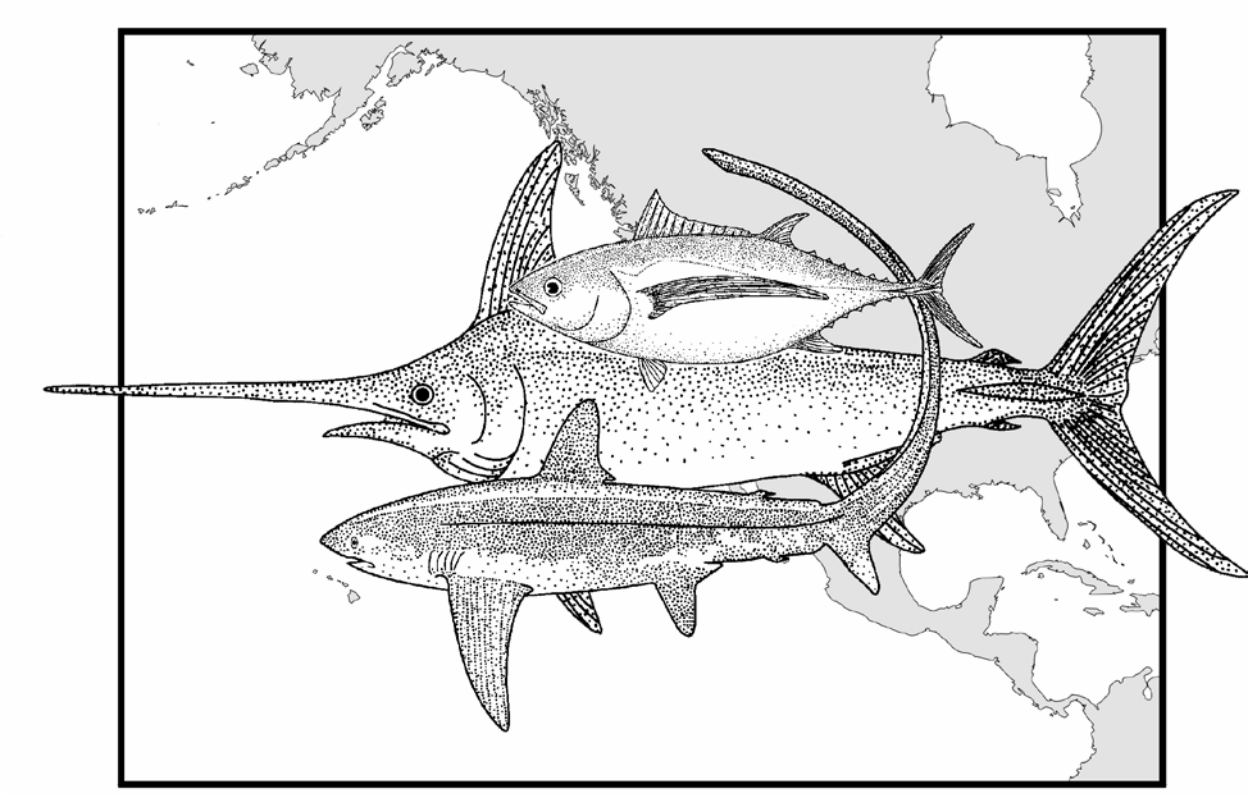
STATUS OF THE U.S. WEST COAST FISHERIES FOR HIGHLY MIGRATORY SPECIES THROUGH 2017



STOCK ASSESSMENT AND FISHERY EVALUATION

JANUARY 2018

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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
DFO	Department of Fisheries and Oceans (Canada)
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

Note on SAFE Document Production Schedule

The HMS FMP describes a schedule under which a final stock assessment and fishery evaluation (SAFE) document is delivered in September each year, containing information through the preceding year. However, since 2014 the SAFE has been maintained on the Council website with regular updates throughout the year. An "archive copy" (like this document) is then produced in January of the following year. This makes it possible to include information for all of the preceding year. The exception is the tables and figures reporting landings and participation for commercial and recreational fisheries, which are lagged by a year due to the time it takes for the data to flow into relevant databases. (These data tables are only maintained online and not reproduced in this archive copy but summary statistics are reported in Chapters 8 and 9.) Thus, this archive copy, produced in January 2018, covers the calendar year 2017, and where necessary to address the changed production schedule, 2016.

1. Introduction

1.1. Amendments to the Fishery Management Plan

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 four times since its implementation (with a fifth amendment in process as of January 2017). 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 3, adopted in 2015, added a suite of lower trophic level species to the FMP's list of ecosystem component (EC) species. Consistent with the objectives of the Council's FMPs and its Fishery Ecosystem Plan, Amendment 3 prohibits future development of directed commercial fisheries for the suite of EC species shared between all four FMPs ("Shared EC Species") until and unless the Council has had an adequate opportunity to both assess the scientific information relating to any proposed directed fishery and consider potential impacts to existing fisheries, fishing communities, and the greater marine ecosystem. Secretarial approval of Amendment 4 is expected in the first half of 2018. Amendment 4 would revise and update portions of the FMP to bring descriptions of the management context for HMS fisheries up to date and to better describe the Council's role in the process of making stock status determinations including evaluations of the best scientific information available (BSIA). This amendment also changes the biennial meeting schedule to better align it with the National Marine Fisheries Service's process for conducting HMS stock status determinations. Amendment 5 was approved December 14, 2017. This amendment creates a Federal permit for the California large mesh drift net fishery.

1.2. Management Unit Species and Ecosystem Component Species

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.

1.3. 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. In 2016 the Council did not recommend any regulatory changes for the next biennial period (April 1, 2017–March 31, 2019). However, the Council did initiate scoping of revisions to the HMS FMP to enhance the Council's role in providing advice to NMFS on stock status determinations. This resulted in the development of Amendment 4, discussed above, outside the biennial process.

1.4. Highly Migratory Species Management Team

Current members of the HMSMT may be found in the Roster on the Council website.

2. Council HMS Activities in 2017-2016

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

2.1. November 2017

2.1.1. Recommendations for International Management Activities

The Council endorsed NMFS-proposed trip limits for Pacific bluefin tuna commercial landings in 2018. A 1 mt trip limit would apply to all fisheries except for the large mesh drift gillnet fishery, which would be subject to a 2 mt trip limit. These limits would prevent rapid attainment of the low 2018 catch limit of approximately 120 mt while minimizing regulatory discards due to unavoidable incidental catch on a single trip.

2.1.2. Proposed Deep-Set Buoy Gear Exempted Fishing Permits

The Council reviewed two revised applications (Mintz, Foster) and recommended NMFS issue EFPs to the applicants. It also recommended NMFS issue an EFP based on one new application (Carson) but asked the applicant to submit additional information to NMFS related to his past experience using deep-set buoy gear.

Finally, the Council asked three applicants (Brockman, Ekstrom, Greyshock) resubmit revised applications that include additional information on how they would address data gaps.

2.2. September 2017

2.2.1. Swordfish Management Project Planning

The Council adopted a revised purpose and need statement for the range of alternatives it adopted in September 2015 related for enhanced monitoring (human observers or electronic monitoring) of the drift gillnet (DGN) fishery as follows:

> The purpose of the action is to ensure adequate information is being collected from the DGN fishery to support Council decision-making on management measures. The proposed action is needed to document bycatch and protected species interactions for evaluation of costs and benefits of the use of DGN gear. The evaluation will inform future Council and industry decision-making on any need and design of management measures. It also will allow the Council to better evaluate the catch versus bycatch fishery performance standards it established for the fishery in 2015. This action addresses the following National Standards: National Standard 9 and Section 303 of the Magnuson-Stevens Act to minimize bycatch and bycatch mortality and conserve non-target species to the extent practicable; as well as National Standard 1 on optimum yield; and National Standard 7 on cost benefit.

The September 2015 Council action included protected species hard caps for the DGN fishery, which were not implemented; without a revised purpose and need statement specific to fishery monitoring, NMFS could not further consider fishery monitoring alternatives, since the rationale was tied to hard cap management. The revised purpose and need statement will allow NMFS to further analyze monitoring alternatives, including any use of new or updated technology and consideration of unobservable vessel issues.

2.2.2. Recommendations for International Management Activities

The Council endorsed the outcomes of the Western and Central Pacific Fisheries Commission (WCPFC) Northern Committee meeting for rebuilding the Pacific bluefin tuna stock, and urged the U.S. to continue advocating for aggressive rebuilding of Pacific bluefin tuna at both the WCPFC and Inter-American Tropical Tuna Commission.

NMFS solicited Council recommendations on management measures for the U.S. domestic Pacific bluefin tuna quota. In 2017 catch exceeded 425 mt, the maximum allowed in any one year, and NMFS has prohibited landings for the remainder of the year. Since the U.S. quota is 600 mt for 2017-18, remaining quota for 2018 will be less than 130 mt. For this reason, the Council recommended a very small trip limit of around 1 mt in 2018 to account for incidental catch and discourage a directed fishery. The Council also encouraged NMFS to consider allowing a small amount of incidental landings for the remainder for 2017; otherwise, fish that will be unavoidably caught will have to be discarded.

2.2.3. Fishery Management Plan Amendment 4: Status Determination Criteria Final Action

The Council took final action to adopt proposed changes to the FMP under Amendment 4 including the additional changes proposed by the Highly Migratory Species Management Team with some additional modifications to the text.

2.2.4. Proposed Deep-Set Buoy Gear Exempted Fishing Permits

The Council reviewed 13 Deep-Set Buoy Gear Exempted Fishing Permit (EFP) applications and forwarded 12 to NMFS for issuance based on recommendations from the Highly Migratory Species Management Team (HMSMT). Those EFPs recommended for preliminary approval by the HMSMT will be forwarded to NMFS with the expectation that applicants will provide the requested additional information directly to NMFS. NMFS will report back on receipt of the requested information and the Council would then make their final recommendation for issuance of those EFPs.

2.2.5. Authorization of Deep-Set Buoy Gear and Federal Permitting

The Council adopted a range of alternatives for authorization of deep-set buoy gear and Federal permitting, and provided guidance to the HMSMT on the analysis. The Council is scheduled to review the analysis, further refine the range of alternatives, and possibly select a preliminary preferred alternative at its March 2018 meeting.

2.3. June 2017

2.3.1. Amendment 4 to the Fishery Management Plan for West Coast Fisheries for Highly Migratory Species (HMS FMP)

The Council adopted for public review proposed changes to the HMS FMP with additional changes recommended by the Highly Migratory Species Management Team (HMSMT) and a modified version of the changes proposed by the Highly Migratory Species Advisory Subpanel (HMSAS).

A revised version of the proposed amendment language incorporating the additional changes proposed in the advisory body reports will be circulated as part of the advanced briefing book for the Council's September 2017 meeting.

2.3.2. Authorization of Deep-Set Buoy Gear and Federal Permitting

The Council reviewed the range of alternatives described developed by the HMSMT; considered advice from the HMSMT, HMSAS, EC, and the public; and provided guidance to refine the alternatives for potential adoption at the September meeting. The Council endorsed the range of alternatives proposed by the HMSMT with the following refinements:

1. Limit further analysis of the area for authorizing the fishery to Federal waters off California and Oregon
2. Include voluntary trade-in alternatives that would allow drift gillnet (DGN) permittees to surrender a permit in exchange for one or more deep-set buoy gear (DSBG) permits.
3. Refine gear retrieval requirements so as to discourage the use of gear at night while providing reasonable accommodation for gear retrieval that extends after dusk.
4. Develop an option to restrict the fishery to depths greater than 150 fathoms.
5. Develop guidelines for engaging in other commercial fishing activities on the same trip where DSBG is deployed. Use of other gear would have to be compliant with active tending requirements for DSBG.
6. Develop a permitting alternative to include a DSBG endorsement on the current Federal HMS permit.
7. Develop an alternative that would restrict DSBG fishing in the Southern California Bight to weekdays only.

2.3.3. Proposed Deep-Set Buoy Gear Exempted Fishing Permits

The Council:

- Adopted the HMSAS recommendations for issuing EFPs based on the 19 applications reviewed at this meeting.
- Endorsed the HMSMT recommendations for observer coverage levels.
- Requested NMFS to report on development of a logbook for DSBG EFPs.
- Noted that most applicants proposed fishing in the Southern California Bight and expressed concern about potential gear conflicts depending on the level of fishing effort when recommended EFPs are issued. For that reason, in the future, applications that propose fishing outside the Southern California Bight may be prioritized in the approval process.

2.3.4. Recommendations for International Management Activities

The Council made recommendations in response to the August 17, 2016, notification from NMFS that the Western and Central North Pacific Ocean stock of striped marlin is overfished and subject to overfishing. The Council determined that there is no need for additional domestic regulations pursuant to its HMS FMP, because vessels managed under the FMP do not catch fish from this stock. The Council noted that the objectives in Conservation and Management Measure 2010-01, adopted by the Western and Central Fisheries Commission, are being met.

The Council supported the draft U.S. proposal to the Inter-American Tropical Tuna Commission (IATTC) for a second rebuilding target for Pacific bluefin tuna ($20\%SSB_{current,\ F=0}$,) to be achieved by 2030 with at least 60 percent probability. This target is a reasonable approximation of maximum sustainable yield, and therefore consistent with the harvest specifications framework in the FMP and with past Council recommendations.

The Council also recommends the U.S. delegation to the July 24-28 IATTC meeting advocate for the U.S. proposal on observer safety.

2.4. March 2017

2.4.1. Update on Existing Deep-Set Buoy Gear Exempted Fishing Permits (EFPs)

The Council clarified that in the future they would expect reports on EFPs at the June Council meeting, per Council Operating Procedure 20.

While the Council deferred to NMFS on the specifics of observer coverage for ongoing EFPs, it noted that each vessel and vessel operator should be subject to the requirement to complete 10 sets with 100 percent observer coverage before the observer coverage requirement can be reduced to a lower level.

2.4.2. Proposed Deep-Set Buoy Gear Exempted Fishing Permits

The Council adopted the proposed criteria described for consideration of Deep-Set Buoy Gear (DSBG) EFP applications for expedited, one-Council meeting review and approval.

Based on information in the Supplemental HMSMT Report , the Council forwarded the following EFP applications to NMFS to consider permit issuance:

- Pfleger Institute of Environmental Research application for linked DSBG
- Frederic Hepp application for standard DSBG
- Kent Jacobs application conditioned on the use of standard DSBG rather than proposed modified weight system
- Martin Kastlunger application for standard DSBG with a 2-year permit duration
- Phillip Harris application based on his clarified intent of up to 150 days of fishing effort in the Southern California Bight
- Denny Corbin application for the standard DSBG component only
- William Diller application for standard DSBG

The Council gave preliminary approval to the Roger Cullen application for DSBG with a proposed modification in the type of line to be used. The Council requested a revised application be submitted at the June meeting based on the comments from the HMSMT.

The Council requested that the Lorton/Haworth application be resubmitted at the June meeting with additional detail on the proposed activity as outlined in the HMSMT Report.

The Council also directed that the following conditions be placed on issued EFPs, per the recommendation of its Enforcement Consultants Committee:

1. "Actively tending" definition: The fishing vessel must maintain a distance of no more than 3 nm from any piece of gear and maintain properly-configured gear in accordance with their EFP.
2. Each piece of DSBG and the terminal ends of linked DSBG must be marked with a radar reflector. Flags and buoys must be marked with the vessel's official number.

2.4.3. Amendment 4 to the Fishery Management Plan for West Coast Fisheries for Highly Migratory Species (HMS FMP)

The Council decided to defer adopting Amendment 4 text for public review until the June Council meeting. In the interim, it directed its advisory bodies to take up the following tasks and report back in June:

1. The HMSMT will provide a list of items to be included in the Stock Assessment and Fishery Evaluation Report related to specifying biological reference points.
2. The SSC will review the categories specified in the HMS FMP regarding the level of data being used in HMS assessments and how it relates to maximum sustainable yield (MSY) estimation.

The SSC will report whether this information is still relevant, and provide recommendations for selecting best-fit MSY reference point proxies (including, F_{MSY} and B_{MSY}) as a basis for determining status determination criteria.

3. The HMSMT and Council staff will revise proposed language in Amendment 4 to align the biennial management cycle in the HMS FMP with NMFS' stock status determination process.
4. The HMSMT and HMSAS will develop a list of species for which the Council might consider itself an "appropriate Council" (per MSA section 304(i)) for making management recommendations related to stock status. In carrying out this task, the HMSMT and HMSAS should take into account U.S. West Coast fishery landings within stock assessment areas.
5. The HMSMT and HMSAS will meet before the June Council meeting to discuss HMSAS concerns with proposed HMS FMP Amendment 4 revisions.

2.4.4. Fishery Management Plan Amendment 5: Final Action Authorizing Federal Drift Gillnet Permit

The Council adopted Alternative 1 as its final preferred alternative for authorizing a Federal limited entry permit for the California large mesh drift gillnet fishery. In doing so, the Council adopted the associated FMP amendment language provided in the appendix of the Supplemental HMSMT Report. Under Alternative 1, as soon as possible after Council final action, only fishermen authorized to fish with large mesh drift gillnet (DGN) gear under state law would be entitled to a DGN limited entry permit issued by NMFS. Fishermen who hold valid state DGN permits on the date of Final Rule publication would be eligible for the Federal DGN limited entry permit. These permits could only be transferred once every three years.

Federal DGN limited entry permits will be issued to an individual, and a vessel must be specified on the permit. These permits will be issued annually for the fishing year starting April 1 and ending March 31 of the following year. Permits thus expire on March 31 of each year and after initial issuance (expected in 2018), the permit renewal deadline will be April 30 of the fishing year. A DGN permit that has expired will not be renewed unless the permit owner requests reissuance by July 31 (three months after the renewal application deadline) and NMFS determines that failure to renew was proximately caused by illness, injury, or death of the permit owner. If the permit expires, it will be forfeited and NMFS will not reissue the permit to anyone. These renewal deadlines (April 30 and July 31) differ from the current state permit renewal deadlines.

2.5. November 2016

2.5.1. International Issues

The Council made recommendations to the U.S. Delegation to the Thirteenth Meeting of the Western and Central Pacific Fisheries Commission (WCPFC) with respect to Pacific bluefin tuna. The WCPFC Northern Committee has put forward a conservation and management measure that the Commission will consider at its upcoming meeting. The proposed measure establishes an interim rebuilding target to be met by 2024. A second rebuilding target will be chosen in 2017 to be achieved by 2030. The Council reiterated its previous recommendations by noting that the stock should be rebuilt to a higher spawning biomass than the interim target, consistent with producing maximum sustainable yield. The current measure requires members to reduce catch of Pacific bluefin less than 30 kg to 50 percent of 2002-2004 average catch. While reducing catch of small fish in the Western Pacific is important, future changes to the measure should protect the spawning age population, which could be accomplished in part by closing areas during times of the year that spawning is known to occur. The provision that allows members to use part of the catch limit for Pacific bluefin tuna smaller than 30 kg to catch Pacific bluefin tuna 30 kg or

larger in the same year should be carefully reviewed, as stipulated, for its impact on current spawning biomass.

The Council recommended that NMFS continue the current landing limits for Pacific bluefin tuna for 2017-2018 as part of implementing domestic obligations pursuant to Inter-American Tropical Tuna Commission Resolution C-16-08 (Measures for the Conservation and Management of Pacific Bluefin Tuna in the Eastern Pacific Ocean). This Resolution establishes a 600 metric ton (mt) biennial commercial catch limit for Pacific bluefin in the Eastern Pacific Ocean for 2017 and 2018, and catch is not to exceed 425 mt in either year. Recommended landing limits are a 25 mt trip limit until catch is within 50 mt of the annual limit, at which time a 2 mt trip limit would be imposed.

The Council concurred with NMFS' response to the portion of the Center for Biological Diversity's (CBD) Petition for Rulemaking that calls for landings of Pacific bluefin to be prohibited or substantially limited. NMFS concluded that there is little evidence to suggest that imposing a unilateral prohibition on the retention of Pacific bluefin by U.S. West Coast fishermen would either end overfishing or have a consequential impact on reducing overfishing. The Council noted that a prohibition on retention would have significant economic impacts and place a disproportionate burden on the U.S. West Coast fishing industry, and hence would not be in the best interest of the nation. CBD also requested that management reference points be established for Pacific bluefin as required by the Magnuson-Stevens Fishery Conservation and Management Act. In its response, NMFS concurred and noted that this task is appropriate for the Council to undertake consistent with its obligations stemming from the Highly Migratory Species Fishery Management Plan. The Council directed its Highly Migratory Species Management Team to identify Pacific bluefin management reference points for Council review in 2017. These management reference points are maximum sustainable yield, optimum yield, status determination criteria, and the overfishing limit.

2.5.2. U.S.-Canada Albacore Tuna Treaty

The Council supported the Department of State in reaching a satisfactory conclusion to negotiations with the Government of Canada in relation to a renewed regime for reciprocal fishing and port access privileges in 2017 and beyond under the U.S.-Canada Albacore Treaty. The Council expressed appreciation for the Department of State's efforts to consult with stakeholders on their views, as represented in the advisory body statements and public comments received at the Council meeting.

2.5.3. Deep-Set Buoy Gear EPFs

The Council:

- Granted preliminary approval for the EFP applications submitted by Fred Hepp (standard deep-set buoy gear) and the Pflegler Institute of Environmental Research, (linked buoy gear) taking into account the recommendations made in Agenda Item I.4.a, Supplemental HMSMT Report. The Council will finalize its recommendation to NMFS on EFP issuance in March 2017.
- Recommended that NMFS reissue a standard deep-set buoy gear (DSBG) EFP to Mr. Stephen Mintz for 2017-2018 with observer coverage consistent with the recommendations from Agenda Item I.4.a, Supplemental HMSMT Report 2. The geographic area for the EFP would cover waters adjacent to California and Oregon including designated leatherback sea turtle critical habitat.
- Approved for use the DSBG EFP application template developed by the HMSMT (see Agenda Item I.4.a, HMSMT Report) with the addition of a question to solicit information from the applicant on past violations. The final application template will be posted to the Council's and NMFS' websites for easy access.
- Approved the criteria proposed by the HMSMT for determining appropriate levels of observer coverage (see Agenda Item I.4.a, Supplemental HMSMT Report 2).

- Tasked the HMSMT with developing criteria for deciding if a DSBG EFP application could be approved in one Council meeting rather than the currently required two Council meetings. This would further streamline the process for approving and issuing EFPs for DSBG fishing that are very similar to current EFP fishing. The Council intends to consider one-meeting approval beginning with the March 2017 meeting.

2.5.4. Swordfish Fishery Management

The Council heard Agenda Item I.5.a, Supplemental NMFS/CDFW Report from CDFW and NMFS on their ongoing work to detail the elements of the Council's preliminary preferred alternative to create a Federal limited entry permit for the California large mesh drift gillnet fishery. The Council supports the direction the agencies are taking and looks forward to taking action on a detailed proposal on a Federal permit in March 2017.

The Council tasked its HMSMT to begin working on a range of alternatives for permitting and other aspects of authorizing a deep-set buoy gear fishery, using the HMSAS's recommendations as a starting point. The HMSMT will seek input from the HMSAS when developing the range of alternatives. The Council expects that continued fishing under EFPs, particularly in areas outside of the Southern California Bight, will inform the development of alternatives.

The Council recognized that as it moves forward on these initiatives, it will need to consider the interplay of various gear types used to target swordfish including currently authorized gear types and the potential to authorize deep-set buoy gear and pelagic longline to target swordfish.

The Council reviewed the proposed rule to establish hard caps for the California large mesh drift gillnet fishery and determined that it is consistent with the Council's final action on this matter in September 2015. The Council supports NMFS' decision to separate the monitoring requirements component of Council action for subsequent implementation as described in Agenda Item I.5.a, Supplemental NMFS Report.

2.6. September 2016

2.6.1. Update on International Issues

The Council was briefed on the proposal the U.S. is submitting for the 90th Meeting of the Inter-American Tropical Tuna Commission (IATTC) (resumed) for Pacific bluefin tuna conservation. This proposal includes the continuation of the 2015-2016 commercial limit for Pacific bluefin in the Convention Area of 600 metric tons into 2017 and 2018. It will also reflect outcomes from the Western and Central Pacific Fisheries Commission Northern Committee/IATTC Joint Working Group meeting on a long-term rebuilding plan for Pacific bluefin. The rebuilding plan identifies an initial rebuilding target of median spawning biomass (1952-2014) to be achieved by 2024, and a second rebuilding target to be achieved by 2030, which is yet to be determined. The IATTC would adopt this second rebuilding target in 2018, consistent with the outcome of the next Joint Working Group meeting in 2017. The Council supports the U.S. proposal including these rebuilding objectives with the proviso that the second rebuilding target should be set at a biomass level that approximates B_{MSY}, and will send a letter to that effect to U.S. Commissioner, Mr. Barry Thom.

The Council also emphasized that it should have the opportunity to review and comment on any domestic regulations proposed to implement any Pacific bluefin tuna Resolution adopted by the IATTC.

2.6.2. Exempted Fishing Permits

The Council reviewed the revised application submitted by Mr. Dave Stephens to use deep-set buoy gear (Agenda Item J.2, Attachment 1) and recommended that NMFS issue an exempted fishing permit (EFP) for this activity. Based on Mr. Stephens' experience in using this gear type, the Council recommended that NMFS consider an observer coverage rate as low as 30 percent, which is consistent with the coverage rate for the current EFP issued to the Pflegler Institute of Environmental Research to test deep-set buoy gear.

2.6.3. Biennial Harvest Specifications and Management Measures

The Council concluded that these tasks described in Agenda Item J.3.a, Supplemental HMSMT Report 2 are broader in scope than could be taken up under the biennial management process; therefore, the Council initiated an FMP amendment to change the framework and process for selecting stock status determination criteria (maximum fishing mortality rate and minimum stock size threshold). The Council directed the Highly Migratory Species Management Team (HMSMT) to meet with the Highly Migratory Species Advisory Subpanel (HMSAS) at the November Council meeting to review and discuss proposed amendments to the text of the HMS FMP. Public review of proposed changes and Council final action would occur in 2017.

The Council was briefed on the Southwest Fisheries Science Center's proposed peer review process for a March 2016 common thresher shark stock assessment, which would employ a panel drawn from the Center for Independent Experts. The Council asked that its SSC be given the opportunity to comment on the terms of reference that will be developed for the peer review.

The Council deferred its final response to the Center for Biological Diversity's petition for rulemaking on Pacific bluefin tuna until the November meeting to allow consideration of the results of the IATTC meeting. In the future, this topic will be addressed under the International Issues agenda topic, along with an update on the thresher shark assessment and a notice that the Western and Central North Pacific Ocean stock of striped marlin is overfished and subject to overfishing.

2.6.4. Deep-Set Buoy Gear Exempted Fishing Permit Criteria to Advance Gear Authorization

The Council:

- Accepted Agenda Item J.4.a, Supplemental HMSMT Report, and Agenda Item J.4.a, Supplemental HMSAS Report, under this agenda item, as useful guidance in considering future deep-set buoy gear EFP applications.
- Tasked the HMSMT to develop a deep-set buoy gear EFP application template that would simplify the completion of applications. The HMSMT will provide a proposed template for Council review and adoption at the November Council meeting.
- Tasked the HMSMT with developing criteria for deciding the appropriate observer coverage levels for all new deep-set buoy gear EFPs.
- Directed Council staff, with input from the HMSMT and HMSAS, to continue working on the framework to advance authorization of deep-set buoy gear under the Fishery Management Plan, building on the initial outline offered in the staff summary provided in Agenda Item D.5, Attachment 1, June, 2016.

2.6.5. Federal Drift Gillnet Permit Amendment

The Council approved the range of alternatives described in Agenda item J.5.a, HMSMT Report, with an amendment to Alternative 1 to clarify that the alternative would include California's existing drift gillnet (DGN) transfer requirement that the permit (whether state or Federal) be held by the individual for three years before being eligible for transfer. These alternatives are:

- **No Action Alternative (**Status quo): The Council would not move forward with creating a Federal DGN permit. DGN permitting would continue under the state of California Limited Entry permit program.
- **Alternative 1**: Federalization of DGN permitting as currently issued by the state of California. As soon as possible after Council final action, only fishers authorized to fish with large mesh DGN gear under state law would be entitled to a NMFS commercial HMS permit endorsed for DGN. The would mean that fishers who hold valid state DGN permits on the date of Final Rule publication would be eligible to possess an HMS permit DGN endorsement. Permits could only be transferred once every three years.

2.7. June 2016

2.7.1. International Issues Including Eastern Pacific Ocean Swordfish Status, Report of the North Pacific Albacore Management Strategy Evaluation Workshop, and Recommendations for the 12th Northern Committee Meeting

The Council finalized their response to the Secretary of Commerce determination that the North Pacific swordfish stock in the Eastern Pacific Ocean (EPO) is subject to overfishing per Section 304(i) of the Magnuson-Stevens Act (MSA). Based on current information, West Coast highly migratory species (HMS) fisheries do not harvest the EPO swordfish stock; therefore, the Council concluded that at this time there is no need for domestic regulations to address the relative impact of fisheries managed under the HMS Fishery Management Plan (FMP). As defined in the most recent stock assessment (2014), the EPO stock occurs almost entirely within the Inter-American Tropical Tuna Commission (IATTC) Convention Area, except for a small area within the Western and Central Pacific Fisheries Commission (WCPFC) Convention Area, and the northern limit of the EPO swordfish stock along the North American west coast is well south of the U.S./Mexico border. The Council directed that the stock definition in the HMS FMP be updated to reflect this updated stock distribution information (see Initial Scoping of Biennial Specifications, below). EPO swordfish catch is mostly caught by longline fishing vessels from Japan, Spain, China, Korea, and Taiwan, which together accounted for over 9,200 mt of the total 9,910 mt harvest in the EPO in 2012. The Council therefore recommended that the U.S. Section to the IATTC support measures that eliminate overfishing, by reducing fishing mortality. The Council will submit this recommendation for international action to the Secretary of State and Congress in addition to National Marine Fisheries Service (NMFS).

With respect to U.S. delegations to regional fishery management organizations:

- The Council recommended that the U.S. advance a Pacific-wide approach to rebuilding Pacific bluefin tuna, recognizing that more than 80 percent of the impact on the spawning stock biomass of Pacific bluefin tuna results from Western and Central Pacific Ocean (WCPO) fisheries.
- The Council noted the need for the Northern Committee and WCPFC to adopt additional conservation measures for spawning adults of Pacific bluefin tuna and actions designed to reduce mortality of age-0 fish including reducing fishing effort on spawning grounds in the WCPO. This could be accomplished by a time and area closure of known spawning areas.

- The Council encourages the NC and International Scientific Committee for Tuna and Tuna-like Species (ISC) Plenary to approve the North Pacific albacore management strategy evaluation (MSE) objectives and associated elements developed in the May 24-25, 2016 ISC MSE workshop. As initial MSE results become available, the Council will recommend additional objectives and/or elements for future analyses.
- The Council directed Council staff to prepare a letter to Mr. Michael Tosatto, head of the U.S. delegation to the 12th Northern Committee meeting, August 29-September 1, 2016, with the above recommendations.
- The Council endorsed the U.S. proposal for Pacific Bluefin tuna to be considered at the 90th meeting of the IATTC. The Council supported the proposed Conservation and Management Measures being presented to the IATTC by the United States (see Proposal-IATTC-90-F-1).
- The Council directed its HMS advisory bodies to discuss domestic commercial fishery management measures for Pacific bluefin in 2017-2018, consistent with any new resolution adopted by the IATTC. Domestic regulations would include trigger points, trip limit management, or other management measures to regulate catch in the 2017-2018 biennial period. Advisory body recommendations will be made at the September Council meeting to allow for inclusion in the final rule, implementing the expected IATTC Resolution on Pacific bluefin tuna, which NMFS will publish to be effective in January 2017.

2.7.2. Preliminary Approval of New Exempted Fishing Permits (EFPs)

The Council reviewed one EFP application from Mr. David Stephens to use deep-set buoy gear, which is not currently an authorized gear type under the HMS FMP. The Council requested that the EFP applicant revise the application according to the recommendations and comments in Agenda Item D.3.a, Supplemental HMSMT Report and Agenda Item D.3.a, Supplemental HMSAS Report. Additionally, the EFP application should contain clarifications on tending and monitoring gear as discussed in Agenda Item D.3.a, Supplemental EC Report. The Council will consider the revised application at its September meeting.

2.7.3. Initial Scoping of Biennial Specifications Including Management Reference Points and Management Measures

The HMS FMP specifies a biennial management cycle during which Council decision-making occurs at its June, September, and November meetings. The Council started this process at the June meeting for management changes in the next biennial period, beginning April 1, 2017. For this period, the Council tasked the HMS Management Team (HMSMT) to:

1. Make "housekeeping" changes to the HMS FMP to update or correct dated information.
2. Clarify maximum sustainable yield, optimum yield, and status determination criteria for management unit species in the HMS FMP and publish up-to-date values for these reference points in the Stock Assessment Fisheries Evaluation (SAFE) document. This process would dovetail with NMFS' stock status determination process. Further, it could align the process of notifying the Council of stock status findings that trigger action under MSA sections 304(e) and 304(i) (describing Council obligations relative to overfishing and overfished determinations) with the Council's biennial management cycle. The SAFE would also include updated fishery management unit species descriptions, including identifying both the EPO swordfish stock and the Western and Central North Pacific Ocean stock to reflect the most recent (2014) stock assessment and distribution information for those two stocks.
3. Respond to the requests contained in the Center for Biological Diversity's (CBD) petition for additional domestic actions regarding Pacific bluefin tuna that NMFS referred to the Council

including the three items outlined on page 1 of the HMSMT report (Agenda Item D.4.a, Supplemental HMSMT Report), allowing for scheduling flexibility as the HMSMT requested.

The HMSMT will produce a draft HMS SAFE Report, mark-ups to the HMS FMP, a plan for aligning the biennial management process and NMFS' status determination process, and draft recommendations for a Council response to the CBD bluefin petition for initial consideration at the September Council meeting.

2.7.4. Deep-Set Buoy Gear and Federal Permit Update

The Council tasked its HMSMT to:

1. Develop a range of alternatives for Federal large mesh drift gillnet gear permitting to include the following:
    a. As soon as possible after Council final action, only fishers authorized to fish with large-mesh drift gillnet gear under state law would be entitled to a NMFS commercial HMS permit endorsed for drift gillnet
    b. Status quo
2. Develop special conditions for a deep-set buoy gear (DSBG) EFP program for Council consideration at the September 2016 Council meeting, focusing on three areas:
    a. Schedule consideration of new buoy gear EFPs for any future Council meetings that HMS is otherwise scheduled.
    b. Develop a list of key data gaps and research needs with regard to DSBG to inform future permit program conditions. The list should also be useful to aid prospective EFP applicants in developing applications. Many of these needs have been identified in HMSMT, HMS Advisory Subpanel, Enforcement Consultant, and California Department of Fish and Wildlife (CDFW) statements and public comments in March and June 2016.
    c. Outline alternatives to provide incentives for EFP participation including, but not limited to, prioritized eligibility of EFP participants in potential future DSBG permit program.

The Council clarified that the emphasis on continuing development of a DSBG fishery by issuing EFPs does not replace its intent to develop a range of alternatives to authorize the fishery under the HMS FMP consistent with its guidance in March 2016 (Agenda Item F.3).

2.8. March 2016

2.8.1. Report on Ongoing Exempted Fishing Permits (EFP)

The Council recommended reissuance of the Perguson and Pflegler Institute of Environmental Research (PIER) EFPs for 2017-2018. The Council also requested NMFS keep the Council informed on future Letters of Acknowledgement (LOA) issued for marine research activities that have direct implications to West Coast fishery management.

2.8.2. Deep-Set Buoy Gear Amendment Scoping

The Council directed the Highly Migratory Species Management Team (HMSMT) to begin developing ranges of alternatives for various aspects related to authorizing a deep-set buoy gear (DSBG) fishery. Development of program elements would occur concurrently with ongoing DSBG EFPs, which are likely to provide additional information relevant to authorizing the fishery. Ranges of alternatives would cover definitions for the gear and the requirement for gear to be actively tended, the geographic area where the fishery would be allowed to operate, identify target species and species that could not be retained or landed (prohibited species) other than those already in the HMS Fishery Management Plan, a licensing

regime, and other elements identified in advisory body reports. The Council plans to review and potentially adopt a range of alternatives at its September 2016 meeting.

2.8.3. Recommendations for International Management Activities Including U.S.-Canada Albacore Treaty Area Fishery Update

The Council discussed three topic areas of international HMS management.

North Pacific Albacore Management Strategy Evaluation (MSE): The Council endorsed the HMSMT and HMS Advisory Subpanel proposal to schedule a webinar in advance of the May 24-25 MSE workshop to provide guidance to Council representatives to the workshop.

U.S./Canada Albacore Treaty: The current fishing regime under the Treaty expires at the end of the 2016 fishing season. The Council thanked the State Department for its intent to convene a U.S. delegation meeting in the near future to review all current relevant data produced by both the Joint Data Working Group and independent NMFS analysis, and urged the State Department to convene a similar meeting in the Fall to review information collected on the 2016 fishing season, diplomatic notes exchanged during the current fishing regime, and any relevant information from international efforts. The Council scheduled consideration of possible recommendations on a future fishing regime (or lack thereof) at its November 2016 meeting.

90th Meeting of the Inter-American Tropical Tuna Commission: The Council did not make any specific recommendations for U.S. positions at the meeting, which overlaps the June Council meeting.

3. Changes to HMS FMP Regulations

Modifications to HMS FMP regulations at **50 CFR 660 Subpart K** since implementation of the FMP are listed below.

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 4-1. 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).

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	2,007
2014	851	597	433	75	1,956
2015	867	608	441	86	2,002
2016	828	576	414	77	1,895

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 4-2. 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 managed under the HMS FMP through 2015.

Table 5-1. 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
4/8/11	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
8/18/16	Continued operation of the west coast based deep-set longline fishery managed under the Fishery Management Plan for U.S. West Coast Highly Migratory Species Fisheries

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 April 6, 2016, NMFS and the USFWS published a final rule to list 11 DPSs of green turtles (*Chelonia mydas*) under the ESA (81 FR 20057). Green sea turtles found off the U.S. west coast comprise the East Pacific DPS, which is listed as threatened. NMFS is currently in the process of the consideration of designating critical habitat for green sea turtles in the marine environment off the U.S. west coast.

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. For example, section 101(a)(5)(E) 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.

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.

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.

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.

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.

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.

If total fisheries-related serious injuries and mortalities are greater than PBR, permits may not be issued.

On January 10, 2017, NMFS issued a Federal Register notice proposing to issue a 3-year permit to authorize the incidental take of ESA-listed humpback whales and sperm whales by the California thresher shark/swordfish drift gillnet fishery (and the WA/OR/CA sablefish pot fishery) (82 FR 2955). Public comments must be received by February 9, 2017. Regulations implementing the Plan require fishermen participating in the California drift gillnet fishery targeting swordfish and thresher shark to use pingers in a staggered configuration on their nets and a minimum length of buoy lines. The Pacific Offshore Take Reduction **Plan** (satisfying requirement 3, above) was finalized in 1997. The Pacific Offshore Take Reduction **Team** meets periodically to assess the effectiveness of the Plan and, if necessary, develop recommendations for reducing marine mammal incidental serious injury and mortality in the California drift gillnet fishery.

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.

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 is taken from the 2016 U.S. Pacific Marine Mammal Stock Assessment Report (June 2017). It shows estimates of these parameters for strategic stocks and stocks for which the Council established bycatch performance metrics. In 2015 the Council identified these bycatch performance metrics for the California large mesh drift gillnet (DGN) fishery including take levels for selected marine mammals. At that time the Council recommended hard caps for sea turtles and selected marine mammals. In 2017 NMFS determined that the use of hard caps in this instance was unwarranted but the Council decided that take of these species should also be included as performance metrics.

Table 5-2. Key population parameters for selected marine mammals occurring in the west coast EEZ.

Species (Stock Area)	N est	CV N est	N min	R max	Fr	PBR	Status	DGN Performance Metric
California sea lion (U.S.)	296,750	n/a	153,337	0.12	1	9,200	N	Y
Guadalupe Fur Seal (Mexico to California)	20,000	n/a	15,830	0.137	0.5	542	S	N
Northern Elephant Seal (California Breeding)	179,000	n/a	81,368	0.12	1	4,882	N	Y
Common Bottlenose dolphin (California Coastal)	453	0.06	346	0.04	0.48	2.7	N	Y*
Common Bottlenose dolphin (California/Oregon/Washington Offshore)	1,924	0.54	1,255	0.04	0.45	11	N	Y*
Common dolphin, long-beaked (California)	101,305	0.49	68,432	0.04	0.48	657	N	Y
Common dolphin, short-beaked (California/Oregon/Washington)	969,861	0.17	839,325	0.04	0.5	8,393	N	Y
Northern right whale dolphin (California/Oregon/Washington)	26,556	0.44	18,608	0.04	0.48	179	N	Y
Pacific white-sided dolphin (California/Oregon/Washington)	26,814	0.28	21,195	0.04	0.45	191	N	Y
Risso's dolphin (California/Oregon/Washington)	6,336	0.32	4,817	0.04	0.48	46	N	Y
Blue whale (Eastern N Pacific)	1,647	0.07	1,551	0.04	0.3	2.3	S	N
Cuvier's beaked whale (California/Oregon/Washington)	6,590	0.55	4,481	0.04	0.5	45	S	N
Killer whale (Eastern N Pacific Southern Resident)	81	n/a	81	0.035	0.1	0.14	S	N
Mesoplodont beaked whales (California/Oregon/Washington)	694	0.65	389	0.04	0.5	3.9	S	N
Short-finned pilot whale (California/Oregon/Washington)	836	0.79	466	0.04	0.48	4.5	N	Y*
Fin whale (California/Oregon/Washington)	9,029	0.12	8,127	0.04	0.5	81	S	Y*
Gray whale (Eastern N Pacific)	20,990	0.05	20,125	0.062	1	624	N	Y
Gray whale (Western N Pacific)	140	0.04	135	0.062	0.1	0.06	S	Y
Humpback whale (California/Oregon/Washington)	1,918	0.03	1,876	0.08	0.3	11	S	Y*
Sei whale (Eastern N Pacific)	519	0.4	374	0.04	0.1	0.75	S	N
Sperm whale (California/Oregon/Washington)	2,106	0.58	1,332	0.04	0.1	2.7	S	Y*

*Originally proposed for hard caps in the California DGN fishery; take reported to monitor fishery bycatch performance.

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.

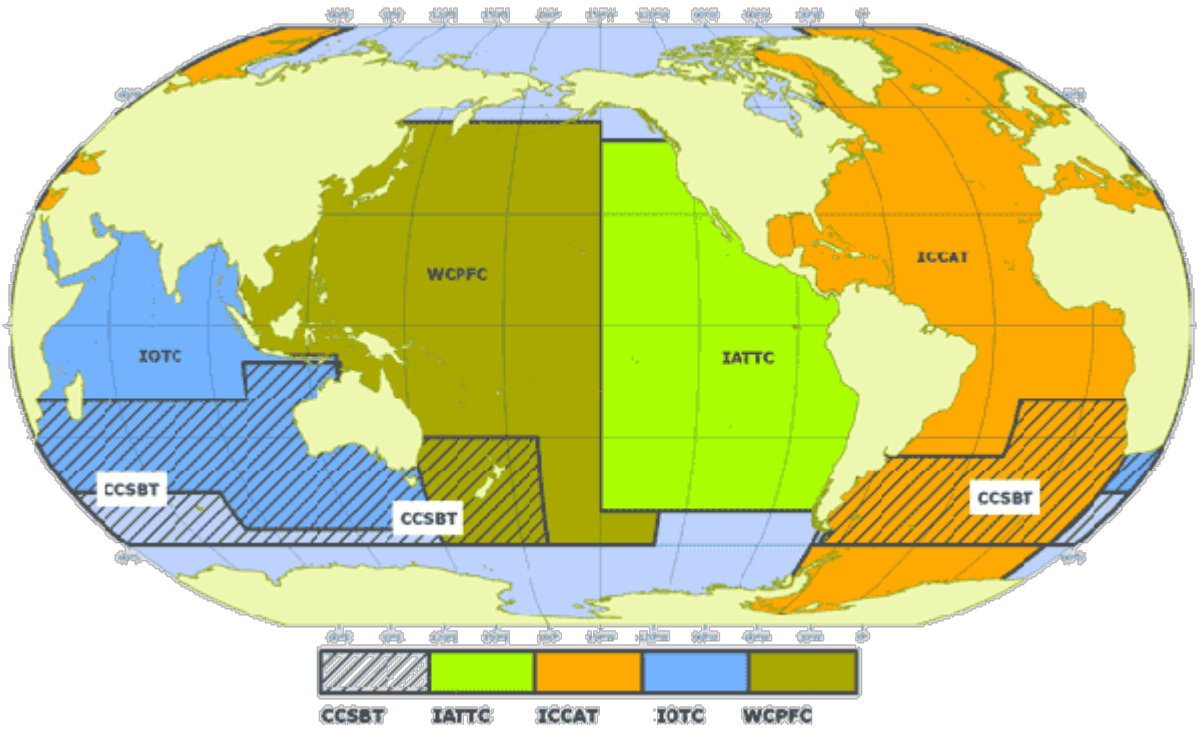

Figure 6-1. Global map of tuna RFMO jurisdictions. (Source: http://www.fao.org/fishery/topic/16917/en).

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

6.2.1. 2017 Outcomes

The Fourteenth Regular Session of the Western and Central Pacific Fisheries Commission, Manila, Philippines, December 3-7, 2017. Provisional Outcomes Document.

Provisional list of adopted conservation measures

- CMM 2017-01 Conservation and Management Measure for Bigeye, Yellowfin and Skipjack tuna
- CMM 2017-02 Conservation and Management Measure on Minimum Standards for Port State measures
- CMM 2017-03 Conservation and Management Measure for the Protection of WCPFC Regional Observer Programme Observers (agreed amendment of CMM 2016-03)
- CMM 2017-04 Conservation and Management Measure on Marine Pollution in the Western and Central Pacific Ocean
- CMM 2017-05 WCPFC Record of Fishing Vessels and Authorisation to fish (agreed amendment of CMM 2013-10)
- CMM 2017-06 Conservation and Management Measure for Mitigating Impacts of Fishing on Seabirds (agreed amendment of CMM 2015-03)
- CMM 2017-07 Conservation and Management Measure for the Compliance Monitoring Scheme
- CMM 2017-08 Conservation and Management Measure for Pacific Bluefin Tuna

The 92nd IATTC meeting, July 24-28, 2017, Mexico City, Mexico [Meeting report unavailable]

Resolutions adopted:

- C-17-01 Tuna conservation in the EPO 2017 [as amended by Res. C-17-02]
- C-17-02 Tuna conservation in the EPO 2018-2020 and amendment to Res. C-17-01
- C-17-03 Financing FY 2018
- C-17-04 Amendment to the Rules of procedure
- C-17-05 Working group on resolutions

6.2.2. 2016 Outcomes

The Thirteenth Regular Session of the Western and Central Pacific Fisheries Commission, Denaru, Fiji, December 5-9, 2016

Conservation measures adopted (enter into force February 9, 2017)

- CMM 2016-01 Conservation and Management Measure for bigeye, yellowfin and skipjack tuna in the Western and Central Pacific Ocean
- CMM 2016-02 Conservation and Management Measure for Eastern High Seas Pocket Special Management Area
- CMM 2016-03 Conservation and Management Measure for the protection of WCPFC Regional Observer Programme Observers
- CMM 2016-04 Conservation and Management Measure to establish a multi-annual rebuilding plan for Pacific bluefin tuna
- CMM 2016-05 Conservation and Management Measure on Charter Notification Scheme

The 90th IATTC meeting, June 27-July 1, 2016, and 90th Meeting Resumed, October 12-14, 2016, La Jolla, California, USA

Resolutions adopted

- C-16-01 *Amends and replaces* C-15-03 FADs
- C-16-02 Harvest control rules
- C-16-03 Pacific bluefin tuna
- C-16-04 *Amendment* to C-05-03 Sharks

- C-16-05 Management of sharks species
- C-16-06 Conservation of sharks species (silky sharks)
- C-16-07 Financing FY 2017
- C-16-08 Conservation and management of Pacific bluefin tuna

7. Regulations for International HMS Fisheries and Related Activities in the Pacific Published in 2016 and 2017

The following *Federal Register* Final Rule Notices modifying the Code of Federal Regulations, Title 50, Chapter III were published in 2015. For earlier years consult previous editions of the SAFE.

7.1. Final Rules Published in 2017

82 FR 56177. 11/28/2017. International Fisheries; Pacific Tuna Fisheries; Restrictions on Fishing for Sharks in the Eastern Pacific Ocean. Effective Date: 01/01/2018

82 FR 45514. 09/29/2017. International Fisheries; Pacific Tuna Fisheries; Revised 2017 Fishing Restrictions for Tropical Tuna in the Eastern Pacific Ocean. Effective Date: 09/29/2017

82 FR 41562. 09/01/2017. International Fisheries; Pacific Tuna Fisheries; 2017 Bigeye Tuna Longline Fishery Closure in the Eastern Pacific Ocean. The rule is effective 12:00 a.m. local time September 8, 2017, through 11:59 p.m. local time December 31, 2017.

82 FR 40720. 08/28/2017. International Fisheries; Pacific Tuna Fisheries; 2017 Commercial Pacific Bluefin Tuna Fishery Closure in the Eastern Pacific Ocean. The rule is effective 12 a.m. local time August 28, 2017, through 11:59 p.m. local time December 31, 2017.

82 FR 18704. 04/21/2017. International Fisheries; Pacific Tuna Fisheries; 2017 and 2018 Commercial Fishing Restrictions for Pacific Bluefin Tuna in the Eastern Pacific Ocean. Effective date: 5/22/2017.

82 FR 17382. 04/11/2017. International Fisheries; Pacific Tuna Fisheries; Fishing Restrictions for Tropical Tuna in the Eastern Pacific Ocean. Effective date: 5/11/2017.

7.2. Final Rules Published in 2016

81 FR 86966. 12/02/2016. International Fisheries; Tuna and Tuna-Like Species in the Eastern Pacific Ocean; Silky Shark Fishing Restrictions and Fish Aggregating Device Data Collection and Identification

81 FR 50401. 08/01/2016. International Fisheries; Tuna and Tuna-Like Species in the Eastern Pacific Ocean; Fishing Restrictions Regarding Mobulid Rays

81 FR 46614. 7/18/2016. International Fisheries; Pacific Tuna Fisheries; 2016 Bigeye Tuna Longline Fishery Closure in the Eastern Pacific Ocean

81 FR 45982. 7/15/2016. Western and Central Pacific Fisheries for Highly Migratory Species; 2016 Bigeye Tuna Longline Fishery Closure

81 FR 41239. 6/24/2016. International Fisheries; Western and Central Pacific Fisheries for Highly Migratory Species; Purse Seine Observer Requirements, and Fishing Restrictions and Limits in Purse Seine and Longline Fisheries for 2016-2017

81 FR 39213. 6/16/2016. Pacific Bluefin Tuna in the Eastern Pacific Ocean; Response to Petition for Rulemaking

81 FR 36183. 6/6/2016. International Fisheries; Eastern Pacific Fisheries for Highly Migratory Species; Amend Regulations Implementing Inter-American Tropical Tuna Commission Resolution C-02-03

81 FR 33147. 5/25/2016. International Fisheries; Western and Central Pacific Fisheries for Highly Migratory Species; Fishing Effort Limits in Purse Seine Fisheries for 2016

81 FR 24501. 04/26/2016. International Fisheries; Pacific Tuna Fisheries; Fishing Restrictions for the Area of Overlap Between the Convention Areas of the Inter-American Tropical Tuna Commission and the Western and Central Pacific Fisheries Commission

81 FR 2110. 01/15/2016. International Fisheries; Pacific Tuna Fisheries; 2016 Commercial Pacific Bluefin Tuna Catch Limit in the Eastern Pacific Ocean

81 FR 1878. 01/14/2016. International Fisheries; Pacific Tuna Fisheries; Vessel Register Required Information, International Maritime Organization Numbering Scheme

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 2016, 566 surface hook-and-line vessels landed 10,448 mt of albacore in West Coast ports, generating $37.7 million in ex-vessel revenue. Albacore landings by weight in 2016 were down by 817 mt from 2015 landings but ex-vessel revenue increased by $8 million. (See Table 5 and Table 6)

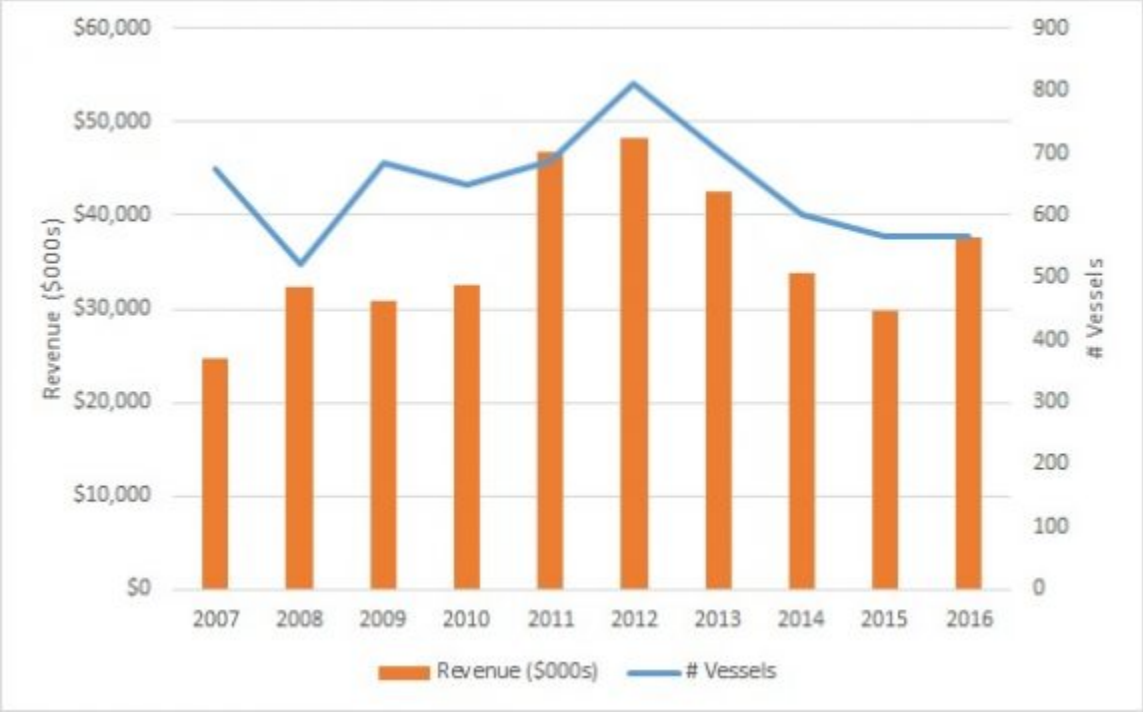

Figure 8-1. Number of vessels and real (inflation adjusted) ex-vessel revenue from North Pacific albacore ($1,000s) in the West Coast albacore surface hook-and-line (troll and baitboat) fishery, 2007-2016, Canadian vessels included.

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 2016 twenty drift gillnet vessels landed 171 mt of swordfish and 28 mt of common thresher shark and generated $1.2 million in ex-vessel revenue in 2016 (see Table 12 and Table 13). Total fishery landings increased by 81 mt and $554,000 in ex-vessel revenue from 2015.

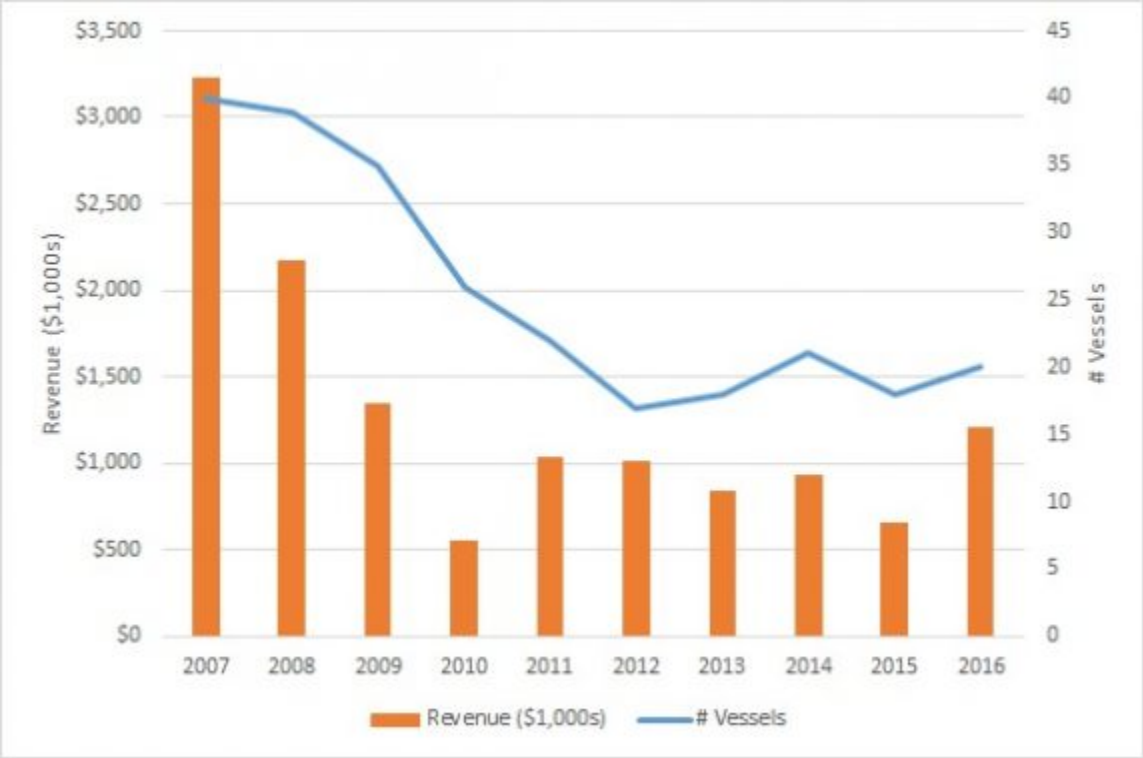

Figure 8-2. Number of vessels and real (inflation adjusted) ex-vessel revenue ($1,000s) in the West Coast drift gillnet fishery, 2007-2016.

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 2016 nineteen harpoon vessels landed 25 mt of swordfish, generating $281,000 in ex-vessel revenue. (See Table 16 and Table 17.) Total fishery landings increased by 20 mt and ex-vessel revenue by $208,000 from 2015.

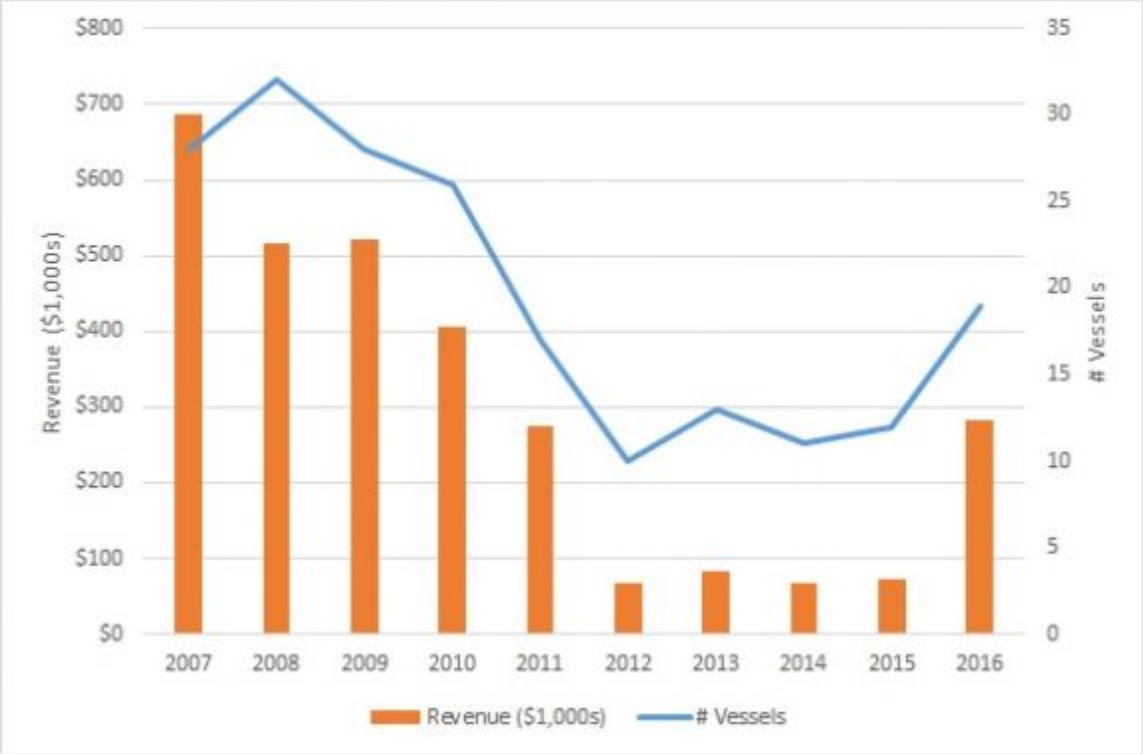

Figure 8-3. Number of vessels and real (inflation adjusted) ex-vessel revenue ($1,000s) in the West Coast harpoon fishery, 2007-2016.

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.

In 2016, eighteen Hawaii-permitted vessels landed 928 mt of HMS in West Coast ports generating $5.4 million in ex-vessel revenue. (See Table 20 and Table 21.) Total fishery landings increased by 20 mt but ex-vessel revenue declined by $153,000 from 2015.

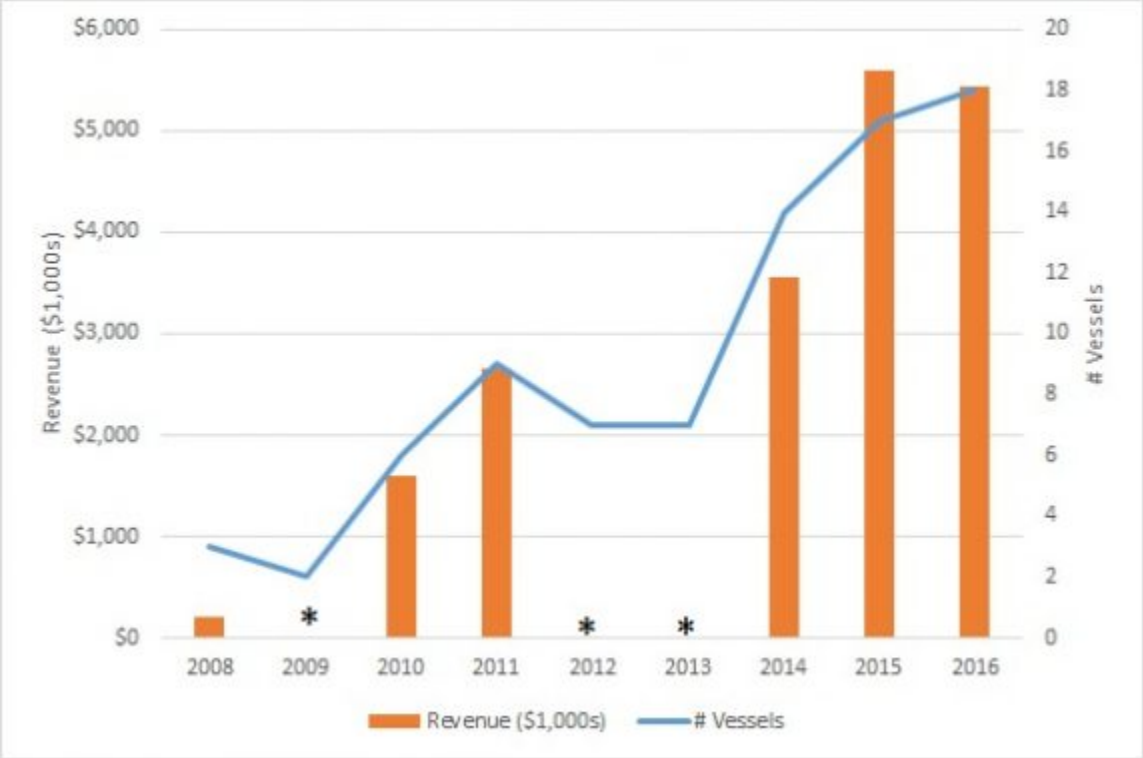

Figure 8-4. Number of vessels and real (inflation adjusted) ex-vessel revenue ($1,000s) from Hawaii permitted longline vessels in West Coast ports, 2008-2016 (no landings occurred in 2007). *In these years revenue data are confidential (less than 3 vessels or dealers) and therefore suppressed.

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 2016 nine purse seine vessels landed 669 mt of HMS generating $736,000 in ex-vessel revenue. (See Table 22 and Table 23.) Total fishery landings increased by 86 mt and ex-vessel revenue by $269,000 from 2015.

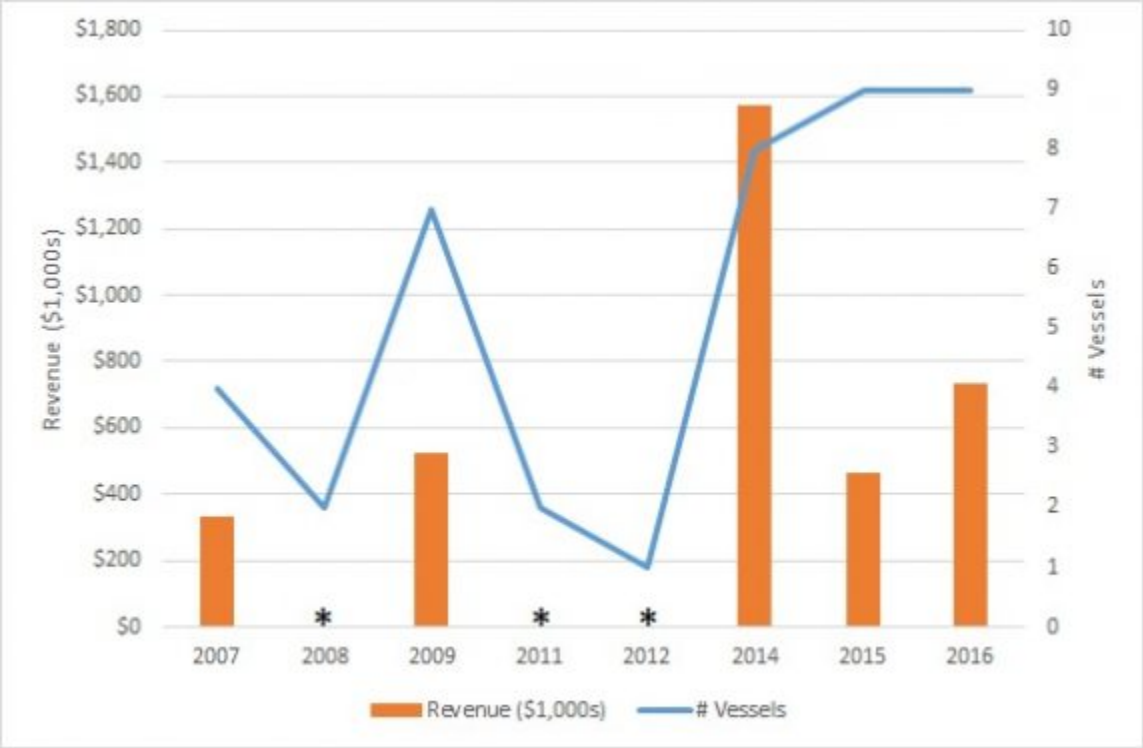

Figure 8-5. Number of vessels and real (inflation adjusted) ex-vessel revenue ($1,000s) from HMS tunas in the West Coast purse seine fishery, 2007-2016. *In these years revenue data are confidential (less than 3 vessels or dealers) and therefore suppressed.

9. Recreational Fisheries Descriptions

Time series of HMS landings and revenue are available on the Council's website in the current online HMS SAFE. Data are derived from state recreational fishery sampling programs

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.

10. Fishery Performance in 2016

10.1. Commercial Fisheries

10.1.1. HMS Landings - Coastwide Perspective (see Table 26a & b)

- In 2016, 11,549 round metrics tons of HMS, valued at $41.2 million, were caught in the PFMC management area (the U.S. West Coast EEZ) and landed in west coast ports. This represents 9% of total shoreside landings and 10% of total ex-vessel revenue.
- Over the 1981-2016 period, as a fraction of total landings, HMS have averaged 5% with a minimum proportion of 2% and a maximum of 22%. The equivalent figures for real ex-vessel revenue are 12%, 7%, and 31% respectively.

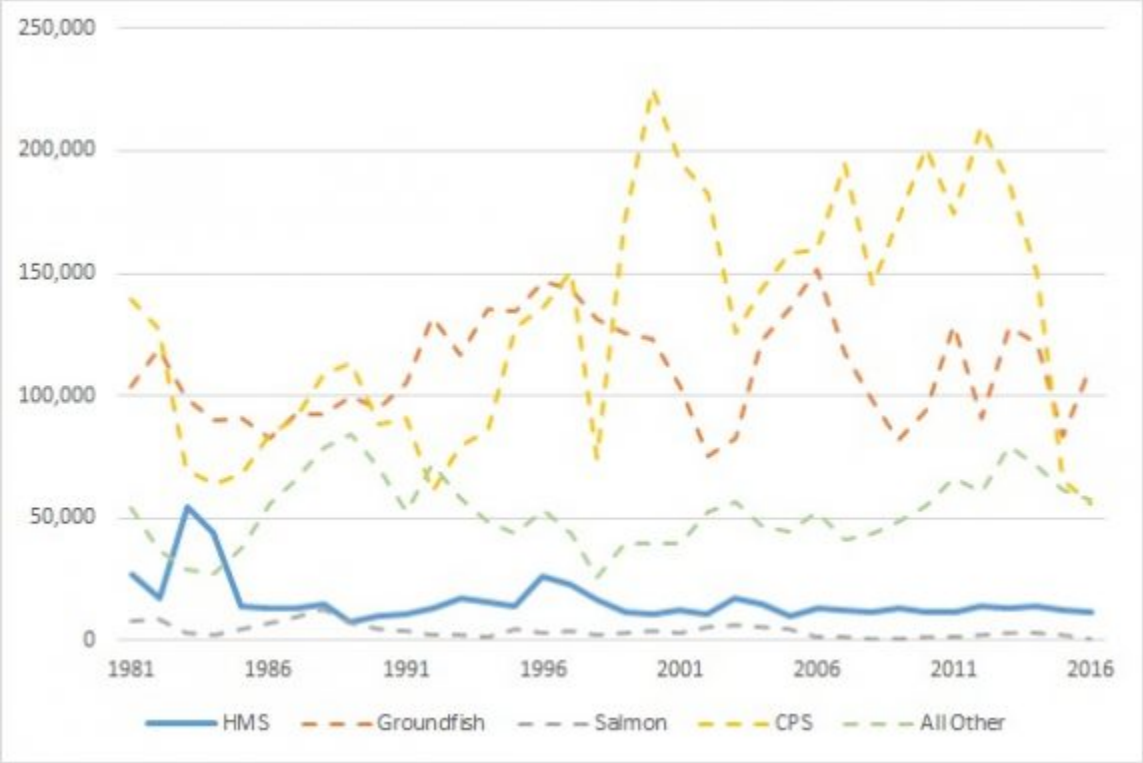

Figure 10-1. Landings (shoreside commercial and tribal) by species management group (mt), 1981-20165. ('All Other' includes crab, shellfish, shrimp, and other state managed species.)

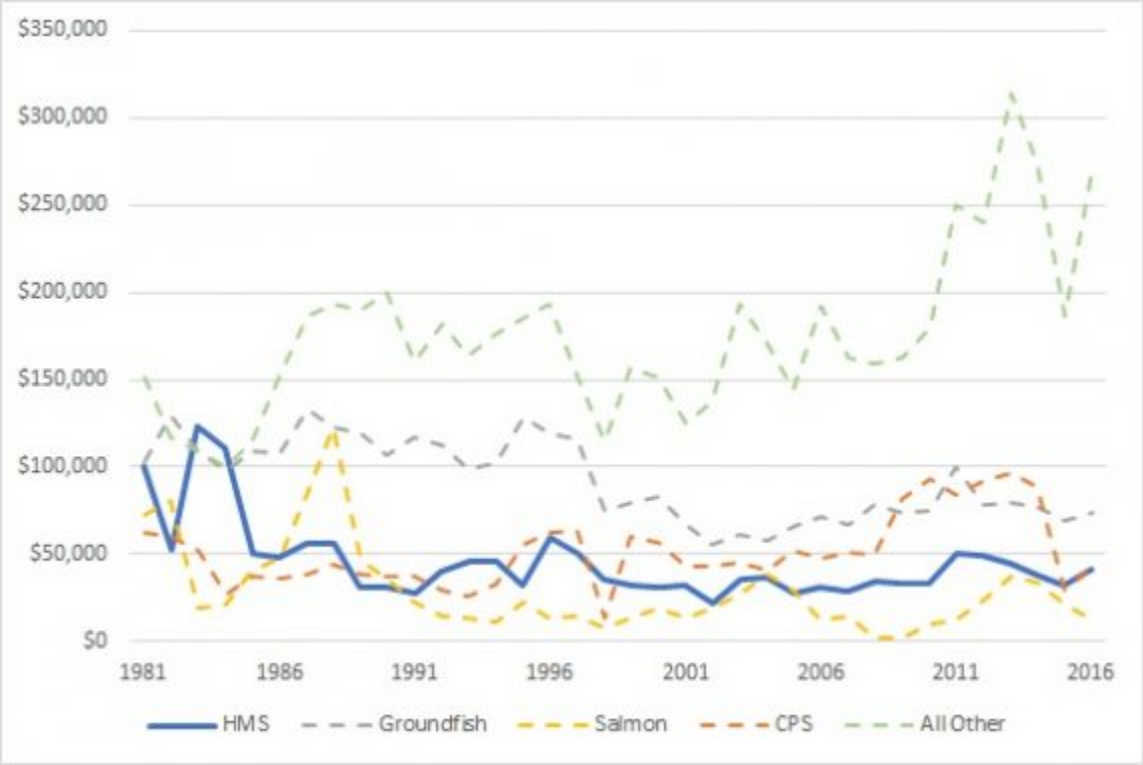

Figure 10-2. Real (inflation adjusted, 1,000s of 2015 dollars) ex-vessel revenue by management group in West Coast ports from the PFMC management area, 1981-2016.

10.1.2. Landings by Species (see Table 1)

- 10,457 mt of albacore tuna was landed in 2016 worth $37.7 million. This was a decline of 853 mt from 2015, but revenues increased by $8.3 million. The increase in revenue reflects higher prices in 2016 compared to 2015. Albacore accounted for 84% of HMS landings by weight and 82% by value.
- 1,291 mt of other HMS FMP tunas (bluefin, bigeye, yellowfin, skipjack) were landed in 2016 worth $4.9 million. Bigeye tuna was the biggest component of these landings and accounted for the largest share of revenue ($3.5 million).
- 583 mt of swordfish was landed in 2016 worth $3.3 million, landings decreased by 27 mt from 2015 and ex-vessel revenue by $224,000.
- 49 mt of common thresher shark and 30 mt of shortfin mako shark were landed in 2016 worth a combined $142,000. This reflects a 3 mt increase in landings or $9,000 more revenue for these species compared to 2015.
- Dorado landings decreased from 26 mt in 2015 to 20 mt in 2016.

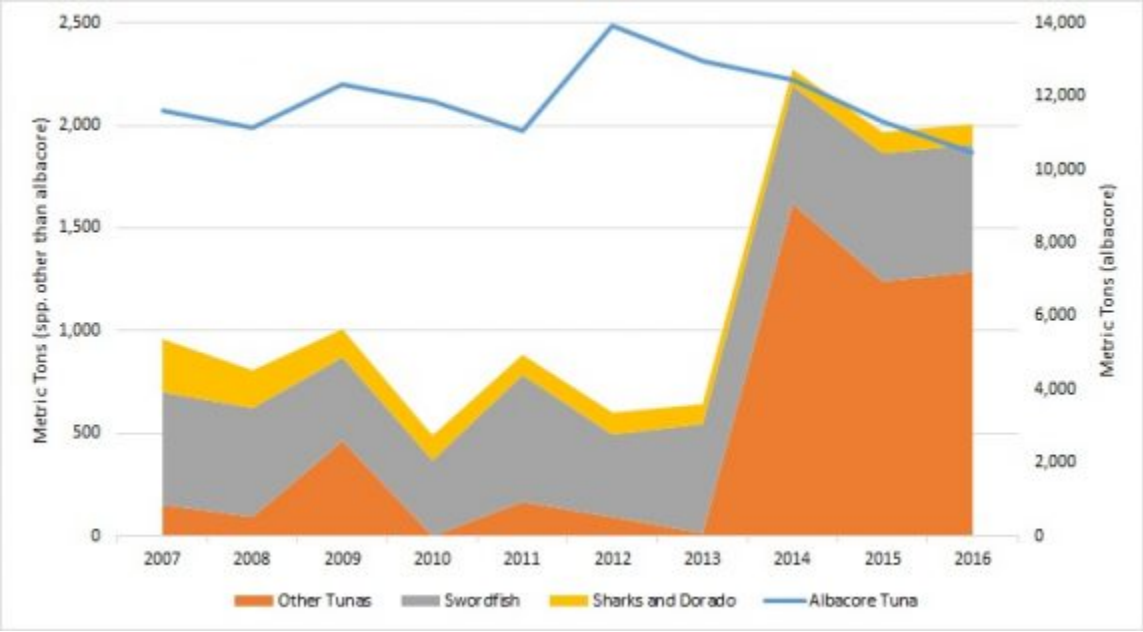

Figure 10-3. Landings of HMS (metrics tons) by species and groups, 2005-20165. (Source: HMS SAFE Table 3.)

10.1.3. Landings by Fishery (see Table 2)

- Baitboat (surface hook-and-line) vessels accounted for 82% of total ex-vessel revenue by HMS fisheries in 2016. Nine Canadian vessels made landings in U.S. ports of 189 mt (Table 9). In 2016, 67% of troll or baitboat landings occurred in Washington State, followed by 31% in Oregon and 1% in California. These shares are about the same as 2015 (Table 10).
- Pelagic longline vessels accounted for 12% of ex-vessel revenue in 2016, the next highest share by fishery.
- Three percent of ex-vessel revenue came from the California drift gillnet fishery and 2% from the purse seine fishery in 2016.
- Other HMS fisheries, including harpoon, accounted for the remaining 2% of ex-vessel revenue.

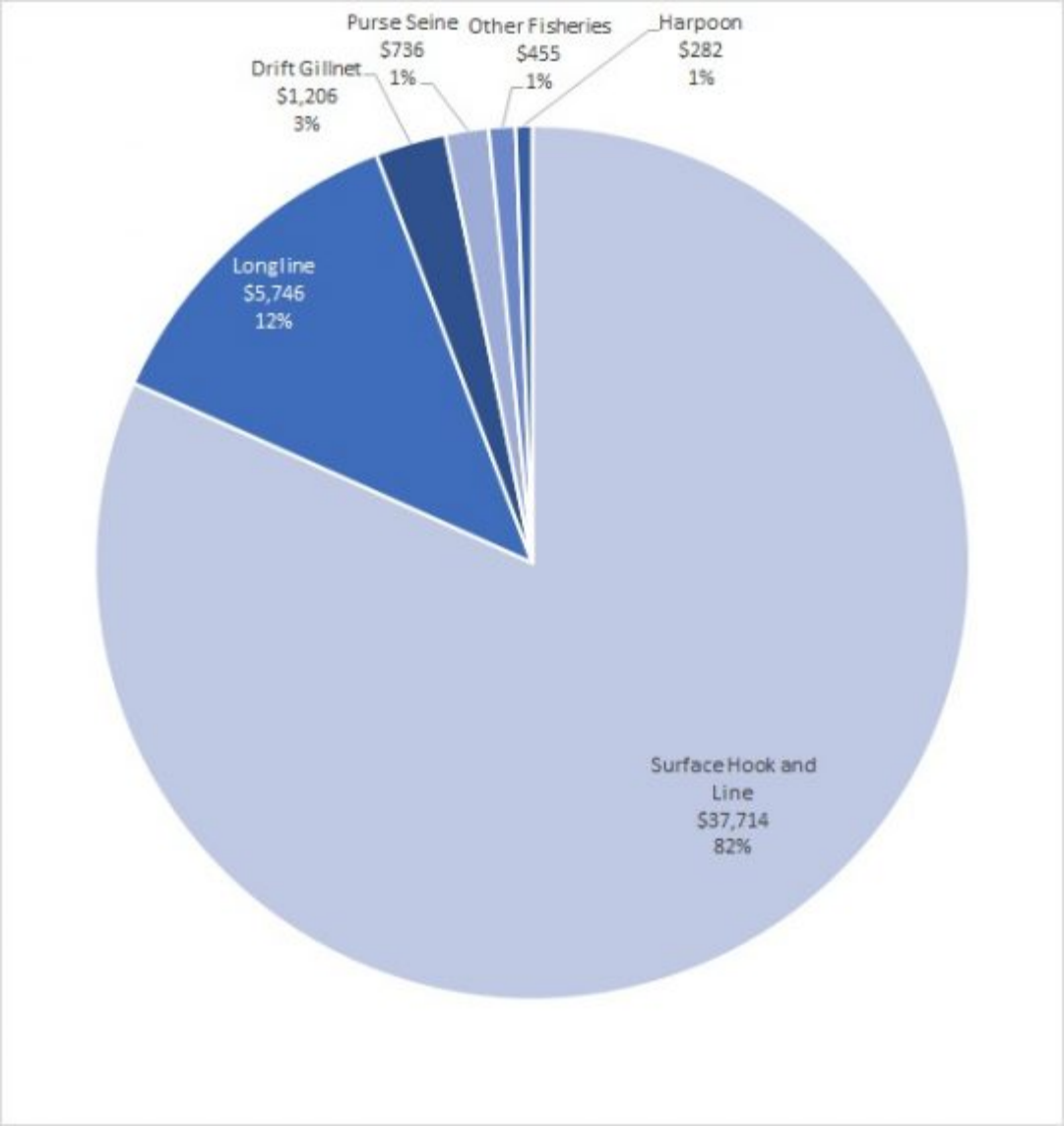

Figure 10-4. Distribution of HMS landings by fishery, 2016. Confidential data not included.

10.2. Recreational Fishery Performance in 2015

10.2.1. Albacore catch in Washington and Oregon

- In Washington combined private and charter catch of albacore fell from 79,355 fish in 2015 to 47,480 fish in 2016. Catch per angler day fell from 6.7 fish in 2014 to 4.3 fish in 2015.
- In Oregon combined private and charter catch of albacore rose from 34,156 fish in 2015 to 36,741 in 2016. Catch per angler day rose from 2.9 fish in 2014 to 3.7 fish in 2015.
- In California combined private and charter catch of albacore fell from 640 fish in 2015 to 506 in 2016. California only reports catch per unit of effort for charter vessels, which increased from 0.7 fish per angler day to 1.4 fish per angler day.

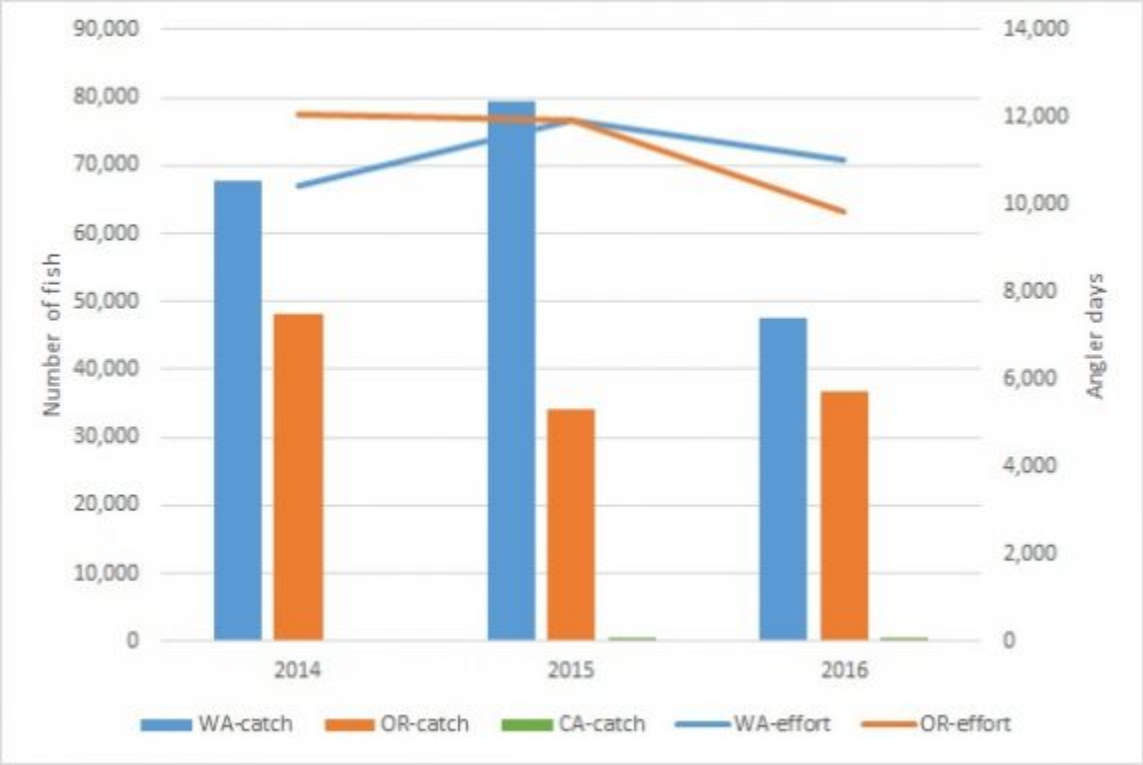

Figure 10-5. Combined private boat and charter recreational catch (no. of fish) and angler effort (angler days) in Washington, Oregon, and California, 2014-2016. Note: California and Oregon record catch and effort by angler day. Washington records catch and effort by angler trip, although the majority of trips are equal to one day. 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.

10.2.2. Other HMS in Southern California (Tables R4 and R5, Tables R6 and Table R7)

- Total retained catch of HMS by private anglers fishing in U.S. waters fell from 62,174 fish in 2015 to 7,407 fish in 2016. In Mexico waters private angler catch of HMS declined from 6,274 fish in 2015 to 1,416 fish in 2016.
- Total retained catch of HMS by anglers on charter vessels fishing in U.S. waters fell from 171,338 fish in 2015 to 28,818 fish in 2016. In Mexico waters catch of HMS by anglers on charter vessels declined from 124,211 fish in 2015 to 55,565 fish in 2016.
- In both U.S. and Mexico waters yellowfin tuna was the most commonly caught species. Pacific bluefin ranked second in U.S. waters while dorado ranked second in Mexico waters.

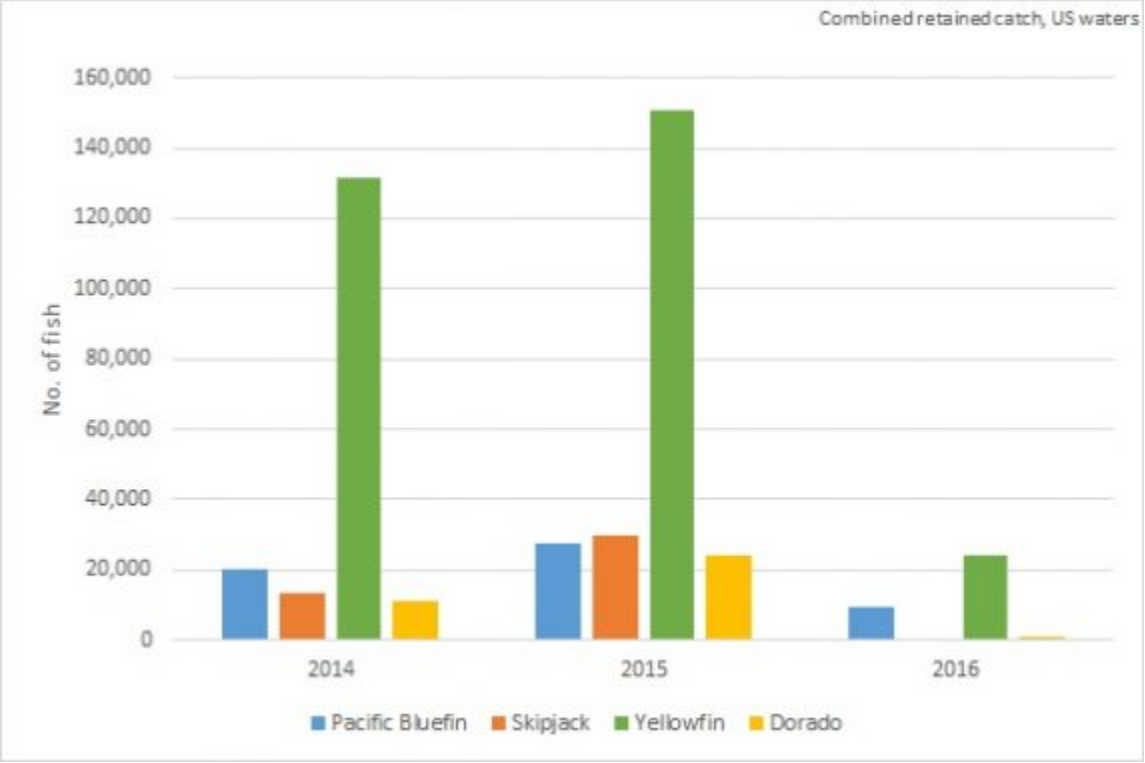

Figure 10-6. Retained catch of selected HMS, combined private boat and charter in U.S. waters, 2014-2016.

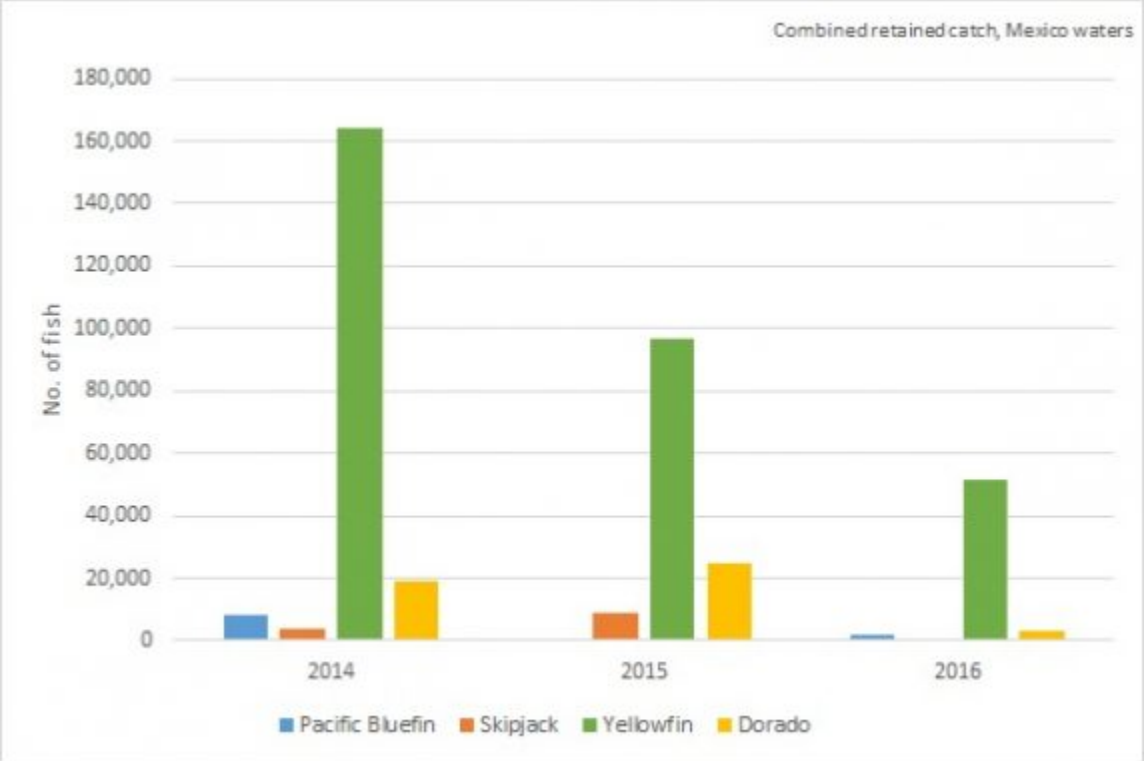

Figure 10-7. Retained catch of selected HMS, combined U.S. private boat and charter fishing in Mexico waters, 2014-2016.

11. U.S.-Canada Albacore Treaty Data Exchange

National Marine Fisheries Service and Department of Fisheries and Oceans – Canada collaborate through the Data Working Group (DWG) to develop a mutually agreed upon data summary of catch and landings of North Pacific albacore landed on west coast of Canada and the United States. The DWG has developed a Data Exchange Template, designed to provide relevant data to the delegations for the treaty between the United States and Canada on Pacific Coast Albacore Tuna vessels and Port Privileges. The summary tables are available here thanks to the respective governments' willingness to allow public dissemination of this information. (As noted in the tables, the most recent year's data are considered preliminary and may be subsequently updated.)

Data Description

U.S Fishery Data

The Data Exchange Template was designed to provide relevant data to the delegations for the treaty between the United States and Canada on Pacific Coast Albacore Tuna vessels and Port Privileges. It has been agreed that the time-series would be constrained to the years for which all of the data are reliable and comparable; therefore, not all data considered reliable has been provided. The sources are self-reported logbooks from albacore harvesters and fish tickets provided by the States of Washington, Oregon and California to the PacFIN database.

While a U.S. fishery for north Pacific albacore has existed since the early 1900's, the collection of logbook data began in 1951 as a voluntary program. In 2004 the fishery management plan for highly migratory species made logbook submission mandatory for the albacore fleet operating in or adjacent to the U.S. exclusive economic zone thereby increasing the coverage rate considerably. The average coverage rate based on the ratio of trip landings weights recorded in logbooks to the sum of landings from PacFIN and foreign ports is 40% for years 1996 through 2004 and 78% for 2005 through 2011. Although similar coverage rates of around 40% prior to 1995, the template is constrained by the year for which Canada can provide reliable data.

Since 1974 there have been attempts to coordinate State landings data. First through the Albacore Coordination Committee and later through the Pacific States Marine Fisheries Commission's database PacFIN. Within the PacFIN system, Fish Ticket data are considered complete for years since 1981. Again, data has been constrained by the year 1995 due to limitations in Canadian data.

Canadian Fishery Data

The Data Exchange Template was designed to provide relevant data to the delegations for the treaty between the United States and Canada on Pacific Coast Albacore Tuna vessels and Port Privileges. It has been agreed that the time-series would be constrained to the years for which all of the data are reliable and comparable. Canadian data sources include logbooks completed by albacore harvestors turned end at the end of the fishing season, sales slips recording the landing weight of all albacore on a trip, and hail records, which identify vessels participating in the fishery and the zone in which those vessels are fishing. Logbooks, sales slips from domestic buyers, and at-sea trans-shipment slips, completed at the time fish are landed and sold, must be returned to Fisheries and Oceans Canada (DFO) for entry into the Canadian albacore tuna catch-effort database (Stocker et al. 2007). Entering new data into the database creates a new version of the database on that date. Canadian data are always reported with the database version number, which reflects the date of data entry (YY.MM.DD). For example, Database version 12.12.01 was created 01 Dec 2012.

The Canadian fishery for north Pacific albacore tuna (Thunnus alalunga) began in 1939. Total catch data from 1939 to 1951 are based on landings and were estimated by converting canned weights shipped by Canadian canneries to landed weights using standard conversion factors for salmon and were reported in annual statistical reports. These data are not reliable estimates of activity by the Canadian fishery because: (1) albacore landed in United States ports were not included in the estimates, (2) albacore imported from foreign sources by Canadian processors were included in these estimates, and (3) no measure of effort is available for this period. In addition, the spatial distribution of catch and effort is unknown beyond narratives in the annual reports noting that catches were occurring in BC and WA waters.

A sales slip system was implemented in 1951 and data compiled from these records were used to estimate Canadian total annual albacore catch until 1994. This system provides a better estimate of total catch because it captures fish landed at all Canadian ports, but it still underestimates catch because sales slips do not account for albacore landed at US or other foreign ports nor do they fully account for direct sales of albacore to the public, i.e., dockside sales. Effort data were not compiled nor reported for this period. Although the sales slip system has been used to capture some of the spatial and temporal resolution of landings in other domestic, these data were not compiled nor reported for albacore.

Fishery statistics reported since 1995 are based on data compiled in the Canadian Albacore Tuna Catch and Effort Database from hails, sales slips, and logbooks. These data are considered the most reliable estimates of fishery activity by the Canadian fleet because: (1) they account for fish caught and landed in foreign waters, (2) they have high spatial and temporal resolution in catch and effort (daily position by vessel), (3) sales slip weights provide independent validation of logbook data, and (4) data are obtained from all known vessels active in the fishery in a given year.

Table 11-1. Catch of Albacore by Canadian and U.S. Albacore Troll and Pole-and-Line Vessels in the North Pacific Ocean [1].

	Canadian Fleet [2, 3]					U.S. Fleet [5, 9]				
Year	*Canadian EEZ (%)*	*U.S. EEZ (%)*	*High Seas (%)*	*Total catch (metric tons)*	*Logbook coverage (%) [4]*	*U.S. EEZ (%)*	*Canadian EEZ (%)*	*High Seas (%)*	*Total catch (metric tons) [6]*	*Logbook coverage (%) [7]*
1995	88	2.2	9.8	1,761	18	5.4	5.7	88.9	8,125	*63*
1996	16.9	45.8	37.3	3,321	24	13.5	0.1	86.4	16,962	*42*
1997	7.2	30.5	62.3	2,166	30	16.5	3.5	80.0	14,325	38
1998	7.3	43.6	49.1	4,177	50	14.8	0.1	85.1	14,489	35
1999	16.6	66.8	16.6	2,734	71	65.3	0.8	33.9	10,120	35
2000	9.6	73.1	17.4	4,531	68	69.6	0.2	30.2	9,714	41
2001	13.5	72.7	13.9	5,248	81	57.0	0.3	42.7	11,349	49
2002	7.8	86.2	5.9	5,379	74	63.9	2.0	34.0	10,768	38
2003	8.0	85.3	6.6	6,847	96	86.0	0.6	13.3	14,161	36
2004	16.9	80.7	2.4	7,857	92	92.9	1.2	5.9	13,473	47
2005	33.1	62.6	4.3	4,829	94	92.0	2.3	5.8	8,479	73
2006	18.5	70.1	11.3	5,833	95	82.5	1.0	16.5	12,547	93
2007	21.5	78.5	0.1	6,041	92	98.8	0.7	0.5	11,908	86
2008	4.5	86.4	9.1	5,464	93	78.5	6.0	15.5	11,761	79
2009	7.1	91.3	1.5	5,693	97	93.1	2.5	4.4	12,340	86
2010	35.9	51.2	12.9	6,526	96	72.1	2.1	25.9	11,689	76
2011	12.4	85.7	2.0	5,415	98	94.9	0.4	4.7	10,143	84
2012	83.0	0.0	17.0	2,484	100	99.2	0.0	0.8	14,149	81
2013	59.6	37.9	2.5	5,088	99	96.4	1.5	2.1	12,310	76
2014	55.3	44.6	0.1	4,780	100	94.8	4.9	0.3	13,369	81
2015	66.5	33.4	0.1	4,391	100	96.1	3.7	0.2	11,558	83
2016 [8]	54.8	44.4	0.8	2,842	100	97.9	1.4	0.7	10,686	78

Data Sources and Notes:

[1]Locations are based on logbook records, which are self-reported by vessels.

[2]Canadian data during 1995-2011 are taken from Canadian Tuna Database version 13.02.11.

[3]Percentage of Canadian catch in various zones is based catch locations recorded in logbook. Total Canadian catch data reported in this table are expanded to account for non-reporting vessels based on logbook coverage (cf. Table 2).

[4]Canadian logbook coverage rates are calculated by dividing the number of logbook reporting vessels with the total number of vessels.

[5]USA catch in various zones are based on the percentage of catch recorded by logbooks in each zone.

[6]USA total catch is the sum of landings in the USA west coast ports (from PacFIN) and landings in foreign ports. Since these data sources are considered to be complete, total catch is not expanded based on logbook coverage.
[7]USA logbook coverage rates are based on the ratio of trip landings weights recorded in logbooks to the sum of landings from PacFIN and foreign ports (see Footnote 6).
[8]Preliminary data subject to change. Canadian data from Canadian tuna database version 17.01.31
[9]Proportion of US catch in high seas zone was estimated from logbook data.

Table 11-2. Landings of Albacore (by country of landing port) by Canadian (top panel) and U.S. (bottom panel) Albacore Troll and Pole-and-Line Vessels in the North Pacific Ocean

	Canadian Fleet [1]											US fleet[13]								
	Landings (metric tons) [2]					Number of Landings			Number of Landing Vessels			Landings (metric tons)					Number of Landings			Number of Vessels that landed fish [7]		
Year	Canadian Ports	U.S. Ports (DFO estimates) [3]	U.S. Ports (NOAA estimates) [4]	Other Ports [5,8]	Total [10]	Canadian Ports	U.S. Ports (DFO estimates) [3]	U.S. Ports (NOAA estimates) [4]	Canadian Ports	U.S. Ports (DFO estimates)	U.S. Ports (NOAA estimates) [9]	Canadian Ports (DFO estimates) [6]	Canadian Ports (NOAA estimates)	U.S. Ports [9]	Other Ports [11]	Total [10]	Canadian Ports (DFO estimates) [6]	Canadian Ports (NOAA estimates)	U.S. Ports [9]	Canadian Ports (DFO estimates) [6]	Canadian Ports (NOAA estimates)	U.S. Ports [9]
1995	230	67	67	104	401	76	4	7	53	3	4			6,407	1,753	8,160			1,000			472
1996	662	311	868	106	1,636	93	33	102	62	20	66			13,209	2,188	15,397			1,710			658
1997	563	294	399	147	1,109	67	25	54	51	14	32			10,831	3,009	13,840			3,674			1,160
1998	1,892	281	961	82	2,935	173	30	67	104	16	29			12,628	1,135	13,763			2,470			838
1999	1,574	484	713	193	2,480	274	69	106	158	35	52			8,809	1,422	10,231			2,619			772
2000	2,432	537	889	424	3,745	346	79	110	160	44	57			8,086	1,574	9,660			2,230			707
2001	3,474	617	806	364	4,644	520	51	92	193	31	52			10,263	972	11,235			3,453			929
2002	3,866	181	702	347	4,915	465	29	71	169	17	38		^	9,298	163	9,461		<3	2,432		<3	696
2003	3,781	2,132	3,118	655	7,554	464	241	285	177	87	105		^	13,491	487	13,978		<3	2,821		<3	782
2004	2,586	977	1,130	3,590	7,306	659	141	89	198	67	52		444	13,367	24	13,835		10	2,727		<3	727
2005	3,473	745	811	286	4,570	513	88	85	195	49	45		83	8,217	9	8,309		4	1,761		3	552
2006	5,281	327	397	300	5,978	495	35	31	161	18	19		^	12,374		12,374		<3	2,163		<3	615
2007	5,596	283	357	73	6,025	559	29	35	191	20	22		674	11,143		11,817		13	2,471		9	651
2008	3,693	1,236	1,359	122	5,174	341	106	114	123	42	46	721	455	9,768		10,489	19	9	1,700	11	6	477
2009	4,662	642	650	298	5,610	434	53	47	134	30	26	721	664	11,621		12,342	16	12	2,596	11	8	655
2010	4,961	811	958	446	6,364	502	78	76	154	45	42	919	601	10,871		11,790	24	17	2,339	16	9	609
2011	4,059	1,094	1,179	170	5,408	453	89	93	174	47	47	611	282	9,840		10,451	21	12	2,560	13	8	640
2012	2,219	0	0	265	2,484	276	0	0	174	0	0	0	0	13,861		13,861	0	0	3,309	0	0	816
2013	4,301	609	650	168	5,119	278	39	41	177	19	22	514	289	12,019		12,533	16	9	2,559	12	6	684
2014	4,130	395	415	256	4,801	339	26	28	147	12	14	1459	1290	12,079		13,538	36	30	2,512	18	17	597
2015	3,978	244	246	160	4,384	408	19	19	160	11	11	756	522	11,036		11,558	30	19	2,386	19	12	562
2016 [12]	2,634	186	189	22	2,845	388	17	17	150	9	9	582	426	10,260		10,686	22	20	2,481	12	14	571

Data Sources and Notes:

[1] Canadian landings data prior to 2012 are from Canadian Tuna Database version 13.02.11

[2] Landings for Canadian fleet are based on salesslip weights (where available) or estimated weights in logbooks and are not expanded to account for non-reporting vessels (cf. Table 1).

[3] DFO estimates of Canadian landings in US ports are based on estimated weights in logbooks and are not expanded.

[4] NOAA estimates of landings data by Canadian fleet are derived from PacFIN and are not expanded.

[5] Other ports category is used for landings in non-US and non-Canada ports or where the landing port was unknown due to missing data. Occasional landings in American Samoa (Pago pago) are included early in the time series.

[6] DFO estimates of US landings in Canadian ports are from a survey of Canadian buyers/processors and are not expanded.

[7] Number of landing vessels may be slightly inaccurate due to landing slips with invalid or missing vessel IDs (0.15 to 3.9%)

[8] The majority of Canadian landings in 2004 did not include information on landing port but the majority of these landings were likely made in Canadian ports.

[9] U.S. DATA Source: Pacific Fisheries Information Network (PacFIN) retrieval dated , 3/15/2016, using the 'Boston method' . Number of landings estimated from unique vessel ID and Fish Ticket Dates

[10] Where both DFO and NOAA estimates exist, total is calculated by adding the greater of the two values

[11] USA landings in Other Ports (non-US West Coast & non-Canadian ports) include American Samoa and Hawaii

[12] Preliminary data subject to change. Canadian data from Canadian tuna database version 17.01.31

[13] U.S. landings data do not include <200 mt of albacore landings in Alaskan ports made by U.S. vessels during 1994-2015.

* = no data, 0 = more than 0 mt but less than 1, ^ = confidential data (less than 3 vessels)

Table 11-3. Distribution of Canadian and U.S. Albacore Troll and Pole-and-Line Fleet Fishing Effort in the North Pacific Ocean [1]

Year	Canadian Fleet [1]							U.S. Fleet[11]					
	Number of vessels/months allowed to fish in US EEZ	*Number of vessels that fished in US EEZ [3]*	*Number of vessels that fished in Canadian EEZ [5]*	*Vessel Months Used [4]*	*Fishing Effort in US EEZ (boat fishing days) [2]*	*Fishing Effort in Canadian EEZ (boat fishing days) [2]*	*Fishing Effort on high seas (boat fishing days) [2]*	*Number of vessels allowed to fish in Canadian EEZ [6]*	*Number of vessels that fished in US EEZ [7,8]*	*Number of vessels that fished in Canadian EEZ [8,11]*	*Fishing Effort in US EEZ (boat fishing days) [7]*	*Fishing Effort in Canadian EEZ (boat fishing days) [10]*	*Fishing Effort on high seas (boat fishing days) [7]*
1995	Unlimited	9	175	N/A	191	5,535	197	Unlimited	472	71	1,461	960	6,786
1996	Unlimited	83	90	N/A	4,222	2,813	1,130	Unlimited	658	6	3,574	14	10,229
1997	Unlimited	59	67	N/A	1,972	1,010	1,339	Unlimited	1160	46	4,520	570	10,838
1998	Unlimited	91	92	N/A	3,234	1,274	1,507	Unlimited	838	3	3,042	26	8,834
1999	Unlimited	176	162	N/A	4,316	1,689	965	Unlimited	772	19	12,560	273	7,859
2000	Unlimited	184	131	N/A	6,738	1,189	842	Unlimited	707	12	8,883	67	4,970
2001	Unlimited	207	176	N/A	7,697	1,754	570	Unlimited	929	15	9,280	75	5,560
2002	Unlimited	200	124	N/A	7,207	686	431	Unlimited	696	31	8,132	212	3,552
2003	Unlimited	177	119	N/A	7,111	892	425	Unlimited	782	9	10,919	126	2,395
2004	170 vessels or 680 vessel fishing months	202	172	627	7,551	2,125	266	170 vessels or 680 vessel fishing months	727	21	11,079	213	1,184
2005	140 vessels or 560 vessel fishing months	154	196	410	5,309	2,940	315	140 vessels or 560 vessel fishing months	552	31	9,943	316	914
2006	125 vessels or 500 vessel fishing months	139	148	396	4,500	1,401	342	125 vessels or 500 vessel fishing months	615	32	9,883	96	1,043
2007	94 vessels or 376 vessel fishing months	119	191	368	4,809	2,081	12	94 vessels or 376 vessel fishing months	651	14	10,713	135	233
2008	94 vessels or 376 vessel fishing months	122	79	338	4,993	360	420	94 vessels or 376 vessel fishing months	477	39	7,947	327	1,031
2009	110	107	116	N/A	5,722	675	143	Historical level	655	27	12,002	262	719
2010	110	109	153	N/A	3,848	2,887	559	Historical level	609	51	10,542	342	1,961
2011	110	108	146	N/A	6,549	1,771	285	Historical level	640	30	13,619	117	941
2012	0	0	174	N/A	0	5,084	890	0	816	0	14,636	11	380
2013	45 vessels	43	181	N/A	1,870	4,299	296	Historical level	703	21	12,242	229	452
2014	45 vessels	44	156	N/A	1,774	2,944	27	Historical level	625	36	11,392	653	93
2015	45 vessels	43	161	N/A	1,435	3,792	17	Historical level	578	39	11,011	562	161
2016 [9]	45 vessels	43	151	N/A	1,892	3,407	60	Historical level	571	30	12,364	251	200

Data Sources and Notes:

[1] Effort in different zones are based on logbook records, where locations are self-reported by vessels.

[2] Estimates of Canadian effort in boat fishing days are expanded using the methodology described in Stocker et al. (2007: CTRFAS 2701). 1995-2011 data from Canadian Tuna Database version 13.02.11

[3] Number of vessels that fished in US EEZ: 1995-2008 data from Canadian Tuna Database version 13.02.11, 2009-2011 data from DFO Pacific Licensing System

[4] Vessel Months during 1995-2011 used data from Canadian tuna database v. 13.02.11

[5] Number of vessels that fished in Canadian EEZ: 1995-2011 data from Tuna Database version 13.02.11

[6] Although the historical level of fishing effort for the US fleet was permitted in the Canadian EEZ during 2009-2011, the historical level of fishing effort is not presently quantified.

[7] Estimates of US effort in US EEZ in number of vessels and boat fishing days are expanded. Calculation of annual effort has changed in 2017 (Documentation to be submitted to ISC)

[8] Number of US vessels that fished in US or Canadian EEZs refers to vessels that recorded fishing days in those zones in their logbooks and do not include vessels that only had transit days. Where logbook coverage rate is less than 100%, it is assumed that all US vessels that landed fish, had fished in the US EEZ

[9] Preliminary data subject to change. Canadian data from Canadian tuna database version 17.01.31

[10] Estimates of US effort in Canadian EEZ in number of vessels and boat fishing days are not expanded. Calculation of annual effort has changed in 2017 (Documentation to be submitted to ISC)

[11] Proportion of US effort in high seas zone was estimated from logbook data, and includes effort in U.S. EEZ off Alaska due to shapefile used. Effort in waters off Alaska were limited and do not affect the estimates substantially.

12. Pacific-Wide HMS Catch

12.1. Global Tuna Catch

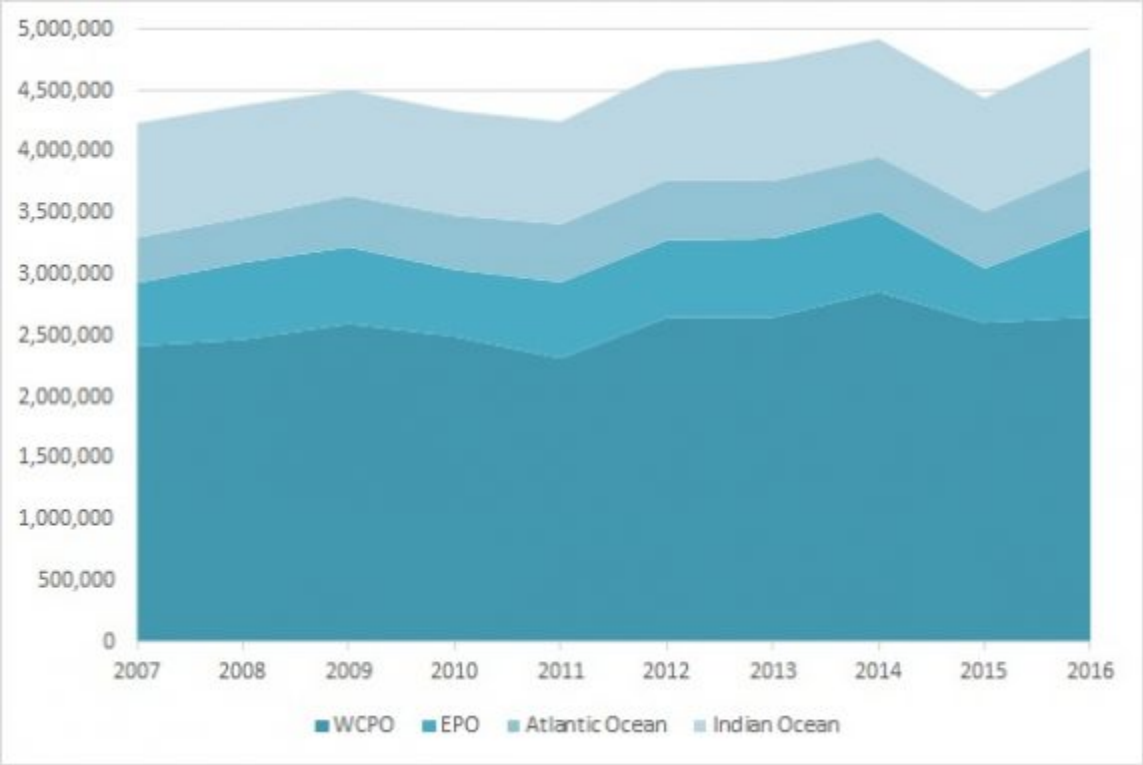

Figure 12-1. Annual catch (mt) of albacore, bigeye, skipjack, and yellowfin tuna by ocean area, 2017-2016.

Catch of the principal tuna species (albacore, bigeye, skipjack and yellowfin) was 4.9 million metric tons in 2016. This is the second highest catch on record (2014 was the highest). The Western and Central Pacific Ocean (WCPO) accounted for 57% of global catch over this 10-year period. The Eastern Pacific Ocean (EPO) accounted for an additional 13%.

Source: Oceanic Fisheries Programme Secretariat of the Pacific Community. 2017. Western and Central Pacific Fisheries Commission Tuna Fishery Yearbook 2016. Western and Central Pacific Fisheries Commission. Pohnpei, Federated States of Micronesia. Table 95. Global catches of albacore, bigeye, skipjack and yellowfin, by ocean area (mt).

12.2. Pacific-Wide Catch of Bigeye, Skipjack, and Yellowfin Tuna

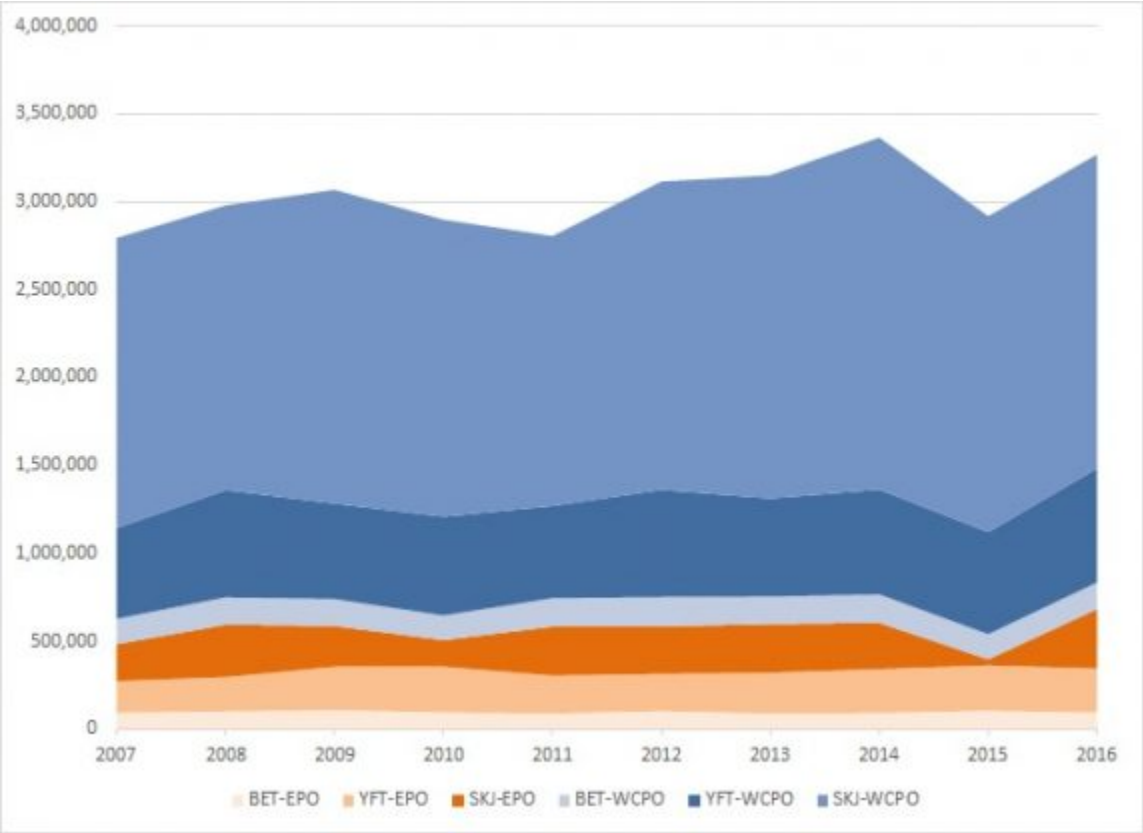

Figure 12-2. Annual catch of bigeye, skipjack, and yellowfin tuna (mt) in the EPO and WCPO, 2007-2016.

During this 10-year period the WCPO accounted for 81% of Pacific catch of bigeye, skipjack, and yellowfin tuna. Annual average landings of these three species for the entire Pacific was 3.0 million metric tons. Catch in 2016 was the second highest on record during these 10 years at 3.3 million metric tons. Skipjack catch in the WCPO was the largest share of Pacific-wide catch at 57%. Landings in 2016 were higher than the 10-year average for all species except for bigeye tuna, where 2016 landings (244,934 mt) were 98% of the 10-year average (250,292 mt).

Source: Oceanic Fisheries Programme Secretariat of the Pacific Community. 2017. Western and Central Pacific Fisheries Commission Tuna Fishery Yearbook 2016. Western and Central Pacific Fisheries Commission. Pohnpei, Federated States of Micronesia. Table 80 (Total catches of albacore, bigeye, skipjack and yellowfin in the WCPFC Statistical Area) and Table 92 (Total catches of albacore, bigeye, skipjack and yellowfin in the Eastern Pacific Ocean).

12.3. Catch of Target Tunas in Eastern Pacific

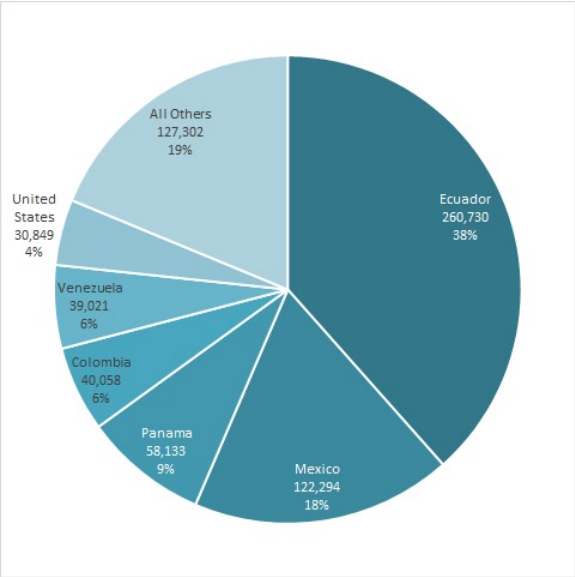

Figure 12-3. Annual average catch (mt) of albacore, bigeye, skipjack, and yellowfin tuna in the EPO by flag state, 2012-2016. Other flag states include Belize, Canada, Chile, China, Chinese Taipei, Costa Rica, French Polynesia, Japan, Korea, Nicaragua, Peru, Spain, and Vanuatu.

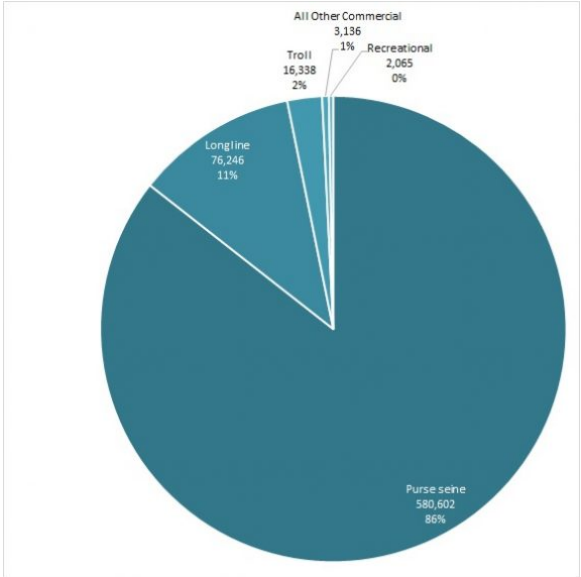

Figure 12-4. Average annual catch (mt) of albacore, bigeye, skipjack, and yellowfin tuna in the Eastern Pacific Ocean, 2012-2016, by gear type.

Source: IATTC Public Domain Data (Catch by gear and flag)

12.4. Catch of Target Tunas in the Western Pacific

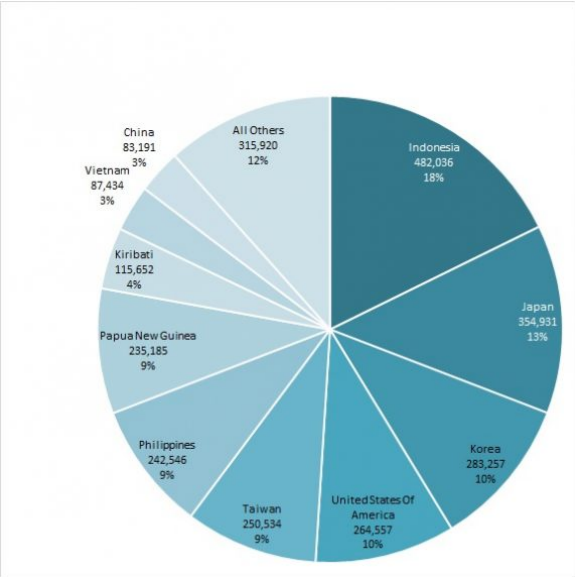

Figure 12-5. Annual average catch (mt) of albacore, bigeye, skipjack, and yellowfin tuna in the WCPO by flag state, 2012-2016. Other flag states include Marshall Islands, Federated States Of Micronesia, Solomon Islands, Spain, Vanuatu, New Zealand, Ecuador, Fiji, Ecuador, Fiji, El Salvador, Tuvalu, French Polynesia, Australia, Cook Islands, New Caledonia, Samoa, Tonga, Tokelau, Eastern Pacific US Purse Seine Fleet, and Belize.

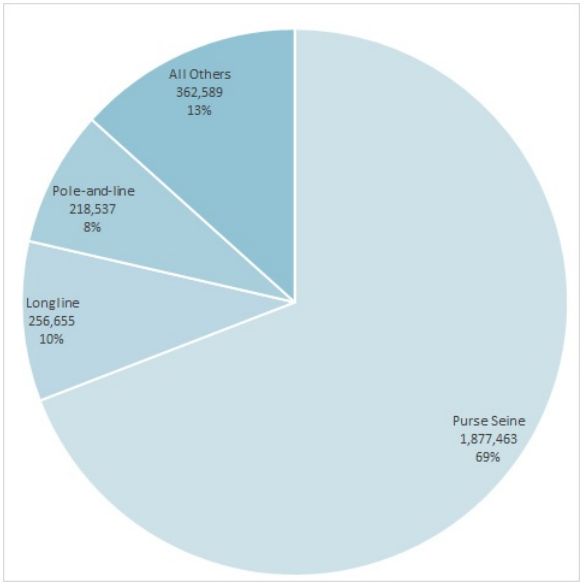

Figure 12-6. Annual average catch (mt) of albacore, bigeye, skipjack, and yellowfin tuna in the WCPO by gear type, 2012-2016.

Source: WCPFC Tuna Fishery Yearbook 2016 – Excel files

12.5. Northern Stocks – North Pacific albacore, Pacific bluefin tuna, and swordfish in the North Pacific

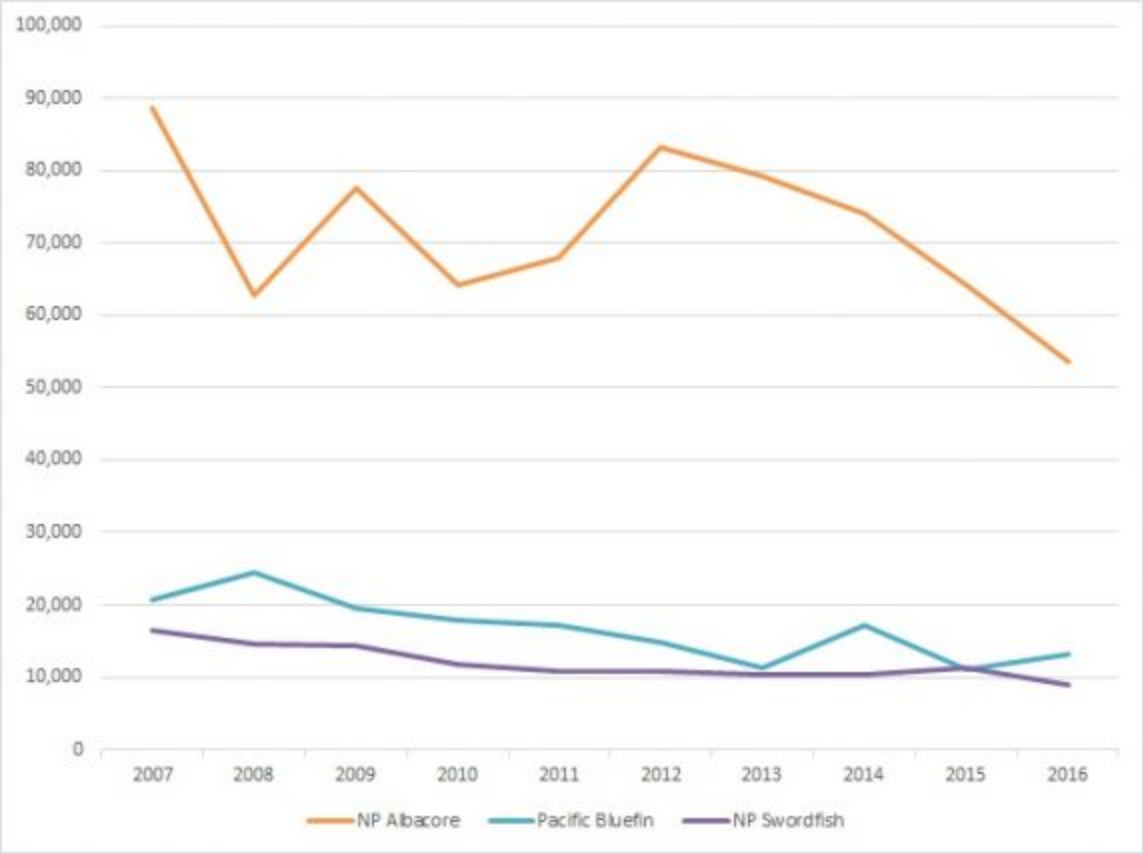

Figure 12-7. Reported catch of North Pacific albacore, Pacific bluefin tuna, and North Pacific swordfish, 2007-2016.

Reported catch of all three species in 2016 was below the annual average for this 10-year period. Reported North Pacific albacore catch in 2016 was 53,543 mt or 75% of the average, Pacific bluefin tuna catch was 13,167 mt or 79% of the average, and North Pacific swordfish was 8,867 metric tons or 74%.

Source: ISC fisheries statistics

12.5.1. North Pacific Albacore

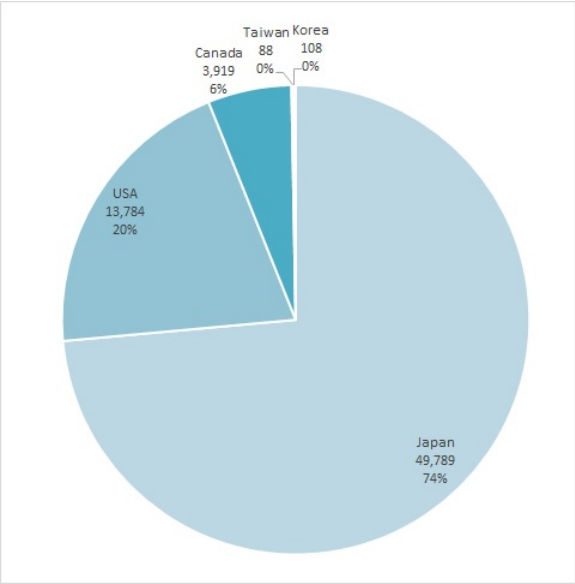

Figure 12-8. Average annual reported catch (mt) of North Pacific albacore by ISC members, 2012-2016.

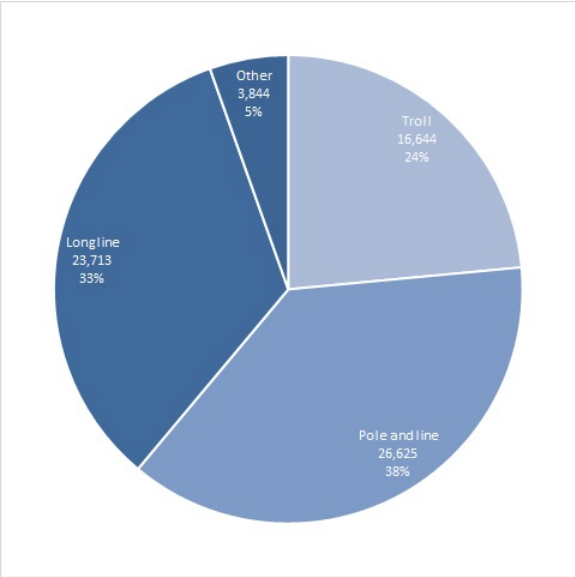

Figure 12-9. Average annual catch (mt) of North Pacific albacore by gear type, 2012-2016. Other gear types include setnet, drift gillnet, purse seine, handline, and recreational.

Source: ISC fisheries statistics

12.5.2. Pacific Bluefin Tuna

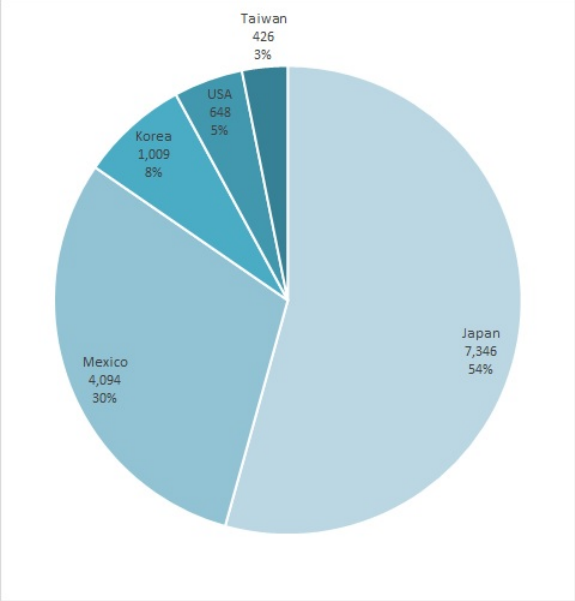

Figure 12-10. Average annual reported catch (mt) of Pacific bluefin tuna by ISC members, 2012-2016.

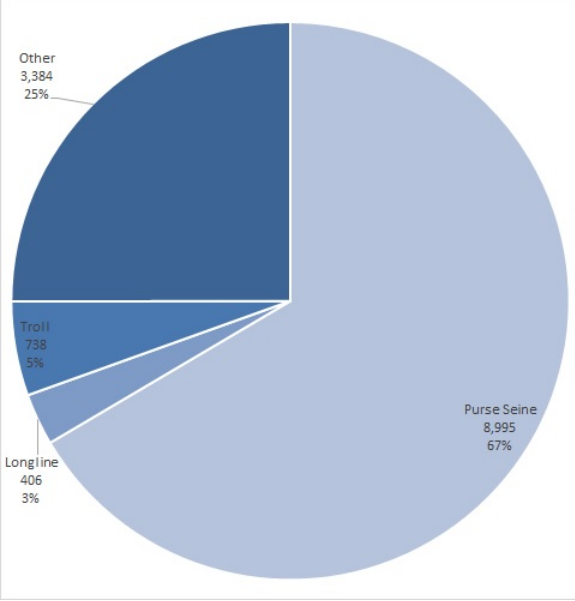

Figure 12-11. Average annual catch (mt) of Pacific bluefin tuna by gear type, 2012-2016. Other gear types include setnet, pole and line, drift gillnet, other gillnet, trawl, and recreational.

Source: ISC fisheries statistics

12.5.3. North Pacific Swordfish

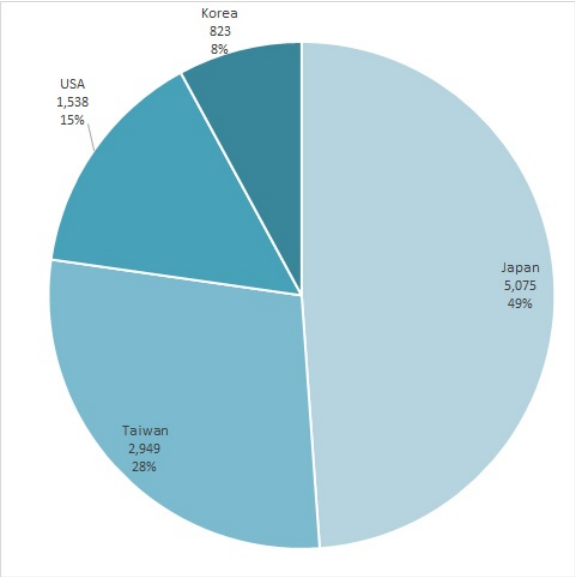

Figure 12-12. Average annual reported catch (mt) of North Pacific swordfish by ISC members, 2012-2016.

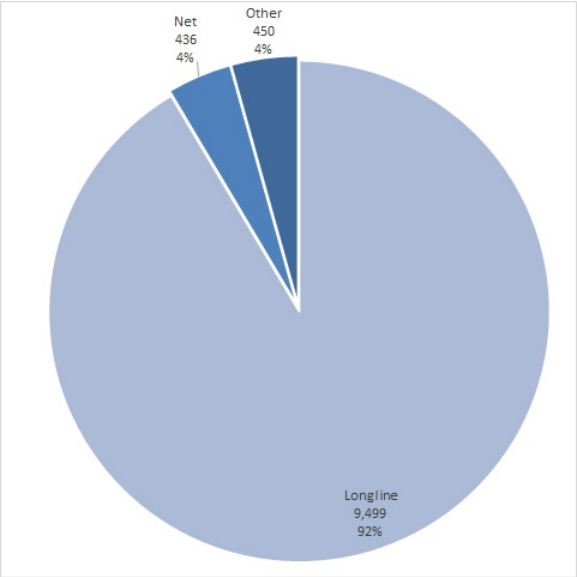

Figure 12-13. Average annual catch (mt) of swordfish by gear type, 2012-2016. Net gear types include setnet, drift gillnet, and other gillnet. Other gear types include harpoon and handline.

Source: ISC fisheries statistics

13. Status of HMS Stocks

13.1. 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.

13.1.1. 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).

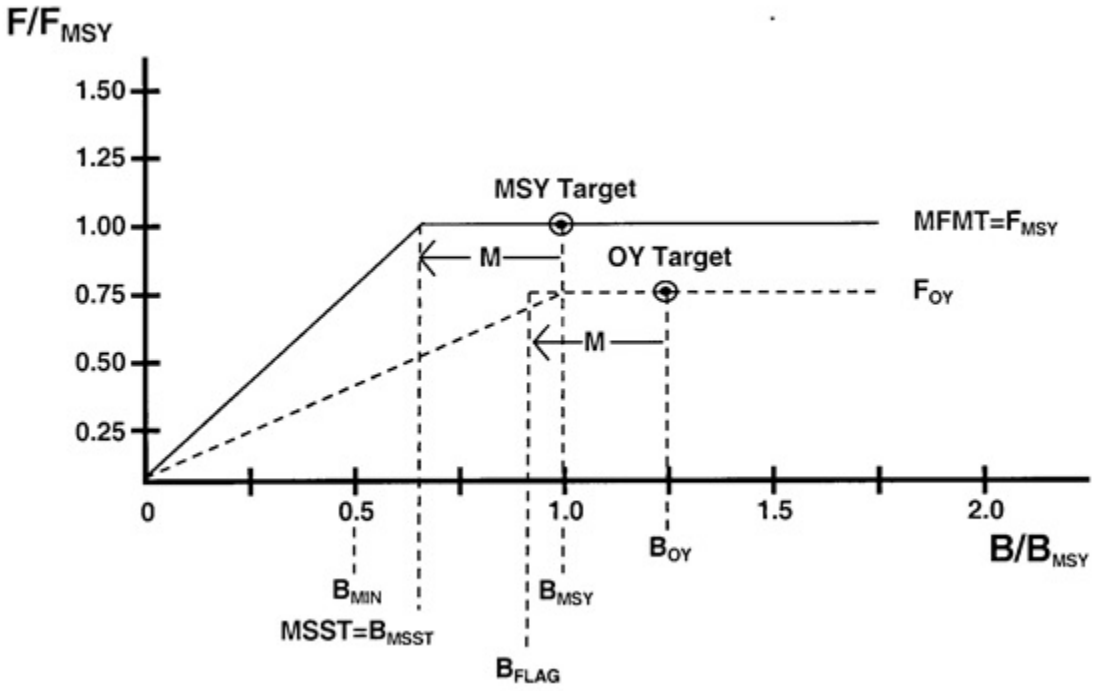

Figure 13-1. General model of MSY and OY Control Rules, from Restrepo, et al. 1998.

13.2. Stock Assessments for Species Managed under the HMS FMP

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

13.2.1. Tunas

- **North Pacific Albacore (2017):** Stock Assessment of Albacore Tuna in the North Pacific Ocean in 2017. Report of the Albacore Working Group. International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean 12-17 July 2017, Vancouver, Canada.
- **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 (2016):** 2016 Pacific Bluefin Tuna Stock Assessment. Report of the Pacific Bluefin Tuna Working Group. International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean. Annex 9. Plenary Report, July 2016.
    - Stock Assessment Executive Summary
    - Based on ISC and HMS SAFE data, recent (2011-2015) catch of Pacific bluefin tuna by U.S. West Coast fisheries constitutes 4.1% of the stock wide catch. (This includes the recreational catch estimate provided by ISC.)
- **Bigeye (EPO) (2017):** Status of Bigeye Tuna in the Eastern Pacific Ocean in 2016 and Outlook for the Future. Alexandre Aires-da-Silva, Carolina Minte-Vera, and Mark N. Maunder. Inter-American Tropical Tuna Commission, Scientific Advisory Committee Eighth Meeting. May 8-12, 2017.
    - The IATTC reported EPO bigeye catch of 91,572 mt in 2016. HMS SAFE Table 1 reports 520 mt of bigeye landings on the west coast in 2016, representing 0.35% of the EPO stock-wide catch.
- **Bigeye (WCPO)(2017):** Stock assessment of bigeye tuna in the western and central Pacific Ocean. S. McKechnie, G. Pilling, and J. Hampton. Scientific Committee Thirteenth Regular Session, Rarotonga, Cook Islands, August 9-17, 2017. WCPFC-SC13-2017/SA-WP-05.
- **Skipjack (EPO) (2017):** Updated Indicators of Stock Status for Skipjack Tuna in the Eastern Pacific Ocean. Mark N. Maunder. Inter-American Tropical Tuna Commission, Scientific Advisory Committee Eighth Meeting. May 8-12, 2016.
    - The IATTC reported EPO skipjack catch of 341,610 mt in 2016. HMS SAFE Table 1reports 36 mt of skipjack landings on the west coast in 2016, representing less than 0.001% of the EPO stock-wide catch.
- **Skipjack (WCPO) (2016):** Stock assessment of skipjack tuna in the western and central Pacific Ocean. S. McKechnie, J Hampton, G. M. Pilling , N. Davies. Scientific Committee Twelfth Regular Session. Western and Central Pacific Fisheries Commission,August 3-11, 2016. WCPFC-SC12-2016/SA-WP-04.
    - Stock Assessment Summary
- **Yellowfin (EPO) (2017):** Status of Yellowfin Tuna in the Eastern Pacific Ocean in 2016 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 Eighth Meeting. May 8-12, 2017.
    - The IATTC reported EPO yellowfin catch of 242,176 mt in 2016. HMS SAFE Table 1reports 379 mt of yellowing landings on the west coast in 2016, representing 0.16% of the EPO stock-wide catch.
- **Yellowfin (WCPO) (2017):** Stock assessment of yellowfin tuna in the western and central Pacific Ocean Rev 1 (August 4, 2017). L. Trembaly-Boyer, S. McKechnie, and J. Hampton. Scientific Committee Thirteenth Regular Session, Rarotonga, Cook Islands, August 9-17, 2017. WCPFC-SC13-2017/SA-WP-06.

13.2.2. 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).

13.2.3. Sharks

- **Blue shark (NPO) (2017):** Stock Assessment and Future Projections of Blue Shark in the North Pacific Ocean Through 2015. Report of the Shark Working Group. International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. 12-17 July 2017, Vancouver, Canada.
- **Common Thresher Shark (EPO) (2016):** Status of common thresher sharks, Alopias vulpinus, along the west coast of North America. Teo, Steven L.H., Emiliano Garcia Rodriguez, and Oscar Sosa-Nishizaki. March 2016. National Marine Fisheries Service Southwest Fisheries Science Center. NOAA Technical Memorandum NOAA-TM-NMFS-SWFSC-557.
- **Shortfin Mako Shark (NPO) (2015):** 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.

13.2.4. Others

- **Dorado (SEPO) (2016):** Exploratory Stock Assessment of Dorado (*Coryphaena Hippurus*) in the Southeastern Pacific Ocean (DRAFT). Alexandre Aires-da-Silva, Juan L. Valero, Mark. N. Maunder, Carolina Minte-Vera, Cleridy Lennert-Cody, Marlon H. Román, Jimmy Martínez-Ortiz, Edgar J. Torrejón-Magallanes and Miguel N. Carranza. Inter-American Tropical Tuna Commission, Scientific Advisory Committee Sixth Meeting. May 9-13, 2016.

The International Seafood Sustainability Foundation maintains a webpage summarizing the status of global tuna stocks. While the ISSF website is a centralized source for tuna stock assessment information, it is important to note that ISSF does not conduct the assessments they summarize. The ISSF was founded by several tuna processing companies and the World Wildlife Foundation. According to the ISSF website, the objective of ISSF is to "improve the sustainability of global tuna stocks by developing and implementing verifiable, science-based practices, commitments and international management measures that result in tuna fisheries meeting the MSC certification standard1 without conditions, and becoming the industry standard for vessel owners, traders, processors and marketers."

13.3. 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 June 30, 2017, 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 tuna – Eastern Pacific*	No	No	No	NA
Bigeye tuna – Western and Central Pacific*	Yes	No	No	Reduce Mortality
Pacific bluefin tuna – Pacific †	Yes	Yes	NA	Reduce Mortality, Continue Rebuilding
Skipjack tuna – Eastern Pacific	No	No	No	NA
Skipjack tuna – Western and Central Pacific	No	No	No	NA
Yellowfin tuna – Eastern Pacific	No	No	No	NA
Yellowfin 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 Mortality, Continue Rebuilding
Swordfish – Eastern Pacific	Yes	No	No	Reduce Mortality
Swordfish – Western and Central North Pacific	No	No	No	NA
Blue shark – North Pacific	No	No	No	NA
Shortfin mako – North Pacific	Unknown	Unknown	Unknown	NA
Thresher shark – North Pacific	Unknown	Unknown	Unknown	NA
Dolphinfish – Pacific	Unknown	Unknown	Unknown	NA

*Bigeye tuna in the Pacific was previously listed as a single Pacific-wide stock that was subject to overfishing, based on the combined assessment results of both the Eastern Pacific and Western and Central Pacific stocks. It will now be listed as separate Eastern Pacific and Western and Central Pacific stocks, with stock status based on the results of the individual assessments.

†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.

14. 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://www.iattc.org/HomeENG.htm
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.fra.go.jp/index.html/
U.S West Coast Regional Fishery Management Councils	
Pacific Fishery Management Council	http://www.pcouncil.org
Western Pacific Fishery Management Council	http://www.wpcouncil.org
State and Interstate Fisheries Commissions	
California Department of Fish and Wildlife	https://www.wildlife.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 Investigacion Cientofica y Educacion Superior de Ensenada	http://www.cicese.mx/
Inter-American Tropical Tuna Commission	http://www.iattc.org/HomeENG.htm
Monterey Bay Aquarium	http://www.montereybayaquarium.org/conservation-and-science
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 West Coast Regional Office	http://www.westcoast.fisheries.noaa.gov/fisheries/migratory_species/highly_migratory_species.html
Pfleger Institute of Environmental Research	http://www.pier.org

Scripps Institute of Oceanography	http://www-sio.ucsd.edu
Tagging of Pacific Pelagics	http://www.topp.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	https://www.californiasportfishing.org/
United Anglers of Southern California (Facebook)	https://www.facebook.com/United-Anglers-of-Southern-California-97352772114/
Western Fishboat Owner's Association	http://www.wfoa-tuna.org