

DAILY BAG LIMITS, POSSESSION LIMITS, AND AT-SEA PROCESSING OF PACIFIC BLUEFIN TUNA IN CALIFORNIA RECREATIONAL FISHERIES

FINAL ENVIRONMENTAL ASSESSMENT



Credit: Monterey Bay Aquarium

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**Pacific Fishery Management Council
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Acronyms

APA	Administrative Procedures Act
Council	Pacific Fishery Management Council
CCE	California Current Ecosystem
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CMM	Conservation and Management Measure
CPC	
CPFV	Commercial passenger fishing vessel
CPUE	Catch per unit of effort
CZMA	Coastal Zone Management Act
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential fish habitat
ENSO	El Niño-Southern Oscillation
EPO	Eastern Pacific Ocean
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FEP	Fishery Ecosystem Plan
FMP	Fishery management plan
HMS	Highly migratory species
IATTC	Inter-American Tropical Tuna Commission
ISC	International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean
LBR	Limit biological reference point
LOF	List of Fisheries
M/SI	Mortality/serious injury (marine mammals)
MBTA	Migratory Bird Treaty Act
MMPA	Marine Mammal Protection Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act of 1969
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPGO	North Pacific Gyre Oscillation
NPO	North Pacific Ocean
PBF	Pacific bluefin tuna
PBFWG	Pacific Bluefin Working Group (ISC)
PBR	
PDO	Pacific Decadal Oscillation
RecFIN	Recreational Fishing Information Network
RFMO	Regional fishery management organization
RIR	
RPA	
RPM	
SAC	Sportsfishing Association of California
SAFE	Stock assessment / fishery evaluation (report)
SAR	Stock Assessment Report (marine mammals)
SSB	Spawning stock biomass
USFWS	U.S. Fish and Wildlife Service

WCPFC Western and Central Pacific Fisheries Commission
WPO Western Pacific Ocean

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CHAPTER 1 INTRODUCTION

1.1 How this Document is Organized

This document provides information about, and analyses of, setting recreational bag limits for Pacific bluefin tuna-related management measures for 2015 and subsequent years for fisheries covered by the Fishery Management Plan (FMP) for West Coast Fisheries for Highly Migratory Species (HMS), which are developed by the Pacific Fishery Management Council (Council) in collaboration with the National Marine Fisheries Service (NMFS). These actions must conform to the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the principal legal basis for fishery management within the Exclusive Economic Zone (EEZ), which extends from the outer boundary of the territorial sea to a distance of 200 nautical miles from shore. The states manage their fisheries in the territorial sea, in a manner consistent with, or more restrictive than, the HMS FMP and Federal implementing regulations.

In addition to addressing MSA mandates, this document is an environmental assessment (EA), pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended. This document is organized so that it contains the analyses required under NEPA. The proposed action must also comply with other applicable laws, which are enumerated in Chapter 6. While this EA provides supporting information, the procedural and analytical requirements for legal mandates other than NEPA (including findings made by NMFS) may be addressed in other documents (see Chapter 6).

The EA is organized in the following chapters and appendices:

- Chapter 1 explains why the action is being considered. The purpose and need statement defines the scope of the subsequent analysis.
- Chapter 2 outlines the No Action and action alternatives that have been considered to address the defined purpose and need. The Council recommends a preferred alternative from among these alternatives, which provides the basis for establishing Federal regulations governing recreational bag limits for Pacific bluefin tuna.
- Chapter 3 describes the environmental components affected by the proposed action, which are Pacific bluefin tuna and other fish caught in association with bluefin in recreational fisheries, recreational fishery sectors and fishing communities, the marine ecosystem and essential fish habitat (EFH), and protected species.
- Chapter 4 describes the direct, indirect, and cumulative effects of the proposed action, including the No Action and preferred alternatives, on the environmental components described in Chapter 3.
- Chapter 5 details how this action meets 10 National Standards set forth in the MSA (Section 301(a)) and HMS FMP goals and objectives, as well as MSA-related scoping requirements and public meeting opportunities afforded through the Council process.
- Chapter 6 provides information on those laws and executive orders, in addition to the MSA, with

which an action must be consistent.

- Chapter 7 is the bibliography.

1.2 Proposed Action, Purpose, and Need

1.2.1 The Proposed Action

The proposed action is to reduce recreational fishing mortality on Pacific bluefin tuna in the West Coast EEZ consistent with the requirement in MSA Section 304(i) that the Council “develop recommendations for domestic regulations to address the relative impact of fishing vessels of the United States on the stock and, if developed by a Council, the Council shall submit such recommendations to the Secretary.” In order to reduce adverse socioeconomic impacts consistent with necessary compliance monitoring, measures to allow processing of Pacific bluefin on recreational vessels such that processed bluefin can be distinguished from other, similar species are also considered.

1.2.2 Purpose and Need

The action is needed for the sustainable management of bluefin tuna in accordance with MSA. The Council received notice on April 8, 2012, that the Secretary of Commerce had determined Pacific bluefin tuna was subject to overfishing and is overfished. In order to respond to the requirements of Section 304(i), the Council considered management measures to reduce fishing mortality on Pacific bluefin by domestic fishing vessels landing on the West Coast as part of the current biennial management cycle. Recommended regulations would come into effect on or about July 15, 2015, the start of the next 2-year management period, and remain in effect until modified by the Council and associated Federal rulemaking. In recent years, recreational catch has exceeded commercial catch.

Beginning in 2013, the U.S. commercial fishery has been subject to a 500 mt annual catch limit pursuant to Inter-American Tropical Tuna Commission (IATTC) resolutions C-12-09 and C-13-02, but comparable catch limits for recreational fisheries were not part of these IATTC resolutions. At its October 27-29, 2014, meeting the IATTC adopted Resolution C-14-06, which includes the following provision:

In 2015, each CPC must take meaningful measures to reduce catches of Pacific bluefin tuna by sportfishing vessels operating under its jurisdiction to levels comparable to the levels of reduction applied under this resolution to the EPO commercial fisheries until such time that the stock is rebuilt. Each CPC will report to the Commission prior to the 2015 annual meeting the specific measures taken or that will be taken to ensure such sportfishing levels have been or will be achieved. The Director shall share such reports with all interested CPCs. Beginning in 2015, each CPC will report sportfishery catches of Pacific bluefin tuna semi-annually to the Director.

Resolution C-14-06 applies to both 2015 and 2016 and includes a 600 mt catch limit for U.S. commercial fisheries for the entire two-year period.

The Western and Central Pacific Fisheries Commission (WCPFC) Northern Committee adopted a multi-year rebuilding plan and associated management measures for commercial fisheries for Pacific bluefin in the Convention Area. The rebuilding plan establishes the objective of rebuilding the stock to its median observed historical spawning stock biomass within 10 years. At its Regular Session, December 1-5, 2014, the WCPFC adopted the Northern Committee proposal as a Conservation and Management Measure of the Commission.

In the 10 years 2004-2013, on average, 78 percent of fishing effort (measured by angler days) by west coast recreational fishing vessels (both private and commercial passenger fishing vessel, CPFV) occurred in the Mexico EEZ. Fishing by U.S. recreational vessels in the Mexico EEZ is regulated by permit, and management measures, including bag and possession limits and establishing regulations on fishing in a foreign EEZ, is not part of the proposed action. The impact of recreational catch of Pacific bluefin tuna in the Eastern Pacific Ocean (EPO) (overwhelmingly by California-based recreational vessels) has ranged from 0.4 percent to 24 percent of the total EPO fishery impact and 0.1 percent-4.7 percent of the stock-wide fishery impact. These proportions should be taken into account when developing domestic regulations to address the “relative impact” of domestic fisheries.

1.3 Fishery Management Action Area

Recreational fisheries for HMS within the EEZ off the coast of California establish the geographical context for the proposed action. West coast communities engaged in these fisheries are also part of the context. Although this is the Federal fishery management area, the states manage the fisheries in the territorial sea to meet the goals and objectives of the HMS FMP.

CHAPTER 2 ALTERNATIVES, INCLUDING THE PREFERRED ALTERNATIVE

At its September 2014 meeting the Council adopted ranges of alternatives for bag and possession limits for recreational Pacific bluefin tuna catch and for processing of tunas aboard recreational vessels. These alternatives are described below.

2.1 *Bag and Possession Limit Alternatives for Recreational Fisheries in California*

All the alternatives apply only to recreational fisheries in Federal waters off California. Although Pacific bluefin tuna (PBF) are occasionally caught in Oregon and Washington, the numbers are so small that regulating catch in waters off those states is not justified. The action alternatives assume that California would adopt regulations that conform to changes in Federal regulations for the EEZ off California. In addition, the alternatives apply to possession in U.S. waters and landings in U.S. ports of fish legally caught in Mexico.

Alternative 1: The No Action Alternative

Currently for recreational fisheries the daily bag limit for bluefin tuna in Federal waters off California is 10 fish and the possession limit for multi-day trips is up to three times the daily bag limit (30 fish maximum). Anglers fishing in Mexico waters may retain their daily bag (5 PBF) and possession limits (15 PBF) allowable under Mexico regulations and land those fish into U.S. ports. Anglers may also retain bluefin caught off Mexico, return to U.S. waters and continue to fish until they attain the applicable U.S. daily bag and possession limits for bluefin tuna. In 2013 in U.S. waters CPFV recreational anglers landed between 5,419 and 6,473 PBF with an estimated weight between 84 and 101 mt (Agenda Item G.4.b, Supplemental CDFW Report 1, September 2014, Table 3).¹

Alternative 2: Reduce bag limit to two fish per day and the possession limit to six fish for multi-day trips (Preferred Alternative)

The recreational daily bag limit for bluefin caught in Federal waters off California would be reduced to two fish, with a corresponding possession limit of up to six fish for multi-day trips (three or more days).² The recreational possession limit would have to be supported by proper documentation (i.e., California declaration form, CPFV logbook records, or multi-day license and Mexican fishing license if fishing in Mexico). The possession limit would apply to fishing vessels in the U.S. EEZ even with respect to fish harvested outside the U.S. EEZ. Therefore, a vessel that fished in Mexico waters could land no more than

¹ This range reflects either excluding (lower bound) or including (upper bound) CDFW statistical blocks that straddle the U.S.-Mexico border. Catch in these blocks cannot be definitely attributed to U.S. waters.

² For trips under three days (i.e., either one or two days), the daily bag limit is multiplied by the number of days fishing to determine the possession limit, i.e., for a two-fish bag limit the possession limit for a one-day trip would be two fish and for a two-day trip, four fish. A day is defined as a 24 hour period from the time of departure. Thus, a trip spanning two calendar days could count as only one day for the purpose of enforcing possession limits.

six fish, even if the Mexico bag limit is higher than the U.S. bag limit.³ If this limit had been in place in 2013 it is estimated that CPFV angler landings would have been reduced by 1,752 fish or 27 mt (Agenda Item G.4.b, Supplemental CDFW Report 1, September 2014, Table 6).

Alternative 3: Harmonize U.S. daily bag and possession limits for Federal waters off California with Mexico's current regulations for bluefin tuna.

The recreational bag limit for bluefin tuna in Federal waters off California would be reduced from 10 to 5 bluefin per day and the maximum possession limit for multi-day trips (≥ 3 days) would be reduced from 30 to 15 bluefin. If this limit had been in place in 2013 it is estimated that CPFV angler landings would have been reduced by 201 fish or 3 mt (Agenda Item G.4.b, Supplemental CDFW Report 1, September 2014, Table 6).

Alternative 4: Reduce daily bag and possession limits to below 5 fish per day and 15 fish in possession for Federal waters off California, and potentially limit possession of fish caught in Mexico to no more than the corresponding U.S. possession limits.

This alternative includes suboptions for recreational daily bag limits for bluefin caught in Federal waters off California of 4 fish, 3 fish, or 1 fish, with corresponding possession limits of up to 3 times the daily bag limit for multi-day trips (≥ 3 days). The Council could have recommended any one of these suboptions as a preferred alternative and chose a 2-fish bag limit as the Preferred Alternative (Alternative 2). In Chapter 4, the impact of each of these suboptions, in terms of reduction in the number of recreationally-caught PBF from 2013 baseline levels, is described. As with Alternative 2 (the Preferred Alternative), the possession limit would apply to fish caught in both Mexico and U.S. waters, even if the Mexico bag limit is higher than the U.S. bag limit. If one of these limits was in place in 2013, it is estimated that CPFV angler landings would have been reduced by between 509 fish (4-fish bag limit) and 2,958 fish (1-fish bag limit) or 3-46 mt (Agenda Item G.4.b, Supplemental CDFW Report 1, September 2014, Table 6).

Alternative 5: Prohibit targeting and retention of bluefin tuna by recreational fisheries

Under this alternative, recreational targeting of PBF would be prohibited and any bluefin caught incidentally while fishing for other species in Federal waters off California would be required to be released immediately to minimize mortality. If this limit was in place in 2013, CPFV anglers would not have landed PBF; some incidental catch mortality would have occurred, which cannot be quantified.

2.2 Processing Tuna at Sea Aboard Recreational Fishing Vessels

Adopting bag limits for PBF that differ from other tunas caught in recreational fisheries (principally yellowfin and albacore tuna) requires that the different species can be distinguished for monitoring and enforcement purposes. The current requirement (see No Action below), which allows filleting at sea, may not be sufficient to allow species identification. On the other hand, filleting provides income in the form of tips for CPFV crew and facilitates the storage and transport of fish. The alternatives would only apply to processing of tuna at sea by recreational harvesters fishing south of Point Conception.

No Action Alternative: Current state requirements, which allow filleting as long as a 1-inch square patch of skin is left on the fillet.

³ NOAA Office of Law Enforcement could determine that the preferred daily bag limit for U.S. waters would be applied uniformly, even for fishing in Mexico waters, in order to make the proposed action enforceable.

Alternative 2; Preferred Alternative: For tuna filleted at sea south of Point Conception, each fish must be in its own bag with the four loin fillets; the belly fillet must include the urogenital vent; the collar fillet must have both pectoral fins attached; and the skin must be left intact and attached to all six pieces.

Alternative 3: Filleting of tuna at sea would be prohibited, except to remove organs and viscera (i.e., allowing only gilling and/or gutting).

Alternative 4: Filleting of tuna at sea would be prohibited, except to remove the head and organs and viscera (i.e., allowing only heading and/or gilling/gutting).

Alternative 5: Prohibit any processing of tuna at sea.

CHAPTER 3 AFFECTED ENVIRONMENT

3.1 *Target and Non-Target Species*

3.1.1 Pacific Bluefin Tuna

3.1.1.1 Stock Status and Conservation Measures

An assessment of Pacific bluefin tuna in the North Pacific Ocean (NPO) was completed by the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) Pacific Bluefin Tuna Working Group (PBFWG or WG) in February 2014 and accepted at an inter-sessional meeting of the ISC Plenary in March 2014. An integrated statistical age-structured stock assessment model (Stock Synthesis Version 3.23b) was used to fit catch, size composition and catch-per-unit of effort (CPUE) data from 1952 to 2012, with life history parameters including a length-at-age relationship from otolith-derived ages and natural mortality estimates from a tag-recapture study.

“Using the updated stock assessment, the 2012 SSB [spawning stock biomass] was 26,234 tons, slightly higher than that estimated for 2010 (25,476t).

Across sensitivity runs in the updated stock assessment, estimates of recruitment were considered robust. The recruitment level in 2012 was estimated to be relatively low (the 8th lowest in 61 years), and the average recruitment level for the last five years may have been below the historical average level. Estimated age-specific fishing mortalities on the stock in the period 2009-2011 relative to the 2002-2004 (the base period for the WCPFC Conservation and Management Measure 2010-2014) increased by 19 percent, 4 percent, 12 percent, 31 percent, 60 percent, 51 percent and 21 percent for ages 0-6, respectively, and decreased by 35 percent for age 7+.

Although no target or limit reference points have been established for the PBF stock under the auspices of the WCPFC and IATTC, the current F average over 2009-2011 exceeds all target and limit biological reference points (LBRs) commonly used by fisheries managers except for F_{LOSS} , and the ratio of SSB in 2012 relative to unfished SSB (depletion ratio) is less than 6 percent. In summary, based on reference point ratios, overfishing is occurring and the stock is overfished.”

On April 8, 2011, the Council was informed that NMFS had determined that Pacific bluefin tuna is subject to overfishing and is overfished, pursuant to MSA Section 304(i). The Council response included consideration of recreational management measures for PBF as part of the biennial management cycle.

In 2013 the IATTC adopted Resolution C-13-02, which established a 5,000 mt commercial catch limit for PBF in the Convention Area (the Eastern Pacific east of 150°W. longitude) for 2014. It also established a catch limit of 500 mt for any country “with a historical record of eastern Pacific bluefin catches.” The U.S. implemented this catch limit for commercial fisheries. On July 14, 2014, Mexico closed recreational fisheries for PBF in its waters. NMFS closed the commercial fishery for PBF on September 5, 2014 in anticipation of the 500 mt catch limit being reached. As noted in Chapter 1, in October 2014 IATTC adopted a resolution for PBF management in 2015 and 2016. The resolution does not contain catch limits for recreational fisheries but requires countries to “take meaningful measures to reduce catches of Pacific bluefin tuna by sportfishing vessels operating under its jurisdiction to levels comparable to the levels of

reduction applied under this resolution to the EPO commercial fisheries until such time that the stock is rebuilt.”

Since PBF is considered a single Pacific-wide stock, conservation measures in the Western and Central Pacific will influence stock status relative to EPO fisheries. The WCPFC adopted Conservation and Management Measure 2013-09 for PBF, applicable to 2014. This CMM directs members “to take measures necessary to ensure that total fishing effort by their vessels fishing for Pacific bluefin tuna in the area north of the 20 degrees north shall stay below the 2002-2004 annual average levels for 2014. Such measures shall include those to reduce all catches of juveniles (age 0-3 (less than 30 kg)) significantly below the 2002-2004 annual average levels for 2014.” In a footnote, a 15 percent catch reduction from 2002-2004 average levels is identified for juveniles. In September 2014 the WCPFC Northern Committee adopted a proposed CMM that includes a multi-year rebuilding plan and a 50 percent reduction in juvenile catch from 2002-2004 average levels. At its annual meeting the WCPFC is likely to endorse and adopt this measure. This measure is not binding on EPO fisheries but establishes a benchmark for catch reduction and rebuilding.

3.1.1.2 Relative Impact of West Coast Fisheries on Pacific Bluefin Stock Status

Based on ISC data, recent (2008-2012) catch of Pacific bluefin tuna by U.S. West Coast fisheries constitutes approximately 2 percent of the North Pacific-wide catch, but in 2013 recreational catch accounted for about 11 percent of total catch (Figure 3-1, Table 3-1). This was due to both a substantial increase in U.S. catch and declines in commercial catches.

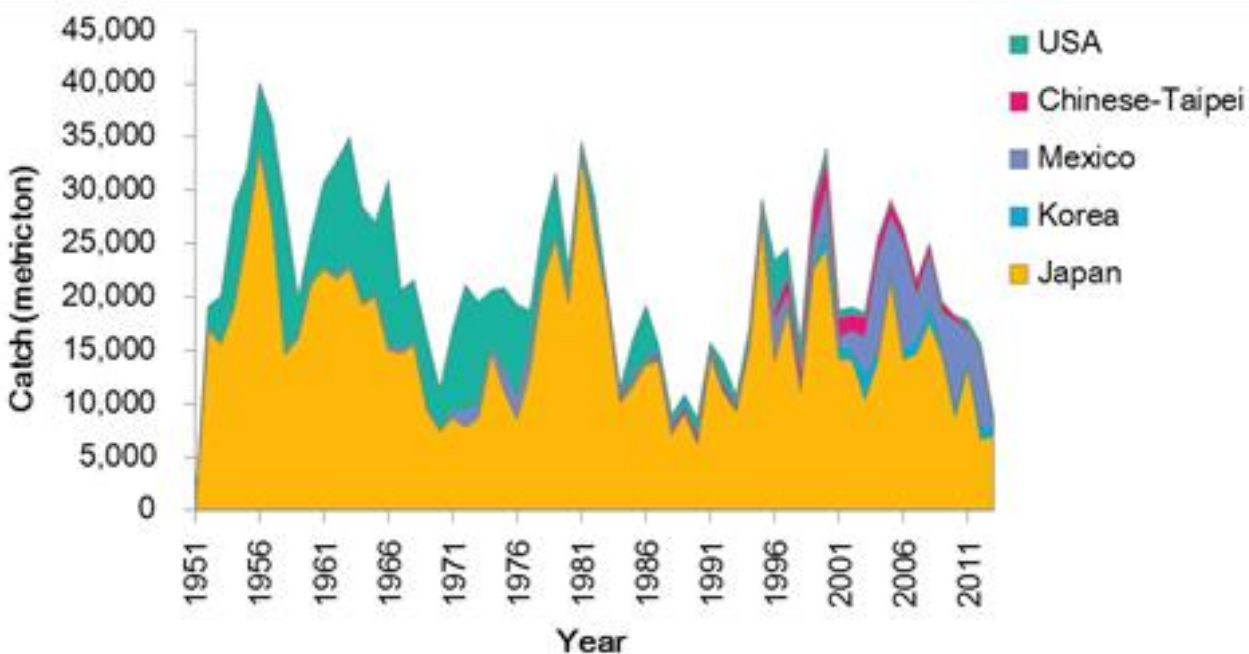


Figure 3-1. Annual landings of Pacific bluefin tuna reported by ISC members. (Source: ISC website)

Table 3-1. Recent landings of Pacific bluefin tuna as reported by ISC and U.S. recreational catch as a proportion of EPO and stock-wide catch. (Source: ISC website)

Year	Japan	Korea	Mexico	Chinese-Taipei	USA			Grand Total	USA Recreational Fishery % of EPO Total	USA Recreational Fishery % of Total
	Total	Total	Total	Total	Commercial	Recreational	Total			
2000	24,572	2,401	3,118	2,782	754	342	1,096	33,969	8%	1.0%
2001	14,205	1,176	863	1,843	340	356	696	18,783	23%	1.9%
2002	14,181	932	1,710	1,527	62	654	716	19,066	27%	3.4%
2003	10,394	2,601	3,254	1,884	40	394	434	18,567	11%	2.1%
2004	14,091	773	8,894	1,717	11	49	60	25,535	1%	0.2%
2005	21,654	1,318	4,542	1,370	208	79	287	29,171	2%	0.3%
2006	14,167	1,012	9,927	1,150	2	96	98	26,354	1%	0.4%
2007	14,698	1,281	4,147	1,411	44	14	58	21,595	0%	0.1%
2008	17,707	1,866	4,407	981	1	93	94	25,055	2%	0.4%
2009	14,591	936	3,019	888	6	180	186	19,620	6%	0.9%
2010	8,837	1,196	7,746	409	1	121	122	18,310	2%	0.7%
2011	13,470	670	2,731	316	118	498	616	17,803	15%	2.8%
2012	6,654	1,421	6,668	214	42	615	657	15,614	8%	3.9%
2013	7,014	604	3,154	334	10	984	994	12,100	24%	8.1%

The relative impact of fisheries in the EPO compared to those in the Western Pacific Ocean (WPO) on bluefin spawning stock biomass is shown in Figure 3-2, excerpted from the 2014 bluefin stock assessment.⁴ For recent years (2007-2012), EPO fisheries account for approximately 20 percent of the impacts of all fisheries on the bluefin spawning stock biomass. EPO fisheries include the Mexico commercial fishery, the U.S. commercial fishery, and the U.S. recreational (sport) fishery. The majority of bluefin tuna caught in these fisheries are juveniles, not adults of spawning size or age. However, the harvest of juvenile fish affects the production potential of the stock, as shown by the estimated impacts on spawning stock biomass. Because the stock assessment assumes that the size selectivities are the same for all three fisheries, their impacts on the spawning stock are proportional to their catches. Therefore, the U.S. recreational fishery proportion of EPO fisheries impacts on the spawning stock is equivalent to the percentage of the U.S. recreational catch of the total EPO catch. Furthermore, because EPO fisheries account for approximately 20 percent of all fisheries impacts, the proportional impact by the U.S. recreational fishery of all fisheries is one-fifth of its percentage of the EPO fisheries landings by weight.

⁴ Pacific Bluefin Tuna Working Group. 2014. [Stock Assessment of Bluefin Tuna in the Pacific Ocean in 2014](#). International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean.

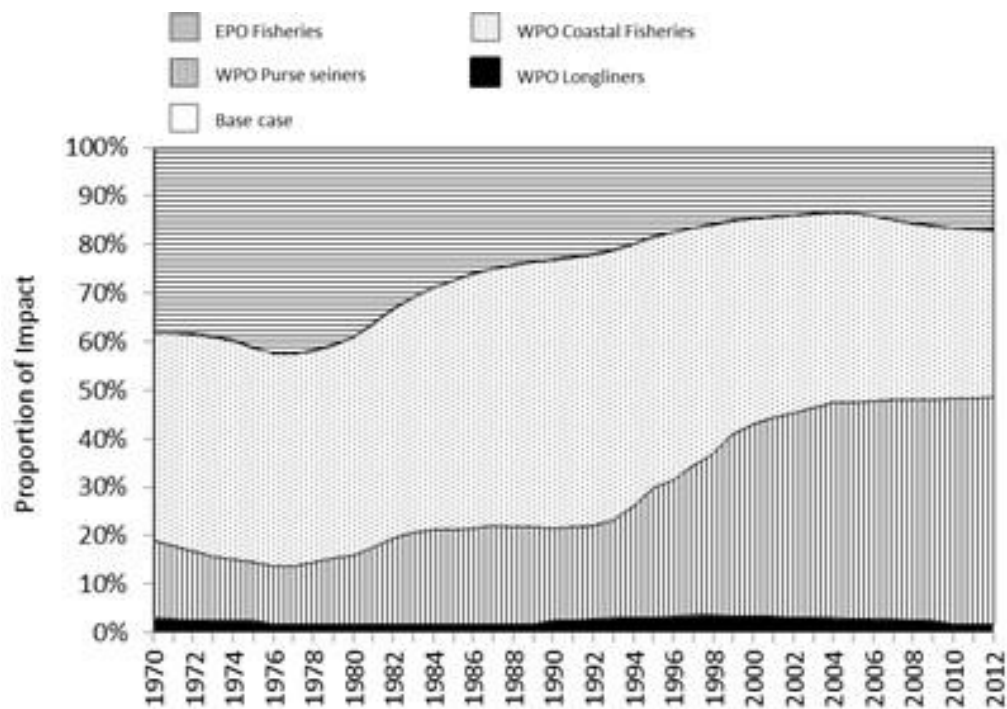


Figure 3-2. The proportion of the impact on the Pacific bluefin tuna (*Thunnus orientalis*) spawning stock biomass by each group of fisheries. (Excerpted from the Executive Summary to the Stock Assessment for Bluefin Tuna, 2014, by the Bluefin Tuna Working Group, ISC).

Given the direct relationship between catch and the impact on spawning biomass, estimates of the impact of the U.S. recreational fishery on the spawning stock biomass can be drawn directly from the last two columns in Table 3-1. This impact has increased in recent years, from <5 percent of EPO fisheries and <1 percent of all fisheries during 2007-2010 to 24 percent and 5 percent, respectively, in 2013.

According Agenda Item I.3.b, [Supplemental CDFW Report 2](#), November 2014, the estimated recreational catch of PBF for 2014 is 27,321 fish or 423.5 mt (based on 15.5 kg average per fish).

3.1.1.3 Size Composition of Recreational Catch

Most bluefin tuna landed by recreational fisheries from U.S. and Mexico waters are juveniles. Recreational landings by weight for the CPFV fishery are estimated from monthly numbers of bluefin landings reported in CPFV logbooks and a monthly estimate of average weight from IATTC sampling data.⁵ IATTC sampling was limited in geographic coverage and time of day, and was discontinued in 2012. Samplers measured fish lengths, and average weights were computed by applying a length-weight formula.

The length composition (percentage) of IATTC fish length measurements during 2008-2012 are summarized by 5-cm size categories in Figure 3-3. These are not applied to the catches, but provide an

⁵ United States Catch Time Series for Pacific Bluefin Tuna in the North Pacific Ocean, A.L. Coan, Jr., and J.F. Childers, Dec. 2007. A Working document submitted to the sixth meeting of the Pacific Bluefin Tuna Working Group of the International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean (ISC), 11-19 December 2007, Shimizu, Japan. Document not to be cited without author's permission.

indication of the size of bluefin landed by the CPFV fishery in recent years. Over 7,700 fish were measured; half were smaller than 79 cm and half were larger than 79 cm.

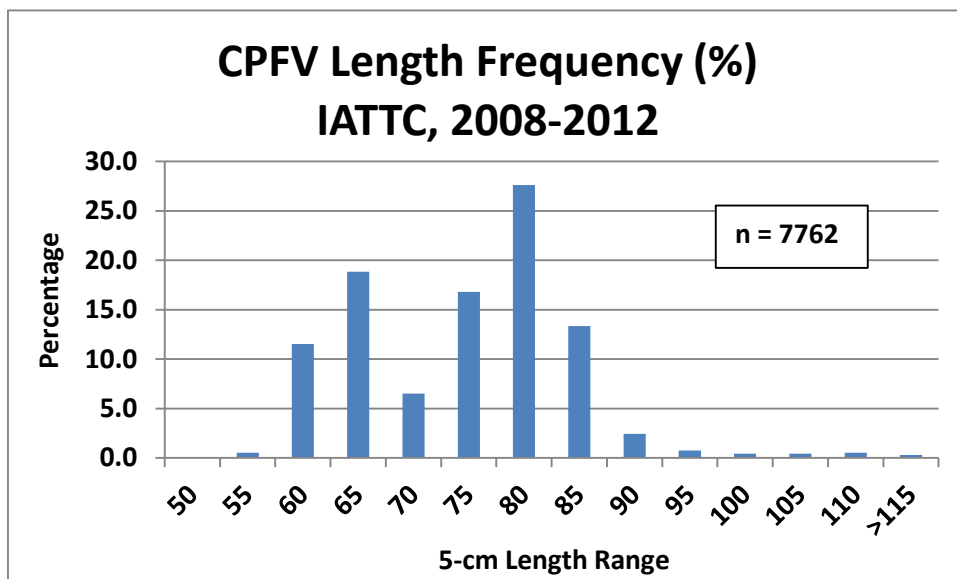


Figure 3-3. Length composition (percent by 5-cm categories) of bluefin tuna measured in CPFV landings from fishing activities in U.S. and Mexico waters during 2008-2013. The length composition represents only measured fish and is not expanded to the catch. (Source: Jenny Suter, NMFS, personal communication, with permission of IATTC).

Information on the size of fish landed by private/rental vessel anglers is minimal, due to limited recreational fishery monitoring activities and fish often being filleted at sea. During 2008-2013, lengths were measured for only 27 bluefin tuna landed by private or rental vessels in California ports from fishing activities in U.S. and Mexico waters (Figure 3-4). Meaningful estimates of the length composition of the private vessel fishery cannot be produced from these few lengths.

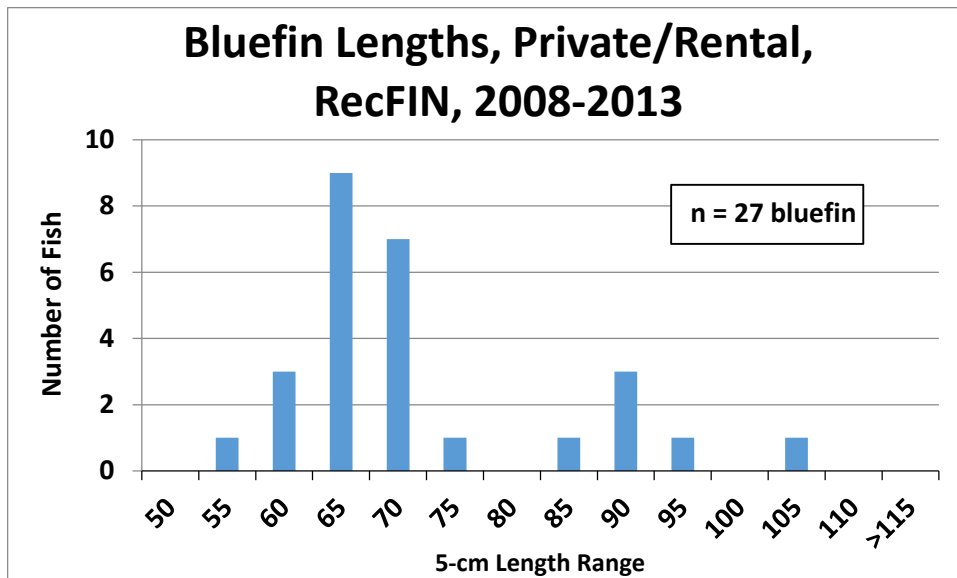


Figure 3-4. Length frequency of bluefin tuna measured in landings by the private vessel fishery in U.S. and Mexico waters during 2008-2013. (Source: RecFIN, Ed Hibsich, personal communication.)

3.1.2 Other Species Caught in Association with Pacific Bluefin Tuna in the Southern California Recreational Fishery

3.1.2.1 Species Composition of CPFV Catch

Data from CPFV logbooks provides a picture of the catch composition of HMS. Figure 3-5 shows catch composition in U.S. waters in the recent past. For this time period, albacore has accounted for most of the catch, followed by yellowfin, PBF, and dorado (dolphinfish). Taken together, these species have accounted for 94 percent of the catch.

A complete inventory of species caught on tuna-directed trips is larger than what is shown in Figure 3-5, but these other species comprise a very small proportion of total catch. Table 3-2 shows the number of species (based on market category names reported) by management group, excluding the HMS shown in Figure 3-5. A total of 132 market category codes were report but only 121 of those were associated with a distinct common name.

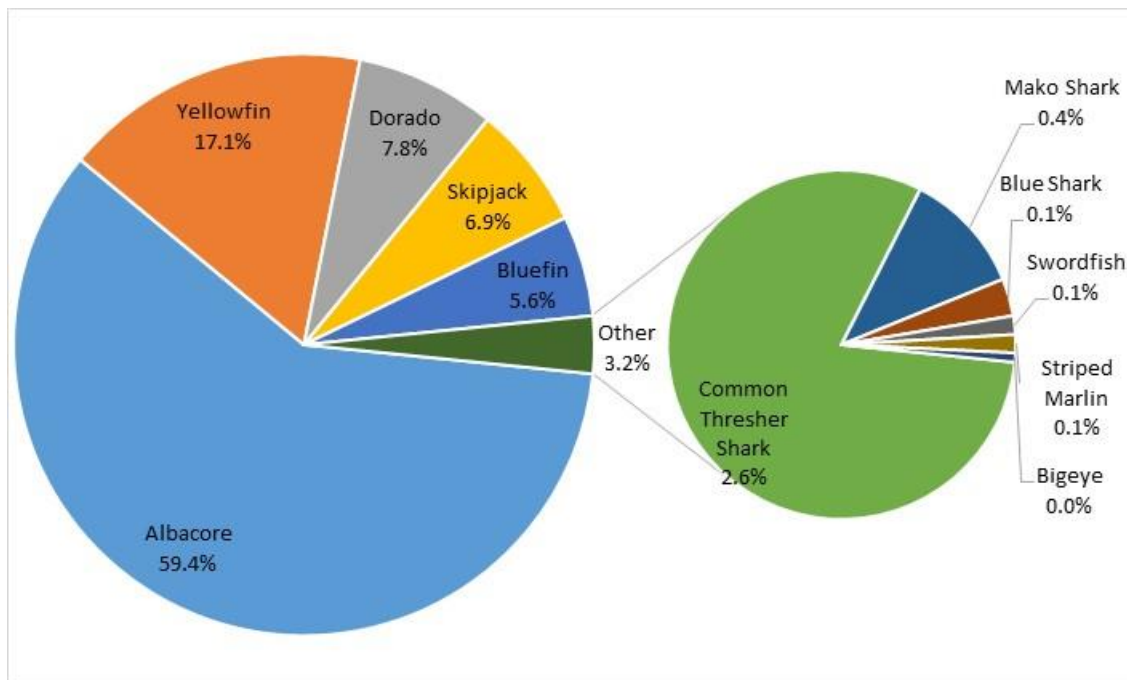


Figure 3-5. Composition of catch of CPFV vessels in U.S. waters, 2003-2012, based on numbers of fish.
(Source: 2013 HMS SAFE)

Table 3-2. Number of species (market category values) by species group caught on tuna-directed CPFV trips.
(Source: Elizabeth Hellmers, CDFW)

Group	Number
CPS	6
Crab	3
Groundfish (flatfish)	6
Groundfish (rockfish)	21
Groundfish (roundfish)	4
Groundfish (sharks and skates)	4
Salmon	4
Shellfish	3
Shrimp	1
Other tunas	7
Others*	62
Total	121

*Includes the following where a common name was provided: amberjack, barracuda, barred sand bass, bat ray, blacksmith, brown smoothhound, bullet mackerel, corbina, crevalle, eel, escolar, garibaldi, giant kelpfish, giant sea bass, grouper, halfmoon, halibut, jacksmelt, jumbo squid, kelp bass, kelpfishes, lobster, louvar, needlefish, ocean whitefish, oilfish, opah, opaleye, other bass, other sea urchins, Pacific sierra, pompano, queenfish, rainbow sp., sailfish, salema, sargo, sheephead, shovelnose guitarfish, silversides, smooth hammerhead, snapper (Mexico), striped bass, striped mullet, triggerfish, unsp. surfperch, unsp. fish, unsp. jack, unsp. sculpin, unsp. shark, wahoo, white croaker, white seabass, white shark, wolf eel, yellowfin croaker, yellowtail.

As shown in Figure 3-6, Catch composition has varied substantially over time. Over the whole time series, North Pacific albacore has accounted for the largest share of catch but there have been periods when its proportion has declined. Catch of all species, in numbers of fish, are also illustrated in Figure 3-6 on the secondary axis. This too has varied substantially from year to year. Total catch fell

substantially from the early 2000s to the present. This appears to be due to the lack of catch of albacore, which historically accounted for the largest share of the catch. Table 3-3 compares species composition for three time periods to illustrate that the large proportion of Pacific bluefin in the catch in 2013 is anomalous, as suggested in the figure. For the entire time period, 1981-2012, PBF accounted for 6 percent of the catch and even considering the recent past, 2001-2012 PBF was only 7 percent of the catch. In 2013 it accounted for the largest proportion of the catch at 46 percent.

Fluctuations in species composition and total catch is likely a function of the availability of different species coupled with angler participation. Furthermore, the availability of fish, or ease of capture, may influence demand for recreational fishing, and thus participation. Put simply, one factor that likely influences the decision to go fishing is the abundance of fish locally. Another factor influencing species composition of the catch could be the substitutability of one species for another, particularly among tuna species.

The importance of bluefin to the CPFV fishery can also be characterized by the proportion of bluefin tuna in the landings, compared to landings of other HMS FMP species (other tunas, sharks, swordfish, and dorado). During 2000-2010, bluefin generally accounted for less than 10 percent of the landings (by number) of all HMS species (Table 3-3). Since then, the percentage of bluefin increased substantially, to about 45 percent of all species in 2013 landings from California waters, from Mexico waters, and for all waters combined.

However, the trends in percentages of bluefin in the landings are influenced by the abundance of other species in the landings. For example, the number of bluefin landed in 2002 is only slightly smaller than the number landed in 2012, although bluefin account for a much smaller percentage of total HMS landings in 2002. Very large numbers of albacore were landed during 2002, in comparison to albacore landings in recent years, resulting in the comparatively low percentage of bluefin tuna that year.

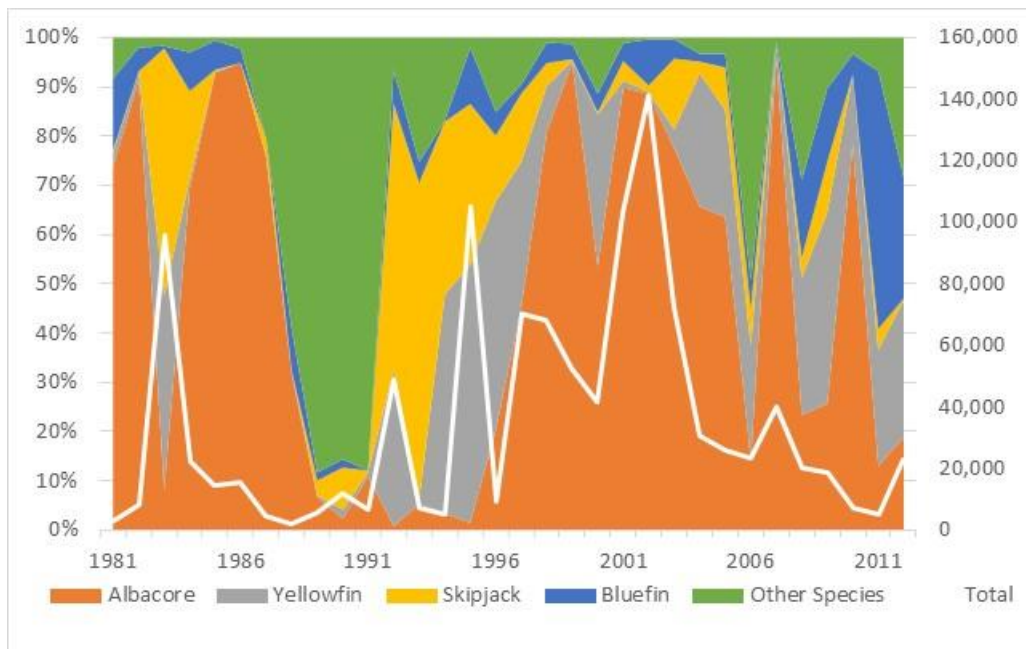


Figure 3-6. Species composition and volume of CPFV catch in U.S. waters, 1981-2012. Left vertical axis shows the percent composition of annual catch; right vertical axis and white line shows total catch volume of all species in numbers of fish. (Source: 2013 HMS SAFE, Table 4-63)

Table 3-3. Species composition of CPFV catch in U.S. waters for three time periods. (Source: 2013 HMS SAFE, Table 4-63 and Elisabeth Hellmers, CDFW for 2013 data)

Interval	Albacore	Yellowfin	Skipjack	Bluefin	Other Species
1981-2012	54%	18%	14%	6%	7%
2001-2012	73%	9%	5%	7%	6%
2013	2%	39%	*	46%	13%

*Skipjack included in Other Species category for 2013.

Figure 3-7 shows a breakdown of CPFV fishing days by whether bluefin tuna were caught exclusively, in combination with other tuna species, or not at all. The figure only includes CPFV days in U.S. and Mexico waters for which at least one fish of the listed tuna species were reported caught on the trip log. The vast majority of CPFV fishing days with tuna catch included no bluefin.

CPFV Fishing Days with Tuna* Species Caught in US and Mexico Waters

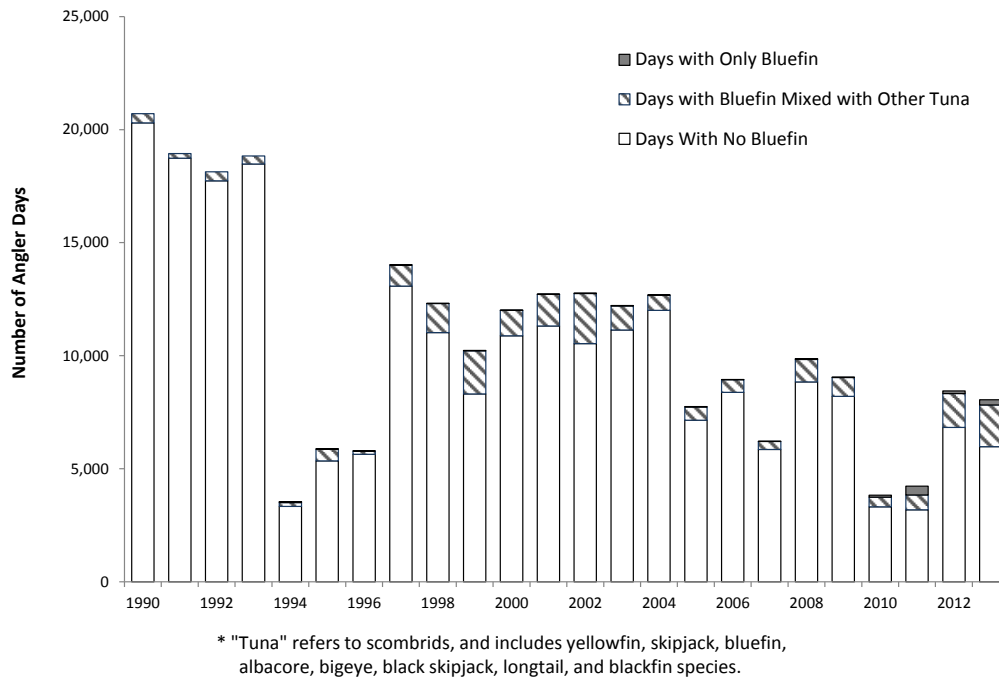


Figure 3-7. Number of CPFV angler days with tuna species landed from fishing in U.S. and Mexico waters. (Source: CFIS, CPFV logbook data, Elizabeth Hellmers, CDFW, personal communication.)

3.1.2.2 Stock Status of HMS Caught with Pacific Bluefin Tuna

Yellowfin tuna comprises separate stocks in the EPO and WPO. The IATTC scientific staff conducted a stock assessment for EPO yellowfin tuna in 2014. The results are reported in IATTC Document 87-03a (Revised) Tuna and Billfishes in the Eastern Pacific Ocean in 2013. A key finding on stock status is:

The recent fishing mortality rates are below the MSY level, and the recent levels of spawning biomass are estimated to be at that level. As noted in IATTC Stock Assessment Report 14 and previous assessments, these interpretations are uncertain, and highly sensitive to the assumptions made about the steepness parameter of the stock-recruitment relationship, the average size of the older fish, and the assumed levels of natural mortality. The results are more pessimistic if a stock-recruitment relationship is assumed, if a higher value is assumed for the average size of the older fish, and if lower rates of natural mortality are assumed for adult yellowfin. (p. 54)

The HMS Stock Assessment and Fishery Evaluation (SAFE) reports that based on IATTC and HMS SAFE data, recent (2007-2011) catch of yellowfin tuna in the EPO by U.S. West Coast fisheries constitutes approximately 0.01 percent of the stock-wide catch. The total EPO catch, 2008-2013, is about 1.36 million mt while the RecFIN estimate of recreational catch for this period is 131 mt, or about 0.01 percent of the total. Therefore, recreational catches have a negligible impact on stock status.

In the North Pacific, albacore tuna is considered a single Pacific-wide stock. (South Pacific albacore is a separate stock.) The ISC Albacore Working Group completed an assessment for the stock in 2014. The ISC Plenary concluded that, based on a range of plausible biological reference points, the stock is not

experiencing overfishing and is not overfished.⁶ North Pacific albacore are caught seasonally in recreational fisheries off all three west coast states. For the 2008-2013 time period, ISC reports 486,486 mt total North Pacific albacore catch and 4,696 mt for the U.S. recreational fishery, or 1.0 percent of the total.

IATTC Fishery Status Report No. 14, skipjack tuna is “a notoriously difficult species to assess” because of its high and variable productivity, making the impact of fishing difficult to detect. For that reason, eight comparative indicators are used to evaluate stock status. The IATTC report concludes

The main concern with the skipjack stock was the constantly increasing exploitation rate. However, this appears to have leveled off in recent years. The data- and model-based indicators have yet to detect any adverse consequence of this increase. The average weight was below its lower reference level in 2009, which can be a consequence of overexploitation, but can also be caused by recent recruitments being greater than past recruitments or expansion of the fishery into areas occupied by smaller skipjack. Any continued decline in average length is a concern and, combined with leveling off of catch and CPUE, may indicate that the exploitation rate is approaching, or above, the level associated with MSY. (p. 82)

The status of the dolphinfish (*Coryphaena hippurus*) stock in the EPO is unknown, indeed stock structure for this globally distributed species is poorly understood. The life history characteristics of this species suggests it is fairly productive, however. According to the FAO, 316,531 mt of dolphinfish was landed in the EPO, 2008-2012, while the RecFIN estimate for this period is 139 mt, or 0.04 percent of the total.

Other HMS are caught in relatively small numbers on CPFV trips. These species are likely caught opportunistically on trips where the dominant tuna species are expected to be caught. Stock status of some of the remaining species shown in Figure 3-5 is not known. Of those species where stock status is known, EPO bigeye tuna may be slightly overfished. The IATTC Fishery Status Report No. 14 summarizes EPO bigeye status as follows:

...the most recent estimate indicates that the bigeye stock in the EPO is slightly overfished ($S < S_{MSY}$) but that overfishing is not taking place ($F < F_{MSY}$) ... In fact, the current exploitation is very close to the MSY target reference points. Likewise, the current base case model indicates that the proposed limit reference points of $0.38 S_{MSY}$ and $1.6 F_{MSY}$, which correspond to a 50 percent reduction in recruitment from its average unexploited level based on a conservative steepness value ($h = 0.75$) for the Beverton-Holt stock-recruitment relationship, have not been exceeded ... These interpretations, however, are subject to uncertainty, as indicated by the approximate confidence intervals around the most recent estimate in the phase plots. (p. 87; figure references removed)

3.2 Socioeconomic Environment

West coast recreational fishing activity on bluefin tuna and other HMS is primarily conducted from CPFVs and privately owned vessels fishing out of landings, marinas, and launch ramps dotting the Southern California coast from Los Angeles to San Diego.⁷ The Sportfishing Association of California (SAC) is the major industry organization, representing nearly 200 CPFVs operating out of 23 landings from Morro Bay to San Diego.

⁶ [Report of the Fourteenth Meeting of the International Scientific Committee for Tuna and Tuna-Like Species in The North Pacific Ocean; Plenary Session](#). Taipei, Taiwan, July 16-21, 2014.

⁷ [Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species, as amended \(July 2011\), Appendix A](#).

3.2.1 Charter Fishing Passenger Vessel Fleet

3.2.1.1 Fishery Catch and Effort

The California CPFV fleet lands the majority of bluefin into U.S. ports, and for most years, 80 percent or more is caught in waters off Mexico (Table 3-4). For simplicity in this report, the minor landings from fishing activities in the statistical blocks straddling the U.S.-Mexico border are included in the landings reported from U.S. waters, unless otherwise noted. Since 2000, the number of CPFV vessels targeting HMS in California waters has varied without trend, ranging from a high of 206 vessels in 2001 to a low of 113 vessels in 2011. The number of CPFV vessels was 158 in 2012 and 127 in 2013 (CFIS, CPFV logbook data, California Department of Fish and Wildlife (CDFW), personal communication). Landings by the California private (and rental) vessel fishery are very small and are not included in the analyses of the alternatives. Oregon and Washington landings of bluefin tuna are negligible, and fisheries off these states are not considered in this report.

Corresponding angler effort (number of days) by the California CPFV and private vessel fleets are presented in Table 3-7. For the CPFV fleet, effort represents tuna targeted days and includes days when tuna were identified as the target, regardless of whether bluefin were landed, and days with bluefin catch regardless of the species targeted (not adjusted for non-compliance). Landings for the private vessel fishery are estimated from a custom CDFW analysis for 2008-2013 (Michelle Horezcko, CDFW, personal communication).

Table 3-4. Estimated landings of Pacific bluefin tuna (numbers of fish) by private and charter vessels fishing off California and off Mexico, 2000–2013. Landings for the CPFV fishery are estimated from CPFV logbooks received (not adjusted for non-compliance). Landings for the private vessel fishery are estimated from a custom CDFW analysis for 2008-2013 (Michelle Horezcko, CDFW, personal communication).

Year	U.S. Waters off California			Mexico Waters			U.S. and Mexico Waters Combined		
	Private Fishery	CPFV Fishery	Total	Private Fishery	CPFV Fishery	Total	Private Fishery	CPFV Fishery	Total
2000	-	1,564	-	-	19,100	-	-	20,664	-
2001	-	3,829	-	-	18,078	-	-	21,907	-
2002	-	13,245	-	-	20,153	-	-	33,398	-
2003	-	2,858	-	-	19,433	-	-	22,291	-
2004	-	485	-	-	2,906	-	-	3,391	-
2005	-	723	-	-	5,034	-	-	5,757	-
2006	-	1,349	-	-	6,124	-	-	7,473	-
2007	-	187	-	-	841	-	-	1,028	-
2008	399	3,159	3,558	499	7,028	7,527	898	10,187	11,085
2009	210	2,788	2,998	420	9,350	9,770	630	12,138	12,768
2010	20	306	326	377	8,153	8,530	397	8,459	8,856
2011	28	2,743	2,771	114	28,751	28,865	142	31,494	31,636
2012	10	5,627	5,637	0	34,386	34,386	10	40,013	40,023
2013	234	6,473	6,707	324	56,877	57,201	558	63,350	63,908

Table 3-5. Angler effort (tuna target days plus days targeting another species where bluefin were caught) for the California CPFV fishery for waters in the U.S., Mexico, and combined for 2000-2013. Estimated angler effort (days) for the private vessel fishery in U.S. and in Mexico waters are from a custom analysis by CDFW (Michelle Horezcko, CDFW, personal communication).

Year	U.S. Waters off California			Mexico Waters			U.S. and Mexico Waters		
	Private Fishery	CPFV Fishery	Total	Private Fishery	CPFV Fishery	Total	Private Fishery	CPFV Fishery	Total
2000	-	18,512	-	-	69,890	-	-	88,402	-
2001	-	33,044	-	-	66,581	-	-	99,625	-
2002	-	39,958	-	-	67,655	-	-	107,613	-
2003	-	20,574	-	-	79,708	-	-	100,282	-
2004	-	10,033	-	-	79,950	-	-	89,983	-
2005	-	11,832	-	-	54,841	-	-	66,673	-
2006	-	9,082	-	-	53,522	-	-	62,604	-
2007	-	16,229	-	-	45,899	-	-	62,128	-
2008	34,265	9,078	43,343	16,075	52,495	68,570	50,340	61,573	111,913
2009	30,960	8,013	38,973	14,287	49,088	63,375	45,247	57,101	102,348
2010	16,290	4,664	20,954	7,863	32,112	39,975	24,153	36,776	60,929
2011	11,211	3,351	14,562	1,068	35,785	36,853	12,279	39,136	51,415
2012	27,627	8,670	36,297	0	57,910	57,910	27,627	66,580	94,207
2013	15,806	7,280	23,086	817	66,144	66,961	16,623	73,424	90,047

As shown in Figure 3-8, while catch-per-unit-effort for PBF has increased substantially since 2008, CPUE for all HMS has fluctuated without a clear trend.

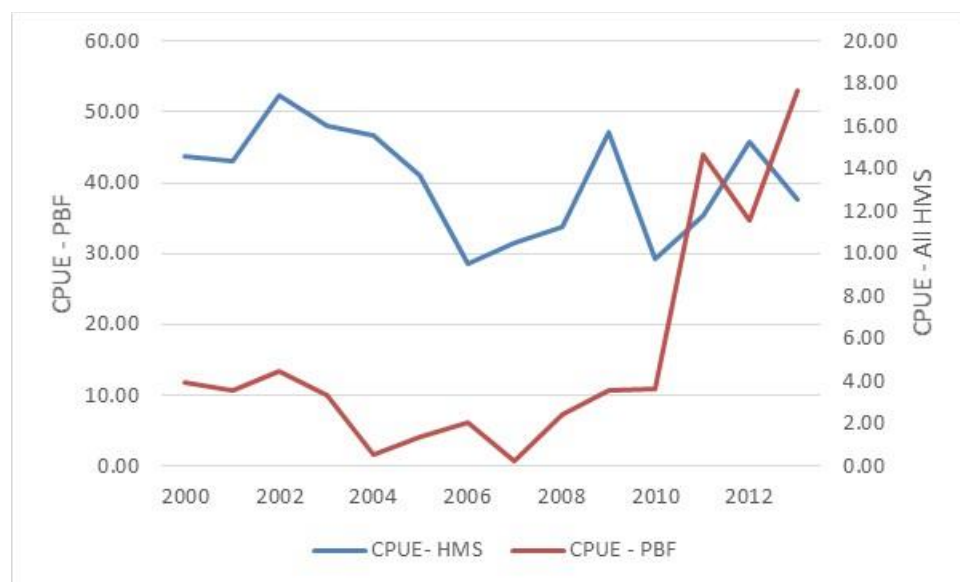


Figure 3-8. Catch-per-unit-effort (number of fish / tuna target days) for PBF (left vertical axis) and all HMS (right vertical axis) for CPFV landing in the San Diego region. (Source: Elizabeth Hellmers, CDFW)

The seasonal pattern in CPFV landings (numbers) of bluefin tuna has not been consistent in recent years, likely due to the unpredictable availability of bluefin tuna related to suitable environmental conditions, as well as the relative availability of other desirable species. During 2007-2010, the pattern in monthly

landings varied markedly among years, sometimes with most of the landings in July and August and other times, with most during June and September (Figure 3-9). During 2011-2013, bluefin landings increased substantially and the monthly landing pattern was much more consistent among years (Figure 3-10). Landings were always highest in August, with substantial amounts also landed in July and September.

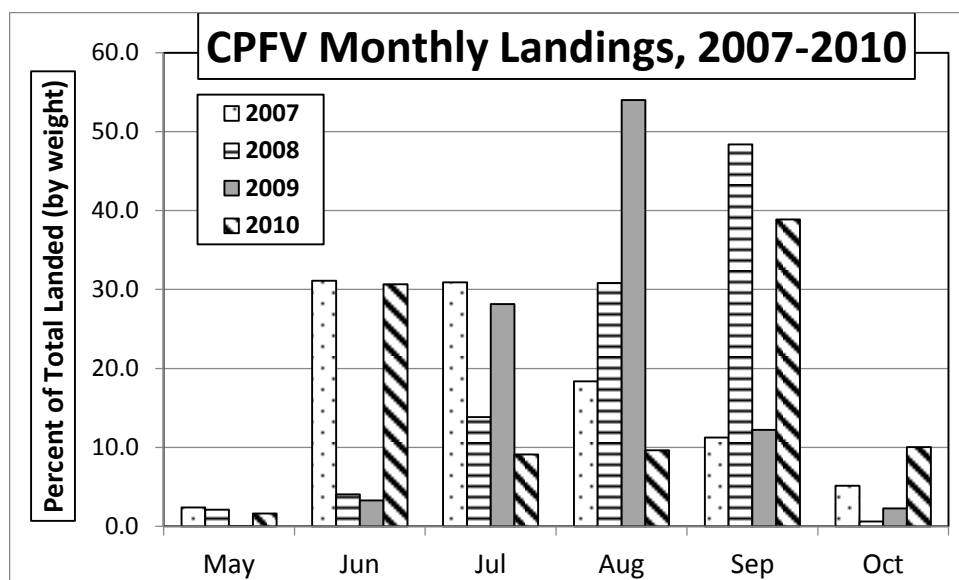


Figure 3-9. Monthly percentage of annual bluefin landings by CPFV vessels fishing in U.S. and Mexico waters, 2007-2010. (Source: CPFV logbook data, Elizabeth Hellmers, personal communication)

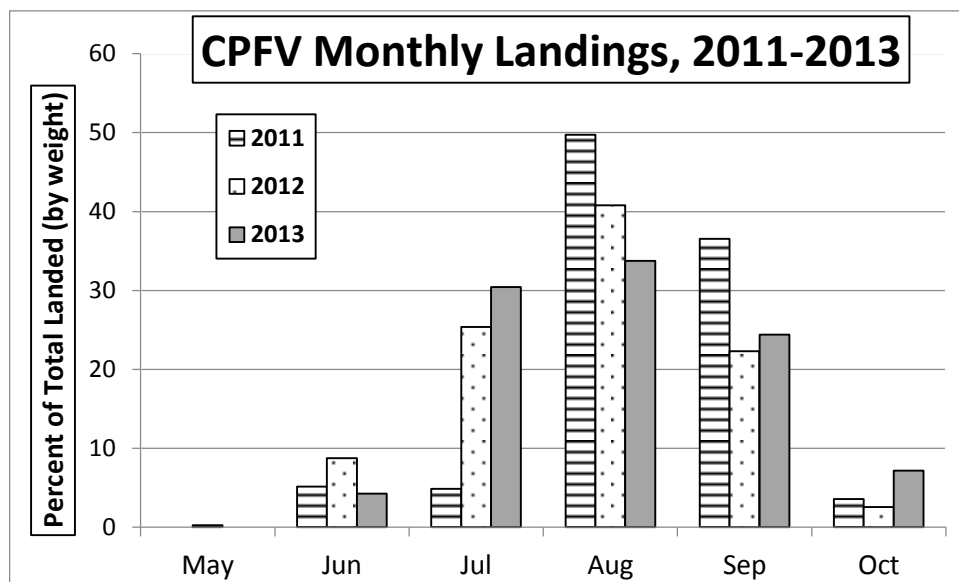


Figure 3-10. Monthly percentage of annual bluefin landings by CPFV vessels fishing in U.S. and Mexico waters, 2011-2013. (Source: CPFV logbook data, Elizabeth Hellmers, personal communication)

3.2.2 Private Boat Anglers

Historically, private boat anglers (i.e., anglers not on CPFV vessels) have accounted for a small proportion of recreational PBF catch. Table 3-6 shows landings (as a proxy for angler effort) estimated for private anglers and reported CPFV landings in U.S. waters. The left panel shows landings of major

tuna species and the right panel shows landings of PBF only. While private anglers have accounted for most catch of major tuna species (primarily albacore), PBF is largely caught on CPFVs.

Table 3-6. Landings of selected HMS (left panel) and PBF (right panel) by private anglers and CPFVs in numbers of fish and percent, 2000-2012, in U.S. waters. (Source: 2013 HMS SAFE, Tables 59 and 63. Private recreational catch reported in the SAFE in thousands of fish; converted to number of fish for comparison.)

Year	Albacore, Bluefin, Skipjack, Yellowfin				Bluefin			
	Private		CPFV		Private		CPFV	
	No. fish	Percent total	No. fish	Percent total	No. fish	Percent total	No. fish	Percent total
2000	95,100	72%	36,700	28%	0	0%	1,564	100%
2001	93,600	48%	101,813	52%	1,000	21%	3,829	79%
2002	71,800	34%	140,709	66%	900	6%	13,245	94%
2003	152,700	68%	72,013	32%	0	0%	2,858	100%
2004	62,100	68%	29,747	32%	100	17%	485	83%
2005	11,000	31%	25,007	69%	100	12%	723	88%
2006	22,400	65%	11,923	35%	200	13%	1,349	87%
2007	84,700	68%	39,729	32%	0	0%	187	100%
2008	37,000	72%	14,288	28%	400	11%	3,159	89%
2009	63,000	79%	16,707	21%	200	7%	2,788	93%
2010	53,600	88%	7,058	12%	0	0%	306	100%
2011	29,800	86%	4,882	14%	100	4%	2,743	96%
2012	83,300	83%	16,467	17%	0	0%	5,642	100%

3.2.3 Fishing Communities

The vast majority of tuna targeting CPFV trips originate and return to ports in the San Diego region. As shown in the top panel of Figure 3-11, trips targeting all species have remained stable in terms of the distribution between ports, with San Diego accounting for between 30 percent and 40 percent, 2000-2013. However, as shown in the bottom panel, and increasing proportion of tuna targeting trips returned to San Diego over the same time period. Participation dropped sharply in the mid-2000s and began to recover after 2010. This is likely due to the Great Recession, which reduced household disposable income. It may be that as overall participation declined, charter operations outside of the San Diego reduced tuna trips and focused on lower-cost fishing modes to retain their customer base.

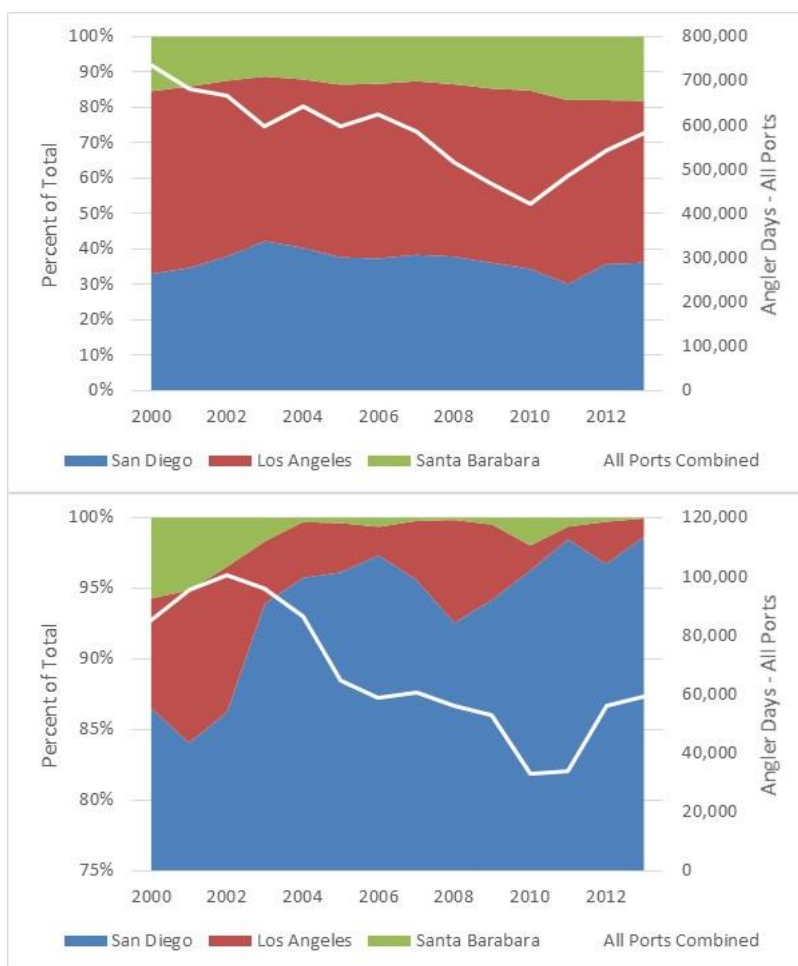


Figure 3-11. Distribution of fishing effort by port area (left vertical axis) and total angler effort (right vertical axis), 2000-2013. Top panel, all species target; bottom panel, tuna target trips.

3.2.4 Current Regulatory Environment

Under the MSA, the Council has the authority to recommend a management regime for CPFV and private vessels fishing for Pacific bluefin tuna. Under Section 304(i) of the MSA, where a fishery is overfished or approaching a condition of being overfished due to excessive international fishing pressure, the Council (within one year) shall: (a) develop recommendations for domestic regulations to address the relative impact of U.S. fishing vessels, and (b) provide to Congress and the Secretary of State recommendations for international actions that will end overfishing and rebuild affected stocks. Under Section 304(e), for a fishery within the Council's geographical area of authority that has been classified as overfished or approaching a condition of being overfished, the Council (or Secretary) shall: (a) prepare and implement proposed regulations that end overfishing immediately in the fishery, and (b) rebuild affected stocks of fish, or prevent overfishing from occurring when the fishery is identified as approaching an overfished condition.

CPFV fishing for HMS are subject to Federal and state regulations, in addition to the laws and regulations of Mexico when fishing in Mexico's EEZ. Typically, CPFV fishing for Pacific bluefin tuna occurs in U.S. West Coast waters off of California and in Mexico's EEZ; therefore, regulations pertaining to waters off of California are discussed in more detail than waters off of Oregon and Washington. These regulations include permit and logbook requirements, and bag, possession, and boat limits (Table 3-7). Daily bag limits apply within each 24-hour period per person. Possession limits may be considered trip limits per

person (e.g., U.S. anglers fishing on multi-day trips in Mexican waters are allowed to retain, under Mexican regulations, a maximum of three daily limits as a possession limit regardless of the duration of an individual trip). Boat limits are the number of licensed anglers multiplied by the daily bag limits.

To fish and/or land HMS, an angler on board a vessel must have a valid state license (unless they are fishing in Mexican waters exclusively), and the vessel operator must have a Federal HMS permit and submit a logbook. An HMS permit is required to fish for HMS in the U.S. EEZ off of and/or land HMS in California, Oregon, and Washington (50 CFR §660.707). A sport fishing license is required by the state of California to take any fish (14 CCR §700). CPFVs are required to submit logbooks, which may be the same logbooks required by the states of California, Oregon, or Washington by both Federal (50 CFR §660.708) and California requirements (California Fish and Game Code §7923 and §8026).

Federal bag, possession, and boat limits (50 CFR §660.721) for bluefin tuna are specific to the waters off of California and/or defer to California regulations (14 CCR §28.38b). The Federal bag limit, as well as the California bag limit, is ten bluefin tuna off the coast of California. In California, the limit of ten bluefin tuna is in addition to a 20-fish bag limit of any finfish (i.e., up to 30 fish total); the additional 20 finfish may consist of up to ten of a single species of tuna. The Federal possession limit indicates that if California requires a multi-day possession permit of bluefin tuna landed in California, which it does, then it is deemed consistent with Federal law. California's possession limit is three times the daily bag limit, therefore an angler may land up to 30 bluefin tuna per trip that is three days or longer in duration; vessel owner/operators must file a Declaration for Multi-Day Fishing trip in order for the possession limit per person (3x daily bag limit) to apply. Federal boat limits are the combined daily limits of HMS for all licensed anglers. In California, the boat limit does not apply to fishing trips originating in California where fish are taken in other jurisdictions (e.g., Mexico) (14 CCR §27.60c, c(1)-c(4)).

CPFVs frequently fish in Mexico's waters. In addition to U.S. regulations, while operating in Mexican waters CPFVs must also adhere to Mexico's regulations, which include a daily bag limit of five bluefin tuna and a possession limit of 15 bluefin tuna. A Mexican fishing license is required from each person on the fishing vessel, regardless of age or whether fishing.⁸ Mexico has temporarily prohibited the retention of bluefin tuna by sportfishing vessels. The current bag limits in Mexico are stricter than both Federal and California regulations. However, note that per U.S. Federal regulations, it is prohibited to take and retain, possess on board, or land, fish in excess of any bag limit specified in Federal regulations (i.e., 10 bluefin tuna per day off California, which may be aggregated up to 3 days) (50 CFR §660.705).

Table 3-7. Current bag (daily catch) and possession limits in different regulatory areas.

Regulatory Area	Daily Catch Limit	Possession Limit
Mexico EEZ	5	15
U.S. West Coast EEZ	10 off of CA	30 off of CA
California	10	30
Oregon	Up to 25 in aggregate limit	Up to 50 in aggregate limit
Washington	2	No limit

3.3 Ecosystem and Essential Fish Habitat

Chapter 3 in the Council's Fishery Ecosystem Plan (FEP) describes the west coast EEZ in terms of the California Current Ecosystem (CCE). PBF fisheries occur primarily in the southern sub-region of the CCE described in FEP section 3.1.2.1, south of Point Conception, California, and extending beyond the EEZ to Punta Baja, Mexico (30° N. latitude). A fourth sub-region of the CCE exists in Mexican waters,

⁸ CONAPESCA San Diego: <http://www.conapescasandiego.org>

reaching from Punta Baja to the tip of the Baja Peninsula at Cabo San Lucas. This region is characterized by complex under-sea topography and the sheltered waters of the Southern California Bight. There is a cyclonic gyre in the Bight area that mixes cooler CCE water with warmer waters from the southeast.

Chapter 7 in the HMS FMP describes essential fish habitat (EFH) for species, by life stage, managed under the HMS FMP. HMS occur in pelagic waters with EFH for species/life stages determined by water temperature, water depth, and occurrence of prey species.

3.4 Protected Species

Implementation of the HMS FMP was subject to a consultation between NMFS Protected Resources Division and Sustainable Fisheries Division pursuant to Section 7 of the Endangered Species Act (ESA). The Biological Opinion for this action lists ESA-listed species occurring in the action area (see Table 3-8).⁹ This Biological Opinion found the recreational HMS fisheries do not result in takes of listed species.

Marine mammals not listed under the ESA are still protected under the Marine Mammal Protection Act (MMPA). NMFS produces a Stock Assessment Report (SAR) annually for Pacific stocks. The SAR estimates fishery-related mortality and/or serious injury (M/SI) for each stock. Recreational fisheries are not expected to result in M/SI. Table 3-9 lists marine mammals stocks occurring in the fishery management action area (defined in Section 1.3 as EEZ waters off California) and not listed as strategic under the MMPA. Strategic stocks listed in this table are those where M/SI exceeds Potential Biological Removal (PBR). PBR is the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. ESA-listed stocks (listed in Table 3-8) are also classified as strategic.

Section 6.2.7 in the final EIS (FEIS) for the HMS FMP summarizes protected species interactions with recreational HMS fisheries. California sea lions may be attracted to vessels actively chumming, as are seabirds, including brown pelicans, cormorants, seagulls, shearwaters, and petrels.

⁹ National Marine Fisheries Service, Southwest Region, Sustainable Fisheries Division and Protected Resources Division. Endangered Species Act Section 7 Consultation Biological Opinion on Adoption of (1) proposed Highly Migratory Species Fisheries Management Plan; (2) continued operation of Highly Migratory Species fishery vessels under permits pursuant to the High Sea Fishing Compliance Act; and (3) Endangered Species Act regulation on the prohibition of shallow longline sets east of 150° W. longitude. February 4, 2004.

Table 3-8. ESA endangered and threatened species occurring in the action area for the HMS FMP Biological Opinion.

Marine Mammals	Status
Blue whale (<i>Balaenoptera musculus</i>)	Endangered
Fin whale (<i>Balaenoptera physalus</i>)	Endangered
Guadalupe fur seal (<i>Arctocephalus townsendii</i>)	Threatened
Humpback whale (<i>Megaptera novaeangliae</i>)	Endangered
Pacific Right whale (<i>Eubalaena japonica</i>)	Endangered
Sei whale (<i>Balaenoptera borealis</i>)	Endangered
Sperm whale (<i>Physeter macrocephalus</i>)	Endangered
Steller sea lion - eastern population (<i>Eumetopias jubatus</i>)	Threatened*
Sea turtles	
Green turtle (<i>Chelonia mydas</i>)	Endangered/Threatened
Hawksbill turtle (<i>Eretmochelys imbricata</i>)	Endangered
Leatherback turtle (<i>Dermochelys coriacea</i>)	Endangered
Loggerhead turtle (<i>Caretta caretta</i>)	Threatened
Olive ridley turtle (<i>Lepidochelys olivacea</i>)	Endangered/Threatened
Salmonids	
Chinook salmon - Puget Sound (<i>Oncorhynchus tshawytscha</i>)	Threatened
Chinook salmon - Lower Columbia River	Threatened
Chinook salmon - Upper Columbia River spring	Endangered
Chinook salmon - Upper Willamette River	Threatened
Chinook salmon - Central Valley spring	Threatened
Chinook salmon - Sacramento River winter	Endangered
Chinook salmon - Snake River spring/summer	Threatened
Chinook salmon - Snake River fall	Threatened
Chum salmon - Columbia River (<i>O. keta</i>)	Threatened
Chum salmon - Hood Canal summer	Threatened
Coho salmon - Central California Coast (<i>O. kisutch</i>)	Threatened
Coho salmon - Oregon Coast	Threatened
Coho salmon - Southern Oregon/Northern Coastal California	Threatened
Sockeye salmon - Ozette Lake (<i>O. nerka</i>)	Endangered
Sockeye salmon - Snake River	Endangered
Steelhead - Upper Columbia River (<i>O. mykiss</i>)	Endangered
Steelhead - Middle Columbia River	Threatened
Steelhead - Lower Columbia River	Threatened
Steelhead - Upper Willamette River	Threatened
Steelhead - Snake River Basin	Threatened
Steelhead - Northern California	Threatened
Steelhead - California Central Valley	Threatened
Steelhead - Central California Coastal	Threatened
Steelhead - South Central California	Threatened
Steelhead - Southern California	Endangered

*Subsequently delisted

Table 3-9. Marine mammals occurring in the fishery management area that are not ESA-listed.

Species	Stock Area	Strategic Status
California sea lion	U.S.	N
Harbor seal	California	N
Northern Elephant Seal	California breeding	N
Northern Fur Seal	California	N
Harbor porpoise	Morro Bay	N
Harbor porpoise	Monterey Bay	N
Harbor porpoise	San Francisco – Russian River	N
Harbor porpoise	Northern CA/Southern OR	N
Dall’s porpoise	California/Oregon/Washington	N
Pacific white-sided dolphin	California/Oregon/Washington	N
Risso’s dolphin	California/Oregon/Washington	N
Common Bottlenose dolphin	California Coastal	N
Common Bottlenose dolphin	California/Oregon/Washington Offshore	N
Striped dolphin	California/Oregon/Washington	N
Common dolphin, short-beaked	California/Oregon/Washington	N
Common dolphin, long-beaked	California	N
Northern right whale dolphin	California/Oregon/Washington	N
Killer whale	Eastern North Pacific Offshore	N
Short-finned pilot whale	California/Oregon/Washington	N
Baird’s beaked whale	California/Oregon/Washington	N
Pygmy Sperm whale	California/Oregon/Washington	N
Dwarf sperm whale	California/Oregon/Washington	N
Gray whale	Eastern North Pacific	N
Minke whale	California/Oregon/Washington	N
Killer whale	Eastern North Pacific Southern Resident	S
Mesoplodont beaked whales	California/Oregon/Washington	S
Cuvier’s beaked whale	California/Oregon/Washington	S

CHAPTER 4 ENVIRONMENTAL IMPACTS

4.1 *Target and Non-Target Species*

4.1.1 Pacific Bluefin Tuna

4.1.1.1 Estimating Catch Reductions from the Proposed Action

The action alternatives are intended to reduce retained recreational catch of PBF compared to No Action. However, the actual reduction in catch cannot be predicted, because changes in total fishing effort and CPUE affect total catch. Put another way, if the number of anglers and their ability to catch PBF changes, catch would change under any given bag limit.

Mexico has managed recreational catch of PBF in its waters with a daily bag limit of five fish per angler and an accompanying 15-fish possession limit for multi-day trips. However, in 2014, Mexico prohibited recreational fishing for PBF in July when its commercial limit under IATTC Resolution C-13-02 was reached. As it did in 2014, in future years Mexico could close the recreational fishery in its waters when the EPO commercial quota is attained. Mexico could also change its recreational management measures to align them with the Preferred Alternative, but it unknown whether they will do so.

As noted above, IATTC Resolution C-14-06 requires countries (including the U.S.) to take meaningful measures to reduce recreational catch of PBF comparable to the reductions applied to commercial fisheries. The EPO commercial quota would be reduced by 40 percent for 2015-2016 compared to 2014.

Finally, under the Preferred Alternative the possession limit of six fish would effectively apply to both fish caught in Mexico and U.S. waters for vessels transiting the U.S. EEZ to return to port. The possession limit could reduce landings even if Mexico continues with its 5-fish bag limit and 15-fish possession limit.

For these reasons it is not possible to precisely project the effect of bag and possession limit alternatives. The retrospective bag limit analysis provides an indication of possible catch reductions under conditions that applied in past years. As noted, actual reductions are subject to various external factors, including the availability of PBF to the recreational fishery and management measures adopted at the international level.

Estimated reductions from CPFV bag limit analyses are very consistent among areas and years (Table 4-1). Cumulative reductions for successively lower bag limits from No Action (10-fish bag) for 2013 are very similar to those estimated from combined 2008-2013 logbook data. The 10-fish daily bag limit for bluefin tuna adopted in 2007 became effective in 2008, so data for the 2008-2013 time period were analyzed to cover the period when the 10-fish bag limit has been in effect. To compare to the baseline fishery in 2013, catch savings from the alternatives are estimated from reductions in bluefin landings (bag limit analyses) for 2013 CPFV logbook data. Cumulative reductions for CPFV fishing in U.S. waters are also very similar to those for Mexico waters. In general, a bag limit change from 10 to 4 fish results in a catch reduction of 5-10 percent (by number), a bag limit of 3 fish results in approximately a 15 percent reduction; a bag limit of 2 fish results in about a 30 percent reduction, and a bag limit of 1 fish results in roughly a 50 percent reduction.

Table 4-1. For the CPFV fishery, estimated cumulative percentage reductions in number of Pacific bluefin landings with successive reductions from a 10-fish bag limit for U.S. waters, U.S.-Mexico waters (straddling), and Mexico waters, during 2013 and during 2008-2013 (combined). (Source: Elizabeth Hellmers, CDFW, personal communication)

CPFV No. Bags	2013 Percentage Reductions			2008-2013 Percentage Reductions		
	4,037	762	25,986	17,438	2,900	133,735
Bag Size	U.S. Waters	U.S. - Mexico	Mexico Waters	U.S. Waters	U.S.- Mexico	Mexico Waters
0	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1	54.6%	52.8%	54.2%	51.3%	39.7%	51.5%
2	32.3%	30.5%	29.5%	29.3%	19.4%	27.9%
3	18.2%	16.1%	14.9%	16.6%	9.6%	14.2%
4	9.4%	5.9%	5.9%	9.1%	3.7%	5.8%
5	3.7%	0.0%	0.6%	4.4%	0.4%	0.6%
6	2.0%	0.0%	0.3%	2.5%	0.0%	0.3%
7	0.8%	0.0%	0.2%	1.1%	0.0%	0.2%
8	0.1%	0.0%	0.1%	0.3%	0.0%	0.1%
9	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

To approximate total catch savings by weight, the reduction in number of fish from the bag limit analysis for the CPFV fishery is multiplied by an average weight of fish (14.3 kg per fish). This average is the simple average of the six estimated annual average weights of bluefin landed by CPFV vessels during 2008-2013, estimated from IATTC fish measurements during 2008-2012 (Jenny Suter and John Childers, NMFS, personal communication). Monthly average weights of fish from 2011 was applied to monthly CPFV landings (numbers) of bluefin to obtain a total weight (mt) of 2013 landings. Because these averages have ranged from a low of 10.2 kg per fish in 2008 to a high of 15.9 kg per fish in 2011, and therefore, a range of potential catch savings in weight are also estimated, based on these high and low annual values. CDFW staff also indicates that the logbook compliance rate is approximately 80 percent; the bag limit analyses and potential reductions are not expanded to account for non-compliance. Table 4-2 presents the estimated potential catch savings in numbers and weight (mt) of fish for the CPFV fishery in U.S. waters, in Mexico waters, and combined U.S. and Mexico waters, for the 2013 fishery only, the baseline for No Action.

Table 4-2. Potential bluefin catch savings in total number and total weight (mt) of fish for the CPFV fishery. (Source: Analysis by Elizabeth Hellmers, CDFW, personal communication.)

Potential Bag Reductions	U.S. Waters			Mexico Waters			U.S. & Mexico Waters Combined		
	Number of Fish	Weight (mt)		Number of Fish	Weight (mt)		Number of Fish	Weight (mt)	
		Average	Range		Average	Range		Average	Range
10 fish to 5 fish	201	3	2-3	320	5	3-5	521	8	5-8
10 fish to 4 fish	571	9	6-9	3,318	52	34-53	3,889	60	40-62
10 fish to 3 fish	1,155	18	12-18	8,425	131	86-134	9,580	149	98-152
10 fish to 2 fish	2,073	32	21-33	16,745	260	171-266	18,818	292	192-299
10 fish to 1 fish	3,514	55	36-56	30,726	477	313-489	34,240	532	349-544

Potential conservation benefits from the bag limit and possession limit changes included in the proposed alternatives are estimated from the reductions in bluefin tuna landings (in numbers and weight) based on bag limit analyses of CPFV logbooks received and average fish weight from IATTC sampling. Catch savings from the private vessel fishery are likely to be minor because landings by this fishery are small (558 fish landed in 2013 from U.S. and Mexico waters) and nearly all fish are taken in one-fish bags. Consequently, catch savings from the private vessel fishery in U.S. and Mexico waters are not estimated and not included in the bag analyses and comparisons among alternatives.

4.1.1.2 Conservation Effect of Catch Reduction

The effect of any of the bag limit proposals on PBF stock conservation would be modest by themselves, given the catch reductions involved. For illustrative purposes, historical catch and estimated catch reductions under the bag limit proposals are compared to values that could serve as proxies for the “comparable reduction” called for in Resolution C-14-06. Under this resolution the overall EPO commercial quota is reduced from 5,000 mt for 2014 to 6,600 mt for two years, 2015-2016. Furthermore, the quota effectively reserved for U.S. commercial fisheries (“any CPC other than Mexico with historical commercial catches of Pacific bluefin in the Convention Area”) is deducted from the overall EPO quota. This quota is 600 mt for 2 years versus 500 mt in 2014. (This differs from the previous resolution, C-13-02, where this quota was separate from the 5,000 mt EPO quota.) “Comparable levels” could thus be interpreted as 40 percent reduction (3,000 divided by 5,000 or 300 divided by 500) from 2014 to 2015-2016.

Figure 4-1 shows the historical time series of CPFV PBF catch (CPFVs account for most PBF catch) compared to 40 percent reductions in 2014 CPFV catch in U.S. and Mexican waters (CDFW fishing blocks that straddle the border between the U.S. and Mexico EEZs are included in U.S. EEZ catch). Historically, CPFV catch in U.S. waters exceeded a 40 percent reduction in estimated 2014 catch (such a reduction is equal to 158 mt) in 2 years out of 25. This suggests that even when PBF catch was minimally constrained, this proxy for “comparable reduction” was rarely exceeded. For Mexican waters, the 40 percent reduction from 2014 CPFV catch was exceeded in 20 out of 25 years. However, this reflects the fact that Mexico prohibited retention of PBF early in the season in 2014. In contrast, 2013 CPFV catch in Mexican waters was a record high; even a 40 percent reduction from that figure (881 mt) is greater than catch in any other year. This highlights how the choice of a baseline year, or series of

years, for calculating a catch reduction can shade the interpretation. Taking another example, the conservation and management measure adopted by the WCPFC requires a 50 percent reduction in catch of PBF less than 30 kg from average catch 2002-2004. Assuming that all U.S. recreational catch is of fish less than 30 kg, the “comparable reduction” would be to 53 mt.

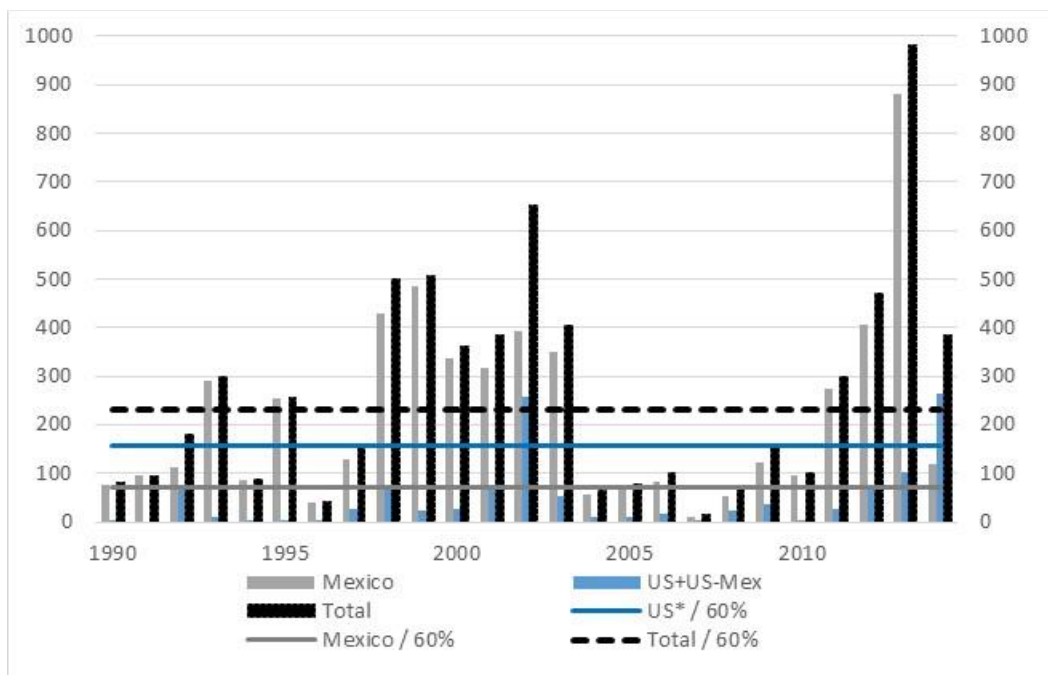


Figure 4-1. Estimated PBF CPFV catch, 1990-2014, compared to potential values to assess “comparable reduction.” *U.S. catch includes catch in fishing blocks straddling the U.S. and Mexico EEZs.

The estimated catch reductions from the 2013 baseline year shown in Table 4-2 are illustrated in Figure 4-2. If conditions remain unchanged from 2013 in terms of the availability of PBF to anglers and recreational fishing effort targeting PBF, this range of bag limits would not achieve “comparable reductions” as approximated above. However, if conditions were to change, making PBF less available to anglers and/or if fishing effort directed at PBF declined, then quotas within this range might not be exceeded. Figure 4-1 illustrates that recreational PBF catch can vary widely, independent of management controls. Throughout the period catch was minimally controlled, yet catch was still below these levels in some years.

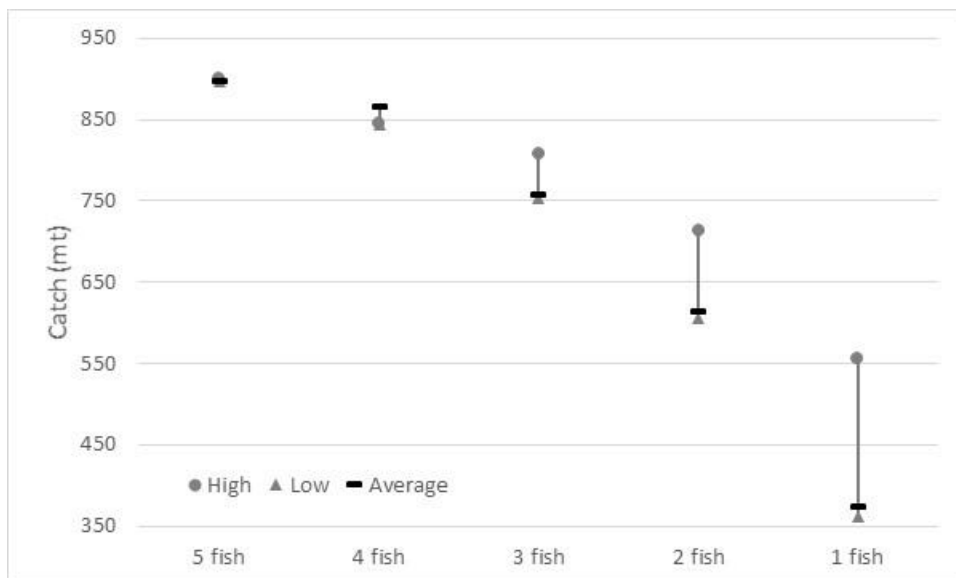


Figure 4-2. PBF catch estimated to have occurred in 2013 if alternative bag limits were in place. (Based on Table 4-2)

4.1.1.3 Summary of the Impacts of the Alternatives

Alternative 1, No Action Alternative: Under the No Action alternative, assuming that Mexico lifts the temporary ban on retention of bluefin and the 5-fish bag limit/15-fish possession limit would again be in effect, catches would be expected to remain in the range of recent historical catch, depending on fishing effort and CPUE. In reference to Table 4-2, estimating catch reductions that would have occurred in 2013 under different bag limits, an estimated 6,473 fish or 93 mt (based on a 14.3kg average) would have been caught in U.S. waters under No Action. An estimated 63,350 fish or 985 mt (based on monthly average weights from IATTC sampling) would have been caught in U.S. and Mexico waters combined under No Action. Table 4-3 summarizes recreational PBF catch in number of fish and weight for the period 1990-2013 by area. Total catch in weight ranged from an annual low of 13 mt to a high of 982 mt. The average is 264 mt, indicating that the annual figures skew towards the lower end of the distribution. Under No Action it is likely that recreational catch would fall within this range.

Table 4-3. Range of estimated annual catch of PBF by recreational anglers, 2000-2013. U.S. – CDFW fishing blocks wholly in U.S. waters; Straddling – CDFW statistical blocks straddling the border between U.S. and Mexico waters; Total – both U.S. and Mexico waters. (Source: Table 3, Agenda Item G.4.b, CDFW Report 1, September 2014)

	No. of Fish			Weight (mt)		
	U.S.	Straddling	Total	U.S.	Straddling	Total
Min	0	0	1,028	0	0	13
Max	12,224	1,054	63,154	239	19	982
Average	2,111	185	16,493	35	3	264

Alternative 2, Preferred Alternative: A two-fish per day bag limit and six-fish possession limit for multi-day trips would be implemented in federal waters off California. The possession limit would be applied to all multi-day trips including fish caught in Mexico waters. As shown in Table 4-1, a bag limit analysis indicates that a two-fish limit would result in a 32 percent reduction in catch if in place in 2013 or, as shown in Table 4-2, a reduction of 32 mt of catch in U.S. waters. (A range of total weights is also reported in this table based on variability in monthly average weight per fish measured by the IATTC

dock sampling program.) Historically, 86 percent of U.S. recreational catch occurred in Mexico waters, so measures affecting catch there would have a relatively larger impact in comparison to measures applicable to U.S. waters alone. If this possession limit had an equivalent effect in Mexico waters as a two-fish bag limit in U.S. waters (or the lower bag limit were enforced in both countries) then, according to Table 4-2, catch in 2013 would have been reduced by 292 mt using an estimate average weight per fish of 14.3 kg. Two hundred and ninety-two metric tons represents a 30 percent reduction from the 982 mt estimated catch in 2013. These figures are for the CPFV fleet only, but private anglers account for a small portion of total catch according to CRFS sampling.

Alternative 3: U.S. daily bag and possession limits for Federal waters off California would be harmonized with Mexico's regulations for bluefin tuna of five fish per day bag limit and 15 fish possession limit. If these bag and possession limits were in place in 2013 they would have resulted in a 3.7 percent reduction in catch by CPFV vessels (see Table 4-1) and overall reduction in catch of 201 fish or 3 mt using an average weight in U.S. waters.¹⁰ Catch in Mexico waters would be unaffected since this alternative accords with the current possession limit for Mexico.

Alternative 4: In order to simplify the analysis, this alternative includes a range of potential daily bag limits/possession limits of four-, three-, and one-fish daily bags and corresponding possession limits computed as three times the daily bag limit for multi-day trips for Federal waters off California. (The Preliminary Preferred Alternative is the two-fish bag limit, six-fish possession limit.) As with the Preliminary Preferred Alternative, possession of fish caught in Mexico could be limited to no more than the corresponding U.S. possession limits. If possession limits make corresponding daily bag limits apply to both U.S. and Mexico waters, CPFV catch would be reduced 10 percent and 55 percent (Table 4-1) depending on which bag limit was applied. As shown in Table 4-2, projected catch savings achieved through a bag limit reduction to four fish in U.S. and Mexico waters combined (60 mt) is approximately the same as catch savings achieved through a one-fish bag limit for U.S. waters (55 mt). A bag limit of three fish for U.S. and Mexico waters combined achieves a 15 percent reduction from the No Action Alternative; a two-fish bag limit achieves a 30 percent reduction and a one-fish bag limit achieves a 54 percent reduction. The potential maximum reduction under this alternative is estimated to be 34,240 fish and 532 mt for a one-fish bag limit in U.S. and Mexico waters combined.

Alternative 5: Retention of bluefin tuna by recreational fisheries would be prohibited in the U.S. EEZ. This would also prohibit retention of tuna caught in Mexico waters by U.S. recreational anglers that transit U.S. waters and land in U.S. ports. In comparison to the other alternatives, using the 2013 baseline, this alternative would result in a 985-mt reduction in retained catch. Anglers are usually able to distinguish PBF schools from other tunas, so it would be possible for them to avoid targeting PBF. However, it is likely that some amount of PBF would still be caught. Any such fish would have to be released, but there would still be some unquantified amount of bycatch mortality.

All of the action alternatives would reduce the recreational daily bag limit and possession limit for PBF in waters off of California from current (No Action) levels. Bag and possession limit reductions are likely to reduce fish mortality and thus enhance sustainable management of the PBF stock. The current bag limit of 10 fish per angler per day has a modest effect by preventing any substantial increase in PBF fishing mortality in the California recreational fishery, all other factors being equal. **Therefore none of the alternatives are expected to further jeopardize the sustainability of the target species, PBF.**

¹⁰ Although the analysis shows catch reduction in Mexico waters, this is due to misreporting or anglers exceeding the bag limit. Since there would be no change in the regulations for recreational PBF catch in Mexico waters, it is assumed that catch would have been the same as reported for 2013.

4.1.2 Other Species Caught in Association with Pacific Bluefin Tuna in the Southern California Recreational Fishery

The principal species caught in conjunction with PBF are yellowfin tuna, North Pacific albacore tuna, and dolphinfish (dorado). Section 3.1.2.2 describes stock status of these species. For these other species, west coast recreational catch is a negligible fraction of total catch and unlikely to discernably affect stock status. Historical CPFV catch data reported in Section 3.1.2.1 shows variability in catch composition and total catch over time.

The action alternatives are intended to limit catch of PBF, and this could induce switching to other target species, depending on their availability to the fishery. If other species are not abundant, or recreational anglers do not view them as desirable substitutes for PBF, catch could decline. This in turn could reduce participation in recreational fishing directed towards HMS. Alternatives that impose greater restrictions on PBF catch would likely promote more target switching, other factors being equal.

Alternative 1, No Action: Bag limits and related measures would remain unchanged. Assuming 2013 conditions as the baseline, other HMS would comprise about half of recreational catch (see Table 3-3).

Alternative 2, Preferred Alternative: As discussed above, assuming 2013 conditions as the baseline, this alternative (two-fish bag limit, six-fish possession limit) would reduce PBF catch in U.S. waters by 32 percent and the possession limit would have an unquantified additional impact on catch in Mexico waters. (As discussed above, the possession limit could function as a proxy for an equivalent daily bag limit for U.S. recreational anglers fishing in Mexico waters.) Table 4-4 shows, in number of fish, changes in catch composition under different bag limit scenarios, based on the PBF catch reductions reported for different bag limits in Table 4-2. The PBF catch reduction under each bag limit scenario is proportionately redistributed to the other species categories to derive these numbers. This does not take into account potential changes in the availability of different species and changes in angler effort which would lead to different catch amounts for these species. Furthermore, it does not account for differences in demand for different fish species that could additionally change the distribution of catch among species, because of targeting preferences. Under a two-fish bag limit, albacore catch would increase from 2,823 fish to 2,901; yellowfin would increase from 53,681 fish to 55,164, and other HMS would increase from 18,536 fish to 19,048. Expressed in percentage terms these increases are less than 1 percent. As noted in Section 3.1.2.2, west coast recreational catch is a negligible fraction of catch of these stocks, which are by and large healthy. Thus, catch increases indicated by this simple illustration are not likely to meaningfully impact stock status.

Alternative 3: Using the method described above under Alternative 2, catch increases of other species under this alternative accord with the five-fish bag limit shown in Table 4-4. Albacore catch could increase from 2,823 fish to 2,831; yellowfin could increase from 53,681 fish to 53,825, and other HMS could increase from 18,536 fish to 18,586. These changes are negligible and would not affect stock status.

Alternative 4: Using the method described above under Alternative 2, catch increases of other species under this alternative accord with the four-, three-, and one-fish bag limits shown in Table 4-4. Under the most restrictive bag limit of one fish, albacore catch could increase from 2,823 fish to 2,942; yellowfin could increase from 53,681 fish to 55,935, and other HMS could increase from 18,536 fish to 19,315. These changes are negligible and would not affect stock status.

Alternative 5: Using the method described above under Alternative 2, if PBF retention is prohibited it is assumed that fishing effort would shift completely to other HMS. As shown in Table 4-4, this could result an increase in albacore catch from 2,823 fish to 5,206, for yellowfin an increase from 53,681 fish to 98,999, and for other HMS an increase from 18,536 fish to 34,184. While this result in the largest potential increase in catch of these species, such increases are still negligible and would not affect stock status.

In recreational HMS fisheries anglers are able to discriminate between different pelagic species so all species may be considered target species. The reduction of PBF daily bag limits proposed across the action alternatives could result in some target switching to other tuna species, depending on their availability in the fishery management action area. The principal alternative species are North Pacific albacore and yellowfin tuna. Neither of these stocks are subject to overfishing or overfished according to [NMFS Status of Stocks Reports](#). As described above potential increases in catches across the action alternatives would be negligible and would have an insignificant impact on stock status. **Therefore none of alternatives is expected to jeopardize the sustainability of non-target species.**

Table 4-4. Number of fish caught by species assuming 2013 conditions and other HMS were perfectly substituted for PBF under different bag limit scenarios. (Based on Table 4-2)

Bag limit	PBF Reduction	Albacore	Yellowfin	Bluefin	Remaining Species	Total
10 fish (2013)	0	2,823	53,681	63,350	18,536	138,390
5 fish	201	2,831	53,825	63,149	18,586	138,390
4 fish	571	2,844	54,089	62,779	18,677	138,390
3 fish	1,155	2,866	54,507	62,195	18,821	138,390
2 fish	2,073	2,901	55,164	61,277	19,048	138,390
1 fish	3,154	2,942	55,937	60,196	19,315	138,390
0 fish	63,350	5,206	98,999	0	34,184	138,390

4.1.3 Biological Impacts of Processing Recreational Catch at Sea Requirements

None of the alternatives for processing recreational catch at sea would have a discernable biological impact on fish stocks, because catch has occurred and the fish are dead. Changes in the discarding of fish offal could affect other species, such as seabirds and marine mammals that are attracted to discarded offal and congregate at the boat. Except the complete prohibition on filleting at sea, the other alternatives would generate the same amount of offal as No Action.

Prohibiting continued filleting at sea could increase the risk of spoilage, presenting a modest health risk as well as reducing the full use and enjoyment of the fish. Otherwise, the alternative restrictions on processing fish at sea would have negligible impacts on the human environment. **Therefore none of alternatives is expected to have significant adverse impacts on health and safety or on affected resources.**

4.2 Socioeconomic Environment

4.2.1 CPFV and Private Boat Anglers

Short run costs of recreational bluefin regulation would primarily impact the Southern California private vessel and CPFV fishing fleets, the community of anglers that catch bluefin tuna, and related industries which supply goods and services to the portion of the recreational HMS fishery which includes bluefin among its targets. These costs could include loss of consumer and producer surplus and negative

economic benefits in exchange for long-term conservation benefits. Specific impacts might include a substitution of other recreational target species for bluefin, reduced angler satisfaction, lower willingness to pay for CPFV trips, fewer customers, and negative economic impacts in terms of jobs and revenues in the CPFV fishery and other industries which support them. Additional short-run costs not borne by the west coast fishery and related industries could include potential agency monitoring, management, and enforcement costs for in-season actions.

Stock recovery due to successful conservation management may provide long-term economic benefits, in the form of potentially higher future catch and retention of bluefin tuna for both recreational and commercial west coast fisheries. Whether Council constituents would be able to recapture the value of any future improvements in the status of the Pacific bluefin tuna stock would depend on the flexibility of future management to relax regulations in case warranted by stock conditions.

It is not clear without further information what effect reducing bluefin tuna bag or retention limits would have on substitution of other catch for bluefin tuna or on reduced demand for CPFV or private vessel trips. Since current bag and retention limits are set at levels which affect a very low percentage of west coast CPFV angler bags, existing data are not representative of economic impacts which could result from a significant reduction in bluefin tuna bag or retention limits.

4.2.1.1 Potential Economic Impacts of Recreational Management Measures for Bluefin Tuna

Direct expenditures in 2013 on marine recreational fishing trips in California District 1, which includes ports from Los Angeles south through San Diego, included roughly \$119 million on CPFV trips. In 2013, this fleet provided 380,000 and 152,000 angler days of fishing effort to U.S. and Mexican fishing grounds, respectively. The employment impacts of these trips supported about 1,537 full-time equivalent jobs in 2013 ([2013 California Marine Recreational Fishing Trip Effort and Preliminary Economic Impact Estimate](#)).

Bluefin tuna catch has sharply increased as a share of all CPFV HMS catch in recent years, from levels below 10 percent from 2000-2007 to levels between 20 percent and 55 percent from 2011-2013 ([September 2014 Agenda Item G.4.b HMSMT Report 2, Figure 7](#)). Economic value due to recreational bluefin tuna catch is generated in the form of consumer surplus, producer surplus, and regional economic impacts.¹¹ Although bluefin tuna recreationally caught on west coast U.S. trips cannot legally be sold, allowing recreational anglers to catch and retain bluefin tuna for personal or community use can be an important factor in their decisions to take recreational fishing trips; conversely, depending on the level of regulation, limiting or eliminating the potential for recreational anglers to catch and retain bluefin tuna could reduce the demand (willingness to pay) for recreational fishing trips, resulting in a loss of consumer surplus. While anglers may be able to continue fishing for other species or practice catch and release bluefin tuna fishing if retained bluefin catch were limited by regulation, the reduction in choice of species to catch and retain could reduce the value of the fishing experience, leading to a loss of CPFV and private boat trip demand. A loss of producer surplus would result if reduced CPFV trip demand led to some combination of a reduction in the number of CPFV trips or the need for price reductions to attract anglers to continue taking trips. A decrease in the number of CPFV or private vessel recreational trips or prices is also predicted to result in a reduction in trip expenditures and attendant multiplier effects of recreational fishing, negatively impacting regional economic expenditures and jobs in supporting industries.

¹¹ Consumer surplus measures the aggregate amount by which the benefit of consuming a product exceeds what consumers pay to obtain it. Producer surplus is the aggregate economic value of producer profits from providing a product. Regional economic impacts consider revenue flows due to an economic activity, such as CPFV vessels providing anglers with recreational fishing trip experiences; they include direct effects on the affected industry, indirect effects on related businesses such as suppliers of services and durable goods, and induced effects on household expenditures; regional employment impacts are also considered.

The U.S. west coast recreational and commercial fleets, related industries, consumers, and other concerned parties could realize future benefits if current conservation measures led to improved future bluefin tuna fishing opportunities. Direct economic impacts of management on the west coast recreational fishery would be negative, immediate, and potentially significant depending on the particular alternative adopted, raising a question of fairness if the west coast recreational fleet, and anglers experienced disproportional impacts due to management measures.

4.2.1.2 Comparison of Estimated Angler and Bluefin Tuna Population Impacts of Bag Limit Reductions

A first step in assessing potential impacts of bluefin management measures on recreational demand is to estimate the impacts of different bag reductions on bluefin tuna angler experience. In addition, comparing angler impacts to anticipated reductions in bluefin tuna population impacts can provide insight on the tradeoffs for different potential bag reductions between regulatory impacts on anglers who recreationally target bluefin tuna and conservation benefits to the bluefin stock.

For this analysis, bluefin tuna fishing effort is defined to include all 2013 CPFV angler days where any tuna species was either targeted or caught, but limited to CDFW block/date combinations in which bluefin tuna were caught on CPFV trips. This definition of effort includes angler days when bluefin tuna were available in the area where fishing occurred but were not caught.

Table 4-5 shows the estimated impacts of potential bag reductions from current levels to numbers from five down to zero bluefin tuna, where zero represents a full moratorium on bluefin retention. The table is representative of 2013 CPFV trip logs for bluefin tuna effort in Mexico and U.S. waters. The left side of the table represents estimated impacts in U.S. waters; estimated impacts due to CPFV fishing in Mexico waters are represented on the right side. For each fishing area (U.S. or Mexico) and potential bag reduction, the leftmost two columns show estimated percentages of bags that would be reduced and average reductions in bag size for impacted anglers (those whose bags would be reduced). The rightmost two columns for each fishing area translate the estimated reduction in catch weight presented in [September 2014 Agenda Item G.4.b HMSMT Report 2, Figure 7](#) into an estimate of the decrease in the U.S. recreational fishery share of population impacts by all fisheries on the Pacific bluefin tuna stock.

Table 4-5. Estimated CPFV Angler and Bluefin Tuna Population Impacts of Bag Limit Reductions.

Potential Bag Reductions	U.S. Waters				Mexico Waters			
	Percent of Bags Reduced	Average Bag Reduction for Impacted Anglers	Estimated Catch Savings (mts)	Estimated Reduction in Total Population Impacts	Percent of Bags Reduced	Average Bag Reduction for Impacted Anglers	Estimated Catch Savings (mts)	Estimated Reduction in Total Population Impacts
10 fish to 5 fish	1.7%	2.16	3	0.0%	0.3%	1.82	5	0.0%
10 fish to 4 fish	6.8%	1.54	9	0.0%	4.7%	1.11	52	0.3%
10 fish to 3 fish	10.8%	1.98	18	0.1%	8.0%	1.65	131	0.6%
10 fish to 2 fish	17.0%	2.26	32	0.2%	13.0%	2.02	260	1.3%
10 fish to 1 fish	26.9%	2.43	55	0.3%	21.8%	2.20	477	2.3%
10 fish to 0 fish	54.9%	2.19	93	0.4%	40.4%	2.19	891	4.3%

Figure 4-3 shows a comparison of the estimated percentage of bags that would be reduced (horizontal scale) to the estimated reduction in total population impacts under different proposed bag limit reductions for fishing in U.S. waters (vertical scale), comparing data in the second and fifth columns of Table 4-5. Proposed reduced bag limits are displayed as labels on data points. A change from a bag limit of two to a full moratorium would increase the percent of U.S. water angler bags reduced from 17.0 percent to 54.9 percent; the associated reduction in total bluefin tuna population impacts would increase from 0.2 percent to 0.4 percent.

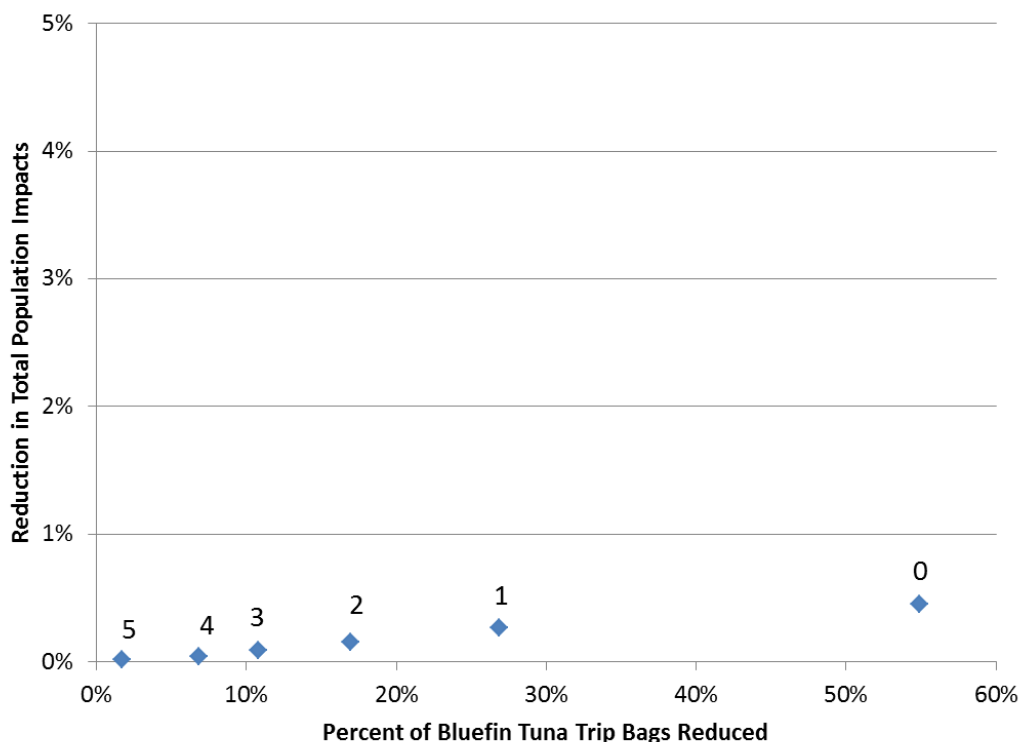


Figure 4-3. Angler and Total Population Impacts for Reduced Bag Limits in U.S. Waters.

Figure 4-4 displays the comparable information for bag limits applied to fishing in Mexico waters, based on data in columns six and nine of Table 4-5. With a bag limit of 1, an estimated 21.8 percent of U.S. bluefin tuna bags for fishing in Mexico waters would be reduced in exchange for a 2.3 percent reduction in total bluefin tuna population impacts.

These results are representative of the operation of the fishery in 2013, before the prohibition of the recreational bluefin fishery for the remainder of the year in Mexico waters after the commercial quota was reached. In case Mexico continues to take this approach of disallowing recreational bluefin catch when the commercial quota is reached, Mexico water impacts may occur regardless of the proposed action on bag limits. However, a closure of the Mexico recreational bluefin tuna fishery to U.S. anglers could also result in a shift in CPFV effort on bluefin tuna to areas inside the U.S. EEZ west of San Diego, where the vast majority of CPFV bluefin tuna effort in U.S. waters occurs. This could result in considerably larger economic impacts of bag reductions in U.S. waters than indicated by this analysis.

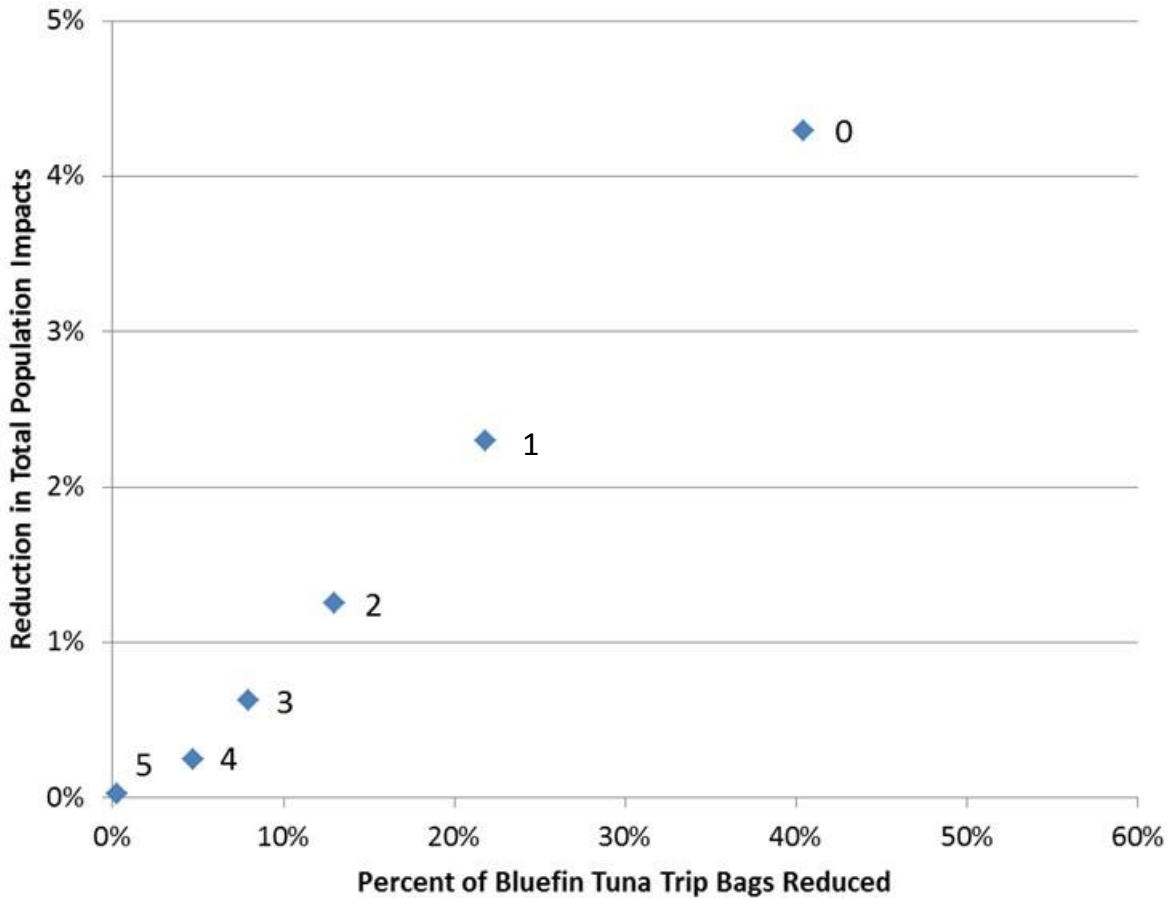


Figure 4-4. Angler and Total Population Impacts for Reduced Bag Limits in Mexico Waters.

4.2.1.3 Impacts of the Alternatives on CPFV and Private Boat Anglers

Alternative 1 (No Action): Continue daily bag limit of 10 bluefin and possession limit of 30 bluefin

This alternative would avoid imposing any regulatory costs on the west coast recreational fleet due to more stringent bluefin tuna management measures. However, it would fail to address conservation concerns regarding recent levels of bluefin tuna mortality due to west coast recreational fishing.

Alternative 2: Reduce bag limit to two fish per day and the possession limit to six fish for multi-day trips (Preferred Alternative)

With a bag limit reduction to two fish, an estimated 17.0 percent of bags in U.S. waters and 13.0 percent of bags in Mexico waters would be limited below current allowable levels. The average retained catch per angler who reaches the new limit would decrease by 2.26 fish in U.S. waters and 2.02 fish in Mexico waters compared to fishing under current management. Under the Preferred Alternative, between 1 and 46 jobs could be lost compared to the No Action Alternative, depending on the demand loss multiplier and the degree to which restrictions in U.S. waters affects fishing in Mexico waters.

Alternative 3: Harmonize U.S. daily bag and possession limits for Federal waters off California with Mexico's current regulations for bluefin tuna.

This alternative would affect anglers who catch more than five bluefin tuna on one day of a trip or more than 15 bluefin tuna over three days. Direct conservation benefits to the stock would be realized due to bluefin tuna mortality reductions stemming from the bag limit reduction. Only effort inside the U.S. EEZ would be affected. Anticipated impacts on angler experience and employment would be quite limited under this alternative, as seen in the top rows of Table 4-5 and Table 4-7.

Alternative 4: Reduce daily bag and possession limits to below 5 fish per day and 15 fish in possession for Federal waters off California, and as a potential suboption, limit possession of fish caught in Mexico to no more than the corresponding U.S. possession limits.

The bottom five rows of Table 4-5 show impacts of bag reductions to below five fish per day on angler experience and U.S. recreational mortality; the bottom five rows of Table 4-7 show employment impacts for bag reductions below five. The percentage of angler bags that would face a reduction increases steeply, while the reduction in U.S. recreational mortality increases by small amounts, particularly for fishing in U.S. waters. Estimated employment impacts also increase sharply with lower bag limits; for instance, job loss in the CPFV industry on the range from 14 to 85 is expected with a bag reduction to one fish per day.

Alternative 5: Prohibit retention of bluefin tuna by recreational fisheries.

This alternative could potentially impose negative economic impacts on the west coast U.S. recreational fishery. The degree of the impacts would depend on the degree of angler substitution between species which would impact the angler consumer surplus loss due to excluding bluefin tuna from the species they were allowed to catch, the loss of producer surplus to the recreational fleet if angler demand for trips significantly declined, and the potential for the fleet to cease normal operations in the face of a bluefin tuna moratorium. Upwards of 40 percent of anglers would face bag size reductions, with anticipated employment loss on the range from 26 to upwards of 150 jobs.

Socioeconomic impacts would result from a change in consumers' willingness to pay for or participate in recreational fishing targeting tunas due to the bag limit reductions for PBF. Potential reduction in demand for equipment and services would at least partly depend on the substitutability of other comparable species for PBF. If PBF are relatively more abundant than other species, reduced PBF bag limits could affect the perceived desirability of trips targeting tuna. **The impacts on CPFV operators and private anglers of the proposed action are difficult to quantify but are unlikely to lead to significant adverse effects.**

4.2.2 Fishing Communities: Potential Employment Impacts of Bluefin Tuna Bag Limits

Fishing communities, principally the ports of landing for CPFVs and private boats, benefit through expenditures made by anglers, CPFV owners, and CPFV crew, either through direct expenditures for equipment and supplies or secondarily through wage expenditures and angler expenditures for additional services, such as food and accommodation. Ports in the San Diego region (District 1) would be most affected by bag limit reductions, because a large proportion of tuna targeting trips originate and return to this region.

Employment impacts for CPFV fishing out of ports in District 1 roughly divide into 1,099 jobs due to fishing in U.S. waters and 438 jobs due to fishing in Mexico waters; the fishing effort which generates these jobs includes half-day trips and trips targeting other species besides tunas, such as bass and rockfish.

An analysis of bluefin tuna angler days out of District 1 ports showed that 1.8 percent of all 2013 District 1 CPFV angler days in U.S. waters represented bluefin tuna effort, while 53.4 percent of District 1 CPFV angler days in Mexico waters were due to bluefin tuna effort. District 1 CPFV jobs due to U.S. and Mexico water effort were rescaled by the shares of bluefin tuna angler days to obtain baseline employment impacts of bluefin tuna fishing, as shown in Table 4-6.

Table 4-6. Baseline Employment Impacts of 2013 CPFV Fishing Effort

Fishing Location	U.S. Waters	Mexico Waters
1) All District 1 CPFV Angler Days	380,380	151,620
2) All District 1 CPFV Jobs Impact	1,099	438
3) Bluefin Tuna Trip Share of District 1 Angler Days	1.8%	53.4%
4) Bluefin Tuna Trip Jobs Impact: (2) X (3)	20	234

A possible consequence of reduced bag and retention limits for bluefin tuna is a loss of employment in the CPFV fishing industry, due to a drop in demand for trips if a significant number of CPFV anglers are impacted. In most years, anglers can catch other HMS if bluefin tuna are unavailable, it is possible that a smaller number of anglers will forego trips than the percent of anglers who would experience bluefin tuna bag size reductions. However, there are also reasons the drop in trip demand could exceed the percent of anglers reaching bag or retention limits. For instance, angler demand for trips may depend more heavily on the potential amount of bluefin tuna they can catch and retain than the likely actual amount. A bag limit reduction from 10 down to 2 may be interpreted as a likely reduction of 8 fish per day for a trip, possibly resulting in a much larger decline in trip demand than suggested by relatively smaller estimated average bag size reductions.

Since the actual demand response to bag limits is unknown, a scenario analysis was employed to estimate potential industry job loss, using demand loss multiples of 0.25, 0.5, 1, and 1.5 times the anticipated percent of bags reduced to estimate the decline in numbers of CPFV trips. Based on the limited share of bluefin tuna angler days as a proportion of all 2013 CPFV effort in U.S. waters out of District 1 ports, loss of 10 or more full-time equivalent jobs is not predicted to occur for reduced bag limits in U.S. waters unless a full moratorium on bluefin tuna retention is passed. However, due to the much greater bluefin tuna angler day share of CPFV effort in Mexico waters, job loss exceeding 10 is predicted to occur beginning at a bag limit reduction of four, with a potential full-time equivalent job loss exceeding 100 in the case of a moratorium on retained bluefin tuna catch and retention for bluefin tuna caught in Mexico waters. The results for the full range of scenarios are shown in Table 4-7.

The action alternatives could result in job losses in the range of approximately 1 to 150 jobs. Potential job losses would be concentrated in District 1. However, in the context of the large regional economy of Southern California these jobs are well within the range of inter-annual fluctuations in jobs. **The impacts to fishing communities of the proposed action are difficult to quantify but are unlikely to lead to significant adverse effects.**

Table 4-7. Estimated Job Loss under a Range of Bluefin Tuna Bag Limit Reduction Scenarios.

Potential Bag Reductions	U.S. Waters					Mexico Waters				
	Percent of Bags Reduced	Demand Loss Multiplier for Scenario				Percent of Bags Reduced	Demand Loss Multiplier for Scenario			
		0.25	0.5	1	1.5		0.25	0.5	1	1.5
10 fish to 5 fish	1.7%	0.1	0.2	0.3	0.5	0.3%	0.2	0.3	0.7	1.0
10 fish to 4 fish	6.8%	0.3	0.7	1.4	2.1	4.7%	2.7	5.5	11.0	16.5
10 fish to 3 fish	10.8%	0.5	1.1	2.2	3.2	8.0%	4.7	9.3	18.7	28.0
10 fish to 2 fish	17.0%	0.8	1.7	3.4	5.1	13.0%	7.6	15.2	30.4	45.5
10 fish to 1 fish	26.9%	1.3	2.7	5.4	8.1	21.8%	12.7	25.5	51.0	76.5
10 fish to 0 fish	54.9%	2.7	5.5	11.0	16.5	40.4%	23.7	47.3	94.6	142.0

4.2.3 Socioeconomic Impacts of Processing Recreational Catch at Sea Requirements

At-sea processing of recreational catch provides income in the form of tips for CPFV crew, and facilitates the storage and transport of fish. It is not clear how restrictions on processing, short of a complete prohibition, would affect crew compensation. Crew may still receive equivalent tips for partial processing, such as heading and gutting the fish. If processing at sea was prohibited, entirely anglers may still tip crew in recognition of other kinds of assistance they provide to anglers on CPFVs.

Limitations on at-sea processing would also make the recreational experience less enjoyable for anglers, who would likely have to undertake additional processing on shore in order to take fish home with them, since tuna are large fish which cannot be easily transported in whole or partially processed form. Processing also enhances the quality of the flesh by reducing spoilage. Fish that can be taken home and frozen (or processed and frozen dockside) are likely viewed as an important benefit, since anglers can substitute this for fish that might otherwise be purchased. Aside from the obvious practical benefit, taking fish home is likely important psychologically in terms of justifying the cost of angling and providing food to friends and family.

On-shore processing services are available at prices from \$0.60 per pound for basic gill, gut, and head removal (e.g., \$24 for processing two 20-pound fish) up to \$2.25 per pound for fish jerky; since on-board processing services provided by crew members are likely less expensive and avoid the need to transport the fish to the on-shore processor, there are savings to the angler if at-sea processing is allowed. The alternatives under consideration are listed below, with discussion of policy implications and potential economic impacts. They would only apply to processing of tuna at sea by recreational harvesters fishing south of Point Conception.

Prohibiting continued filleting at sea (Alternatives 3-5) could increase costs to anglers to have fish processed on shore and reduce tip revenue currently going to CPFV crew. Revenues to on-shore processing services could increase if at-sea filleting was prohibited. These changes in costs and the distribution of revenues are relatively small in comparison to overall income from and expenditures for recreational fishing in the fishery management action area. **Therefore none of the processing alternatives is expected to have significant socioeconomic impacts.**

No Action Alternative: Current state requirements, which allow filleting as long as a 1-inch square patch of skin is left on the fillet.

The current requirement, which allows filleting at sea, does not allow species identification necessary to enforce bag limit reductions because several key diagnostic characteristics (e.g., pectoral fin) are removed during the filleting process.

Alternative 2: Preferred Alternative: Filleting of tuna at sea would be authorized in a manner that allows for both the species and the quantity of tuna taken aboard a vessel to be determined.

For tuna filleted at sea south of Point Conception, each fish must be in its own bag with the four loin fillets; the belly fillet must include the urogenital vent; the collar fillet must have both pectoral fins attached; and the skin must be left intact and attached to all six pieces. This would allow the current practice of filleting at sea to continue under reduced bag limits because enforcement personnel would be able to accurately identify filleted tuna to the species level. Crew members who currently earn significant tip revenue from at-sea filleting could continue to do so. This alternative would impose an additional burden on recreational fishers as the proposed fillet cuts are more complex and time consuming than the current state fillet regulations.

Alternative 3: Filleting of tuna at sea would be prohibited, while continuing to allow processing to remove organs and viscera (i.e., allowing only gilling and/or gutting).

In case it proves infeasible to identify species or retained catch counts while continuing to allow filleting at sea, this approach could provide an intermediate option between filleting and an outright ban on processing at sea. This alternative would reduce tip revenues for fish that would otherwise have been filleted and potentially imposes additional costs on anglers who would have to make arrangements for onshore processing in lieu of at-sea filleting.

Alternative 4: Filleting of tuna at sea would be prohibited, while continuing to allow processing to remove the head and organs and viscera (i.e., allowing only heading or gilling/gutting).

This measure would similarly reduce or eliminate tip revenues from filleting at-sea, while imposing additional costs and inconvenience on anglers who would need to make arrangements and incur added costs for processing their catch on shore. This measure could result in increased business activity for on-shore processing facilities if anglers choose to have their catch processed by those businesses as an alternative.

Alternative 5: Prohibit any processing of tuna at sea.

This alternative would eliminate potential tip revenue to crew members who currently offer at-sea filleting services and potentially shift some level of revenues to on-shore processing facilities. Additional effort and expense would be incurred by anglers required to land their catch whole. Industry representatives have also expressed a potential public health concern if requiring anglers to land their catch whole leads to an increase in the inappropriate disposal of fish waste products on shore.

4.3 Ecosystem and Essential Fish Habitat

Impacts to the ecosystem result from changes in trophic structure due to fishery removals. Removals directly impact trophic structure by reducing the abundance of species subject to fishing mortality. Indirect effects occur when fishery removals affect the abundance of other species in the food web through predator-prey interactions. The relative impacts of recreational bag limits on trophic structure would be negligible, because the impact on population size is so small.

Adverse impacts to EFH are usually a result of adverse gear interactions with habitat features. Pelagic habitat is generally insensitive to such impacts. Benthic EFH designated for other species (groundfish) can be adversely affected by fishing gear that contacts substrate. Recreational fishing trips for HMS occur in pelagic waters at generally great ocean depths. Therefore, fishing gear does not contact substrate. Furthermore, fishing gear has negligible impacts on all but the most sensitive substrates (e.g., structure-

forming macro-invertebrates). **Therefore, the proposed action, under any of the action alternatives, is not expected to cause any damage to ocean and coastal habitats and/or essential fish habitat or have significant adverse impacts on biodiversity and/or ecosystem function.**

4.4 Protected Species

As discussed in Section 3.4, recreational HMS fisheries have limited interactions with marine mammals and seabirds if chumming is used to attract game fish. Serious injury or mortality has not been observed to result from these interactions. A change in interactions could result from changes in angler fishing effort and the time and place of fishing activities. These changes cannot be predicted, because the effect of a bag limit reduction on participation and fishing patterns is not known. The time and location of fishing activities will likely be more influenced by the availability and distribution of target species than limits on the number of fish that may be retained. **Based on available information, the proposed action, under any of the action alternatives, is not expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species.**

4.5 Climate Change

Focusing on the Northeast Pacific, Ainsworth, et al. (2011)¹² used five Ecopath with Ecosim (EwE) foodweb models representing regions from Southeast Alaska to the Northern California Current to model climate change in terms of primary production, zooplankton community structure, range shifts, ocean acidification, and deoxygenation. Landings and biomass for composite species groups and ecosystem-scale biodiversity were used as response variables. In these simulations the distribution of pelagic species was most affected, while range shift resulted in declines in large piscivorous fish biomass. Range shifts also strongly influence mean trophic level of both catch and the ecosystem.

Cheung, et al. (2015)¹³ report on the predicted change in the distribution under different climate change scenarios of 28 coastal epipelagic fish species occurring on the Northeast Pacific continental shelf. The model time period is 1990-2060. No HMS are among the 28 species examined, because the study relies on coastal pelagic survey data; nonetheless, since the epipelagic zone is expected to be particularly sensitive to climate change, the results of this study can give some indication of potential range shifts of HMS that occur along the Pacific coast of North America.

Although PBF tolerate a range of temperatures, the center of their distribution off the Pacific coast could shift northward with climate change. This could result in higher abundance, longer seasonal residence times, and greater inter-annual occurrence of PBF and other, more tropical tuna species (yellowfin, bigeye, skipjack) in the U.S. west coast EEZ. The likelihood of occurrence is complicated by fluctuations due to larger scale changes in ocean conditions throughout the Pacific, including changes observed in the tropics (the El Niño/Southern Oscillation, ENSO) and changes in the north Pacific and subarctic (indexed by the Pacific Decadal Oscillation, PDO, and the North Pacific Gyre Oscillation, NPGO). ENSO is a higher-frequency inter-annual phenomenon, while the PDO and NPGO fluctuate at lower frequencies (years or decades). Elevated water temperature, whether due to climate change or shorter term

¹² Ainsworth, C., J. Samhouri, D. Busch, W. W. L. Cheung, J. Dunne, and T. A. Okey. 2011. Potential impacts of climate change on Northeast Pacific marine foodwebs and fisheries. *ICES Journal of Marine Science: Journal du Conseil* 68:1217-1229.

¹³ Cheung, W.L., R.D. Brodeur, T.A. Okey, and D. Pauly. 2015. Projecting future changes in distributions of pelagic fish species of Northeast Pacific shelf seas. *Progress in Oceanography*. 130:19-31.
doi:10.1016/j.pocean.2014.09.003

fluctuations, could make pelagic habitat in the west coast EEZ more habitable for these species, resulting in more availability to recreational anglers.

As noted elsewhere, the effect of bag limits are a function both of availability (or abundance) and total recreational fishing effort. Increased abundance could result in higher recreational catch in the U.S. EEZ than recorded historically. However, a permanent change in the distribution and abundance of PBF in the U.S. EEZ is likely on a longer time scale. The management framework in the HMS FMP allows biennial adjustment in regulations; if there is a substantial and ongoing increase in recreational catch, the bag limit could be reduced to one fish, or other measures (e.g., time/area closures) could be implemented.

For these reasons, none of the alternatives are expected to significantly contribute to anthropogenic activities driving climate, compared to baseline conditions.

4.6 Cumulative Effects

A cumulative effects analysis is required by the Council on Environmental Quality (CEQ) (40 CFR part 1508.7). The purpose of a cumulative effects analysis is to consider the combined effects of many actions on the human environment over time that would be missed if each action were evaluated separately. CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action from every conceivable perspective, but rather, the intent is to focus on those effects that are truly meaningful. This Section of the EA addresses the significance of the expected cumulative impacts as they relate to the federally managed HMS fishery.

4.6.1 Affected Resources

In Chapter 3 (Description of the Affected Environment) the environmental components affected by the proposed action are identified and described. Therefore, the significance of the cumulative effects will be discussed in relation to those affected environmental components as grouped below:

- Pacific bluefin tuna (Section 3.1)
- Other species caught in recreational fisheries for HMS (Section 3.1)
- The socioeconomic environment or human communities (Section 3.2)
- The California Current ecosystem and essential fish habitat (Section 3.3)
- Protected species (Section 3.4)

4.6.2 Geographic Boundaries

The analysis of impacts focuses on actions related to recreational catch of Pacific bluefin tuna in the U.S. west coast EEZ south of Point Conception, California. The geographic scope of the affected resources listed above is the EEZ off Southern California.

4.6.3 Temporal Boundaries

The temporal scope of past and present actions for the affected resources encompasses actions that occurred after FMP implementation (2004) and more specifically during the baseline period, 2013, which is the temporal context within which affected resources are described in Chapter 3. For endangered species and other protected resources, the scope of past and present actions is determined by analysis pursuant to the ESA and MMPA, including biological opinions and marine mammal stock assessment reports. The temporal scope of future actions for all affected resources is 10 years, based on the rebuilding

plan adopted by the WCPFC Northern Committee. The objective is to rebuild the stock to a target of the median spawning biomass observed over the assessment period.¹⁴

4.6.4 Past, Present, and Reasonably Foreseeable Future Actions Other than the Proposed Action

Past and present actions and their effects are described in Chapter 3. This forms the environmental baseline. The cumulative effect results from the combination of the effects of these past and present actions, reasonably foreseeable future actions, and the proposed action. Ongoing and reasonably foreseeable actions with detectable effects are summarized below.

Fishery Management Related

- Past and Present Fisheries for HMS: As discussed in Section 3.1, west coast recreational fisheries account for a very small fraction of total catch of HMS and resulting fishery impact. For PBF commercial fishing, vessels from Japan and Mexico account for the largest proportion of fishery impact. PBF is overfished and subject to overfishing. A broader range of nations accounts for fishery impact on other HMS; in the EPO, these are mainly Latin American countries dominated by Mexico, Ecuador, and Venezuela, and distant-water fleets from Japan, Taiwan, and Korea.
- RFMO Conservation Measures. As discussed in Chapter 3, the IATTC conducts stock assessments and responds by establishing conservation measures for tuna stocks in the EPO and other resources affected by vessels fishing for HMS. Member countries, including the U.S., are obligated to implement these measures for their flagged vessels. Currently IATTC Resolution has adopted Resolution C-13-01, Tuna conservation in the EPO 2014-2016, Resolution C-13-02, Pacific bluefin tuna, and C-13-03, supplementing Resolution C-05-02 for Northern albacore tuna. As discussed elsewhere, C-13-02 only applies to 2014, and the IATTC has not yet adopted a successor resolution. Some HMS, including PBF and North Pacific albacore, are considered pan-Pacific stocks, so management activities in the WCPO impact stocks affected by the proposed action. The WCPFC has adopted similar measures including C-2013-01, Conservation and Management Measure for bigeye, yellowfin, and skipjack tuna in the Western and Central Pacific Ocean, C-2013-09, Conservation and Management Measure for Pacific Bluefin Tuna, and C-2005-03, Conservation and Management Measure for North Pacific Albacore. The WCPFC has proposed a conservation and management measure for a multi-year rebuilding program for PBF that would take effect in 2015.
- The Council's Fishery Ecosystem Plan. The Council is developing measures to protect unfished and unmanaged forage fish species pursuant to an initiative identified in the FEP. This action involves amending all current FMPs to prohibit targeted harvest of specified forage species. These protections could benefit both currently unmanaged fish stocks and managed stocks that depend on forage fish.
- Regulation of fisheries for other species. Other fisheries contribute to mortality of protected species. Fishery removals from all sources also have long-term effects on the trophic structure of the California Current ecosystem.

Not Related to Fishing

- Water pollution. A variety of activities introduce chemical pollutants and sewage and cause changes in water temperature, salinity, dissolved oxygen, and suspended sediment into the marine

¹⁴ The U.S. Government takes the position that the target should be spawning biomass equivalent to 20% of spawning biomass in the absence of fishing.

environment. Although these activities tend to affect nearshore waters, pelagic species may be affected if a part of their life cycle occurs in these waters. Examples of these activities include, but are not limited to, agriculture, port maintenance, coastal development, marine transportation, marine mining, dredging, and the disposal of dredged material. Wherever these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality, and may indirectly constrain the sustainability of the managed resources, non-target species, and protected resources.

- Other authorities to conserve biological resources. The MSA (50 CFR 600.930) imposes an obligation on other Federal agencies to consult with the Secretary of Commerce on actions that may adversely affect EFH. NMFS also reviews certain activities that are regulated by Federal, state, and local authorities causing adverse effects to the marine environment through processes required by Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. The jurisdiction of these activities is in “waters of the U.S.” and includes both riverine and marine habitats. Under the Fish and Wildlife Coordination Act (Section 662) agencies must consult with the United States Fish and Wildlife Service (USFWS) over certain activities affecting freshwater habitats. This Act provides another avenue for review of actions by other Federal and state agencies that may impact resources that NMFS manages. NMFS and the USFWS share responsibility for implementing the ESA. Activities that may jeopardize the continued existence of a species listed under the Act may be regulated directly and through the designation of critical habitat for such species. This provides a way for NMFS to review actions by other entities that may impact endangered and protected resources whose management units are under NMFS’ jurisdiction.
- Cyclical and ongoing climate change. Section 4.5 describes the effects of climate on ecosystem components. Cyclical phenomena include ENSO, PDO, and NPGO. Range shifts of target species may cause the biggest climate change-related impact on fisheries.

The following section discusses the effects of these past, present, and reasonably foreseeable future actions on the environmental components evaluated in this EA.

4.6.5 Effects of Past, Present, and Reasonably Foreseeable Future Actions, the Proposed Actions, and Net Cumulative Effects

This section summarizes effects to determine cumulative impacts with respect to the environmental components evaluated in this EA. Table 4-8 is included for reference.

4.6.5.1 Pacific Bluefin Tuna

- Past, Present, and Reasonably Foreseeable Future Actions. Past and present fishing has caused the PBF stock to be overfished and it may continue to be subject to overfishing, depending on how effective RFMO conservation measures are. Current RFMO measures have not been sufficient to prevent overfishing and rebuild stock biomass to a level capable of producing MSY. A measure adopted by the WCPFC establishes a multi-year rebuilding program for the stock. The IATTC has not yet taken comparable action.
- Proposed Actions. Establishing a two-fish bag limit and six-fish retention limit for recreational anglers in U.S. waters would reduce recreational fishing mortality by a moderate amount, depending on changes in overall angler effort and the availability of PBF and other HMS to recreational anglers. Requirements for processing tuna at sea that would allow PBF to be distinguished from other tuna species support monitoring and enforcement and thus the effectiveness of the bag limit and possession limit.

- Cumulative Effects. The proposed action would have a beneficial cumulative effect by reducing PBF fishing mortality by west coast anglers. The fishery impact of west coast anglers represented a small proportion of total fishery impact, but if commercial catch continues to decline and PBF continues to be available to recreational anglers, the relative impact of the recreational fishery would increase.

4.6.5.2 Other Species Caught in Recreational Fisheries for HMS

- Past, Present, and Reasonably Foreseeable Future Actions. Other species accounting for most catch on tuna target trips (North Pacific albacore tuna, yellowfin tuna, skipjack tuna, and dorado) are not overfished and not subject to overfishing, although there is uncertainty with regard to yellowfin tuna. The IATTC and the WCPFC have established conservation measures for the tuna stocks intended to prevent overfishing. Stock structure and status of dorado is poorly understood by available information, and does not suggest that overfishing is occurring.
- Proposed Action. A bag limit and possession limit reduction for PBF could result in some level of target switching to other stocks, increasing catch. The degree to which this happens depends on overall angler effort, availability of these species to anglers, and the substitutability of these species for PBF. West coast recreational fisheries account for a minor to negligible fraction of stock-wide catch for these stocks, so any likely catch increases would likely have a negligible fishery impact. Requirements for processing tuna at sea that would allow PBF to be distinguished from other tuna species that support monitoring and enforcement, and thus the effectiveness of the bag limit and possession limit. Other factors being equal, this would prompt target switching.
- Cumulative Effects. Given that fisheries other than the west coast recreational fishery account for an overwhelming proportion of the fishery impact on these stocks, the cumulative effect is likely to be mixed. The proposed action may increase fishing mortality, while RFMO measures for commercial fisheries for these stocks appear moderately effective in preventing overfishing and rebuilding stocks where necessary. Because RFMO measures are implemented through members' jurisdiction over their flagged vessels, the effectiveness of these measures is hard to assess beyond the results of periodic stock assessments.

4.6.5.3 West Coast Recreational Fisheries and Human Communities (Socioeconomic Environment)

- Past, Present, and Reasonably Foreseeable Future Actions. Macroeconomic factors affecting household disposable income appear to have a much greater effect on participation in recreational fisheries compared to the availability of any one species. A substantial decline in participation in the CPFV fishery coinciding with the Great Recession (see Figure 3-11) lends credence to this assertion. Disposable income and cost of participation (fixed and variable dollar costs, opportunity cost) and the perceived value of the recreational experience are the likely factors affecting participation.
- Proposed Actions. Reducing trip and possession limits may reduce the perceived quality of the recreational fishing experience of tuna targeting trips. This will likely depend on the availability of PBF and other tuna species and willingness to substitute other tuna species for PBF. Most PBF are caught on CPFV trips so bag and possession limits will have a greater absolute effect on CPFVs compared to anglers on private vessels. A large proportion of CPFV tuna trips originate and return to ports in the San Diego region, so these fishing communities would be relatively more affected compared to the Los Angeles and Santa Barbara regions. If processing of tunas at sea is restricted (e.g. heading and gutting only) or prohibited, CPFV crew and anglers are likely to be adversely affected. Crew could lose income from tips, while anglers would face difficulties in preserving and transporting the tuna that they catch and wish to retain.

- Cumulative Effects. A recovering economy may have beneficial effects if anglers are more willing to devote income to recreational fishing. Reducing bag and possession limits could reduce the perceived value of recreational fishing for tunas, potentially forcing CPFVs to reduce prices or see a loss in sales. Private anglers may be relatively unaffected since they account for a small fraction of PBF catch. Changes in participation coupled with the effects that processing requirements have on crew compensation could affect income. Given these countervailing factors, a moderately adverse net cumulative effect may result.

4.6.5.4 The California Current Ecosystem and Essential Fish Habitat

- Past, Present, and Reasonably Foreseeable Future Actions. Fishery removals and other human activities affecting productivity of biological components of the ecosystem have affected trophic structure. Adverse effects on EFH can indirectly affect the productivity of biological components of the ecosystem. Climate change and associated ocean acidification is likely to affect both overall system forcing and productivity, and the relative abundance of biological components, affecting trophic structure. The Council's FEP provides a mechanism to consider how management decisions may affect the ecosystem. Mitigation measures to address the adverse impacts of fishing on EFH and associated consultation requirements for federally permitted non-fishing activities have a beneficial effect on EFH.
- Proposed Action. The proposed actions will not have a discernable effect on the CCE or EFH for HMS or other species managed under the MSA.
- Cumulative Effects. Actions other than the proposed action are likely to have mixed effects, while the proposed action will have no discernable effects.

4.6.5.5 Protected Species

- Past, Present, and Reasonably Foreseeable Future Actions. Past directed and incidental take of protected species reduced populations. For some species, degradation of critical habitat has also affected population productivity. The ESA, MMPA, and MTBA have had a beneficial effect by prohibiting directed take and requiring mitigation measures for incidental take. Many, though not all, protected species populations are recovering.
- Proposed Action. Protected species takes are not known to occur in recreational HMS fisheries. Therefore, the proposed actions will not have a discernable effect on protected species.
- Cumulative Effects. Other applicable laws mitigate the adverse effect of fishing and other activities on protected species, while the proposed action has no effect. Therefore, the cumulative effect is positive.

Table 4-8. Summary of the cumulative effects of the proposed actions.

Affected Resources	Past, Present, and Reasonably Foreseeable Future Actions	PBF Bag Limits	Processing at Sea	Cumulative Effects
PBF Stock	Mixed	Positive	Neutral	Uncertain
Other Stocks	Mixed	Neutral	Neutral	Mixed
West Coast Recreational Fisheries and Human Communities	Mixed	Negative	Neutral	Negative
Essential Fish Habitat and California Current Ecosystem	Mixed	Neutral	Neutral	Mixed
Protected Species	Positive	Neutral	Neutral	Positive

The above assessment shows both positive and adverse cumulative effects of the alternatives. The proposed action, under the action alternatives is intended to contribute to ending overfishing of PBF and rebuilding of the stock consistent with measures that have been adopted at the international level to end overfishing and rebuild the stock. The proposed action is consistent with IATTC Resolution 2014-06, which calls on members to “take meaningful measures to reduce catches of Pacific bluefin tuna by sportfishing vessels operating under its jurisdiction to levels comparable to the levels of reduction applied under this resolution to the EPO commercial fisheries until such time that the stock is rebuilt.” The Resolution applies to fishing within the IATTC Convention Area, including recreational fishing in the U.S. west coast EEZ. **In conclusion the proposed action, and any of the action alternatives, is intended to mitigate potentially cumulatively significant impacts.**

CHAPTER 5 CONSISTENCY WITH THE HMS FMP AND MSA NATIONAL STANDARDS

5.1 *FMP Goals and Objectives*

Section 2.2 in the HMS FMP lists 18 goals and objectives that provide context for management actions taken by the Council. The proposed action is relevant to the following goals and objectives:

- Promote and actively contribute to international efforts for the long-term conservation and sustainable use of HMS fisheries that are utilized by West Coast-based fishers, while recognizing these fishery resources contribute to the food supply, economy, and health of the nation.
- Provide a long-term, stable supply of high-quality, locally caught fish to the public.
- Minimize economic waste and adverse impacts on fishing communities to the extent practicable when adopting conservation and management measures.
- Provide viable and diverse commercial fisheries and recreational fishing opportunity for HMS based in ports in the area of the Council's jurisdiction, and give due consideration for traditional participants in the fisheries.
- Implement harvest strategies which achieve optimum yield for long-term sustainable harvest levels.
- Provide foundation to support the State Department in cooperative international management of HMS fisheries.
- Prevent overfishing and rebuild overfished stocks, working with international organizations as necessary.

5.2 *National Standards*

Fishery management actions prepared pursuant to the MSA must be consistent to the 10 national standards for fishery conservation and management listed in Section 301. These national standards are repeated below with brief explanations of how the proposed action is consistent with these standards.

National Standard 1 states that conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the OY from each fishery for the United States fishing industry.

The proposed action is intended to reduce recreational fishing and fishing mortality on PBF in waters off California in response to overfishing of the stock, and the overfished status of the stock. PBF is a Pacific-wide stock and is caught in fisheries of several nations including the U.S., Mexico, Japan, Korea, and Chinese Taipei (Taiwan). Therefore, coordinated action by parties to the relevant regional fishery management organizations (IATTC and WCPFC), such as through IATTC Resolution C-14-06, is necessary. The proposed action is taken in the context of MSA Section 304(i), which states in part that Councils will “develop recommendations for domestic regulations to address the relative impact of fishing vessels of the United States” on a stock subject to overfishing or that is overfished. In recent years U.S. recreational fisheries have been responsible for a major portion of total U.S. catch of PBF. While

this catch, and its impact on the stock, is small in comparison to the impact of other nation's fisheries, the proposed action is intended to address the relative impact of the recreational fishery on the stock.

National Standard 2 states that conservation and management measures shall be based on the best scientific information available.

Determination of the current status of the stock is based on a stock assessment conducted under the auspices of the ISC. The stock assessment was prepared by scientists from member nations and fishing entities, including the U.S., Japan, and Mexico. Recreational catch estimates were developed by CDFW, in cooperation with the Council's HMSMT, based on CPFV logbook data and RecFIN estimates of private angler catch.

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

As noted, the proposed action is taken within an international context and in response to management measures developed by the relevant RFMOs in the Pacific. The ISC stock assessment is for the Pacific-wide extent of the stock. Different bag limits for PBF are imposed under the HMS FMP in federal waters off California, Oregon, and Washington because PBF catch in waters off of Oregon and Washington is negligible, and implementing the proposed action in those areas would have no discernable effect.

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

The proposed action applies only to recreational fisheries in the EEZ off of California. (The California Fish and Game Commission is expected to take conforming action for state waters.)

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

Efficiency in utilization is considered in the part of the proposed action that implements requirements for processing recreationally caught fish at sea so as to allow species identification. The preferred alternative allows filleting at sea in such a manner, which promotes more efficient utilization of recreationally caught fish. Applying measures only to waters off California recognizes that imposing the measures in waters off the other two states would impose a regulatory burden with no discernable conservation benefit. The proposed action does not include allocating harvest opportunity.

National Standard 6 states that conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

Application of the proposed action to California waters only recognizes such variation. Commercial fishery catch limits have been and will be implemented in response to obligations imposed through IATTC Resolution C-14-06; the proposed action limits recreational catch through bag limits, recognizing the differences between recreational and commercial fisheries.

National Standard 7 states that conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The proposed action does not duplicate existing measures. Applying the measures to waters off California only will minimize costs associated with implementing and complying with management measures.

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

The proposed action will have a disproportionate impact on CPFV operators and private anglers in the San Diego region, and to a lesser extent the Los Angeles region, because recreational fisheries targeting PBF are concentrated in Southern California. The Council accepted voluminous public comment from stakeholders in these communities before taking final action. The CPFV industry argued that the bag limit be reduced no lower than three fish per angler per day in order to minimize the potential loss in business if anglers knew their catch was limited. On the other hand, based on the best available information and analysis presented in this EA, bag limits above two fish per day were judged not to result in sufficient catch reduction to address the obligation under IATTC Resolution C-14-06 to achieve reductions in recreational fishery catch comparable to the reductions in commercial fishery catch contained in the resolution. In considering the range of alternatives for bag limits, the Council sought to balance the conservation effect of the proposed action with potential adverse impacts to fishing communities.

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

The proposed action could increase PBF bycatch if recreational anglers catch and release PBF once their bag limit is reached. Anecdotal information suggests that bycatch mortality of recreationally caught PBF is high. Anglers can usually distinguish PBF schools from other tunas and have the option to avoid those schools once their bag limit is reached. However, there are no practical regulatory remedies to force anglers to avoid PBF once the bag limit is reduced.

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

The proposed action does not have any apparent safety implications. A lower bag limit could reduce trip times, but there are a variety of other factors affecting trip duration and area that would not be affected by the bag limit changes.

5.3 Public Scoping under MSA

Scoping occurred through the Council process. Meetings are open to the public, and public comment is encouraged. Council advisory bodies provide stakeholder input. The Council received substantial public comment on the proposed action. Written public comment may be viewed on the Council's website, www.pcouncil.org.

At its June 2014 meeting the Council considered advisory body advice and public comment, and decided to consider measures to reduce recreational catch of PBF for the biennial management period beginning April 1, 2015.

At its September 2014 meeting, the Council adopted the range of alternatives evaluated in this EA and identified its preliminary preferred alternative. This provided opportunity for public comment on the proposed action and alternatives.

At its November 2014 meeting the Council confirmed their preferred alternative.

CHAPTER 6 PUBLIC INVOLVEMENT

The draft EA¹⁵ was included in the Pacific Council's Briefing Book as part of the biennial management measure process considered at the November 2014 Council meeting. Both written and verbal public comments were provided to the Council and helped guide the Council's deliberations and final preferred alternative recommendation that was transmitted to the Secretary of Commerce on December 9, 2014.

The proposed rule for this action, including the preferred alternative, was published in the Federal Register on April 21, 2015. The public comment period for this action closed on May 6, 2015. During that time, NMFS received two comments regarding the draft EA, which are addressed below. Responses to substantive public comments on the proposed rule will be included in the final rule for this action.

One of the commenters questioned why the draft EA was not available for public review during the open comment period. NEPA does not require that draft EAs be made available for public comment. However, there was substantial and adequate public comment opportunities made available for this action through the Pacific Council process, in part by including the draft in the November 2014 Pacific Council meeting Briefing Book. NMFS considered comments received during the Pacific Council meetings in its decision-making process.

One commenter asked why a 1-fish per day bag limit was not analyzed as part of the suite of alternatives presented. This alternative was analyzed under Alternative 4 in the Draft EA. Alternative 4 pooled the range of bag limit reductions spanning 1-4 fish per day and presented estimates of the projected percentage reductions based on historic daily catch data.

¹⁵ http://www.pcouncil.org/resources/archives/briefing-books/november-2014-briefing-book/#hmsNov2014_AgendaItemI.3.a_Attachment1: Daily Bag Limits, Possession Limits, and At-Sea Processing of Pacific Bluefin Tuna in California Recreational Fisheries, Draft Environmental Assessment.

CHAPTER 7 NEPA AND OTHER APPLICABLE LAWS

7.1 National Environmental Policy Act

The CEQ has issued regulations specifying the requirements for NEPA documents (40 CFR 1500 – 1508), and NOAA’s agency policy and procedures for NEPA can be found in NOAA Administrative Order 216-6 (NAO 216-6).

The required elements of an EA are as follows (as per NAO 216-6 5.03b):

- A brief discussion of the purpose and need for the action;
- Alternatives, as required by Sections 102(2)(C)(iii) and 102(2)(E) of NEPA;
- A brief discussion of the environmental impacts of the proposed action and alternatives;
- A listing of agencies and persons consulted;
- A finding of no significant impact, if appropriate;
- An index and appendices, as appropriate.

A draft of this EA was provided to support Council final action at its November 2014 meeting. A finding of no significant impact must be signed before the Final Rule implementing the proposed action may be published.

7.2 Administrative Procedure Act

The Administrative Procedures Act, or APA, governs the Federal regulatory process and establishes standards for judicial review of Federal regulatory activities. Most Federal rulemaking, including regulations promulgated pursuant to the MSA, are considered “informal,” which is determined by the controlling legislation. Provisions at 5 U.S.C. 553 establish rulemaking procedures applicable to the proposed action. Section 5.1 in the HMS FMP specifies that biennial harvest specifications and management measures require ‘full notice-and-comment rulemaking’ to implement the regulations necessary to implement the Council recommendation. The rulemaking associated with this proposed action will be conducted in accordance with the APA and procedures identified in section 304 of the MSA.

7.3 Additional Laws and Executive Orders Applicable to the Proposed Action

In addition to the MSA (see Chapter 5), NEPA, and the APA, there are other laws and Federal Executive Orders that may impose substantive and procedural requirements on the proposed action. These other laws and executive orders are described below.

7.3.1 Coastal Zone Management Act:

Section 307(c)(1) of the Federal CZMA of 1972 requires all Federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. A determination as to whether the proposed action 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 will be submitted to the responsible state agencies for review under Section 307(c)(1) of the CZMA. The HMS FMP has been found to be consistent with the Washington, Oregon, and California coastal zone management programs.

7.3.2 Endangered Species Act

The ESA of 1973 was signed on December 28, 1973, and provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. The ESA replaced the Endangered Species Conservation Act of 1969; it has been amended several times.

A “species” is considered endangered if it is in danger of extinction throughout all or a significant portion of its range. A species is considered threatened if it is likely to become an endangered species within the foreseeable future.

Federal agencies are directed, under section 7(a)(1) of the ESA, to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Federal agencies must also consult with NMFS or USFWS, under section 7(a)(2) of the ESA, on activities that may affect a listed species. These interagency consultations, or section 7 consultations, are designed to assist Federal agencies in fulfilling their duty to ensure Federal actions do not jeopardize the continued existence of a species or destroy or adversely modify critical habitat. Should an action be determined to jeopardize a species or result in the destruction or adverse modification of critical habitat, NMFS or USFWS will suggest Reasonable and Prudent Alternatives (RPAs) that would not violate section 7(a)(2).

Biological opinions document whether the Federal action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. Where appropriate, biological opinions provide an exemption for the “take” of listed species while specifying the extent of take allowed, the Reasonable and Prudent Measures (RPMs) necessary to minimize impacts from the Federal action, and the Terms and Conditions with which the action agency must comply.

A Biological Opinion for the implementation of the HMS FMP was published February 4, 2004.

7.3.3 Marine Mammal Protection Act

The MMPA of 1972 is the principle Federal legislation that guides marine mammal species protection and conservation policy in the United States. Under the MMPA, NMFS is responsible for the management and conservation of 153 stocks of whales, dolphins, and porpoise, as well as seals, sea lions, and fur seals, while the USFWS is responsible for walrus, sea otters, and the West Indian manatee.

Off the west coast, the Steller sea lion (*Eumetopias jubatus*) eastern stock, Guadalupe fur seal (*Arctocephalus townsendi*), and Southern sea otter (*Enhydra lutris*) California stock are listed as threatened under the ESA. The sperm whale (*Physeter macrocephalus*) Washington, Oregon, and California stock, humpback whale (*Megaptera novaeangliae*) Washington, Oregon, and California - Mexico Stock, blue whale (*Balaenoptera musculus*) eastern north Pacific stock, and Fin whale (*Balaenoptera physalus*) Washington, Oregon, and California stock are listed as depleted under the MMPA. Any species listed as endangered or threatened under the ESA is automatically considered depleted under the MMPA.

Pursuant to the MMPA, the List of Fisheries (LOF) classifies U.S. commercial fisheries into one of three categories according to the level of incidental mortality or serious injury of marine mammals:

I. frequent incidental mortality or serious injury of marine mammals

- II. occasional incidental mortality or serious injury of marine mammals
- III. remote likelihood of/no known incidental mortality or serious injury of marine mammals

The MMPA mandates that each fishery be classified by the level of serious injury and mortality of marine mammals that occurs incidental to each fishery and reported in the annual Marine Mammal Stock Assessment Reports for each stock. The Alaska/Washington/Oregon/California commercial passenger fishing vessel fishery is identified as category III in the draft 2015 List of Fisheries ([79 FR 50589](#)).

7.3.4 Migratory Bird Treaty Act

The Migratory Bird Treaty Act 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 is a shared agreement between the United States, Canada, Japan, Mexico, and Russia to protect a common migratory bird resource. The MBTA prohibits the directed take of seabirds, but the incidental take of seabirds does occur.

7.3.5 Paperwork Reduction Act

The Paperwork Reduction Act requires that agency information collections minimize duplication and burden on the public, have practical utility, and support the proper performance of the agency's mission. The proposed action does not have Paperwork Reduction Act implications.

7.3.6 Regulatory Flexibility Act

The Regulatory Flexibility Act requires government agencies to assess the effects that regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those effects. A fish-harvesting business is considered a “small” business by the Small Business Administration if it has annual receipts not in excess of \$4.0 million. For related fish-processing businesses, a small business is one that employs 500 or fewer persons. For wholesale businesses, a small business is one that employs not more than 100 people. For marinas and charter/party boats, a small business is one with annual receipts not in excess of \$6.5 million. If the projected impact of the regulation exceeds \$100 million, it may be subject to additional scrutiny by the Office of Management and Budget.

7.3.7 Executive Order 12866 (Regulatory Impact Review)

EO 12866, Regulatory Planning and Review, covers a variety of regulatory policy considerations and establishes procedural requirements for analysis of the benefits and costs of regulatory actions. It directs agencies to choose those approaches that maximize net benefits to society, unless a statute requires another regulatory approach. The agency must assess both the costs and the benefits of the intended regulation and, recognizing that some costs and benefits are difficult to quantify, propose or adopt a regulation only after reasoned determination that the benefits of the intended regulation justify the costs. In reaching its decision, the agency must use the best reasonably obtainable information, including scientific, technical, and economic data, about the need for and consequences of the intended regulation. NMFS requires the preparation of a regulatory impact review (RIR) for all regulatory actions of public interest. The purpose of the analysis is to ensure the regulatory agency systematically and comprehensively considers all available alternatives, so the public welfare can be enhanced in the most efficient and cost-effective way. The RIR addresses many of the items in the regulatory philosophy and principles of EO 12866.

7.3.8 Executive Order 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, NAO 216-6, 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.

7.3.9 Executive Order 13132 (Federalism)

EO 13132, which revoked EO 12612, an earlier federalism EO, 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.”

7.3.10 Executive Order 13175 (Consultation and Coordination with Indian Tribal Government)

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. In Section 302(b)(5), the MSA reserves a seat on the Council for a representative of an Indian tribe with Federally-recognized fishing rights from California, Oregon, Washington, or Idaho.

7.3.11 Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds)

EO 13186 supplements the MBTA (above) by requiring Federal agencies to work with the USFWS to develop memoranda of agreement to conserve migratory birds. NMFS is in the process of implementing a memorandum of understanding. The protocols developed by this consultation will guide agency regulatory actions and policy decisions in order to address this conservation goal. The EO also directs agencies to evaluate the effects of their actions on migratory birds in environmental documents prepared pursuant to the NEPA.

7.4 Findings

The Council process and this EA are intended, where possible, to meet the public involvement requirements and provide the information and analysis necessary to address the mandates described above. The information and analysis in this EA supports the following findings with respect to other applicable law.

Coastal Zone Management Act: The proposed action is not expected to affect any state's coastal management program.

ESA: NMFS and USFWS conducted section 7 consultations to determine whether activities authorized under HMS FMP are likely to jeopardize the continued existence of any species listed under the ESA. Incidental take was not identified for recreational fisheries.

Marine Mammal Protection Act: Recreational fisheries are not known to cause serious injury/mortality to marine mammal stocks in the west coast EEZ.

Migratory Bird Treaty Act: The proposed action is unlikely to cause the incidental take of seabirds protected by the Migratory Bird Treaty Act to differ substantially from levels in previous years. The HMS FMP notes occasional hooking of seabirds during recreational fishing. Hooked birds are usually released alive.

Paperwork Reduction Act: The proposed action does not require collection-of-information subject to the Paperwork Reduction Act.

Executive Order 12898 (Environmental Justice): The proposed action will not result in disproportionate adverse impacts to low income and minority communities.

Executive Order 13132 (Federalism): The proposed action does not have federalism implications subject to EO 13132.

Executive Order 13175 (Consultation and Coordination with Indian Tribal Government): The proposed action has been developed in consultation with the affected tribe(s) and, insofar as possible, with tribal consensus.

Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds): See the finding for the Migratory Bird Treaty Act, above.

7.5 Preparers and Listing of Agencies and Persons Consulted

This EA was prepared by Council staff and the Council's Highly Migratory Species Management Team:

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The HMSMT serves as the conduit for consultations with state agencies on the proposed action. No other Federal agencies were consulted.