ENVIRONMENTAL ASSESSMENT

To Revise the United States Commercial Fishery Regulations in the Eastern Pacific Ocean in Accordance with Inter-American Tropical Tuna Commission Resolution C-12-09

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Cover Sheet

Environmental Assessment to Revise the United States Commercial Fishery in the Eastern Pacific Ocean in Accordance with Inter-American Tropical Tuna Commission Resolution C-12-09

Proposed Action:	Introduce a catch limit for the United States commercial fishery on PBT in the eastern Pacific Ocean so that it is consistent with the Inter-American Tropical Tuna Commission Resolution C-12-09.
Type of Statement:	Environmental Assessment
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Abstract

The National Marine Fisheries Service (NMFS) is proposing regulations under authority of the Tuna Conventions Act of 1950, as amended, to implement a resolution adopted by the Inter-American Tropical Tuna Commission (IATTC) in June 2012, specifically the Resolution on Conservation and Management Measures for Bluefin Tuna in the Eastern Pacific Ocean (C-12-09). The proposed regulation would only apply to vessels that commercially catch Pacific bluefin tuna (PBT) in the eastern Pacific Ocean (EPO). Resolution C-12-09 included both a cumulative catch limit of 10,000 metric tons (mt) for member countries fishing in the EPO for 2012 and 2013 combined and an annual catch limit of 500 mt for individual member countries should the cumulative limit be reached. In accordance with the 10,000 mt cumulative catch limit adopted in Resolution C-12-09 for both 2012 and 2013 combined, the catch limit for 2013 is 3,295 metric tons because the cumulative catch of all IATTC member countries in the Convention Area reached 6,705 metric tons in 2012. Currently, the U.S. commercial fishery has no catch limit on the PBT in the EPO. The eastern Pacific Ocean (EPO) includes the waters bounded by the coast of the Americas, the 40° N. and 40° S. parallels, and the 150° W. meridian.

These revisions would ensure that the United States is satisfying its obligations as a member of the IATTC. This environmental assessment (EA) assesses the potential environmental impacts on the human environment that could result from implementation of the proposed rule which would implement a commercial catch limit on PBT in the EPO. Alternatives and potential impacts are analyzed in this EA. Impacts to the human environment (e.g., effects of the proposed action on the natural environment and the socioeconomic environment) were found to be insignificant.

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List of Acronyms

CCS- California Current System
CDFG-California Department of Fish and Game
CFGC-California Fish and Game Commission
CFR- Code of Federal Regulations
CPC- IATTC's High Contracting Parties, Cooperating Non-Parties, Cooperating Fishing Entity, and Regional Economic Integration Organization
CPS- Coastal Pelagic Species
DGN- Drift Gillnet
EA- Environmental Assessment
EEZ- Exclusive Economic Zone
EFH- Essential Fish Habitat
ENSO- El Niño Southern Oscillation
EO- Executive Order
EPO- Eastern Pacific Ocean
ESA- Endangered Species Act
FMP- Fishery Management Plan
FR- Federal Register
HG-Harvest Guideline
HMS- Highly Migratory Species
HMS FMP- Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species
HSFCA- High Seas Fisheries Compliance Act
IATTC- Inter-American Tropical Tuna Commission
IPCC- Intergovernmental Panel on Climate Change
ISC- International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean
MBTA- Migratory Bird Treaty Act
MMPA- Marine Mammal Protection Act
MOU- Memorandum of Understanding
MSFMP-Market Squid Fisheries Management Plan
MT-Metric Ton
NEPA- National Environmental Policy Act
NMFS- National Marine Fisheries Service
NOAA- National Oceanic and Atmospheric Administration
PacFIN- Pacific Fisheries Information Network
PBT-Pacific Bluefin Tuna
PDO- Pacific Decadal Oscillation
PFMC- Pacific Fishery Management Council
RIR- Regulatory Impact Review
SAFE-Stock Assessment and Fishery Evaluation
SAFZ- Subarctic Frontal Zone
SCB- Southern California Bight
SFD – Sustainable Fisheries Division
SSTF-South Subtropical Front
STF-Subtropical Front
STFZ- Subtropical Frontal Zone
USFWS- United States Fish and Wildlife Service
WCPFC- Western and Central Pacific Fisheries Commission

Glossary

Biological Opinion: The written documentation of a Section 7 Endangered Species Act consultation.

Biomass: The estimated amount, by weight, of a highly migratory species (HMS) population. The term biomass means total biomass (age one and above) unless stated otherwise.

Bycatch: Animals which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards. Such term does not include fish released alive under a recreational catch and release fishery management program.

Coastal Purse Seine: A purse seine is an encircling net that is closed by means of a purse line threaded through rings on the bottom of the net. "Coastal" purse seiners are smaller vessels that fish close to the shore. They mainly harvest coastal pelagic species (sardines, anchovies, mackerel), but they also fish for PBT and other tunas when they are available. (http://www.pcouncil.org/highly-migratory-species/background/)

Commercial fishing: Fishing in which the fish harvested, either in whole or in part, are intended to enter commerce through sale, barter, or trade.

Drift Gillnet: A panel of netting, suspended vertically in the water by floats along the top and weights along the bottom, which is neither stationary nor anchored to the bottom. The HMS Fisheries Management Plan (FMP) final rule defines drift gillnet gear as 14 inch (35.56 cm) stretched mesh or greater.

Endangered Species Act (ESA): Enacted in 1973, the ESA directs Federal departments and agencies to conserve endangered species and threatened species, and utilize their authorities in furtherance of the purposes of the ESA.

Exclusive Economic Zone (EEZ): The zone established by Presidential Proclamation 5030, dated March 10, 1983, is that area adjacent to the United States which, except where modified to accommodate international boundaries, encompasses all waters from the seaward boundary of each of the coastal states to a line on which each point is 200 nautical miles (370.40 km) from the baseline from which the territorial sea of the United States is measured (3 Code of Federal Regulation (CFR) part 22).

Fishing: Refer to definition for commercial fishing.

High Seas: All waters beyond the EEZ of the United States and beyond any foreign nation's EEZ, to the extent that such EEZ is recognized by the United States (PFMC 2011b) (Note: this definition is used in the HMS FMP and differs from the definition in the Magnuson-Stevens Act, which defines "high seas" as waters beyond the territorial sea).

Highly Migratory Species: Pelagic species of fish (those that live in the water column as opposed to on the surface or on the bottom) including tunas, sharks, billfish/swordfish and which undertake migrations of significant but variable distances across oceans for feeding or reproduction.

Incidental take: "Take", as defined under the ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect, or to attempt to engage in any such conduct", individuals from a species listed under the ESA. Incidental take is the non-deliberate take of ESA-listed species during the course of an otherwise lawful activity (e.g., fishing under an FMP).

Incidental Take Statement: A requirement under the ESA Section 7 consultation regulations and provided following the conclusion of a biological opinion that specifies the impact of any incidental taking of endangered or threatened species, and provides reasonable and prudent measures that are necessary to minimize impacts.

Jeopardy: The conclusion of a Section 7 consultation if it is determined that the proposed action would reasonably be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the numbers, reproduction, or distribution of that species.

Retention/Retaining: The process of maintaining possession an animal (fish) once the animal is harvested as part of a fishery.

Section 7 consultation: A requirement for all discretionary Federal actions that may affect endangered or threatened species to ensure that the proposed action is not likely to jeopardize ESA listed endangered or threatened species or result in adverse modification of critical habitat designated for such species. Refers to Section 7(a)(2) of the ESA.

Stock: A group of fish with some definable attributes which are of interest to fishery managers; for example, the bigeye tuna stock.

1.0 INTRODUCTION

1.1 Organization of the Document

This Environmental Assessment (EA) provides an analysis of proposed restrictions on the U.S. commercial fishery in the eastern Pacific Ocean (EPO). Environmental impact analyses performed under the National Environmental Policy Act (NEPA) have four essential components: 1) a description of the purpose and need for the proposed action; 2) alternatives that represent different ways of accomplishing the proposed action; 3) a description of the human environment affected by the proposed action; and 4) an evaluation of the expected direct, indirect, and cumulative impacts of the alternatives. The human environment includes the natural and physical environment and the relationship of people with that environment, as defined at 40 CFR 1508.14. These elements allow the decision maker to look at different approaches to accomplishing a stated goal and understand the likely consequences of each alternative. Based on this structure, the document is organized into the following chapters:

- Chapter 1 describes the purpose and need, the proposed action, the proposed action area and considerations that went into the development of this EA.

- Chapter 2 outlines the alternatives that have been considered to address the purpose and need of the proposed action.

- Chapter 3 describes the components of the human environment potentially affected by the proposed action (the "affected environment"). The affected environment represents the baseline condition, which would be potentially changed by the proposed action.

- Chapter 4 evaluates the effects of the alternatives on components of the human environment in order to provide the information necessary to determine whether such effects are significant, or potentially significant.

- Chapter 5 provides information on those laws and Executive Orders, in addition to the Tuna Conventions Act and the National Environmental Policy Act (NEPA), that an action must be consistent with, and how this action will satisfy those mandates.

Additional Chapters (6-8) list those who contributed to this EA, information on EA distribution, public comments, and the references cited list. Appendix 1 includes a copy of the Initial Regulatory Impact Review on the Implementation of Inter-American Tropical Tuna Committee (IATTC) Resolution C-12-09.

1.2 Proposed Action

NMFS is proposing a regulation under authority of the Tuna Conventions Act of 1950, as amended (16 U.S.C. 951-962), to implement a decision of the IATTC. At the 83rd Meeting of the IATTC in June 2012, the IATTC adopted Resolution C-12-09, Conservation and Management Measures for Bluefin Tuna in the Eastern Pacific Ocean for 2012 and 2013. The IATTC "intended [these conservation and management measures] as interim means for exercising caution towards assuring sustainability of the Pacific Bluefin tuna resource." These regulations will only apply to vessels that commercially catch Pacific bluefin tuna (PBT) in the EPO in 2013. This rule will be implemented in 2013 and restrict the U.S. commercial fishing in the EPO by:

- Preventing further commercial retention of PBT after the total commercial catch of PBT by the international fleet reaches 3,295 metric tons (mt) in 2013;

- Notwithstanding this restriction, limiting the U.S. commercial fishery to 500 mt of PBT in 2013.

For added clarification:

- The 500 mt limit will not apply in 2013 unless the U.S. commercial fishery has caught less than 500 mt at the time the 3,295 mt limit is reached; and
- If the 3,295 mt limit is reached in 2013 and the U.S. commercial fishery has yet to reach 500 mt at that time, the commercial fishery may still catch up to 500 mt.

To help ensure that the total catch of PBT in the EPO does not exceed the catch limit for each year, NMFS will report the U.S. catch to the IATTC Director on a monthly basis. The IATTC Director, in turn, will communicate on a regular basis the current catch levels and will inform the members of the IATTC when the total annual catch limit is reached. The United States will use the information provided from the IATTC Director to inform any decisions to determine the timing of a potential U.S. PBT commercial fishery closure.

1.3 Proposed Action Area

The proposed action area analyzed in this EA is the EPO that includes the waters bounded by the coast of the Americas, the 40° N. and 40° S. parallels, and the 150° W. meridian. This area includes the U.S. west coast Exclusive Economic Zone (EEZ) where most of the fishing that would be affected by the proposed action occurs.

Figure 1. Map of Proposed Action Area.

1.4 Purpose and Need

The purpose of the proposed action is to implement resolution C-12-09 adopted by the IATTC. As part of the resolution, the IATTC affirms "…that it is necessary to take preventative measures throughout the range of the resource to contribute to the sustainability of the stock." The catch limit measures included in the resolution were "intended as interim means for exercising caution towards assuring sustainability of the Pacific Bluefin tuna resource." This action is needed to limit fishing mortality on PBT in the EPO and

for the United States to satisfy its international obligations under the 1949 Convention for the Establishment of an IATTC, to which it is a Contracting Party.

1.5 Background

The 1949 Convention for the establishment of an IATTC entered into force in May 1949. The full text of the Convention is available at: iattc.org/PDFFiles/IATTC_convention_1949.pdf. The Convention focuses on the conservation and management of highly migratory species (HMS) and the management of fisheries for HMS, and has provisions related to non-target, associated, and dependent species in such fisheries.

The IATTC, established under the Convention, is comprised of the Members, including High Contracting Parties to the Convention and fishing entities that have agreed to be bound by the regime established by the Convention. Other entities that participate in the IATTC include Cooperating Non-Parties, Cooperating Fishing Entities, and Regional Economic Integration Organizations. Cooperating Fishing Entities participate with the authorization of the High Contracting Parties with responsibility for the conduct of their foreign affairs. Cooperating Non-Parties are identified by the IATTC on a yearly basis. In accepting Cooperating Non-Party status, such States agree to implement the decisions of the IATTC in the same manner as Members.

The current Members of the IATTC are Belize, Canada, China, Chinese Taipei, Colombia, Costa Rica, Ecuador, El Salvador, European Union, France, Guatemala, Japan, Kiribati, Mexico, Nicaragua, Panama, Peru, Republic of Korea, Spain, United States, Vanuatu, and Venezuela. The current Cooperating Non-Parties, Cooperating Fishing Entities and Regional Economic Integration Organizations are Bolivia and Cook Islands.

As a Contracting Party to the Convention and a Member of the IATTC, the United States is obligated to implement the decisions of the IATTC in a legally binding manner. The Tuna Conventions Act authorizes the Secretary of Commerce, in consultation with the Secretary of State and the Secretary of the Department in which the United States Coast Guard is operating (currently the Department of Homeland Security), to promulgate such regulations as may be necessary to carry out the obligations of the United States under the Convention, including the decisions of the IATTC. The authority to promulgate regulations has been delegated to NMFS.

The International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC)[1] last assessed the PBT stock in 2012, following the IATTC's adoption of resolution C-12-09. The 2008 assessment was the first to make a quantitative estimate of abundance with some degree of confidence. The ISC made improvements to the catch data and model inputs in preparation for this 2012 full assessment. The results of this assessment indicate overfishing is occurring and the stock is overfished. The 2010 estimates of the spawning stock biomass (SSB) are at, or near, their lowest level and SSB has been declining for over a decade; however, there is no evidence of reduced recruitment. Of particular concern is the fact that the catch in weight is dominated by juvenile fish (ages 0-3). If fishing mortality remains the same and environmental conditions continue to be favorable, the assessment predicts that biomass will decline. Following the ISC's assessments, NMFS classifies the overfishing and overfished status of PBT and notifies the respective Fishery Management Councils to consider taking further action under the Magnuson-Stevens Fisheries Conservation and Management Act. NMFS posts the status of stocks online according to the Fish Stock Sustainability Index, see: nmfs.noaa.gov/sfa/statusoffisheries/.

[1] The International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) was established in 1995 for the purpose of enhancing scientific research and cooperation for conservation and rational utilization of tuna and tuna-like species (HMS) of the North Pacific Ocean, and to establish the scientific groundwork, if at some point in the future it is decided to create a multilateral regime for the conservation and rational utilization of the HMS species in the North Pacific Ocean. For more information, see: isc.ac.affrc.go.jp/about_isc/rules_and_procedures.html

There are numerous foreign fisheries that operate throughout the Pacific Ocean using, among other gears, pelagic longline, pole-and-line, DGN, purse seine, and troll gears. By comparison, U.S. fisheries generally harvest a small fraction of the total Pan-Pacific harvest of HMS and that fraction is even smaller when considering only PBT harvests. Between 2006 and 2011, landings by fleets fishing in the EPO and WCPO ranged between 18,117 mt and 26,760 mt. The U.S. landings ranged between 0.003 percent and 1.8 percent of harvests during those years. PBT harvests from the WCPO have been greater than those from the EPO. Over the last five years, catches in the EPO have ranged between 17 and 39 percent of the total Pacific catch. The PBT harvests by U.S. vessels fishing in the EPO have been greater than those from WCPO. However, the average annual PBT landings by U.S. vessels fishing in the EPO 2007-2011 represent only two percent of the average annual landings from all fleets fishing in the EPO (ISC 2012c).

The IATTC adopted Resolution C-12-09: Conservation and Management Measures for Bluefin Tuna in the Eastern Pacific Ocean during its June 2012 meeting. This resolution takes into account IATTC staff recommendations, recommendations from the IATTC's Scientific Advisory Committee[2], the 2008 ISC stock assessment for PBT which resulted in the determination that overfishing was occurring, and measures taken by the Western and Central Pacific Fisheries Commission (WCPFC), at its 7th Annual Meeting, in December 2010. This resolution is available here: iattc.org/PDFFiles2/Resolutions/C-12-09-Conservation-of-bluefin-tuna.pdf. This resolution obligates the IATTC's High Contracting Parties, Cooperating Non-Parties, Cooperating Fishing Entity, and Regional Economic Integration Organization (collectively, CPCs) to implement measures in Resolution C-12-09.

Resolution C-12-09 established specific catch limits for PBT captured as part of the commercial fishery for the years 2012 and 2013. As a result all CPCs, including the United States, must ensure that their annual commercial catches of PBT in the EPO during 2012 and 2013 adhere to the resolution. NMFS expects to implement the proposed action in 2013. While promulgating the PBT measures through U.S. regulatory procedures and in accordance with other U.S. laws, NMFS notified the public of its intent to implement these measures and increased monitoring of PBT catch by U.S. vessels fishing in the EPO. The IATTC will re-evaluate the 2012 and 2013 measures in the context of the results of the 2012 PBT stock assessment and the recommendations of the scientific staff of the IATTC.

2.0 ALTERNATIVES PROPOSED FOR THE U.S. COMMERCIAL FISHERY

Resolution C-12-09 establishes catch limits on PBT. Prior to this resolution, there were no restrictions to the amount of catch associated with the domestic PBT commercial fishery. Refer to Section 1.2 for details of Resolution C-12-09. Once NMFS determines that the limit is expected to be reached by a specific future date, NMFS would publish a notice in the Federal Register (FR) announcing that the limit has been reached and that specific restrictions would be effective on that particular date until the end of the calendar year. NMFS would publish the notice at least seven calendar days before the effective date of the restrictions to provide advance notice of the restrictions. NMFS will make estimates or projections of PBT landings publicly available on a quarterly basis. Additionally, NMFS will continue to investigate other means of reporting preliminary PBT landings between quarterly intervals to help participants of the commercial fishery plan for the possibility of the catch limit being reached. In Resolution C-12-09, the

[2] The Scientific Advisory Committee (SAC) is composed of a representative of each member of the Commission ("governmental members") determined to have appropriate scientific expertise, qualifications, or relevant experience in the area of competence of the Committee, and who may be accompanied by up to five experts or advisers. The Commission may invite non-governmental organizations or individuals with recognized scientific expertise in matters related to the work of the Commission to participate in the work of the SAC. For more information, see: iattc.org/Meetings/Meetings2011/May-SAC-Shark/PDFfiles/SAC-02-03-REV-Rules-of-Procedure.pdf

IATTC has reserved the option of amending its adoption of the PBT catch limits at its regular annual session in 2013. If such a decision occurs, NMFS will take appropriate action.

The following alternatives would be applicable to U.S. commercial fisheries in the EPO that may catch PBT.

Alternative 1 (Preferred Alternative): As detailed in Resolution C-12-09, implement a catch limit regime (described above in Section 1.2 and Section 2.0) on PBT by prohibiting all U.S. commercial fishing vessels from retaining additional PBT in the EPO after the closure is announced and through the last day of that calendar year. The catch limit would not apply to any U.S. commercial fishery operating outside of the EPO.

Alternative 2: As detailed in Resolution C-12-09, implement a catch limit regime (described above in Section 1.2 and Section 2.0) on PBT by prohibiting all U.S. commercial fishing vessels from fishing in the EPO after the closure is announced and through the last day of that calendar year. The catch limit would not apply to U.S. commercial fisheries operating outside of the EPO.

Alternative 3: As detailed in Resolution C-12-09, implement a catch limit regime (described above in Section 1.2 and Section 2.0) on PBT by prohibiting all coastal purse seine and DGN commercial fishing vessels in the Southern California Bight (SCB) from retaining additional PBT in the EPO after the closure is announced and extending through the last day of that calendar year. The catch limit would not apply to U.S. commercial fisheries operating outside of the EPO.

Alternative 4: As detailed in Resolution C-12-09, implement a catch limit regime (described above in Section 1.2 and Section 2.0) on PBT by prohibiting all coastal purse seine and DGN commercial fishing vessels in the SCB from fishing in the EPO after the closure is announced and through the last day of that calendar year. The catch limit would not apply to U.S. commercial fisheries operating outside of the EPO.

Alternative 5 (No Action): Under this alternative, there would be no restrictions beyond baseline conditions on the U.S. commercial fishery of PBT in the EPO. Currently, there are no PBT catch limits for the U.S. commercial fishery in the EPO.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

This EA considers the effects of the alternatives on different parts of the human environment, which are referred to as environmental components. None of the alternatives are expected to have an adverse impact on public health or safety. The proposed alternatives are not expected to reduce the supply of this protein source, create any undue hardship, or lead to a derby-style fishery in which fishermen might feel pressure to fish during an open season and increase their safety risks by fishing in adverse weather or when conflicts with other fisheries could exist. Three environmental components have been identified for further evaluation and discussion in these chapters: target and non-target finfish, protected species (marine mammals, sea turtles), and the socioeconomic environment (fishermen, processors, etc.).

3.2 Climate and Biophysical Factors Contributing to Baseline Effects

3.2.1 Pelagic Ecosystem

Figure 3-1 illustrates a simplified food-web diagram of the pelagic ecosystem in the tropical EPO and the approximate trophic levels of each group.

3.2.2 Tuna Movements Correlated to Oceanographic Conditions

The following is a summary of Section 3.1.1 of the EA prepared by NMFS for the implementation of the decisions of the fifth regular session of the WCPFC (NMFS 2009). Ocean currents transport plankton, fish, heat, momentum, salts, oxygen, and carbon dioxide. Wind is the primary force that drives ocean surface currents; however, Earth's rotation and the wind determine the direction of current flow. Figure 3-2 illustrates the two main subtropical gyres (the North Pacific subtropical gyre in the northern hemisphere and the South Pacific subtropical gyre in the southern hemisphere) and the other major Pacific Ocean currents.

Subtropical gyres rotate clockwise in the northern hemisphere and counter clockwise in the southern hemisphere in response to trade and westerly wind forcing. Due to this, the central Pacific Ocean (~20°N-20°S) 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. Imbedded in the mean flow are numerous mesoscale eddies created from wind and current interactions with the ocean's bathymetry. These eddies, which can rotate either clockwise or counter clockwise, have important biological impacts. Eddies create vertical fluxes, with regions of divergence (upwelling) where the thermocline shoals and deep nutrients are pumped into surface waters enhancing phytoplankton production, and also regions of convergence (downwelling) where the thermocline deepens. The edges of eddies, or oceanic fronts where the mixing is greatest, are often targeted by fishermen as these are areas of high biological productivity.

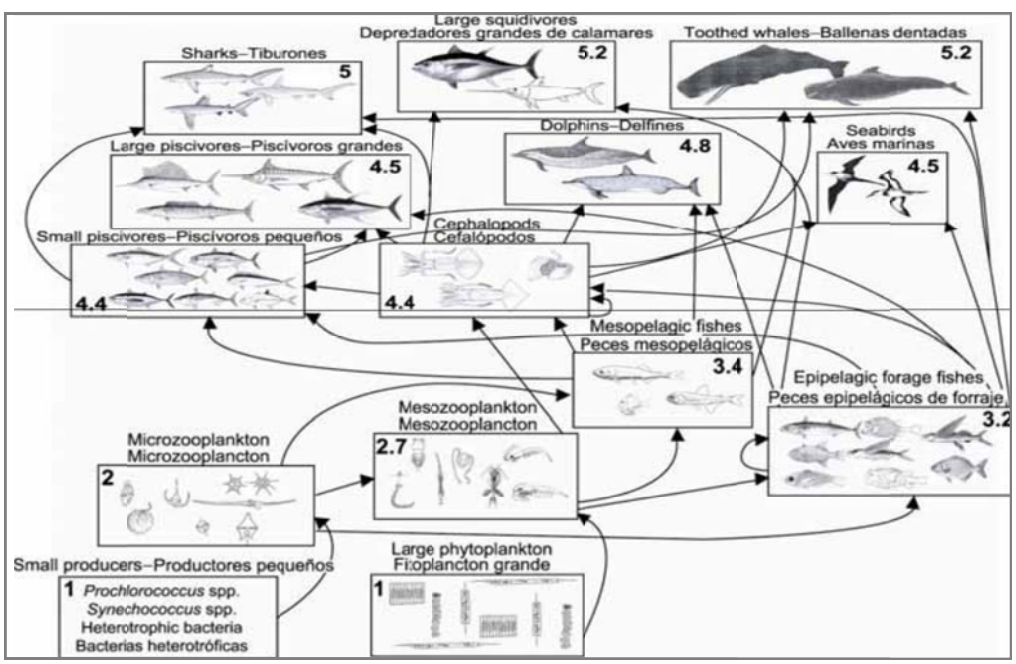

Figure 3-1. Simplified food-web diagram of the pelagic ecosystem in the tropical EPO. The numbers inside the boxes indicate the approximate trophic levels of each group. Source: IATTC. 2009. Available on IATTC website: http://www.iattc.org/PDFFiles2/IATTC-80-05-Tunas-and-billfishes-in-the-EPO-2008.pdf

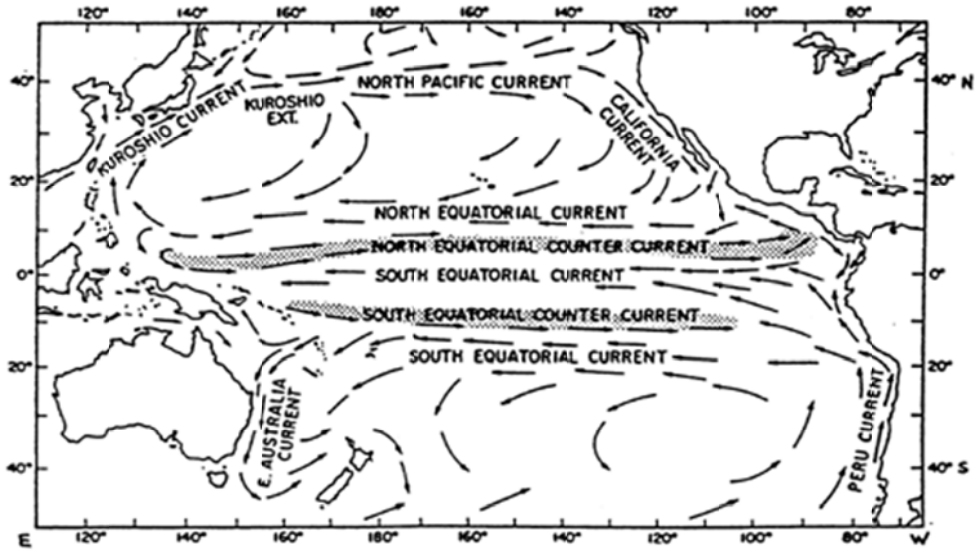

Figure 3-2. The dominant ocean current systems in the Pacific Ocean.
Source: http://www.fao.org/docrep/005/t1817e/T1817E12.gif

Oceanic fronts are characterized by steep gradients in temperature and salinity. These fronts serve as habitat and foraging areas for swordfish, tunas, seabirds and sea turtles. In the North Pacific two major frontal regions important to the tuna fisheries occur: the subarctic frontal zone (SAFZ) occurs between 40° and 43° N. latitude, and the subtropical frontal zone (STFZ) occurs between 27° N. and 33° N. latitude (see Figure 3-3). The STFZ occurs variously as a temperature front from late fall to summer and all year as a salinity front (Bigelow *et al.* 1999). This oceanographic feature creates ideal fishing conditions for the tuna fishery within the proposed action area during the winter and spring months. Tuna species are also attracted to upwelling zones along ocean current boundaries such as the transition zone west of the California Current System (CCS).

PBT are one of three species of bluefin tuna that inhabit the world's oceans. PBT have the larger individual home range, being found throughout the north Pacific and ranging into the western south Pacific (Boustany *et al*. 2010). They spawn in the region between the northern Philippines and central Japan during the months of April through August and are thought to comprise a single stock (Boustany *et al*. 2010). While most remain in the western Pacific, tagging studies of PBT have shown that there is exchange between the eastern and western Pacific Ocean (IATTC 2011a). These migrations occur during the first and second years of life (IATTC 2011a) and are hypothesized to be linked to local sardine abundances off Japan (Polovina 1996). Once in the EPO, PBT remain in North American coastal waters for up to four years before making the return migration to the western Pacific to spawn (Bayliff 1993).

Juvenile PBT in the EPO spend the majority of the time in the surface mixed layer at depths shallower than 50 meters (Boustany *et al.* 2010). Temperature preferences are from 14 – 20º C, although there seems to be some tolerance to extended time in cooler waters of 12 – 14º C (Boustany *et al,* 2010). Tagging studies have shown that PBT will occasionally dive through surface mixed layer, or thermocline. It is presumed that this is done to forage (Kitagawa *et al.* 2007). Seasonal movements of PBT show that fish were located farthest south, off the coast of southern Baja California, in the spring months. PBT will move north into the SCB in the summer months, and will extend their range farthest north along the North American coast in the fall, with the highest density in the area near Point Conception, California (Boustany *et al.* 2010). In the winter they tend to follow one of two patterns: movement offshore or movement south to the water off the coast of Baja California (Boustany *et al.* 2010). Annual differences

in the specifics of the seasonal migration have been correlated with shifts in sardine catch distribution along the California coast (Kitagawa *et al.* 2007). Tagging studies have also shown that PBT that are over four years old were found to travel significantly farther north than fish in younger age classes.

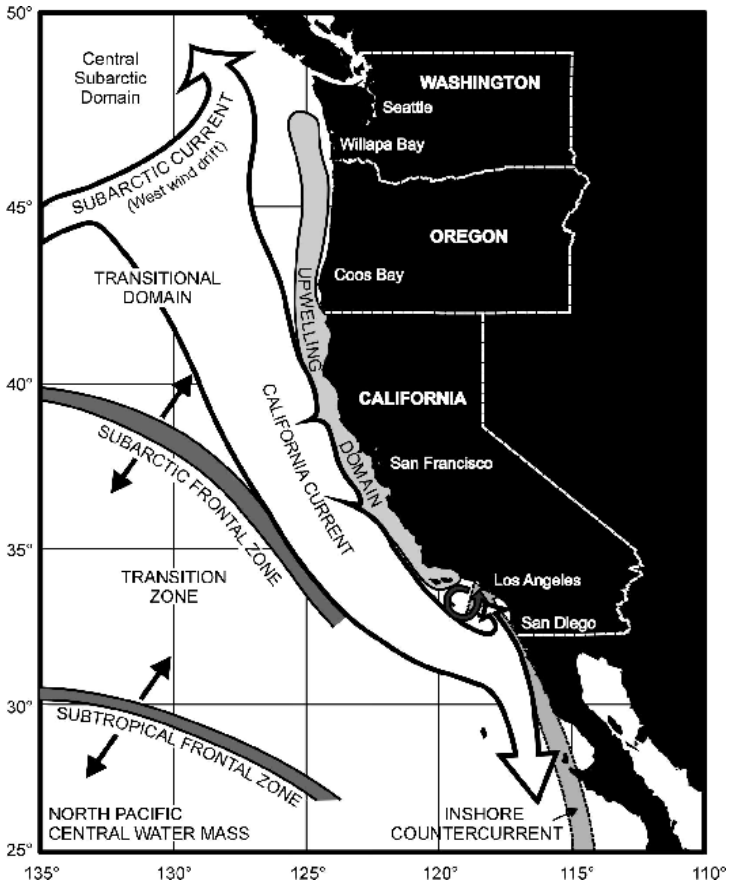

Figure 3-3. Major current and water mass systems that influence essential fish habitat of highly migratory management unit species in the U.S. west coast EEZ.

3.2.3 Climate Variability

The following is a summary of Section 3.2.3 of the draft EA prepared by NMFS to characterize the west coast deep-set longline fishery (NMFS 2008).

Two meso-scale climate phenomena likely affect frontal activity and the distribution of tuna, other target and non-target finfish, and protected species that may be caught in the proposed action area. The first is El Niño-Southern Oscillation (ENSO), which is characterized by a relaxation of the Indonesian Low and subsequent weakening or reversal of westerly trade winds, causing warm surface waters in the western Pacific to shift eastward. Although the effects can be global, an El Niño event brings warm waters and a weakening of coastal upwelling off the west coast. Tropical species, such as tuna and billfish, are found farther north during El Niño years (Field and Ralston 2005). La Niña, a related condition, results in inverse conditions, including cooler water in the eastern tropical Pacific and CCS.

The second is termed the Pacific Decadal Oscillation (PDO). The PDO has important ecological effects in the CCS. Regime shifts indicated by the PDO have a periodicity operating at both 15-25 and 50–70 year intervals (Schwing 2005). The PDO indicates shifts between warm and cool phases. The warm phase

is characterized by warmer temperatures in the Northeast Pacific (including the west coast), and cooler-than-average sea surface temperatures and lower-than-average sea level air pressure in the Central North Pacific; opposite conditions prevail during cool phases.

3.2.3.1 Climate Change

Recent reports by the Intergovernmental Panel on Climate Change (IPCC) have made it clear that the earth's climate is changing, and with it the environmental conditions in the ocean are also changing (IPCC 2007a). Climate change can affect the marine environment by impacting the established hydrologic cycle (a change in precipitation and evaporation rates) (Roessig *et al*. 2004). Climate change has been associated with other effects to the marine environment, including rising water temperatures, as well as related changes in ice cover, salinity, oxygen levels, and circulation (IPCC 2007b). These effects are leading to shifts in the range of species, changes in algal, plankton, and fish abundance (IPCC 2007b), and causing damage to coral reefs (Scavia *et al*. 2002). Climate change is also increasing the incidence of disease in aquatic organisms (Roessig *et al*. 2004). Studies on plankton ecosystems demonstrate that climate change is affecting phytoplankton, copepod herbivores, and zooplankton carnivores, which effect ecosystem services, such as oxygen production, carbon sequestration, and biogeochemical cycling (Richardson *et al*. 2004). These studies concluded that fish, seabirds, and marine mammals will need to adapt to a changing spatial distribution of primary and secondary production within pelagic marine ecosystems (Richardson *et al*. 2004).

The California Current is known have large natural fluctuations in its oceanography and coastal pelagic species abundance. This could have a direct impact on the abundance and location of PBT in the EPO. Baumgartner *et al.* (1992) and Field *et al.* (2009) looked at deposits of coastal pelagic fish scales and were able to identify historic periods or regimes of anchovy and sardine abundance, probably linked to large scale climate phenomena. For example, during the 1930's-1950's when the California Current was undergoing a "warm" period as reflected in the PDO (Mantua *et al.* 1997) sardines were highly abundant, only to crash as the California Current and the North Pacific entered a cool period. 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).

3.3 Commercial Fisheries

In recent years, the vast majority of the U.S. commercial landings of PBT were caught by the U.S. coastal purse seine fishery and California DGN fishery. This section gives a baseline description of these commercial fisheries since they could be impacted by the proposed action. Additionally, the PBT baseline conditions in the proposed action area are discussed. The U.S. PBT landings history suggests that the proposed action will not affect U.S. fishing activities because the U.S. fleet has not landed 500 mt of PBT in over a decade (refer to Figure 3-4). Thus, it is unlikely that the proposed action will have an impact on other species of commercial interest. For this reason, species other than PBT are not discussed in great detail.

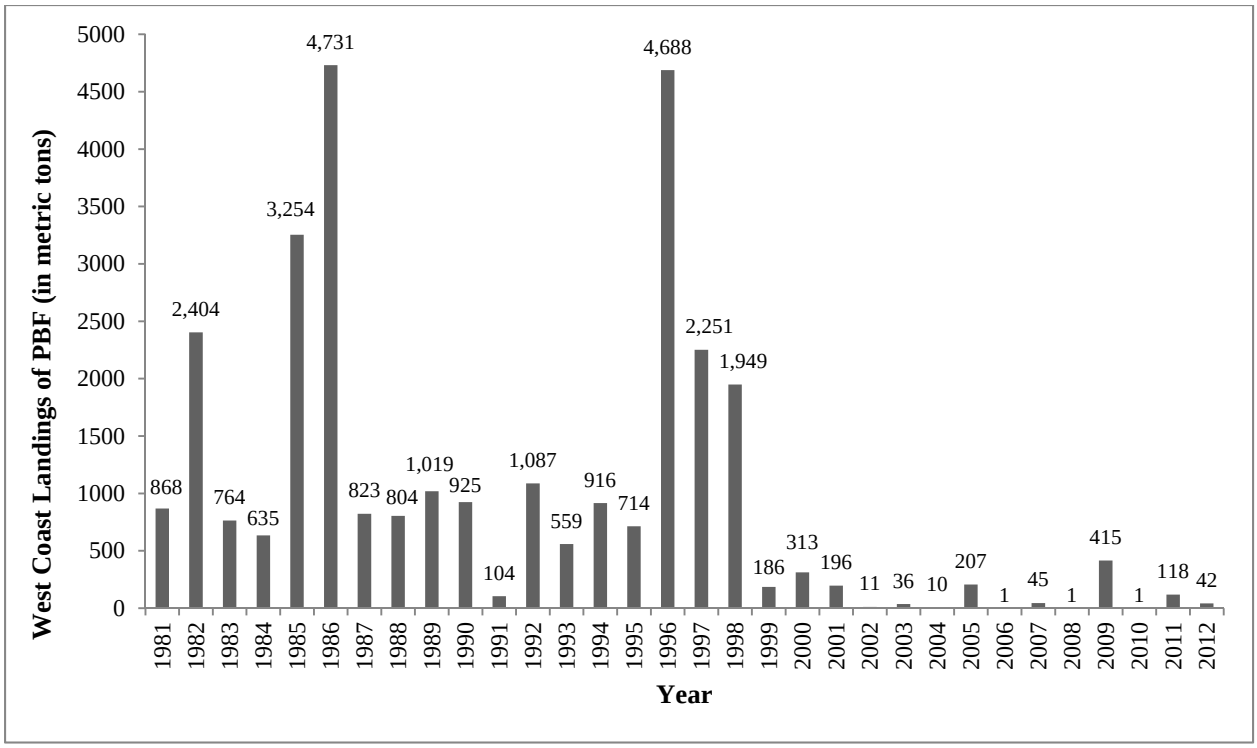

Figure 3-4. West Coast Commercial Landings of Pacific Bluefin Tuna (in Metric Tons), 1981–2010
Source: PFMC 2012. *Preliminary PacFIN estimate of 2012 PBT landings by U.S., extracted February 22, 2013.

3.3.1 Baseline Description of U.S. Commercial Fisheries in the Proposed Action Area

The U.S. commercial catch of PBT represents a relatively minor component of the overall EPO tuna catch. A majority of the U.S. PBT catch is in the U.S. EEZ portion of the EPO. PBT is opportunistically caught commercially by small coastal purse seine vessels operating in the SCB. Annually, there are limited additional landings by the drift gillnet fleet (DGN) that target swordfish and thresher shark (PFMC 2011b).

In the EPO, PBT have been caught during every month of the year, but most of the fish are taken during May through October (Bayliff 2000). A majority of the commercial catches of PBT in the EPO are taken by purse seiners. Nearly all of the purse seine catches have been made west of Baja California and California, within about 100 nautical miles of the coast, between about 23°N and 35°N. Ninety percent of the catch is estimated to have been between about 60 and 100 cm in length, representing mostly fish one to three years of age. Aquaculture facilities for PBT were established in Mexico in 1999, and some Mexican purse seiners began to direct their effort toward PBT during that year (IATTC 2011b). During recent years, most of the catches have been transported to holding pens, where the fish are held for fattening and later sale to sashimi markets. PBT are also caught by recreational vessels; however, since recreational or sportfishing activities are exempt from Resolution C-12-09, those fisheries will not be discussed as part of this EA.

3.3.1.1 U.S. Coastal Purse Seine Fishery

The coastal purse seine fleet off the coast of California uses encircling nets that are closed by means of a purse line threaded through rings on the bottom of the net. This gear is effective in catching schooled

fish. Coastal purse seiners are smaller vessels that fish close to the shore (PFMC 2010). The commercial fishing vessels in the U.S. coastal purse seine fleet operating in the EPO target small pelagic species, especially Pacific mackerel, Pacific sardine, anchovy, and market squid. However, they will target the tropical yellowfin and skipjack tunas when intrusions of warm water from the south bring these species within range of the coastal purse seine fleet. Similarly, these vessels will target the higher-valued temperate water PBT when they enter the coastal waters of the SCB (PFMC 2010). The commercial catch of PBT in California represents a minor component of the overall EPO tuna catch. Refer to Figure 3-5 for purse seine commercial catch of PBT in the EPO.

Currently, there are six U.S. purse seine vessels listed on the IATTC Vessel Register. Between 2010 and 2012, U.S. purse seine landings of PBT have been less than 100 mt per year. In 2009, six coastal purse seine vessels made HMS landings in California. They landed 410.2 mt of PBT. Their landings occurred May through October (PFMC 2011c). Most estimates of ex-vessel revenues in the U.S. purse seine fishery in the EPO since 2005 are confidential and may not be publicly disclosed because of the small number of vessels in the fishery.

3.3.1.2 California Drift Gillnet Fishery

An ESA-required Section 7 Consultation resulted in a Biological Opinion (signed in 2000 and effective in 2000) concluding that the DGN fishery would likely jeopardize the continued existence of leatherback and loggerhead sea turtles, and that protective measures were needed to protect these animals. As a result, NMFS implemented two Pacific sea turtle conservation areas on the West Coast with seasonal DGN restrictions to protect endangered leatherback and loggerhead turtles in 2001. These regulations eliminated DGN fishery effort from August 15 through November 15 north of Point Conception in an area described in the proposed action of this EA to reduce the likelihood of interactions with leatherback turtles (66 FR 44549, August 24, 2001).

The DGN fishery initially developed in southern California in 1977. Currently, the DGN fishery is one of six West Coast HMS fisheries managed by the PFMC through the HMS fishery management plan (FMP), with many of the existing State regulations and laws pertaining to the fishery adopted into the FMP (PFMC 2011b). In 2010, there were 27 active vessels and 73 permits issued for the DGN fishery. In 2010, DGN vessels landed 59 mt of swordfish and 68 mt of common thresher shark. As stated in Section 2.0, annually, there are limited landings by the DGN of PBT. Refer to Figure 3-5 for the DGN catch of PBT from 1998 to 2010.

DGN fishing activity is dependent on seasonal oceanographic conditions that create temperature fronts, which concentrate feed for swordfish. Because of the seasonal migratory pattern of swordfish and seasonal fishing restrictions, over 90 percent of the fishing effort occurs from August 15 through January 31. Ex-vessel revenues for the west coast DGN fishery have ranged from about $239 thousand to almost $8 million from 1981 to 2009. In recent years (2005-2009), annual ex-vessel revenues have averaged about $2 million (NMFS 2011).

3.3.2 Baseline Description of Pacific Bluefin Tuna Fishery in the Proposed Action Area

As stated in previous sections, the average annual PBT landings by U.S. vessels fishing in the EPO from 2007 through 2011 represent only two percent of the average annual landings from all fleets fishing in the EPO (ISC 2012c). Most of the U.S. commercial catches of PBT in the EPO are taken by purse seiners. Nearly all of the purse seine catches occur west of Baja California and California, within about 100 nautical miles of the coast. PBT are also caught with recreational gear and small amounts (typically less than 1mt per year) are caught with gillnet and longline gear. The PBT recreational fishery in California does not have size or slot restrictions, but it does have a daily possession limit of 10 fish per person. PBT

have been caught during every month of the year, but most of the fish are taken during May through October (IATTC 2011a).

There have been fluctuations in the PBT fishery in the EPO that have impacted U.S. commercial fishing efforts. These have been related to management events, including two major historical events that occurred in the PBT fishery. First, beginning in the early 1980s, increasingly effective measures by the Mexican government to enforce its EEZ resulted in a gradual exodus of U.S. boats from the fishery. Second, beginning in 1996, PBT farming trials had been initiated in northern Baja California, and since 2002, many Mexican vessels began to direct their efforts toward PBT off Baja California during the summer and early fall, to provide for farming needs. The fish are transported to holding pens, where they are fattened for several months before being sold for the production of sashimi (ISC 2012b).

3.3.3 Pacific Bluefin Tuna Stock Status

As mentioned in the introduction to Section 3.3, it is highly unlikely that the action will affect U.S. commercial fishing activities and other species of commercial interest in the proposed action area. Thus, this section focuses on PBT. More detailed information is provided for other species of commercial interest to the U.S. fleets that catch PBT in the coastal pelagic species (CPS) and HMS FMPs (PFMC 2011a; PFMC 2011b respectively) which also include regulatory mechanisms to ensure the sustainability of these other species.

PBT is considered a single stock in the Pacific Ocean since the only recognized spawning grounds occur in the western and central Pacific Ocean. However, tagging studies have shown that there is exchange of PBT between the eastern and western Pacific Ocean. Resolution C-12-09 was based on the ISC Pacific Bluefin Tuna Working Group's full assessment for PBT in 2008 and material reanalyzed in 2009 and updated in 2010.

Key results and conservation advice based on the 2008 ISC PBT Stock Assessment and 2010 updates:

(1) Important that the level of catch of PBT is decreased below the 2002 to 2004 levels, particularly on juvenile age classes.
(2) The estimate of spawning biomass in 2008 (at the end of the 2007 fishing year) declined from 2006 and is estimated to be in the range of the 40 to 60 percentile of the historically observed spawning biomasses.
(3) Fishing mortality levels in 2004-2006 increased from levels in 2002-2004 by approximately six percent for age zero, 30 percent for ages one through four, and six percent for ages five and older.
(4) Long-term average yield is expected to be lower than recent levels.
(5) Results of sensitivity analyses in 2010 indicate that the assumption of adult mortality is particularly influential to the estimate of absolute spawning biomass and fishing mortality. Although absolute estimates from the stock assessment model were sensitive to different assumptions of mortality, relative measures were less sensitive (ISC 2008; ISC 2010).

Since the IATTC meeting in June 2012 where resolution C-12-09 was adopted, the ISC conducted and published the results of a more recent stock assessment for PBT. While stock dynamics were assessed by constructing 20 different models and structural assumptions and no single model scenario was a good fit for all data sources, there was general agreement on key results across all model scenarios.

Key results and conservation advice based on the 2012 ISC PBT Stock Assessment:

(1) Current PBT biomass level is near historically low levels, overfishing is occurring, and the stock is overfished.

(2) Exploitation rates are above all biological reference points that fishery managers commonly use.
(3) Long-term fluctuations in spawning stock biomass (SSB) occurred throughout the assessment period (1952-2011); however, over a decade of declining SSB is evident in recent years.
(4) Age-specific fishing mortality increased eight to 41 percent between 2007 and 2009 relative to 2002 through 2006 levels.
(5) There is no evidence of reduced recruitment.
(6) When strong recruitment occurs, implementation of catch limits is effective in increasing future SSB (ISC 2012a).

3.4 Protected Species

Because the proposed action is unlikely to affect U.S. fishing activities in the proposed action area, it is also unlikely to affect the baseline conditions of any protected species, including marine mammals, sea turtles, and seabirds. Therefore, protected species are not discussed in detail in this section. Because the U.S. fleet has not landed 500 mt of PBT in over 10 years and annual landings have averaged less than 110 mt for the past 14 years, it is highly unlikely that this action would result in U.S. fishery closures in the EPO. If U.S. fishery closures resulted from this action, any impacts to protected species would be beneficial but not significant. More information on protected species can be found in Section 5.1.4 of this EA and in the HMS FMP (PFMC 2011b). Therefore, the proposed action will not impact the baseline conditions of any protected species, including mammals, sea turtles, and seabirds.

3.5 Socioeconomic Environment

3.5.1 U.S. Commercial Fisheries for Tuna in the EPO

Coastal Purse Seine Fishery

The target species of U.S. coastal purse seine fishing are small pelagic species, especially Pacific mackerel, Pacific sardine, anchovy, and market squid (Landings of these species can be found in reference PFMC 2010). However, these vessels will target the higher-valued temperate water PBT when they enter the coastal waters of the SCB (PFMC 2010). The U.S. coastal purse seine fleet landings of PBT (in mt) from 1998 (the last time there was a PBT catch of over 500 mt) through 2011 can be found in Figure 3-5.

Purse seiners landed 410.2 mt of PBT worth $426,989 and 4.2 mt of skipjack tuna worth $3,655 in 2009 (PFMC 2011c). They also landed albacore tuna and yellowfin tuna. Due to the small number of vessels participating in the fishery since, ex-vessel revenues for the purse seine fishery are confidential and may not be publicly disclosed. Purse seine vessels class size 5 (373-363 mt well volume carrying capacity) would be considered small business entities (revenues equal to or less than $4 million per year). It is estimated that from 2004-2008, the majority, if not all, class size 5 U.S. purse seine vessels have had revenues of less than $0.5 million per year. Class size 6 (>363 mt well volume carrying capacity) vessels are categorized as large business entities (revenues in excess of $4 million per year). It is estimated that large purse seine vessels typically generate about 4,000 to 5,000 mt of tuna valued at about $4 to $5 million per year.

California DGN Fishery

The target species of the California DGN fishery is swordfish with a retained target catch of thresher shark. However, PBT are also landed in this fishery. The U.S. DGN commercial landings of PBT from 1998 through 2010 can also be found in Figure 3-5. Based on PFMC information, revenues for DGN swordfish landings in 2010 totaled $392,879 (59.1 mt) (PFMC 2011c). This is a decrease from 2009 when

revenues were $1,076,537 (250.9 mt). Revenues for DGN thresher shark landings in 2010 totaled $100,756 (67.9 mt); a decrease from 2009 when revenues were $141,599 (80.6 mt). The number of active vessels in the commercial DGN fleet continues to decline. In 2010, there were 27 active vessels; this is down from 78 in 2000 and 228 in 1985.

Total west coast commercial landing of PBT can be found in Figure 3-4.

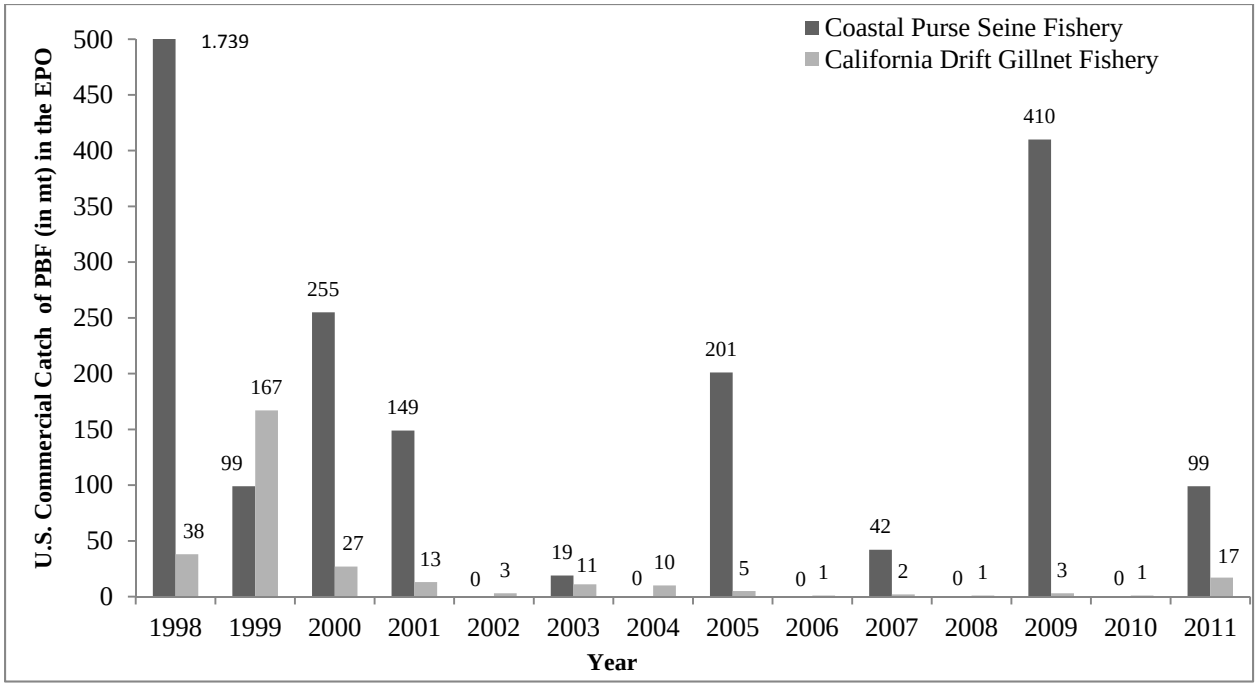

Figure 3-5. U.S. Coastal Purse Seine and DGN Commercial Catch of PBT in the EPO (in mt).
Source: PFMC 2012.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Estimating Change in Fishing Effort under the Alternatives

The impact analysis in this EA is based on estimates of the change in catch and fishing effort that would occur under each of the alternatives. The baseline is the current level of catch and fishing effort in the coastal purse seine and DGN commercial fisheries in the EPO. Table 4-1 (below) summarizes the alternatives, and the impacts and adherence to Resolution C-12-09.

4.2 Direct and Indirect Impacts of Alternative 1 (Preferred Alternative)

Adoption of alternative 1, the catch limit regime described in Section 2.0, is unlikely to have any significant impact to U.S. commercial fisheries in the EPO, but could benefit the sustainability of PBT. Even though the recent history of PBT catch in the EPO (Figure 3-4) indicates that the United States has not exceeded 500 mt since 1998, there is potential for the fishery to increase effort such that catches legally could exceed 500 mt if a catch limit were not established. A comparison of the data found in Figure 3-4 and Figure 3-5 demonstrate that the coastal purse seine and DGN fleet are the only commercial fisheries likely to make any meaningful amount of catch. It is for this reason; impacts to other

U.S. fisheries in the EPO by Alternative 1 are even less likely. For example, PBT commercial landings by the West Coast albacore surface hook-and-line fishery were almost nonexistent during the period from 2008-2010; the fleet averaged 0.28 mt of PBT landings per year (PFMC 2011c). Additionally, there were no catches of PBT in the EPO by the Hawaii-based longline vessels from 2006 to 2011.

In the instance that a closure of the U.S. PBT fishery is announced due to the catch limit being reached, Alternative 1 will not prohibit commercial fishing from continuing in the EPO. Because the DGN commercial fishery as described in this EA targets swordfish, any closure of the U.S. PBT fishery will have little to no economic impact. Closing the California DGN commercial fishery based on the chance of incidental take of PBT is not practical and will not offer any significant added protection to the PBT. Based on the low incidence of annual DGN PBT catch (Figure 3-5), incidental catch of PBT is likely to be minimal.

The coastal purse seine fishery primarily targets CPS species, as described in Sections 3.5.1 and 3.3.1.1. Even if the PBT catch limit is reached, the coastal purse seine fleet would still have the ability to catch PBT up to 500 mt. If ocean conditions are such that PBT become available to the U.S. fleet in 2013, it may be possible for the commercial coastal purse seine fleet to catch more than 500 mt of PBT. This is permissible under Alternative 1 if the overall limit for 2012 or 2013 is reached at a time after the U.S. commercial fleet has already surpassed 500 mt in catch. Regardless of a closure for PBT, Alternative 1 would not prohibit the coastal purse seine fleet from fishing for CPS and other tuna species. Thus, potential economic impacts would be minimal to non-existent.

As commercial fishing practices are unlikely to be significantly altered due to Alternative 1, impacts to essential fish habitat (EFH), ESA listed species, marine mammals, seabirds, and sea turtles are likely to remain unchanged compared to baseline levels. The PBT fishery is prosecuted in pelagic habitats, which, because of their physical characteristics, are not significantly affected by these fishing gears. Purse seine and DGN gear are generally not associated with adverse impacts to ocean and coastal habitats. In addition, a PBT targeted fishery is not expected to affect prey species or forage fish biomass. An EFH consultation was not required for the PBT conservation and management measures as they will not have an adverse impact on EFH. Therefore, no significant impacts to these resources are expected.

4.3 Direct and Indirect Impacts of Alternative 2

Alternative 2 differs from Alternative 1 by prohibiting any further U.S. commercial fishing in the EPO in the event that the U.S. catch limit of 500 mt of PBT is reached. Alternative 1 prohibits the retention once the limit is reached. This difference creates a change in the impact analysis results. Closing all U.S. commercial fisheries in the EPO may have negative socioeconomic impacts compared to baseline conditions with little to no added benefit to the PBT. For example, in reference to Section 3.3.1.2, ex-vessel revenues for the west coast DGN fishery have ranged from about $239 thousand (in dollars) to almost $8 million from 1981 to 2009. In recent years (2005-2009), annual ex-vessel revenues have averaged about $2 million (in dollars) (NMFS 2011). Additional commercial fisheries that would have to shut down include the coastal purse seine fleet and the U.S. EPO purse seine and longline fishery. However, these fisheries catch negligible amounts of PBT. The closure of any of these fisheries as a part of Alternative 2 would have a significant socioeconomic impact, but a shutdown of the fisheries is not expected to occur because annual U.S. landings of PBT has not reached 500 mt in over a decade. The average for annual U.S. landings of PBT over the past 14 years is than 110 mt.

Since all commercial fisheries in the EPO would be closed, impacts to PBT, ESA listed species, marine mammals, seabirds, and sea turtles would be decreased compared to baseline levels. However, this is not the goal of IATTC Resolution C-12-09.

Considering that the socioeconomic impacts make Alternative 2 impractical and likely not implementable, especially in light of little to no added benefit to the PBT, this alternative should not be considered.

4.4 Direct and Indirect Impacts of Alternative 3

Alternative 3 is similar to Alternative 1 except that it is specific to the coastal purse seine and DGN commercial fishery. Based on this specificity, there would be no impact to other U.S. commercial fisheries in the EPO. Coastal purse seine and DGN commercial fishery impacts would be the same as Alternative 1.

As commercial fishing practices are unlikely to be significantly changed under Alternative 1, impacts to PBT, EFH, ESA listed species, marine mammals, seabirds, and sea turtles are expected to remain unchanged compared to baseline levels and would not result in significant adverse impacts. As with Alternative 1, Alternative 3 could benefit the sustainability of PBT by limiting catches, whereas the coastal purse seine and DGN fleets could otherwise legally increase their combined effort and levels of catch under status quo conditions.

Because there are occasional incidental catches of PBT by U.S. commercial fisheries other than the coastal purse seine and DGN fleets, Alternative 3 may not comply with the intent of IATTC Resolution C-12-09. For example, it is possible that pelagic longline and various West Coast surface hook-and-line commercial fisheries may occasionally catch PBT (PFMC 2011c). Thus, considering that the anticipated impacts for Alternatives 1 and 3 are similar and that Alternative 1 complies with IATTC Resolution C-12-09 better than Alternative 3, Alternative 3 should not be considered.

4.5 Direct and Indirect Impacts of Alternative 4

Similar to Alternative 3, there would be no impact to U.S. commercial fisheries other than the coastal purse seine and DGN fisheries. Similar in concept to Alternative 2, Alternative 4 would prohibit any further coastal purse seine or DGN commercial fishing in the event that the U.S. commercial catch limit of PBT had been reached. Whereas Alternative 3 prohibits the retention once the limit is reached, alternative 4 prohibits fishing. This difference will create significant change in the impact results. Closing the coastal purse seine and DGN fisheries in the EPO will have significant socioeconomic impacts as compared to baseline conditions.

As stated in Section 3.3.1.1, the commercial fishing vessels in the U.S. coastal purse seine fleet operating in the EPO target small pelagic species, especially Pacific mackerel, Pacific sardine, anchovy, and market squid. In reference to Section 3.3.1.2, ex-vessel revenues for the west coast DGN fishery have ranged from about $239 thousand (in dollars) to almost $8 million from 1981 to 2009. In recent years (2005-2009), annual ex-vessel revenues have averaged about $2 million (in dollars) (NMFS 2011). Shutting down these fisheries could result in negative socioeconomic impacts, with little to no added benefit to PBT.

Since the DGN and coastal purse seine fleets in the EPO would be closed, impacts to PBT, ESA listed species, marine mammals, seabirds, and sea turtles could be beneficial. However, advancing conservation of protected species is not a goal of IATTC Resolution C-12-09. Again, it is unlikely that the U.S. PBT catch level would be reached.

Considering that the socioeconomic impacts make Alternative 4 impractical and likely not implementable, especially in light of little to no added benefit to the PBT, this alternative should not be considered, compared to the preferred alternative.

4.6 Direct and Indirect Impacts of Alternative 5: No Action

Under this alternative, baseline conditions for commercial catch of PBT would remain unchanged. As there are currently no catch limits on PBT in the EPO for the U.S. commercial fishery, the no action alternative would have no revisions to the current U.S. commercial fishing regulations. While the U.S. fishery has not landed 500 metric tons (mt) of PBT in over a decade, there is potential for the fishery to increase effort such that catches legally could exceed 500 mt if a catch limit were not established. Thus, there would be no change in the impacts compared to baseline levels. The United States, however, would not satisfy our obligations as a member of the IATTC. Thus, this alternative should not be considered, compared to the preferred alternative.

Table 4-1. Alternative Comparison Summary.

Alternative Summary (refer to Section 2.0 for more detail)	Adherence to Resolution C-12-09	Environmental Impact Summary
Alternative 1 (Preferred). Implement a catch limit regime on PBT by prohibiting all U.S. commercial fishing vessels from retaining additional PBT in the EPO after the closure is announced.	Alternative 1 would adhere to Resolution C-12-09 since it would be unlikely that any significant catch of PBT would occur after a closure.	- Unlikely to have any significant impact to United States commercial fishing. - May benefit the sustainability of the PBT resource
Alternative 2. Implement a catch limit regime on PBT by prohibiting all U.S. commercial fishing vessels from fishing in the EPO after the closure is announced.	Alternative 2 would adhere to Resolution C-12-09 since there would be no catch of PBT after a closure.	- Significant socioeconomic impact to U.S. commercial fisheries in the EPO with little to no added benefit to PBT. - May benefit the sustainability of the PBT resource
Alternative 3. Implement a catch limit regime on PBT by prohibiting all coastal purse seine and DGN commercial fishing vessels in the SCB from retaining additional PBT in the EPO after the closure is announced.	Alternative 3 may not comply with Resolution C-12-09 since there are occasional incidental catches of PBT by U.S. commercial fisheries other than the coastal purse seine and DGN fleets. Alternative 3, Alternative 3 should not be considered.	- Unlikely to have any significant impact to United States commercial fishing. - May benefit the sustainability of the PBT resource
Alternative 4. Implement a catch limit regime on PBT by prohibiting all coastal purse seine and DGN commercial fishing vessels in the SCB from fishing in the EPO after the closure is announced.	Alternative 4 would adhere to Resolution C-12-09 since it would be unlikely that any a significant catch of PBT would occur outside of the coastal purse seine and DGN fisheries.	- Significant socioeconomic impacts to the U.S. coastal purse seine and DGN fisheries in the EPO with little to no added benefit to PBT. - May benefit the sustainability of the PBT resource
Alternative 5 (No Action). No restrictions beyond baseline conditions.	Would not adhere to Resolution C-12-09.	- No significant impacts. - May threaten PBT sustainability

4.7 Cumulative Impacts

Cumulative impacts are the impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions; cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

The proposed action is not likely to result in significant cumulative impacts to U. S. commercial fisheries when added to other past, present, and reasonably foreseeable future actions. In 2011, vessel capacity regulations were revised to lessen the regulatory restraints on the U.S. industry, but required all participating U.S. vessels to register their participation. In recent years, there has not been an increase in the number of U.S. vessels participating in the fishery. The catch limits for PBT proposed in this action lessen incentives to participate in a PBT fishery. It is likely that IATTC Resolution C-12-09 will be revisited at the 2013 annual meeting. If similar PBT conservation and management measures are extended beyond 2013, the cumulative impact on U.S. commercial fisheries would not be significant. Additionally, since the proposed action will not significantly alter U.S. commercial fishing activities, there would be no cumulative impacts to protected species compared to baseline levels.

The primary past, present, and foreseeable actions that may impact the DGN or coastal purse seine commercial fleet are those associated with the directed commercial harvest of these fleets. For the coastal purse seine fleet, this includes actions that may impact the harvest of Pacific mackerel, Pacific sardine, anchovy, market squid, and yellowfin and skipjack tunas. For the DGN fleet, this includes swordfish and thresher shark. The proposed action is not expected to alter the harvest strategy of either of these fleets, or any other U.S. commercial fleet. Even in the event that ocean conditions are such that PBT becomes available and the quota is reached in 2013, the commercial fleets will still have the ability to make opportunistic PBT landings equal to or greater than that of the past 10 years as well as retain their ability to fish for the aforementioned target species (see Figure 3-4 for U.S landings of PBT).

The proposed action could result in overall positive cumulative impacts for the PBT resource. Even though it is unlikely that U.S. fisheries would be impacted by this action compared to baseline conditions, there is potential for the U.S. vessels catching PBT to increase effort such that catches legally could exceed 500 mt if a catch limit were not established. Removing this possibility of increased fishing effort could contribute to the sustainability of the PBT stock. Compliance with Resolution C-12-09 among all IATTC member nations is expected to result in beneficial impacts to the PBT stock. Further, this compliance is essential to encouraging the Western Central Pacific Fishery Commission to take complementary and effective measures to reduce the mortality of PBT throughout its range. Such an outcome would result in beneficial impacts to the PBT stock that would benefit U.S. vessels catching PBT by way of ending overfishing on the stock.

Cumulative Impacts and Alternative Analysis

As explained in Section 4.2, it is unlikely that Alternative 1 (preferred alternative) would have any significant impact to U.S. commercial fishing. As indicated in Figure 3-4, the United States has not exceeded 500 mt since 1998. Even in the instance the PBT quota is reached in 2013, since PBT is not the target species of any U.S. commercial fishery in the EPO, this proposed action in combination with past, present, and reasonably foreseeable future actions would not significantly impact the fishing activities of the DGN or coastal purse seine fleet. Additionally, as there would be no changes compared to baseline commercial fishing levels, there is no foreseeable cumulative impacts as a part of Alternative 1, whether to commercial fishing or protected species.

Alternatives 2 and 4 have the potential to close U.S. commercial fishing if the PBT quota is reached in 2013. If this occurs there would be significant socioeconomic cumulative impacts. Though, alternatives 2 and 4 would have the potential to benefit protected species since U.S. commercial fisheries in the EPO would be shut down if the quota had been reached.

Similar to Alternative 1, Alternative 3 is not likely to have any significant impact to U.S. commercial fishing. Alternative 3 would not alter baseline U.S. commercial fishing levels, thus there would be no foreseeable cumulative impacts, whether to commercial fishing or protected species.

Alternative 5, No Action, would not have any impact change compared to baseline levels, thus there would be no cumulative impact to the commercial fishing industry or protected species.

5.0 APPLICABLE MANDATES

5.1 Federal Laws

5.1.1 Coastal Zone Management Act (CZMA)

Section 307(c)(1) of the Coastal Zone Management Act as amended in 2006 requires all Federal actions that have reasonably foreseeable effects on any land or water use or natural resource of the coastal zone should be consistent with the enforceable policies of a coastal state's federally approved coastal management program to the maximum extent practicable. The preferred alternative would be implemented in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved coastal zone management programs of Washington, Oregon, and California. The recommended action is consistent and within the scope of the actions contemplated under the framework of the HMS FMP (PFMC 2011b). The proposed action is not expected to affect any state's coastal management program.

5.1.2 Endangered Species Act (ESA)

A Section 7 consultation was conducted for the tuna purse seine fishery in the EPO in 1999, and the incidental take statement was amended in 2004. The 1999 consultation concluded that the purse seine fishery would be unlikely to jeopardize the continued existence of endangered or threatened species. Additionally, a Biological Opinion of U.S. west coast fisheries for HMS was also completed in 2003. NMFS estimates that the proposed action would be within the scope of these previous Biological Opinions and the amended 2004 incidental take statement (ITS). The actual observed take and mortality rates have been substantially lower than the estimated take and mortality rates in the 1999 Biological Opinion and 2004 ITS. NMFS initiated an informal consultation with NMFS Protected Resources Division to ensure that the action is within the scope of the initial consultation. Because the commercial fishing activities pursuant to this proposed action will not affect endangered and threatened species or critical habitat in any manner that has not been considered in prior consultations, a formal consultation was not required for this action.

5.1.3 High Seas Fishing Compliance Act (HSFCA)

The HSFCA requires the Secretary to license U.S. vessels fishing on the high seas. The "high seas" are defined as the waters beyond the territorial sea, EEZ, or the equivalent of any nation, to the extent that these areas are recognized by the United States. Each of the vessels that would be affected by the proposed action is in compliance with this act and has an HSFCA permit.

5.1.4 Marine Mammal Protection Act (MMPA)

Under the MMPA, NMFS is responsible for the management and conservation of 153 stocks of whales, dolphins, porpoises, seals, sea lions, and fur seals. As amended in 1972, the MMPA is the principle Federal legislation that guides marine mammal species protection and conservation policy in the United

States. Vessels that would be affected by the proposed action are in compliance with this act. While there is no directed effort towards PBT by the DGN fleet, regulatory measures are in place, including the use of pingers and net extenders, to reduce marine mammal interactions with DGN gear. In the U.S. purse seine fishery, interactions with marine mammals are uncommon throughout the Pacific Ocean. The tuna purse seine fisheries operating in the EPO are currently listed as a Category III fishery under Section 118 of the MMPA, i.e., remote likelihood of/no known incidental mortality or serious injury of marine mammals (76 FR 73912, November 29, 2011).

5.1.5 Migratory Bird Treaty Act (MBTA)

The MBTA of 1918 was designed to end the commercial trade of migratory birds and their feathers that, by the early years of the 20th century, had diminished the populations of many native bird species. The MBTA states that it is unlawful to take, kill, or possess migratory birds and their parts (including eggs, nests, and feathers) and implements a multilateral treaty between the United States, Canada, Japan, Mexico, and Russia to protect common migratory bird resources. The MBTA prohibits the directed take of seabirds, but the incidental take of seabirds does occur. The MBTA applies within three nautical miles of the U.S. coastline. All of the fishing that would be affected by the proposed action occurs in Federal waters (seaward of three nautical miles), or on the high seas, so the fishery would not be subject to the MBTA. In addition, no impacts to seabirds are anticipated.

5.2 Executive Orders (EO)

5.2.1 EO 12866 Regulatory Impact Review (RIR)

EO 12866, Regulatory Planning and Review, was signed on September 30, 1993. EO 12866 requires that the economic impacts of proposed government regulations on the national economy be assessed before implementation. In most instances, the measurement of changes to gross domestic product is an accurate measure of impact. Section 1 of EO 12866 states, “In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory measures, including the alternative of not regulating.” The emphasis of the analysis is on expected changes in net benefits that occur as a result of the proposed management measures. The government should choose only those sets of regulations that produce positive benefits while considering social and distributional effects. NMFS requires that this analysis be done through a RIR for all regulatory actions that are of public interest. The RIR also includes analysis of distributive impacts and the costs of government administration and private compliance with the proposed measures. See the proposed rule for this action for further analysis of the expected economic effects on businesses, particularly small business entities. The proposed rule has been determined to be not significant for purposes of Executive Order 12866. The complete RIR can be found in Appendix 1. Also, portions of the RIR are contained within the sections of this document. For example:

- Purpose and Need: Section 1.4.
- Description of Alternatives: Section 2.0.
- Description of the commercial fisheries: Section 3.3.

5.2.2 EO 12898 Environmental Justice

EO 12898 obligates Federal agencies to identify and address “disproportionately high adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations in the United States” as part of any overall environmental impact analysis associated with an action. NOAA guidance, NOAA Administrative Order 216-6, Environmental Review Procedures for Implementing the National Environmental Policy Act, at Section 7.02, states that “consideration of EO 12898 should be specifically included in the NEPA documentation for decision-making purposes.”

Agencies should also encourage public participation, especially by affected communities during scoping, as part of a broader strategy to address environmental justice issues.

There would not be any significant adverse human health or environmental effects on any population in the United States, including minority and low-income groups. The proposed action would occur at sea and would not likely affect any population. Thus, there will not be any disproportionately high and adverse human health or environmental effects on minority and low-income populations in the United States. There will be a notice in the Federal Register announcing when NMFS will be accepting public comments; substantive public comments will be considered in the review and in the Final EA. NMFS encourages public participation in these decisions, especially by communities that could experience disproportionately high and adverse impacts.

5.2.3 EO 13132 Federalism

EO 13132 enumerates eight fundamental federalism principles. The first of these principles states "Federalism is rooted in the belief that issues that are not national in scope or significance are most appropriately addressed by the level of government closest to the people." In this spirit, the EO directs agencies to consider the implications of policies that may limit the scope of or preempt States' legal authority. Preemptive action having such federalism implications is subject to a consultation process with the States; such actions should not create unfunded mandates for the States and any final rule published must be accompanied by a federalism summary impact statement.

The proposed rule being analyzed includes no conflicts with State law and imposes no mandates on States. This action does not contain policies with federalism implications under EO 13132.

5.2.4 EO 13175 Consultation and Coordination with Indian Tribal Governments

EO 13175 is intended to ensure regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes. The Secretary recognizes the sovereign status and co-manager role of Indian tribes over shared Federal and tribal fishery resources. The proposed action in the EPO will not have tribal implications as defined in EO 13175.

5.2.5 EO 13186 Responsibilities of Federal Agencies to Protect Migratory Birds

EO 13186 supplements the MBTA. On June 14, 2012, a Memorandum of Understanding (MOU) between NMFS and the USFWS was signed to aid in the conservation of migratory birds. This MOU focuses on avoiding or minimizing to the extent practicable adverse impacts on migratory birds and strengthening migratory bird conservation through enhanced collaboration between NMFS and USFWS. Per this MOU and EO, NMFS must integrate migratory bird conservation principles, measures, and practices into NMFS activities and science and resource-management plans. NMFS must also ensure, to the extent practicable, that environmental analyses required by NEPA evaluate the effects of actions on seabirds and their habitats. The analysis included in this EA demonstrates that the preferred alternative will have no impact to seabirds when compared to baseline conditions.

5.2.6 EO 12114 Environmental Effects Abroad of Major Federal Actions

EO 12114 enables responsible officials of Federal agencies that have ultimate responsibility for authorizing and approving actions encompassed by this Order to be informed of pertinent environmental considerations and to take such considerations into account, with other pertinent considerations of

national policy, in making decisions regarding such actions. This EO governs environmental actions and decisions relating to the environment outside the United States, its territories, and possessions. The responsible official must comply with the provisions of this EO when applicable. This EA analyzes the impacts to the human environment from the proposed action and the alternatives and therefore, satisfies the requirements of EO 12114.

6.0 LIST OF PREPARERS AND PERSONS AND AGENCIES CONSULTED

Preparer Names and Affiliations	Responsibility
Michael Hendrick, IATTC Coordinator, NMFS SWR	Project management
Heidi Taylor, Supervisory Fishery Policy Analyst, NMFS SWR	Project management, Edits and revisions
Amber Rhodes, Fishery Policy Analyst, NMFS SWR	Edits and revisions
Persons and Agencies Consulted	**Roles and Responsibilities**
NMFS did not consult on the proposed action with any other persons or agencies.	Not applicable

7.0 ENVIRONMENTAL ASSESSMENT AVAILABILTY AND PUBLIC COMMENT

A draft version of this EA was posted on the NMFS Southwest Regional Office website for 30 days. NMFS requested public comments on this EA, due by January 11, 2013, when the proposed rule for this action was published in the Federal Register. NMFS received 2 public comment letters pertaining to the EA. NMFS summarized the nature of the comments on the EA and responded to them below.

Comment: The environmental assessment states that impacts to the U.S. fishery from the proposed action are unlikely. How can the catch limit serve to reduce overfishing and not impact the U.S. fishery?

Response: The proposed action would implement Resolution C-12-09, in which the IATTC CPCs resolved not to exceed cumulative and CPC-specific catch limits for the Convention Area. These measures were intended as interim means of exercising caution and encouraging complementary measures in the WCPO towards assuring sustainability of the PBT throughout the range of the resource. Relatively, the U.S. fishery contributes little to the source of mortality for this Pacific-wide resource. The average annual U.S. fishery landings for years 2007-2011 represented only 2 percent of average annual landings from all CPCs fishing in the EPO during that time. The proposed action would enable the United States to fulfill its obligations to the IATTC under the Tuna Conventions Act, establish preventive catch limits for U.S. fisheries should an abundance of PBT become available to the U.S. fleet, and thereby encourage other CPCs of the IATTC and the WCPFC to take complementary and effective measures to reduce the mortality of PBT throughout its range. [NMFS revised the draft EA to include more detail relevant to this comment in Sections 1.4 and 1.5.]

Comment: Stock status information is insufficient, e.g. Section 3.3.3 does not indicate whether the stock is overfished, overfishing is occurring, and contradictory statements are made about catch and mortality levels, e.g., “the level of catch of PBT is decreased below the 2002-2004 levels” and “[f]ishing mortality levels in 2004-2006 increased from levels 2002-2004.

Response: The ISC determined in their 2008 PBT stock assessment that overfishing was occurring. More recently, since the draft EA was made available for public comment, the ISC conducted a 2012 stock assessment and determined that the stock is also overfished (ISC, 2012a). With regard to concerns about

contradictory statements about catch and mortality levels, the ISC included both key results and conservation advice in their assessment findings. Conservation advice is provided where the statement is made that it is "[i]mportant that the level of catch of PBT is decreased below the 2002-2004 levels" and an assessment result is provided where the statement "fishing mortality levels in 2004-2006 increased from levels 2002-2004" is made. [NMFS revised the draft EA to include more detail relevant to this comment in Sections 3.3.3]

Comment: Section 3.4 should enumerate the bycatch associated with CPS purse seine vessels that opportunistically catch PBT due to potential incentives to fish until 500 mt of PBT are caught.

Response: Because the proposed action would create new restrictions on catch levels, it does not provide increased incentives to catch more PBT than have been caught under baseline conditions. [Additional details were not specified in EA; however, section 5.1.4 was updated and references to other public documents were included in Section 3.4.]

Comment: Inadequate analysis of the cumulative impacts because the potential incentives for the U.S. fleet to fish until 500 mt of PBT are caught was not examined in the context of the 2011 vessel capacity rule.

Response: Because the proposed action would create new restrictions on catch levels, it does not provide increased incentive to catch more PBT than have been caught under baseline conditions. The 2011 vessel capacity rule lessened the regulatory restraints on the U.S. industry to allow activity by U.S. vessels within the IATTC capacity limits, but required all participating U.S. vessels to register their participation. In recent years, there has not been an increase in the number of U.S. vessels participating in the fishery. The national and international catch limits for PBT proposed in this action lessen their incentive to do so.

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Appendix 1

Regulatory Impact Review (IRIR) on the Implementation of Inter-American Tropical Tuna Commission Resolution Adopted in 2012