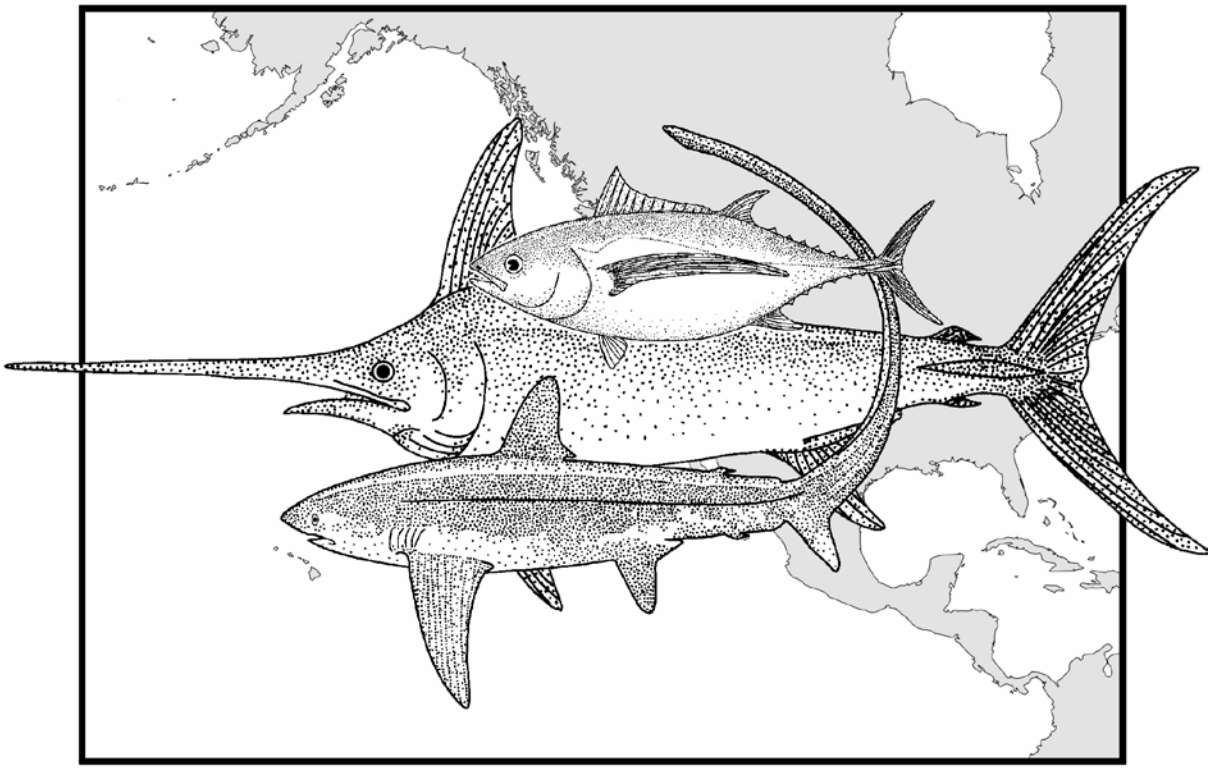
STATUS OF THE U.S. WEST COAST FISHERIES FOR HIGHLY MIGRATORY SPECIES THROUGH 2014



STOCK ASSESSMENT AND FISHERY EVALUATION

JANUARY 2016

PACIFIC FISHERY MANAGEMENT COUNCIL
7700 NE AMBASSADOR PLACE, SUITE 101
PORTLAND, OREGON 97220
WWW.PCOUNCIL.ORG

Cover illustration by Roy Allen, Southwest Fisheries Science Center, National Marine Fisheries Service, La Jolla, California

Printed: January 14, 2016

Prepared by the Pacific Fishery Management Council in conjunction with the National Marine Fisheries Service, Southwest Region under National Oceanic and Atmospheric Administration award number NA10NMF4410014.

Table of Contents

1. INTRODUCTION 8
   1.1. The Management Cycle 9
   1.2. Highly Migratory Species Management Team 9
2. COUNCIL HMS ACTIVITIES IN 2014 11
   2.1. November 2014 11
      International Activities 11
      Bluefin Tuna Management Measures for 2015-2016 Fisheries 12
      Drift Gillnet Fishery Hard Caps and Other Adopted Priorities for 2015-2016 Fisheries 12
      Salmon and Halibut Retention on Vessels Fishing for HMS Species 13
   2.2. September 2014 13
      International Activities 13
      Preliminary Approval of Exempted Fishing Permits for 2015 Fisheries 13
      New or Routine Management Measures for 2015-2016 Fisheries 14
   2.3. June 2014 14
      Update on Regulatory Matters and International Activities 14
      Drift Gillnet Fishery Transition Issues 15
      Exempted Fishing Permit (EFP) Process 15
      Initial Scoping of Biennial Specifications and Management Measures 16
   2.4. March 2014 16
      Vessel Monitoring Systems (VMS) for Highly Migratory Species Fisheries 16
      Recommendations for International Management Activities 16
      U.S.-Canada Albacore Treaty Update 17
      Drift Gillnet Monitoring, Management and Alternative Gear Report 17
3. HMS REGULATIONS CURRENTLY IN PLACE 19
4. MONITORING AND ENFORCEMENT 21
   4.1. Status of HMS Permits 21
   4.2. HMS Fisheries Data Collections 21
5. PROTECTED RESOURCES REGULATIONS 23
   5.1. HMS FMP Endangered Species Act Consultations 23
   5.2. Sea Turtles Listed Under the ESA 24
   5.3. Marine Mammal Protection Act 24
   5.4. Marine Mammals of Concern for West Coast HMS Fisheries 26
6. INTERNATIONAL MANAGEMENT 27
   6.1. RFMOs 27
   6.2. IATTC and WCPFC Outcomes 27
7. REGULATIONS FOR INTERNATIONAL HMS FISHERIES AND RELATED ACTIVITIES IN THE PACIFIC 29
8. COMMERCIAL FISHERIES DESCRIPTIONS 33
   8.1. Surface Hook-and-Line Fishery for Albacore 33
   8.2. Drift Gillnet Fishery for Swordfish and Shark 34
   8.3. Harpoon Fishery for Swordfish 36
   8.4. High Seas Longline Fishery for Swordfish and Tuna 37
   8.5. Coastal Purse Seine Fishery for Yellowfin, Skipjack, and Bluefin Tunas 38
   8.6. Fishery Performance in 2014 39
      8.6.1. Landings by Species (See Table 1) 39
      8.6.2. Landings by Fishery (See Table 2) 40

9. RECREATIONAL FISHERIES 43
9.1. Albacore 43
9.2. Other HMS (Southern California) 43
9.3. Recreational Fishery Performance in 2014 43
9.3.1. Albacore Catch and Effort (See Tables R-1, R-2, R-3) 43
10. PACIFIC-WIDE HMS CATCH 45
10.1. Data Sources 45
10.2. Catch of Tropical Tunas in the Pacific by Country and Region 45
10.3. Catch of Target Tunas in Eastern Pacific by Gear Type 48
10.4. Catch of Target Tunas in the Western Pacific by Gear Type 50
10.5. Northern Stocks – Pacific Bluefin Tuna, North Pacific Albacore, and Swordfish in the North Pacific 51
11. STATUS OF HMS STOCKS 57
11.1. Determining Stock Status 57
11.1.1. Control Rules for Management 57
11.2. Stock Assessments for Species Managed under the HMS FMP 58
11.2.1. Tunas 58
11.2.2. Billfishes 59
11.2.3. Sharks 59
11.2.4. Others 60
11.3. Summary of Current Status of HMS FMP Stocks 60
11.4. Conclusions from 2015 Pacific HMS Stock Assessments 62
11.4.1. IATTC Assessments 62
11.4.2. ISC Assessments 64
11.4.3. SPC (WCPFC Scientific Committee) Assessments 66
12. COMMONLY-USED WEB LINKS IN HIGHLY MIGRATORY SPECIES MANAGEMENT AND RESEARCH 69

List of Tables

Table 5-1. Number of valid HMS permits recorded in each year, 2005-2013, by state. 21
Table 5-2. Summary of fisheries data collections. 22
Table 6-1. Biological opinions for west coast HMS fisheries 24
Table 6-2. Key population parameters for selected marine mammals occurring in the west coast EEZ... 26

List of Figures

Figure 7-1. Global map of tuna RFMO jurisdictions. (Source: http://www.fao.org/fishery/topic/16917/en). 27
Figure 9-1.Number of vessels and real (inflation adjusted) ex-vessel revenue from North Pacific albacore ($1,000s) in the West Coast albacore surface hook-and-line (troll and baitboat) fishery, 2005-2014, Canadian vessels included. 34
Figure 9-2. Number of vessels and commercial landings (round mt) in the West Coast drift gillnet fishery, 1990-2014. 36
Figure 9-3. Number of vessels and commercial landings (round mt) in the West Coast harpoon fishery, 1990-2014. 37

Figure 9-4. Number of vessels and commercial landings (round mt) by Hawaii permitted longline vessels in West Coast ports, 1990-2014 (confidential landings data excluded). 38
Figure 9-5. Number of vessels and commercial landings (round mt) for HMS tunas in the West Coast purse seine fishery, 1990-2013 (confidential data excluded). 39
Figure 9-6. Landings of HMS (metrics tons) by species and groups, 2005-2014. (Source: HMS SAFE Table 3.) 40
Figure 9-7. Distribution of HMS landings by fishery, 2014. Confidential data not included. 41
Figure 10-1. Change in recreational albacore catch from 2010 to 2014 (2010=100%). 44
Figure 10-2. Recreational fishing effort by state, 2010-2014. 44
Figure 11-1. Capture fishery production of bigeye, skipjack, and yellowfin in the Pacific by flag, 2003-2012. 45
Figure 11-2. Average annual catch (mt) of bigeye, yellowfin, and skipjack, 2004-2013 by species and region. 46
Figure 11-3. Annual catch (mt) of skipjack, yellowfin, and bigeye tuna in the EPO and WCPO, 2004-2013. 47
Figure 11-4. Average annual catch of target tuna speceis in the EPO by gear type, 2004-2013. 48
Figure 11-5. Catch of target tuna species in the EPO by gear type and year, 2004-2013. 49
Figure 11-6. Annual average catch (mt) of tuna target species by gear type in the WCPO, 2004-2013. 50
Figure 11-7. Catch (mt) of tuna target species by gear and year in the WCPO, 2004-2013. 51
Figure 11-8. Average annual catch (mt) of Pacific bluefin tuna by country and gear type, 2004-2013. 51
Figure 11-9. Catch (mt) of Pacific bluefin by country, 2004-2013. 52
Figure 11-10. Average annual catch (mt) of North Pacific albacore by country and gear, 2004-2013. 52
Figure 11-11. Catch (mt) of North Pacific albacore by year and country, 2004-2013. 53
Figure 11-12. Annual average catch (mt) of swordfish in the North Pacific by country and gear, 2004-2013. 54
Figure 11-13. Catch (mt) of swordfish in the North Pacific by country, 2004-2013. 54
Figure 12-1. General model of MSY and OY Control Rules, from Restrepo, et al. 1998. 58

Acronyms

ACL	annual catch limit
AFRF	American Fishermen's Research Foundation
B	biomass
B_0	initial (unfished) biomass
BO	Biological Opinion
BREP	Bycatch Reduction Engineering Program
CDFG	California Department of Fish and Game
CFR	Code of Federal Regulations
CMM	Conservation and Management Measure
Council	Pacific Fishery Management Council
CPFV	commercial passenger fishing vessel
CPUE	catch per unit of effort
CRFS	California Recreational Fisheries Survey
DGN	drift gillnet
EEZ	exclusive economic zone
EFH	essential fish habitat
EPO	eastern Pacific Ocean
ESA	Endangered Species Act
F	fishing mortality rate
FL	fork length
FMP	fishery management plan

FR	Federal Register
HAPC	Habitat Area of Particular Concern
HMS	highly migratory species
HMS FMP	Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species
HMSAS	Highly Migratory Species Advisory Subpanel
HMSMT	Highly Migratory Species Management Team
IATTC	Inter-American Tropical Tuna Commission
ISC	International Scientific Committee for Tuna and Tuna-like Species in the North Pacific
IUU	illegal, unregulated, and unreported fishing
LOF	List of Fisheries
MFMT	maximum fishing mortality threshold
MMPA	Marine Mammal Protection Act
MRIP	Marine Recreational Information Program
MSA	Magnuson-Stevens Act, Magnuson-Stevens Fishery Conservation and Management Act
MSST	minimum stock size threshold
MSY	maximum sustainable yield
mt	metric ton
MUS	management unit species
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPO	North Pacific Ocean
NRIFSF	National Research Institute of Far Seas Fisheries (Japan)
ODFW	Oregon Department of Fish and Wildlife
OMB	Office of Management and Budget
OSP	Washington Ocean Sampling Program
OY	optimum yield
PacFIN	Pacific Fisheries Information Network
PIER	Pfleger Institute of Environmental Research
PIFSC	NMFS Pacific Islands Fisheries Science Center
PIRO	NMFS Pacific Islands Regional Office
PSAT	pop-off satellite archival tag
PSMFC	Pacific States Marine Fisheries Commission
RecFIN	Recreational Fisheries Information Network
RFMO	regional fishery management organization
SAC	IATTC Scientific Advisory Committee
SAFE	stock assessment and fishery evaluation
SBR	spawning biomass ratio
SCB	Southern California Bight
SEPO	Southeast Pacific Ocean
SLUTH	Swordfish and Leatherback Use of Temperate Habitat (Workshop)
SPOT Tag	smart position and/or temperature tag
SSB	spawning stock biomass
SST	sea surface temperature
SWFSC	Southwest Fisheries Science Center (NMFS)
SWR	Southwest Regional Office (NMFS)
WCPFC	Western and Central Pacific Fisheries Commission
WCPO	western and central Pacific Ocean
WDFW	Washington Department of Fish and Wildlife

1. Introduction

The Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species (HMS FMP) was developed by the Pacific Fishery Management Council in response to the need to coordinate state, Federal, and international management. The National Marine Fisheries Service (NMFS), on behalf of the U.S. Secretary of Commerce, partially approved the HMS FMP on February 4, 2004. The majority of HMS FMP implementing regulations became effective on April 7, 2004. Reporting and recordkeeping provisions became effective on February 10, 2005.

The HMS FMP has been amended twice since its implementation. Amendment 1, approved by NMFS on June 7, 2007, incorporates recommended international measures to end overfishing of the Pacific stock of bigeye tuna (*Thunnus obesus*). Amendment 2, approved by NMFS on June 27, 2011, makes the FMP consistent with revised National Standard 1 Guidelines.

Amendment 2 made the following changes to the HMS FMP:

1. Two management unit species, bigeye thresher shark and pelagic thresher shark, are reclassified as ecosystem component (EC) species.
2. Of the current 34 species identified in the FMP for monitoring purposes, six are retained as EC species.
3. The international exception to setting allowable biological catches (ABCs) and ACLs are applied to the remaining 11 managed species.
4. The FMP describes a process for determining the primary FMP for the purpose of identifying management reference points. Because all the managed species in the HMS FMP are also part of the Western Pacific Fishery Management Council's Pelagics Fishery Ecosystem Plan, coordination between the two councils in setting reference points is needed.
5. The process described in the HMS FMP for establishing and adjusting management measures on a biennial basis also will be used to recommend changes in maximum sustainable yield (MSY), optimum yield (OY), and status determination criteria (SDC) for stocks managed under the FMP. Council-recommended changes will be reviewed by NMFS.
6. The current description in the FMP of methods for determining MSY, OY, and SDC is modified slightly to more clearly specify that stock-specific considerations could be used when proposing changes to these estimates.

The HMS currently managed under the FMP are:

- Striped marlin (*Kajikia audax**)
- Swordfish (*Xiphias gladius)*
- Common thresher shark (*Alopias vulpinus)*
- Shortfin mako shark (bonito shark) (*Isurus oxyrinchus)*
- Blue shark (*Prionace glauca)*
- North Pacific albacore (*Thunnus alalunga)*
- Yellowfin tuna (*Thunnus albacares)*
- Bigeye tuna (*Thunnus obesus)*
- Skipjack tuna (*Katsuwonus pelamis)*
- Pacific bluefin tuna (*Thunnus orientalis)*
- Dorado, a.k.a. mahi mahi or dolphinfish (*Coryphaena hippurus)*

*The scientific name for this species was previously *Tetrapturus audax.*

In addition, Amendment 2 added eight EC species to the FMP. The EC category is identified in the revised National Standard 1 Guidelines. The list was compiled from monitored species previously identified in the plan and by moving two management unit species to the EC category. The EC species are:

- Bigeye thresher shark *(Alopias superciliosus*)
- Common mola (*Mola mola*)
- Escolar (*Lepidocybium flavobrunneum*)
- Lancetfishes (Alepisauridae)
- Louvar (*Luvarus imperialis*)
- Pelagic sting ray (*Dasyetis violacea*)
- Pelagic thresher shark (*Alopias pelagicus*)
- Wahoo (*Acathocybium solandri*)

EC species are not considered "in the fishery" but Councils should consider measures to mitigate and minimize bycatch of these species, to the extent practicable, consistent with National Standard 9. MSY, OY, and other reference points do not need to be specified for EC species. Identification of EC species will help the Council to track these species over time, periodically evaluate their status, and assess whether any management is needed under the FMP, in which case an EC species could be reclassified as a managed species.

1.1. The Management Cycle

The HMS FMP also establishes an annual process for the delivery of the SAFE report to the Council, intended to coincide with the management cycle: a draft report is provided in June for initial decision-making on the need for new harvest specifications and management measures. The final report is delivered in September to provide the recommendations and information necessary to develop and implement any harvest specifications and management measures. NMFS implements the Council's recommended management measures through the Federal regulatory process, if they are found to be consistent with the MSA and other applicable law. Any such measures become effective at the start of the next fishing year, April 1 of the following year, or when the rulemaking process is complete, and stay in effect unless action is taken to modify the action. Council meetings in 2006 initiated the first biennial management cycle under the HMS FMP with consideration of measures to be implemented during the April 1, 2007–March 31, 2009 biennium. In 2010 the Council considered management changes for the third biennial period, April 1, 2011–March 31, 2013. In 2012 the Council did not consider any regulatory changes for the April 1, 2013–March 31, 2015 biennium. In 2014 the Council considered an adjustment to recreational bag limits for Pacific bluefin tuna in Southern California and recommended reducing the bag limit to two fish per day per angler with a six fish maximum per angler for multi-day trips. This action also included requirements at processing of recreationally-caught bluefin at sea to allow species identification. The final rule implementing this regulation was published in the Federal Register (80 FR 44887) on July 28, 2015 and became effective on July 30, 2015.

1.2. Highly Migratory Species Management Team

Current members of the HMSMT may be found in the Roster.

2. Council HMS Activities in 2014

Written briefing materials submitted at Council meetings by downloaded from the Council's briefing book archive webpage.

2.1. November 2014

International Activities

The Council made the following recommendation to NMFS on implementing the Pacific bluefin tuna commercial catch limit of 600 metric tons (mt) for 2015-2016, as contained in Inter-American Tropical Tuna Commission (IATTC) Resolution C-14-06:

1. A trip limit of 20 mt until 250 mt is caught.
2. After 250 mt is caught, the trip limit is reduced to 2 mt for the remainder of the year.
3. In the event of any landing exceeding the trip limit, the overage amount would be forfeited to the State of California.
4. NMFS should seek non-punitive ways to discourage discarding fish at sea.

The Council also recommends NMFS develop the proper contingency regulations implementing the intent of Resolution C-14-06 regarding catch limits in 2016 depending on catch in 2015. The catch in any one year cannot exceed 425>mt and if catch exceeds 300 mt in 2015 then the catch limit for 2016 will be 200 mt or less. In general, catch in 2015 is deducted from the 600 mt two-year limit to determine the catch limit in 2016. These conditions will likely require additional measures to account for catches approaching 425 mt in either year and for the possibility that the catch limit in 2016 could be less than 250 mt, depending on catch in 2015.

The Council also requested that NMFS prepare two White Papers providing factual information about international fishery matters currently being discussed in an anecdotal context. One is to describe recreational fisheries for Pacific bluefin tuna in other countries; information about recreational catches of Pacific bluefin tuna in other countries have been primarily anecdotal, but suggests that there are recreational fisheries targeting Pacific bluefin tuna in other countries or there are bluefin tuna incidental catches while targeting other highly migratory species. The second White Paper is to deal with verifiable information about increases in fishing capacity and shortcomings in formal catch reporting from China; anecdotal information has been discussed about (1) significant increases in new Chinese fishing vessels being constructed over the past five years and many additional vessels under construction in shipyards either in or out of China, but to be fished with catch accountable to China and (2) the lack of complete and timely reporting of catches that are rightfully attributed to China. The intent is that these White Papers would be completed in time for the advance Briefing Book for the March 2015 Council meeting, for discussion under the International Issues agenda item.

With respect to the upcoming Eleventh Regular Session of the Western and Central Pacific Fisheries Commission (WCPFC), the Council advises the U.S. delegation to assure that any conservation measure adopted for South Pacific albacore that includes flag-based catch limits for fisheries in the high seas not include the U.S. troll fishery that operates in the South Pacific.

Finally, the Council recommended there should be adequate representation of the Council at the planned International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) workshop on a management strategy evaluation for North Pacific albacore, and that Council representative provide input into workshop design and logistics. This workshop, tentatively scheduled for April 2015, is intended to have participation from scientists, fishery managers, and stakeholders. As a management entity, the Council should be represented in U.S. participation at the workshop. The timing

of the workshop should be coordinated to minimize critical conflict with the Council's March-April Council meeting process, and the workshop design should reflect perspectives expressed in the Scientific and Statistical Committee (SSC) and Highly Migratory Species Management Team (HMSMT) statements and Council discussion at the November 2014 Council meeting.

Bluefin Tuna Management Measures for 2015-2016 Fisheries

The Council chose as its final preferred alternative a two-fish Pacific bluefin tuna daily bag limit caught in recreational fisheries while fishing in U.S. waters off California and up to a six-fish possession limit for anglers operating out of California ports. As part of its preferred alternative, filleting of tunas at sea would be permitted based on procedures described in Agenda Item I.3.b, Supplemental CDFW Report, and Agenda Item I.3.b, Supplemental REVISED EC Report. The purpose of these procedures is to allow Pacific bluefin to be differentiated from other tuna species that may be filleted at sea for enforcement purposes.

Drift Gillnet Fishery Hard Caps and Other Adopted Priorities for 2015-2016 Fisheries

The Council discussed their general policy intent for the drift gillnet (DGN) fishery and made several decisions about (1) the pursuit of hard caps as a primary management measure in the DGN fishery and (2) other previously adopted HMS fishery priorities. The Council discussed a policy goal to end the DGN fishery and transition it to a swordfish target fishery that excludes DGN gear time at some point in the future, but did not adopt this as a policy goal. The discussion instead expressed a policy intent to pursue strong management measures designed to improve the target performance of the DGN fishery, while at the same time encouraging alternative gears that can provide for a viable commercial fishery with significantly better bycatch performance than the past DGN fishery. The Council also took the following actions:

- Directed staff to write a letter to NMFS in response to the letter contained in Agenda Item I.4.b, Supplemental NMFS Report, explaining that the Council's preliminary preferred alternatives for management of the California large mesh drift gillnet fishery via hard caps take into account the best available science and population status of marine mammals and sea turtles and are intended to avoid potential conflicts with the Marine Mammal Protection Act and Endangered Species Act, but are not intended to manage the populations of these animals through the Magnuson-Stevens Act (MSA).
- Directed the HMSMT and staff to prepare a draft purpose and need statement for a Drift Gillnet Management and Monitoring Plan, including its goal and objectives, for the Council's consideration in March 2015. As part of this effort the Council staff should strive to complete a Fishery Monitoring Plan by June 2015, working with the HMSMT and other appropriate Council advisory bodies. The objective is to increase monitoring in the drift gillnet fishery, either through human observers or electronic technologies, to 100 percent.
- Narrowed the ranges of alternatives described in Agenda Item I.4.a, Attachment 1. Further detail on the range of alternatives to be analyzed will be forthcoming on the Council's website over the winter.
- Clarified that the annual hard cap numbers for the Preliminary Preferred Alternative (see Agenda Item I.4.a, Attachment 1) are based on the Council's objectives to reduce bycatch.
- Requested that, at a timely point prior to each fishing year, NMFS inform the Council of the level of observer coverage/electronic monitoring (EM) that NMFS would be able to fund. This would facilitate planning for non-government funding for the balance of the costs associated with observer coverage or electronic monitoring.
- Prioritized HMS workload on hard caps and increased fishery monitoring for implementation in the 2015-2016 fishing season, over competing workload.

- Scheduled further consideration of a Hawaii-type longline fishery outside the EEZ to begin at the June 2015 Council meeting.
- Scheduled a range of options for transition of State DGN permits to a federal permit system under the MSA for the November 2015 Council meeting.

Salmon and Halibut Retention on Vessels Fishing for HMS Species

The Council tasked the Executive Director with sending a letter to NMFS stating the belief of the Council that current regulations that prohibit the retention of salmon and halibut on vessels fishing for HMS species is an inadvertent error. The letter will cite reasons as discussed in agenda item C.9 (see Agenda Item C.9.a, Supplemental Attachment 7 and Agenda Item C.9.b Supplemental HMSAS Report), and request that a housekeeping rulemaking or other mechanism correct the regulations and provide a report on progress on this matter at the time of the advance Briefing Book for the March 2015 Council Meeting was also requested.

2.2. September 2014

International Activities

The Council provided the following requests and recommendations to NMFS:

- Noting that the recent emergency closure to the commercial take of Pacific bluefin tuna was intended for directed fisheries, the Council requested NMFS issue an Emergency Rule as soon as possible providing for an incidental take of Pacific bluefin tuna for West Coast non-directed commercial fisheries, with a 1 metric ton (mt) per trip landing limit, to be closed if and when the remaining portion of the 500>mt quota has been caught. It is recommended the NMFS work closely with harvesters to enhance fishery monitoring in relation to the quota.
- The Council recommended NMFS work bilaterally with Mexico as soon as possible, including at the October Extraordinary Inter-American Tropical Tuna Commission (IATTC) meeting, to align recreational fishery management objectives and related strategies.
- The Council recommended the U.S. Delegation emphasize in the IATTC forum that the U.S. is moving to reduce the recreational catch of Pacific bluefin tuna under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), with the expectation that other countries will also respond to the conservation need, but to work toward not incorporating recreational measures in the expected IATTC resolution negotiation. The U.S. should continue to support a quota no less than 500 mt for aggregate West Coast commercial fisheries, as contained in the current IATTC Resolution.
- The Council recommended NMFS investigate ways in which the Council can be more directly involved in the stock assessment process conducted by the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC), using Southwest Fisheries Science Center (SWFSC) staff participating on ISC Working Groups as the conduit for information flow.

Preliminary Approval of Exempted Fishing Permits for 2015 Fisheries

The Council approved the proposed exempted fishing permit (EFP) described in Agenda Item G.3.a, Attachment 4 for further development, and urged the proponents to develop as detailed a proposal as possible; NMFS and California Department of Fish and Wildlife offered assistance in proposal development. However, the Council decided to delay further approval of EFP applications until March 2015 and solicit additional applications in the interim. This was done with the understanding the Council would take final action on EFPs at that time for any acceptable EFPs and NMFS could issue the EFP in time for the swordfish season commencing in August 2015.

New or Routine Management Measures for 2015-2016 Fisheries

The Council adopted ranges of alternatives for management of the recreational fishery for Pacific bluefin tuna as follows:

For reducing recreational daily bag limits and possession limits for Pacific bluefin tuna caught off California from the current 10 fish per day per angler bag limit (30 fish possession limit): alternatives below five fish per day and accompanying possession limits. A preliminary preferred alternative of a two-fish daily bag limit and a six-fish possession limit for multi-day trips was identified in this range.

For processing recreationally caught tuna at sea south of Pt. Conception, three alternatives were identified: filleting in a manner that would allow both the number and species of tuna to be determined, heading and gutting only or gutting only, and not allowing processing of tunas. Allowing filleting in a manner that allows for subsequent species identification was selected as the preliminary preferred alternative (PPA).

For the at-sea filleting alternative, it is expected that the Enforcement Consultants will work with the Highly Migratory Species Management Team (HMSMT) and Highly Migratory Species Advisory Subpanel (HMSAS) is identifying a workable method that the Council will consider at the next Council meeting. Final action on Pacific Bluefin tuna recreational fishery management measures is scheduled for the November 2014 Council meeting.

The Council also selected ranges of alternatives for high priority protected species hard caps, finfish bycatch caps, and enhanced monitoring for the California drift gillnet fishery based on Agenda Item G.4.b, HMSMT Report 3 and Supplemental HMSMT Report 5. A preliminary preferred alternative was also identified that includes annual hard caps for fin, humpback, and sperm whales; and leatherback, loggerhead, olive ridley, and green sea turtles. For other protected species and finfish, the PPA establishes bycatch performance limits. Based on Council action, revised sets of alternatives will be brought forward at the November 2014 Council meeting for further consideration with the intent of final action in early 2015, with the understanding that NMFS would be able to implement any adopted measures by August 15, 2015.

Except for increasing the ping rate for vessel monitoring systems in the California drift gillnet (DGN) fishery, the other management issues identified by the Council in June 2014 will be further considered by the Council at the November 2014 Council meeting, with the intent to then identify a schedule for final Council action outside of the highly migratory species (HMS) fishery management plan (FMP) biennial process. These issues include authorizing a shallow-set longline fishery outside the west coast exclusive economic zone (EEZ) and transitioning the current California limited entry permits for the DGN fishery to a federal limited entry program. The priority of further consideration of authorizing pelagic longline gear inside the west coast EEZ would be initially addressed through an exempted fishing permit process prior to any decision by the Council to amend the HMS FMP to permit this activity.

2.3. June 2014

Update on Regulatory Matters and International Activities

The Council tasked Council staff with sending a letter to the U.S Section of the Inter-American Tropical Tuna Commission (IATTC) and Western and Central Pacific Fisheries Commission (WCPFC) with recommendations on Pacific bluefin tuna catch reductions, further development of a precautionary approach for northern albacore tuna, compliance with effort control measures (with particular reference to activities by China), and compliance in catch reporting from all countries. The Council made the following specific recommendation to the U.S. Section of the IATTC with regard to Pacific bluefin tuna:

1. Limit the Commission-wide commercial catch to 3,000 metric tons (mt) in 2015 and to 2,500 mt in 2016.
2. Provide for protection from intercepting fisheries to secure access by the U.S. commercial fleet to the Pacific bluefin tuna stock in order to maintain an economically viable fishery.
3. Notice IATTC countries that a reduction in the U.S. recreational fishing mortality to an appropriate level will occur through the PFMC process (e.g., a reduction in bag limits).

The Council directed staff to work through U.S. delegations to the IATTC and WCPFC to continue developing a precautionary management framework for North Pacific albacore tuna, including (1) in the IATTC arena by supporting a revised NMFS proposal for a resolution dealing with the analysis of target and limit reference points, and (2) pursuing discussion and negotiation of elements in the Draft Precautionary Management Approach for North Pacific Albacore in both the IATTC and WCPFC arenas and inter-sessionally.

Drift Gillnet Fishery Transition Issues

The Council enumerated a set of policy objectives for managing the West Coast swordfish fishery under full Magnuson-Stevens Act (MSA) authority for 2014 and beyond:

1. Reduce bycatch in the California drift gillnet (DGN) fishery through the use of hard caps for high priority protected species (marine mammals and sea turtles) and measures to reduce discard of other species. If hard caps are reached or exceeded during a fishing season, the fishery would be closed for the remainder of the season. Hard caps are to be evaluated for the following species: fin, humpback, and sperm whales; and leatherback, loggerhead, olive ridley, and green turtles.
2. Establish a control date of June 23, 2014, for purposes of possibly considering a future federal DGN limited entry program under MSA authority.
3. Increase observer coverage rates above 2013 levels for the DGN fishery to facilitate implementation of bycatch reduction measures such as hard caps. The beginning of the 2016/2017 DGN fishing season is identified as a target for implementing full monitoring and accountability through onboard observers and/or electronic monitoring systems.
4. Support collaboration between fishing communities, agencies, scientists, and nongovernmental organizations to develop alternative fishing gears, conduct research to further minimize bycatch in the DGN fishery, maintain a viable domestic West Coast highly migratory species fishery, and reduce capacity in the DGN fishery through buyouts or other incentives.
5. Explore regulatory amendments that would remove exemptions for unobservable vessels in the DGN fishery.
6. Routinely review DGN fishery performance to evaluate its ability to operate within hard cap levels and successfully minimize bycatch of other discard species according to bycatch performance standards to be adopted by the Council.
7. Evaluate future access to Pacific Leatherback Conservation Area (PLCA) in light of full accountability and acceptable bycatch cap levels.

Exempted Fishing Permit (EFP) Process

The Council will solicit EFP proposals to test alternative gear types or new approaches for using pelagic drift gillnet gear through a widely circulated notice. The due date for EFP proposals will be August 15. The Council will initially review proposals at the September 2014 meeting and make final recommendations to National Marine Fisheries Service (NMFS) on issuance of EFPs at the November 2014 meeting.

The Council adopted evaluation criteria for solicited EFP proposals based on recommendations from the Highly Migratory Species Management Team (HMSMT). In addition, EFP proposals should be compatible with the policy directives identified by the Council under Agenda Item E.2, Drift Gillnet

Fishery Transition Issues, with particular reference to the objectives of maintaining commercially viable HMS target fisheries and minimizing bycatch. Details of these evaluation criteria will be included in the public notice.

All EFP activities should be designed for 100 percent monitoring and applicants are asked to express their willingness to test electronic monitoring systems and their willingness and ability to pay the costs associated with observer coverage.

Initial Scoping of Biennial Specifications and Management Measures

The Council identified a preliminary list of issues for further consideration through the current biennial process or by a separate process with a different timeline, if necessary. The HMSMT will provide information about potential elements of alternatives the Council could consider, options for the optimal process of consideration, a preliminary evaluation of potential regulatory actions and associated workload necessities. The highest priority was assigned to examining hard caps for the DGN fishery, with the presumption that the Pacific bluefin recreational catch limit issue being addressed in the current biennial process.

- For the California DGN fishery, establish hard caps for high priority protected species (fin, humpback and sperm whales; and leatherback, loggerhead, olive ridley and green turtles) and adopt measures to reduce discard of other species.
- Reduce recreational catch of Pacific bluefin tuna by modifying current trip limits and possession limits and/or other recreational management measures.
- Increase the transmission (ping) rate for vessel monitoring system units on vessels in the California DGN fishery.
- Management of the pelagic longline fishery:
- Achieve fishing opportunity comparable to the Hawaii shallow-set longline fishery for HMS permit holders using longline gear outside the Exclusive Economic Zone (EEZ);
- Authorize a pelagic longline fishery inside the EEZ, which is currently prohibited by the HMS fishery management plan (FMP).
- Transition the current California limited entry permit program for DGN vessels to a Federal limited entry permit program under the HMS FMP.
- Establish a requirement for all DGN vessels to carry an observer or electronic monitoring system.

2.4. March 2014

Vessel Monitoring Systems (VMS) for Highly Migratory Species Fisheries

The Council elected to not formally comment on the regulation proposed by NMFS requiring VMS on vessels longer than 24 meters, which is in the process of being promulgated under the Tuna Conventions Act by the NMFS. The Council asked Departments of State and Commerce representatives to make note of the Council preference to have this rulemaking decision and any future rulemakings similar to it, made under MSA authority rather than the Tuna Conventions Act. The Council acceded to the Federal government commitment to implement regulations to comply with an Inter-American Tropical Tuna Commission (IATTC) resolution (requiring VMS) before the July 2014 IATTC meeting. In doing so, the Council recognized that because there is insufficient time to complete the Council-MSA process in time, NMFS will use their authority under the Tuna Conventions Act.

Recommendations for International Management Activities

The Council directed staff to continue working on the development of a precautionary management framework for North Pacific albacore at the international level, including in both the IATTC and the Western and Central Pacific Fisheries Commission arenas.

U.S.-Canada Albacore Treaty Update

The Council heard reports and public testimony regarding the future of a reciprocal fishing regime under the US-Canada Albacore Treaty, but elected to not take a position prior to the upcoming bilateral negotiations scheduled for mid-April 2014.

Drift Gillnet Monitoring, Management and Alternative Gear Report

The Council took several actions toward a goal of developing a comprehensive plan to transition the current drift gillnet fishery to a fishery utilizing a suite of more environmentally and economically sustainable gear types that can effectively target the healthy West Coast swordfish stock operating under MSA authority. The Council actions are:

1. Sending a letter to NMFS requesting reinstatement of the emergency rule that lapsed on January 31 and implementation of the Pacific Offshore Cetacean Take Reduction Team recommendations so there is no gap in application while NMFS implements permanent regulations on this matter.
2. Requesting NMFS provide a report at the June Council meeting on issues and possible solutions to more comprehensively placing a transitioning swordfish fishery under MSA authority, including Federal permit options that would replace the current California State permit regime.
3. Tasking Council staff with noticing the public that the Council would consider preliminary experimental fishing permit (EFP) approval on fishery transition proposals at the June 2014 Council meeting, and encouraging EFP submission. Further, the Council directed the Highly Migratory Species Management Team (HMSMT) to prepare research protocols to guide the evaluation of EFPs to test alternative gear types.
4. Tasking Council staff, the HMSAS, and the HMSMT with initial development of a fishery transition plan and possible regulations under a typical MSA process, with the transition period being of sufficient duration to maintain a reasonable commercial flow of swordfish to domestic markets during the transition. The initial compilation of ideas was scheduled for the June 2014 Council meeting, with typical MSA process management tools to use such things as, seasons, areas, allowable gear alternatives, and integration of EFP results.

3. HMS Regulations Currently in Place

2015

Regulations under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) to revise the prohibited species policy for highly migratory species off the U.S. West Coast. This action is necessary to accurately reflect the intent of the Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species. Citation: 80 FR 46519. Published: August 5, 2015. Effective: August 5, 2015.

Regulations to modify the existing Pacific bluefin tuna (PBF) *Thunnus orientalis* recreational daily bag limit in the Exclusive Economic Zone (EEZ) off California, and to establish filleting-at-sea requirements for any tuna species in the U.S. EEZ south of Point Conception, Santa Barbara County, under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). Citation: 80 FR 44887. Published: July 28, 2015. Effective: July 30, 2015.

2014

Advance Notice Of Proposed Rulemaking (ANPR) announcing a control date of June 23, 2014, that may be used as a reference for allocation decisions when considering potential future management actions to limit the number of participants in the large-mesh drift gillnet (DGN) fishery that targets swordfish and thresher sharks. This ANPR is intended to promote public awareness of the Council's interest and the potential for a future rulemaking. Citation: 79 FR 64161. Published: October 28, 2014. Effective: N/A.

2013

Temporary regulations under the authority of Section 305(c) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) to: implement an immediate closure of the California thresher shark/swordfish drift gillnet (mesh size ≥14 inches) (DGN) fishery if one sperm whale is observed killed or seriously injured in DGN gear off California, and require all DGN fishing vessels to carry a NMFS-trained observer from August 15, 2013 to January 31, 2014 in a 100% observer coverage area (Zone). Citation: 78 FR 54547. Published: September 4, 2013. Effective: September 4, 2013. (Renewed/extended May 22, 2014, **Expired June 23, 2014**. Citation: 79 FR 29377.)

2012

Final rule under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) to modify retention limits for swordfish harvested in the U.S. West Coast-based deep-set tuna longline (DSLL) fishery. Citation: 77 FR 15973. Published: March 19, 2012. Effective: April 18, 2012.

2011

Final rule under authority of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) to implement Amendment 2 to the Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species (HMS FMP). Citation: 76 FR 56327. Published: September 13, 2011. Effective: October 13, 2011.

2009

Final rule to initiate collection of a permit fee for vessel owners participating in commercial and charter recreational fishing for highly migratory species (HMS) in the Exclusive Economic Zone (EEZ) off the West Coast of California, Oregon, and Washington. Citation: 74 FR 37177. Published: July 28, 2009. Effective: August 29, 2009.

2007

Final rule to implement daily bag limits for sport-caught albacore tuna (*Thunnus alalunga*) and bluefin tuna (*Thunnus orientalis*) in the Exclusive Economic Zone (EEZ) off California under the Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species (HMS FMP). Citation: 72 FR 58258. Published: October 15, 2007. Effective: November 14, 2007.

Final rule to amend vessel identification regulations of the Fishery Management Plan (FMP) for U.S. West Coast Fisheries for Highly Migratory Species (HMS). Citation: 72 FR 43563. Published: August 06, 2007. Effective: September 5, 2007

Final rule to amend text in the regulations governing closures of the drift gillnet fishery in the Pacific Loggerhead Conservation Area during El Nino events under the Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species (HMS FMP). Citation: 72 FR 31756. Published: June 8, 2007. Effective: June 9, 2007.

Rule to revise the method for renewing and replacing permits issued under the Fishery Management Plan (FMP) for U.S. West Coast Fisheries for Highly Migratory Species (HMS). Citation: 72 FR 10935. Published: March 12, 2007. Effective: April 11, 2007.

2004

Final rule to implement the approved portions of the Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species (FMP), which was submitted by the Pacific Fishery Management Council (Pacific Council) for review and approval by the Secretary of Commerce and was partially approved on February 4, 2004, under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). Citation: 69 FR 18444. Published: April 07, 2004. Effective: May 7, 2004

4. Monitoring and Enforcement

4.1. Status of HMS Permits

The reporting and recordkeeping requirements of the HMS FMP became effective February 10, 2005, and formalized the requirement for an HMS permit. Title 50, Section 660.707 of the Code of Federal Regulations outlines the required HMS permit with an endorsement for a specific gear for all U.S. commercial and recreational charter fishing vessels fishing for HMS within the U.S. EEZ off the States of California, Oregon, and Washington. The permit requirements also apply for U.S. commercial fishing vessels that land or transship HMS shoreward of the outer boundary of the U.S. EEZ off the States of California, Oregon, and Washington. The permit must be on board the vessel and available for inspection by an authorized officer. The following table shows the number of valid HMS permits by year.

HMS permits recorded in the permit database for each year since the regulation became effective on February 10, 2005. The permit data presented reflects valid permits and does not necessarily reflect total number of active vessels (i.e., vessels with catch and effort history in a given fishery year).

Table 5-1. Number of valid HMS permits recorded in each year, 2005-2013, by state.

Year	California	Oregon	Washington	Other	Total
2005	677	626	298	135	1,736
2006	800	684	339	152	1,975
2007	785	561	318	108	1,772
2008	826	569	331	84	1,810
2009	903	650	381	54	1,988
2010	887	620	383	80	1,970
2011	862	650	340	106	1,958
2012	826	625	348	113	1,912
2013	842	647	378	140	

Notes: The permits are issued to the vessel owner(s) not to the vessels themselves. The totals indicate the number of valid permits in each year and cannot be added across years. The “Other” column includes non-west coast home ports/states and permits issued with no home port/state designated.

4.2. HMS Fisheries Data Collections

Catch, effort, size composition, and landings data are critical for monitoring HMS fisheries and assessing the status of HMS stocks. The SWFSC monitors seven Pacific Ocean HMS fisheries. Logbook, observer, landing, and size composition data from these fisheries come from various sources, as shown in the table below.

Table 5-2. Summary of fisheries data collections.

Fishery	Logbooks	Observer	Landings	Size Composition
North Pacific Albacore Troll	F		P/S/I	D
Large Mesh Drift Gillnet	S	F	P	O
Harpoon	S		P	
EPO Purse Seine	I	I	C/P	D
California Longline	F	F	H	H
California HMS Sport	S			D (PBF)
Albacore Sport (OR/WA)	F			

LEGEND
Logbooks/Observer: F – federal; S – state; I – international
Landings monitored by: P – PacFIN; C – cannery; H – Hawaii
Size composition: O – observer; D – dock-side

All HMS permit holders, including HMS recreational charter vessels, are required to maintain logbooks. All information specified on the logbook forms must be recorded on the forms within 24 hours after the completion of each fishing day. The original logbook form for each fishing trip must be submitted to NMFS within 30 days of the end of each trip. Each form must be signed and dated by the fishing vessel operator.

The CDFW implemented a harpoon logbook and permit program in 1974. Logbooks are submitted to CDFW and forwarded to SWFSC for editing and keypunching.

The gillnet logbook program was implemented in 1980 by the CDFW. Logbooks are submitted to CDFW and forwarded to SWFSC for editing and keypunching.

Purse-seine vessels based on the west coast primarily target CPS but occasionally target HMS (albacorer bluefin tuna) when they are available and market conditions are favorable. Logbook data are required to be submitted to NMFS when these vessels target HMS.

Participants in the west-coast based longline fisheries submit logbook data to SWFSC. Logbook data are maintained at SWFSC and are combined with Hawaii longline data for international reporting. PacFIN data are not used in the estimation of total annual catch estimates for Pacific HMS pelagic longline fisheries.

CPFV vessel owners based in California submit logbook data to CDFW who in turn make the data available to SWFSC. SWFSC staff extracts and summarize the HMS component of the data for reporting purposes. CPFV fisheries in Washington and Oregon occasionally target albacore during the summer months when fish are close enough to shore. When targeting albacore, CPFV vessel owners complete a CPFV logbook and submit the data to SWFSC where the data are maintained and combined with summarized CPFV data from California.

5. Protected Resources Regulations

5.1. HMS FMP Endangered Species Act Consultations

Longline and drift gillnet vessels on rare occasions encounter endangered and threatened species of sea turtles and marine mammals while targeting HMS. HMS longline vessels also infrequently encounter a number of sea birds. Endangered and threatened marine species are protected through a number of Federal laws, including the ESA and the MMPA. The HMS FMP final rule (69 FR 18444) adopted measures to minimize interactions of HMS gears with protected species and to ensure that the HMS fisheries are operating consistent with Federal laws. These measures include time and area closures, gear requirements, and safe handling and release techniques for protected seabirds and sea turtles. Refer to 50 CFR 660.712, 713, and 720 and 50 CFR 229.31 and 223.206 for the complete list and text of the regulations.

Impacts of HMS FMP fisheries on species listed under the Endangered Species Act (ESA) (including marine mammals and sea turtles) have been analyzed in section 7 consultations and biological opinions (BOs), which are listed below. BOs include an Incidental Take Statement with anticipated mortalities and entanglements of ESA-listed marine mammals and sea turtles that are likely to interact with vessels targeting HMS fish species.

The 2004 BO for the HMS FMP considered the impacts of the proposed shallow-set longline fishery and found that the fishery was likely to jeopardize the continued existence of threatened loggerhead sea turtles. As a result, the shallow-set longline HMS fishery was prohibited when the FMP was implemented.

The US Fish and Wildlife Service also conducted a section 7 consultation on the HMS FMP for the endangered short-tailed albatross and brown pelican. (The brown pelican has subsequently been de-listed.)

More information on the ESA and endangered and threatened species under NMFS' jurisdiction may be found the NMFS website.

The table below lists BOs prepared for west coast HMS fisheries.

Table 6-1. Biological opinions for west coast HMS fisheries

Date	Title
2/4/04	Biological Opinion on Highly Migratory Species FMP (NMFS)
N/D	Biological Opinion on Highly Migratory Species FMP (USFWS)
10/23/06	Issuance of an Exempted Fishing Permit to allow the use of drift gillnet gear in an area and time that is currently prohibited under the Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species. Issuance of a Marine Mammal Protection Act section 101(a)(5)(E) permit, authorizing take of endangered fin, humpback, and sperm whales
11/28/07	Shallow-set Longline exempted fishing permit under the U.S. West Coast Highly Migratory Species Fisheries
7/29/08	Updated Shallow-set Longline exempted fishing permit under the FMP for West Coast Highly Migratory Species Fisheries
4/8/2011	Authorization of (1) the deep-set tuna longline fishery managed under the Fishery Management Plan for U.S. West Coast Highly Migratory Species, and (2) continued operation of Highly Migratory Species fishery vessels in the deep-set tuna longline fishery under permits pursuant to the High Seas Fishing Compliance Act
5/2/13	Re-initiation of ESA Section 7 Consultation on the Effects of the U.S. West Coast Highly Migratory Species Drift Gillnet Fishery on ESA Listed Species

5.2. Sea Turtles Listed Under the ESA

Takes of green, olive ridley and loggerhead sea turtles are uncommon in the California drift gillnet fishery except under certain environmental conditions (e.g., El Niño or higher than usual sea surface temperatures) when turtles may move into the areas of drift gillnet fishing. Takes of leatherbacks are also rare, likely due to the time/area closure which has been in effect since the 2001 season and subsequent reductions in fishing effort. Since 2001, only two leatherbacks have been observed taken (released alive) in the drift gillnet fishery, one in 2009 and another in October 2012.

On January 29, 2012 NMFS published a final rule that designates areas off the U.S. west coast as critical habitat for endangered leatherback sea turtles (77 FR 4170). The final rule designates as critical habitat an area of approximately 41,914 square miles from Point Arguello to Point Arena, California, and from Cape Blanco in Oregon to Cape Flattery, Washington.

On September 22, 2011, NMFS and the U.S. Fish and Wildlife Service published a final rule to list nine distinct population segments (DPSs) of the loggerhead turtle (*Caretta caretta*) pursuant to the ESA. After considering designation of critical habitat for the two DPSs that occur within the EEZ of the United States, the North Pacific DPS (listed as endangered) and the Northwest Atlantic DPS (listed as threatened), in 2014 NMFS published a final rule (79 FR 39855) concluding "No marine areas meeting the definition of critical habitat were identified within the jurisdiction of the United States for the North Pacific Ocean DPS, and therefore we are not designating critical habitat for that DPS."

5.3. Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) establishes a general prohibition on the "take" of any marine mammal (note that the MMPA "take" definition is somewhat different from the ESA definition).

An exemption may be granted if the activity meets certain standards pursuant to MMPA Section 101(a)(5)(E). This section provides that NMFS shall allow, for a period of up to three years, the incidental taking of marine mammal species listed under the Endangered Species Act (ESA) by persons using vessels of the United States with valid fishing permits, if NMFS makes certain determinations. NMFS must first determine, after notice and opportunity for public comment, that: 1) the incidental mortality and serious injury from commercial fisheries will have a negligible impact on the affected species or stock; 2) a recovery plan has been developed or is being developed for such species or stock under the ESA; and 3) where required under section 118 of the MMPA, a monitoring program has been established, vessels engaged in such fisheries are registered in accordance with section 118 of the MMPA, and a take reduction plan has been developed or is being developed for such species or stock.

The Pacific Offshore Take Reduction Plan (satisfying requirement 2, above) was finalized in 1997; the Pacific Offshore Take Reduction Team meets periodically to develop recommendations for reducing marine mammal incidental serious injury and mortality in west coast HMS fisheries.

The MMPA mandates that each commercial fishery be classified by the level of mortality and serious injury of marine mammals occurring incidental to each fishery. The List of Fisheries classifies U.S. commercial fisheries into one of three categories according to the level of incidental mortality or serious injury of marine mammals. This classification is based on the rate, in numbers of animals per year, of incidental mortality and serious injury of marine mammals due to commercial fishing operations relative to a stock's Potential Biological Removal (PBR) level, defined (50 CFR 229.2) as the maximum number of animals, not including natural mortality, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. The DGN fishery is currently categorized as a Category I fishery (annual mortality and serious injury of a stock in a given fishery is greater than or equal to 50 percent of the PBR level) due to interactions with sperm whales in 2010.

In order to make a negligible impact determination, NMFS must consider the total human-related mortality and serious injury to the affected stock of marine mammals. This includes the known or estimated takes from all human sources, such as commercial fisheries and ship strikes. There are five criteria that NMFS adopted in 1999 to make negligible impact determinations for MMPA 101(a)(5)(E) permits (64 FR 28800; May 27, 1999). Criterion 1 is the starting point for analysis. If Criterion 1 is not satisfied, NMFS may use one of the other criteria as appropriate.

1. The threshold for initial determination will remain at 0.1 PBR. If total human-related serious injuries and mortalities are less than 0.1 PBR, all fisheries may be permitted.
2. If total human-related serious injuries and mortalities are greater than PBR, and fisheries-related mortality is less than 0.1 PBR, individual fisheries may be permitted if management measures are being taken to address non-fisheries-related serious injuries and mortalities. When fisheries-related mortality and serious injury is less than 10 percent of the total, the appropriate management action is to address components that account for the major portion of the total.
3. If total fisheries-related serious injuries and mortalities are greater than 0.1 PBR and less than PBR and the population is stable or increasing, fisheries may be permitted subject to individual review and certainty of data. Although the PBR level has been set up as a conservative standard that will allow recovery of a stock, there are reasons for individually reviewing fisheries if serious injuries and mortalities are above the threshold level. First, increases in permitted serious injuries and mortalities should be carefully considered. Second, as serious injuries and mortalities approach the PBR level, uncertainties in elements such as population size, reproductive rates, and fisheries-related mortalities become more important.

4. If the population abundance of a stock is declining, the threshold level of 0.1 PBR will continue to be used. If a population is declining despite limitations on human-related serious injuries and mortalities below the PBR level, a more conservative criterion is warranted.
5. If total fisheries-related serious injuries and mortalities are greater than PBR, permits may not be issued.

5.4. Marine Mammals of Concern for West Coast HMS Fisheries

As discussed above, PBR is an important threshold for making the negligible impact determination. PBR is calculated as 0.5 times the maximum potential population growth rate (Rmax) times the minimum estimate of abundance (Nmin) times a recovery factor (Fr). Marine mammal stocks may be defined as "strategic" if human-caused mortality exceeds PBR, the species is listed under the ESA, the population is estimated to be declining, or the stock is designated as "depleted" under the MMPA. The table below taken from the 2014 U.S. Marine Mammal Stock Assessment Report, shows estimates of these parameters for strategic stocks and other stocks of concern.

Table 6-2. Key population parameters for selected marine mammals occurring in the west coast EEZ.

Species	Stock Area	N est	CV N est	N min	Rmax	Fr	PBR
Blue whale	ENP	1,647	0.07	1,551	0.04	0.3	2.3
Cuvier's beaked whale	W/O/C	6,590	0.55	4,481	0.04	0.5	45
Fin whale	W/O/C	3,051	0.18	2,598	0.04	0.3	16
Gray whale	Western North Pacific	140	0.04	135	0.062	0.1	0.06
Guadalupe Fur Seal	Mex-CA	7,408	n/a	3,028	0.12	0.5	91
Humpback whale	W/O/C	1,918	0.03	1,855	0.08	0.3	11
Killer whale	ENP Southern Resident	82	n/a	82	0.035	0.1	0.14
Mesoplodont beaked whales	W/O/C	694	0.65	389	0.04	0.5	3.9
Sei whale	ENP	126	0.53	83	0.04	0.1	0.17
Sperm whale	W/O/C	2,106	0.58	1,332	0.04	0.1	2.7

W/O/C: Washington, Oregon, California
ENP: Eastern North Pacific

6. International Management

6.1. RFMOs

Regional fishery management organizations (RFMOs) are responsible for the conservation and management of fisheries for tunas and other species taken by tuna-fishing vessels both outside and within areas of national jurisdiction. These organizations agree to measures, usually by consensus, which are implemented by member countries for their flag vessels. In the Pacific Ocean the Inter-American Tropical Tuna Commission (IATTC) and the Western and Central Pacific Fisheries Commission (WCPFC) establish measures within their respective Convention Areas, as illustrated in the figure below. Notice that there is an area of overlap between the two Convention areas in the South Pacific.

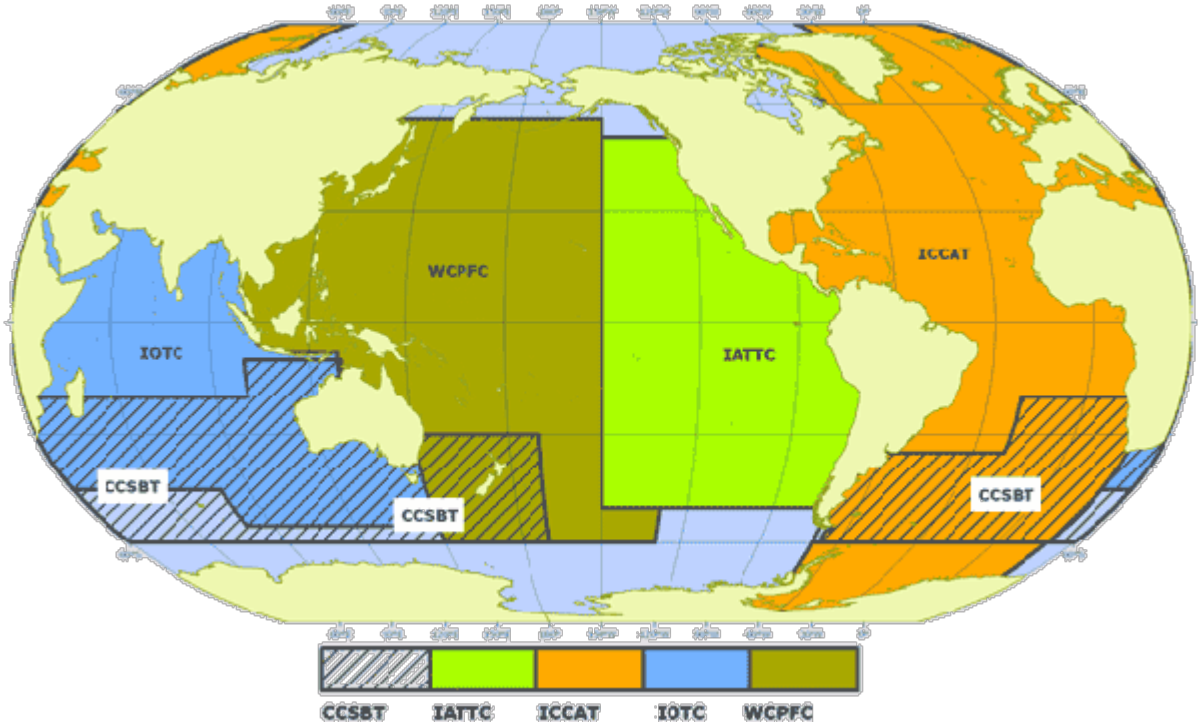


Figure 7-1. Global map of tuna RFMO jurisdictions. (Source: http://www.fao.org/fishery/topic/16917/en).

West Coast fisheries are more directly affected by IATTC measures since vessels mostly fish within that Convention Area. However, the WCPFC is especially active in managing northern stocks (those predominately occurring north of 20° North latitude). In the case of Pacific bluefin tuna and North Pacific albacore, tuna scientists recognize a single North Pacific stock occurring in both convention areas. Furthermore, under domestic law the Chair of the Pacific Council, or his or her designee, is allocated a spot as a Commissioner for the United States Section to the WCPFC. This provides a direct advisory role for the Pacific Council in policies and proposals that the U.S. may advocate in the WCPFC. The Council frequently provides advice to U.S. delegations to these RFMOs and Council staff attends their meetings.

6.2. IATTC and WCPFC Outcomes

2014

Report of the 87th IATTC meeting, held July 14-18, 2014 in Lima, Peru and Report of the Resumed 87th meeting, held October 27-29, 2014, in La Jolla, California

Resolutions adopted

- C-14-01 *Amends and replaces* C-11-06 Regional Vessel Register
- C-14-02 *Amends and replaces* C-04-06 Vessel Monitoring System
- C-14-03 *Amends and replaces* C-11-11 Capacity building
- C-14-04 Financing FY 2015
- C-14-05 *Amends and replaces* C-11-12 Capacity of Peru
- C-14-06 Conservation of bluefin 2015-2016
- C-14-07 Procedures for the Implementation of Article XII, paragraph 1, of the Antigua Convention
- C-14-08 Revision of the IATTC Rules of procedure
- C-14-09 Terms of reference for the review of the IATTC and AIDCP

Report of the 11th Regular Session of the WCPFC held December 1-5, 2014, at the Faleata Sports Complex, Apia, Samoa

Conservation Measures Adopted:

- CMM 2014-01 Conservation and Management Measure for bigeye, yellowfin and skipjack tuna in the Western and Central Pacific Ocean
- CMM 2014-02 Conservation and Management Measure for Commission VMS
- CMM 2014-03 Conservation and Management Measure on Standards, Specifications and Procedures for the WCPFC Record of Fishing Vessels
- CMM 2014-04 Conservation and Management Measure to establish a multi-annual rebuilding plan for Pacific bluefin tuna
- CMM 2014-05 Conservation and Management Measures for Sharks
- CMM 2014-06 Conservation and Management Measures to develop and implement a harvest strategy approach for key fisheries and stocks in the WCPO
- CMM 2014-07 Conservation and Management Measure on Compliance Monitoring Scheme

7. Regulations for International HMS Fisheries and Related Activities in the Pacific

This page provide links to *Federal Register* Final Rule Notices modifying the Code of Federal Regulations, Title 50, Chapter III since 2004 when the HMS FMP was implemented.

2014

79 FR 77942. 12/29/2014 International Fisheries; Western and Central Pacific Fisheries for Highly Migratory Species; Restrictions on the Use of Fish Aggregating Devices in Purse Seine Fisheries for 2015; Correction

79 FR 71327. 12/2/2014 International Fisheries; Western and Central Pacific Fisheries for Highly Migratory Species; Restrictions on the Use of Fish Aggregating Devices in Purse Seine Fisheries for 2015

79 FR 68133. 11/14/2014. International Fisheries; Pacific Tuna Fisheries; 2014 Commercial Fishing for Pacific Bluefin Tuna in the Eastern Pacific Ocean; Commercial Retention Limit

79 FR 67359. 11/13/2014. International Fisheries; Western and Central Pacific Fisheries for Highly Migratory Species; Fishing Effort Limits in Purse Seine Fisheries for 2014

79 FR 64097. 10/28/2014. Western Pacific Pelagic Fisheries; U.S. Territorial Catch and Fishing Effort Limits

79 FR 63562. 10/24/2014. International Fisheries; Pacific Tuna Fisheries; 2014 Bigeye Tuna Longline Fishery Closure in the Eastern Pacific Ocean

79 FR 56017. 9/18/2014. International Fisheries; Pacific Tuna Fisheries; Fishing Restrictions in the Eastern Pacific Ocean, Whale Shark Conservation Measures

79 FR 53631. 9/10/2014. International Fisheries; Pacific Tuna Fisheries; 2014 Commercial Fishing for Pacific Bluefin Tuna Closed in the Eastern Pacific Ocean

79 FR 28448. 5/16/2014. International Fisheries; Pacific Tuna Fisheries; Fishing Restrictions for Pacific Bluefin Tuna in the Eastern Pacific Ocean

79 FR 28452. 5/16/2014. International Fisheries; Pacific Tuna Fisheries; Fishing Restrictions for Pacific Bluefin Tuna in the Eastern Pacific Ocean

79 FR 19487. 4/9/2014. International Fisheries; Pacific Tuna Fisheries; Fishing Restrictions in the Eastern Pacific Ocean

2013

78 FR 70002. 11/22/2013. International Fisheries; Pacific Tuna Fisheries; 2013 Bigeye Tuna Longline Fishery Closure in the Eastern Pacific Ocean; Correction

78 FR 65887. 11/4/2013. International Fisheries; Pacific Tuna Fisheries; 2013 Bigeye Tuna Longline Fishery Closure in the Eastern Pacific Ocean

78 FR 58240. 9/23/2013. International Fisheries; Western and Central Pacific Fisheries for Highly Migratory Species; Bigeye Tuna Catch Limit in Longline Fisheries for 2013 and 2014

78 FR 33240. 6/4/2013. International Fisheries; Pacific Tuna Fisheries; Fishing Restrictions in the Eastern Pacific Ocean

78 FR 30773. 5/23/2013. International Fisheries; Western and Central Pacific Fisheries for Highly Migratory Species; Fishing Restrictions and Observer Requirements in Purse Seine Fisheries for 2013-2014

2012

77 FR 71501. 12/3/2012. International Fisheries; Western and Central Pacific Fisheries for Highly Migratory Species; Transshipping, Bunkering, Reporting, and Purse Seine Discard Requirements

77 FR 52259. 8/29/2012. Atlantic Highly Migratory Species; Lifting Trade Restrictive Measures

77 FR 51709. 8/27/2012. International Fisheries; Western and Central Pacific Fisheries for Highly Migratory Species; Bigeye Tuna Catch Limit in Longline Fisheries for 2012

2011

76 FR 82180. 12/30/2011. International Fisheries; Western and Central Pacific Fisheries for Highly Migratory Species; Fishing Restrictions for Bigeye Tuna and Yellowfin Tuna in Purse Seine Fisheries for 2012

76 FR 73517. 11/29/2011. Fisheries in the Eastern Pacific Ocean; Pelagic Fisheries; Vessel Identification Requirements

76 FR 68332. 11/4/2011. International Fisheries; Pacific Tuna Fisheries; Fishing Restrictions in the Eastern Pacific Ocean

76 FR 283. 1/4/2011. International Fisheries; Pacific Tuna Fisheries; Vessel Capacity Limit in the Purse Seine Fishery in the Eastern Pacific Ocean

2010

75 FR 74640. 12/1/2010. International Fisheries; South Pacific Tuna Fisheries; Procedures To Request Licenses and a System To Allocate Licenses

75 FR 59136. 9/27/2010. Implementation of Regional Fishery Management Organizations' Measures Pertaining to Vessels That Engaged in Illegal, Unreported, or Unregulated Fishing Activities

75 FR 27216. 5/14/2010. International Fisheries; Western and Central Pacific Fisheries for Highly Migratory Species; Fishing Restrictions and Observer Requirements in Purse Seine Fisheries for 2009-2011

75 FR 7361. 2/19/2010. International Fisheries; Western and Central Pacific Fisheries for Highly Migratory Species; Initial Implementation of the Western and Central Pacific Fisheries Convention; Correction

75 FR 3335. 1/21/2010. International Fisheries; Western and Central Pacific Fisheries for Highly Migratory Species; Initial Implementation of the Western and Central Pacific Fisheries Convention

2009

74 FR 66585. 12/16/2009. Atlantic Highly Migratory Species; North and South Atlantic Swordfish Quotas

74 FR 65460. 12/10/2009. International Fisheries Regulations; Fisheries in the Western Pacific; Pelagic Fisheries; Hawaii-based Shallow-set Longline Fishery

74 FR 63999. 12/7/2009. International Fisheries; Western and Central Pacific Fisheries for Highly Migratory Species; Bigeye Tuna Catch Limits in Longline Fisheries in 2009, 2010, and 2011

74 FR 61046. 11/23/2009. International Fisheries; Pacific Tuna Fisheries; Fishing Restrictions in the Longline and Purse Seine Fisheries in the Eastern Pacific Ocean in 2009, 2010, and 2011

74 FR 44770. 8/31/2009. Fraser River Sockeye and Pink Salmon Fisheries; Notification of Inseason Orders; Correction

74 FR 38544. 8/4/2009. International Fisheries; Western and Central Pacific Fisheries for Highly Migratory Species; Fishing Restrictions and Observer Requirements in Purse Seine Fisheries for 2009-2011 and Turtle Mitigation Requirements in Purse Seine Fisheries

74 FR 1607. 1/13/2009. International Fisheries; Pacific Tuna Fisheries; Revisions to Regulations for Vessels Authorized to Fish for Tuna and Tuna-like Species in the Eastern Tropical Pacific Ocean and to Requirements for the Submission of Fisheries Certificates of Origin

2008

73 FR 67805. 11/17/2008. General Provisions for Domestic Fisheries; Specifications for Boarding Ladders

73 FR 31380. 6/2/2008. International Fisheries; Atlantic Highly Migratory Species; International Trade Permit Program; Bluefin Tuna Catch Documentation Program

2007

72 FR 30711. 6/4/2007. International Fisheries; Pacific Tuna Fisheries; Restrictions for 2007 Purse Seine and Longline Fisheries in the Eastern Tropical Pacific Ocean

72 FR 19122. 4/17/2007. Pacific Albacore Tuna Fisheries; Vessel List to Establish Eligibility to Fish for Albacore Tuna in Canadian Waters Under the U.S. Canada Albacore Tuna Treaty

72 FR 6144. 2/9/2007. South Pacific Tuna Fisheries

2006

71 FR 58058. 10/2/2006. Atlantic Highly Migratory Species; Recreational Atlantic Blue and White Marlin Landings Limit; Amendments to the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks and the Fishery Management Plan for Atlantic Billfish

71 FR 38297. 7/6/2006. International Fisheries; Pacific Tuna Fisheries; Restrictions for 2006 Longline Fisheries in the Eastern Tropical Pacific Ocean; Fishery Closure

2005

70 FR 70549. 11/22/2005. International Fisheries; Pacific Tuna Fisheries; Restrictions for 2005 and 2006 Purse Seine and Longline Fisheries in the Eastern Tropical Pacific Ocean

70 FR 52324. 9/2/2005. International Fisheries; Pacific Tuna Fisheries; Restrictions for 2005 Longline Fisheries in the Eastern Tropical Pacific Ocean

70 FR 19004. 4/12/2005. Taking of Marine Mammals Incidental to Commercial Fishing Operations; Tuna Purse Seine Vessels in the Eastern Tropical Pacific Ocean (ETP)

2004

69 FR 71731. 12/10/2004. International Fisheries; Pacific Tuna Fisheries; Restrictions for 2004 Purse Seine and Longline Fisheries in the Eastern Tropical Pacific Ocean

69 FR 67268. 11/17/2004. International Fisheries; Atlantic Highly Migratory Species

69 FR 65382. 11/12/2004. International Fisheries; Pacific Tuna Fisheries; Restrictions for 2004 Purse Seine and Longline Fisheries in the Eastern Tropical Pacific Ocean

69 FR 31531. 6/4/2004. International Fisheries Regulations; Pacific Tuna Fisheries

8. Commercial Fisheries Descriptions

Time series of HMS landings and revenue are available on the Council's website in the current online HMS SAFE. Data are extracted from databases maintained by the Pacific Fishery Information Network (PacFIN)

8.1. Surface Hook-and-Line Fishery for Albacore

Albacore is an economically valuable fishery in all three West Coast states and has been a target of commercial fishermen for more than 100 years. Troll and bait boat (live bait) are the principal commercial gears, although some albacore is caught using purse seine, longline, and drift gillnet gear as well. The fishing season varies from year to year, depending on oceanographic conditions, which strongly influence the occurrence of fish within range of the West Coast fleet, and economics. A typical season runs July through October, with landings peaking in August-September. The HMS FMP requires a federal permit with a surface hook-and-line gear endorsement for all U.S. commercial and recreational charter fishing vessels that fish for HMS within the West Coast exclusive economic zone (EEZ, from 3– 200 nautical miles from the West Coast) and for U.S. vessels that pursue HMS on the high seas (seaward of the EEZ) and land their catch in California, Oregon, or Washington.

In 2001, the last operational cannery in the Port of Los Angeles closed its doors, ending a West Coast tuna-canning dynasty. Changing global market conditions and a dynamic raw material/finished goods supply environment forced the plants to close. Without domestic-based cannery operations, a majority of the albacore are landed fresh or frozen, then exported to overseas markets for processing. Comparing the 1980s to the 2000s, participation in California (measured by the number of surface hook-and-line vessels annually landing albacore) declined by 64% while participation in Oregon and Washington increased by 62% and 130% respectively. Overall, the coastwide decline was 13% based on this metric.

These trends likely reflect a shift in fishing effort into waters off Oregon and Washington where albacore have been more available due to favorable oceanographic conditions. In recent years lower operating costs and better landing facilities in Oregon and Washington compared to California may also have contributed to this shift.

In 2014, 603 surface hook-and-line vessels landed 12,551 mt of albacore in West Coast ports, generating $34 million in ex-vessel revenue. Albacore landings by weight in 2014 were very slightly below landings in 2013, but ex-vessel revenue was down by $7.4 million mainly due to lower prices. (See Table 5)

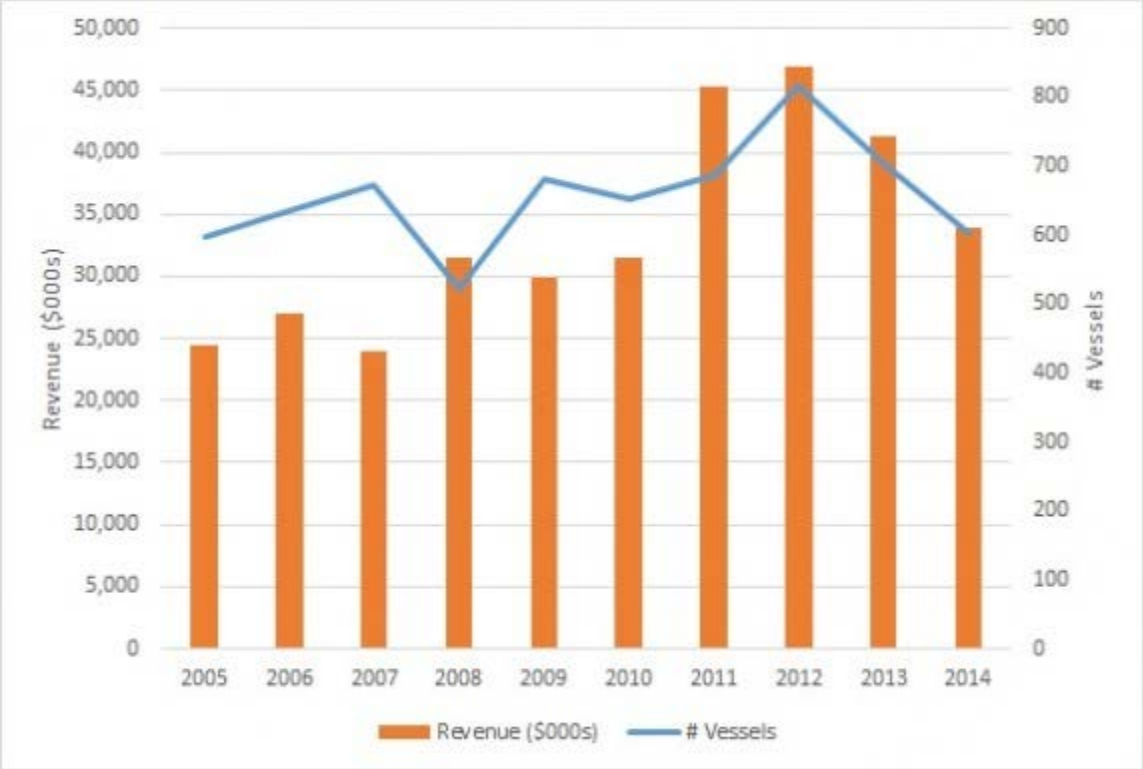


Figure 9-1.Number of vessels and real (inflation adjusted) ex-vessel revenue from North Pacific albacore ($1,000s) in the West Coast albacore surface hook-and-line (troll and baitboat) fishery, 2005-2014, Canadian vessels included.

8.2. Drift Gillnet Fishery for Swordfish and Shark

California's swordfish fishery transformed from primarily a harpoon fishery to a drift gillnet fishery in the early 1980s; landings soared to a historical high of 2,198 mt by 1985. Initial development of the drift gillnet fishery in the late 1970s was founded on catches of common thresher shark. The thresher shark fishery rapidly expanded, with 228 vessels landing more than 1,000 mt of shark in 1985. Following 1985, swordfish replaced thresher shark as the primary target species because there was a greater demand for swordfish which commanded a higher price-per-pound and possibly also due to the 1986 establishment of a shark conservation measure. Annual thresher shark landings declined in subsequent years because of the switch to swordfish to maximize economic returns and the implementation of management measures to protect the thresher shark resource.

The drift gillnet fishery is managed by a limited entry permit system, with mandatory gear standards and seasonal area closures used to address various conservation concerns. The permit is linked to an individual fisherman, not a vessel, and is only transferable under very restrictive conditions; thus the value of the vessel does not become artificially inflated. To keep a permit active, current permittees are required to purchase a permit from one consecutive year to the next; however, they are not required to make landings using drift gillnet gear. In addition, a general resident or non-resident commercial fishing license and a current vessel registration are required to catch and land fish caught in drift gillnet gear. A logbook is also required. The HMS FMP requires a federal permit with a drift gillnet gear endorsement for all U.S. vessels that fish for HMS within the West Coast EEZ and for U.S. vessels that pursue HMS on the high seas (seaward of the EEZ) and land their catch in California, Oregon, or Washington. About

150 permits were initially issued when the limited entry program was established in 1980 and peaked at 251 permits in 1986. In recent years the number of extant permits has declined below 50.

Historically, the California drift gillnet fleet operated within EEZ waters adjacent to the state and as far north as the Columbia River, Oregon, during El Niño years. In addition some Oregon-based vessels participated in this fishery. In Oregon, the DGN fishery for swordfish had been managed under the Developmental Fisheries Program, which authorized up to ten annual permits to fish for swordfish with DGN gear. For the past several years, the fishery was inactive and no one applied for permits. As part of a substantial reduction in the Developmental Fisheries Program, the Oregon Fish and Wildlife Commission removed swordfish from the program, beginning in 2009. Consequently, state permits to fish with DGN gear off Oregon are no longer allowed.

Fishing activity is highly dependent on seasonal oceanographic conditions that create temperature fronts which concentrate feed for swordfish. Because of the seasonal migratory pattern of swordfish and seasonal fishing restrictions, over 90% of the fishing effort in recent years has occurred from August 15 through January 31.

The drift gillnet fishery has been subject to a number of seasonal closures over the years. Since 1982, the drift gillnet fishery has been closed inside the entire West Coast EEZ from February 1 to April 30. In 1986, a closure was established within 75 miles of California mainland from June 1 through Aug 14 to conserve common thresher sharks; this closure was extended to include May in 1990 and later years. In 2001, NMFS implemented two Pacific sea turtle conservation areas on the West Coast with seasonal drift gillnet restrictions to protect endangered leatherback and loggerhead turtles. The larger of the two closures spans the EEZ north of Point Conception, California (34°27’ N. latitude) to mid-Oregon (45° N. latitude) and west to 129° W. longitude. Drift gillnet fishing is prohibited annually within this conservation area from August 15 to November 15 to protect leatherback sea turtles. A smaller closure was implemented to protect Pacific loggerhead turtles from drift gillnet gear during a forecasted or concurrent El Niño event, and is located south of Point Conception, California and west of 120° W. longitude from June 1 – August 31 (72 FR 31756). Since the leatherback closure was enacted the number of active participants in the drift gillnet fishery declined by nearly half, from 78 vessels in 2000 to 40 in 2004, and has remained under 50 vessels since then.

As indicated above, both participation and fishing effort (measured by the number of sets) have declined over the years. Industry representatives attribute the decline in vessel participation and annual effort to regulations implemented to protect marine mammals, endangered sea turtles, and seabirds. In addition, if oceanic or other conditions are unfavorable for swordfish, permittees may concentrate on more favorable fisheries, such as albacore; however, permittees may return to swordfish fishing once conditions improve.

In 2014 18 drift gillnet vessels landed 69 mt of swordfish and 10 mt of common thresher shark. (See Table 12.) Overall, the fishery generated $553,000 in ex-vessel revenue in 2014.

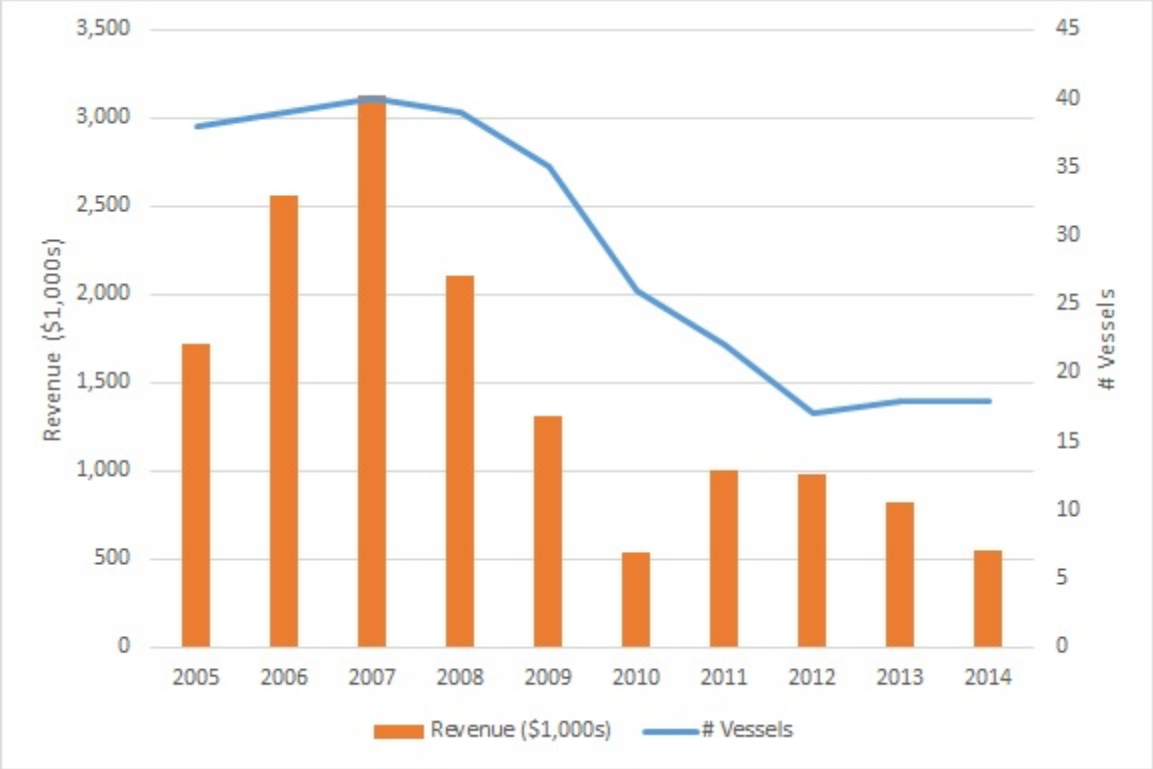


Figure 9-2. Number of vessels and commercial landings (round mt) in the West Coast drift gillnet fishery, 1990-2014.

8.3. Harpoon Fishery for Swordfish

California's modern harpoon fishery for swordfish developed in the early 1900s. Prior to 1980, harpoon and hook-and-line were the only legal gears for commercially harvesting swordfish. At that time, harpoon gear accounted for the majority of swordfish landings in California ports. In the early 1980s, a limited entry drift gillnet fishery was authorized by the State Legislature and soon afterward drift gillnets replaced harpoons as the primary method for catching swordfish. The number of harpoon permits subsequently decreased from a high of 1,223 in 1979 to a low of 25 in 2001. Fishing effort typically occurs in the Southern California Bight from May to December, peaking in August, depending on weather conditions and the availability of fish in coastal waters. Some vessel operators work in conjunction with a spotter airplane to increase the search area and to locate swordfish difficult to see from the vessel. This practice tends to increase the catch-per-unit-effort compared to vessels that do not use a spotter plane, but at higher operating cost.

A state permit and logbook are required to participate in the harpoon fishery in addition to a general resident or non-resident commercial fishing license and a current CDFG vessel registration. Additionally, the HMS FMP requires a federal permit with a harpoon gear endorsement for all U.S. vessels that fish for HMS within the West Coast EEZ and for U.S. vessels that pursue HMS on the high seas (seaward of the EEZ) and land their catch in California, Oregon, or Washington.

In 2014 ten harpoon vessels landed 5 mt of swordfish, generating $62,000 in ex-vessel revenue. (See Table 16.)

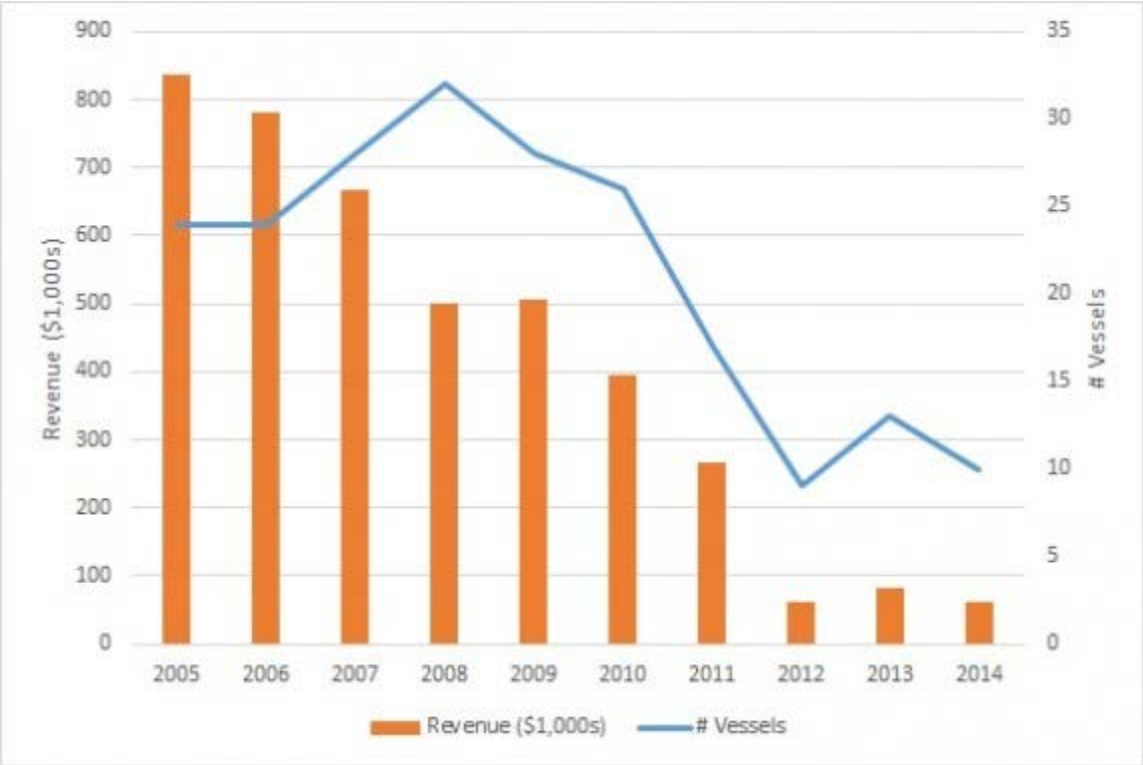


Figure 9-3. Number of vessels and commercial landings (round mt) in the West Coast harpoon fishery, 1990-2014.

8.4. High Seas Longline Fishery for Swordfish and Tuna

California prohibits pelagic longline fishing within the EEZ and the retention of striped marlin. Both these prohibitions are incorporated in the Council's HMS FMP. Longline vessels fishing outside the West Coast EEZ intermittently land swordfish and tuna in West Coast ports.

Vessels operating outside of the EEZ can land fish in West Coast ports if the operator has the necessary state and Federal permits. The operator must comply with the High Seas Fishing Compliance Act, which requires U.S. vessel operators to maintain logbooks if they fish beyond the EEZ. Additionally, the HMS FMP requires a federal permit with a pelagic longline gear endorsement for all U.S. vessels that pursue HMS on the high seas (seaward of the EEZ) and land their catch in California, Oregon, or Washington.

With implementation of the HMS FMP in 2004, federal regulations were promulgated to protect endangered sea turtles east and west of 150° W longitude and north of the equator, prohibiting West Coast-based shallow-set longline fishing to target swordfish. Vessels permitted under the Western Pacific Fishery Management Council's Pelagics FMP may use shallow-set longline gear to target swordfish and may land their catch on the West Coast. West Coast swordfish landings by Hawaii-based vessels have trended upward since the fishery reopened in 2004. Landings have occurred almost exclusively in California ports.

Targeting tunas with deep-set longline gear is permitted outside the EEZ under the HMS FMP. Currently only one vessel on the west coast participates in the tuna longline fishery.

In 2014, thirteen Hawaii-permitted vessels landed 493 mt of HMS in West Coast ports generating $2.6 million in ex-vessel revenue. (See Table 20.)

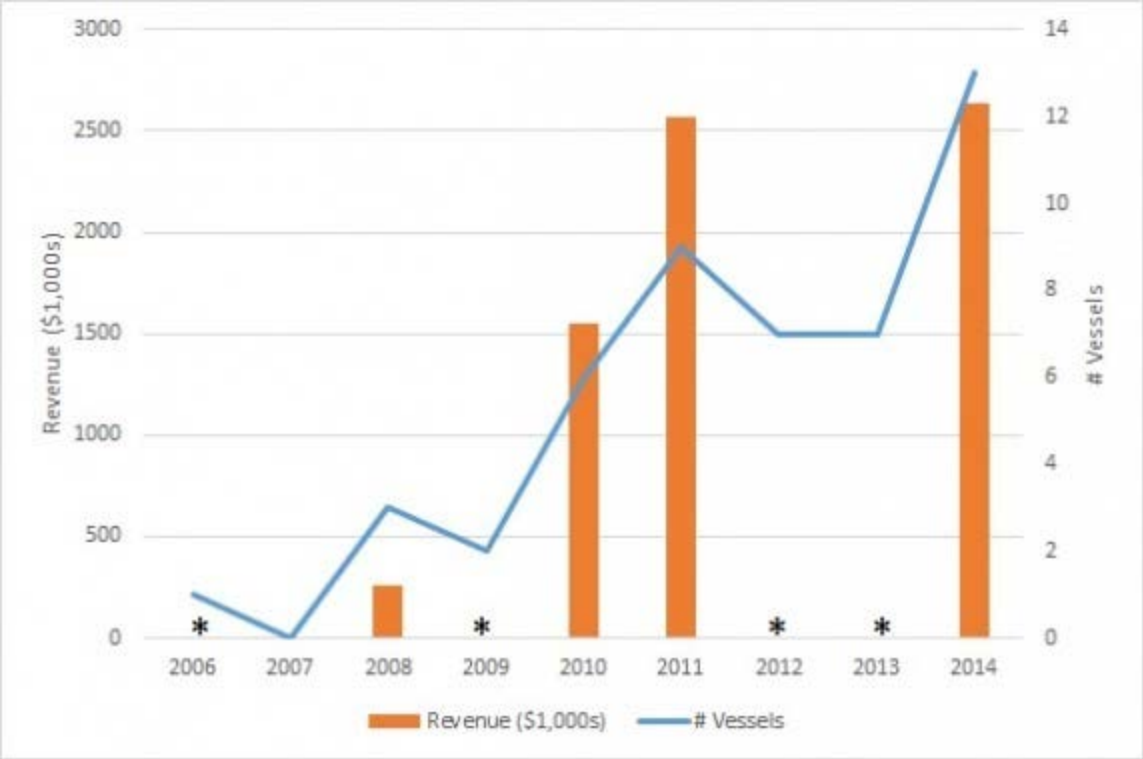


Figure 9-4. Number of vessels and commercial landings (round mt) by Hawaii permitted longline vessels in West Coast ports, 1990-2014 (confidential landings data excluded).

8.5. Coastal Purse Seine Fishery for Yellowfin, Skipjack, and Bluefin Tunas

U.S. West Coast catch of yellowfin, skipjack, and bluefin tuna represents a relatively minor component of overall eastern Pacific Ocean (EPO) tuna catch, on average equaling approximately less than 1% of EPO-wide landings. More than 90% of the catch for these species in the U.S. EEZ EPO is made by small coastal purse seine vessels operating in the Southern California Bight (SCB) from May to October. These vessels primarily target small pelagic species, especially Pacific mackerel, Pacific sardine, anchovy, and market squid. However, they will target the tropical yellowfin and skipjack tunas when intrusions of warm water from the south, typically during periodic El Niño episodes, bring these species within range of the coastal purse seine fleet. Similarly, purse seine vessel operators will target the higher-valued temperate water bluefin tuna when they enter the coastal waters of the SCB. The number of purse seine vessels that landed tuna in California averaged 197 annually 1981-90 but subsequently declined substantially to an annual average of 4 in the 2003-2012 period.

The decline in the number of domestic vessels is correlated with the relocation of large cannery operations. Increased labor costs for cannery operations contributed to these facilities being moved overseas, where labor costs are less. Currently there are no canneries in California functioning as primary offloaders of tuna.

The HMS FMP requires a logbook and federal permit with a purse seine gear endorsement for all U.S. vessels that use purse seine gear to fish for HMS within the West Coast EEZ and for U.S. purse seine

vessels that pursue HMS on the high seas (seaward of the EEZ) and land their catch in California, Oregon, or Washington.

In 2014 eight purse seine vessels landed 1,365 mt of HMS generating $1.5 million in ex-vessel revenue. (See Table 22.)

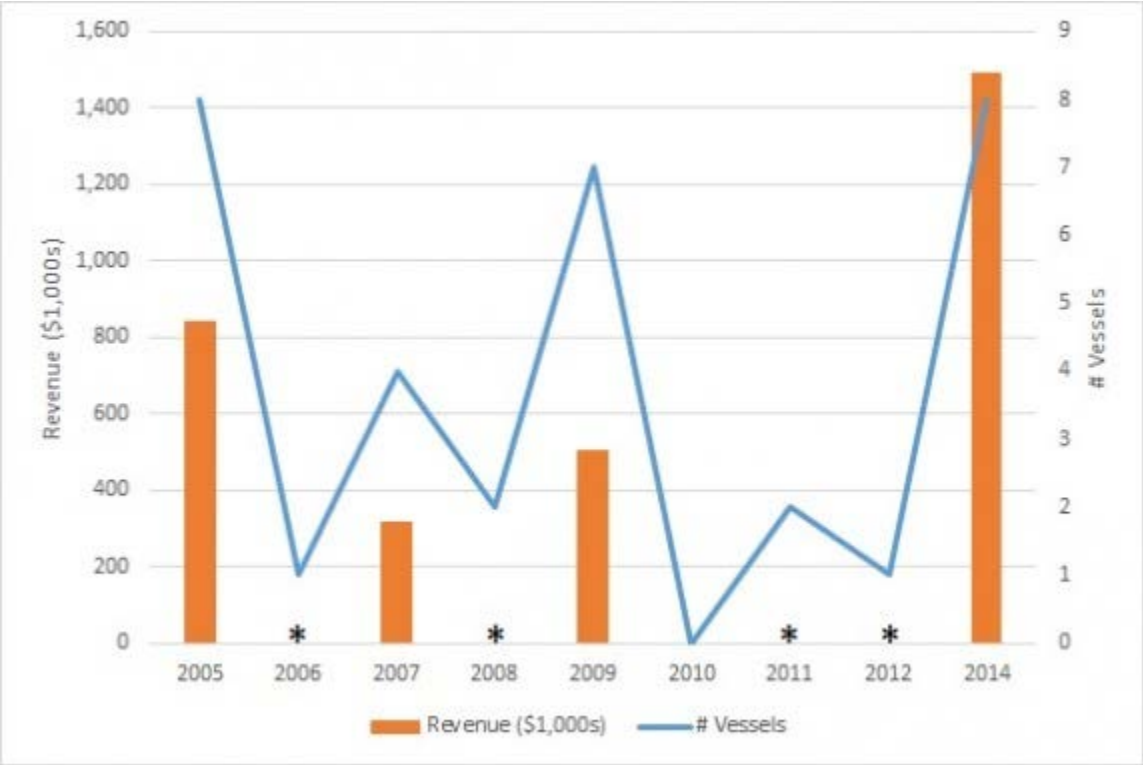


Figure 9-5. Number of vessels and commercial landings (round mt) for HMS tunas in the West Coast purse seine fishery, 1990-2014 (confidential data excluded).

8.6. Fishery Performance in 2014

8.6.1. Landings by Species (See Table 1)

- 12,587 mt of albacore tuna was landed in 2014 worth $34 million. This was a decline of 349 mt, or $7.8 million from 2013. The decline in revenue also reflects lower prices in 2014 compared to 2013. Albacore accounted for 95% of HMS landings by weight and 93% by value.
- 1,510 mt of other HMS FMP tunas (bluefin, bigeye, yellowfin, skipjack) were landed in 2014 worth $2.7 million. Yellowfin tuna was the biggest component of these landings followed by bluefin tuna. However, bigeye tuna accounted for the largest share of revenue ($1.1 million).
- 462 mt of swordfish was landed in 2014 worth $2.4 million, a decrease of 70 mt or $213,000 from 2013.
- 23 mt of common thresher shark and 20 mt of shortfin mako shark were landed in 2014 worth a combined $84,000. This reflects a 53 mt decline in landings or $96,000 less in revenue for these species compared to 2013.
- Dorado landings increased from 0.9 mt in 2013 to 10 mt in 2014.

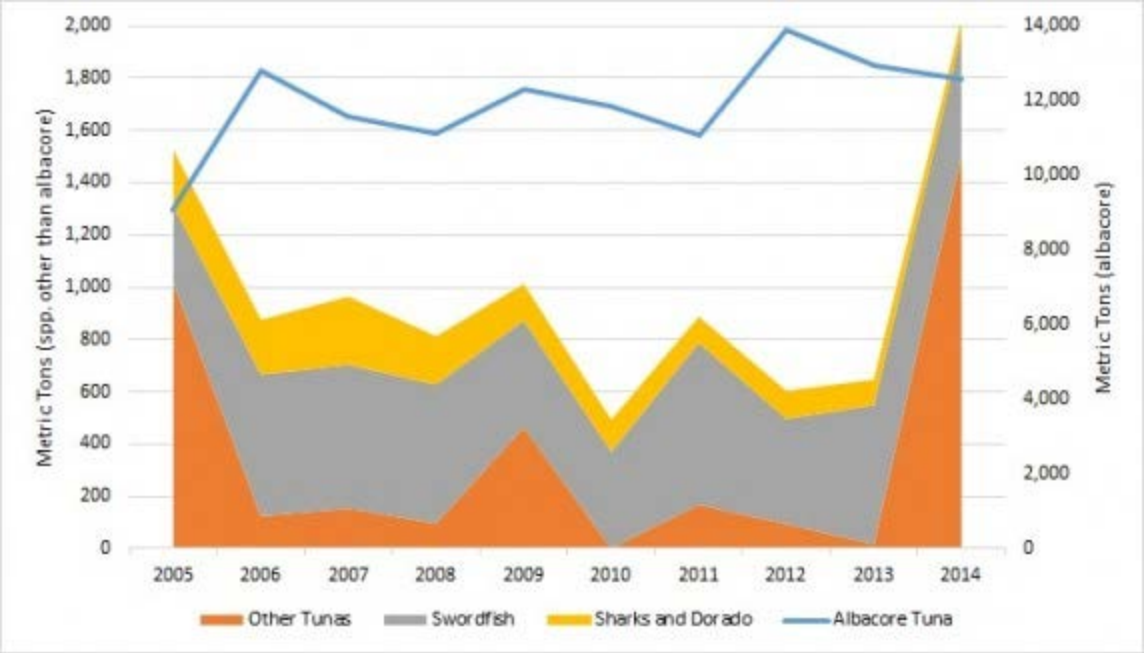


Figure 9-6. Landings of HMS (metrics tons) by species and groups, 2005-2014. (Source: HMS SAFE Table 3.)

8.6.2. Landings by Fishery (See Table 2)

- 603 troll or baitboat (surface hook-and-line) vessels reported 12,551 mt of albacore landed in 2013, or 99.7% of all albacore landed (Table 5). Out of these landings 14 Canadian vessels accounted for 415 mt (Table 9).
- In 2014, 66% of troll or baitboat landings occurred in Washington State, followed by 32% in Oregon. Only 2% of these landings occurred in California. Compared to 2013, California's share remained about the same while Washington's increased by about 4%, mainly at the expense of Oregon.
- 18 California drift gillnet vessels reported landings in 2014, the same number as in 2013. These vessels landed 69 mt of swordfish in 2014 worth $506,000. This was down from 95 mt landed in 2013. Landings of common thresher shark declined from 48 mt in 2013 to 10 mt in 2014. (Table 12 and Table 13).
- 10 harpoon vessels landed 5 mt of swordfish in 2014 compared to 6 mt in 2013. The landed value was $62,000. (Table 16 and Table 17).

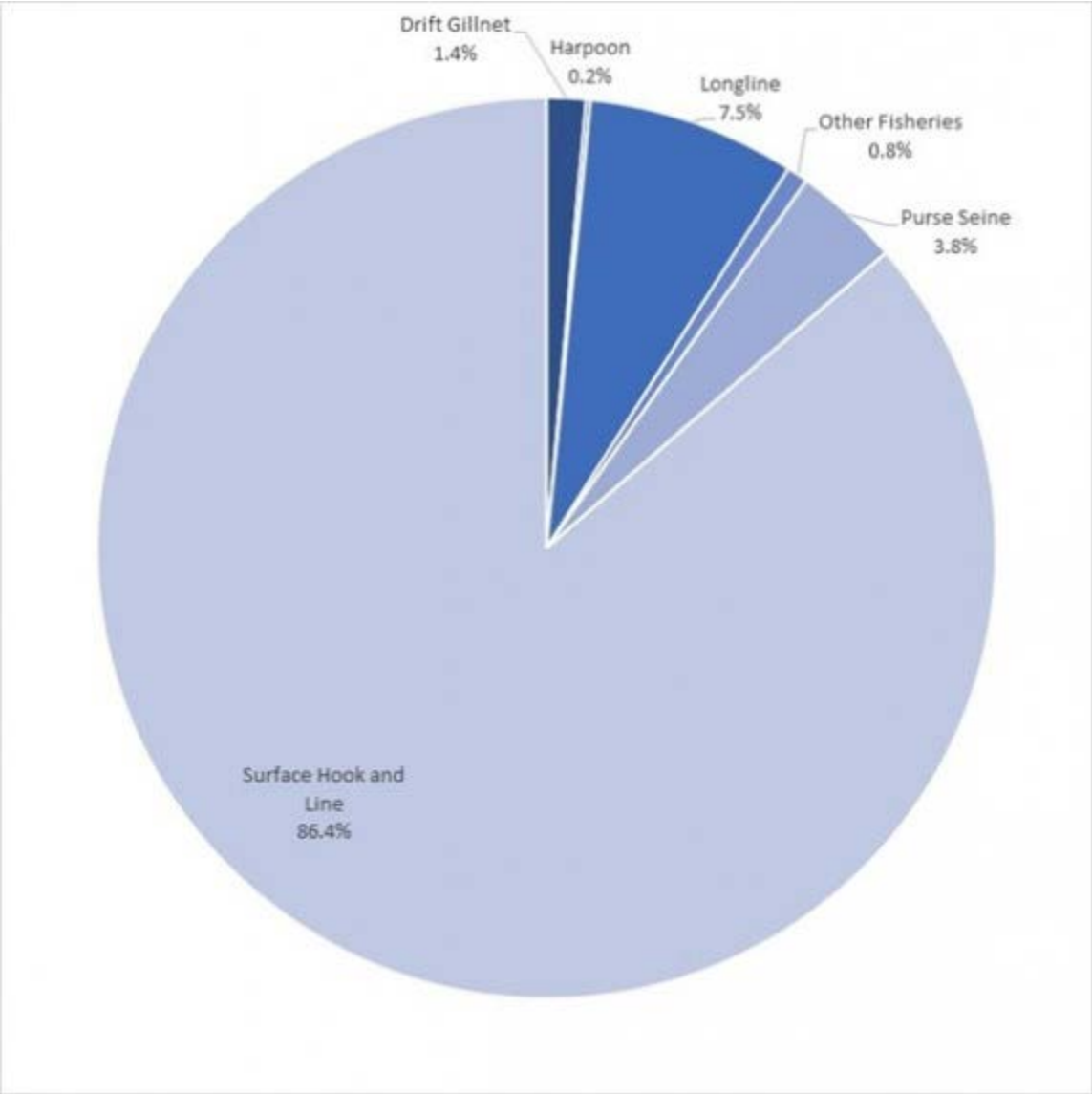


Figure 9-7. Distribution of HMS landings by fishery, 2014. Confidential data not included.

9. Recreational Fisheries

9.1. Albacore

Recreational anglers fishing from private vessels and from commercial passenger fishing vessels (CPFVs) target albacore in all three West Coast states. Albacore is targeted almost exclusively with rod-and-reel gear, and success is highly dependent upon the distance from port to the fish, weather and ocean conditions, and fuel prices.

In recent years albacore have typically begin to show up within range of the recreational fishery in California in late spring, migrating northward and appearing off Oregon and Washington in mid to late June, and are available through late September or early October in most years.

9.2. Other HMS (Southern California)

Recreational anglers in California take the entire suite of management unit species (MUS) included within the HMS FMP using rod-and-reel gear almost exclusively; in addition, a nominal amount of fish, primarily tunas and dorado, are taken by free divers using spear guns. In Oregon and Washington anglers only occasionally take HMS species other than albacore, such as blue sharks.

CPFVs also make trips from Southern California ports (primarily San Diego) into Mexican waters. Yellowfin, bluefin, and albacore tunas as well as dorado are the most commonly caught HMS species.

Coastwide fishery statistics are available from both PSMFC, through their Recreational Fisheries Information Network (RecFIN) website. The RecFIN provides estimates based on fieldsampling of catch and a telephone survey for effort.

California data are provided by the California Recreational Fisheries Survey (CRFS) program while the state's logbook program provides a record of fishing activity for most CPFVs. The fact that a much higher overall percentage of highly migratory MUS catches are represented in logbook data than in CRFS samples is why logbooks are preferred over CRFS in determining the catch of these species by anglers fishing from CPFVs. Logbooks also have the advantage of supplying catch information on MUS taken in Mexico. However, CRFS data are the best available for making catch estimates of anglers fishing from private boats. Statistics for the CPFV fishery are also available from the federal charter logbook program. In Oregon statistics for recreational fisheries, including private, CPFV, and tournament fisheries, are available from the ODFW Ocean Recreational Boat Survey Program. Beginning in 2005, a mandatory charter boat tuna logbook program was implemented in Washington to provide additional information on location and effort in the charter albacore fishery.

9.3. Recreational Fishery Performance in 2014

9.3.1. Albacore Catch and Effort (See Tables R-1, R-2, R-3)

- California saw a substantial decline in recreational albacore catch and fishing effort (angler trips) between 2013 and 2014; catch declined by 21,379 fish and effort by 12,900 trips.
- Between 2013 and 2014 Oregon saw the largest increase in recreational albacore catch, 26,557 fish, while Washington saw the largest increase in angler trips, at 2,644.

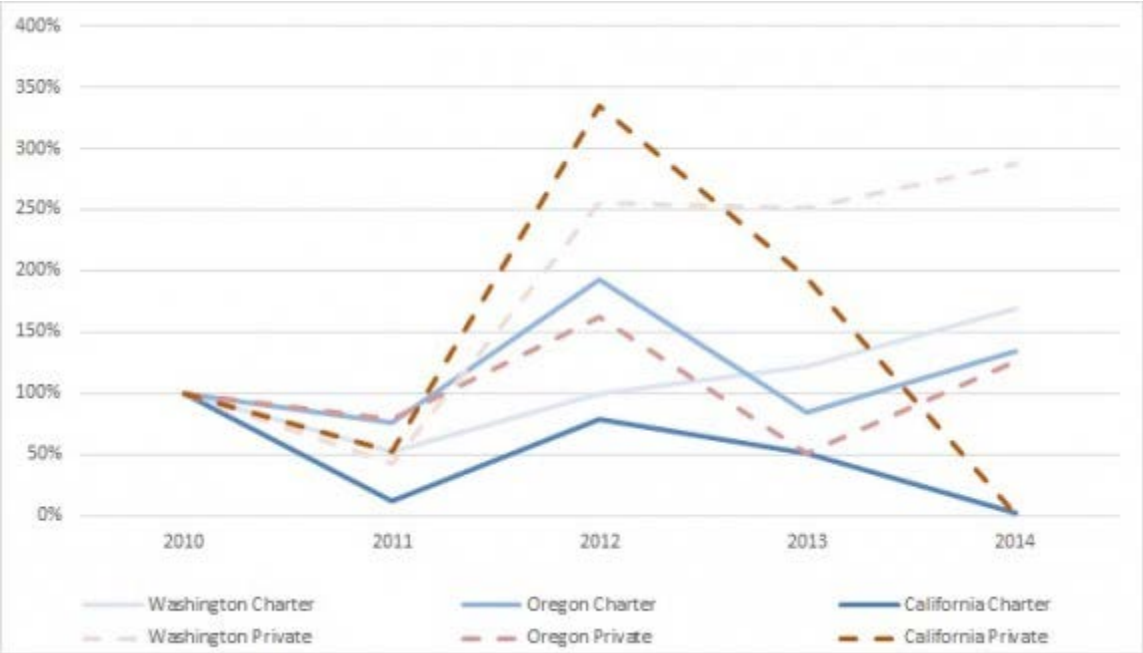


Figure 10-1. Change in recreational albacore catch from 2010 to 2014 (2010=100%).

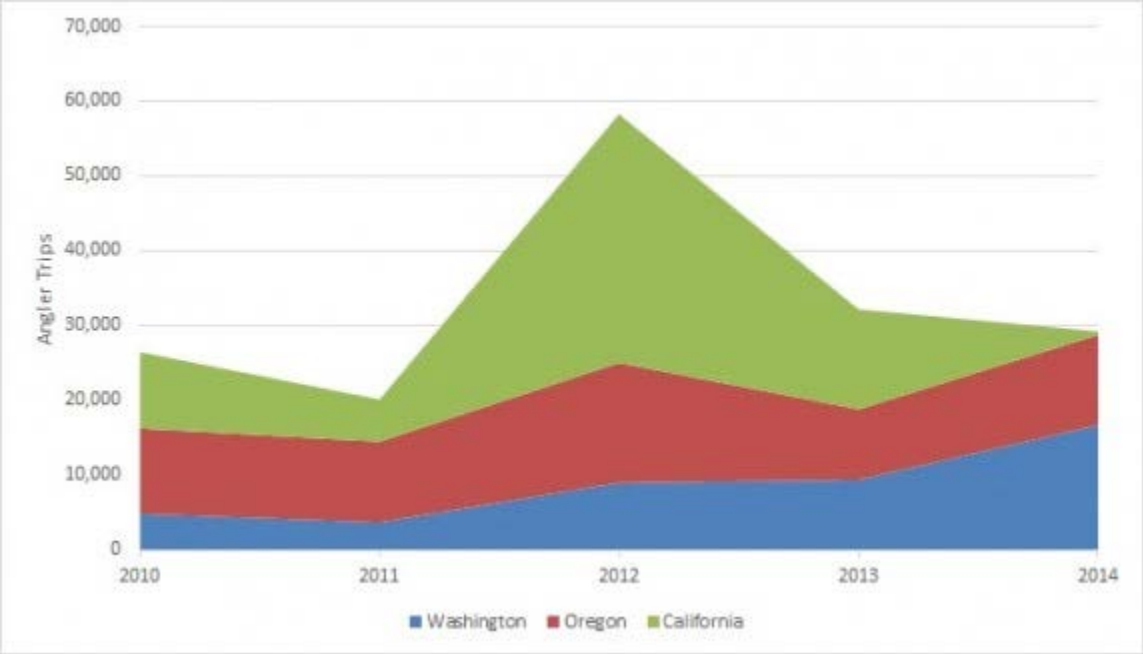


Figure 10-2. Recreational fishing effort by state, 2010-2014.

Note: The duration of recreational fishing trips by both private and charter anglers vary by state. In Washington and California trips can span multiple calendar days. For Washington, trips are completed trips for anglers and may include one or more calendar days for fishing; generally less than two. With very infrequent exceptions, the duration of Oregon recreational fishing trips by private anglers and by charter anglers is 24 hours or less, and encompasses one day of fishing activity. In California, while multiple day trips occur, data are reported by calendar day. See Table R-2.)

10. Pacific-Wide HMS Catch

10.1. Data Sources

To provide context for reported west coast HMS landings this page presents charts summarizing Pacific-wide tuna catch. HMS stocks are managed internationally, because fleets from many different countries fish on the same stock. Tabular data for these charts were taken from the following sources:

Food and Agriculture Organization of the United Nations. FIGIS. FishStat (Database). (Latest update: 31 Jan 2014).

Fishery Status Report No. 12; Tunas and Billfishes in the Eastern Pacific Ocean in 2013. IATTC, 2014.

Estimates of Annual Catches in the WCPFC Statistical Area. WCPFC-SC10-2014/ST IP-1 rev. 1. Paper prepared by Oceanic Fisheries Programme (OFP) Secretariat of the Pacific Community (SPC). Noumea, New Caledonia. 2014.

International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean annual catch dataset.

CatchFlagGear1918-2013.csv data file available from IATTC

10.2. Catch of Tropical Tunas in the Pacific by Country and Region

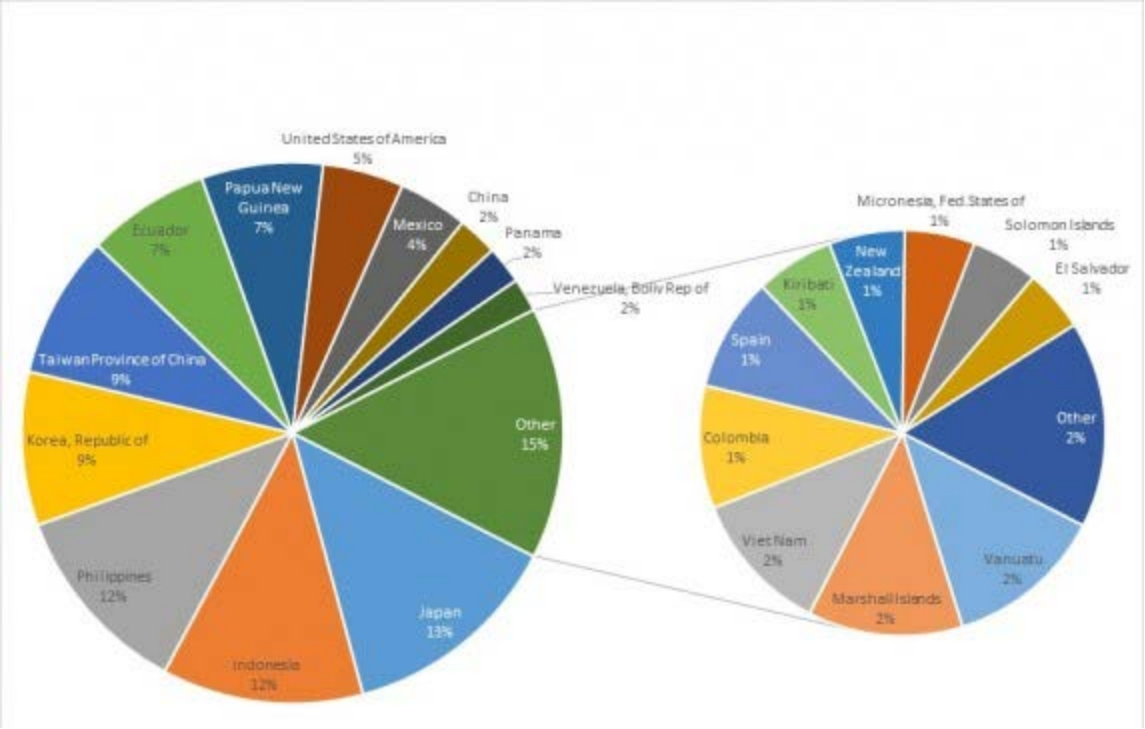


Figure 11-1. Capture fishery production of bigeye, skipjack, and yellowfin in the Pacific by flag, 2003-2012.

This figure shows capture bigeye, skipjack, and yellowfin tuna for the entire Pacific. Japan is the largest harvester in the Pacific. A substantial amount of the catch in Indonesia and the Philippines, ranked second and third respectively, comes from archipelagic waters but both are members of the WCPFC.

Ecuador accounts for the largest portion of catch among countries in the Americas, followed by the United States and Mexico. Most of the U.S. catch comes purse seine vessels fishing in the WCPO. (Source: Food and Agriculture Organization of the United Nations (FAO) Global Capture Production dataset.)

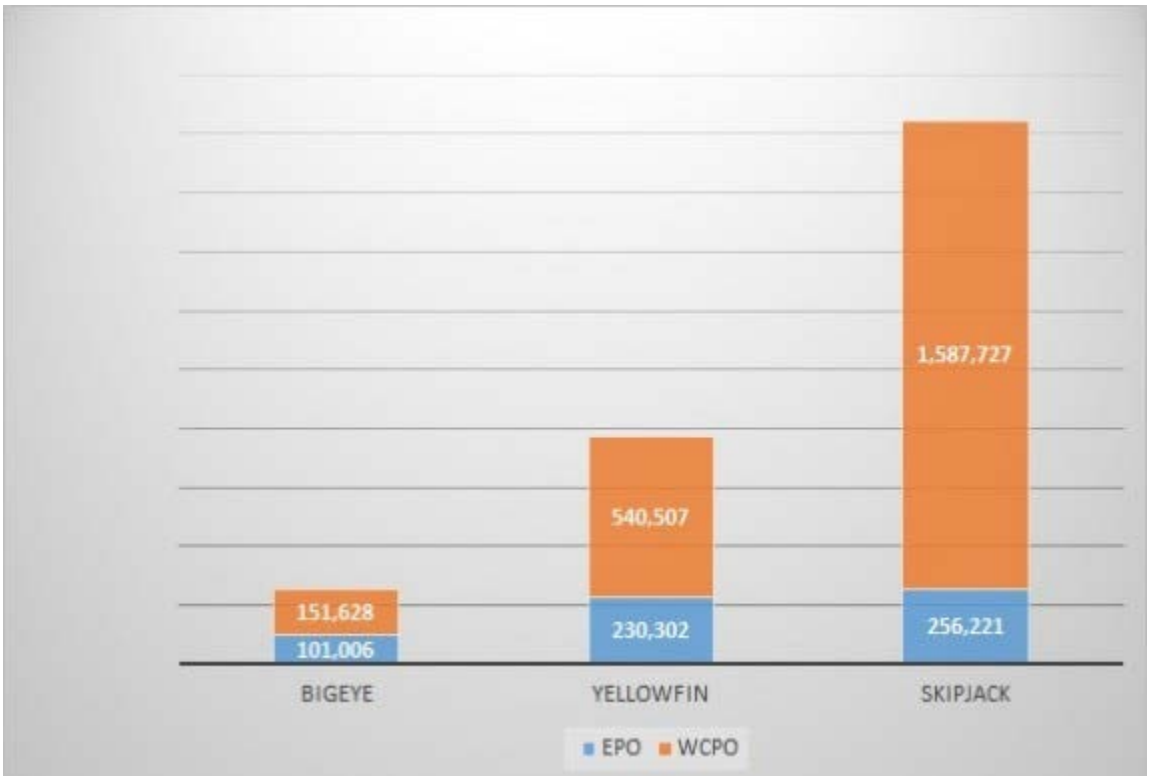


Figure 11-2. Average annual catch (mt) of bigeye, yellowfin, and skipjack, 2004-2013 by species and region.

WCPO skipjack alone accounts for 55% of the total catch. Partly because of this the WCPO accounts for 80% of Pacific-wide catch, but catches of all three species are greater in that region. (Source: IATTC and WCPFC reports.)

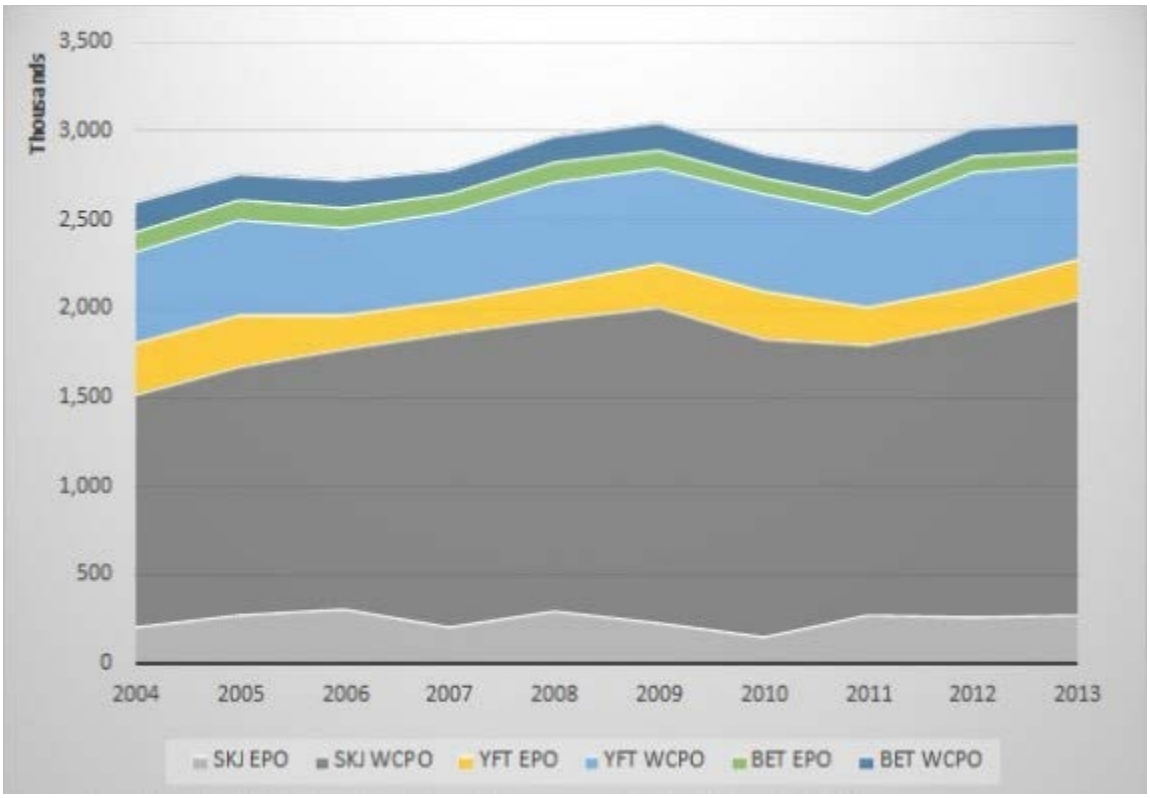


Figure 11-3. Annual catch (mt) of skipjack, yellowfin, and bigeye tuna in the EPO and WCPO, 2004-2013.

This figure presents the same data annually for the 10-year period 2004-2013. While total annual catch has increased by 17%, from 2.6 million metric tons to just over 3 million metric tons, catch of bigeye in both regions has fallen, as has catch of yellowfin in the EPO. These declines are at least partly due to a decline in the bigeye stock and resulting conversation measures intended to end overfishing. (Source: IATTC and WCPFC reports.)

10.3. Catch of Target Tunas in Eastern Pacific by Gear Type

Source: IATTC CatchFlagGear1918-2013.csv

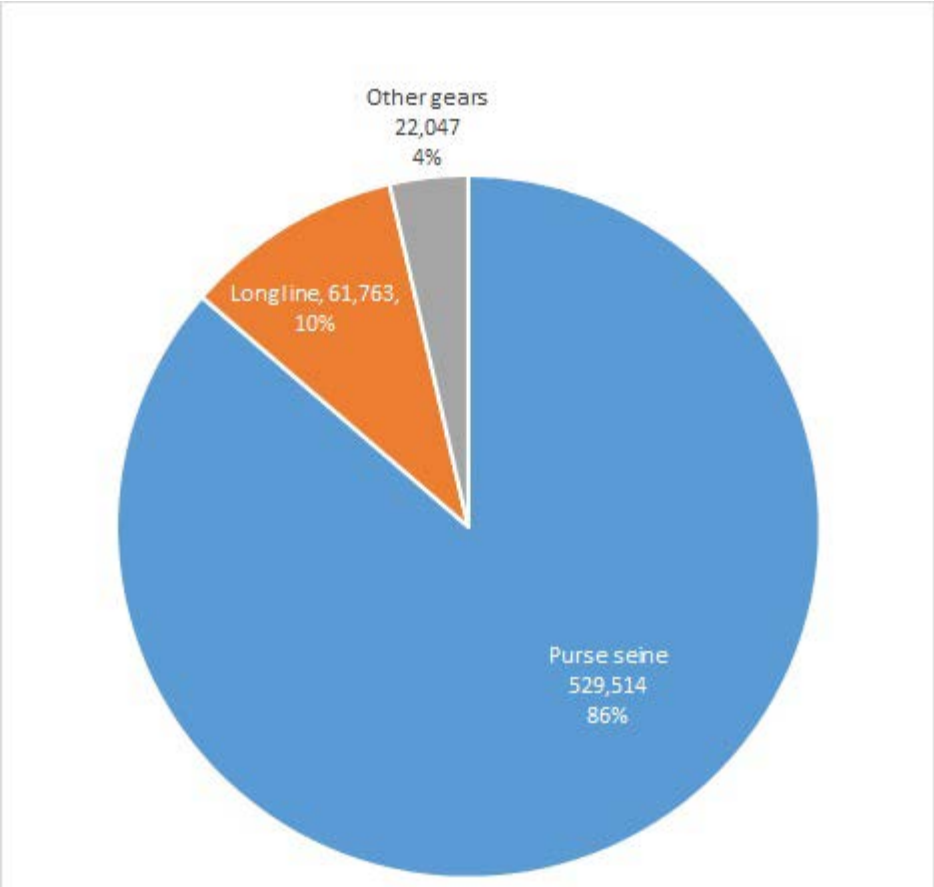


Figure 11-4. Average annual catch of target tuna speceis in the EPO by gear type, 2004-2013.

Catch of target tunas (albacore, bigeye, skipjack, yellowfin) in the EPO is dominated by purse seine with 91% of the catch, followed by longline.

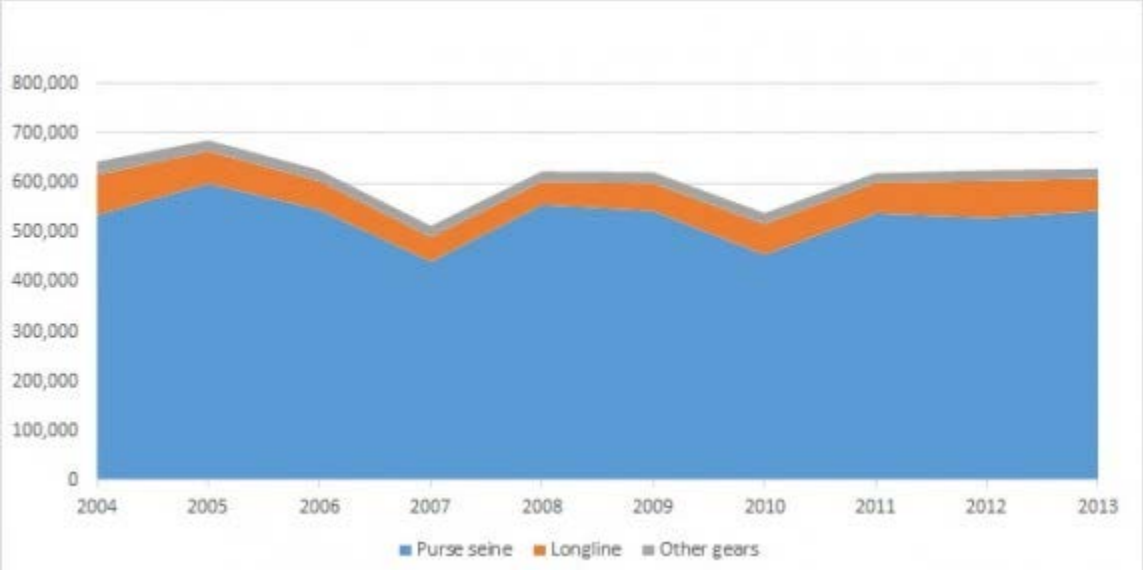


Figure 11-5. Catch of target tuna species in the EPO by gear type and year, 2004-2013.

Catch of target tunas in the EPO has remained relatively stable over the 10 years, 2004-2013. During that period catch varied from 514,141 mt in 2007 and 686,874 mt in 2005. Catch in 2013 was 98% of the 2004 catch and 93% of the maximum catch in 2005.

10.4. Catch of Target Tunas in the Western Pacific by Gear Type

Source: WCPFC-SC10-2014/ST IP-1 rev. 1

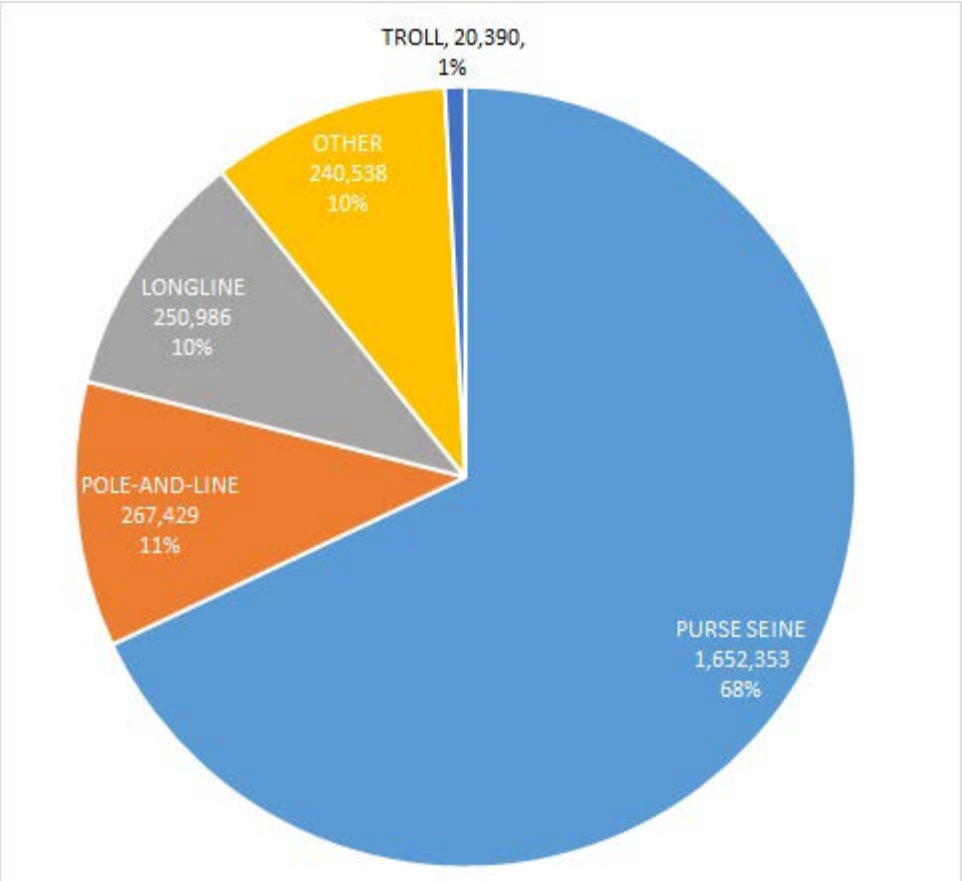


Figure 11-6. Annual average catch (mt) of tuna target species by gear type in the WCPO, 2004-2013.

Purse seine gear accounts for more than two-thirds of tuna catch in the WCPO, because it is the main gear type responsible for the large harvests of skipjack.

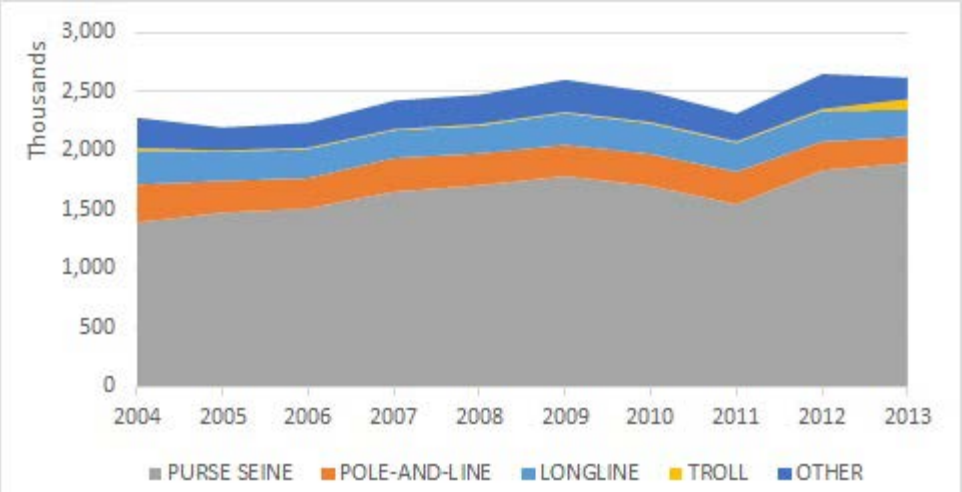


Figure 11-7. Catch (mt) of tuna target species by gear and year in the WCPO, 2004-2013.

While total catch of target tunas in the WCPO was 15% larger in 2013 compared to 2004, catch by individual gear types generally declined with the exception of purse seine, which increased by 36%. Troll catch was unusually high in 2013 at 88,870 mt; catch during the preceding nine years averaged 12,782 mt.

10.5. Northern Stocks – Pacific Bluefin Tuna, North Pacific Albacore, and Swordfish in the North Pacific

Source: ISC dataset

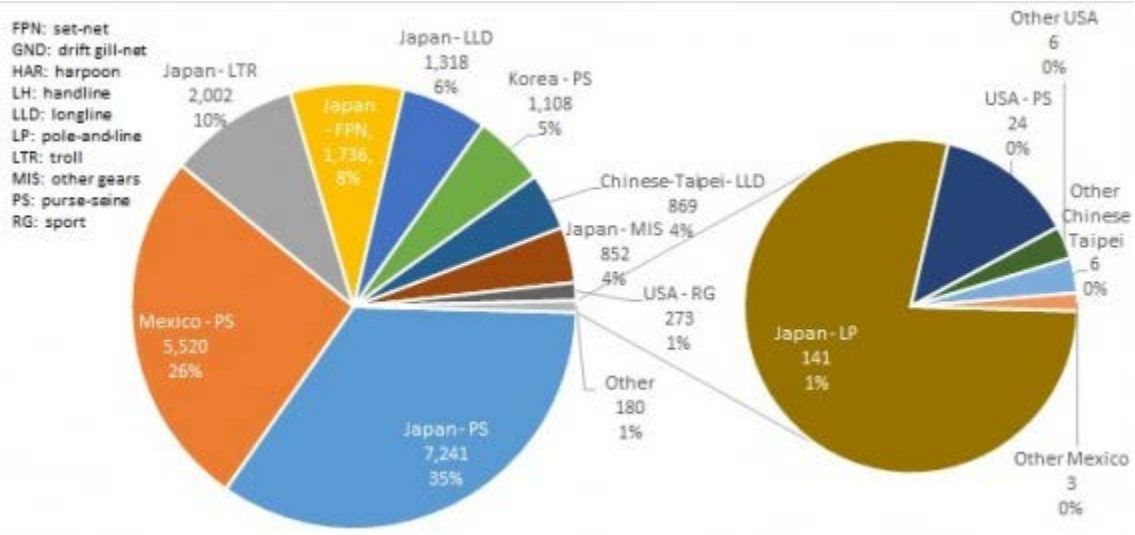


Figure 11-8. Average annual catch (mt) of Pacific bluefin tuna by country and gear type, 2004-2013.

Japan and Mexico purse seine fisheries accounted for 61% of Pacific bluefin tuna catch in the 10 years, 2004-2013. The U.S. accounted for slightly less than 1.5% of the catch; recreational catch accounted for most of this total. (Note that values of 0% in the figure represent fractions less than 0.5% but greater than zero.)

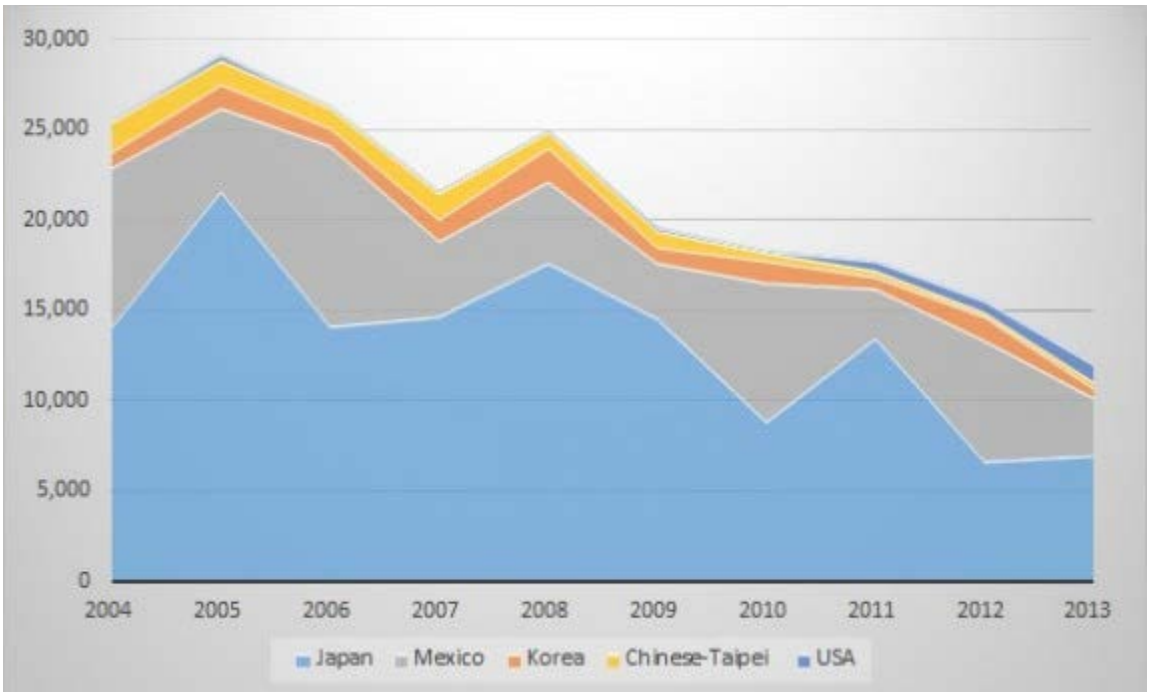


Figure 11-9. Catch (mt) of Pacific bluefin by country, 2004-2013.

Catch of Pacific bluefin fell dramatically in the 10 years, 2004-2013. During these 10 years total catch peaked at 29,171 mt in 2005 and declined to 12,100 mt in 2013. (Mexico's catch for 2013 is not reported in the ISC dataset; for these figures a preliminary estimate in IATTC Fishery Status Report No. 12 of 3,154 mt is used.)

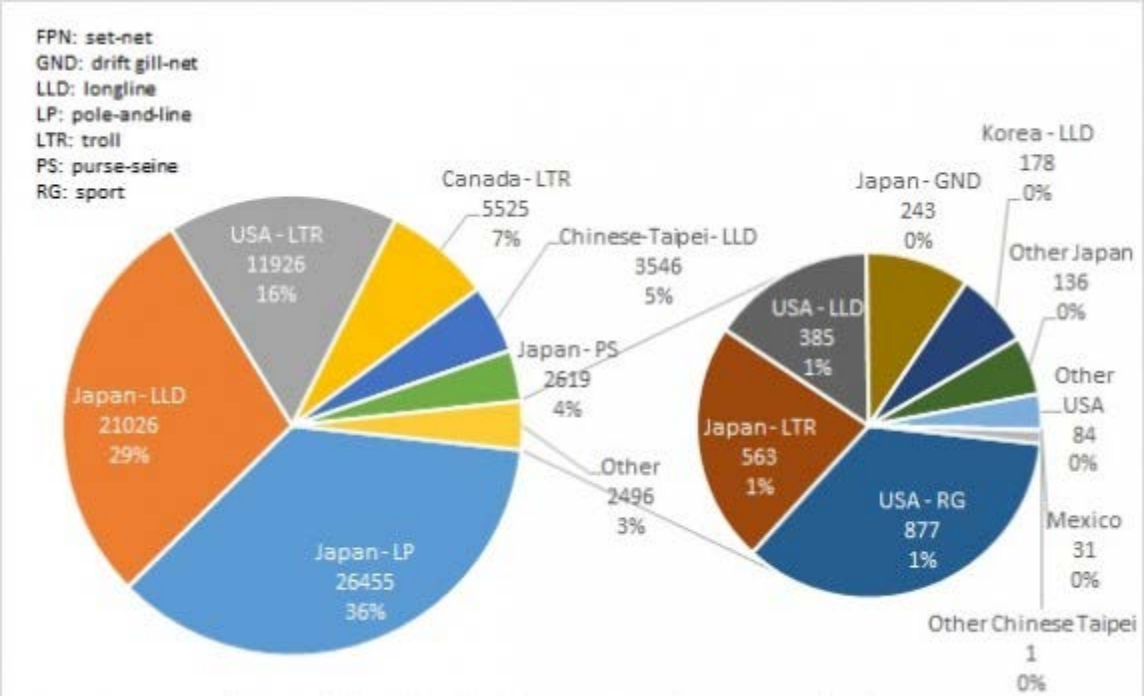


Figure 11-10. Average annual catch (mt) of North Pacific albacore by country and gear, 2004-2013.

Japanese pole-and-line and pelagic longline fisheries accounted for 65% of total North Pacific albacore catch during the 10-year period, 2004-2013, followed by U.S. and Canada troll fisheries at 16% and 7% respectively. All other fisheries accounted for 12% of total catch. (Note that values of 0% in the figure represent fractions less than 0.5% but greater than zero.)

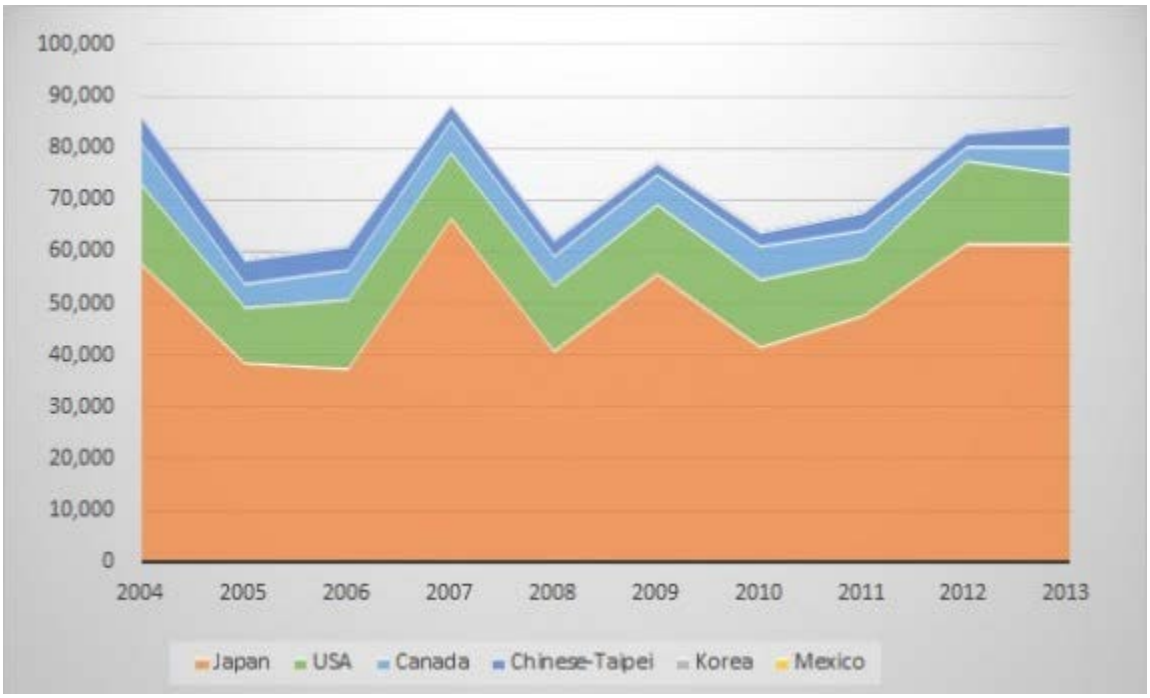


Figure 11-11. Catch (mt) of North Pacific albacore by year and country, 2004-2013.

North Pacific albacore catch has fluctuated between a high of 88,579 mt in 2007 and a low of 59,008 mt in 2005. Catch in 2013 was 84,864 mt, the third highest during this 10-year period. (Although catch by Mexico is reported, the amounts are too small to be visible in this chart.)

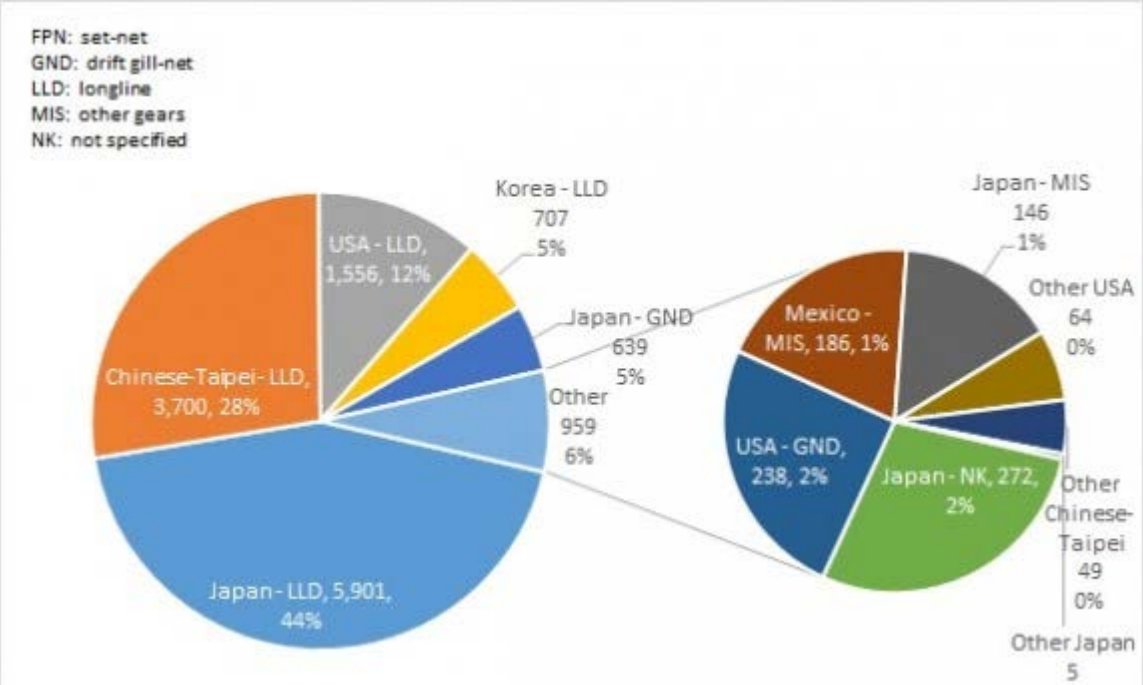


Figure 11-12. Annual average catch (mt) of swordfish in the North Pacific by country and gear, 2004-2013.

In the North Pacific swordfish are mainly caught with longline gear. In the 10 years, 2004-2013, the U.S. longline fishery (operating out of Hawaii) ranked third in catch, averaging 1,556 mt. The west coast large mesh gillnet fishery accounted for 2% of total catch during this period.

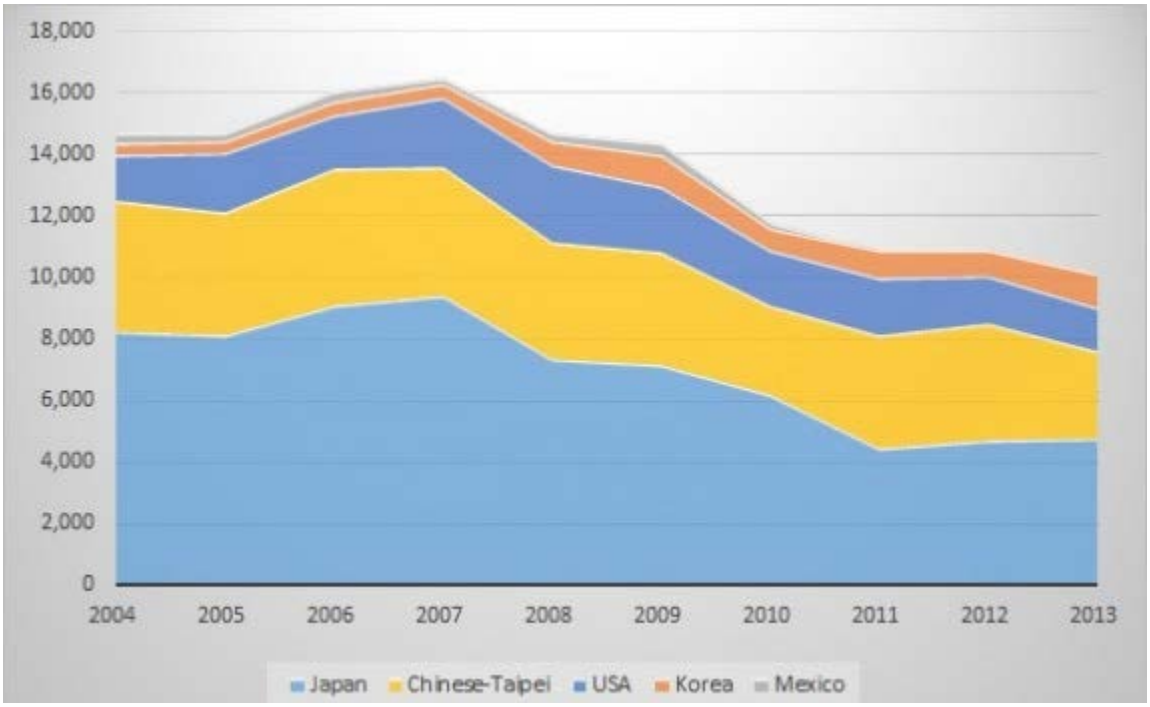


Figure 11-13. Catch (mt) of swordfish in the North Pacific by country, 2004-2013

Although the Western North Pacific swordfish stock is healthy, catch has declined in the 10-year period, 2004-2013, from a peak of 16,486 mt in 2007 to 10,096 mt in 2013. This is mainly due to the drop in Japanese catch; although U.S. catch was at its lowest for the period in 2013, a declining trend is not as clear.

11. Status of HMS Stocks

11.1. Determining Stock Status

Stock status is most reliably determined from stock assessments that integrate fishery and life history information across the range of the stock. In the case of HMS in the Pacific, most stock assessments are conducted by several international organizations.

- In the Eastern Pacific Ocean (EPO) scientific staff employed by the Inter-American Tropical Tuna Commission (IATTC) conduct stock assessments mainly for tropical tunas (bigeye, yellowfin, and skipjack) and some billfish (striped marlin, swordfish). Their report Fishery Status Reports summarizes fisheries and stock status.
- In the Western and Central Pacific Ocean (WCPO), the Secretariat of the Pacific Community Oceanic Fisheries Program (SPC-OFP) conducts stock assessments as the science provider to the Western and Central Pacific Fisheries Commission (WCPFC). Like the IATTC, they tend to focus on the tropical tunas, but have also completed stock assessments for South Pacific albacore tuna and striped marlin. Their stock assessments may be accessed by visiting the WCPFC stock assessment webpage.
- In the North Pacific Ocean (NPO) the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) conducts stock assessments, also as a science provider for the WCPFC, and specifically that organization's Northern Committee. The ISC has formed working groups for North Pacific albacore, Pacific bluefin tuna, billfish (marlins and swordfish), and sharks. The shark working group was formed in 2010 and has just begun to work on stock assessments. Shark species of interest include blue, shortfin, mako, bigeye thresher, pelagic thresher, silky, oceanic whitetip, and hammerhead species. ISC annual Plenary Reports provide stock status updates and conservation recommendations.

Under the Magnuson-Stevens Act, Councils must identify status determination criteria which can be used to decide whether overfishing is occurring (fishing mortality is above a maximum fishing mortality threshold) or the stock is overfished (biomass is less than a minimum stock size threshold). Chapter 4 in the HMS FMP describes how these status determination criteria may be determined. They are derived from an estimate of maximum sustainable yield (MSY), "the largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological, environmental conditions and fishery technological characteristics (e.g., gear selectivity), and the distribution of catch among fleets." Frequently MSY is difficult to estimate for HMS stocks, either due to stock dynamics or the lack of sufficient information to conduct a stock assessment. In those cases, proxy values may be determined for MSY and related status determination criteria. In general, the Council considers the biological reference points, or proxies approved by regional fishery management organizations to be the 'best available science.

11.1.1. Control Rules for Management

The Control Rules and Status Determination Criteria implemented in the HMS FMP are based on the Technical Guidance for National Standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act (Restrepo, et al. 1998). The following is a summary of the Control Rules for Management adopted for the HMS FMP.

In general, a default maximum sustainable yield (MSY) control rule was adopted for most MUS, with an optimum yield (OY) target control rule for the vulnerable species (see figure below).

Optimum yield (OY) is defined as MSY reduced by relevant socioeconomic factors, ecological considerations, and fishery-biological constraints so as to provide the greatest average long-term benefits to the Nation.

For the less vulnerable species managed under the MSY Control Rule, the minimum stock size threshold (MSST), the minimum biomass at which recovery measures are to begin, is the ratio B_{MSST}/B_{MSY}. It specifies a lower biomass level that allows remedial action not to be triggered each time B drops below

$B_{MSST} = (1\text{-}M)B_{MSY}$ when M (natural mortality) ≤ 0.5, and
$B_{MSST} = 0.5B_{MSY}$ when $M > 0.5$

(i.e., whichever is greater). B_{MSST} must not be less than $B_{MIN} = 0.5B_{MSY}$ and should allow recovery back to B_{MSY} within 10 years when F (fishing mortality) is reduced to zero (to the extent possible).

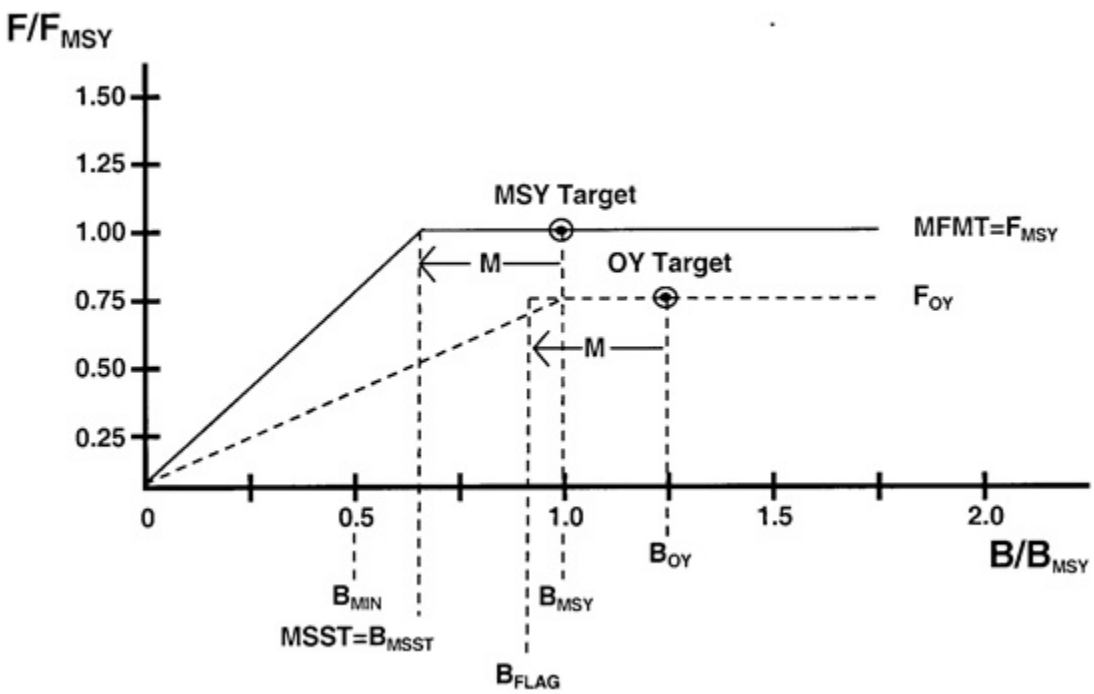


Figure 12-1. General model of MSY and OY Control Rules, from Restrepo, et al. 1998.

11.2. Stock Assessments for Species Managed under the HMS FMP

The most current assessment for FMP MUS and the publication year are listed below.

11.2.1. Tunas

- **North Pacific Albacore (2014):** Stock Assessment of Albacore Tuna in the North Pacific Ocean in 2014. Report of the Albacore Working Group. International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean 16-21 July 2014, Taipei, Taiwan.
- **South Pacific Albacore (2015)**: Stock assessment for south Pacific albacore tuna (WCPFC-SC11-2015/SA-WP-06 Rev 1). S J Harley, N Davies, L Tremblay-Boyer, John Hampton, and S McKechnie. Oceanic Fisheries Programme, Secretariat of the Pacific Community and Te Takina Ltd.

- **Pacific Bluefin (2014):** Stock Assessment of Pacific Bluefin Tuna in the Pacific Ocean in 2014. Report of the Pacific Bluefin Tuna Working Group. International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean.
- **Bigeye (EPO) (2015):** Status of Bigeye Tuna in the Eastern Pacific Ocean in 2014 and Outlook for the Future. Alexandre Aires-da-Silva and Mark N. Maunder. Inter-American Tropical Tuna Commission, Scientific Advisory Committee Sixth Meeting. May 11-15, 2015.
- **Bigeye (WCPO)(2014):** Stock assessment of bigeye tuna in the western and central Pacific Ocean Rev 1 (25 July 2014). Harley, S., N. Davies, J. Hampton and S. McKechnie.Oceanic Fisheries Programme, Secretariat of the Pacific Community, Noumea, New Caledonia.
- **Skipjack (EPO) (2015):** Status of Skipjack Tuna in the Eastern Pacific Ocean in 2014. Mark N. Maunder. Inter-American Tropical Tuna Commission, Scientific Advisory Committee Sixth Meeting. May 11-15, 2015.
- **Skipjack (WCPO) (2014):** Stock assessment of skipjack tuna in the western and central Pacific Ocean. (Rev 1 25 July 2014). Rice, J. S. Harley, N. Davies and J. Hampton. Oceanic Fisheries Programme, Secretariat of the Pacific Community, Noumea, New Caledonia.
- **Yellowfin (EPO) (2015):** Status of Yellowfin Tuna in the Eastern Pacific Ocean in 2014 and Outlook for the Future. Carolina V. Minte-Vera, Alexandre Aires-da-Silva and Mark N. Maunder Inter-American Tropical Tuna Commission, Scientific Advisory Committee Sixth Meeting. May 11-15, 2015.
- **Yellowfin (WCPO) (2014):** Stock assessment of yellowfin tuna in the western and central Pacific Ocean Rev 1 (25 July 2014). Davies, N. S. Harley, J. Hampton and S. McKechnie. Oceanic Fisheries Programme, Secretariat of the Pacific Community, Noumea, New Caledonia.

11.2.2. Billfishes

- **Striped marlin (WCPO) (2015):** Stock Assessment Update for Striped Marlin (*Kajikia audax*) in the Western and Central North Pacific Ocean Through 2013. Report of the Billfish Working Group. International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean, July 15-20, 2015, Kona, Hawaii, USA.
- **Striped marlin (EPO) (2009)**: Assessment of Striped Marlin in the Eastern Pacific Ocean in 2008 and Outlook for the Future. Michael G. Hinton. Inter-American Tropical Tuna Commission. Stock Assessment Report 10. An update with data through October 30, 2010, is reported in Fishery Status Report No. 12, Tunas and Billfishes in the Eastern Pacific Ocean in 2013.
- **Swordfish (NPO) (2014):** North Pacific Swordfish (*Xiphiaus Gladius*) Stock Assessment in 2014. Report of the Billfish Working Group. International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. 16-22 July 2014. Taipei, Chinese-Taipei.
- **Swordfish (EPO) (2011):** Status of Swordfish in the Eastern Pacific Ocean in 2010 and Outlook for the Future. Michael G. Hinton and Mark N. Maunder. Inter-American Tropical Tuna Commission Scientific Advisory Committee 2nd Meeting. La Jolla, California (USA), 9-12 May 2011.
- **Swordfish (SWPO) (2013)**: Stock assessment of swordfish (*Xiphias gladius*) in the southwest Pacific Ocean. Davies, N., G. Pilling, S. Harley, and J. Hampton Secretariat of the Pacific Community (SPC), Ocean Fisheries Programme (OFP), Noumea, New Caledonia (July 17, 2013).

11.2.3. Sharks

- **Blue shark (NPO) (2014):** Stock Assessment and Future Projections of Blue Shark in the North Pacific Ocean. Report of the Shark Working Group. International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. 16-21 July 2014, Taipei, Chinese-Taipei.

- **Common Thresher Shark (EPO):** Not fully assessed. U.S. West Coast EEZ regional catch and CPUE demonstrates the population increasing from estimated low levels in the early 1990s. Recent (2005-2009) West Coast total landings averaged 194 mt, which is less than 0.75 X MSY proxy (MSY proxy = LMSY from the Population Growth Rate method).
- **Shortfin Mako Shark (NPO):** Indicator-Based Analysis of the Status of Shortfin Mako Shark in the North Pacific Ocean. Report of the Shark Working Group. International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean, July 15-20, 2015, Kona, Hawaii, USA.

11.2.4. Others

- **Dorado:** Not assessed

11.3. Summary of Current Status of HMS FMP Stocks

NOAA Fisheries updates the status of U.S. fish stocks quarterly. These reports provide comprehensive status updates on fish stocks included in NOAA Fisheries' Fishery Stock Status Index (FSSI), and other, non-FSSI fish stocks. NOAA Fisheries provides up-to-date information on whether a stock is overfished, subject to overfishing, or has been rebuilt. The table below is excerpted from the September 30, 2015, Quarterly Status Update.

Stock	Overfishing? (Is Fishing Mortality above Threshold?)	Overfished? (Is Biomass below Threshold?)	Approaching Overfished Condition?	Management Action Required
Albacore – North Pacific	No	No	No	NA
Bigeye thresher – North Pacific	Unknown	Unknown	Unknown	NA
Bigeye tuna – Pacific	Yes	No	No	Reduce Fishing Mortality
Blue shark – North Pacific	No	No	No	NA
Dolphinfish – Pacific	Unknown	Unknown	Unknown	NA
Pacific bluefin tuna – Pacific*	Yes	Yes	NA	Reduce Fishing Mortality, Continue Rebuilding
Pelagic thresher – North Pacific	Unknown	Unknown	Unknown	NA
Shortfin mako – North Pacific	Unknown	Unknown	Unknown	NA
Skipjack tuna –	No	No	No	NA

Stock	Overfishing? (Is Fishing Mortality above Threshold?)	Overfished? (Is Biomass below Threshold?)	Approaching Overfished Condition?	Management Action Required
Eastern Pacific				
Skipjack tuna – Western and Central Pacific	No	No	No	NA
Striped marlin – Eastern Pacific	No	No	No	NA
Striped marlin – Western and Central North Pacific**	Yes	Yes	NA	Reduce Fishing Mortality, Continue Rebuilding
Swordfish – Eastern Pacific	Yes	No	No	Reduce Fishing Mortality
Swordfish – Western and Central North Pacific	No	No	No	NA
Thresher shark – North Pacific	Unknown	Unknown	Unknown	NA
Yellowfin tuna – Eastern Pacific	No	No	No	NA
Yellowfin tuna – Western and Central Pacific	No	No	No	NA

*The PFMC and WPFMC were notified on April 8, 2013 that this stock is overfished. A domestic rebuilding plan will not be developed for this stock because the overfishing/overfished status is due to international fishing presssure and current measures in place will not end overfishing/rebuild the stock. Under section 304(i) of the MSA, NMFS and the Councils will maintain domestic regulations to address the impact of U.S. fishing vessels, and work with the State Department to reduce fishing and rebuild this stock. Internationally, the Western and Central Pacific Fisheries Commission (WCPFC) and the Inter-American Tropical Tuna Commission (IATTC) manage this stock.

**NMFS determined the Western and Central North Pacific stock of striped marlin to be subject to overfishing and overfished on August 29, 2013. Under section 304(i) of the Magnuson-Stevens Act, a domestic rebuilding plan will not be developed for this stock because the overfishing and overfished status is due to excessive international fishing pressure and current international measures in place will not end overfishing or rebuild the stock. In lieu of a formal domestic rebuilding plan, NMFS will inform the Western Pacific and Pacific Councils of their obligations for international and domestic management under Magnuson-Stevens Act section 304(i) to address international and domestic impacts. Internationally, the Western and Central Pacific Fisheries Commission (WCPFC), to which the U.S. is a member, has agreed to conservation and management measures, as well. NMFS will work with the Western Pacific and Pacific Councils and the State Department to determine if more effective management measures should be proposed to the WCPFC for 2014 and beyond.

11.4. Conclusions from 2015 Pacific HMS Stock Assessments

The summaries provided below are derived from the assessments or reports of working group meetings associated with the assessments and do not necessarily represent the conclusions of the Council's HMSMT or NMFS. In many cases there has been minimal outside review of the assessment. Nevertheless, they represent the best available information for those species in 2015 to compare to past and future work.

Assessments of stock status always involve assumptions, uncertainty, and particular interpretations of fishery statistics. There are no universally-accepted standards by which to determine confidence for particular assessments, and "ground-truthing" (i.e., comparing assessment estimates to actual population counts) over the broad range occupied by highly migratory species is unrealistic. Furthermore, for many of these species, the regional fishery management organizations (RFMOs) have not agreed upon appropriate biological reference points for use in the context of managing fisheries. Therefore, explicit definitions for stock status relative to sustainable biomass and fishing effort levels are often not available.

Throughout the summaries below quoted text is taken directly from the referenced assessment document.

11.4.1. IATTC Assessments

The following stock assessments were presented at the Sixth Scientific Advisory Committee meeting, May 11-15, 2015, in La Jolla, California.

Bigeye tuna (*Thunnus obesus*) – EPO (2015 SAC Report, pages 9-13**).**

This report presents the most current stock assessment of bigeye tuna (*Thunnus obesus*) in the eastern Pacific Ocean (EPO). An integrated statistical age-structured stock assessment model (Stock Synthesis 3.23b) was used in the assessment. The assessment was provided to the IATTC Scientific Advisory Committee during its meeting in La Jolla, California from 11-15 May 2015.

"**Key Results**

The results of this assessment indicate a recovery trend for bigeye tuna in the EPO during 2005-2009, subsequent to IATTC tuna conservation resolutions initiated in However, the decline of the spawning biomass that began at the start of 2010 reduced both summary and spawning biomasses to their lowest historic levels at the start of 2013, and persisted through 2013. This decline may be related to a series of recent below-average recruitments which coincide with a series of strong la Niña events. More recently, the SBR is estimated to have increased slightly, from 0.19 in 2013 to 0.22 at the start of 2015; in the model, this increase is driven mainly by the recent increase in the CPUE of the longline fisheries which catch adult bigeye. At current levels of fishing mortality, and if recent levels of effort and catchability continue and average recruitment levels persist, the spawning biomass is predicted to continue rebuilding, and stabilize at about 0.25, above the level corresponding to MSY (0.21).

There is uncertainty about recent and future recruitment and biomass

The recent fishing mortality rates are estimated to be below the level corresponding to MSY whereas recent levels of spawning biomass are estimated to be slightly above that These interpretations are uncertain and highly sensitive to the assumptions made about the steepness parameter of the stock-recruitment relationship, the assumed rates of natural mortality for adult bigeye, the growth curve, and the weighting assigned to the size-composition data, in particular to the longline size- composition data. The results are more pessimistic if a stock-recruitment relationship is assumed, if lower rates of natural

mortality are assumed for adult bigeye, if the length of the oldest fish is assumed to be greater, and if a greater weight is assigned to the size-composition data, in particular for the longline fisheries.

The IATTC staff is collaborating with the Secretariat of the Pacific Community (SPC) on an updated Pacific-wide wide bigeye stock This research will incorporate the new bigeye tagging data in a spatially-structured population dynamics model, which will help to evaluate potential biases resulting from the current approach of conducting separate assessments for the EPO and WCPO."

Based on IATTC and HMS SAFE data, recent (2010-2013) catch of bigeye tuna in the EPO by U.S. West Coast fisheries constitutes less than 0.05% of the stock wide catch.

Yellowfin tuna (*Thunnus albacares*) – EPO (2015 SAC Report, pages 13-15).

This report presents the most current stock assessment of yellowfin tuna (*Thunnus albacares*) in the eastern Pacific Ocean (EPO). An integrated statistical age-structured stock assessment model (Stock Synthesis Version 3.23b) was used in the assessment, which is based on the assumption that there is a single stock of yellowfin in the EPO. This model is the same as that used in the previous assessment in 2014 (IATTC Stock Assessment Report 15). The assessment was provided to the IATTC Scientific Advisory Committee during its meeting in La Jolla, California from 11-15 May 2015.

"Key Results

There is uncertainty about recent and future levels of recruitment and there have been two, and possibly three, different productivity regimes, and the MSY levels and the biomasses corresponding to the MSY may differ among the regimes. The population may have switched in the last ten years from a high to an intermediate productivity regime.

The recent fishing mortality rates are below the MSY level, and the recent levels of spawning biomass are estimated to be at that As noted in IATTC Stock Assessment Report 15 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.

The recent levels of spawning biomass predicted by the current assessment are more optimistic than those from the previous assessment (IATTC Stock Assessment Report 15). This result is due to moderate fishing mortality levels for middle-age yellowfin tuna since 2008, which are estimated by the current

Increasing the average weight of the yellowfin caught could increase the MSY."

Based on IATTC and HMS SAFE data, recent (2010-2013) catch of yellowfin tuna in the EPO by U.S. West Coast fisheries constitutes less than 0.05% of the stock wide catch.

Skipjack tuna (*Katsuwonus pelamis*) – EPO (2015 SAC Report, pages 15-16).

This report presents the most current stock assessment of skipjack tuna (*Katsuwonus pelamis*) in the eastern Pacific Ocean (EPO). Several alternative methods have historically been used to assess the status of skipjack tuna: a) fishery and biological indicators; b) analysis of tag data; c) a length- structured stock assessment model; d) Age-Structured Catch-at-Length Analysis (A-SCALA); and e) a Spatial Ecosystem and Population Dynamic Model (SEAPODYM). The results of all five of these methods are compared

when discussing the status of skipjack in the EPO. Only the indicator approach has been updated in this report. The assessment was provided to the IATTC Scientific Advisory Committee during its meeting in La Jolla, California from 11-15 May 2015.

"Susceptibility and productivity analysis (PSA; see IATTC Fishery Status Report 12, p 149) shows that skipjack has substantially higher productivity than bigeye tuna. Biomass and fishing mortality corresponding to MSY are, respectively, negatively and positively related to productivity. Therefore, since skipjack and bigeye have about the same susceptibility, which is related to fishing mortality, the status of skipjack can be inferred from the status of bigeye. The current assessment of bigeye tuna estimates that the fishing mortality is less than *F*MSY; therefore, the fishing mortality for skipjack should also be less than *F*MSY. Since effort and skipjack biomass have been relatively constant over the past 10 years, this also implies that skipjack biomass is above *B*MSY.

Key Results

1. There is uncertainty about the status of skipjack tuna in the EPO
2. There may to be differences in the status of the stock among
3. There is no evidence that indicates a credible risk to the skipjack stock(s).
4. No additional management action is needed above and beyond that implemented for the conservation of bigeye tuna."

Based on IATTC and HMS SAFE data, recent (2010-2013) catch of skipjack tuna in the EPO by U.S. West Coast fisheries constitutes less than 0.05% of the stock wide catch.

11.4.2. ISC Assessments

Striped Marlin (*Kajikia audax*) – WCNPO (2015 Stock Assessment Report)

The following is excerpted from the ISC15 Plenary Report, pp. 43-44. (Cross references to tables and figures have been omitted.)

"**Stock Status**

Estimates of population biomass of the WCNPO striped marlin stock (*Kajikia audax*) exhibit a long-term decline. Population biomass (age-1 and older) averaged roughly 20,513 t, or 46% of unfished biomass during 1975-1979, the first 5 years of the assessment time frame, and declined to 6,819 t, or 15% of unfished biomass in 2013. Spawning stock biomass is estimated to be 1,094 t in 2013 (39% of SSB_{MSY}, the spawning stock biomass to produce MSY). Fishing mortality on the stock (average *F* on ages 3 and older) is currently high and averaged roughly $F = 0.94$ during 2010-2012, or 49% above F_{MSY}. The predicted value of the spawning potential ratio (SPR, the predicted spawning output at current *F* as a fraction of unfished spawning output) is currently $SPR_{2010\text{-}2012} = 12\%$,which is 33% below the level of SPR required to produce MSY. Recruitment averaged about 308,000 recruits during 1994-2011, which was 25% below the 1975-2013 average. No target or limit reference points have been established for the WCNPO striped marlin stock under the auspices of the WCPFC.

The WCNPO striped marlin stock is expected to be highly productive due to its rapid growth and high resilience to reductions in spawning potential. The status of the stock is highly dependent on the magnitude of recruitment, which has been below its long-term average since 2007, with the exception of 2010. Changes in recent size composition data in comparison to the previous assessment resulted in changes in fishery selectivity estimates and also affected recruitment estimates. This, in turn, affected the scaling of biomass and fishing mortality to reference levels.

When the status of striped marlin is evaluated relative to MSY-based reference points, the 2013 spawning stock biomass is 61% below SSB_{MSY} (2819 t) and the 2010-2012 fishing mortality exceeds F_{MSY} by 49%. Therefore, overfishing is occurring relative to MSY-based reference points and the WCNPO striped marlin stock is overfished.

Conservation Advice

The stock has been in an overfished condition since 1977, with the exception of 1982 and 1983, and fishing appears to be impeding rebuilding especially if recent (2007-2011) low recruitment levels persist. Projection results show that fishing at F_{MSY} could lead to median spawning biomass increases of 25%, 55%, and 95% from 2015 to 2020 under the recent recruitment, medium-term recruitment, and stock recruitment-curve scenarios. Fishing at a constant catch of 2,850 t could lead to potential increases in spawning biomass of 19% to over 191% by 2020, depending upon the recruitment scenario. In comparison, fishing at the 2010-2012 fishing mortality rate, which is 49% above F_{MSY}, could lead to changes in spawning stock biomass of -18% to +18% by 2020, while fishing at the average 2001-2003 fishing mortality rate ($F_{2001\text{-}2003}$=1.15), which is 82% above F_{MSY}, could lead to spawning stock biomass decreases of -32% to -9% by 2020, depending upon the recruitment scenario."

Shortfin Mako Shark (*Isurus oxyrinchus*) – North Pacific (2015 Indicator-Based Analysis)

A full stock assessment could not be completed, because of data limitations. A full assessment is planned for 2018. The ISC15 Plenary Report (pp. 54-55) describes stock status indicators (a cross reference to a figure is omitted):

"Simulation analyses were conducted to examine the effects of CPUE time series of varying lengths and precision, of CPUE time series from predominately adult versus juvenile areas, and of the contribution of trends in mean size versus CPUE in determining stock status. Results from the simulations showed that time series of mean size are less informative regarding the current stock condition (B_{cur}/B_{msy}) than CPUE indices. Simulation results also showed that CPUE indices that are derived from predominately adult areas provide better information on current stock status than CPUE indices from recruitment areas.

Four types of indicators were developed for the North Pacific shortfin mako shark [SMA]: proportion of positive sets, abundance (CPUE) indices, sex-ratio, and size compositions.

The proportion of positive sets, defined as set/trip where at least one SMA is caught, is calculated for major fisheries. The trends for proportion of positive sets varied across fisheries with the Japanese shallow-set longline fishery having the highest proportion of positive catch sets (approximately 75% in 2013, with the rate nearly tripling over the time series). This indicator should be interpreted with caution, because it may be confounded with catchability and selectivity and is a component in some of the fishery abundance index standardizations.

Indices of SMA relative abundance were developed from eight fisheries or surveys ranging from 1985 to 2014 and covering different areas across most of the North Pacific. All indices were reviewed by the SHARKWG; and three were selected as the most plausible indicators of abundance based on their spatial and temporal coverage, size of sharks, data quality, and model diagnostics . The Japanese shallow-set longline index was considered to be the best abundance indicator candidate. The standardized index showed a flat or slightly increasing trend from 1994 to 2004, before a substantial increase from 2005 to 2013. Abundance indices developed from the Hawaii-based deep-set and shallow-set longline fisheries were also both considered to be plausible indicators of stock abundance. Trends in abundance showed some variability for the two fishery sectors between 2004 and 2012. The standardized CPUE trends

moved in opposite directions, with the trend for the shallow-set sector showing a slight decrease, while the trend for the deep-set sector increased overtime.

Overall, no trends in sex-ratio are apparent through time across fisheries, although sample sizes are generally low. It would probably be difficult to interpret any trends in sex-ratio because there is not a good understanding of population movement by size and sex through time. Thus, the SHARKWG considered sex-ratios to be of little value as indicators in this analysis of stock status.

The annual median and quartile percentiles of catch at size for SMA caught by the various fleets were examined. In general, sizes remained relatively stable for all fleets. Larger sizes were recorded for the deep-set sector of the Hawaiian fleet and the Japan research and training longline vessels, while smaller individuals were more common in the U.S. juvenile longline survey, U.S. drift gillnet, and Japan longline survey."

ISC15 made the following conservation advice (Plenary Report, p. 56):

"Shortfin mako is a data poor species. Recognizing that information on important fisheries is missing, the untested validity of indicators for determining stock status, and conflicts in the available data, stock status (overfishing and overfished) could not be determined. Managers should consider the undetermined stock status of shortfin mako shark in the North Pacific when developing and implementing management measures.

The SHARKWG reviewed a suite of information to determine the stock status of shortfin mako shark in the North Pacific. Of the three indices considered to have the greatest value in providing stock status information, abundance trends in two of the series appear to be stable or increasing, while the abundance trend in the third series appears to be declining.

It is recommended that data for missing fleets be developed for use in the next stock assessment scheduled for 2018 and that available catch and CPUE data be monitored for changes in trends. It is further recommended that data collection programs be implemented or improved to provide species-specific shark catch data for fisheries in the North Pacific Ocean."

11.4.3. SPC (WCPFC Scientific Committee) Assessments

South Pacific Albacore (*Thunnus alalunga*) (2015 Assessment Report)

This assessment reached the following main conclusions (p. 37):

"The main conclusions of the current assessment are consistent with the previous assessment conducted in 2012. The main conclusions based on results from the reference case model and with consideration of results from performed sensitivity model runs, are as follows:

The new regional structure used for the 2015 assessment is better aligned with those of the assessments for bigeye and yellowfin tunas and provides an improved basis for further development of this assessment and providing advice to WCPFC;

There is some conflict between some of the data sources available for this assessment including conflicts between the length-frequency data and the CPUE series and between the troll length frequency samples and the age-length data;

Current catch is either at or less than *MSY* ;

Recent levels of spawning potential are most likely above the level which will support the *MSY* , and above 20% *SBF*=0;

Recent levels of fishing mortality are lower than the level that will support the *MSY* ;

Increasing fishing mortality to F_{MSY} levels would require a significant increase in effort, yield only very small (if any) increases in long-term catch, and would greatly reduce the vulnerable biomass available to the longline fleet;

Recent levels of spawning potential are lower than candidate bio-economic-related target reference points currently under consideration for south Pacific albacore tuna; and

Stock status conclusions were most sensitive to alternative assumptions regarding the weighting off different data sets and natural mortality, identifying these as important areas for continued research."

12. Commonly-Used Web Links in Highly Migratory Species Management and Research

International Regional Fishery Management Organizations and Scientific Bodies

Inter-American Tropical Tuna Commission	http://iattc.org/
Western and Central Pacific Fisheries Commission	http://www.wcpfc.int/
International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean	http://isc.ac.affrc.go.jp/

Regional Fishery Management Councils with HMS Plans

Pacific Fishery Management Council	http://www.pcouncil.org/
Western Pacific Regional Fishery Management Council	http://www.wpcouncil.org/

State and Interstate Fisheries Commissions

California Department of Fish and Game	http://www.dfg.ca.gov/
Oregon Department of Fish and Wildlife	http://www.dfw.state.or.us/
Pacific States Marine Fisheries Commission	http://www.psmfc.org
Washington Department of Fish and Wildlife	http://wdfw.wa.gov/

Institutions Conducting HMS Research

American Fishermen's Research Foundation	http://www.afrf.org/
California State University, Long Beach	http://www.csulb.edu
Centro de Investigación Científica y Educación Superior de Ensenada	http://www.cicese.mx/
Inter-American Tropical Tuna Commission	http://www.iattc.org
Monterey Bay Aquarium	http://www.mbayaq.org/
Monterey Bay Aquarium Tuna Research and Conservation Center	http://www.tunaresearch.org
Moss Landing Marine Lab	http://www.mlml.calstate.edu/
NOAA Pacific Islands Fisheries Science Center	http://www.pifsc.noaa.gov
NOAA Southwest Fisheries Science Center	http://swfsc.noaa.gov
NOAA Southwest Regional Office	http://swr.nmfs.noaa.gov
Pfleger Institute of Environmental Research	http://www.pier.org
Scripps Institute of Oceanography	http://www-sio.ucsd.edu
Tagging of Pacific Pelagics	http://www.toppcensus.org

Sport and Commercial Fishing Industry Related Associations

American Albacore Fishing Association	http://www.americanalbacore.com
Oregon Albacore Commission	http://www.oregonalbacore.org/

Sportfishing Association of California	http://californiasportfishing.org/
United Anglers of Southern California	http://www.unitedanglers.com
Western Fishboat Owner's Association	http://www.wfoa-tuna.org