impacts to the affected environment. Specifically, should other CCMs implement the provisions of the CMMs that will be implemented in the proposed rules or the WCPFC adopt other similar CMMs that are implemented, the beneficial impacts to resources from the proposed rules would be enhanced (i.e., there could be a greater likelihood that the objectives of the CMMs could be attained, such as the 30% reduction in bigeye tuna

fishing mortality). The IATTC adopted a resolution for bigeye tuna in June 2009 that established specific catch limits for bigeye tuna in the EPO. When and if this resolution is implemented by the United States and other nations, the effects of any shift in fishing effort to the EPO from the proposed U.S. Longline Rule would be reduced and the beneficial effects on bigeye tuna would be increased. As discussed in Chapter 3 of the original EA, the stock structure of bigeye tuna in the Pacific Ocean is not well known, but there is some degree of mixing between the EPO and WCPO, so any fishing mortality in the EPO would likely affect the status of the stock in the WCPO.

On the other hand, if and when Amendment 18 is implemented, longline vessels affected by the proposed U.S. Longline Rule may have greater incentive to target swordfish, since the current annual shallow-set effort limits would be removed and the sea turtle interactions caps would be increased. However, as discussed above, any shift in fishing effort to target swordfish that would be caused by the U.S. Longline Rule under Alternative 5 is unquantifiable and would likely be minor in comparison to typical variations in fishing effort caused by ocean and market conditions.

One of the possible effects of Amendment 20 is that if vessels in the Hawaii fleet are chartered to a territory and deemed to be integral to the territory's fleet, some or all of their bigeye tuna catches that would otherwise be subject to the limits established by the U.S. Longline Rule would no longer be subject to the limits. A possible consequence of that would be a lessening of the constraining effect of the U.S. Longline Rule on bigeye tuna mortality – in other words, the beneficial effect of the U.S. Longline Rule for WCPO bigeye tuna would be lessened.

The second category of reasonably foreseeable future actions (changes in ocean conditions, including climate change) could cause substantial adverse impacts to the resources in the affected environment but could cause some beneficial impacts as well. As discussed in Chapter 3, Section 3.1.1 of the original EA, changes to oceanographic conditions have been documented to affect fishing effort and catch.

The third category of future actions, potential changes to current fishing operations due to changing environmental, market, or other conditions, could lead to effects – both adverse and beneficial – on living marine resources. For example, should the fisheries of American Samoa, Guam, and the CNMI expand and effort on bigeye tuna be increased, this could lead to greater overall fishing effort on the WCPO stock of bigeye tuna as well as deplete local abundance of the stock. This in turn could affect local fishing opportunities and also lead to an increased risk of interactions with protected resources. However, any such adverse effects are difficult to quantify and would in most cases be counteracted by the first category (i.e., fishery management actions) of reasonably foreseeable future actions.

Therefore, the overall cumulative, or additive, impacts on the affected environment from the U.S. Longline Rule, other present actions, and all reasonably foreseeable future actions would likely be beneficial, but would be counteracted by any detrimental impacts caused by changes in ocean conditions and potential changes to current fishing

operations. Thus, this Supplemental EA concludes that the U.S. Longline Rule under Alternative 5 could provide a small, beneficial contribution to the cumulative environmental impacts experienced by the affected environment.

#### **4.2 Comparison of Alternative 5 to the Alternatives Analyzed in the Original EA**

As described in Chapter 2 of this Supplemental EA, the original EA analyzed three action alternatives for the U.S. Longline Rule, as well as the No-Action Alternative. Chapter 6 of the original EA includes a comparison of these four alternatives. Below, is an updated version of this discussion from Chapter 6 of the original EA, including Alternative 5.

Implementation of the U.S. Longline Rule under any of the alternatives could have some minor beneficial effects to WCPO bigeye tuna as well as other fish stocks present in the WCPO. The rule would implement the WCPFC's established catch limit for WCPO bigeye tuna for the years 2009-2011, which could cause some beneficial effects on the stocks. Each of the action alternatives could cause some shift in fishing effort from targeting bigeye tuna in the WCPO, which could cause effects to other fish stocks in both the WCPO and EPO. Such shifts in fishing effort could also cause effects to protected resources, but these effects would be minor, since the shift in fishing effort would likely be less than that caused by typical year-to-year variations in catches among species driven by changing oceanic and economic conditions. Thus, because the duration of the rule would be limited to three years and because the rule would not cause substantial changes to the fishing practices and patterns of the affected fleets, the overall direct and indirect impacts from implementation of the rule under any of the action alternatives would be minor.

In terms of cumulative effects, the effects of the U.S. Longline Rule under any of the action alternatives, in combination with the effects of similar actions taken by other WCPFC members, as well as possible future actions to implement any future WCPFC decisions with respect to bigeye tuna and yellowfin tuna, could have beneficial effects on the stocks. These effects would be greater than if the proposed U.S. Longline Rule were implemented in isolation. The contribution of the U.S. Longline Rule to cumulative effects under any of the action alternatives would be essentially the same under all the action alternatives.

**Table 8 Summary of direct and indirect effects for the U.S. Longline Rule alternatives**

<b>Alternative</b>	<b>Restrictiveness Ranking<sup>1</sup></b>	<b>Effects to WCPO Bigeye Tuna</b>	<b>Effects to WCPO Yellowfin Tuna</b>	<b>Effects to WCPO Swordfish</b>	<b>Effects to other Secondary Target Stocks</b>	<b>Effects to Protected Resources</b>
Alternative 1 (No-Action)	No restrictions	Direct: None  Indirect: Increased Potential for Long-Term negative	Direct: None  Indirect: Increased Potential for Long-Term negative	Direct: None  Indirect: Increased Potential for Long-Term negative	Direct: None  Indirect: Increased Potential for Long-Term negative	Direct: None  Indirect: Increased Potential for Long-Term negative
Alternative 2 (Closure of Deep-Set Fishery)	More restrictive than Alternatives 3 and 5; Less restrictive than Alternative 4	Direct: Minor beneficial  Indirect: Minor beneficial or None	Direct: Minor beneficial  Indirect: Minor beneficial or None	Direct: Minor detrimental or None  Indirect: Minor detrimental or None	Direct: Minor detrimental or beneficial or None  Indirect: Minor detrimental or beneficial or None	Direct: Minor  Indirect: Minor

**Table 9 Summary of direct and indirect effects for the U.S. Longline Rule alternatives**

<b>Alternative</b>	<b>Restrictiveness Ranking<sup>1</sup></b>	<b>Effects to WCPO Bigeye Tuna</b>	<b>Effects to WCPO Yellowfin Tuna</b>	<b>Effects to WCPO Swordfish</b>	<b>Effects to other Secondary Target Stocks</b>	<b>Effects to Protected Resources</b>
Alternative 3 (No Retention, Landing, or Transshipment of Bigeye Tuna)	More restrictive than Alternative 5; Less restrictive than Alternatives 2 and 4	Direct: Minor beneficial  Indirect: Minor beneficial or None	Direct: Minor detrimental or None  Indirect: Minor detrimental or None	Direct: Minor detrimental or None  Indirect: Minor detrimental or None	Direct: Minor detrimental or beneficial or None  Indirect: Minor detrimental or beneficial or None	Direct: Minor  Indirect: Minor
Alternative 4 (Closure of Fishery)	Most restrictive	Direct: Minor beneficial  Indirect: Minor beneficial or None	Direct: Minor beneficial  Indirect: Minor beneficial or None	Direct: Minor beneficial  Indirect: Minor beneficial or None	Direct: Minor detrimental or beneficial or None  Indirect: Minor detrimental or beneficial or None	Direct: Minor  Indirect: Minor
Alternative 5 (No Retention, Landing, or Transshipment of Bigeye Tuna with Dual Permit Vessel Exception)	Least restrictive	Direct: Minor beneficial  Indirect: Minor beneficial or None	Direct: Minor detrimental or None  Indirect: Minor detrimental or None	Direct: Minor detrimental or None  Indirect: Minor detrimental or None	Direct: Minor detrimental or beneficial or None  Indirect: Minor detrimental or beneficial or None	Direct: Minor  Indirect: Minor

<sup>1</sup> More restrictive reflects the degree of constraints on fishermen, which generally would result in more beneficial impacts on living marine resources.

Table 8 indicates that the overall effects from the alternatives would be similar and minor. However, each of the action alternatives would cause some slightly disparate effects to the resources in the area. As stated in Chapter 4 of the original EA, additional management measures that lead to a reduction in the fishing mortality of bigeye tuna and that ensure no increase in the fishing mortality of yellowfin tuna are needed to sustain

WCPO tuna stocks at or greater than their MSY levels. Thus, the No-Action Alternative would have increased potential for long-term negative impacts on these fish stocks over the action alternatives.

Alternative 3 is the least restrictive of the action alternatives analyzed in the original EA. Under this alternative, once the limit for WCPO bigeye tuna established by the WCPFC is reached, U.S. longline vessels would be prohibited from retaining on board, landing, or transshipping any bigeye tuna captured in the limit's area of application for the remainder of the calendar year, except that any bigeye tuna already on board a vessel at the time of the closure may be retained on board and landed. Under this alternative, vessels could continue to fish in both the shallow-set and deep-set sectors of the fishery, provided that no bigeye tuna are kept. As a result, there could be a shift in effort to the shallow-set sector, to deep-setting for bigeye tuna in the EPO, or to deep-setting for species other than bigeye tuna in the WCPO. Thus, to the extent that deep-setting for species other than bigeye tuna in the WCPO does occur after the limit is reached, the beneficial impacts to WCPO bigeye tuna would be less than under the other action alternatives analyzed in the original EA, since WCPO bigeye tuna would likely be caught and discarded in the course of such fishing activities (to an unknown degree).<sup>16</sup>

Alternative 2 is more restrictive than Alternative 3, but less restrictive than Alternative 4. Under this alternative, once the WCPO bigeye tuna limit is reached, vessels would be prohibited from deep-setting in the limit's area of application. This could lead vessels to shift their effort to deep-setting for bigeye tuna in the EPO or to shallow-setting in the WCPO, although, as discussed in Chapter 4 of the original EA the degree of such shifts in effort cannot be predicted with certainty or estimated quantitatively at this juncture. Because no deep-setting would be allowed in the limit's area of application, this alternative could have some beneficial effects on both WCPO bigeye tuna and to a lesser degree WCPO yellowfin tuna. However, this alternative could cause increased fishing in the shallow-set sector, leading to increased fishing mortality on swordfish and other species caught in that sector, including sea turtles (but any such increase would be slight, as it would be constrained by the existing annual limits on shallow-set effort and on interactions with loggerhead and leatherback turtles). Under this alternative, the overall beneficial impacts to WCPO bigeye tuna could be greater than under Alternative 3; because deep-setting would be prohibited in the WCPO, there would be less WCPO bigeye tuna being caught and discarded (but only to the extent that under Alternative 3 deep-setting for species other than bigeye tuna in the WCPO would occur and bigeye tuna would be caught after the limit is reached).

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<sup>16</sup> The discussion of the action alternatives for the U.S. Longline Rule in this section focuses on comparing the impacts of the alternatives on WCPO bigeye tuna – to which the WCPFC's established catch limited directly applies. As stated in Chapter 3, Section 3.4 of the original EA, the stock structure of bigeye tuna in the Pacific Ocean is not well known, but there is some degree of mixing between the EPO and WCPO, so any fishing mortality in the EPO would likely affect the status of the stock in the WCPO as well as in the EPO. Consequently, though the direct effects to WCPO bigeye tuna under the alternatives would differ, the overall effects from any of the alternatives to WCPO bigeye tuna would be similar.



Alternative 4 is the most restrictive of the action alternatives. Under this alternative, once the limit for WCPO bigeye tuna established by the WCPFC is reached, U.S. fishing vessels would be prohibited from longline fishing in the limit's area of application. This could cause vessels to shift their effort to deep-setting in the EPO, although, as discussed in Chapter 4 of the original EA the likely degree of such a shift cannot be predicted. Under this alternative, the overall beneficial impacts to WCPO bigeye tuna could be greater than under the other action alternatives; because the entire fishery would be closed, no WCPO bigeye tuna would be caught by longlining in the limit's area of application.

Alternative 5 is less restrictive than the action alternatives analyzed in the original EA. This alternative would be similar to Alternative 3, in that U.S. longline vessels would be prohibited from retaining on board, landing, or transshipping any bigeye tuna captured in the limit's area of application for the remainder of the calendar year, except that any bigeye tuna already on board a vessel at the time of the closure may be retained on board and landed. Under this alternative, vessels could continue to fish in both the shallow-set and deep-set sectors of the fishery, provided that no bigeye tuna are kept. As a result, there could be a shift in effort to the shallow-set sector, to deep-setting for bigeye tuna in the EPO, or to deep-setting for species other than bigeye tuna in the WCPO. Thus, to the extent that deep-setting for species other than bigeye tuna in the WCPO does occur after the limit is reached, the beneficial impacts to WCPO bigeye tuna would be less than under Alternatives 2 or 4, since WCPO bigeye tuna would likely be caught and discarded in the course of such fishing activities (to an unknown degree).

Also, under this alternative, the dual permit vessels would be able to continue fishing for bigeye tuna in the Convention Area outside of the portion of the EEZ surrounding the Hawaiian Archipelago and land their catch in Hawaii after the limit is reached, and their catches made outside of the EEZ surrounding the Hawaiian Archipelago would not be counted towards the limit prior to the limit being reached. As stated in Section 4.1.2 above, 530 mt of bigeye tuna that is not subject to the catch limit could be caught and retained by dual permit vessels in 2009; 570 mt that is not subject to the catch limit could be caught and retained in 2010; and 620 mt of bigeye tuna that is not subject to the catch limit could be caught and retained in 2011; should the number of dual permit vessels increase, these numbers could increase accordingly. Thus, Alternative 5 would be more similar than any of the other action alternative would be to the No-Action Alternative, and under this alternative, the catch limit would be reached later in the year than under any of the other action alternatives.



## Chapter 5 Comment Summary and Response

This chapter sets forth the comments received on the original EA that refer to specific aspects of the U.S. Longline Rule and provides responses to each comment. As stated in Chapter 1 of this Supplemental EA, NMFS received two comment letters during the comment period for the proposed U.S. Purse Seine Rule. One of those comment letters included comments on the analysis in the EA for the U.S. Longline Rule, which are included below. NMFS received six comment letters during the comment period for the proposed U.S. Longline Rule. Two of those comment letters included comments on the analysis in the EA for the U.S. Longline Rule and are included below.

**Comment 1:** Under the proposed U.S. Longline Rule, bigeye tuna harvested in the EEZ around the Hawaiian Archipelago and landed in the U.S. Participating Territories would be counted as part of the bigeye tuna catch limit for the United States. This is a change from current practice where NMFS typically attributes catch to areas where landings occur. However, NMFS is not proposing to change its practice when it comes to landing bigeye tuna in Hawaii – all bigeye tuna landed in Hawaii, even if it is caught outside of the EEZ around the Hawaiian Archipelago, will be attributed as U.S. catch.

Currently, the major regional U.S. bigeye tuna market is Honolulu, and to attribute all bigeye tuna landings in Hawaii to the catch limit for the United States would prevent U.S. Participating Territories from entering into domestic charter arrangements with Hawaii longline limited access permitted vessels and eliminate needed funding opportunities for responsible fisheries development. NMFS offers no justification as to why it is relying on its current policy practice of attributing all landings in Hawaii in this manner. This major policy decision may be limiting the legitimate rights of the U.S. Participating Territories in the WCPFC, and NMFS is doing so without discussion. NMFS' policy, by default, is having a regulatory effect, and therefore, at a minimum should have been thoroughly analyzed in detail in the original EA.

NMFS should modify its proposed rule to be consistent with established practices where catch is attributed to the permit program for the vessel, not the landing location. In the case of a vessel landing bigeye tuna and other fish species in Hawaii that has both a Hawaii limited access permit and American Samoa limited access permit or any future territorial permits, the catch should be assigned based on a determination of which permit program the vessel was attributing its catches with respect to the landing involved.

**Response:** The original EA thoroughly analyzed the potential environmental impacts that would arise from implementation of the proposed rule. Alternative 5, NMFS' new alternative, as described in detail in Chapter 2 of this Supplemental EA, allows vessels that have both an American Samoa Longline Limited Access Permit and a Hawaii Longline Limited Access Permit to land their catch in Hawaii and attribute this catch to American Samoa. Detailed discussion for the development of Alternative 5, as well as an in-depth response to this comment, including discussion of agency practices regarding the assignment of catch, are included in the preamble to the final rule.

**Comment 2:** The EA does not effectively analyze or consider the transferred effects that would result from the implementation of the U.S. Longline Rule. Demand for bigeye tuna will continue regardless of the limits placed on the Hawaii fleet, and bigeye tuna will be imported from countries in Southeast Asia and the Pacific Islands. In effect, every pound of bigeye not caught by the model Hawaii longline fishery is a pound that will be caught by less stringently regulated fleets. The net result will be no reduction in bigeye tuna mortality and potentially the expansion of fleets that have greater bycatch and protected species interactions.

**Response:** Please see Chapter 3, Section 3.2 and Chapter 4, Section 4.1.6 for discussion and analysis of potential transferred effects that could result from the implementation of the U.S. Longline Rule.

**Comment 3:** Detailed economic information on the impact of a hard bigeye closure on the Hawaii longline fleet is clearly lacking.

**Response:** As stated in Chapter 4, Section 4.2 of the original EA, the general information regarding economic impacts in the original EA was provided solely to help compare the alternatives analyzed and to determine whether the economic impacts are interrelated with environmental impacts. Please see the RIR (NMFS 2009d), IRFA, and FRFA for the detailed analysis of the economic impacts of the U.S. Longline Rule. This Supplemental EA incorporates these documents by reference.

**Comment 4:** The sections of the EA that deal with protected resources impacts are poorly written, out of date and omit important information on the extensive mitigation measures for turtles and seabirds in the Hawaii longline fishery. There appears to have been no consultation or review of these sections of the EA by the NMFS Protected Resources Division. Moreover, the WPRFMC is surprised that it was not consulted to verify the accuracy of the information in these sections of the document, given its extensive experience with protected resource issues and their mitigation. This is not simply gratuitous nitpicking but is directly connected to the issue of transferred effects, as mentioned above, which have been well documented. Reduction of domestic supply of pelagic fish to the U.S. market by Hawaii-based longline vessels results in greater volumes of imports from less stringently regulated longline fisheries, with concomitant greater impacts to protected species such as turtles.

**Response:** Section 3.6 of the original EA describes the protected resources in the affected environment. This section includes current information and focuses primarily on information pertinent to the analysis in Chapter 4 of the original EA. Since the release of the original EA more current scientific information has been published. Chapter 3 of this Supplemental EA in Section 3.3 included updated and current information on specific protected resources and their interactions with the U.S. longline fleets. As stated above, Section 3.2 and Chapter 4, Section 4.1.6 of this document provide information and analysis of potential transferred effects.

NMFS consulted with all appropriate parties during preparation of the original EA. NMFS issued the original EA in draft form during the public comment periods for both the proposed U.S. Purse Seine Rule and the proposed U.S. Longline Rule specifically to gather input from parties such as the WPRFMC.

**Comment 5:** One of the alternatives analyzed would directly close both the deep-set and shallow-set fishery. All of these alternatives are likely to destroy or damage domestic Pacific longline fisheries, and to promote other foreign fisheries that are able to provide an uninterrupted supply of fresh fish to markets now served by U. S. Pacific longline fisheries. However, there is no analysis of potential transferred effects resulting from these actions, and the consequences for protected species.

**Response:** Please see Chapter 3, Section 3.2 for a description on transfer effects for the action area.

**Comment 6:** Because closures of domestic Pacific longline fisheries, and related market shifts to foreign fisheries, have been shown to have significant adverse impacts on endangered and threatened sea turtles, and may have additional adverse impacts on other protected marine mammals and seabirds, NMFS must prepare an environmental impact statement (EIS) for the U.S. Longline Rule. Even if the consequences of transferred effects are uncertain, which they are not, uncertainty is a critical factor in determining the significance of an action for purposes of preparing an EIS. If, as NMFS states, it is uncertain whether a shift from the low impact highly regulated domestic fishery to higher impact foreign fisheries will occur, or what consequences might result, then NMFS is compelled by NEPA to fully analyze the issue in an EIS rather than to entirely ignore the issue in its EA.

**Response:** Please see Chapter 4, Section 4.1.6 of this Supplemental EA for the analysis of potential transferred effects that could result from the implementation of the U.S. Longline Rule. Based on the analysis in the original EA and this Supplemental EA, NMFS has determined that the proposed action does not raise significant environmental impacts and that an EIS is not needed.

**Comment 7:** The misstatements in the EA reflect a persistent and incorrect interpretation on CMM 2008-01 in the discussion of how WCPFC catch limits apply to Participating Territories.

**Response:** As stated in Chapter 1 of this Supplemental EA, under CMM 2008-01, the longline fisheries of Participating Territories are subject to separate bigeye tuna catch limits of 2,000 mt per year for 2009-2011. However, if these Participating Territories are undertaking responsible development of their domestic fisheries, the bigeye tuna catch limits do not apply.

**Comment 8:** The discussion of the alternatives for the U.S. Longline Rule initially considered but excluded from detailed analysis is inadequate.

**Response:** Please see Chapter 2, Section 2.4 of this Supplemental EA for additional discussion of the U.S. Longline Rule alternatives initially considered but excluded from detailed analysis.

**Comment 9:** Neither the description of the Hawaii-based longline fisheries, nor the description of protected species, is complete or accurate. The best available information – readily accessible in other recent documents – is not referenced. For example:

a. The Hawaii longline shallow-set and deep-set fisheries are erroneously described as a single fishery. This creates considerable basis for confusion and contradicts every other management planning document developed in the past 5 years. Although the discussion refers in places to the shallow-set and deep-set fisheries, it is fundamentally inaccurate to describe them as a single fishery for many reasons, not the least of which is that one of these fisheries targets bigeye tuna and the other does not. The description here is an over-simplification of the reality of two separately managed fisheries, fishing in different areas, using different techniques and subject to different management measures.

**Response:** The discussion of the Hawaii longline fishery throughout the original EA clearly distinguishes between the deep-setting and shallow-setting sectors of the fishery. Indeed, in describing the Hawaii longline fleet, Section 3.3.1.1 of the original EA states, “The fleet has historically operated, and continues to operate, in two distinct modes based on gear deployment: deep-set longline by vessels that target primarily bigeye tuna and shallow-set longline by those that target swordfish.” To the extent the EA refers to the deep-setting and shallow-setting sectors as one fishery, it does so for ease of reference, which does not affect the analysis or conclusions in the original EA.

b. The discussion of leatherback and loggerhead sea turtles is not based upon the most current information, and is inaccurate.

**Response:** Please refer to Chapter 3, Section 3.3 for a more current discussion on leatherback and loggerhead sea turtles.

c. There is no mention of sea turtle mitigation measures undertaken by the United States to offset sea turtle takes in the longline fisheries, or other conservation measures.

**Response:** Please refer to Chapter 3, Section 3.3 and Table 7 Sea turtle mitigation measures required for the Hawaii longline fishery (50 CFR 665.32) in the Supplemental EA for a detailed description of sea turtle mitigation measures undertaken by the United States.

d. The discussion of longline fishery impacts on sea turtles is extremely cursory and dated, limited only to a table showing 2008 observed takes, and with no

differentiation between shallow-set and deep-set interaction rates and species. Also there is no discussion of existing management/mitigation measures in the longline fisheries, the success that has been achieved, and the related conservation measures that have been adopted.

**Response:** Please refer to Chapter 3, Section 3.3 and Table 7 Sea turtle mitigation measures required for the Hawaii longline fishery (50 CFR 665.32) in the Supplemental EA for a detailed description of sea turtle mitigation measures undertaken by the United States.

e. The original EA reports both the ESA listing status of protected species and the International Union for the Conservation of Nature (IUCN) status. The IUCN status of species listed in the EA is legally irrelevant, is based upon different and conflicting criteria than the ESA and can only confuse the reader.

**Response:** Section 3.6 in the original EA reports both the ESA and the IUCN listing status for protected species in the affected environment. The listing status assigned by the IUCN was included in the original EA for informational purposes only. NMFS and the U.S. Fish and Wildlife Service (USFWS) share responsibility for implementing the ESA. Section 3.6 of the original EA clearly distinguishes the species over which NMFS has jurisdiction versus the species over which USFWS has jurisdiction and Section 4.5.4 of the original EA discusses the ESA consultation history for the U.S. longline fishery operating in the WCPO.

f. The original EA provides inaccurate information regarding the abundance of the Central North Pacific stock of ESA-listed humpback whales.

**Response:** Please refer to Chapter 3, Section 3.3 for a more detailed discussion on the Central North Pacific stock of ESA-listed humpback whales.

g. The original EA contains misleading discussion of longline interactions with marine mammals, particularly with false killer whales.

**Response:** Section 3.6.1.2.3.2 of the original EA discusses the marine mammal interactions with the U.S. pelagic longline fisheries. NMFS agrees that the last sentence in this section may not be as clear as intended. This sentence has been amended to read as follows. “It should be noted that the pelagic stock of false killer whale is a “strategic stock” under the 1994 amendments to the MMPA because interactions in the deep-set component of the Hawaii-based longline fishery around Hawaii have exceeded the level of potential biological removal.”

h. The discussion of seabirds in the original EA is confusing. The discussion contains disorganized and unclear distinction between sections addressing seabird interactions with the purse seine fishery versus the longline fisheries and does not

include detailed discussion of the Black-footed albatross or the Laysan albatross, the two species with which the Hawaii-based longline fisheries interact.

**Response:** Please refer to Chapter 3, Section 3.3 for a more detailed description of seabirds and their interactions with the longline fisheries.

**Comment 10:** The discussion of indirect and direct effects in Chapter 4 of the original EA is cursory and consists almost entirely of conclusions stated without any actual analysis. The indirect impact of transferred effects is entirely ignored.

**Response:** NFMS believes that Chapter 4 of the original EA presents a thorough analysis of the potential environmental impacts that could be caused by implementation of the U.S. Longline Rule under any of the alternatives analyzed in the original EA. Please refer to Chapter 3, Section 3.2 and Chapter 4, Section 4.1.6 of this Supplemental EA for the discussion of transferred effects.

**Comment 11:** The cumulative impacts chapter of the original EA conveys almost no actual information and is devoid of analysis. The chapter states, without explanation, that it is “reasonably foreseeable” that the WCPFC’s CMMs will be implemented by other signatory countries by imposing similar requirements on their purse seine and longline fisheries. The chapter also states that although it is not possible to predict what other management measures may be implemented by other nations, NMFS assumes that they will be “conservative in the sense that they will constrict fishing capacity, effort, and/or catch.” There is no basis for these statements and it appears that the author literally made these statements up.

**Response:** Chapter 5 of the original EA presents a detailed discussion of the potential cumulative impacts for the U.S. Purse Seine Rule and the U.S. Longline Rule. As indicated there, NMFS believes it is reasonably foreseeable that other Members of the WCPFC may implement management measures to which they have agreed to be bound through international negotiating processes. The current biological status of many of the target stocks of HMS in the Pacific Ocean suggests that the other management measures that may be implemented by other nations would be conservative in order to reduce or control fishing mortality on these stocks.

**Comment 12:** The EA should consider a bigeye tuna catch limit for the swordfish sector of the longline fishery, which averages about 17 bigeye tuna incidentally caught per set [the commenter subsequently clarified this to mean 17 bigeye tuna per trip], which are brought to shore and sold. Such a catch limit would reduce bycatch, avoid waste, and promote optimum yields.

**Response:** The bigeye tuna catch limit established by the WCPFC and implemented through this rule applies to bigeye tuna captured by all fishing activities of the Hawaii and west-coast based longline fleets. Bigeye tuna caught and retained in both the shallow-set (swordfish-directed) and deep-set sectors would be counted against the limit, and the activities of both sectors would be similarly restricted after the limit is reached.



**Comment 13:** The EA should include an alternative to the bigeye tuna catch limit for the longline fishery that would utilize the three-year rolling management period that has been proposed for the purse seine fishing effort limits in the rule to implement the provisions of CMM 2008-01 for purse seine fisheries.

**Response:** During the promulgation of the U.S. Purse Seine Rule, NMFS determined that the CMM 2008-01 allows for a management scheme for the U.S. WCPO purse seine fishery that can include multi-year and non-calendar year time periods for the application of the allotted pool of fishing days. As stated in Chapter 1 of this Supplemental EA, the purpose of the U.S. Longline Rule is to ensure the timely implementation by the United States of the bigeye tuna catch limit established by the WCPFC in CMM 2008-01, which specified catch limits for bigeye tuna captured by longline fisheries for each of the years 2009, 2010, and 2011. The need for the rule is to satisfy the international obligations of the United States as a Contracting Party to the Convention, pursuant to the WCPFCIA, and to make effective a CMM provision that requires immediate implementation. Although outside the limited scope of the proposed rule, NMFS is not foreclosed from considering an alternative that includes a multi-year bigeye tuna catch limit as part of a future rulemaking.

**Comment 14:** The cumulative impacts section of the EA is inadequate. A major discrepancy is the lack of discussion of the well documented transfer effects that occur when U.S. seafood production is curtailed and domestic consumption of imported seafood increases in response. If the longline fishery is closed when the bigeye tuna catch limit for that fishery is reached, the demand for bigeye tuna will be met by longline caught tuna imported from other countries, which have less stringent regulations to mitigate environmental impacts, such as interactions with seabirds and sea turtles.

**Response:** Please see Chapter 3, Section 3.2 and Chapter 4, Section 4.1.6 of this Supplemental EA for a discussion of the potential transferred effects that could arise from the implementation of the U.S. Longline Rule. These potential transferred effects are indirect effects, or effects that “are caused by the action and are later in time or farther removed in distance” (40 CFR 1508.8), rather than cumulative impacts.

## List of Preparers

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