To All Interested Government Agencies and Public Groups:

Under the National Environmental Policy Act, an environmental review has been performed on the following action.

TITLE: Environmental Assessment for a Rule to Implement Decisions of the Western and Central Pacific Fisheries Commission for: Fishing Effort Limits in Purse Seine Fisheries for 2015 – RIN 0648-BF03

LOCATION: Area of Application of the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean

SUMMARY: The National Marine Fisheries Service (NMFS) is issuing regulations under authority of the Western and Central Pacific Fisheries Convention Implementation Act to implement a limit for calendar year 2015 on fishing effort by U.S. purse seine vessels in the U.S. exclusive economic zone (U.S. EEZ) and on the high seas between the latitudes of 20° N. and 20° S. in the area of application of the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (Convention). The limit is 1,828 fishing days. This action is necessary for the United States to implement provisions of a conservation and management measure adopted by the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean and to satisfy the obligations of the United States under the Convention, to which it is a Contracting Party.

NMFS prepared an environmental assessment (EA) that analyzed two action alternatives for implementing purse seine fishing effort limits for 2015, as well as the No-Action Alternative. Each of the action alternatives included a different variation of the fishing effort limits. Alternative B, the preferred alternative, included a limit of 1,828 fishing days for the Effort Limit Area for Purse Seine (ELAPS) for the calendar year 2015. Alternative C included separate limits of 1,270 fishing days for the high seas and 558 fishing days for the U.S. EEZ for the calendar year 2015. The analysis in the EA indicated that the two action alternatives would be very similar in terms of effects on fishing patterns, and consequently, in terms of effects on the human environment.

RESPONSIBLE
OFFICIAL: Michael D. Tosatto
Regional Administrator, Pacific Islands Region
National Marine Fisheries Service, National Oceanic and Atmospheric Administration (NOAA)
1845 Wasp Blvd., Bldg 176
Honolulu, HI 96818
(808) 725-5000

The environmental review process led us to conclude that this action will not have a significant impact on the environment. Therefore, an environmental impact statement was not prepared. A copy of the finding of no significant impact (FONSI), including the environmental assessment (EA), is enclosed for your information.

Although NOAA is not soliciting comments on this completed EA/FONSI we will consider any comments submitted that would assist us in preparing future NEPA documents. Please submit any written comments to the Responsible Official named above.

Sincerely,

HIRSCHBERG.PAUL.ARTHUR.1365710526

Digitally signed by HIRSCHBERG.PAUL.ARTHUR.1365710526
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=HIRSCHBERG.PAUL.ARTHUR.1365710526
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for

Patricia A. Montanio
NOAA NEPA Coordinator

Enclosure

Environmental Assessment for a Rule to Implement Decisions of the Western and Central Pacific Fisheries Commission for:

Fishing Effort Limits in Purse Seine Fisheries for 2015

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RIN 0648-BF03

May 2015

LIST OF ABBREVIATIONS AND ACRONYMS

CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CMM	Conservation and Management Measures
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
CPUE	Catch per Unit of Effort
DPS	Distinct Population Segment
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
ELAPS	Effort Limit Area for Purse Seine
ENSO	El Niño Southern Oscillation
EPO	Eastern Pacific Ocean
ESA	Endangered Species Act
FAD	Fish Aggregating Device
FEP	Fishery Ecosystem Plan
FFA	Pacific Islands Forum Fisheries Agency
FR	*Federal Register*
FMP	Fishery Management Plan
HAPC	Habitat Areas of Particular Concern
HMS	Highly Migratory Species
HSFCA	High Seas Fishing Compliance Act of 1995
IATTC	Inter-American Tropical Tuna Commission
MMPA	Marine Mammal Protection Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSY	Maximum Sustainable Yield
mt	Metric Tons
NAO	NOAA Administrative Order
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration

NWR	National Wildlife Refuge
OFP	Oceanic Fisheries Programme
PIC	Pacific Island Countries
PIPA	Phoenix Islands Protected Area
PRIA	Pacific Remote Island Areas
RIR	Regulatory Impact Review
SIR	Supplemental Information Report
SPC	Secretariat of the Pacific Community
SPTA	South Pacific Tuna Act of 1988
SPTT	South Pacific Tuna Treaty (formally, the Treaty on Fisheries between the Governments of Certain Pacific Island States and the Government of the United States of America)
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

Table of Contents

List of Figures

List of Tables

Chapter 1

Chapter 1 Introduction and Purpose and Need

This Environmental Assessment (EA) has been prepared pursuant to 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).

At its 11th Regular Session, in December 2014, the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (Commission or WCPFC) adopted "Conservation and Management Measure (CMM) for Bigeye, Yellowfin and Skipjack Tuna in the Western and Central Pacific Ocean" (or CMM 2014-01). Among other provisions, CMM 2014-01 includes provisions for the management of purse seine fisheries operating in the western and central Pacific Ocean (WCPO). The CMM's provisions for purse seine vessels include, among other things, limits on the number of fishing vessels, limits on allowable levels of fishing effort, restrictions on the use of fish aggregating devices (FADs), requirements to retain all bigeye tuna, yellowfin tuna, and skipjack tuna except in specific circumstances, and requirements to carry vessel observers. The National Marine Fisheries Service (NMFS) is promulgating a rule, pursuant to the authority of the Western and Central Pacific Fisheries Convention Implementation Act (WCPFCIA; 16 U.S.C. 6901 *et seq*.), to implement CMM 2014-01's provisions on allowable levels of fishing effort by purse seine vessels on the high seas and in the U.S. exclusive economic zone (EEZ), between the latitudes of 20° N. and 20° S., in the Convention Area (also known as the Effort Limit Area for Purse Seine, or ELAPS), and only for 2015. The CMM's other provisions would be implemented through one or more separate rules, as appropriate. NMFS is implementing the 2015 purse seine effort limits separately from other provisions of the CMM to ensure that the limits go into effect in U.S. regulations before the prescribed limits are exceeded by the fleet. NMFS projects, based on preliminary data to date, that the limit in the ELAPS could be reached in June or July 2015.

1.1 Background

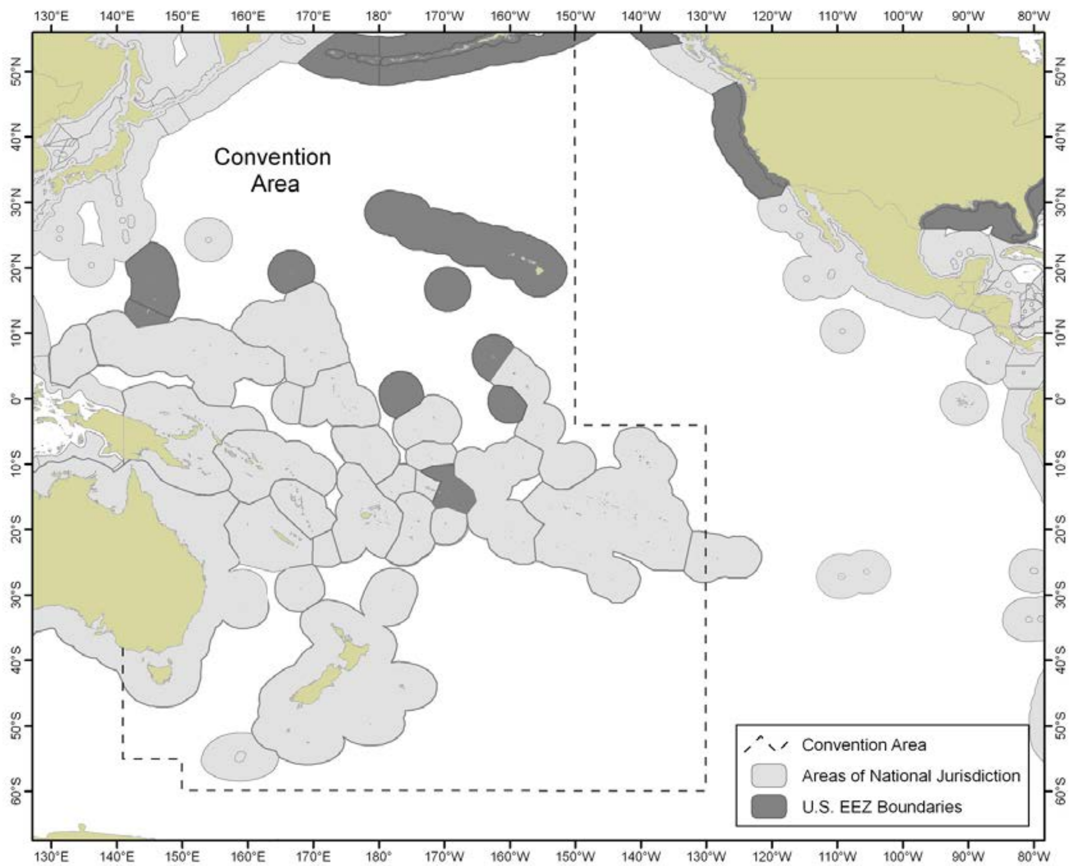
The United States ratified the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (Convention) in 2007.[1] The area of application of the Convention (Convention Area) is shown in Figure 1.

The Convention text indicates that the agreement focuses on highly migratory fish species (HMS) and stocks thereof within the Convention Area (see the Convention text

[1] The Convention was opened for signature in Honolulu on September 5, 2000, and entered into force in June 2004; the Convention entered into force for the United States in 2007. The full text of the Convention is available at: *http://www.wcpfc.int/key-documents/convention-text*.

for the specific HMS covered).[2] The Convention provides for the conservation and management of target stocks, non-target species, and species belonging to the same ecosystem or dependent upon or associated with the target stocks.

Figure 1: The Convention Area - high seas (in white); U.S. EEZ (in dark gray); and foreign jurisdictions ("claimed maritime jurisdictions," in light gray).



Source: NMFS.

The Commission – among other things – adopts Conservation and Management Measures for Commission Members, Cooperating Non-Members, and Participating Territories (collectively referred to as WCPFC members) of the Commission to implement through their respective national laws and procedures. The WCPFCIA, 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. The authority to promulgate regulations to implement the provisions of the

[2] Though not stated in the Convention text, it has also been agreed that southern bluefin tuna (*Thunnus maccoyii*) that are found in the Convention Area will continue to be solely managed by the Commission for the Conservation of Southern Bluefin tuna.

Convention and WCPFC decisions, such as regulations to implement CMMs, has been delegated by the Secretary of Commerce to NMFS.

The stated general objective of CMM 2014-01 is to ensure that compatible measures for the high seas and EEZs are implemented so that the stocks of bigeye, yellowfin and skipjack tuna in the WCPO are, at a minimum, maintained at levels capable of producing their maximum sustainable yield as qualified by relevant environmental and economic factors. The CMM includes specific objectives for each of the three stocks: for each, the fishing mortality rate is to be reduced to or maintained at levels no greater than the fishing mortality rate associated with maximum sustainable yield. CMM 2014-01 is the most recent in a series of WCPFC CMMs for the management of the principal tuna stocks in the WCPO.

As stated above, the proposed action analyzed in this document would implement the 2015 ELAPS fishing effort limit for the U.S. purse seine fishery in the WCPO.

Similar purse seine effort limits for the U.S. fleet have been in place since 2009. NMFS promulgated regulations in 2009 to implement the purse seine provisions of CMM 2008-01, which included limits on fishing effort in the ELAPS; periods during which fishing on schools in association with FADs would be prohibited on the high seas and in the U.S. EEZ; specific areas of high seas in which fishing would be prohibited; catch retention requirements; and observer coverage requirements (see proposed rule at 74 FR 26160 and final rule at 74 FR 38544; hereafter, 2009 Rule). The requirements in the 2009 Rule were applicable from 2009 through 2011. NMFS published an interim rule in December 2011 to extend these purse seine regulations until December 31, 2012, based on a WCPFC decision (see interim rule at 76 FR 82180; hereafter, 2011 Rule). In 2013, NMFS implemented the purse seine provisions of CMM 2012-01 for 2013 and 2014, which included generally the same provisions as CMM 2008-01, with some modifications (see proposed rule at 78 FR 14755 and final rule at 78 FR 30773; hereafter, 2013 Rule). In 2014, NMFS modified the 2014 purse seine effort limit in the ELAPS, as specified in CMM 2013-01 (see proposed rule at 79 FR 43773 and final rule at 79 FR 67359; hereafter 2014 Rule).

Prior Environmental Analysis

NMFS prepared an 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 Restriction 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” (hereafter 2009 EA), which analyzed the impacts of the 2009 Rule on the human environment. This 2015 EA incorporates the 2009 EA by reference.[3] Relevant sections are explicitly referenced, as appropriate.

In the 2009 EA, NMFS analyzed four action alternatives,[4] as well as the No-Action Alternative. NMFS concluded that all of the alternatives would have similar effects, with the main distinction between the action alternatives being the manner of application of the fishing effort limit. NMFS determined that all of the action alternatives analyzed in the 2009 EA would have minor beneficial effects or no effects on resources in the affected environment, in comparison to no limits placed on the fishery.

NMFS concluded that the 2011 Rule was categorically excluded from the need to prepare an EA or an Environmental Impact Statement, since the proposed action was an extension or change in period of effectiveness of a regulation that would not contribute to significant impacts on the human environment, which is a type of action that is categorically excluded from further NEPA review under NAO 216-6.

NMFS prepared an EA, "Environmental Assessment for a Rule to Implement Decisions of the Western and Central Pacific Fisheries Commission for: Fishing Restrictions and Observer Requirements in Purse Seine Fisheries for 2013 and 2014" (hereafter 2013 EA), which analyzed the impacts of the 2013 Rule on the human environment and incorporated the 2009 EA by reference.[5] The 2013 EA included detailed analysis of three action alternatives, as well as the No-Action Alternative. Similar to the 2009 EA, NMFS concluded that all of the alternatives would have similar effects. NMFS determined that all of the action alternatives analyzed in the 2013 EA would have minor beneficial effects or no effects on resources in the affected environment, in comparison to operation of the fishery without limits. This 2015 EA also incorporates the 2013 EA by reference. Relevant sections are explicitly referenced, as appropriate.

NMFS prepared a supplemental information report (SIR) on NEPA analyses for the 2014 Rule,[6] making the following conclusions:

1. The proposed action is generally the same as the fishing effort elements of the 2009 Rule and the 2013 Rule;

[3] The 2009 EA (combined with the Finding of No Significant Impact) is available at www.regulations.gov by searching for docket NOAA-NMFS-2009-0108.

[4] These alternatives are described in more detail in Chapter 2 of this EA.

[5] The 2013 EA (combined with the Finding of No Significant Impact) is available at www.regulations.gov by searching for docket NOAA-NMFS-2013-0043.

[6] *Supplemental Information Report on National Environmental Policy Act Analyses: Proposed Rule for Western and Central Pacific Fisheries for Highly Migratory Species: Fishing Effort Limits in Purse Seine Fisheries for 2014* is available at www.regulations.gov by searching for NOAA-NMFS-2014-0081.

2. The potential impacts from the proposed action on the human environment were addressed in the 2009 EA and 2013 EA;
3. The resources potentially affected by the proposed action were adequately described and evaluated in the 2009 EA and 2013 EA; and
4. There is no significant new information or new circumstances affecting the action area that were not taken into consideration in the 2009 EA and 2013 EA.

1.2. Purpose and Need

The purpose of the 2015 ELAPS rule is to implement the purse seine fishing effort limit for the U.S. fleet under CMM 2014-01 before the limit is reached, to contribute to the underlying objectives of CMM 2014-01 regarding WCPO bigeye tuna, yellowfin tuna and skipjack tuna, which are to reduce or maintain their respective fishing mortality rates at levels no greater than the fishing mortality rates associated with maximum sustainable yield. The need for the rule is to satisfy the obligations of the United States as a Contracting Party to the Convention, pursuant to the authority of the WCPFCIA.

1.3 Organization of This Document

The following is a brief description of the remaining chapters of this EA:

Chapter 2 provides detailed discussion of the proposed action and the development of action alternatives for detailed analysis. The chapter also discusses the No-Action Alternative and the alternatives initially considered but excluded from detailed analysis.

Chapter 3 describes the U.S. purse seine fishery in the WCPO and the physical environment and biological resources that could be affected by the implementation of the proposed action under any of the action alternatives.

Chapter 4 analyzes the direct and indirect environmental effects that could be caused by the implementation of the proposed action under any of the action alternatives analyzed in depth, as well as the direct and indirect effects of the No-Action Alternative, and compares the effects of the alternatives.

Chapter 5 analyzes the potential cumulative impacts that could result from the implementation of the proposed action under any of the action alternatives analyzed in depth, as well as the No-Action Alternative.

Chapter 2

Chapter 2 Proposed Action and Alternatives

In an environmental review document, agencies must assess the environmental impacts of a proposal and the reasonable and feasible alternatives to the proposal in comparative form. The purpose of this comparison of alternatives is to provide the decision maker and the public with a clear basis for choosing among the alternatives.[7]

This chapter provides a description of the proposed action analyzed in this EA and the alternative means of implementing the proposed action. The chapter also includes a description of the No-Action Alternative (i.e., the existing conditions and the conditions that would result if the proposed action were not implemented under any of the action alternatives).

2.1 Proposed Action

The proposed action is the promulgation of the 2015 ELAPS rule to implement the purse seine fishing effort limit for the U.S. fleet as required by CMM 2014-01.

Section 2.2 describes the alternatives analyzed in depth in this EA, including two action alternatives and the No-Action Alternative. Section 2.3 provides a discussion of the alternatives initially considered but excluded from detailed analysis.

2.2 Alternatives Analyzed in Depth

Paragraph 23 of CMM 2014-01 requires coastal States like the United States to "establish effort limits, or equivalent catch limits for purse seine fisheries within their EEZs that reflect the geographical distributions of skipjack, yellowfin, and bigeye tunas, and are consistent with the objectives for those species." It further states, "Those coastal States that have already notified limits to the Commission shall restrict purse seine effort and/or catch within their EEZs in accordance with those limits." The United States has regularly notified the Commission of its purse seine effort limits for the U.S. EEZ since the limits were first established in the 2009 Rule. Accordingly, the applicable limit for the U.S. EEZ is the same as that implemented by NMFS since 2009, which is 558 fishing days per year. Under paragraph 23 of CMM 2014-01, this limit is applicable from 2015 through 2017.

Paragraph 25 of CMM 2014-01 requires that U.S. purse seine fishing effort on the high seas in 2015 be limited to 1,270 fishing days. It does not include limits for the years after 2015, but states that the Commission will review the 2015 limits in 2015 and agree on limits for later years.

[7] See the CEQ's Regulations for Implementing the Procedural Provisions of NEPA at 40 CFR §1502.14.

Accordingly, NMFS has identified the following as the alternatives for detailed analysis in this EA.

2.2.1 Alternative A: No-Action Alternative

Alternative A, the No-Action Alternative to the U.S. Purse Seine Rule, would cause no changes to "the status quo" and would result in conditions that are treated as the baseline for the purposes of assessing the impacts of the other alternatives. There would be no limit on U.S. purse sein fishing effort on the high seas or in the U.S. EEZ in the Convention Area in 2015. The inclusion of the No-Action Alternative serves the important function of facilitating comparison of the effects of the action alternatives and is a required part of a NEPA document. Under Alternative A, the U.S. WCPO purse seine fishery would continue to be managed under existing laws and regulations, which are described in Chapter 3. In effect, up to 40 vessels licensed by Pacific Islands Forum Fisheries Agency (FFA)[8] under the Treaty on Fisheries between the Governments of certain Pacific Islands States and the Government of the United States of America (SPTT or Treaty) would continue to fish in the manner in which operations have occurred for the past 27 years, though certain SPTT instruments are currently being renegotiated and it is foreseeable that there may be substantive changes to the management of the U.S. WCPO purse seine fleet in the near future. In addition, the fleet would be subject to certain NMFS regulations that implement decisions of the Commission, including, but not limited to, permit endorsement requirements, specific reporting requirements, prohibitions on at-sea transshipments, sea turtle take mitigation requirements, catch retention requirements and observer requirements. Vessels in the U.S. WCPO purse seine fleet are also currently required to carry WCPFC observers on all trips in the WCPFC Convention Area and are subject to vessel monitoring system (VMS) requirements. The fleet would also be subject to permitting requirements under NMFS regulations implementing the High Seas Fishing Compliance Act (HSFCA; 16 U.S.C. § 5501, *et seq*.) as well as NMFS regulations implementing the Fishery Ecosystem Plan (FEP) for Pacific Pelagic Fisheries of the Western Pacific Region (Pelagics FEP), pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA; 16 U.S.C. § 1801 *et seq*.). All of these regulations are discussed in more detail in Section 3.2 of this EA.

2.2.2 Alternative B (Preferred): Combined Limit for the ELAPS

This alternative would include a combined total limit of 1,828 fishing days for the ELAPS (i.e., high seas and U.S. EEZ between the latitudes of 20° N. and 20° S., in the Convention Area) for the calendar year 2015. This is identical to the ELAPS limit that was established in the 2014 Rule for calendar year 2014 (see 50 CFR 300.223(a)), and is the agency's preferred alternative. If NMFS determines that the limit is expected to be reached before the end of 2015, it would issue a *Federal Register* notice announcing that

[8] An additional five vessel licenses are available for joint venture operations with Pacific Island Parties to the SPTT.

purse seine fishing will be prohibited in the ELAPS for the remainder of 2015. The notice would be issued at least seven days in advance of the closure.

2.2.3 Alternative C: Separate Limits for the High Seas and the U.S. EEZ

This alternative would include a limit of 1,270 fishing days for the high seas and 558 fishing days for the U.S. EEZ for the calendar year 2015. If NMFS determines that the limit in either area is expected to be reached before the end of 2015, it would issue a *Federal Register* notice announcing that purse seine fishing will be prohibited in that area for the remainder of the year. The notice would be issued at least seven days in advance of the closure.

2.3 Alternatives Initially Considered But Excluded From Detailed Analysis

In the 2009 EA, NMFS identified various methods for implementing the fishing effort limits for the U.S. WCPO purse seine fleet. First, the effort limits could be applied by: (1) allocating the effort limits among vessels (i.e., each vessel would be allocated a specific portion of the overall effort limit based on some established criteria); or (2) having no allocation of the effort limits, so all vessels would compete for the available fishing days under a single fleet-wide – competitive – limit. Second, the effort limits could be applied by: (1) having a single combined effort limit that applies to both of the applicable areas (high seas and U.S. EEZ); or (2) separate effort limits for the high seas and U.S. EEZ. Third, given that the rule was for the period 2009-2011, the effort limits also could be set in several alternative temporal terms so that days could be borrowed from the limits of past and future years, or they could be fixed so that no borrowing could take place: (1) on an annual basis, and/or (2) a multiple-year basis. In either case, but particularly the former, they could be set for the calendar year or be put on some other "limit-year" schedule – given the fleet has been historically managed on licensing periods that run from June 15th to June 14th of the following year. NMFS analyzed four different variations of the fishing effort limits in the 2009 EA that represented a reasonable range of alternatives. These alternatives included the following:

(1) Combined effort limits for the high seas and the U.S. EEZ, effort limits not allocated within the fleet (meaning a competitive scheme whereby fishing days are available to all vessels until the fleet-wide cap is reached), and different time scales for the limits (separate but overlapping three-year, two-year, and one-year limits) (analyzed as part of Alternative B).
(2) Combined effort limits for the high seas and the U.S. EEZ, effort limits allocated to individual vessels in some manner, and different time scales for the limits (separate three-year, two-year, and one-year limits) (analyzed as part of Alternative C).

(3) Separate effort limits for the high seas and for the U.S. EEZ, effort limits not allocated within the fleet, meaning on a competitive basis, and limits applied on a single-year basis (analyzed as part of Alternative D).
(4) Combined effort limit for the high seas and the U.S. EEZ, effort limit allocated on a competitive basis, and one limit implemented for the entire three-year period, rather than having separate one-year limits or different time scales for the limits (analyzed as part of Alternative E).

The provisions of CMM 2012-01 pertaining to the purse seine fishing effort limits differed in some respects from those in CMM 2008-01. CMM 2008-01 specified that the effort limits for the high seas must be the number of days fished in 2004 or the average number of days fished in the period from 2001-2004, and that the effort limit in the U.S. EEZ should be compatible with the effort limits on the high seas. CMM 2012-01 specified that each of the WCPFC members shall take measures not to increase fishing days on the high seas beyond established limits and to establish effort limits or equivalent catch limits in its EEZ that reflect the geographical distributions of skipjack tuna, yellowfin tuna, and bigeye tuna, and that are consistent with the Commission’s management objectives for those species. In addition, the purse seine effort limit provisions in CMM 2012-01 were specified only for the year 2013 instead of the three-year period (2009-2011) specified in CMM 2008-1.

In the 2013 EA, NMFS developed three action alternatives to implement the purse seine fishing effort provisions of CMM 2012-01. The first action alternative included separate limits for the high seas (433 fishing days) and the U.S. EEZ (27 fishing days) for each of the calendar years 2013 and 2014. The number of fishing days for this alternative was based on the lowest levels of days fished by the U.S. purse seine fleet in years for which data were available. The second action alternative was based on effort limits specified in the 2009 Rule – the alternative included a combined total limit of 2,588 fishing days for the high seas and U.S. EEZ for each of the calendar years 2013 and 2014. The third action alternative included a combined limit of 3,943 fishing days for the U.S. EEZ and high seas for each of the calendar years 2013 and 2014. This limit was based on the highest levels of days fished by the U.S. purse seine fleet in the years for which data were available.

NMFS considered whether additional alternatives, similar to the some of the variations studied in depth as action alternatives in the 2009 EA and the 2013 EA, should be included for detailed analysis in this EA. Because the 2015 ELAPS rule would be limited to one calendar year (as opposed to the 2009 Rule, which was for three years) and because the number of maximum fishing days for the U.S. purse seine fleet on the high seas and within the U.S. EEZ have been specified by the Commission in CMM 2014-01, additional alternatives would not meet the purpose of and need for the rule, as set forth in Section 1.2. However, NMFS notes that such additional alternatives were analyzed in depth in the 2009 EA and the 2013 EA.

Chapter 3

Chapter 3 Affected Environment

This chapter describes the physical and biological environment in which the U.S. purse seine fishery operates in the WCPO, focusing on the resources that could be affected by the implementation of the 2015 FAD restrictions rule. The chapter follows the format of the 2013 EA and is divided as follows: (1) physical environment and climate change; (2) description of the U.S. WCPO purse seine fleet; (3) bigeye tuna (*Thunnus obesus*), skipjack tuna (*Katsuwonus pelamis*), and yellowfin tuna (*Thunnus albacares*) – the principal stocks associated with the U.S. purse seine fishery in the WCPO; (4) other biological resources; and (5) protected resources. The information presented includes some information from the 2013 EA, as well as updates to the corresponding sections in the 2013 EA.

3.1 Physical Environment and Climate Change

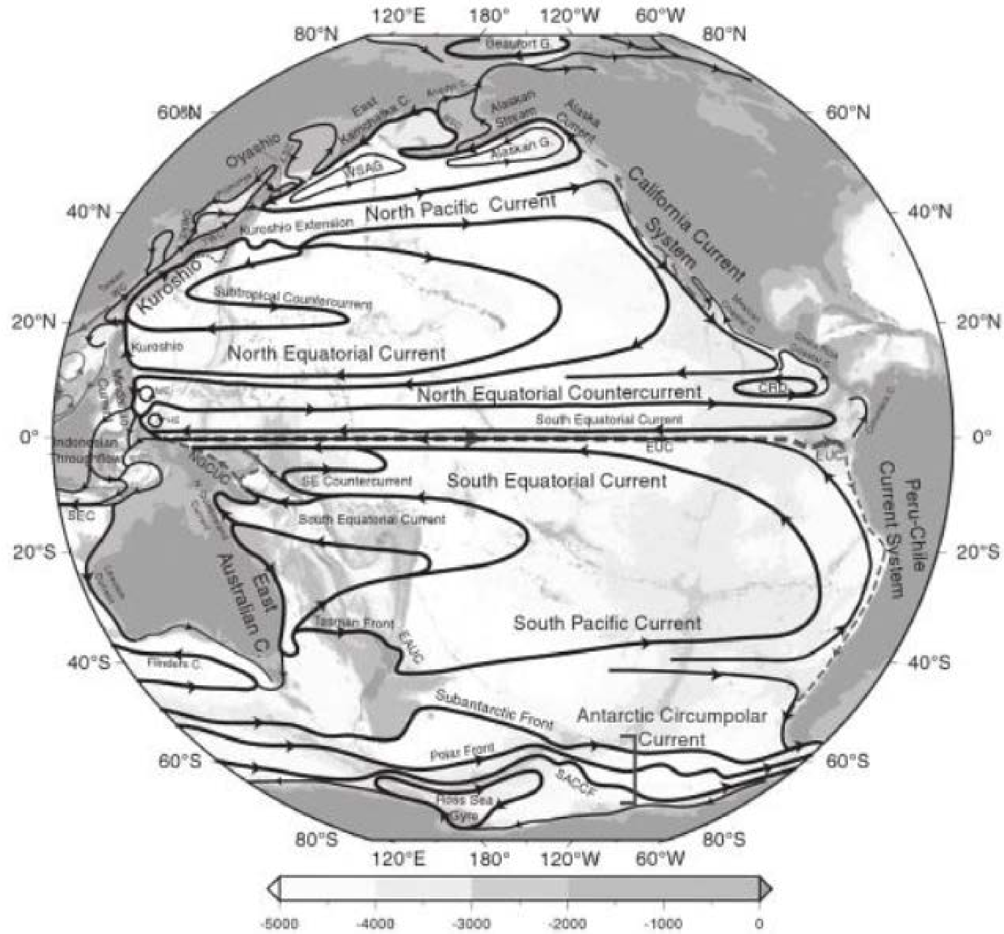
The physical reach of the Convention Area (as shown in Chapter 1), comprises all waters of the Pacific Ocean bounded to the south and to the east by the following line: from the south coast of Australia due south along the 141° meridian of east longitude to its intersection with the 55° parallel of south latitude; thence due east along the 55° parallel of south latitude to its intersection with the 150° meridian of east longitude; thence due south along the 150° meridian of east longitude to its intersection with the 60° parallel of south latitude; thence due east along the 60° parallel of south latitude to its intersection with the 130° meridian of west longitude; thence due north along the 130° meridian of west longitude to its intersection with the 4° parallel of south latitude; thence due west along the 4° parallel of south latitude to its intersection with the 150° meridian of west longitude; thence due north along the 150° meridian of west longitude.

Below is a description of the specific physical environment in which the WCPO U.S. purse seine fishery occurs and how physical features of the pelagic environment, as well as the distribution of HMS, influence the fishery.

3.1.1 Oceanography

The WCPO contains several major currents and gyres that control most of the mixing patterns and nutrient flow of the system. In the Pacific there are two subtropical gyres, one in the northern hemisphere and one in the southern hemisphere. There are also several other major currents that drive circulation in the Pacific Ocean (Figure 2).

Figure 2: Main currents of the Pacific Ocean



Source: Talley et al. 2011.

Subtropical gyres rotate clockwise in the northern hemisphere and counter clockwise in the southern hemisphere in response to trade and westerly wind forces. Due to this, the central Pacific Ocean (~20° N latitude- 20° S latitude) experiences weak mean currents flowing from east to west, while the northern and southern portions of the Pacific Ocean experience a weak mean current flowing from west to east. Embedded in the mean flow are numerous mesoscale eddies which are turbulent or spinning flows on scales of a few hundred kilometers created from interactions between wind, currents, and the ocean's bathymetry (Stewart 2008). These eddies, which can rotate either clockwise or counter clockwise, typically have important biological impacts. The edges of eddies, where the mixing is greatest, are often targeted by fishermen as these are areas of high biological productivity.

Global wind patterns, Ekman transport (the net transport of water driven by wind stress and the Coriolis force), and eddy currents create vertical fluxes, with regions of divergence causing upwelling, a process where the thermocline shoals and deep nutrients are pumped into surface waters enhancing phytoplankton production. The opposite occurs in regions of convergence (downwelling) where the thermocline deepens (Talley et al. 2011). The edges of eddies, where the mixing is greatest, are often targeted by fishermen as these are areas of high biological productivity.

The subtropical frontal zones, consisting of several convergent fronts, lie between latitudes 25°- 40° N. and S., and are often referred to as the Transition Zones. Transition zones are areas of ocean water bounded to the north and south by large-scale surface currents originating from subarctic and subtropical locations (Polovina et al. 2001). These zones also provide important habitat for pelagic fish and thus, are targeted by fishers.

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Variability within the ocean–atmosphere system results in changes in winds, rainfall, currents, water column mixing, and sea-level heights, which can have profound effects on regional climates as well as on the abundance and distribution of marine organisms. In the tropical Pacific there is a limited seasonal variation, yet there is a strong interannual variability which in turn affects the entire Pacific Ocean (Langley et al. 2004). These events affect the habitat range and movements of pelagic species. Geographic distribution of all species, especially HMS, varies with seasonal changes in the physical and chemical ocean environment. Suitable physical environment for these species depends on gradients in temperature, oxygen, or salinity, all of which are influenced by oceanic conditions on various scales. In the pelagic environment, physical conditions such as isotherm and isohaline boundaries often determine whether or not the surrounding water mass is suitable for pelagic fish. Additionally, areas of high trophic transfer as found in fronts and eddies are important habitat for foraging, migration, and reproduction for many species (Bakun 1996).

The scientific community has become increasingly aware of the occurrence and importance of long-term (decadal-scale) oceanographic cycles and of their relationship to cycles in the population sizes of some species of fish (Chavez et al. 2003). These naturally occurring cycles can either mitigate or accentuate the impact of fishing mortality on all species, especially those targeted in HMS fisheries. El Niño Southern Oscillation (ENSO)[9] events, including mesoscale events, such as El Niño and La Niña, and shorter term phenomena such as cyclonic eddies near the Hawaiian Islands (Seki et al. 2002), impact the recruitment and fishing vulnerability of HMS. ENSO events can cause considerable interannual physical and biological variation. During a typical El Niño, the normal easterly trade winds weaken, resulting in a weakening of the westward equatorial surface current and a deepening of the thermocline in the central and eastern equatorial Pacific. In turn, the eastward-flowing countercurrent tends to dominate circulation, bringing warm, low-salinity, and low-nutrient water to the eastern margins of the Pacific Ocean. As the easterly trade winds are reduced, the normal nutrient-rich upwelling system does not occur, leaving warm surface water pooled in the eastern Pacific Ocean (EPO).

El Niño affects the ecosystem dynamics in the equatorial and subtropical Pacific by considerable warming of the upper ocean layer, rising of the thermocline in the western Pacific and lowering in the east, strong variations in the intensity of ocean currents, low trade winds with frequent westerlies, high precipitation at the dateline, and drought in the western Pacific (Sturman and McGowan 1999). El Niño events have the ability to exercise a strong influence on the abundance and distribution of organisms within marine ecosystems. The deepening of the mixed layer depth that occurs with an El Niño may be manifested by a discernible increase in purse seine catch per unit of effort (CPUE) of yellowfin tuna in the central/western regions of the Pacific. This is normally seen after a 2-3 month delay and occurs in the eastern portion of the WCPO in the vicinity of Kiribati and the U.S. EEZ of the central Pacific (Howland, Baker, Jarvis etc.). During a strong El Niño, the purse seine fishery for skipjack tuna shifts over thousands of kilometers from the western to the central equatorial Pacific in response to physical and biological impacts (Lehodey et al. 1997).

A La Niña event exhibits the opposite conditions: cooler than normal sea-surface temperatures in the central and eastern tropical Pacific Ocean. These may have larger impacts on global weather patterns. For the purse seine fishery the contraction of the warm pool tends to shift fishing to the western portion of the WCPO in the vicinity of

[9] ENSO events include the full range of variation observed between El Niño and La Niña events. El Niño is characterized by a large-scale weakening of the tradewinds and warming of the surface layers in the eastern and central equatorial Pacific. El Niño events occur irregularly at intervals of 2–7 years, although the average is about once every 3–4 years. These events typically last 12–18 months, and are accompanied by swings in the Southern Oscillation, an interannual "see-saw" in tropical sea level pressure between the eastern and western hemispheres. During El Niño, unusually high atmospheric sea level pressures develop in the western tropical Pacific and Indian Ocean regions, and unusually low sea level pressures develop in the southeastern tropical Pacific. During La Niña, the opposite effects are seen (NMFS 2004).

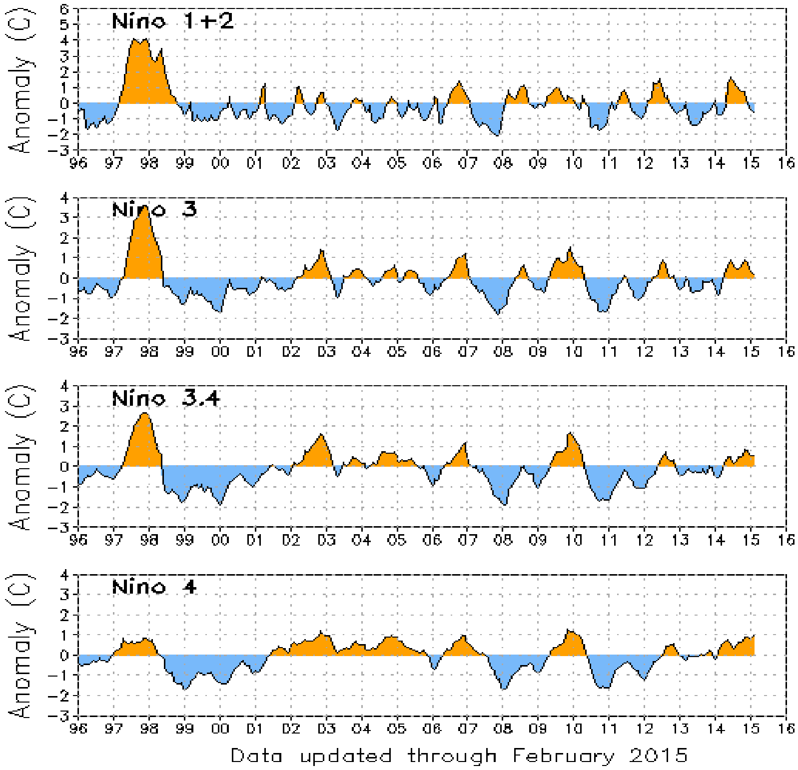
Papua New Guinea and Federated States of Micronesia, or away from the U.S. EEZ and those areas to the north of American Samoa. The major change is a horizontal extension or contraction of the skipjack tuna habitat during El Niño and La Niña phases respectively.

Physical and biological oceanographic changes have also been observed on decadal time scales. These low frequency changes, termed regime shifts, can impact the entire ocean basin. These impacts may lead to potential impacts on the tropical Pacific fisheries for tunas such as the extension of present fisheries to higher latitudes, a decrease in productivity, mainly in the eastern Pacific, increasing variability in the catches, changes in species composition of the catch, and increasing fishing pressure, particularly on bigeye and yellowfin tuna (The World Bank 2000).

Figure 3 below shows sea surface temperature anomalies for different regions of the Pacific Ocean for the years 1995 through February 2015. The regions are as follows: (1) Nino 1+2 is the extreme eastern equatorial Pacific between 0° to 10°S latitude and 90° to 80°W longitude; (2) Nino 3 is the eastern equatorial Pacific between 5°N to 5°S latitude and 150°W to 90°W longitude; (3) Nino 3.4 is the east-central equatorial Pacific between 5°N to 5°S latitude and 170°W to 120°W longitude; and (4) Nino 4 covers the international date line and is from 5°N to 5°S latitude and 160°E to 150°W longitude. Anomalies refer to variations from the monthly mean sea surface temperatures during the base period (1981-2010).[10]

[10] Information and Figure 2 taken from the National Weather Service Web site at: http://www.cpc.ncep.noaa.gov/products/CDB/Tropics/figt5.shtml.

Figure 3: Sea Surface Temperature Indices of ENSO Patterns from 1995 to February 2015.



Source: National Weather Service, 2015 (see above footnote)

3.1.2 Climate Change

Climate change may affect the marine environment by impacting the established hydrologic cycle (e.g., a change in precipitation and evaporation rates) (Bala et al. 2010). This in turn may cause a shift in food web dynamics, such as a reduction in primary productivity, which affects HMS migration and distribution (Dambacher et al. 2010, Loukos et al. 2003). Climate change has been associated with other effects to the marine environment, including rising oceanic temperatures, changes in ice cover, salinity, oxygen levels, and circulation (Intergovernmental Panel on Climate Change 2007). These effects are leading to shifts in the range, abundance, and behaviors of algae, plankton, fish and other sea life (Solomon et al. 2007). Coral reefs are also being damaged through ocean acidification and sea level rise (Carpenter et al. 2008, Mayfield et al. 2012, Munday et al. 2012). There are many predictions pertaining to the rate of change and potential maximums of sea level rise but studies indicate the change is caused by rising global temperatures and ice melt (Rahmstorf 2007). Sea level changes could potentially damage the nesting, breeding, foraging, and migratory sites of coastal marine sea birds (Galbraith et al. 2002) and other vertebrate megafauna such as pinnipeds and chelonioidea (Baker et al. 2006).

Climate change is also increasing the incidence of disease in aquatic organisms (Roessig et al. 2004, Hoegh-Guldberg and Bruno 2010, Woesik et al. 2012) as well as the spread of invasive species (Hoegh-Guldberg and Bruno 2010). Studies on planktonic ecosystems demonstrate that climate change is affecting phytoplankton abundance and distribution, which in turn affects consumers ranging from zooplankton to megafauna (Hays et al. 2005). Changes in plankton affect ecosystem services such as oxygen production, carbon sequestration, and biogeochemical cycling (Edwards et al. 2010). All of these studies concluded that fish, seabirds, and marine mammals will need to adapt to shifts in spatial distribution of primary and secondary production within pelagic marine ecosystems (Hoegh-Guldberg and Bruno 2010; Dambacher et al. 2010).

Studies conducted by Perry et al. (2005) indicate that climate change is impacting marine fish distributions, which in turn may have important ecological impacts on fish as well as important impacts on commercial fisheries. How climate change can impact commercial fisheries include: (1) increases in ocean stratification leading to less primary production, which in turn leads to less overall energy for fish production; (2) decreases in spawning habitat from shifts in areas of well-mixed water zones leading to decreased stock sizes; and (3) changes in currents that may lead to changes in larval dispersals and retention, which could lead to decreases in stock sizes (Roessig et al. 2004).

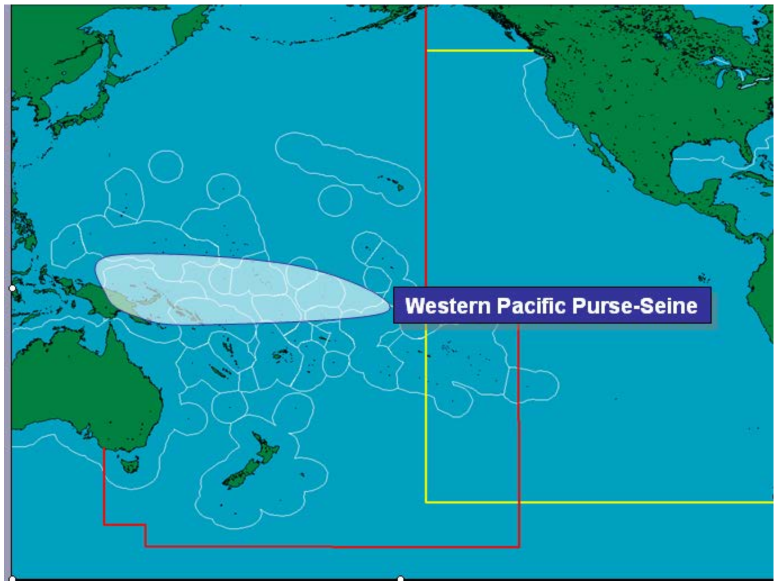
Ainsworth et al. (2011) also investigated potential climate change impacts on commercially valuable species of fish, stimulating changes in (1) primary productivity; (2) species range shifts; (3) zooplankton community size structure; (4) ocean acidification; and (5) ocean deoxygenation. Climate change may also impact marine carrying capacity and relative suitable habitats for fish stocks, theoretically either positively or negatively affecting the levels of growth and survival of certain fish populations (Kaeriyama et al. 2012).

Ocean habitat may be affected by changes in pH associated with climate change. The global average pH has risen 0.1 units (Farby et al. 2008) since the beginning of the Industrial Revolution, due to increased levels of CO_2 both anthropogenically and naturally released. Any creature that produces a carbonate shell is vulnerable to the carbonic acid (it dissolves carbonate) that is produced by the reaction between atmospheric CO_2 and seawater. Most of these creatures are small phytoplankton and zooplankton, but larger crustaceans and mollusks are vulnerable to dissolution as well, especially in juvenile stages (Farby et al. 2008). Coral reefs are also damaged by increasing acidity levels (Hoegh-Guldberg et al. 2007). As these organisms form, feed, or support many levels of the food chain, as well as provide many other important ecosystem services, any major loss of diversity or productivity could impact higher trophic levels and the environment as a whole.

3.2 U.S. WCPO Purse Seine Fishery

U.S. purse seine vessels typically engage in targeting skipjack and to a lesser extent yellowfin tuna throughout the equatorial regions of the Convention Area. The U.S. WCPO purse seine fleet operates mostly in the EEZs of Pacific Island Countries (PIC) between 10° N and 10° S within the Convention Area (Figure 4).

Figure 4: The general operational area of the U.S. WCPO purse seine fishery (indicative only) in light blue. The red line demarks the Convention Area with the yellow line depicting the boundary of the Inter American Tropical Tuna Commission (IATTC), which generally exercises competence over HMS Fisheries in the EPO.



Source: NMFS unpublished data.

3.2.1 Fleet Characteristics

Gillett et al. (2002) provide a detailed description of the historical development and expansion of the U.S. WCPO purse seine fleet from its bases in the EPO. The U.S. fleet developed a year-round fishery along the Equator, generally within a rectangular area bounded by 10° N-10° S latitude and 135° E-170° E longitude, and encompassing the EEZs of Palau, Federated States of Micronesia, Papua New Guinea, Solomon Islands, Nauru, Marshall Islands, and the Gilbert Islands group of Kiribati. Fishing grounds continued to expand eastward throughout the 1980s, eventually encompassing the waters around the Phoenix and Line Islands (Kiribati); the U.S. EEZ areas around Howland, Baker, and Jarvis; Tokelau; and the high seas between these EEZ areas. U.S. purse seiners typically target skipjack and yellowfin tuna found in association with drifting logs/flotsam or FADs and also unassociated free-swimming schools of tuna ("school sets"). The relative proportion of the different set types has varied considerably over time as oceanographic conditions and technology have changed.

Large modern purse seiners are one of the most complex fishing vessels in terms of both technology and machinery. Hydraulic systems on large "super seiners," require more than 1,600 meters of piping, and are equipped with at least four auxiliary engines in addition to the main propulsion engine (or engines). The purse seine technique for catching tuna involves employing a net that is set vertically in the water, with floats attached to the upper edge and chains for weight on the lower edge. A series of rings is attached to the lower edge of the net, and a pursing cable passes through the rings, enabling a winch on board the vessel to draw the net closed on the bottom. Purse seine nets can be up to 1,500 meters or more in length and 150 meters in depth. When the net is deployed from the purse seine vessel, a large skiff carrying the end of the net is released from the stern of the fishing vessel. The purse seine vessel encloses the school of tuna, keeping it in visual contact if on the surface, or using sonar if below the surface, and then retrieves most of the net onto the vessel. The fish are confined in the “sack” portion of the net, which consists of finer mesh webbing that prohibits their escape. The catch is removed from the sack onto the vessel via brailing or with large “scoops” holding several metric tons (mt), and then is placed in brine tanks for freezing and later storage. Joseph (2002) and NMFS (2004) provide a detailed description of tuna purse seining and the fleets involved in the Pacific Ocean fisheries. Although these studies are ten or more years old, basic vessel design is approximately the same while gear has significantly improved.

3.2.2 Management of the U.S. Purse Seine Fleet in the WCPO

The fishing activities of U.S. WCPO purse seine vessels are governed in large part by the SPTT. The SPTT manages access of U.S. purse seine vessels to the EEZs of Pacific Islands Parties to the SPTT and provides for technical assistance in the area of Pacific Island Country fisheries development. The SPTT is implemented domestically by regulations (50 CFR 300 Subpart D) issued under authority of the South Pacific Tuna Act of 1988 (SPTA; 16 U.S.C. 973-973r). As of this writing, certain agreements that operationalize the SPTT are being renegotiated, which may result in changes to the current management regime. The High Seas Fishing Compliance Act and implementing regulations (50 CFR 300 Subpart B), the WCPFCIA and implementing regulations (50 CFR 300 Subpart O), and regulations implementing the Pelagics FEP pursuant to the MSA (50 CFR Part 665) also regulate this fishery. The main fishery management regulations established under the South Pacific Tuna Act of 1988 (SPTA), HSFCA, WCPFCIA, and Pelagics FEP are:

- All U.S. vessels that fish (as defined under 50 CFR § 300.2) on the high seas are required to have a permit in accordance with the HSFCA and, if fishing on the high seas in the Convention Area, a WCPFC Area Endorsement;

- A U.S. purse seine vessel operating in the WCPO must have a license issued by the FFA as Treaty Administrator on behalf of the Pacific Island Parties to the SPTT. The SPTT and implementing regulations provide for the availability of 45 licenses, five of which are only available to fishing vessels engaged in joint venture arrangements with the Pacific Islands Parties. No joint venture licenses have ever been issued.

- Within the SPTT Area there are several types of designated geographical areas, as described below:

    1. The **Treaty Area** which is about 10 million square miles in size.

2. The **Licensing Area** where a license is required in order to fish. The Licensing Area means all waters in the Treaty Area except for those waters subject to the jurisdiction of the United States, those waters within closed areas, and those waters within limited areas closed to fishing.

3. **Closed Areas** are those specific areas within the Treaty Area in which U.S. purse seine vessels are not allowed to fish.

- U.S. purse seine vessels are prohibited from transshipping fish at sea in the Convention Area and from transshipping fish caught in the Convention Area anywhere else;

- A U.S. purse seine vessel cannot be used for directed fishing for southern bluefin tuna or for fishing for any kinds of fish other than tunas, except fish that may be caught incidentally;

- Holders of vessel licenses are required to submit both written and electronic reports on their fishing activities in the Treaty Area to NMFS, the FFA or the local marine resource authority in which the vessel is operating;

- U.S. purse seine vessels are required to carry and operate mobile transmitting units to provide automated position information as part of a VMS administered by NMFS and by the FFA;

- U.S. purse seine vessels are required to be identified in accordance with the 1989 United Nations Food and Agriculture Organization standard specifications for the marking and identification of fishing vessels, which requires that the vessel's international radio call sign be marked on the hull and deck

- U.S. purse seine vessels operating in the Convention Area must submit specific reports on transhipments, discards, and entries into and exits from a certain area of the high seas (i.e., Eastern High Seas Special Management Area; 50 CFR 300.225);

- U.S. purse seine vessels fishing in the Convention Area must follow certain sea turtle interaction mitigation measures;

- U.S. purse seine vessels must retain all catch of bigeye, yellowfin, and skipjack tuna, subject to certain exceptions;

- U.S. purse seine vessels must not set or attempt to set on around a whale shark (*Rhincodon typus*) and must release any whale shark that is encircled;

- U.S. purse seine vessels cannot retain on board, tranship, store, or land any part or whole carcass of an oceanic whitetip shark (*Carcharhinus longimanus*) or silky shark (*Carcharhinus falciformis*) and must release any oceanic whitetip shark or silky shark as soon as possible;

- U.S. purse seine vessels equal to or greater than 50 feet (15.2 meters) in length overall generally cannot fish in a certain portion of the U.S. EEZ around American Samoa; and

- For the last 27 years, pursuant to the terms of the SPTT, U.S. purse seine vessels must carry observers on at least twenty percent of their trips (see SPTT, Annex I, Part 7). However, beginning in 2010, purse seine vessels have been required to carry WCPFC observers on all trips, with certain exceptions. Observers for the fleet are deployed by the FFA.

Beyond the closed areas cited above, in 2006 Kiribati formed the Phoenix Islands Protected Area (PIPA) in its EEZ, which is about 140,000 square miles in size. On January 1, 2015, Kiribati banned all commercial fishing within the PIPA. This prohibition applies to the U.S. purse seine fleet.

Observers provide useful information that is independent of vessel operators and is obtained during actual fishing operations. Data typically collected by observers include catch composition by species, effort, location, environmental conditions, gear type, and information on bycatch. Observers deployed by the FFA on U.S. WCPO purse seine vessels collect detailed information on bycatch and discards in the WCPO purse seine fishery. These data are routinely used to provide estimates of total bycatch and discards and the extent of interaction with species of special interest (e.g., marine mammals and turtles) (Secretariat of the Pacific Community (SPC) 2012b) and are employed for regional tuna stock assessments.

3.2.3 Participation, Effort, and Catch

Participation in the U.S. WCPO purse seine fishery increased from the late 1980s to the mid-1990s, and gradually decreased until a low was reached in 2006. The fleet has since increased to about the levels of the mid 1990s, and has been relatively stable for the past few years. As of April 2015, the U.S. WCPO purse seine fleet consisted of 37 licensed vessels.

Effective June 15, 2013, while certain SPTT instruments are being renegotiated, the U.S. purse seine fleet's fishing effort in foreign EEZs in the WCPO was constrained not only by limits on the number of allowable vessels, as in the past, but also by limits on the number of allowable fishing days. These limits have been established in interim arrangements. An important element of the current arrangement is that in 2015, the number of fishing days allowed in the Kiribati EEZ is set at 300 fishing days, which is much less than in the past.

Table 1 shows the effort of the fleet in the U.S. EEZ, the high seas, and in the EEZs of PICs (unpublished NMFS data) from 1997-2013. .

Table 1: U.S. WCPO purse seine fleet fishing effort (1997-2013) in the Convention Area. [11] **Data for 2012 and 2013 are preliminary.**

Year	**U.S. EEZ Effort (fishing days)**	**U.S. % days**	**High Seas Effort (fishing days)**	**High Seas % days**	**PIC Effort (fishing days)**	**PIC % days**	**Total Effort (fishing days)**	**Number of Active Vessels**[12]	**Number of Sets**
1997	1,469	21%	1,311	19%	4,177	60%	6,957	35	5,675
1998	460	8%	1,556	25%	4,099	67%	6,115	39	4,857
1999	234	5%	1,156	24%	3,368	71%	4,758	36	3,415
2000	128	3%	883	19%	3,529	78%	4,539	33	3,666
2001	336	7%	929	19%	3,711	75%	4,977	31	4,058
2002	440	8%	1,306	24%	3,803	69%	5,549	29	4,768
2003	215	5%	900	19%	3,643	77%	4,758	26	3,166
2004	288	7%	1,030	25%	2,795	68%	4,113	21	2,657

[11] A fishing day is defined as any day in which a fishing vessel of the United States equipped with purse seine gear searches for fish, deploys a FAD, services a FAD, or sets a purse seine, with the exception of setting a purse seine solely for the purpose of testing or cleaning the gear and resulting in no catch.

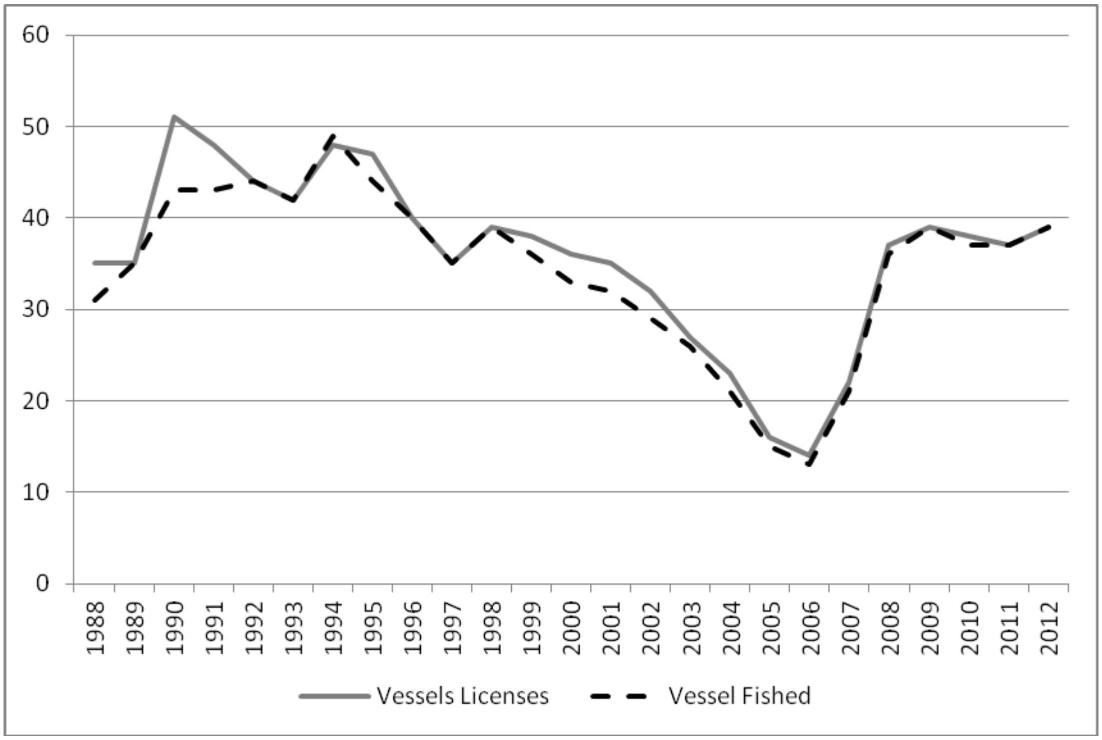
[12] Number of vessels indicates the total number of unique vessels contributing to the data for a given year.

2005	137	4%	832	26%	2,177	69%	3,146	15	2,386
2006	184	7%	543	20%	1,932	73%	2,659	13	1,966
2007	92	3%	787	29%	1,869	68%	2,747	20	2,008
2008	60	1%	1,506	22%	5,415	78%	6,981	36	6,558
2009	101	1%	1,704	21%	6,500	78%	8,306	39	8,278
2010	23	0%	400	5%	7,687	95%	8,110	37	8,632
2011	38	0%	653	8%	7,218	91%	7,910	36	9,757
2012	198	2%	1,248	15%	7.050	83%	8,496	39	11,745
2013	168	2%	999	13%	6,539	85%	7,705	40	10,490
Total	4,571	5%	17,743	18%	68,469	70%	97,826		94,082
AVG.	269	5%	1,044	20%	4,028	76%	5,754	31	5,534

Source: NMFS unpublished data.

Figure 5 below shows the number of licensed vessels and the number of vessels that fished in the fleet from 1988 to 2012.

Figure 5: Number of U.S.-flagged purse seine vessels licensed and vessels fished under the SPTT from 1988 to 2012



Sources: Coan et al 2002; United States Coast Guard and NMFS 2013; and NMFS, unpublished data.

Skipjack tuna generally account for 70–77 percent of the purse seine catch, yellowfin tuna for about 19-22 percent, and bigeye tuna for a small proportion (<5 percent) (SPC 2012a). Table 2 shows the 2011 and 2012 tuna landings of the fleet by species and port. Historically, most of the U.S. WCPO purse seine fleet operated out of Pago Pago, American Samoa. However, some of the vessels that entered the fleet in the last seven years operate under a different business model, and transship most of their catch in Pacific Island ports in the region. In recent years, about 25 percent of the catch has been landed in Pago Pago. Table 2 shows tuna landings by U.S. WCPO purse seine vessels by species and port in 2012 and 2013.

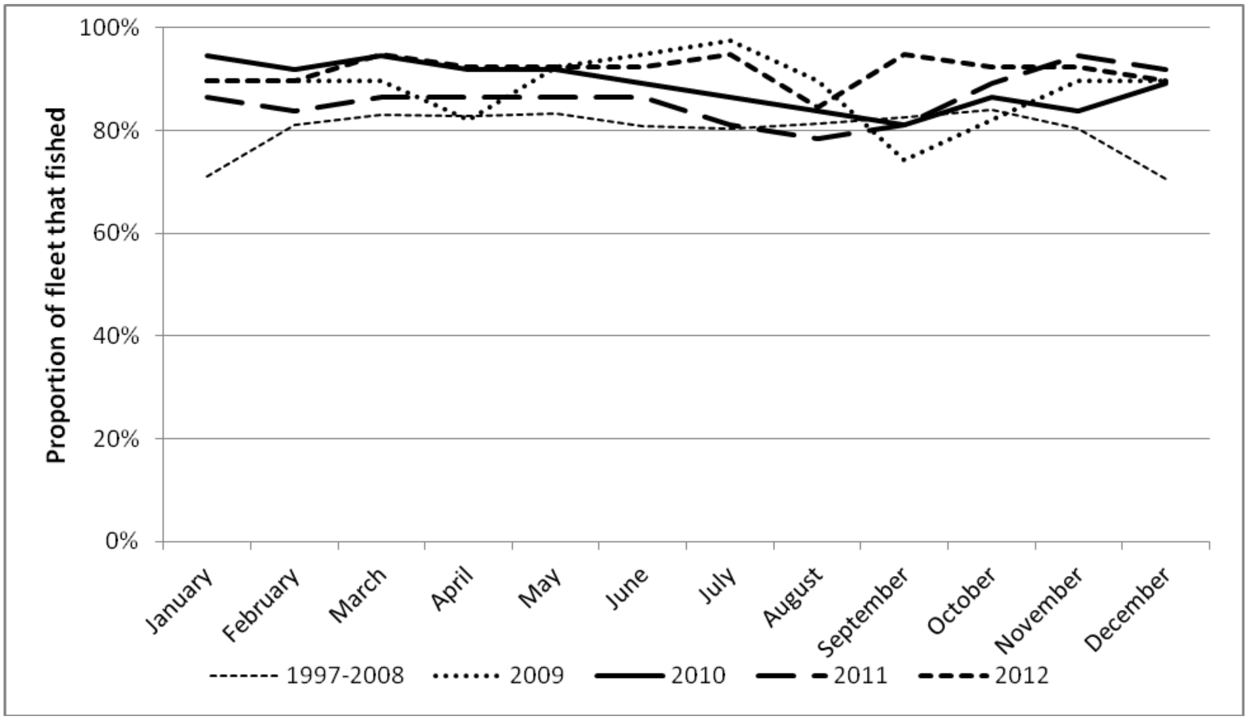
Table 2: Tuna landings by U.S. WCPO purse seine vessels by species and port, 2012-2013 preliminary data

2012	**Tuna Landings (mt)**			
PORT	**Skipjack**	**Yellowfin and Bigeye**	**Total**	**%**
United States Ports				
Pago Pago, American Samoa	51,369	7,454	58,823	23%
Pago Pago, Transshipments	29,688	3,763	33,451	13%
Foreign Ports				
Pohnpei, Federated States of Micronesia	20,945	2,329	23,274	9%
Christmas Island, Kiribati	5,340	2,537	7,877	3%
Tarawa, Kiribati	7,282	3,365	10,647	4%
Rabaul, Papua New Guinea	11,373	1,055	12,428	5%
Majuro, Republic of the Marshall Islands	91,894	14,926	106,820	41%
Other	4,969	245	5,214	2%
TOTAL	**222,860**	**35,674**	**258,534**	**100%**
2013	**Tuna Landings (mt)**			
PORT	**Skipjack**	**Yellowfin and Bigeye**	**Total**	**%**
United States Ports				
Pago Pago, American Samoa	45,661	3,651	49,312	20%
Pago Pago, Transshipments	29,527	3,926	33,453	13%
Foreign Ports				
Pohnpei, Federated States of Micronesia	65,421	4,524	69,945	28%
Christmas Island, Kiribati	6,709	1,813	8,522	3%
Tarawa, Kiribati	6,151	969	7,120	3%
Rabaul, Papua New Guinea	4,443	477	4,920	2%
Majuro, Republic of the Marshall Islands	69,228	4,906	74,134	29%
Other	3,623	609	4,232	2%
TOTAL	**230,763**	**20,875**	**251,638**	**100%**

Source: United States Coast Guard and NMFS 2014.

Purse seine fishing effort in the WCPO cannot be characterized by any marked or documented seasonal patterns. As shown in Figure 6 below, over 70 percent of the U.S. purse seine fleet in the WCPO fished throughout the entire year from 1997 through 2008 and at least that in each of the years from 2009 through 2012. The percent of licensed vessels that fished in the years when the 2009 Rule and 2011 Rule were in effect was generally constant throughout the year.

Figure 6: Proportion of the WCPO U.S. purse seine fleet that fished, by month, 1997-2012.

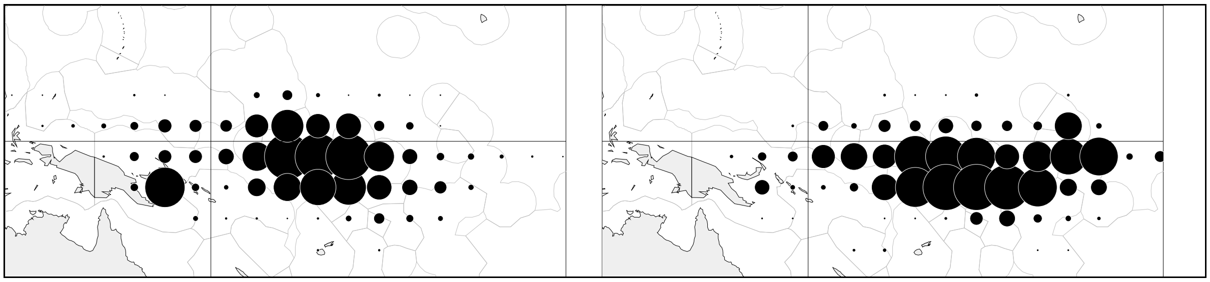


Source: NMFS unpublished data.

As stated in Section 3.1 above, the spatial distribution of fishing effort is typically most influenced by the (irregular) cycles associated with ENSO events, revealing strong temporal variation on the scale of years and decades. The distribution of catch by the WCPO purse seine fishery is also strongly influenced by ENSO events. Lehodey et al. (1997) and Lehodey et al. (1998) suggested that skipjack abundance is linked to east–west movements of warm water. El Niño conditions also produce unusual westerly winds and surface drift in the WCPO that transport drifting debris further eastward than usual.

Figure 7 depicts a good example of the U.S. purse seine effort during a transitional year between an El Niño and La Niña period (2001) and an El Niño period (2002). Effort in strong La Niña conditions normally shifts west of the vertical line indicating 160° E longitude.

Figure 7: Distribution of U.S. purse seine effort during 2001 and 2002



Source: Williams 2003. Lines for the Equator (0° latitude) and 160° E longitude included. The left-hand side of the figure shows effort during 2001 and the right-hand side shows effort during 2002.

3.3 Bigeye Tuna, Skipjack Tuna, and Yellowfin Tuna

Table 3 summarizes the current status of bigeye tuna, yellowfin tuna, and skipjack tuna stocks in the Pacific Ocean, as determined by NMFS. The table expresses overfishing and overfished status in terms of the status determination criteria specified in the relevant fishery management plans (FMPs) or FEPs, as required by the MSA. Stock status is presented as reported in the NMFS quarterly stock status updates.

Table 3: Stock status summary of select highly migratory fish stocks in the Pacific Ocean for 2014[13]

Species	Stock	Overfishing?	Overfished?
Bigeye tuna (*Thunnus obesus)*	Pacific	**Yes**	No
Skipjack tuna *(Katsuwonus pelamis)*	Western and central Pacific	No	No
	Eastern Pacific	No	No
Yellowfin tuna (*Thunnus albacares)*	Western and central Pacific	No	No
	Eastern Pacific	No	No

Source: http://www.nmfs.noaa.gov/sfa/fisheries_eco/status_of_fisheries. Stock status reports are published for each quarter of a calendar year. Information is current as of 4th quarter 2014.

As shown in Table 3 above, using the MSA stock status determination criteria, overfishing is occurring on Pacific bigeye tuna but the stock is not overfished (for the purpose of these status determinations bigeye tuna is considered a single pan-Pacific stock; however, most of the assessments upon which the determinations are based consider bigeye tuna as two stocks, one to the west of 150° W. longitude and one to the

[13] As discussed in more detail below, the stock structure of bigeye tuna in the Pacific Ocean is not well known. However, the WCPFC decisions manage bigeye tuna in the WCPO. The WCPFC decisions also manage yellowfin tuna and skipjack tuna in the WCPO and when the terms WCPO bigeye tuna, WCPO yellowfin tuna, or WCPO skipjack tuna are used in this document, they refer to the stocks of these species as defined and managed by the Commission.

east). Neither skipjack tuna nor yellowfin tuna in the WCPO or EPO are subject to overfishing or overfished.

3.3.1 Bigeye Tuna (*Thunnus obesus*)

Several studies on the taxonomy, biology, population dynamics, and exploitation of bigeye tuna have been carried out, including comprehensive reviews by Collette and Nauen (1983), and Whitelaw and Unithan (1997). Miyabe (1994) and Miyabe and Bayliff (1998) reviewed the biology and fisheries for bigeye tuna in the Pacific Ocean.

This species is a mixture between a tropical and temperate water tuna, characterized by equatorial spawning, high fecundity, and rapid growth during the juvenile stage with movements between temperate and tropical waters during its life cycle. Bigeye tuna are trans-Pacific in distribution, occupying epipelagic and mesopelagic waters of the Indian, Pacific, and Atlantic Oceans. The distribution of the species within the Pacific stretches between northern Japan and the north island of New Zealand in the western Pacific and from 40° N to 30° S in the eastern Pacific (Calkins 1980). Molecular analyses (Grewe et al. 1998) and tagging projects executed by the SPC (Langley et al. 2008) indicate that a single stock exists for Pacific bigeye tuna, however a tagging study done by Schaefer and Fuller (2009) revealed a low degree of mixing between EPO and WPO groups demonstrating relatively strong regional fidelity.

Matsumoto et al. (2013) conducted a tagging study that showed bigeye also observed some degree of school fidelity. Large, mature-sized bigeye tuna are sought by sub-surface fisheries, primarily longline fleets. Smaller, juvenile fish are taken in many surface fisheries, either as a targeted catch or as a bycatch with other tuna species (Miyabe and Bayliff 1998). Large numbers are taken by purse seiners fishing on drifting objects in equatorial waters, however these fish tend to be of a smaller size as larger bigeye are less likely to associate with FADs (Schaefer and Fuller 2009). Basic environmental conditions favorable for survival include clean, clear oceanic waters between 13° C and 29° C. Hanamoto (1987) estimated optimum bigeye habitat to exist in water temperatures between 10° to 15° C at salinities ranging between 34.5 parts per thousand to 35.5 parts per thousand where dissolved oxygen concentrations remain above 1 milliliter/liter. He further suggested that bigeye range from the surface layers to depths of 600 meters. However, evidence from archival tagging studies indicates that greater depths and much lower ambient temperatures can be tolerated by the species. Bigeye do display some diel vertical migration tendencies. They have been observed to stay above the 20° C isotherm all the time when associated with a FAD, but free swimming schools tend to go below the 20° C isotherm during the day and come above it at night (Matsumoto et al. 2013). Juvenile bigeye occupy an ecological niche similar to juvenile yellowfin of a similar size. Preferred water temperature often varies with the size and maturity of pelagic fish. Adults usually have a wider temperature tolerance than sub-adults. Thus, during spawning, adults usually move to warmer waters, the preferred habitat of their larval and juvenile stages.

Miyabe and Bayliff (1998) present summary information of some long distance movements of tagged bigeye tuna in the Pacific. Hampton et al. (1998) describe 8,000 bigeye tuna releases made in the western Pacific during 1990-1992. Most of the fish were recaptured close to the point of release; approximately 25 percent had moved more than 200 nautical miles, and more than 5 percent had moved more than 1,000 nautical miles. These migration patterns generally cause stock assessment in the WCPO and EPO to be conducted separately (Langley et al. 2008).

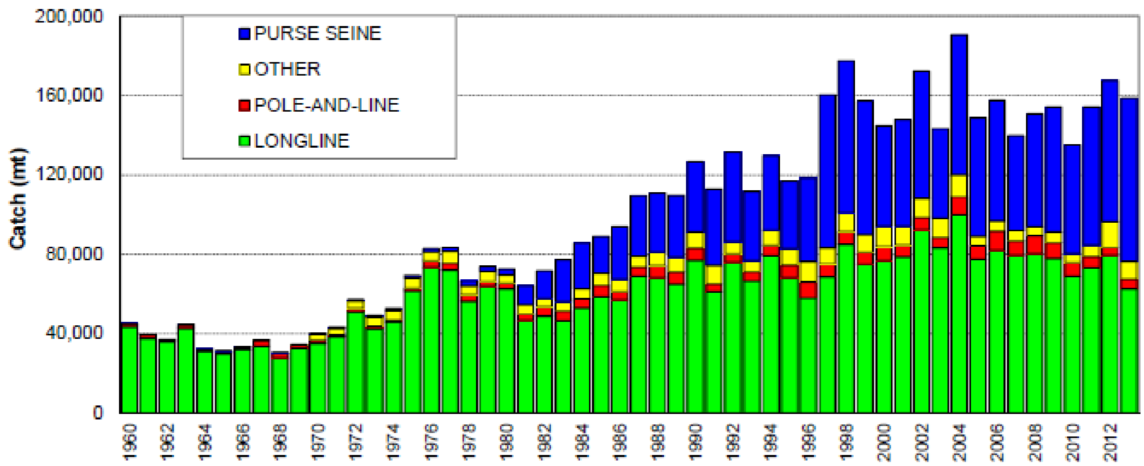
Feeding is opportunistic at all life stages, with prey items consisting primarily of crustaceans, cephalopods, and fish (Calkins 1980). There is significant evidence that bigeye feed at greater depths than yellowfin tuna, utilizing higher proportions of cephalopods and mesopelagic fishes in their diet thus reducing niche competition (Whitelaw and Unithan 1997). Spawning spans broad areas of the Pacific and occurs throughout the year in tropical waters and seasonally at higher latitudes at water temperatures above 23° or 24° C (Kume 1967). Bigeye are serial spawners, capable of repeated spawning at near daily intervals with batch fecundities of millions of ova per spawning event (Nikaido et al. 1991). Sex ratio is commonly accepted to be essentially 1:1 until a length greater than 150 centimeters after which the proportion of males increases. Alverson and Peterson (1963) state that juvenile bigeye less than 100 centimeters generally feed at the surface during daylight, usually near continental land masses, islands, seamounts, banks, or floating objects. Bigeye tuna are moderately fast growing, reaching maturity between the ages of two and a half and six years. A recapturing study suggests that a large proportion of bigeye reach the age of eight, with some surviving to at least sixteen years (Langley et al. 2008).

Bigeye tuna, especially during the juvenile stages, aggregate strongly to drifting or anchored objects, large marine animals, and regions of elevated productivity, such as near seamounts and areas of upwelling (Calkins 1980; Hampton and Bailey 1993; Holland et al. 1999). Major fisheries for bigeye tuna exploit aggregation effects either by targeting biologically productive areas (deep and shallow seamount and ridge features) or by utilizing artificial fish aggregation devices to aggregate commercial concentrations of bigeye tuna. Juvenile and pre-adult bigeye of 35 centimeters to approximately 99 centimeters are regularly taken as a bycatch in the eastern and western Pacific purse-seine fisheries, usually on sets made in association with floating objects (Hampton and Bailey 1993). Juvenile bigeye tuna form mono-specific schools at or near the surface with similar-sized fish or may be mixed with skipjack and/or juvenile yellowfin tuna (Calkins 1980; Holland et al. 1999). Juvenile and adult bigeye tuna are also known to aggregate near seamounts and submarine ridge features where they are exploited by pole-and-line, handline, and purse seine fisheries (Fonteneau 1991; Holland et al. 1999).

Small bigeye are caught near the surface by purse seines, while larger fish are caught deeper using longline gear (Gillett and Langley 2007). In the western Pacific, the purse seine fishery is diverse, occurring in the waters of a number of island nations as well as the high seas and carried out by both small domestic fleets and distant water fleets from developed nations.

In 2013, the estimated total bigeye catch in the WCPO was 158,662 mt, lower than in 2012, but stable compared to the ten year average (Williams and Terawasi 2014). Figure 8 below shows the catch of bigeye tuna in the Convention Area from 1960-2013 by gear type.

Figure 8: Convention Area bigeye tuna catch (mt) by gear 1960-2013



Source: Williams and Terawasi 2014.

3.3.2 Skipjack Tuna (*Katsuwonus pelamis*)

Skipjack tuna are concentrated mostly in tropical waters; though they also seasonally expand into subtropical waters in both the north and south Pacific. They can tolerate a temperature range of 15° C to 33° C, but they are more commonly found in waters above 20° C (Dizon et al. 1977). The main characteristics of skipjack tuna are fast growth, early maturity (ten months to one year), high fecundity, year-round spawning (Hunter et al. 1986) over broad tropical regions, a relatively short life span compared to bigeye, albacore, and bluefin tunas, high and variable recruitment and few age classes on which the fishery depends.

CPUE trends for purse seiners dramatically rose between 2004 and 2007 before fluctuating until 2009. Post 2009 trends have been generally downward through 2011, but have not dipped much below 2005 levels (Harley et al. 2012).

In 2013, the estimated total skipjack catch in the WCPO was 1,784,091 mt, the highest recorded. The purse seine fishery was responsible for the bulk of this catch (Williams and Terawasi 2014).

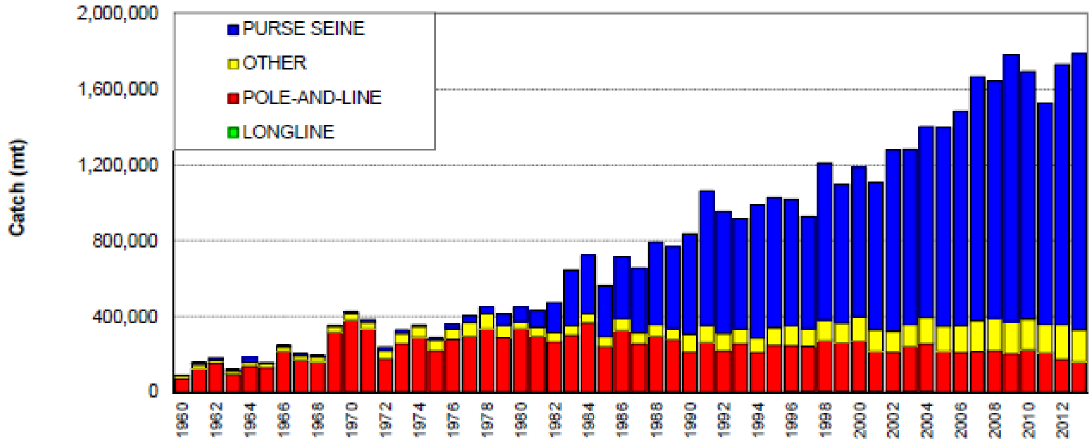
Historically, bait boats (pole-and-line) were the main gear used in catching skipjack tuna but since the 1950s, purse seiners have come to dominate the fishery. Some skipjack tuna are also caught incidentally by longliners, particularly those using shallow gear (typically hooked when retrieving the gear). In the WCPO, fishing for skipjack tuna occurs in the waters of a number of island nations and is carried out by both small domestic fleets and distant water fleets from developed nations.

Genetic studies of the Pacific population of skipjack suggest that some mixing of fish occurs across the Pacific Ocean, but for management purposes, the stocks in the western Pacific have been considered by most scientists to be independent of those in the eastern Pacific. Tagging data showing limited movement of skipjack from the eastern Pacific to the western Pacific support the same conclusion (Joseph 2002). Other research suggests that fast-growing, short-lived species like skipjack and yellowfin may have median lifetime displacements on the order of 644–805 kilometers, supporting the idea of "regional fidelity" (Sibert and Hampton 2003). Remote sensing has corroborated this data. Like bigeye, skipjacks also display diel vertical migrations especially in relation to FADs. A tagging study done by Matsumoto et al. (2014) showed that skipjacks' swimming depth was deeper during the day than at night, a pattern that was more obvious when they were not associated with a FAD. Those swimming with a FAD still showed some vertical migration patterns, but they were not as pronounced.

Studies of skipjack in the North Pacific have also demonstrated north-south migrations, seeming to primarily follow sea surface temperature, with some influence from sea surface chlorophyll, and physical ocean features like currents, fronts and eddies (Mugo et al. 2010). The possibility of restricted movements of skipjack in the WCPO suggests the possibility for local depletion despite the large total biomass. There are some that hypothesize that skipjack tuna have migrations tied to ENSO events however this migration can be interrupted if they encounter FADs along the way. FAD placement could retain skipjack tuna in areas they would not normally colonize and change how they interact with their environment (Wang et al. 2014).

Figure 9 below shows the Convention Area skipjack tuna catch by gear type.

Figure 9: Convention Area skipjack tuna catch (mt) by gear 1960-2013



Source: Williams and Terawasi 2014.

3.3.2 Yellowfin Tuna (*Thunnus albacares*)

Several studies on the taxonomy, biology, population dynamics, and exploitation of yellowfin tuna exist, including comprehensive reviews by Collette and Nauen (1983) and Suzuki (1994).

This is a tropical tuna characterized by a rapid growth rate and fast development to maturity. Estimates of length at maturity for central and western Pacific yellowfin tuna vary widely with some studies supporting an advanced maturity schedule for yellowfin tuna in coastal or archipelagic waters (Cole 1980). However, most estimates suggest that the majority of yellowfin tuna reach maturity between two and three years of age on the basis of length-age estimates for the species. Longevity for the species may not be explicitly defined, but a maximum age of six to seven years is commonly used in stock assessment. Itano (2000) notes from a large data set from the western tropical Pacific that 50% of yellowfin tuna sampled from purse seine and longline gear at 105 centimeters were histologically classified as mature and predicts a length at 50% maturity of 104.6 centimeters. Under appropriate conditions, yellowfin tuna exhibit high spawning frequency and fecundity (Cole 1980). Spawning occurs in broad areas of the Pacific. Spawning fish require surface salinity and temperature that remain above 24° C (Itano 2000). This means that spawning can occur throughout the year in tropical waters and seasonally at higher latitudes in areas such as Hawaii (Suzuki 1994).

Yellowfin tuna are trans-Pacific in distribution, occupying the surface waters of all warm oceans, and form the basis of large surface and sub-surface fisheries. The adult distribution in the Pacific lies roughly within latitudes 40° N to 40° S as indicated by catch records of the Japanese purse seine and longline fishery (Suzuki et al. 1978). Blackburn (1965) suggests the range of yellowfin tuna distribution is bounded by water temperatures between 18° C and 31° C with commercial concentrations occurring between 20° C and 30° C. Although the species preferentially occupies the surface mixed layer above the thermocline, archival tagging has revealed dives to depths in excess of 1,000 meters with water temperature of 5.8° C (Dagorn et al. 2006). Yellowfin are apex predators that rely on a wide diverse food base, but most heavily prey upon small teleost fish and crustaceans. As juveniles they prey mostly on zooplankton (Graham et al. 2007).

Although tag and recapture programs have documented that yellowfin tuna are clearly capable of large-scale movements, most recaptures occur within a short distance of release. Sibert and Hampton (2003) applied an advection-diffusion model to yellowfin tuna tagging data and determined a median lifetime displacement of 375 miles. Adult yellowfin tuna aggregate in regions of elevated productivity, high zooplankton density (e.g., seamounts), and regions of upwelling and convergence. This association has presumably evolved to capitalize on the elevated forage available (Cole 1980; Suzuki 1994). Yellowfin tuna are also known to aggregate around drifting flotsam, anchored buoys, and large marine animals (Hampton and Bailey 1993). A 2013 study (Weng et al.) observed juvenile yellowfin behavior around a subsurface FAD. They found that yellowfin tuna displayed vertical migrations that included staying at depth during the day and swimming to shallower water at night. Their initial conclusions suggested that variations in these migration patterns may be based on a combination of weather, moon phase, prey movement, and predator avoidance. Major fisheries for yellowfin tuna exploit aggregation effects either by utilizing artificial FADs or by targeting areas with vulnerable concentrations of tuna.

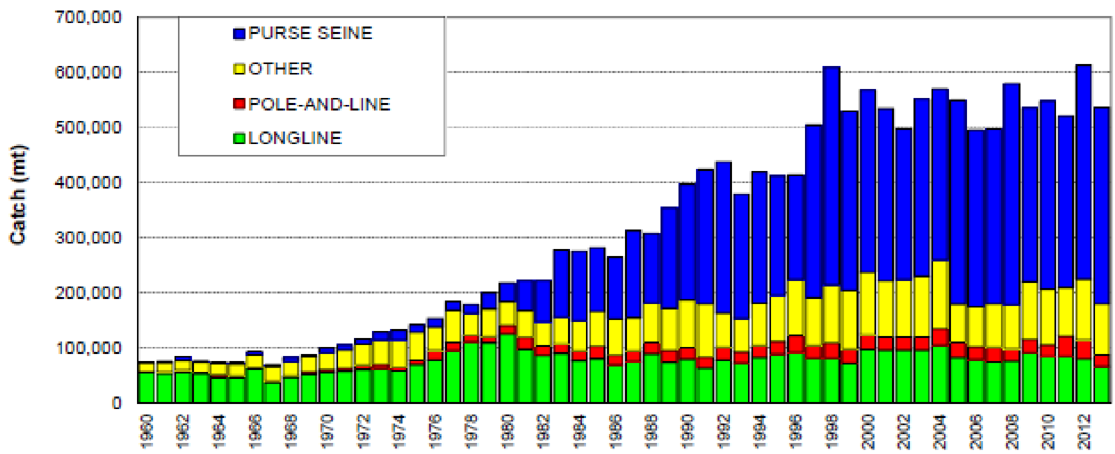
A recent study of the relative impacts of associated and unassociated purse seine sets on yellowfin tuna indicates that unassociated sets yield slightly better stock status, in terms of higher spawning biomass and lower fishing mortality, than associated sets (Hampton and Pilling 2014).

Some genetic analyses suggest that there may be several semi-independent yellowfin tuna stocks in the Pacific Ocean including possible eastern and western stocks, which may diverge around 150° W (Grewe and Hampton 1998; Itano 2000). Ely et al. (2005) concluded that the genetic drift for yellowfin tuna should be slower than for other tuna species. Morphometric studies of yellowfin tuna also support the hypothesis that populations from the eastern and western Pacific derive from relatively distinct sub-stocks in the Pacific. Other analyses have failed to distinguish the presence of geographically distinct populations (Appleyard et al. 2001). Tagging studies have shown individual animals are capable of large east-west movements that would suggest considerable pan-Pacific mixing of the stock.

Purse seining and longlining are the main gear employed in catching yellowfin tuna. Small yellowfin tuna may be caught on the surface by purse seine vessels, while larger fish are typically caught deeper using longline gear (Gillet and Langley 2007). In the far western Pacific, the fishery is diverse, occurring in the waters of a number of island nations and on the high seas and carried out by both small domestic fleets and distant water fleets from developed nations.

In 2013, the estimated total yellowfin catch in the WCPO was 535,656 mt, lower than the record catch of 2012. The purse seine fishery was responsible for the bulk of this catch (Williams and Terawasi 2014). Figure 10 below shows the catch of yellowfin tuna in the Convention Area from 1960-2013 by gear type.

Figure 10: Convention Area yellowfin tuna catch (mt) by gear 1960-2013



Source: Williams and Terawasi 2014.

3.4 Biological Environment

This section describes the other primary biological resources in the Convention Area as well as ecological interactions between the species.

3.4.1 Biodiversity and Ecosystem Function

The following description of a marine fisheries food web is taken from Begon et al. 2006, and Nybakken 1997. Primary producers such as diatoms, dinoflagellates, coccolithophores, cyanobacteria, and phytoplankton (plant planktonic forms) are organisms that utilize solar energy to convert carbon dioxide into oxygen. Primary producers are considered the first trophic (or eating) level. The next trophic level includes the zooplankton; animal planktonic forms such as copepods and larval stages of fish. These microorganisms drift through the water column grazing on phytoplankton and are referred to as “grazers.” Copepods are the most abundant zooplankton and make up most of the animal biomass in the ocean. The third trophic level is made up of the molluscan bivalves, amphipods, and larval forms of fish and crustaceans. Small bait fish make up the next trophic level. These include small fish such as sardines which in turn are eaten by big fish, the next trophic level. This level is made up of dominant predators, species that tend to migrate from coastal to deep ocean waters. They are also prey to the apex predators, species at the top trophic level. Species at this trophic level include tunas, billfish, and sharks. Dominant predators as well as apex predators feed opportunistically, eating anything they encounter. Digested or dead organic matter drifts towards the ocean bottom where both suspended decomposers and bottom feeders utilize the dead matter's energy completing the food web cycle. Both biotic and abiotic factors interact with each other to create this cycle.

Organisms at the top of the food web tend to be larger and less abundant. This is mainly due to the amount of energy it takes to survive at the top of a food web. Marine food webs are highly connected because of the openness of marine ecosystems, general lack of specialists, potential for long life-spans, and significant size changes across the life histories of many species (Link 2002). Few fully charted examples of open water marine food webs exist. Those that do demonstrate limitations such as low species diversity, high species aggregation, limited spatiotemporal studies, and low chances of detecting important factors such as species richness, interactions or links (Link 2002).

Understanding an ecosystem depends on the identification of its food web and the exchanges between the different trophic levels in the food chain. Food webs show the dynamics of biomass production, sinks, and partitioning. Even minor changes in abiotic factors can cause far reaching changes in the spatial distribution of primary and secondary pelagic production (Richardson et al. 2004). For example, increases in sea surface temperatures may lead to increases or decreases in phytoplankton abundance depending on the *in situ* water temperature (Richardson et al. 2004). Tuna removal by commercial fisheries or other changes in biotic balances could have lasting effects lower down the food chain. Models done by Hinke et al. (2004), and observations by Halpern et al. (2006) demonstrate that by removing top predators, mid and low trophic level species may expand due to the elimination of competition and predation, and that top down food web control may be more important to ecosystem balance than previously thought. As apex predators, bigeye, skipjack and yellowfin tuna are in the top trophic level with distinct energy pathways supporting each species (Hinke et al. 2004). They are opportunistic feeders, a quality that complicates trophic impact analysis (Cox et al. 2002).

When there is an overlap in the primary forage trophic level, as when multiple fisheries act on top predator tunas, there are indirect effects seen within their own forage groups. Hinke et al. (2004) concluded that the primary food webs for individual fisheries were relatively simple. Ecosystem analysis, however, is difficult because the interactions among a broad group of species are not always apparent or recognized. Each stock has a unique recruitment history so the variability in biomass over time and among stocks cannot all be attributed to fishing (Sibert et al. 2006). Cox et al. (2002) also found that declines in top predators could result in an increase in smaller tunas that serve as prey to larger tunas. Predation as a component of natural mortality is still unclear, as are the effects of fishing mortality on these predation rates and abundance.

Purse seining directly affects higher trophic levels but may also affect the lower trophic levels. Hinke et al. (2004) found that the aggregate effect of purse seine fishing in the central north Pacific Ocean showed a shift in the highest distributions of biomass from upper level predators to their prey. They also observed that similar changes in the overall structure of food webs can be seen in pelagic purse seine tuna fisheries in the EPO. Fishing a species at maximum sustainable yield may lead to the erosion of their trophic structure and have negative effects on recruitment. Reducing population biomass too dramatically could lead to the outright collapse of the food chain (Sibert et al. 2006).

In 2010, SPC reported some of its findings on an ongoing study of the WCPO tuna ecosystem that attempts to model and understand species relationships, with an end goal of assessing future environmental and fishery impacts on tuna stock health. In the analysis of stomach contents, yellowfin, bigeye and skipjack tuna were split into three size categories (baby, small and large) to account for growth-related diet shifts as well as whether they filled a predominantly predator or prey role. All three were found to primarily eat smaller fish, followed by mollusks and crustaceans (Allain 2010).

3.4.2 Other Non-Target Fish Species [14]

As depicted in Table 4 below, the U.S. purse seine fleet operating in the WCPO catches a small amount of various non-target fish species, some of which is retained.

[14] This terminology is used throughout the EA to differentiate between bigeye tuna, a non-target species of the U.S. WCPO purse seine fleet, and other non-target fish species.

Table 4: Observed Estimates of Catch and Rate of Discards of "Other" Fish Species in 2010 by the U.S. WCPO Purse Seine Fleet.

	Catch (mt)	% Discarded
Black Marlin	52.51	44
Blue Marlin	89.12	58
Marlins - Sailfishes-Spearfishes (UnID)	<.005	100
Sailfish	4.15	25
Shortbilled Spearfish	0.25	72
Striped Marlin	18.12	67
Swordfish	0.49	10
Bigeye Thresher	<.005	100
Blacktip Shark	0.21	99
Blue Shark	0.3	100
Bull Shark	0.06	100
Giant Manta	4.73	99
Manta Rays (UnID)	11.43	100
Mobula (aka Devil Ray)	3.07	99
Oceanic Whitetip Shark	1.68	97
Pelagic Stingray	0.12	98
Rays, Skates and Mantas	0.02	100
Silky Shark	85.15	99
Thresher Sharks	<.005	100
Albacore	0.88	1
Bullet Tuna	0.59	74
Frigate and Bullet Tunas	2.5	58
Frigate Tuna	1.73	74
Kawakawa	1.29	93
Mackerel (UnID)	0.01	100
Wahoo	12.5	38
Amberjack (Longfin Yellowtail)	0.01	0
Amberjack/Giant Yellowtail	62.27	77
Amberjacks	2.72	100
Barracudas	1.07	55
Batfishes	0.3	24
Bigeye Scad	94.72	1
Bigeye Trevally	3.2	40
Black Triggerfish	1.55	96
Brilliant Pomfret	6.35	2
Crestfish/Unicornfish	<.005	100
Drift Fish	<.005	100
Drummer (Blue Chub)	9.5	68

Table 4 Continued	Catch (MT)	% Discarded
Filefish (Scribbled Leatherjacket)	<.005	100
Filefish (Unicorn Leatherjacket)	<.005	100
Filefishes	0.27	4
Golden Trevally	0.89	0
Great Barracuda	1.63	28
Greater Amberjack	10.6	100
Longfin Batfish	0.06	2
Mackerel Scad/Saba	146.01	97
Mahi Mahi/Dolphinfish/Dorado	44.66	73
Ocean Sunfish	0.98	17
Ocean Triggerfish (Spotted)	23.41	95
Oceanic Triggerfish (UnID)	106.37	95
Opah	0.02	100
Pelagic Puffer	<.005	100
Pilot Fish	<.005	100
Pomfrets and Ocean Breams	2.38	58
Rainbow Runner	510.71	94
Ray's Bream/Atlantic Pomfret	0.04	100
Sargent Major	<.005	100
Saury (Sanma)	0.01	20
Sickle Pomfret	0.01	0
Slender Sunfish	0.39	96
Snake Mackerel	0	100
Spanish Mackerel (Narrow-Barred)	0.04	80
Squids	0.02	75
Trevallies (Unidentified - Jacks)	1.74	58
Triple-Tail	0.25	5
Unspecified	19.21	85
Total	**1342.3**	

Source: SPC 2012b.

3.5 Protected Resources

This section provides information on protected resources in the WCPO.

3.5.1 Threatened and Endangered Species

Table 5 includes species listed under the U.S. Endangered Species Act (ESA; 16 USC 1531 *et seq*.) that could be affected by any changes to fishing patterns in the Convention Area. NMFS has jurisdiction over all the species listed except for the dugong (*Dugong dugon),* short-tailed albatross (*Phoebastria albatrus*), Newell’s shearwater (*Puffinus auricularis newelli*), Hawaiian dark-rumped petrel (*Pterodroma phaeopygia sandwichensis*), Chatham petrel (*Pterodroma axillaris*), Fiji petrel (*Pseudobulweria macgillivrayi*), and magenta petrel (*Pterodroma magentae*). The U.S. Fish and Wildlife Service (USFWS) has jurisdiction over these seven species.

Table 5: Listing Status of Species in the WCPO Listed as Endangered or Threatened Under the ESA.

Scientific name	Common name	ESA Status
Balaenoptera musculus	Blue whale	Endangered
Balaenoptera physalus	Fin whale	Endangered
Megaptera novaeangliae	Humpback whale	Endangered
Eubalaena japonica	North Pacific right whale	Endangered
Balaenoptera borealis	Sei whale	Endangered
Physeter macrocephalus	Sperm whale	Endangered
Eubalaena australis	Southern right whale	Endangered
Sphyrna lewini	Scalloped hammerhead shark Indo-Pacific distinct population segment	Threatened
Monachus schauinslandi	Hawaiian monk seal	Endangered
Dugong dugon	Dugong	Endangered
Phoebastria albatrus	Short-tailed albatross	Endangered
Pseudorca crassidens	Main Hawaiian Islands insular false killer whale	Endangered
Puffinus auricularis newelli	Newell's shearwater	Threatened
Pterodroma phaeopygia sandwichensis	Hawaiian dark-rumped petrel	Endangered
Pterodroma axillaris	Chatham petrel	Endangered
Pseudobulweria macgillivrayi	Fiji petrel	Endangered
Pterodroma magentae	Magenta petrel	Endangered
Dermochelys coriacea	Leatherback turtle	Endangered
Caretta caretta	Loggerhead turtle North Pacific and South Pacific distinct population segments	Endangered
Chelonia mydas	Green turtle	Threatened
Lepidochelys olivacea	Olive Ridley turtle	Threatened
Eretmochelys imbricata	Hawksbill turtle	Endangered

Source: http://www.nmfs.noaa.gov/pr/; http://www.fws.gov/pacificislands/teslist.html.

NMFS also published a final rule to list 15 species of coral in the Indo-Pacific as threatened under the ESA (see 79 FR 53852; published September 10, 2014). The U.S. purse seine fishery, as described in Section 3.2 of this EA, does not involve contact with the seafloor or benthic habitats, and operations take place far from coastlines, so the fishery does not spatially overlap with the listed coral species.

The Final Biological Opinion and Incidental Take Statement for the U.S. purse seine fishery for effects to ESA-listed sea turtles and marine mammals was issued on November 1, 2006, concluding formal Section 7 ESA consultation for species under the jurisdiction of NMFS. In addition to the coral species mentioned above, two species under the jurisdiction of NMFS have been ESA-listed since that time: the main Hawaiian Islands insular false killer whale and the Indo-West Pacific distinct population segment (DPS) of the scalloped hammerhead shark. The range of the main Hawaiian Islands insular false killer whale does not overlap with the area in which the U.S. WCPO purse seine fleet operates.[15] The area of operation of the U.S. purse seine fishery in the WCPO overlaps with the range of the Indo-West DPS of the scalloped hammerhead shark. In a memorandum dated October 21, 2014, NMFS analyzed the effects of the U.S. purse seine fishery on this DPS of the scalloped hammerhead shark, pending completion of formal ESA Section 7 consultation during the 2015 calendar year. Based on the best available information, NMFS determined that risk of the continued operation of the U.S. WCPO purse seine fishery on the Indo-West Pacific DPS of the scalloped hammerhead shark during the calendar year 2015 is negligible and not likely to jeopardize the continued existence of the DPS.

By letter dated January 28, 2009, the USFWS concurred with NMFS' determination that a proposed regulation that would not alter U.S. purse fishing practices or fishing effort would not be likely to adversely affect ESA-listed species under the jurisdiction of USFWS, which at the time included the dugong, Newell's shearwater, and short-tailed albatross. This determination was based on the fact that there was minimal spatial overlap between the U.S. purse seine fishery and the range of the dugong, no spatial overlap between the U.S. purse seine fishery and range of the short-tailed albatross, and no recorded interactions between the U.S. purse seine fleet and seabirds or dugongs, based on observer data from August 1994 to January 2007. Four species under the jurisdiction of USFWS (the Hawaiian dark-rumped petrel, Chatham petrel, Fiji petrel, and magenta petrel) have been ESA-listed since that time. As stated in the 2009 EA, based on observer data available to NMFS, the U.S. WCPO purse seine fleet has not been reported to interact with seabirds.

3.5.2 Marine Mammals

All marine mammals receive protection under the Marine Mammal Protection Act (MMPA; 16 USC 1361, *et seq*.). The marine mammals found in the WCPO but not listed under the ESA as threatened or endangered (i.e., not included in Table 5 above) are listed in Table 6 below. The regulations designate three categories of fisheries, based on relative frequency of incidental serious injuries and mortalities of marine mammals in each fishery:

- Category I designates fisheries with frequent serious injuries and mortalities incidental to commercial fishing;
- Category II designates fisheries with occasional serious injuries and mortalities;
- Category III designates fisheries with a remote likelihood or no known serious injuries or mortalities.

[15] The range of the main Hawaiian Islands insular false killer whale includes the waters around the main Hawaiian islands from Ni'ihau to Hawai'i, and offshore as far as 140 kilometers. The U.S. WCPO purse seine fleet generally operates much further south, between 10° N and 10° S latitude.

The WCPO purse seine fishery is classified as a Category II fishery (79 FR 77919, December 29, 2015).

Table 6: **Non-Listed Marine Mammals that Occur in the WCPO.**

Species name	Common name
Balaenoptera acutorostrata	Minke whale
Balaenoptera bonaerensis	Antarctic minke whale
Balaenoptera edeni	Bryde's whale
Berardius arnuxii	Arnoux's beaked whale
Callorhinus ursinus	Northern Fur Seal
Caperea marginata	Pygme right whale
Delphinus delphis	Short-beaked common dolphin
Eschrichtius robustus	Gray whale
Feresa attenuata	Pygmy killer whale
Globicephala macrorhynchus	Short-finned pilot whale
Globicephala melas	Long-finned pilot whale
Grampus griseus	Risso's dolphin
Hyperoodon planifrons	Southern bottlenose whale
Indopacetus pacificus	Longman's beaked whale
Kogia breviceps	Pygme sperm whale
Kogia sima	Dwarf sperm whale
Lagenodelphis hosei	Fraser's dolphin
Lagenorhynchus cruciger	Hourglass dolphin
Lagenorhynchus obliquidens	Pacific white sided dolphin
Lagenorhynchus obscurus	Dusky dolphin
Lissodelphis peronii	Southern right whale dolphin
Mesoplodon bowdoini	Andrew's beaked whale
Mesoplodon densirostris	Blainville’s Beaked Whale
Mesoplodon ginkgodens	Ginkgo-toothed whale
Mesoplodon grayi	Gray's beaked whale
Mesoplodon hectori	Hector's beaked whale
Mesoplodon layardii	Strap-toothed whale
Mesoplodon stejnegeri	Stejneger's beaked whale
Mesoplodon traversii	Spade-toothed whale
Mirounga angustirostris	Northern Elephant Seal
Orcinus orca	Killer whale
Peponocephala electra	Melon headed whale
Phocoena dioptrica	Spectacled porpoise
Phocoena phocoena	Harbor porpoise
Phocoenoides dalli	Dall's porpoise

Pseudorca crassidens	False killer whale[16]
Stenella attenuata	Pantropical spotted dolphin
Stenella coeruleoalba	Striped dolphin
Stenella longirostris	Spinner dolphin
Steno bredanensis	Rough toothed dolphin
Tursiops truncatus	Bottlenose dolphin
Ziphius cavirostris	Cuvier's beaked whale

Source: Source: http://www.wpcouncil.org/species-protection/marine-mammals/; http://www.nmfs.noaa.gov/pr/species/mammals/cetaceans/.

3.5.3 Essential Fish Habitat (EFH)

The EFH provisions (50 CFR Part 600 Subpart J) of the MSA are intended to maintain sustainable fisheries. NMFS and the Fishery Management Councils must identify and describe EFH and Habitat Areas of Particular Concern (HAPC) for each managed species using the best available scientific data and must ensure that fishing activities being conducted in such areas do not have adverse effects to the extent practicable. This process consists of identifying specific areas and the habitat features within them that provide essential functions to a particular species for each of its life stages. Both the EFH and the HAPC are documented in the FEPs established under the MSA.[17]

EFH and HAPC have been designated in the WCPO for pelagic, bottomfish and seamount groundfish, precious corals, crustaceans, and coral reef species. Table 7 lists the EFH and HAPC for species managed under the various western Pacific FEPs.

[16] As stated in Table 5 above, the Main Hawaiian Islands insular false killer whale distinct population segment has been listed as endangered.

[17] The FEPs being the FEP for the American Samoa Archipelago, the FEP for the Mariana Archipelago; the FEP for the Pacific Remote Island Areas; the FEP for the Hawaii Archipelago; and the FEP for Pacific Pelagic Fisheries of the Western Pacific Region.

Table 7: EFH and HAPC for Management Unit Species for the Western and Pacific Region.[1]

Species Group	EFH (juveniles and adults)	EFH (eggs and larvae)	HAPC
Pelagics	Water column down to 1,000 meters	Water column down to 200 meters	Water column down to 1,000 meters that lies above seamounts and banks
Bottomfish	Water column and bottom habitat down to 400 meters	Water column down to 400 meters	All escarpments and slopes between 40-280 meters, and three known areas of juvenile opakapaka habitat
Seamount Groundfish	Adults only: water column and bottom from 80 to 600 meters, bounded by 29°-35°N and 171°E-179°W	Including juveniles: epipelagic zone (0-200 meters) bounded by 29°-35°N and 171°E-179°W	Not identified
Precious Corals	Keahole, Makapuu, Kaena, Wespac, Brooks, and 180 Fathom gold/red coral beds, and Milolii, S. Kauai and Auau Channel black coral beds	Not applicable	Makapuu, Wespac, and Brooks Bank beds, and the Auau Channel
Crustaceans	Lobsters: Bottom habitat from shoreline to a depth of 100 meters Deepwater shrimp: The outer reef slopes at depths between 300-700 meters	Water column down to 150 meters Water column and associated outer reef slopes between 550 and 700 meters	All banks with summits less than 30 meters No HAPC designated for deepwater shrimp
Coral Reef Ecosystems	Water column and benthic substrate to a depth of 100 meters	Water column and benthic substrate to a depth of 100 meters	All Marine Protected Areas identified in FEP, all PRIAs,[2] many specific areas of coral reef habitat

Source: FEP for the American Samoa Archipelago, Table 20 (WPRFMC 2009).
[1] All areas bounded by the shoreline and the outward boundary of the U.S. EEZ, unless otherwise indicated.
[2] Pacific Remote Island Areas.

3.5.4 National Wildlife Refuges (NWRs) and Monuments

Pursuant to the National Wildlife System Administration Act of 1966 (16 USC 668dd, *et seq*.), USFWS carries out the mission of NWRs, which is "to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." National Monuments are designated by the President using the authority of the Antiquities Act of

1906 (16 U.S.C. 431). This act allows the President to protect areas of "historic or scientific significance." There are 10 NWRs and four National Monuments in the Convention Area: Guam NWR; Baker Island NWR; Howland Island NWR; Jarvis Island NWR; Johnston Island NWR; Kingman Reef NWR; Palmyra Atoll NWR; Rose Atoll NWR; Hawaiian Islands NWR; Midway Atoll NWR; Papahanaumokuakea Marine National Monument; the Marianas Trench Marine National Monument; the Pacific Remote Islands Marine National Monument; and the Rose Atoll Marine National Monument.

NMFS published a final rule that prohibits commercial fishing in the Pacific Remote Islands Marine National Monument and the Rose Atoll Monument, and in the Islands Units of the Marianas Trench Monument; establishes management measures for non-commercial and recreational charter fishing in the Monuments; and prohibits the conduct of commercial fishing outside the Monuments and non-commercial fishing inside the Monuments during the same trip (78 FR 32996; June 3, 2013). After the Pacific Remote Islands Marine National Monument was expanded by Presidential Proclamation 9173 in 2014, NMFS published a final rule to prohibit commercial fishing, while allowing for managed non-commercial fishing, in the expanded portion of the monument (see 80 FR 15693; published March 25, 2015). The expanded area includes the portions of the EEZ around Jarvis and Wake Islands and Johnston Atoll.

Chapter 4

Chapter 4 Environmental Consequences: Direct and Indirect Effects

This chapter provides an analysis of the direct and indirect environmental effects that could be caused by the implementation of the 2015 ELAPS rule under any of the action alternatives, as well as the No-Action Alternative and compares the alternatives; cumulative effects are addressed in Chapter 5.[18]

This chapter begins with a discussion of the potential impacts[19] from each of the alternatives to the U.S. WCPO purse seine fleet. Then, Sections 4.2 through 4.5 analyze the potential environmental impacts these changes to the fleet could cause to the resources in the affected environment.

4.1 The U.S. WCPO Purse Seine Fleet

The direct and indirect effects to the U.S. WCPO purse seine fleet include economic effects and effects on fishing patterns and practices. The Regulatory Impact Review (RIR) for the 2015 ELAPS rule, prepared under Executive Order 12866, provides an analysis of the potential economic impacts of the rule to the fleet and to the nation and is incorporated here by reference, pursuant to 40 CFR §1502.23. The general information regarding economic impacts in the discussion below is provided to help compare the alternatives and to determine whether the economic impacts are interrelated with environmental impacts. Thus, the discussion in this section focuses on potential changes to the fishing patterns of the fleet from each of the alternatives.

4.1.1 Alternative A: No-Action Alternative

Under Alternative A, the No-Action Alternative, the 2015 ELAPS rule under either of the action alternatives would not go into effect, and the fleet would continue to be managed under existing regulatory requirements, including SPTT-related requirements, and any changed or new requirements as the result of a renegotiated Treaty, as described in more detail in Section 3.2.2 of this document. Thus, under this alternative there would be no direct changes to the fishing patterns of the fleet.

CMM 2014-01 includes specific objectives for the WCPO stocks of bigeye tuna, skipjack tuna, and yellowfin tuna: for each, the fishing mortality rate is to be reduced to or

[18] According to the CEQ regulations implementing the Procedural Provisions of NEPA at 40 CFR §1508.7 and §1508.8, direct effects are caused by the action and occur at the same time and place; indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable; and cumulative effects are the impacts on the environment that result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.

[19] The terms effects and impacts are used interchangeably throughout this document. See 40 CFR 1508.8.

maintained at levels no greater than the fishing mortality rate associated with maximum sustainable yield. As stated in Chapter 3, skipjack tuna accounts for the majority of the fleet's catch, followed by yellowfin tuna and then bigeye tuna. It is conceivable that the indirect effects (or long-term effects), of this alternative on the fleet could be negative, in that the No-Action Alternative would be less likely to achieve the objectives of CMM 2014-01, which in turn would be expected to adversely affect the catch rates of the U.S. WPCO purse seine fleet to maintain catch levels and the profitability of fishing businesses. However, as discussed in Section 3.3 of this EA, many factors other than purse seine fishing, especially the contribution of the U.S. fleet, affect the stock status of bigeye tuna, yellowfin tuna, and skipjack tuna in the WCPO.

4.1.2 Alternative B (Preferred): Combined Limit for the ELAPS

Under Alternative B, the U.S. purse seine fleet operating in the WCPO would be subject to a limit of 1,828 fishing days in the ELAPS – high seas and U.S. EEZ combined between the latitudes of 20° N. and 20° S., in the Convention Area – for calendar year 2015. Given preliminary estimates to date, it is likely that for 2015 the effort limit would be reached under this alternative, triggering a closure of the fishery in the ELAPS for the rest of the calendar year. NMFS projects, based on preliminary data to date, that the limit in the ELAPS could be reached in June or July 2015.

If the fishery is closed in the ELAPS, vessels in the fleet could continue to fish in the EEZs of Pacific Island Parties to the SPTT, where the fleet typically expends the majority of its effort. Vessels in the fleet could also continue to fish in the EPO in the area managed by the IATTC.

Under the SPTT, the fleet is likely to have a relatively large number of fishing days available in the Pacific Island country EEZs that dominate the western portion of the WCPO. However, the western fishing grounds might not be very favorable compared with those in the eastern portion of the Convention Area. That El Niño conditions are present and that there is a 60 percent chance they will persist through the northern autumn of 2015 (NWS 2015) suggests that the eastern portion of the Convention Area will be favored fishing grounds in most of 2015. Both the ELAPS and the Kiribati EEZ are situated predominantly in the eastern side of the WCPO, and both these areas would be effectively closed to U.S. purse seine fishing during an ELAPS closure (the U.S. fleet might have some fishing days available in the Kiribati EEZ, but the number is likely to be small unless new access arrangements are agreed to, which does not appear likely at present). Thus, although fishing in the Convention Area outside the ELAPS might be relatively attractive in terms of next-best opportunities, it would likely bring substantial additional costs to fishing operations. However, if El Niño conditions weaken in 2015 (as indicated above, there is 60% chance of El Niño persisting through the northern autumn), western fishing grounds (e.g., in the EEZs of the Republic of the Marshall Islands and the Federated States of Micronesia) would likely become more favorable. In that case, large portions of both the ELAPS and the Kiribati EEZ would become less favorable, and the adverse economic impacts of an ELAPS closure would be less severe.

With respect to fishing in the EPO, the EPO tends to be fished relatively little by the fleet, indicating it contains relatively unfavorable fishing grounds (although, as indicated above, it tends to become more favorable during El Niño events) and/or involves prohibitive costs. In order to fish in the EPO, a vessel must be on the IATTC's Regional Vessel Register and categorized as active (50 CFR 300.22(b)), which involves fees of about $14.95 per cubic meter of well space per year (e.g., a vessel with 1,200 m^3 of well space would be subject to annual fees of $17,940).[20] The number of U.S. purse seine vessels in the WCPO fleet that have opted to be categorized as such has recently increased from zero to eleven, probably as a result of constraints on fishing days in the WCPO and/or uncertainty in future access arrangements under the SPTT. This suggests an increasing attractiveness of fishing in the EPO, in spite of the costs associated with doing so.

Overall, 2015 could be a year in which the U.S. EEZ or high seas provides more attractive fishing grounds than usual, and in that case, the fleet could be substantially restricted by the effort limit. Indeed, fishing effort in the ELAPS so far in 2015 has been unusually great. This is likely related to the severely limited number of fishing days available in the Kiribati EEZ, as well as the prevailing El Niño conditions, which as described above tend to make the eastern part of the WCPO more favorable fishing grounds than at other times.

In addition, a race to fish effect might also be expected in the time period between when a closure of the fishery in the ELAPS is announced and when the fishery is closed. A race to fish could bring costs if it causes vessel operators to forego vessel maintenance or to fish in weather or ocean conditions that it otherwise would not. This could bring costs in terms of human safety as well as the performance of the vessel and its fishing gear and crew, but the effects are not expected to be substantial, as the fleet does not exert the majority of its fishing effort in the ELAPS.

However, since the fleet generally fishes in areas outside of the ELAPS, it is possible that there could be no overall change in the amount of fishing effort of the fleet in 2015 compared to the No-Action Alternative.

[20] As an exception to this rule, an SPTT-licensed vessel is allowed to make one fishing trip in the EPO each year without being categorized as active on the IATTC Regional Vessel Register. The trip must not exceed 90 days in length, and there is an annual limit of 32 such trips for the entire SPTT-licensed fleet (50 CFR 300.22(b)(1)).

4.1.3 Alternative C: Separate Limits for the high seas and the U.S. EEZ

Under this alternative, the U.S. purse seine fleet operating in the WCPO would be subject to a limit of 1,270 fishing days on the high seas between the latitudes of 20° N. and 20° S., in the Convention Area, and a limit of 558 fishing days in the U.S. EEZ between the latitudes of 20° N. and 20° S., in the Convention Area, for calendar year 2015 (the sum of 1,270 and 558 is 1,828, the ELAPS limit under Alternative B). Given preliminary estimates of fishing effort to date, if the same amount of fishing effort continues to take place in each area, it is likely that the effort limit on the high seas would be reached under this alternative, triggering a closure of the high seas possibly as early as May 2015, and the effort limit in the U.S. EEZ likely would not be reached in 2015 (but the closure of the high seas could increase the rate of fishing in the U.S. EEZ, increasing the likelihood of the EEZ limit being reached).

As discussed above for Alternative B, if the limits are reached, vessels in the fleet could continue to fish in the EEZs of Pacific Island Parties to the SPTT, where the fleet expends the majority of its effort. Vessels in the fleet could also continue to fish in the EPO in the area managed by the IATTC.

Under the SPTT, the fleet is likely to have a relatively large number of fishing days available in the Pacific Island country EEZs that dominate the western portion of the WCPO. However, the western fishing grounds might not be very favorable compared with those in the eastern portion of the Convention Area. That El Niño conditions are present and that there is a 60 percent chance they will persist through the northern autumn of 2015 (NWS 2015) suggests that the eastern portion of the Convention Area will be favored fishing grounds in most of 2015. Both the ELAPS and the Kiribati EEZ are situated predominantly in the eastern side of the WCPO, and both these areas would be effectively closed to U.S. purse seine fishing during an ELAPS closure (the U.S. fleet might have some fishing days available in the Kiribati EEZ, but the number is likely to be small unless new access arrangements are agreed to, which does not appear likely at present). Thus, although fishing in the Convention Area outside the ELAPS might be relatively attractive in terms of next-best opportunities, it would likely bring substantial additional costs to fishing operations. However, if El Niño conditions weaken in 2015 (as indicated above, there is 60% chance of El Niño persisting through the northern autumn), western fishing grounds (e.g., in the EEZs of the Republic of the Marshall Islands and the Federated States of Micronesia) would likely become more favorable. In that case, large portions of both the ELAPS and the Kiribati EEZ would become less favorable, and the adverse economic impacts of an ELAPS closure would be less severe.

With respect to fishing in the EPO, the EPO tends to be fished relatively little by the fleet, indicating it contains relatively unfavorable fishing grounds (although, as indicated above, it tends to become more favorable during El Niño events) and/or involves prohibitive costs. In order to fish in the EPO, a vessel must be on the IATTC's Regional Vessel Register and categorized as active (50 CFR 300.22(b)), which involves fees of about \$14.95 per cubic meter of well space per year (e.g., a vessel with 1,200 m^3 of well space would be subject to annual fees of \$17,940).[21] The number of U.S. purse seine vessels in the WCPO fleet that have opted to be categorized as such has recently increased from zero to eleven, probably as a result of constraints on fishing days in the WCPO and/or uncertainty in future access arrangements under the SPTT. This suggests an increasing attractiveness of fishing in the EPO, in spite of the costs associated with doing so.

Overall, 2015 could be a year in which the U.S. EEZ or high seas provides more attractive fishing grounds than usual, and in that case, the fleet could be substantially restricted by the effort limits. Indeed, fishing effort in the ELAPS so far in 2015 has been unusually great. This is likely related to the severely limited number of fishing days available in the Kiribati EEZ, as well as the prevailing El Niño conditions, which as described above tend to make the eastern part of the WCPO more favorable fishing grounds than at other times.

In addition, a race to fish effect could also be expected in the time period between when a closure of the fishery is announced and when the fishery is closed. A race to fish could bring costs if it causes vessel operators to forego vessel maintenance or to fish in weather or ocean conditions that it otherwise would not. This could bring costs in terms of human safety as well as the performance of the vessel and its fishing gear and crew, but the effects are not expected to be substantial, as the fleet does not exerts the majority of its fishing effort in the ELAPS.

In addition, since the fleet generally fishes in areas outside of the ELAPS, it is possible that there could be no overall change in the amount of fishing effort of the fleet in 2015 compared to the No-Action Alternative.

4.1.4 Comparison of Alternatives

The primary difference between Alternatives B and C, in terms of effects on the fishing patterns of the fleet, is that under Alternative C, the U.S. purse seine fishery on the high seas and in the U.S. EEZ could be closed at different times. In other words, since it is likely that the limit for the high seas would be reached before the limit for the U.S. EEZ is reached, the high seas would be closed for a longer period of time in 2015 than would the U.S. EEZ, and likely that the limit in the U.S. EEZ would not be reached in 2015. However, effort could increase in the U.S. EEZ after the high seas are closed to fishing, due to vessels shifting effort into that area. On the other hand, currently only 11 vessels in the fleet are authorized to fish in the U.S. EEZ, so the effects on fishing patterns would be

[21] As an exception to this rule, an SPTT-licensed vessel is allowed to make one fishing trip in the EPO each year without being categorized as active on the IATTC Regional Vessel Register. The trip must not exceed 90 days in length, and there is an annual limit of 32 such trips for the entire SPTT-licensed fleet (50 CFR 300.22(b)(1)).

similar for the majority of the fleet under Alternative B and Alternative C. All vessels would likely be able to fish on the high seas slightly longer under Alternative B, since it is likely that the ELAPS limit under Alternative B would be reached later than the high seas limit under Alternative C. In addition, preliminary information indicates that fishing effort in the U.S. EEZ in 2015 continues to be limited as in the past, so it is unknown whether the U.S. EEZ would provide productive fishing grounds in 2015 after the limit on the high seas is reached under Alternative C.

With respect to effects on U.S. purse seine fishing effort as a whole, neither Alternative B nor C are expected to have substantial effects of fishing patterns of the fleet, as the primary fishing grounds of the fleet are outside the ELAPS. Thus, the fishing patterns of the fleet under Alternatives A, B and C, would be similar. However, because an ELAPS limit under Alternative B would constrain operational flexibility, it could constrain fishing effort slightly compared to the No-Action Alternative. Similarly, Alternative C would constrain operational flexibility slightly more than would Alternative B, so it could result in slightly less fishing effort than under Alternative B.

4.2 Physical Environment and Climate Change

None of the alternatives (No-Action Alternative or any of the action alternatives) would be expected to cause direct or indirect effects to the physical environment of the WCPO. In addition, none of the alternatives would be expected to contribute to climate change. Under the action alternatives, the fishing day effort limits could marginally increase fuel use, if vessels in the fleet steam to locations farther than they otherwise would due to any closure of the U.S. EEZ or high seas to fishing. However, the fishing effort limits could also cause an overall decrease in fuel use if there is an overall decrease in fishing effort by the fleet. Moreover, given that the catch and effort of the fleet vary substantially from year to year, as shown in Table 1 in Chapter 3 of this EA, the overall fuel use of the fleet would be expected to depend more on other factors (fuel price, market conditions, oceanographic changes affecting the location of the target tunas, etc.), and the action alternatives would not be expected to lead to increased emissions of greenhouse gases affecting climate change.

4.3 Bigeye Tuna, Skipjack Tuna, and Yellowfin Tuna

This section presents the analysis of the potential impacts that could be caused by the No-Action Alternative and each of the action alternatives for the 2015 ELAPS rule to bigeye tuna, skipjack tuna, and yellowfin tuna in the WCPO – the three stocks on which CMM 2014-01 focuses.

4.3.1 Alternative A: No-Action Alternative

Under Alternative A, the U.S. purse seine fleet would continue to be managed through existing requirements, and the fishing effort limits for 2015 under the action alternatives would not be implemented. Thus, there would be no direct changes to the fishing patterns of the fleet and thus, no resulting direct effects to bigeye tuna, yellowfin tuna, or skipjack tuna.

As shown in Table 3 of this EA, the stock of bigeye tuna in the Pacific is currently experiencing overfishing, but the stocks of skipjack tuna and yellowfin tuna in the WCPO and EPO are neither experiencing overfishing nor are they overfished. CMM 2014-01 includes specific objectives for the stocks of bigeye tuna, skipjack tuna, and yellowfin tuna: for each, the fishing mortality rate is to be reduced to or maintained at levels no greater than the fishing mortality rate associated with maximum sustainable yield. Because Alternative A would not implement the provisions of CMM 2014-01 for the U.S. purse seine fleet, the objectives of the CMM would be marginally less likely to be met under this alternative than under any of the action alternatives. It is conceivable that the indirect effects (or long-term effects) of this alternative on bigeye tuna, yellowfin tuna, and skipjack tuna would be increased fishing pressure on stocks relative to the two action alternatives, leading to a decline to sizes smaller than that which is capable of producing maximum sustainable yield.

On the other hand, as stated above, many other factors affect the status of these stocks, and implementation of the fishing effort limits under either of the action alternatives would not substantially change the fishing patterns of the fleet, and the limits would be in effect for only calendar year 2015. Thus, the status of the stocks under the No-Action Alternative would not differ substantially from any of the action alternatives. Under this alternative, however, any minor beneficial effects that the stocks could experience from implementation of the 2015 ELAPS rule under either of the action alternatives would not occur. Thus, there could be some marginal increased potential for long-term negative effects to the stocks over the action alternatives, although such effects cannot be predicted or estimated with certainty at this time.

4.3.2 Alternative B (Preferred): Combined Limit for the ELAPS

Overall, Alternative B could lead to some minor direct beneficial impact on the stocks of bigeye tuna, skipjack tuna, and yellowfin tuna in comparison to the No-Action Alternative by reducing the fishing mortality on the stocks by a potential overall reduction in fishing effort from the implementation of the limit.

The indirect effects of Alternative B on bigeye, skipjack, and yellowfin tuna stocks would also likely be minor and beneficial, since this alternative would be expected to result in some decreased fishing mortality on the stocks, which could lead to long-term positive effects. However, these beneficial effects would be relatively small, because this alternative would result in only a small reduction in the overall fishing mortality on these stocks, since, as discussed throughout this document, many other factors contribute to the fishing mortality of these stocks.

In addition, as stated above, since the fleet generally fishes in areas outside of the ELAPS, it is possible that there could be no overall change in the amount of fishing effort of the fleet in 2015, and thus no resulting effects to the stocks of bigeye tuna, skipjack tuna, and yellowfin tuna.

As discussed in Chapter 3, Section 3.3, adult bigeye tuna, skipjack tuna, and yellowfin tuna are considered among the top predators of the tropical or warm pool marine ecosystem. Changes to the stocks of these species could lead to trophic interactive effects, including increased competition for prey species with other top predators. Larval and juvenile tunas are also a significant source of food for other marine species, such as fish, seabirds, porpoises, marine mammals, and sharks. Thus, increases in larval and juvenile tuna could increase the food available for these other species. It is unlikely that the effects of Alternative B to the stocks of bigeye, skipjack and yellowfin tuna, which would be short-lived, would be large enough to impact the marine ecosystem. Overall, Alternative B would not cause substantial effects on biodiversity and ecosystem function.

4.3.3 Alternative C: Separate Limits for the high seas and the U.S. EEZ

As stated above, under Alternative C, it is likely that the limit would be reached on the high seas before the limit is reached in the U.S. EEZ, and possible that the limit for the U.S. EEZ would not be reached. However, the high seas would be expected to be closed for a slightly longer period under Alternative C, and the total number of days fished in the ELAPS under either alternative would be expected to be the about same (if the limit is reached in the U.S. EEZ under Alternative C) or slightly less under Alternative C (if the limit in the U.S. EEZ is not reached). Thus, Alternative C could have slightly more minor and beneficial effects on the stocks than Alternative B, if fishing effort is more constrained under this alternative. Given the minor nature of these effects, similar to Alternative B, Alternative C would also be expected to have no substantial effects on biodiversity and ecosystem function.

4.4 Other Non-target Fish Species[22]

This section discusses the potential impacts from the No-Action Alternative or from implementation of either of the action alternatives for the 2015 ELAPS rule on non-target fish species caught by the U.S.WCPO purse seine fleet.

[22] This terminology is used throughout the EA to differentiate between bigeye tuna, a non-target species of the U.S. WCPO purse seine fleet, and other non-target fish species.

4.4.1 Alternative A: No-Action Alternative

Under Alternative A, the No-Action Alternative, there would be no direct changes to the existing fishing patterns of the U.S. WCPO purse seine fleet, and thus, no direct effects to non-target fish species. As discussed above in Section 4.3.1 of this EA, it is conceivable that the indirect, or long-term, effects of the No-Action Alternative on bigeye tuna, skipjack tuna, and yellowfin tuna would be negative, should this alternative lead to increased fishing pressure on the stocks, relative to the two action alternatives. Any such increased fishing pressure could also lead to long-term negative effects on other non-target fish species that are caught by the U.S. WCPO purse seine fleet. However, as shown in Table 4 in Chapter 3 of this EA, the U.S. WCPO purse seine fleet does not generally catch a substantial amount of other fish species. Also, given that many other factors influence the status of non-target fish species (e.g., fisheries that target those species, oceanic conditions), it is unlikely that there would be any indirect effects to non-target species under the No-Action Alternative, stemming from lack of implementation of the rule.

4.4.2 Alternative B (Preferred): Combined Limit for the ELAPS

Under Alternative B, there could be some change in the amount and type of non-target fish species caught by the U.S. WCPO purse seine fleet. As discussed above, the fishing day effort limit could cause some shift in effort to the EEZs of Pacific Island Parties to the SPTT or to the EPO. Direct impacts to non-target fish species would include a potential increase in the catch of some species and a decrease in the catch of other species, due to the changes in fishing patterns of the fleet and the potential for an overall decrease in fishing effort due to implementation of the fishing effort limits and any associated fishery closure. Indirect or long-term effects would include the greater potential for adverse effects to the stocks of non-target fish species that experience increased fishing mortality and reduced potential for adverse effects to the stocks of non-target fish species that experience decreased fishing mortality. Because the U.S. WCPO purse seine fleet fishing does not generally catch large amounts of other non-target fish species (see Table 4 in Chapter 3 of this EA), the overall direct and indirect effect on non-target fish species would be expected to be minor or negligible.

4.4.3 Alternative C: Separate Limits for the high seas and the U.S. EEZ

Under Alternative C, similar to Alternative B, there could be some change in the amount and type of non-target fish species caught by the U.S. WCPO purse seine fleet. The nature of the potential direct and indirect impacts to other non-target fish species would be expected to be essentially the same as those identified under Alternative B. As discussed above, under Alternative C, the overall effects on fishing effort of the fleet in the WCPO would be expected to be similar to those under Alternative B, but effort could be slightly more constrained. Thus, the effects on the stocks of non-target species would be expected to be about the same, but could be slightly more (i.e., there would be a greater potential increase in the catch of some of the species and a greater potential decrease in the catch of other species and subsequent greater potential for adverse effects to the stocks of non-target fish species that experience increased fishing mortality and reduced potential for adverse effects to the stocks of non-target fish species that experience decreased fishing mortality).

4.5 Protected Resources

This section discusses the potential impacts from each of the alternatives to protected resources in the affected environment.

4.5.1 Alternative A: No-Action Alternative

Under Alternative A, the No-Action Alternative to the purse seine rule, there would be no direct changes to the existing fishing patterns of the U.S. WCPO purse seine fleet, and thus, no direct effects to protected resources. As discussed above in Section 4.3.1 of this EA, it is conceivable that the indirect, or long-term, effects of the No-Action Alternative on bigeye tuna, skipjack tuna, and yellowfin tuna would be negative, should this alternative lead to increased fishing pressure on the stocks, relative to the two action alternatives. Any such increased fishing pressure could also lead to long-term negative effects on protected resources with which the U.S. WCPO purse seine fleet interacts. However, given that many other factors influence the status of those species (e.g., other fisheries, oceanic conditions), it is unlikely that there would be any substantive indirect effects to protected resources stemming from lack of implementation of the rule under the No-Action Alternative.

4.5.2 Alternative B (Preferred): Combined Limit for the ELAPS

Based on incomplete and unverified observer data from FFA, the U.S. purse seine fishery has had limited interactions with marine mammals in recent years. The number of these interactions and whether the marine mammals were ESA-listed species is unknown at this time. NMFS is continuing to collect and analyze data. Data also indicates that the U.S. purse seine fleet has had some interaction with sea turtles in the WCPO, but the U.S. WCPO purse seine fleet has not been known to interact with seabirds. As stated in Chapter 3, in a memorandum dated October 21, 2014, NMFS analyzed the effects of the U.S. purse seine fishery on the Indo-West Pacific DPS of the scalloped hammerhead shark pending completion of formal ESA Section 7 consultation during the 2015 calendar year. Based on the best available information, NMFS determined that risk of the continued operation of the U.S. WCPO purse seine fishery on the Indo-West Pacific DPS of the scalloped hammerhead shark during calendar year 2015 is negligible and not likely to jeopardize the continued existence of the DPS. Overall, the direct and indirect effects to protected resources from the implementation of Alternative B would likely be negligible, although it is possible there would be slight reduction in interactions with protected species from a reduction in fishing effort. To the extent that there is a shift in fishing patterns, any effects in terms of interactions with protected resources would be small compared to typical year-to-year variations in interactions with species driven by changing oceanic and economic conditions.

Alternative B would not cause any effects to ESA-listed species that have not been addressed in prior or ongoing consultations and would not cause additional impacts to marine mammals protected under the MMPA.

The changes in fishing patterns of the fleet would not affect the following areas designated as EFH or HAPC: ocean or coastal habitats; historic properties listed in or eligible for listing in the National Register of Historic Places; or NWRs or National Monuments. Such resources would not be affected because the potential changes in fishing patterns of the fleet would take place in areas of the ocean far from shorelines and would not affect the seafloor or benthic habitats since purse seine fishing does not involve contact with the seafloor (see Section 3.2 of this EA for a description of purse seine fishing). Also, because any effects to fish stocks would be minor or negligible, as discussed above, any pelagic fish habitat designated as EFH, including the water column, or HAPC, would not be expected to experience any substantial effects – either beneficial or adverse – from implementation of this alternative, as the small effects on the stocks would be unlikely to lead to any indirect effects to fish habitat (e.g., an increase in predator or prey leading to trophic interactive effects leading to effects on habitat). In addition, as discussed in Section 3.5.4 of this EA, commercial fishing is already prohibited in the Monuments. Shipwrecks would be the only known cultural objects potentially within the affected environment. However, as stated above, purse seine fishing operations do not come into contact with the seafloor, so the operations of the U.S. WCPO purse seine fleet would not be expected to affect any material from shipwrecks, which typically rests on ocean bottoms.

4.5.3 Alternative C: Separate Limits for the high seas and the U.S. EEZ

The effects to protected resources under Alternative C would be essentially the same as under Alternative B, but could be slightly more under Alternative C. As discussed above, under Alternative C, the overall effects on fishing patterns would be expected to be similar, to those under Alternative B, but the effects could be more under Alternative C, if fishing effort is more constrained. Thus, under Alternative C, there could an increased potential for a slight reduction in interactions with protected species from a reduction in fishing effort. Overall, the effects on protected resources would be expected to also be small or negligible for the reasons discussed under Alternative B.

4.6 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." Under Alternative C, the limit would likely be reached on the high seas in 2015 and the limit would not be likely to be reached in the U.S. EEZ. Thus, the 11 vessels that are authorized to fish in the U.S. EEZ would be able to continue to fish in the U.S. EEZ for a few months longer than under Alternative B. It is unknown but unlikely that any of these 11 vessels would qualify as having a minority or low income population, given the revenue generated by the fleet (see RIR). However, as discussed above, the overall environmental effects from either of the alternatives would be minor and generally would be distributed evenly among the affected vessels in the fleet. The expected closure of the high seas while leaving the U.S. EEZ open under Alternative C would not be expected to lead to substantive differences on resources in the affected environment, and thus, would not be expected to result in disproportionately high and adverse human health or environmental effects on vessel owners or operators in the fleet. Thus, none of the alternatives considered would result in significant and adverse environmental effects on minority or low-income populations.

Chapter 5

Chapter 5 Cumulative Impacts

This chapter presents the cumulative impacts analysis for the 2015 ELAPS rule.

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." The cumulative impacts analysis examines whether the direct and indirect effects of the proposed action and alternatives on a given resource interact with the direct and indirect effects of other actions on that same resource to determine the overall, or cumulative effects, on that resource.

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 and in Section 5.1.1. The time frame for this analysis is from 2009 – when the United States first implemented a WCPFC decision for the management of tropical tunas through rulemakings with effects on the environment similar to the effects that would be caused by implementation of the 2013 U.S. Purse Seine Rule – to 2017, the end date of the CMM 2014-01. Although it is likely that the Commission would adopt additional management measures for tropical tunas after 2017, any specific actions beyond 2017 that would affect tropical tunas in the WCPO are not definitive enough to be reasonably foreseeable at this time.

Section 5.1 provides some additional information on the affected environment, Section 5.2 describes the identified past, present, and reasonably foreseeable future actions during the 2009-2017 time period, and Section 5.3 presents the cumulative effects analysis.

5.1 Affected Environment

Chapter 3 describes the affected environment that could be affected by the proposed action under any of the alternatives studied in depth. Chapter 3 sets forth the baseline for assessing the direct and indirect impacts of the proposed action, as presented in Chapter 4. This section supplements the information in Chapter 3 in order to establish the baseline for studying the other actions that are part of the cumulative impacts analysis. The section provides information on the fisheries that are active in the area of application of the Convention.

5.1.1 Convention Area HMS Fisheries

The dominant HMS fisheries in the Convention Area are tuna fisheries that target skipjack tuna, yellowfin tuna, bigeye tuna, and albacore tuna. Many distant-water fishing nations and coastal states participate in the fisheries and operations vary from small-scale, subsistence, and artisanal operations in the coastal waters of Pacific Island States, to industrial scale operations both in the EEZs of Pacific Island States and on the high seas.

HMS fisheries in the Convention Area are managed under a number of international agreements and associated domestic authorities. Catch and effort information is compiled by the Oceanic Fisheries Programme (OFP) at SPC as the scientific and data support provider to the Commission for most fisheries. The WCPFC Tuna Yearbook, produced by the OFP at SPC, summarizes this information and is available to the public.[23]

The provisional total Convention Area tuna catch for 2013 was estimated to be 2,621,511 mt, the second highest on record (Williams and Terawasi 2014).

5.2 Past, Present, and Reasonably Foreseeable Future Actions

This section describes the other actions in the period 2009-2017 affect the same resources in the affected environment as would be affected by the 2015 ELAPS rule. The analysis of cumulative impacts is presented in the following section.

5.2.1 Past Actions

Past actions include:

- NMFS' implementation of the purse seine provisions of CMM 2008-01, 2011-01, 2012-01, and 2013-01 through the 2009 Rule, the 2011 Rule, the 2013 Rule, and the 2014 Rule, as discussed in Chapter 1 of this EA and final rule to implement restrictions on the use of FADs for 2015 (see final rule published December 29, 2014, at 79 FR 77942).
- NMFS' implementation of the longline provision of CMM 2008-01, CMM 2011-01, and CMM 2012-01, which was essentially implementation of a 3,763 catch limit for bigeye tuna for the U.S. longline fleets operating in the Convention Area for the years 2009-2014 (see final rule published December 7, 2009, at 74 FR 63999; final rule published August 27, 2012 at 77 FR 51709; and final rule published September 23, 2013, at 78 FR 58240).

[23] See http://www.wcpfc.int/statistical-bulletins.

- U.S implementation of the IATTC decisions for tropical tunas in the EPO in 2009, 2011, and 2013, which include bigeye tuna catch limits for longline fisheries and closed areas and periods for purse seine fishing for the years 2009 through 2016 (see final rule published November 23, 2009, at 74 FR 61046; final rule published November 4, 2011, at 76 FR 68332; and final rule published April 9, 2014, at 79 FR 19487).
- NMFS issued a final rule that prohibits commercial fishing in the Pacific Remote Islands and Rose Atoll Monuments, and in the Islands Units of the Marianas Trench Monument; establishes management measure for non-commercial and recreational charter fishing in the Monuments; and prohibits the conduct of commercial fishing outside the Monuments and non-commercial fishing inside the Monuments during the same trip (78 FR 32996; June 3, 2013).
- NMFS issued a final rule to implement provisions of several WCPFC CMMs on December 3, 2012 (77 FR 71501). The final rule, effective January 2, 2013, establishes notice, reporting, and observer coverage requirements for transshipments, requirements regarding notification of entry into or exit from a particular area of the high seas, and requirements regarding discards from purse seine vessels.
- Based on a Western Pacific Regional Fishery Management Council (WPRFMC) recommendation, NMFS issued a final rule on June 11, 2012 (77 FR 34260), that modifies the boundaries of the American Samoa large vessel prohibited area to align with the boundaries of the Rose Atoll Marine National Monument, effective July 11, 2012.
- NMFS issued a final rule to implement for U.S. fishing vessels IATTC Resolution C-11-10, “Resolution on the Conservation of Oceanic Whitetip Sharks Caught in Association with Fisheries in the Antigua Convention Area” (76 FR 68332; November 4, 2011). Under this rule, oceanic whitetip shark may not be retained by U.S. HMS fishing vessels in the EPO.
- NMFS issued a final rule to implement for U.S. fishing vessels IATTC Resolution C-11-03, “Resolution Prohibiting Fishing on Data Buoys” (76 FR 68332; November 4, 2011).
- NMFS issued a final rule to implement WCPFC decisions on the oceanic whitetip shark, the whale shark, and the silky shark (80 FR 8807; February 19, 2015).
- NMFS issued a final rule to prohibit commercial fishing, while allowing for managed non-commercial fishing, in the expanded areas of the Pacific Remote Islands Marine National Monument, which includes the waters of the U.S. EEZ around Jarvis and Wake Islands and Johnston Atoll, consistent with Presidential Proclamation 9173, issued in September 2014 (80 FR 15693; March 25, 2015).
- NMFS issued a final rule to implement WPRFMC recommendations for an amendment to the Pelagics FEP that would set up a system for the assignment of WCPFC-imposed HMS catch limits among the United States and American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands, and a catch limit of 2,000 mt of longline-caught bigeye tuna for each territory for 2014, 1,000 mt of which could be allocated to eligible U.S. longline fishing vessels (79 FR 64097; October 28, 2014).

- The parties to the SPTT agreed on an interim arrangement for 2015 that provides for access by U.S. purse seine vessels to the waters of the Pacific Island parties to the SPTT; although the total number of fishing days under the arrangement is similar to previous agreements, the number of fishing days allowed in the Kiribati EEZ is only 300.
- In 2006 Kiribati formed the Phoenix Islands Protected Area (PIPA) in its EEZ, which is about 140,000 square miles in size. On January 1, 2015, Kiribati banned all commercial fishing within a significant portion of the PIPA. This prohibition applies to the U.S. purse seine fleet.

5.2.2 Other Present Actions

Present actions include:

- U.S. implementation of the other provisions of CMM 2014-01 through separate rulemakings, which would put into place a longline catch limit for bigeye tuna, as well as FAD restrictions for purse seine vessels; and
- Actions by other nations to implement CMM 2014-01, details of which are unknown at this time.

5.2.3 Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions include:

- Actions by the United States and other nations to implement any additional management measures adopted by the WCPFC for resources in the affected environment, details of which are unknown at this time;
- Actions by the United States and other nations to implement a new multi-year IATTC management measure for tropical tunas for 2017 and beyond, details of which are unknown at this time; and
- Actions by the United States to implement a renegotiated SPTT, the specific details of which are unknown at this time.

5.3 Discussion of Cumulative Impacts

This section discusses cumulative impacts to the resources in the affected environment analyzed in Chapter 4 of this EA.

5.3.1 Cumulative Impacts to Physical Resources and Climate Change

As discussed in Section 4.2 of this EA, the 2015 ELAPS rule under either of the action alternatives or the No-Action Alternative would not be expected to have substantial impacts on physical resources in the WCPO or contribute to climate change. The other past, present, and reasonably foreseeable future actions identified in this chapter would similarly not be expected to substantially impact physical resources in the WCPO, since they are fishery management actions that would not be expected to impact physical resources. Based on all information to date, the other actions are also not expected to lead to a large increase in greenhouse gas emissions that would affect climate change. Thus, the cumulative impacts to physical resources and climate change from implementation of either action alternatives or the No-Action Alternative would not be expected to be substantial.

5.3.2 Cumulative Impacts to Bigeye, Skipjack, and Yellowfin Tuna in the WCPO

As discussed in Chapter 4, the direct and indirect effects from any of the action alternatives to bigeye, skipjack, and yellowfin tuna stocks in the WCPO could perhaps be somewhat beneficial when compared to effects from operation of the fishery absent the limits under the No-Action Alternative, but would be minor. Alternatives B and C would be expected to have similar effects on the stocks, with Alternative C having the potential to have slightly more minor and beneficial effects on the stocks due to the potential for an increased constraint in fishing effort over Alternative B. The primary difference between the action alternatives would likely be a longer total closure period for the ELAPS under Alternative B and a slightly longer closure of the high seas under Alternative C. As for the No-Action Alternative, there would be no direct effects to bigeye, skipjack, and yellowfin tuna stocks, and the potential indirect effects would be minor and perhaps negative.

Past management actions identified above, which were intended to help to conserve the stocks, have also likely had, at the most, minor biological effects, since using the NMFS stock status determination criteria, the status of the stocks has not changed since 2009. The other identified present actions would also be expected to have minor effects on these stocks. The other present actions would implement the additional measures under CMM 2014-01. CMM 2014-01 includes specific objectives for each of the three stocks: for each, the fishing mortality rate is to be reduced to or maintained at levels no greater than the fishing mortality rate associated with maximum sustainable yield. Based on the NMFS status determination criteria, as shown in Table 3, it is possible that full implementation of CMM 2014-01 by the United States and other WCPFC members could result in maintaining the stock status of skipjack tuna and yellowfin tuna as neither overfishing nor overfished, and change the stock status of bigeye tuna so it is also neither overfishing nor overfished. However, it is difficult to predict the results of full implementation of CMM 2014-01 at this time.

The details of the reasonably foreseeable future actions are unknown, and thus, specific assessment of each of their potential contributions to cumulative impacts on the stocks of bigeye tuna, skipjack tuna, and yellowfin tuna is not possible at this time. However, given the Commission's articulated objectives in CMM 2014-01 and the current status of the stocks, it is likely that the reasonably foreseeable future actions will be consistent with the objectives of CMM 2014-01.

Thus, the cumulative impacts from the identified past, present, and reasonably foreseeable future actions on the stocks of bigeye tuna, yellowfin tuna, and skipjack tuna in the WCPO would likely be beneficial in comparison to operation of the fishery absent the management measures that are being or would be implemented under the identified actions. However, it is unknown whether the current status of the stocks will change as a collective result of all of these actions – though this is difficult to predict without knowing the details of the reasonably foreseeable future actions or the results of the implementation of the present actions. Based on all information to date, the cumulative impacts from implementation of the 2015 ELAPS rule under any of the action alternatives or lack of implementation under the No-Action Alternative would not be expected to lead to substantial cumulative impacts on the status of the stocks of bigeye tuna, skipjack tuna, and yellowfin tuna in the WCPO.

5.3.3 Cumulative Impacts to Other Non-target Fish Species in the WCPO

As stated in Section 4.4 of this EA, the 2015 ELAPS rule under either action alternative or the No-Action Alternative would have minor or negligible effects on other non-target fish species. Given that the other past, present and reasonably foreseeable future actions are fishery management actions, they similarly had or would similarly be expected to have minor or negligible effects on other non-target species if focused on management of the fisheries that target tropical tuna stocks, or effects that would decrease fishing pressure on the other non-target fish species if focused on management of those species, and thus, the cumulative effects on other non-target fish species would not be expected to be adverse or substantial.

5.3.4 Cumulative Impacts to Protected Resources in the WCPO

As discussed in Section 4.5 of this EA, the action alternatives or No-Action Alternative would not be expected to increase or decrease interactions with protected resources, although it is possible there would be slight reduction in interactions with protected species under the action alternatives due a possible reduction in overall fishing effort. Based on all information to date, the other identified past, present, and reasonably foreseeable future action are not expected to have substantial effects on protected resources, since they are all fishery management actions geared toward overall marine conservation management. Thus, the cumulative effects on protected resources would not be expected to be substantial.

5.3.5 Cumulative Impacts to Environmental Justice

As stated in Section 4.6 of this EA, the 2015 ELAPS rule under either action alternative or the No-Action Alternative would not substantially affect minority or low-income populations. Based on all information to date, the other past, present, and reasonably foreseeable future actions identified in this chapter are not expected to affect minority of low-income populations. Thus, the cumulative effects on minority or low-income populations would not be expected to be substantial.

Consultation

Consultation

NAO 216-6 requires a listing of the agencies and persons who were consulted while preparing this EA. Table 8 lists the agencies, NOAA units, and entities that were contacted for information.

Table 8: List of agencies and offices contacted

NMFS – Headquarters – Office of International Affairs
NMFS – Pacific Islands Regional Office – Observer Program
NMFS – Pacific Islands Regional Office – Sustainable Fisheries Division
NMFS – Pacific Islands Fisheries Science Center
NMFS – West Coast Regional Office – Sustainable Fisheries Division
NMFS – Southwest Science Center
NOAA Office of Law Enforcement
North Pacific Fishery Management Council
Pacific Fishery Management Council
Department of State – Office of Marine Conservation
U.S. Coast Guard – 14th Coast Guard District
Western Pacific Fishery Management Council

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Finding of No Significant Impact

Fishing Effort Limits in Purse Seine Fisheries for 2015
RIN 0648-BF03

This Finding of No Significant Impact (FONSI) was prepared according to the guidelines established in National Marine Fisheries Service (NMFS) Instruction 30-124-1 and the requirements set forth in the National Oceanic and Atmospheric Administration's (NOAA) Administrative Order (NAO 216-6, May 20, 1999). The FONSI is based on the Environmental Assessment (EA) prepared pursuant to the requirements of the National Environmental Policy Act (NEPA; 42 U.S.C. § 4321 et seq.) to analyze the potential impacts on the human environment from promulgation of the rule (RIN 0648-BF03), "Fishing Effort Limits in Purse Seine Fisheries for 2015."

Background

At its Eleventh Regular Session, in December 2014, the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (Commission) adopted Conservation and Management Measure (CMM) 2014-01, "Conservation and Management Measure for Bigeye, Yellowfin and Skipjack Tuna in the Western and Central Pacific Ocean." Among other provisions, CMM 2014-01 includes provisions for the management of purse seine fisheries operating in the western and central Pacific Ocean (WCPO). Pursuant to the authority of the Western and Central Pacific Fisheries Convention Implementation Act (16 U.S.C. 6901 *et seq*.), the National Marine Fisheries Service (NMFS) is promulgating a rule to implement CMM 2014-01's provisions on allowable levels of fishing effort by purse seine vessels on the high seas and in the U.S. exclusive economic zone (EEZ), between the latitudes of 20° N. and 20° S., in the Convention Area (also known as the Effort Limit Area for Purse Seine, or ELAPS), and only for 2015. The CMM's other provisions would be implemented through one or more separate rules, as appropriate. NMFS is implementing the 2015 purse seine effort limits separately from other provisions of the CMM to ensure that the limits go into effect in U.S. regulations before the prescribed limits are exceeded by the fleet. NMFS projects, based on preliminary data to date, that the limit in the ELAPS could be reached in June or July 2015.

NMFS prepared an EA that analyzed two action alternatives for implementing the ELAPS limit specified by CMM 2014-01, as well as the No-Action Alternative. Each of the action alternatives included a different variation of the fishing effort limits. Alternative B, the preferred alternative, included a total limit of 1,828 fishing days for the ELAPS for the calendar year 2015. Alternative C included a separate limit of 1,270 fishing days for the high seas and 558 fishing days for the U.S. EEZ for the calendar year 2015. If NMFS determined that any limit was expected to be reached before the end of 2015, it would issue a *Federal Register* notice announcing that purse seine fishing in that area for the remainder of the year. The notice would be issued at least seven days in advance of the closure.

The analysis in the EA indicated that the primary difference between Alternatives B and C, in terms of effects on the fishing patterns of the fleet, is that under Alternative C, the U.S. purse seine fishery on the high seas and in the U.S. EEZ could be closed at different times. In other words, since it is likely that the limit for the high seas would be reached before the limit for the U.S. EEZ is reached, the high seas would be closed for a longer period of time in 2015 than would the U.S. EEZ, and likely that the limit in the U.S. EEZ would not be reached in 2015. However, effort could increase in the U.S. EEZ after the high seas are closed to fishing, due to vessels shifting effort into that area. On the other hand, currently only 11 vessels in the fleet (out of 37 total) are authorized to fish in the U.S. EEZ, so the effects on fishing patterns would be similar for the majority of the fleet under Alternative B and Alternative C. All vessels would likely be able to fish on the high seas slightly longer under Alternative B, since it is likely that the ELAPS limit under Alternative B would be reached later than the high seas limit under Alternative C. In addition, preliminary information indicates that fishing effort in the U.S. EEZ in 2015 continues to be limited as in the past, so it is unknown whether the U.S. EEZ would provide productive fishing grounds in 2015 after the limit on the high seas is reached under Alternative C.

With respect to effects on U.S. purse seine fishing effort as a whole, neither Alternative B nor C are expected to have substantial effects on fishing patterns of the fleet, as the primary fishing grounds of the fleet are outside the ELAPS. Thus, the fishing patterns of the fleet under the action alternatives and the No-Action Alternative would be similar. However, because an ELAPS limit under Alternative B would constrain operational flexibility, it could constrain fishing effort slightly compared to the No-Action Alternative. Similarly, Alternative C would constrain operational flexibility slightly more than would Alternative B, so it could result in slightly less fishing effort than under Alternative B, and thus, while the nature of the effects on the human environment would be the same under either alternative, the extent of the effects could be slightly more under Alternative C. In the following discussion, the term proposed action refers to Alternative B, which is the agency's preferred alternative.

Significance Analysis

NAO 216-6 contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality regulations for implementing NEPA at 40 C.F.R. 1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant to making this FONSI and has been considered individually, as well as in combination with the others.

The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria. These include:

1) Can the proposed action reasonably be expected to jeopardize the sustainability of any target species that may be affected by the action?

<u>Response</u>: No. The target species of the U.S. WCPO purse seine fishery are skipjack tuna (*Katsuwonus pelamis*) and yellowfin tuna (*Thunnus albacares*), with bigeye tuna (*Thunnus obesus*) being an incidentally caught species. As stated in Section 4.3 of the EA, the proposed action could lead to some direct and indirect minor beneficial impacts on the stocks of bigeye tuna, skipjack tuna, and yellowfin tuna by a potential overall reduction in fishing effort from the implementation of the fishing effort limit when compared to operation of the fishery absent the ELAPS fishing limit.

However, these beneficial effects would be relatively small, because the proposed action would result in only a small reduction in the overall fishing mortality on these stocks, and may result in no reduction on fishing mortality if effort shifts from the ELAPS to other areas, since the fleet generally fishes in areas outside of the ELAPS. Moreover, as described in Chapter 3 of the EA, the U.S. purse seine fleet contributes only a small portion of the total fishing mortality on these stocks.

2) Can the proposed action reasonably be expected to jeopardize the sustainability of any non-target species?

Response: No. Section 4.4 of the EA discusses the potential impacts to non-target fish species (other than bigeye tuna) from the proposed action. The proposed action could cause some change in the amount and type of non-target fish species caught by the U.S. WCPO purse seine fleet. The fishing effort limit could cause some shift in effort to the EEZs of Pacific Island Parties to the South Pacific Tuna Treaty (Treaty) (where the fleet expends the majority of its effort) or to the eastern Pacific Ocean (EPO). Direct impacts to non-target fish species could include a potential increase in the catch of some species and a decrease in the catch of other species, due to the changes in fishing patterns of the fleet and the potential for an overall decrease in fishing effort due to implementation of the fishing effort limits and any associated fishery closure. Indirect or long-term effects would include the greater potential for adverse effects to the stocks of non-target fish species that experience increased fishing mortality and reduced potential for adverse effects to the stocks of non-target fish species that experience decreased fishing mortality. Because the U.S. WCPO purse seine fleet does not generally catch large amounts of other non-target fish species (see Table 5 in Chapter 3 of the EA), the overall direct and indirect effects on non-target fish species would be expected to be minor or negligible.

3) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat (EFH) as defined under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and identified in FMPs?

Response: No. As stated in Chapter 4, Section 4.5 of the EA, the proposed action would not cause any adverse impacts to areas designated as EFH or Habitat Areas of Potential Concern under MSA provisions, or to ocean and coastal habitats. Such resources would not be affected because the potential changes in fishing patterns of the fleet would take place in areas of the ocean far from shorelines and would not affect the seafloor or benthic habitats since purse seine fishing does not involve contact with the seafloor (see Section 3.2 of the EA for a description of purse seine fishing). Also, because any effects to fish stocks would be minor or negligible, as discussed above, any pelagic fish habitat designated as EFH, including the water column, or HAPC, would not be expected to experience any substantial effects – either beneficial or adverse – from implementation of the proposed action, as the small effects on the stocks would be unlikely to lead to any indirect effects to fish habitat (e.g., an increase in predator or prey leading to trophic interactive effects leading to effects on habitat).

4) Can the proposed action reasonably be expected to have a substantial adverse impact on public health or safety?

Response: No. As indicated in the EA in Section 4.1.2, the only identified potential impact to public health and safety from the proposed action would be from the "race to fish" that could be expected in the time period between when a closure of the fishery in the ELAPS is announced and when the fishery is closed. A race to fish could bring costs in terms of human safety as well as the performance of the vessel and its fishing gear and crew, if it causes vessel operators to forego vessel maintenance or to fish in weather or ocean conditions that it otherwise would not, but the effects are not expected to be substantial, as the fleet does not exert the majority of its fishing effort in the ELAPS. Thus, substantial adverse impacts on public health or safety are not anticipated to result from promulgation of the rule.

5) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species?

Response: No. As stated in Section 4.5 of the EA, the proposed action would not be expected to adversely affect species listed as endangered or threatened under the Endangered Species Act (ESA), their critical habitat or marine mammals. Based on incomplete and unverified observer data, the U.S. purse seine fishery has had limited interactions with marine mammals in recent years. The number of these interactions and whether the marine mammals were ESA-listed species is unknown at this time. NMFS is continuing to collect and analyze data. Data also indicates that the U.S. purse seine fleet has had some interaction with sea turtles in the WCPO, but the U.S. WCPO purse seine fleet has not been known to interact with seabirds. As stated in Chapter 3, in a memorandum dated October 21, 2014, NMFS analyzed the effects of the U.S. purse seine fishery on the Indo-West Pacific DPS of the scalloped hammerhead shark pending completion of formal ESA Section 7 consultation during the 2015 calendar year. Based on the best available information, NMFS determined that risk of the continued operation of the U.S. WCPO purse seine fishery on the Indo-West Pacific DPS of the scalloped hammerhead shark during calendar year 2015 is negligible and not likely to jeopardize the continued existence of the DPS. Overall, the direct and indirect effects to protected resources from the implementation of the proposed action would likely be negligible, although it is possible there would be slight reduction in interactions with protected species from a reduction in fishing effort when compared to operation of the fishery absent the ELAPS limit. To the extent that there is a shift in fishing patterns, any effects in terms of interactions with protected resources would be small compared to typical year-to-year variations in interactions with species driven by changing oceanic and economic conditions. Thus, the proposed action would not cause any effects to ESA-listed species that have not been addressed in prior or ongoing consultations and would not cause additional impacts to marine mammals protected under the MMPA.

6) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?

Response: No. The purpose of the proposed action is to implement the purse seine fishing effort limit provisions of CMM 2014-01 for the U.S. WCPO purse seine fleet, in order to contribute to the underlying objectives of CMM 2014-01 regarding WCPO bigeye tuna, yellowfin tuna and skipjack tuna, which are to reduce or maintain their respective fishing mortality rates at levels no greater than the fishing mortality rates associated with maximum sustainable yield. As discussed in Section 3.4.1 and Section 4.3 of the EA, adult bigeye tuna, skipjack tuna, and adult yellowfin tuna are considered among the top predators of the tropical or warm pool marine ecosystem. Changes to WCPO stocks of these species could lead to trophic interactive effects, including increased competition for prey species with other top predators. Larval and juvenile tunas are also a significant source of food for other marine species, such as fish, seabirds, porpoises, marine mammals, and sharks. Thus, increases in larval and juvenile tuna could increase the food available for these other species. However, it is unlikely that the effects of the proposed action to the WCPO stocks of bigeye, skipjack, and yellowfin tuna, which would be short-lived, would be large enough to impact the marine ecosystem. Overall, the proposed action would not cause substantial effects on biodiversity and ecosystem function.

7) Are significant social or economic impacts interrelated with natural or physical environmental effects?

Response: No. As stated in the Regulatory Impact Review (RIR), the rule would lead to a high likelihood of the ELAPS being closed for roughly half the year, which is likely to bring adverse economic impacts to purse seine fishing businesses. It is not possible to quantify the likely impacts, in part because U.S. purse seine vessel operating costs are not known, and also because it is difficult to predict revenues and costs associated with the next-best opportunities that would be available to the fleet during an ELAPS closure.

As discussed throughout the EA, these direct effects on the fishery would not lead to substantial effects on the human environment – at the most, there could be some minor beneficial impacts on the stocks of bigeye tuna, skipjack tuna, and yellowfin tuna when compared to operation of the fishery absent an effort limit, with the effects on other resources in the affected environment being none or very minor, and any adverse economic impacts interrelated with these environmental effects are not likely to be substantial.

8) Are the effects on the quality of the human environment likely to be highly controversial?

Response: No. This proposed action would implement the same limit implemented in calendar year 2014. As stated throughout the EA, the primary effects of the proposed action on the U.S. WCPO purse seine fishery are that when the ELAPS limit if reached, the fleet is likely to shift its fishing effort to the EEZs of Pacific Island Parties to the Treaty or in the EPO or there could be a reduction in the total fishing effort of the fleet. Overall, these effects could lead to some minor beneficial impacts on the stocks of bigeye tuna, skipjack tuna, and yellowfin tuna in comparison to operation of the fishery absent an ELAPS limit, and it is unlikely that there would be any controversy regarding the size, nature, or effects of the action (i.e., the effects of the action on the quality of the human environment).

9) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?

Response: No. As described in Section 3.5.4 of the EA, there are several National Wildlife Refuges and National Monuments in the affected environment. However, these resources would not be affected because the potential changes in fishing patterns of the fleet would take place in areas of the ocean far from shorelines and would not affect the seafloor or benthic habitats since purse seine fishing does not involve contact with the seafloor. In addition, as discussed in Section 3.5 of the EA, commercial fishing is already prohibited in the National Monuments, pursuant to the 2009 and 2014 Presidential Proclamations.

10) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

Response: No. This proposed action would implement the same limit implemented in calendar year 2014. As described throughout the EA, although the magnitude of the effects on the human environment cannot be quantified with certainty, the types of effects and the direction of those effects can be predicted. The purpose of the proposed action is to implement the purse seine effort limit provisions of CMM 2014-01 for the U.S. WCPO purse seine fleet for 2015, in order to contribute to the underlying objectives of CMM 2014-01 regarding WCPO bigeye tuna, yellowfin tuna and skipjack tuna, which are to reduce or maintain their respective fishing mortality rates at levels no greater than the fishing mortality rates associated with maximum sustainable yield. The primary effects of the proposed action on the U.S. WCPO purse seine fishery are that when the ELAPS limit is reached, the fleet may fish more in the EEZs of Pacific Island Parties to the Treaty or in the EPO or there could be a reduction in the total fishing effort of the fleet. Overall, these effects could lead to some minor beneficial impacts on the stocks of bigeye tuna, skipjack tuna, and yellowfin tuna. Thus, the effects on the human environment from the proposed action would not be highly uncertain or involve unique or unknown risks.

11) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?

Response: No. As discussed in Chapter 5 of the EA, the cumulative impacts on the resources in the affected environment that could be impacted by the proposed action, from the proposed action, other present actions, and all reasonably foreseeable future actions, would likely be beneficial in comparison to operation of the fishery absent the management measures that are being or would be implemented under the identified actions. Based on all information to date, the cumulative impacts from implementation of the proposed action would not be expected to lead to substantial cumulative impacts on the status of the stocks of bigeye tuna, skipjack tuna, and yellowfin tuna in the WCPO, and no significant cumulative impacts on the human environment, including protected resources are anticipated from implementation of the proposed action.

12) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?

Response: No. As stated in Section 4.5 of the EA, such resources would not be affected because the potential changes in fishing patterns of the fleet would take place in areas of the ocean far from shorelines and would not affect the seafloor or benthic habitats since purse seine fishing does not involve contact with the seafloor. Shipwrecks would be the only known cultural objects potentially within the affected environment. However, purse seine fishing operations do not come into contact with the seafloor, so the operations of the U.S. purse seine fleet would not be expected to affect any material from shipwrecks, which typically rests on ocean bottoms. Thus, there would be no effects to districts, sites, highways, structures or objects listed in or eligible for listing in the National Register of Historic Places or potential loss or destruction of significant scientific, cultural, or historical resources.

13) Can the proposed action reasonably be expected to result in the introduction or spread of a nonindigenous species?

Response: No. The primary effects of the proposed action on the U.S. WCPO purse seine fishery are that when the ELAPS limit if reached, the fleet may fish more in the EEZs of Pacific Island Parties to the Treaty or in the EPO or there could be a reduction in the total fishing effort of the fleet. Although some transfer of effort is anticipated, none of these effects would be expected to result in the introduction or spread of a nonindigenous species since the vessels in the fleet would not be entering any new geographic areas of operation.

14) Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?

Response: No. The purpose of the proposed action is to implement the purse seine fishing effort limit provisions of CMM 2014-01 for the U.S. WCPO purse seine fleet for 2015, in order to contribute to the underlying objectives of CMM 2012-01 regarding WCPO bigeye tuna, yellowfin tuna and skipjack tuna, which are to reduce or maintain their respective fishing mortality rates at levels no greater than the fishing mortality rates associated with maximum sustainable yield. The need for the proposed action is to satisfy the obligations of the United States as a Contracting Party to the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, pursuant to the authority of the Western and Central Pacific Fisheries Commission Implementation Act. Thus, the proposed action is limited to an immediate and focused objective and it does not establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration.

15) Can the proposed action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?

Response: No. As stated in the response to #14, the purpose of the rule is to implement specific conservation and management measures and the need for the rule is to satisfy the obligations of the

United States as a member of the Commission. As such, the rule would not be expected to violate any laws or requirements imposed for the protection of the environment.

16) Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?

Response: No. See the response to #11 above for a discussion of cumulative effects. The overall cumulative impacts to the resources in the affected environment are not expected to be substantial.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting EA and RIR prepared for the rule "Fishing Effort Limits in Purse Seine Fisheries for 2015," it is hereby determined that the proposed action will not significantly impact the quality of the human environment as described above and in the supporting EA. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement for this action is not necessary.

Regional Administrator Pacific Islands Regional Office	MAY 04 2015 Date