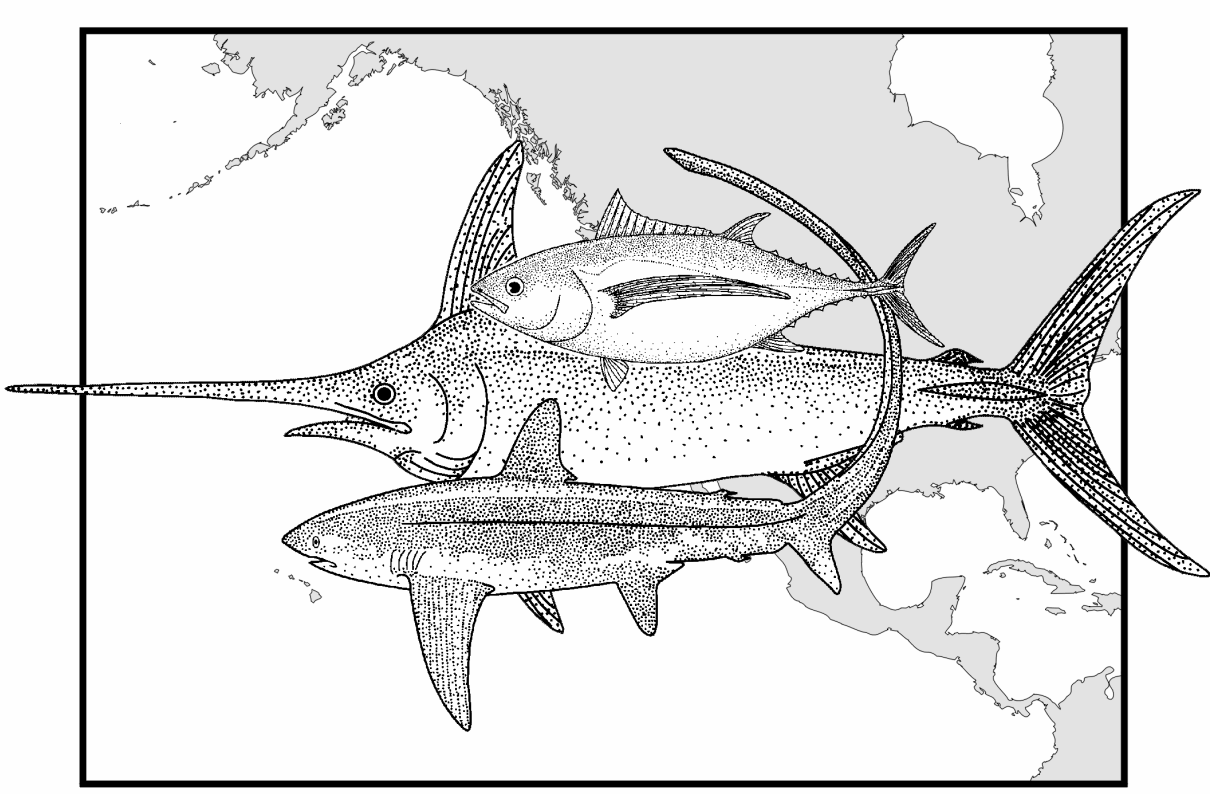
STATUS OF THE U.S. WEST COAST FISHERIES FOR HIGHLY MIGRATORY SPECIES THROUGH 2020



STOCK ASSESSMENT AND FISHERY EVALUATION

APRIL 2021

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

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

4/13/2021 8:43 AM

Prepared by the Pacific Fishery Management Council in conjunction with the National Marine Fisheries Service, Southwest Region under National Oceanic and Atmospheric Administration award number NA20NMF4410011.

Table of Contents

List of Tables

List of Figures

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

1. Introduction

1.1. SAFE Document Production Schedule

The HMS FMP describes a schedule under which a final stock assessment and fishery evaluation (SAFE) document is delivered in November 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 2019, covers the calendar year 2018.

1.2. 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 was approved on April 24, 2018. Amendment 4 revises and updates 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.

1.3. 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.

1.4. The Management Cycle

The HMS FMP also establishes a process for the delivery of the SAFE report to the Council, intended to coincide with the management cycle.

At the September Council meeting in even numbered years a draft SAFE report provides an update to the Council on status of the HMS fisheries and, as appropriate, proposed adjustments to the numerical estimates of maximum sustainable yield (MSY), optimum yield (OY), and status determination criteria (SDC). If necessary, Council directs HMSMT to prepare draft regulatory analysis to implement revised estimates of reference point values, ACLs, or other harvest objectives and/or management measures.

At the November Council meeting in even numbered years a final SAFE report on the status of HMS stocks and fisheries is presented to Council. If necessary, the Council directs HMSMT to prepare a draft regulatory analysis to implement revised estimates of reference point values, ACLs, or other harvest objectives and/or management measures. The Council adopts for public review proposed actions addressing concerns from current and previous SAFE reports.

At the next Council meeting, in March of odd numbered years, the Council adopts final recommendations to NMFS, Department of State, and Congress for international measures to end overfishing and/or rebuild stocks and proposed regulations necessary for domestic fishery management.

Any management measures proposed by the Council are implemented during the next fishing year, which starts on April 1, 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 and 2018 the Council did not recommend any regulatory changes for the next biennial periods (April 1, 2017–March 31, 2021 and April 1 2021 to March 31 2023).

1.5. 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 2020

The Council made the following HMS-related decisions in 2020.

2.1. November

2.1.1. NMFS Report

The Council was briefed by NMFS on several aspects of its final preferred alternative (FPA) for the deep-set buoy gear limited entry program that require clarification. The Council tasked the Highly Migratory Species Management Team (HMSMT), in consultation with the HMS Advisory Subpanel (HMSAS), with investigating these issues and identifying options to revise these elements for implementation. The Council would consider modifications to its FPA at its March 2021 meeting.

2.1.2. Recommend International Management Activities

The Council recommended a trip limit regime for Pacific bluefin tuna (PBF) fisheries premised on the Inter-American Tropical Tuna Commission adopting a resolution setting a 425 mt PBF catch limit for the U.S. in 2021. The current pre-trip notification requirement would be eliminated while the current requirement that electronic fish tickets be submitted within 24-hours of the landing would be maintained. Trip limits would be as follows:

Set an Initial trip limit of 20 mt

- **During the first quarter (January 1 – March 31)** – The catch limit is reduced to 15 mt when annual landings reach 250 mt. The trip limit is then reduced to 2 mt when annual landings reach 325 mt.
- **During the second quarter (April 1 – June 30)** – The catch limit is reduced to 15 mt when annual landings reach 275 mt. The trip limit is then reduced to 2 mt when annual landings reach 350 mt.
- **During the third quarter (July 1 – September 30) –** The catch limit is reduced to 15 mt when annual landings reach 300 mt. The trip limit is then reduced to 2 mt when annual landings reach 375 mt.
- **During the fourth quarter (October 1 – December 31) –** The catch limit is reduced to 15 mt when annual landings reach 325 mt. The trip limit is then reduced to 2 mt when annual landings reach 375 mt.

2.1.3. Biennial Harvest Specifications and Management Measures

The Council directed its SSC to work with NMFS, and in consultation with IATTC scientific staff, to review stock status determination criteria (SDC) proxies for Eastern Pacific Ocean yellowfin and bigeye tunas and make recommendations for the Council to consider in March 2021. Over the long term the SSC could recommend standardized methods for identifying SDC for stock assessments that use a probabilistic framework, as is the case with the two aforementioned stocks.

2.1.4. Drift Gillnet Fishery Hard Caps Update

The Council received a report from NMFS on implementation of hard cap regulations for the California large mesh drift gillnet fishery. It tasked the HMSMT and HMSAS with developing potential options for clarifying the Purpose and Need for this action and to develop alternative hard cap approaches that address

NMFS' concerns regarding potential negative economic impacts. Any such alternatives must still meet the Council's goal to incentivize fishing behavior that minimizes bycatch. The Council will consider these issues at its June 2021 meeting.

2.2. September

2.2.1. Exempted Fishing Permits

The Council reviewed 20 EFP applications to use standard and linked DSBG and recommended 19 in part or whole for issuance. Four applications proposed using DSBG at night, but the Council did not recommend additional night fishing until data from the one previously-approved EFP becomes available in 2021. The Council did recommend that the previously-approved night fishing EFP be allowed to be fished on another vessel owned by the applicant, but not on both vessels simultaneously. The Council recommended that NMFS prioritize these applications for EFP issuance over previously-approved applicants who have not completed the process for obtaining their permits.

The Council also recommended NMFS modify the Terms and Conditions for all DSBG and night-set buoy gear (NSBG) EFPs (new and existing) to include a mandatory lost gear reporting requirement and clear marking of gear to distinguish between DSBG and NSBG.

2.2.2. Biennial Harvest Specifications and Management Measures–Preliminary

The Council requested its SSC review proxy values selected by NMFS to make status determinations for Eastern Pacific Ocean (EPO) bigeye and yellowfin tuna pending Inter-American Tropical Tuna Commission (IATTC) adoption of its new benchmark stock assessments for these stocks in advance of the November Council meeting.

Without IATTC action, NMFS would be unable to implement domestic measures to address the stock status of Pacific bluefin and EPO yellowfin under the Tuna Conventions Act and the Council would then consider its obligations pursuant to Magnuson-Stevens Act (MSA) Section 304(i), when a stock "is overfished or approaching a condition of being overfished due to excessive international fishing pressure, and for which there are no management measures to end overfishing under an international agreement to which the United States is a party." This could include implementing domestic catch limits "taking into account the relative impact of vessels of other nations and vessels of the United States." As a precaution, the Council directed the Highly Migratory Species Management Team, in coordination with the Highly Migratory Species Advisory Subpanel, to examine options for taking action under the MSA and report to the Council at its November 2020 meeting.

2.2.3. Essential Fish Habitat Review

The Council considered the highly migratory species essential fish habitat review Phase 1 report, and approved moving forward with Phase 2, in which modifications to highly migratory species essential fish habitat will be considered. The Council will consider a Phase 2 scope of work and Fishery Management Plan amendment process at its March 2021 meeting.

2.3. June

2.3.1. International Management Activities

The Council made the following recommendations on management of HMS in international forums:

- Mr. David Hogan, Department of State representative on the Council, discussed the formation of a working group composed of stakeholders to advise U.S. Government negotiators on port access and other matters under the U.S. Canada Albacore Treaty. The Council supports the formation of this group, emphasizing that it should fairly represent the interests of harvesters, processors, and other industry interests.
- Should negotiation of a successor to Inter-American Tropical Tuna Commission (IATTC) Resolution C-18-01 (Measures for the Conservation and Management of Pacific Bluefin Tuna in the Eastern Pacific Ocean, 2019 and 2020) involve increases in catch limits and national allocations, the U.S. should seek a more equitable allocation between the Eastern Pacific Ocean and Western and Central Pacific Ocean than the current approximately 25 percent/75 percent split, and between the U.S. and Mexico of the EPO allocation.
- In negotiating a successor to IATTC Resolution C-17-02 on tropical tunas (i.e., yellowfin, bigeye, and skipjack tuna), which expires at the end of the 2020 calendar year, the U.S. should protect the interests of domestic harvesters.
- The Council encourages National Marine Fisheries Service (NMFS) to work with the IATTC Scientific Advisory Committee and Commission science staff to prioritize assessing the striped marlin stocks within the IATTC Convention Area.

2.4. March

2.4.1. Review of Essential Fish Habitat – Scoping

The Council adopted the action plan for review of highly migratory species essential fish habitat provisions, recognizing that the timeline in the action plan may require adjustment.

2.4.2. International Management Activities

The Council discussed with David Hogan, Department of State representative, issues raised by the Highly Migratory Species Advisory Subpanel pertaining to negotiations on the next fishing regime under the U.S.-Canada Albacore Treaty.

2.4.3. Drift Gillnet Fishery Hard Caps Update

The Council requested that National Marine Fisheries Service report back in September on comments received on the final rule implementing hard caps, the details of the economic analysis that was the basis of it withdrawing the proposed rule, and a range of viable measures the Council could consider in a future rulemaking process.

3. HMS Regulatory Framework

3.1. Changes to HMS FMP Regulations in 2020

There was one rulemaking to modify to HMS FMP regulations at 50 CFR 660 Subpart K in 2020. A final rule was published on February 7, 2020 (85 FR 7246) to establish protected species hard caps for the California/Oregon drift gillnet (DGN) fishery for swordfish and thresher shark (14 inch (36 cm) minimum mesh size). If a hard cap (i.e., limit) on mortality/injury is met or exceeded for certain protected species during a rolling 2-year period the fishery would be closed. The length of the closure will be dependent on when the hard cap is reached. Note that this regulation was vacated in 2021 due to a court decision..

3.2. International Management

3.2.1. 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.

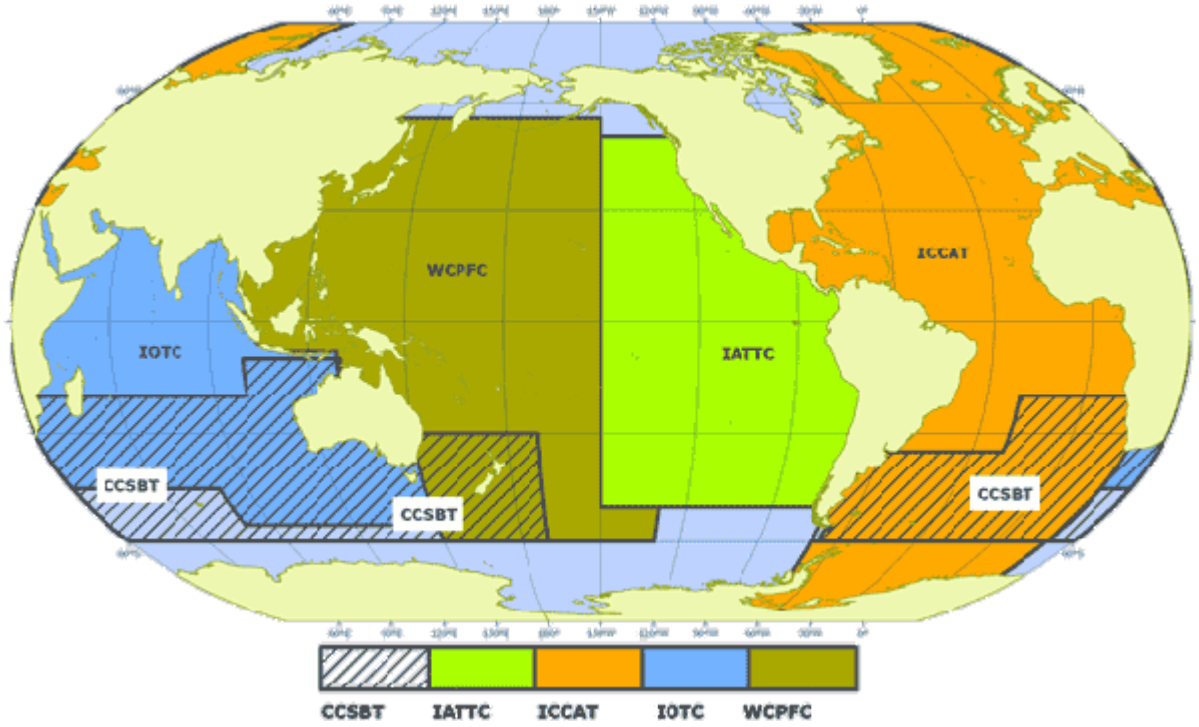


Figure 3-1. Global map of tuna RFMO jurisdictions. (Source: http://www.fao.org/fishery/topic/16917/en).

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.

3.2.2. 2020 IATTC and WCPFC Outcomes

Resolutions adopted at the 95th Regular Meeting and 96th Extraordinary Meeting of the IATTC (November 30-December 4 & December 22, 2020)

- C-20-01 *Ad Hoc* Rules of Procedure 95th meeting
- C-20-02 Pacific Bluefin Tuna (2021)
- C-20-03 Financing FY 2021
- C-20-04 Working Group on Rules of Procedure for meetings by videoconference
- C-20-05 Tropical Tunas Conservation and Management 2021
- C-20-06 Tropical Tunas Conservation in the EPO during 2021, pursuant to RES C-20-05

Conservation measures adopted at the seventeenth regular session of the Western and Central Pacific Fisheries Commission (December 7-15, 2020)

- CMM-2020-01 Conservation and Management Measure for bigeye, yellowfin and skipjack tuna in the western and central Pacific Ocean
- CMM-2020-02 Conservation and Management Measure for Pacific Bluefin

3.2.3. Regulations for International HMS Fisheries and Related Activities in the Pacific Published in 2020

The following *Federal Register* Final Rule Notices modifying the Code of Federal Regulations, Title 50, Chapter III were published in 2019. For earlier years consult previous editions of the SAFE.

85 FR 37376. Area of Overlap Between the Convention Areas of the Inter-American Tropical Tuna Commission and the Western and Central Pacific Fisheries Commission. Effective date: 07/22/20
85 FR 29666. Fishing Restrictions for Silky Shark, Fish Aggregating Devices, and Observer Safety in the Eastern Pacific Ocean. Effective date: 06/17/20
85 FR 8198. Procedures for the Active and Inactive Vessel Register; Correction. Effective date: 02/13/20
84 FR 70040. Procedures for the Active and Inactive Vessel Register (EPO). Effective date: 01/21/20.

4. Commercial Fisheries

4.1. Fishery Descriptions

Tables referenced below can be found in Appendix A as well as online.

4.1.1. 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.

Information on recent landings and revenue in this fishery may be found in the following tables:

- Table 6. Real (inflation adjusted) ex-vessel revenue for the West Coast albacore surface hook-and-line (troll and baitboat) fishery, Canadian vessels included, since 1990.
- Table 7. Monthly landings (number, weight in round mt) and real (inflation adjusted) ex-vessel revenue for albacore by the surface hook-and-line (troll and baitboat) fishery, by state, Canadian vessels included, last three years.
- Table 8. Annual landings (number, weight in round mt) and real (inflation adjusted) ex-vessel revenue for albacore by the surface hook-and-line (troll and baitboat) fishery, by port group, Canadian vessels included, last three years.
- Table 9. Number of vessels, landings (round mt), and ex-vessel revenue (inflation adjusted) of albacore and in the West Coast albacore surface hook-and-line (troll and baitboat) fishery (in U.S. west coast ports), Canadian and US vessels compared since 1990.
- Table 10. Number of vessels, landings (round mt), and real (inflation adjusted) ex-vessel revenue for albacore in the West Coast albacore surface hook-and-line (troll and baitboat) fishery by state, Canadian vessels included, since 1990.
- Table 11. Average nominal price-per-pound ($/lb) for albacore by month and by state, last three years, Canadian vessels included.

4.1.2. 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.

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.

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 is managed by California state and federal limited entry permit systems, with mandatory gear standards and seasonal area closures used to address various conservation concerns. The federal limited entry permit was implemented in 2018 through Amendment 5 to the HMS FMP. It is intended mirror many of the features of the state limited entry permit and is required to fish in federal waters. In addition to these limited entry permits, the HMS FMP requires a general HMS permit with a drift gillnet gear endorsement for all U.S. vessels that fish for HMS within the West Coast EEZ.

Both the state and federal limited entry permits are issued to an individual fisherman, rather than a vessel, and are only transferable under very restrictive conditions; thus, the value of the vessel does not become artificially inflated. To keep these permits active, current permittees are required to renew their permit from one consecutive year to the next; however, they are not required to make landings using drift gillnet gear. In order to receive a Federal limited entry DGN permit, state limited entry permit holders had to have renewed their state limited entry DGN permit by March 31, 2018. About 150 state limited entry DGN permits were initially issued when the program began in 1980 and peaked at 251 permits in 1986. The number of these permits has steadily declined since then. To date, 6o federal limited entry DGN permits have been issued.

In addition to these limited entry permits, California requires a general resident or non-resident commercial fishing license, general gillnet permit, and a current vessel registration to catch and land fish caught in drift gillnet gear. The California limited entry permit may only be transferred to an individual who already possesses a general gillnet permit.

Consistent with the HMS FMP, DGN vessel operators must also maintain a logbook recording catch and operational data such as the time and location of fishing.

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).

In September 2018 California enacted Senate Bill 1017, which directs the California Department of Fish and Wildlife to develop a program by March 31, 2020 to allow payment to permit holders for the voluntary surrender of drift gillnet permits. After March 31, 2019 California state drift gillnet permits cannot be transferred, and all permits must be surrendered or revoked by January 31 of the fourth year after $2 million in funding for the program is received by the state.

Information on recent landings and revenue in this fishery may be found in the following tables:

- Table 12. Number of vessels and landings (round mt) in the West Coast drift gillnet fishery since 1990.
- Table 13. Real (inflation adjusted) ex-vessel revenue for the West Coast drift gillnet fishery since 1990.
- Tables 14 a & b. Monthly landings (number, weight in round mt) and real (inflation adjusted) ex-vessel revenue for common thresher shark and swordfish in the drift gillnet fishery, last three years.
- Tables 15 a & b. Annual landings (number, weight in round mt) and ex-vessel revenue (inflation adjusted) for common thresher shark and swordfish landings in California port groups in the drift gillnet fishery, last three years.

4.1.3. 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. (DGN permit holders are entitled to obtain a harpoon permit free of charge.) 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.

Information on recent landings and revenue in this fishery may be found in the following tables:

- Table 16. Number of vessels and landings (round mt) in the West Coast harpoon fishery since 1990.
- Table 17. Real (inflation adjusted) ex-vessel revenue for the West Coast harpoon fishery since 1990.
- Table 18. Monthly landings (number, weight in round mt) and real (inflation adjusted) ex-vessel revenue for swordfish by the harpoon fishery, by state, last three years.
- Table 19. Annual landings (number and weight in round mt) and real (inflation adjusted) ex-vessel revenue for swordfish by port group in the harpoon fishery, last three years.

4.1.4. 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.

The number of pelagic longline vessels making landings on the West Coast has increased from six in 2010 to 22 in 2018. Landings composition has also shifted from swordfish to tunas and other species over the decade. In 2010 swordfish accounted for 82% and tunas just 13% of the 331 mt in total landings made by this fishery. In 2018 swordfish had declined to 28% while tunas accounted for 46% of the 1,411 mt in total landings. Opah, which is not a management unit species in the HMS FMP, is also a significant component of landings: in 2018 this species accounted for 22% of landings, amounting to 310 mt. (Note that the totals reported here are greater than reported in Table 20, which only reports landings of management unit species.)

Information on recent landings and revenue in this fishery may be found in the following tables:

- Table 20. Number of vessels and landings (round mt) by Hawaii permitted longline vessels in West Coast ports since 1990.
- Table 21. Real (inflation adjusted) ex-vessel revenue by Hawaii permitted longline vessels in West Coast ports since 1990.

4.1.5. 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.

Information on recent landings and revenue in this fishery may be found in the following tables:

- Table 22. Number of vessels and landings (round mt) for HMS tunas in the West Coast purse seine fishery since 1990.
- Table 23. Real (inflation adjusted) ex-vessel revenue from HMS tunas in the West Coast purse seine fishery since 1990.

4.2. Commercial Fishery Performance 2010 – 2019

4.2.1. HMS landings and revenue compared to other species groups

The graph below shows ex-vessel revenue by species groups over the last 10 years. For HMS this has varied from $28 million to $44 million during this period. This equates to between 6% and 8% of total ex-vessel revenue from all species.

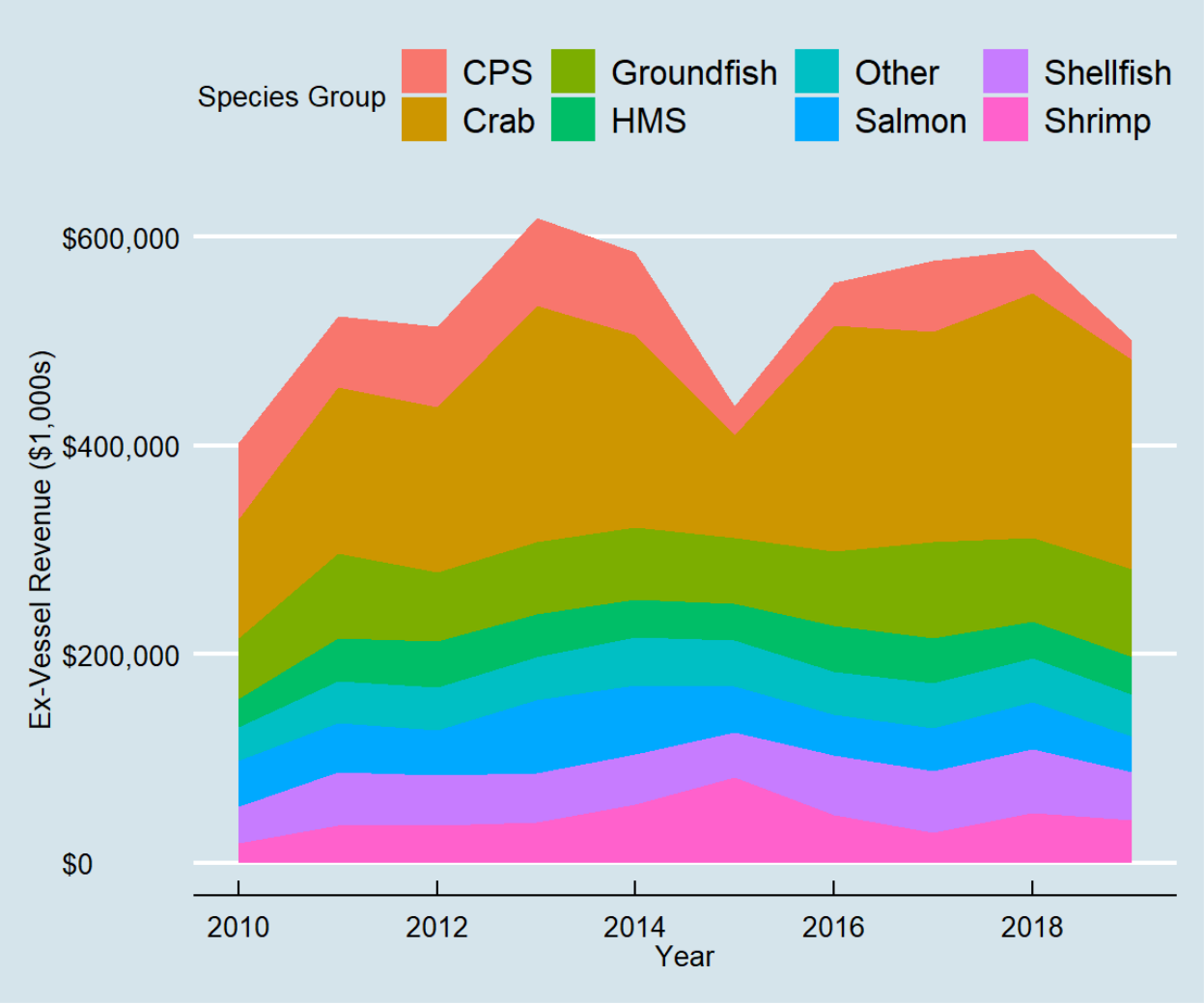


Figure 4-1. Inflation-adjusted ex-vessel revenue by species groups ($1,000s), 2010-2019.

4.2.2. Landings and ex-vessel revenue by HMS FMP species

North Pacific albacore tuna

In 2019 albacore landings totaled 7,583 metric tons compared to 6,951 metric tons in 2018 while ex-vessel revenue was $27,828,678 and $24,931,455 respectively.

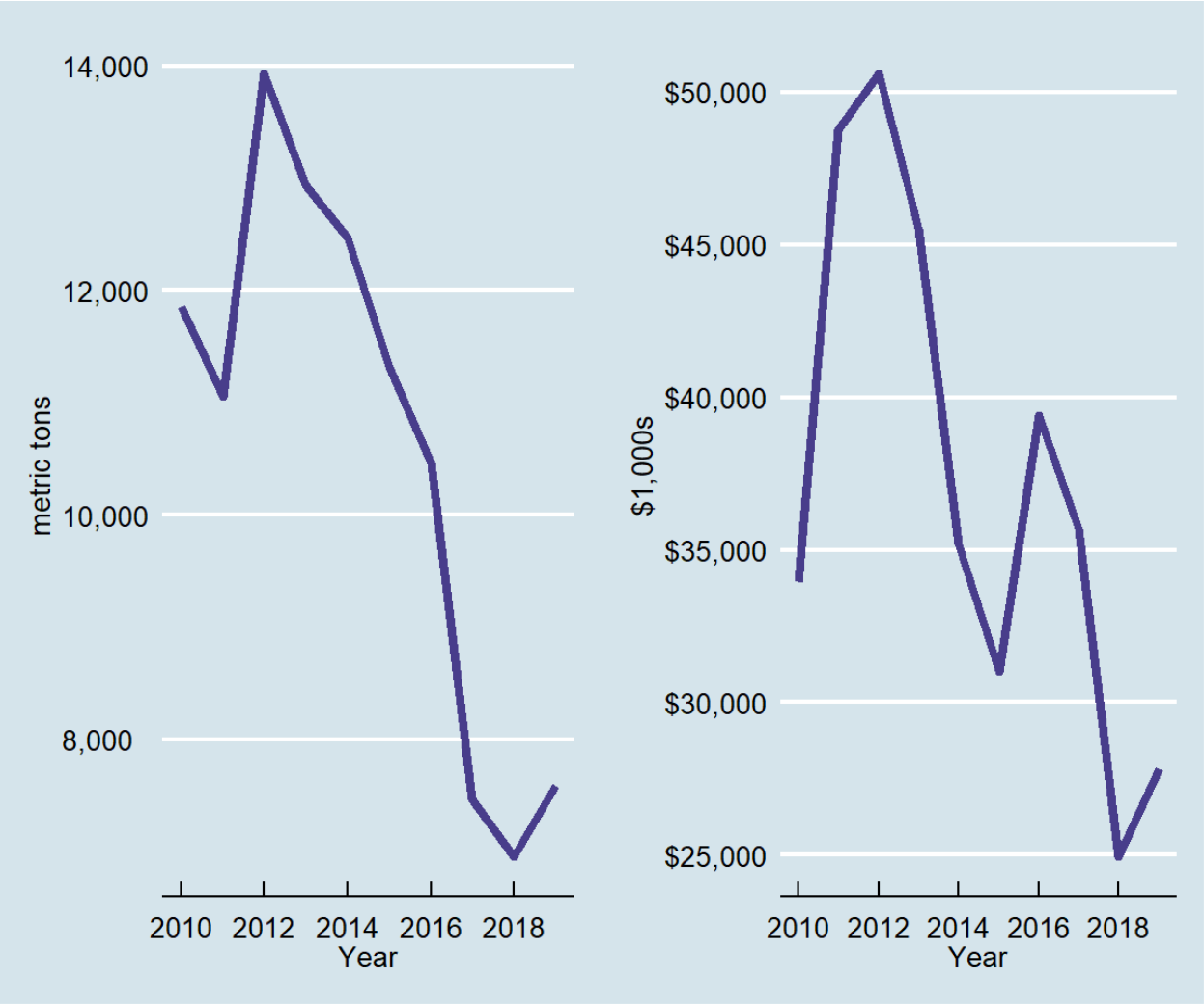


Figure 4-2. North Pacific albacore landings, mt (left), and revenue, current dollars, $1,000s (right).

Swordfish

In 2019 swordfish landings totaled 321 metric tons compared to 548 metric tons in 2018 while ex-vessel revenue was $1,677,791 and 2,668,279 respectively.

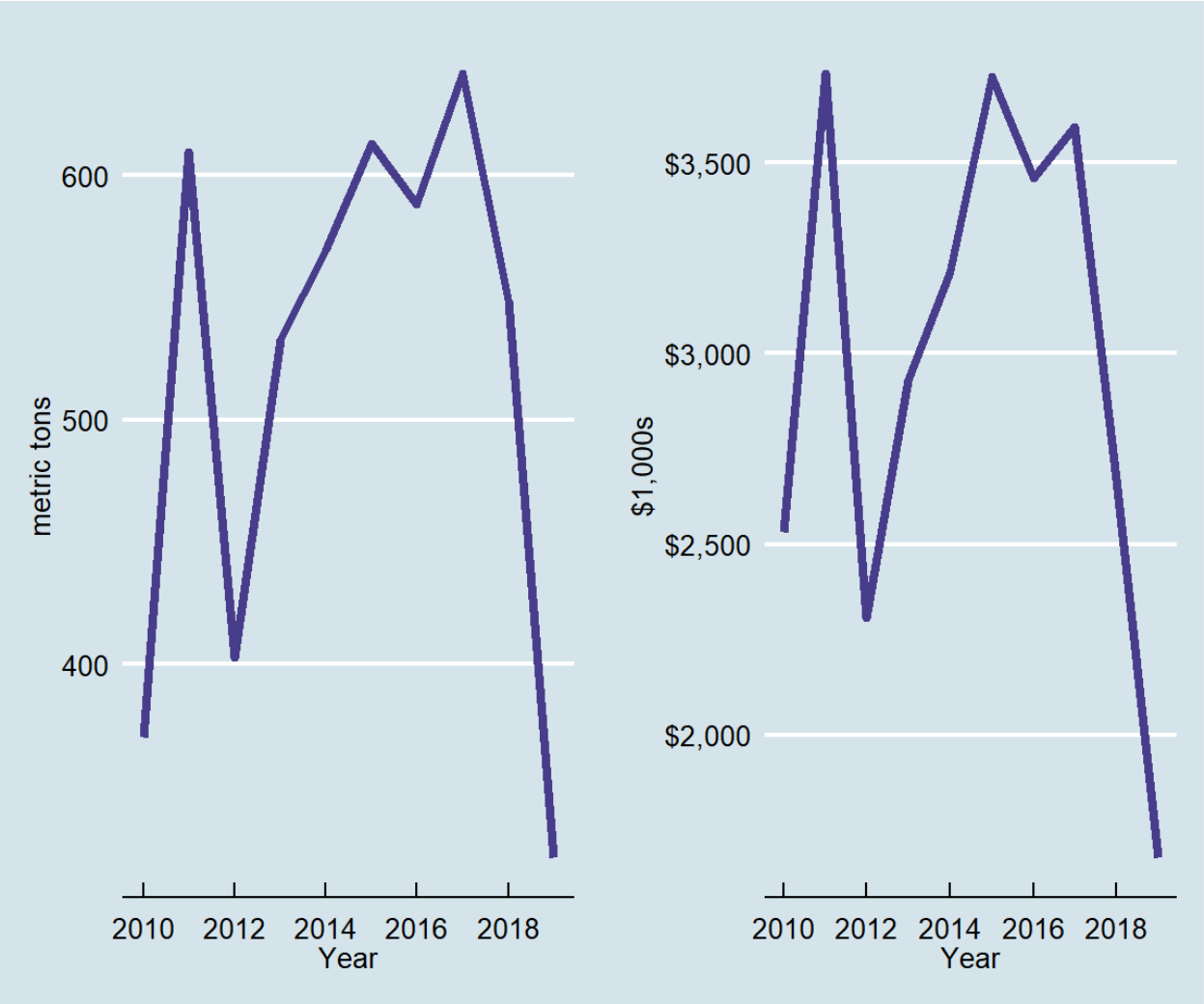


Figure 4-3. Swordfish landings, mt (left), and revenue, current dollars, $1,000s (right).

Tunas (other than albacore)

In 2019 landings of bigeye, bluefin, skipjack, and yellowfin tunas totaled 1,350 metric tons compared to 3,221 metric tons in 2018.

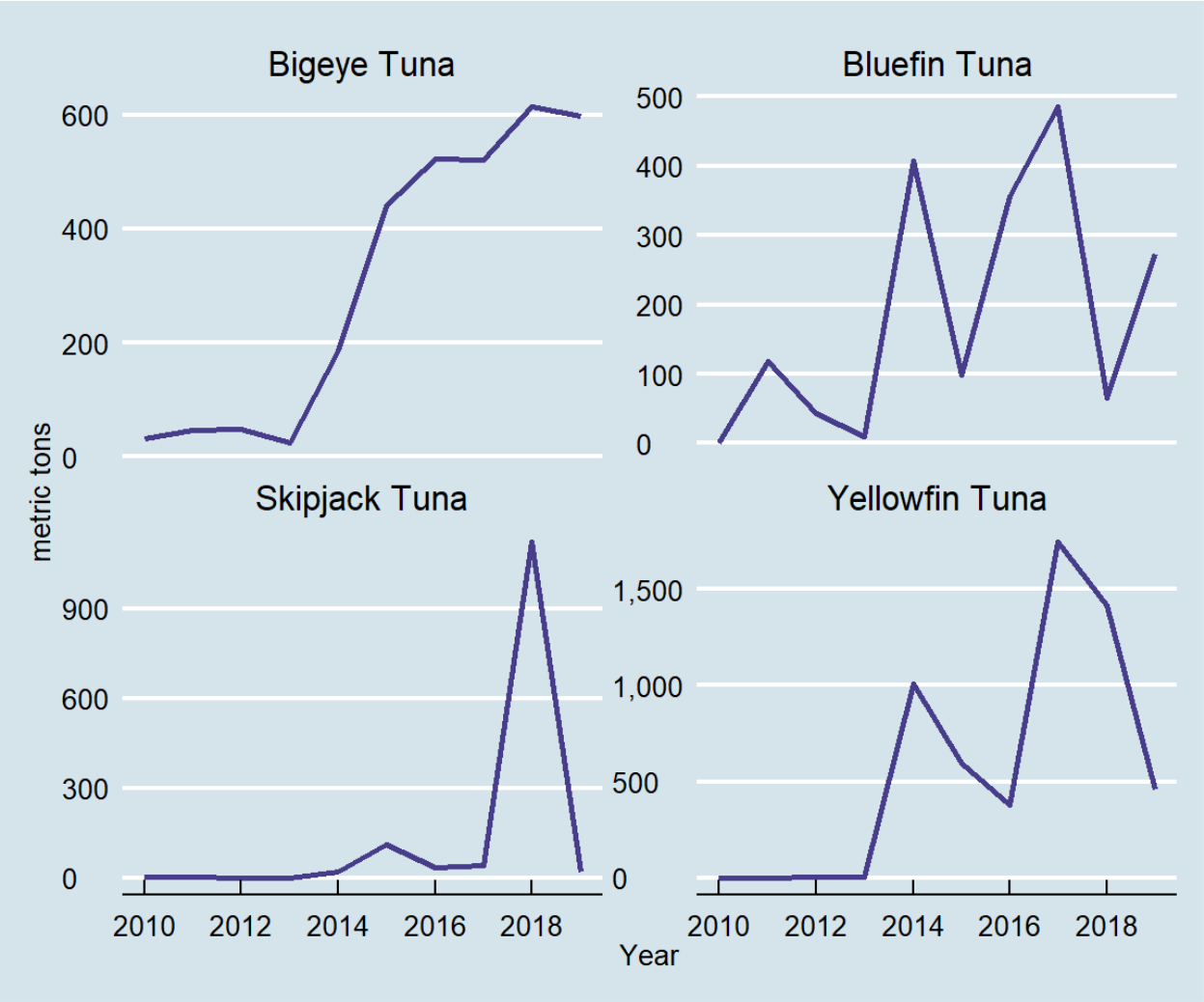


Figure 4-4. Landings of bigeye, bluefin, skipjack, and yellowfin tunas (mt), 2010-2019.

In 2019 bigeye, bluefin, skipjack, and yellowfin tuna ex-vessel revenues totaled $6,025,859 compared to $7,073,050 metric tons in 2018.

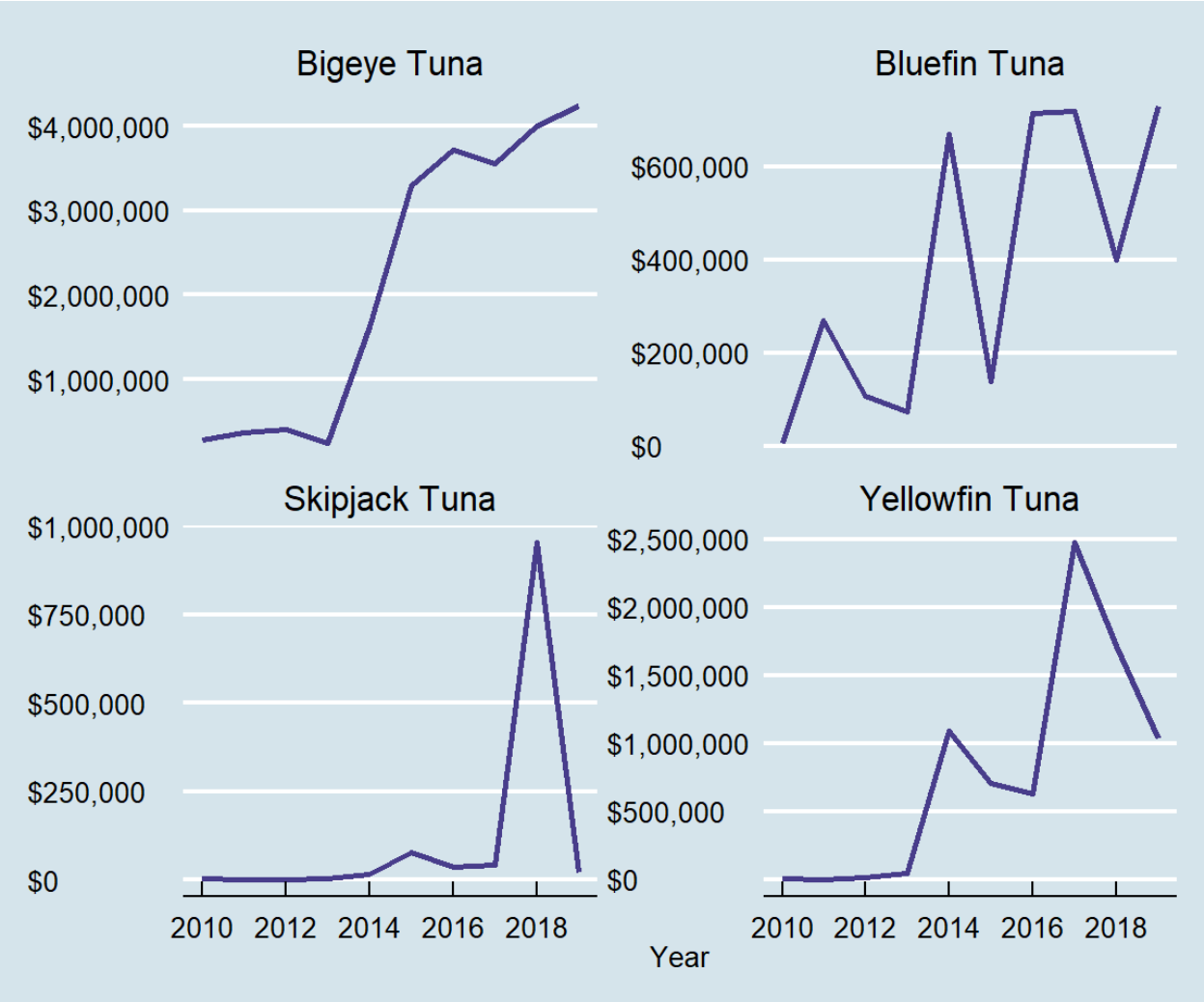


Figure 4-5. Inflation-adjusted ex-vessel revenue for bigeye, bluefin, skipjack, and yellowfin tunas (dollars), 2010-2019.

Sharks

In 2019 landings of common thresher and shortfin mako sharks totaled 90 metric tons compared to 74 metric tons in 2018.

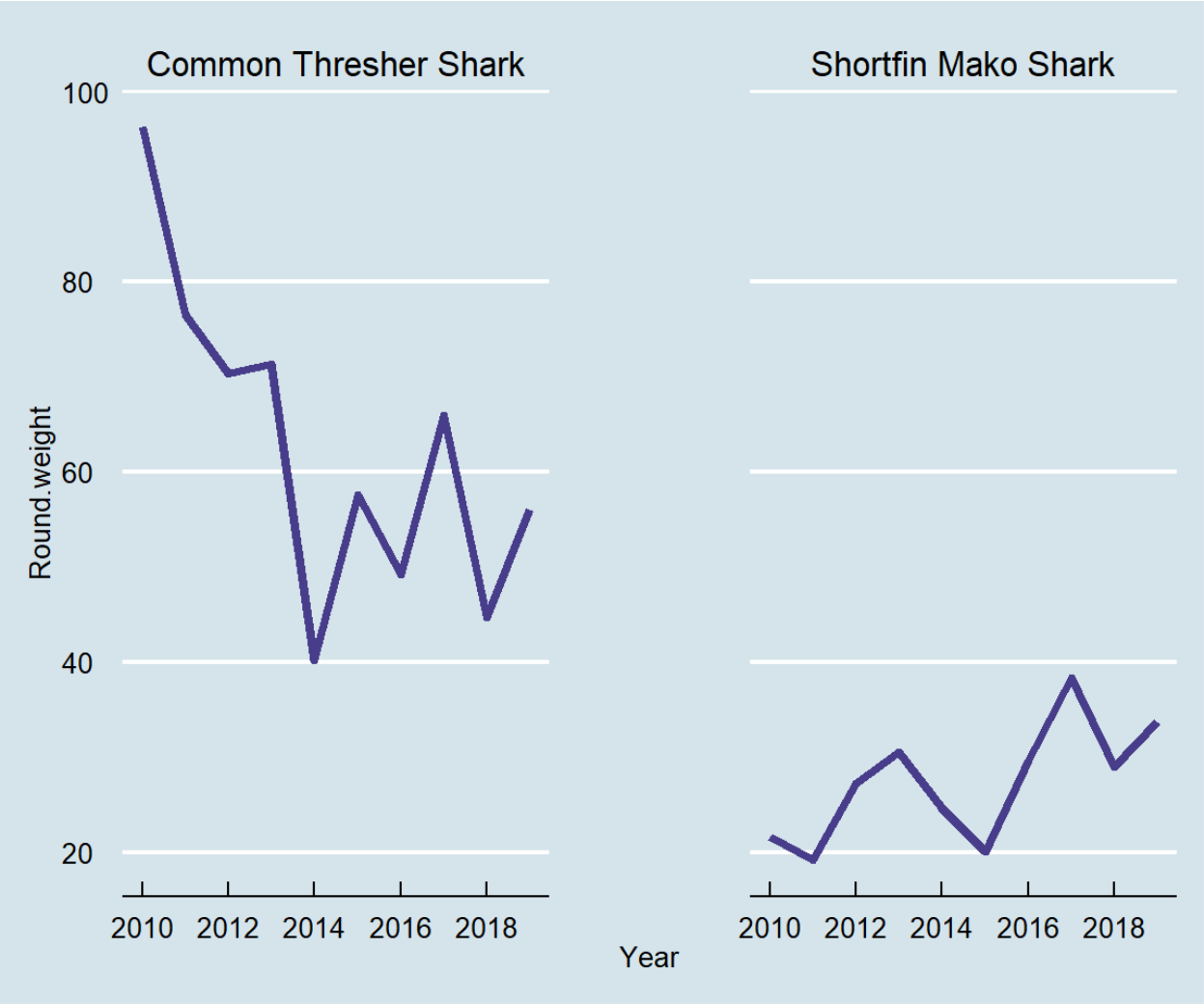


Figure 4-6. Landings of common thresher shark and shortfin mako shark (mt), 2010-2019.

In 2019 ex-vessel revenue from common thresher and shortfin mako sharks totaled $137,962 compared to $125,615 in 2018.

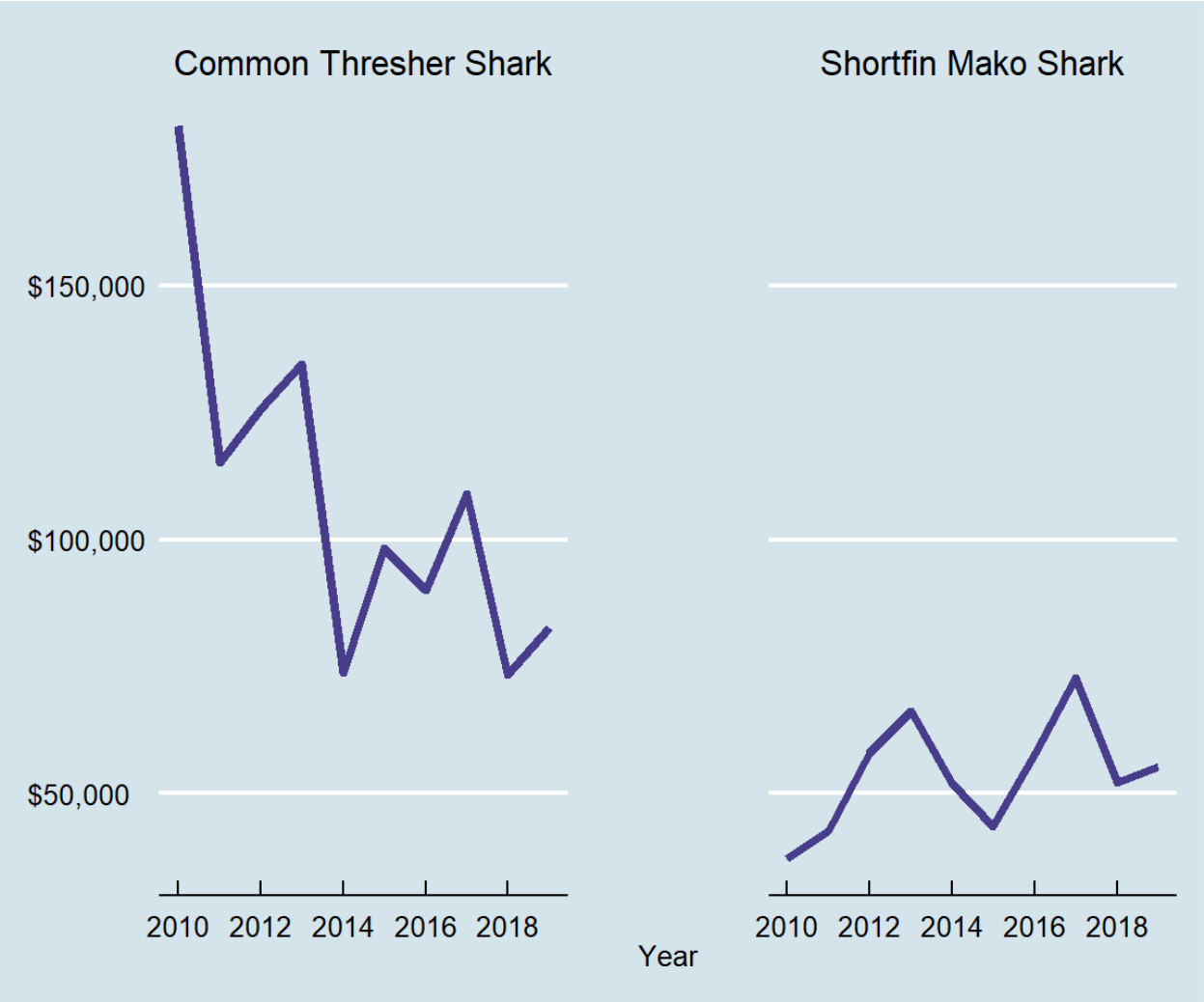


Figure 4-7. Inflation-adjusted ex-vessel revenue from common thresher shark and shortfin mako shark (dollars), 2010-2019.

4.2.3. Landings and participation by fishery

Participation (number of vessels)

For this 10-year period the annual average numbers of vessels participating in these fisheries are DGN: 20, Harpoon: 16, Pelagic longline: 14, Purse Seine: 10, Surface Hook-and-Line Fishery for Albacore: 608.

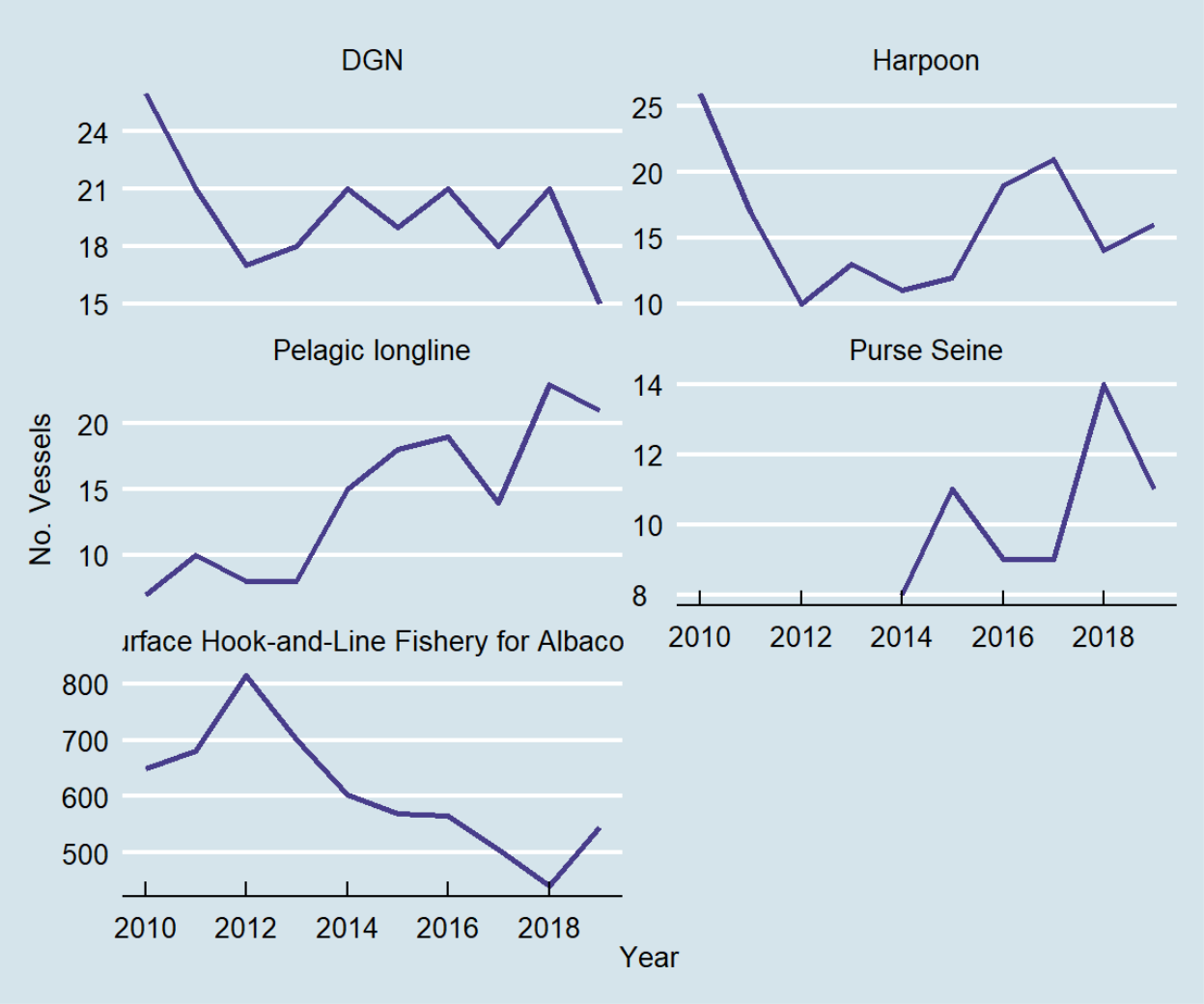


Figure 4-8. Participation in HMS fisheries (number of vessels), 2010-2019.

Surface hook-and-line fishery for albacore

Inflation adjusted ex-vessel revenue in 2019 was $26,670,704 compared to $24,842,212 in 2018.

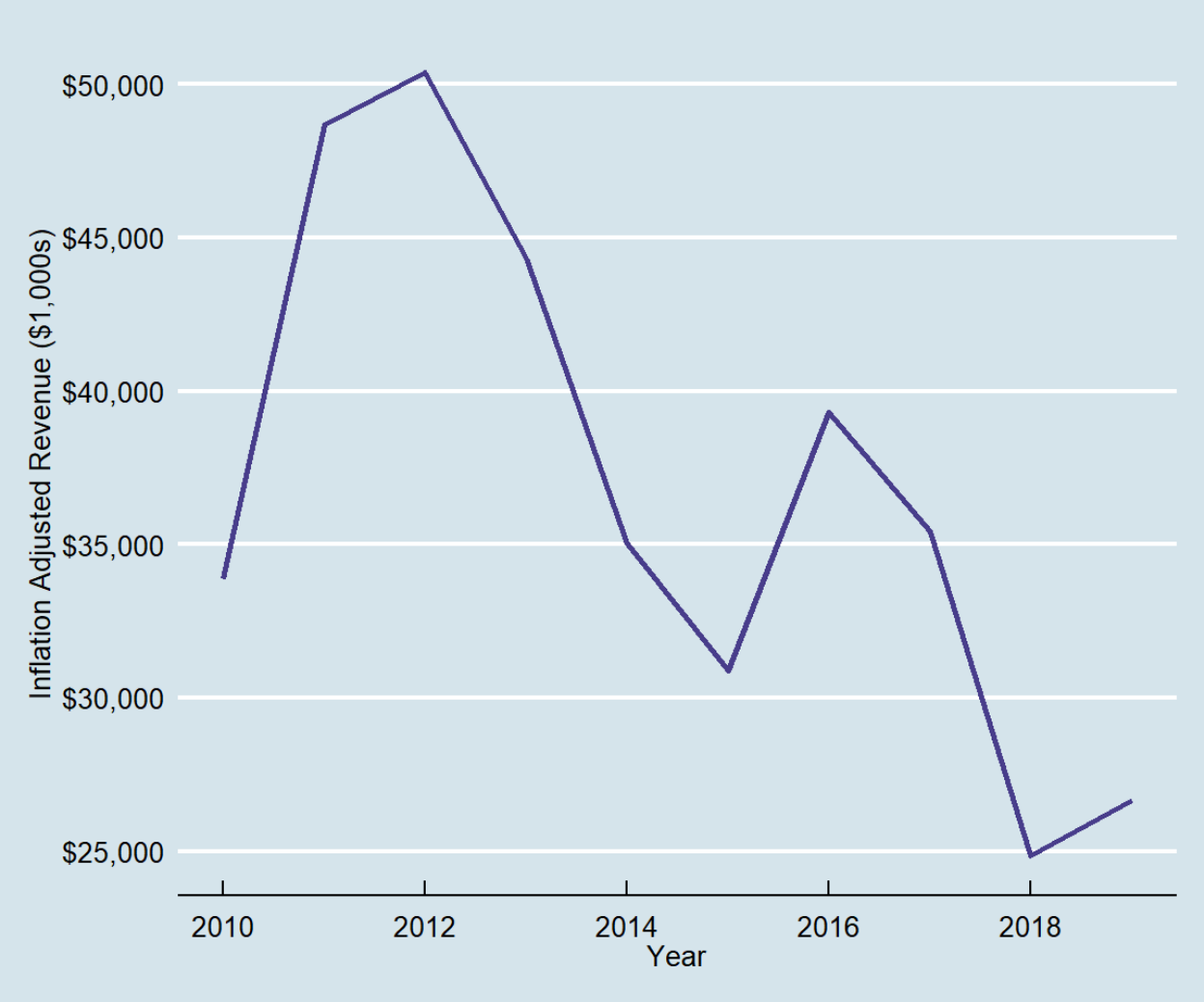


Figure 4-9. Inflation-adjusted ex-vessel revenue ($1,000s) for the surface hook-and-line fishery for albacore, 2010-2019.

Large mesh drift gillnet fishery

Inflation adjusted ex-vessel revenue in 2019 was $382,213 compared to $848,671 in 2018.

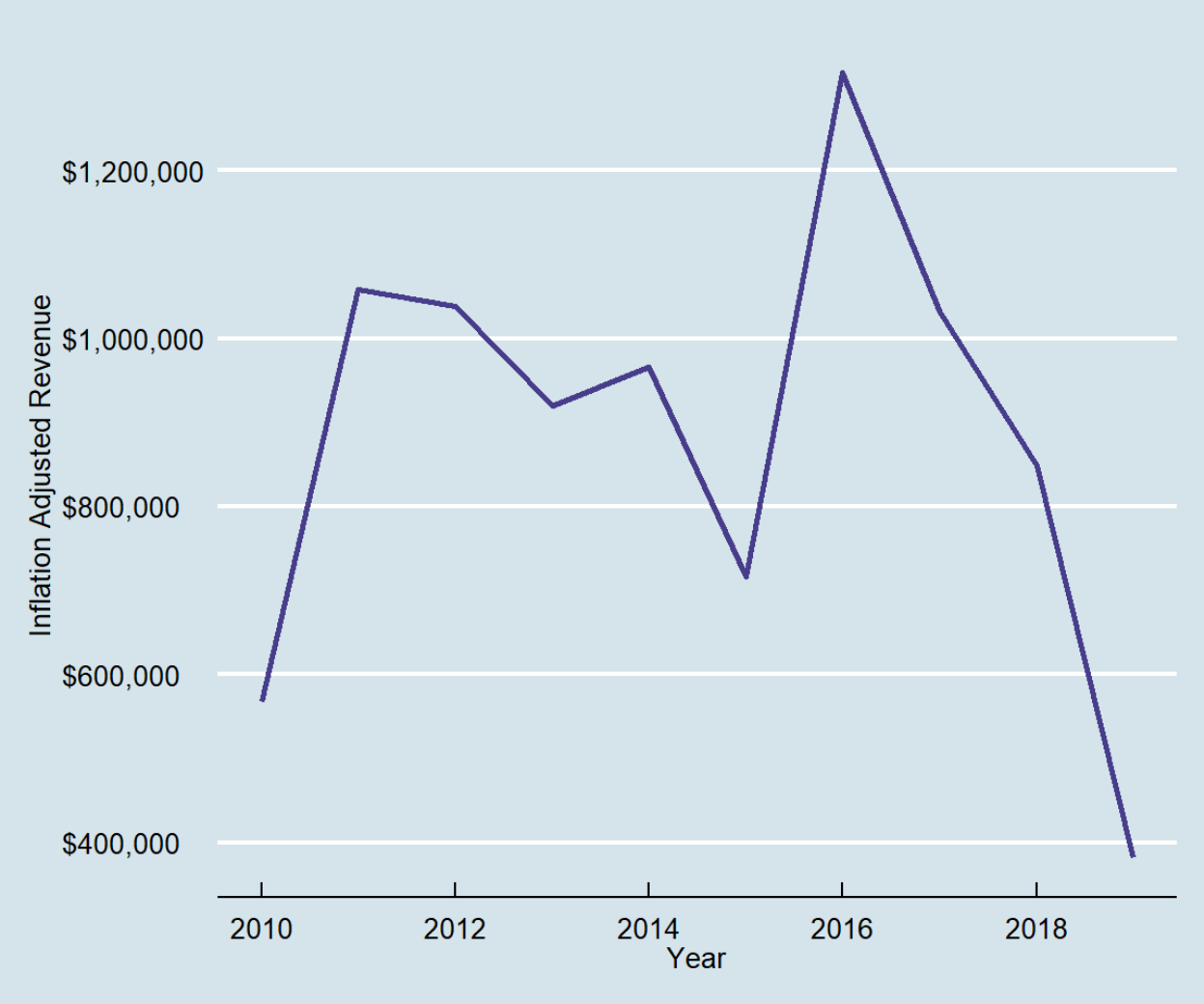


Figure 4-10. Inflation adjusted ex-vessel revenue (dollars) for the large mesh drift gillnet fishery, 2010-2019.

Pelagic longline fishery

Inflation adjusted ex-vessel revenue in 2019 was $5,817,785 compared to $6,109,164 in 2018.

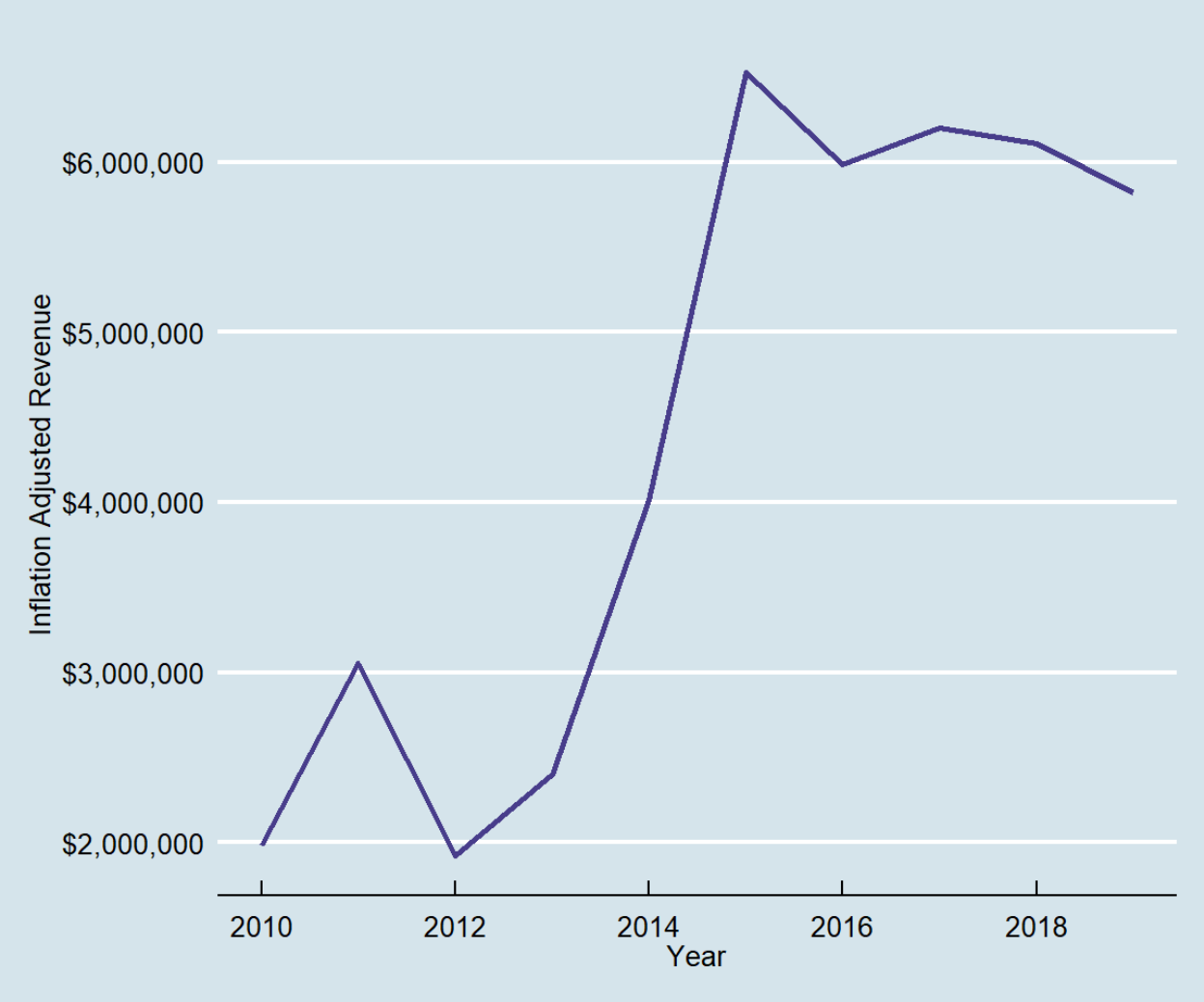


Figure 4-11. Inflation-adjusted ex-vessel revenue (dollars) for the pelagic longline fishery, 2010-2019.

HMS purse seine fishery

Inflation adjusted ex-vessel revenue in 2019 was $633,195 compared to $2,426,006 in 2018.

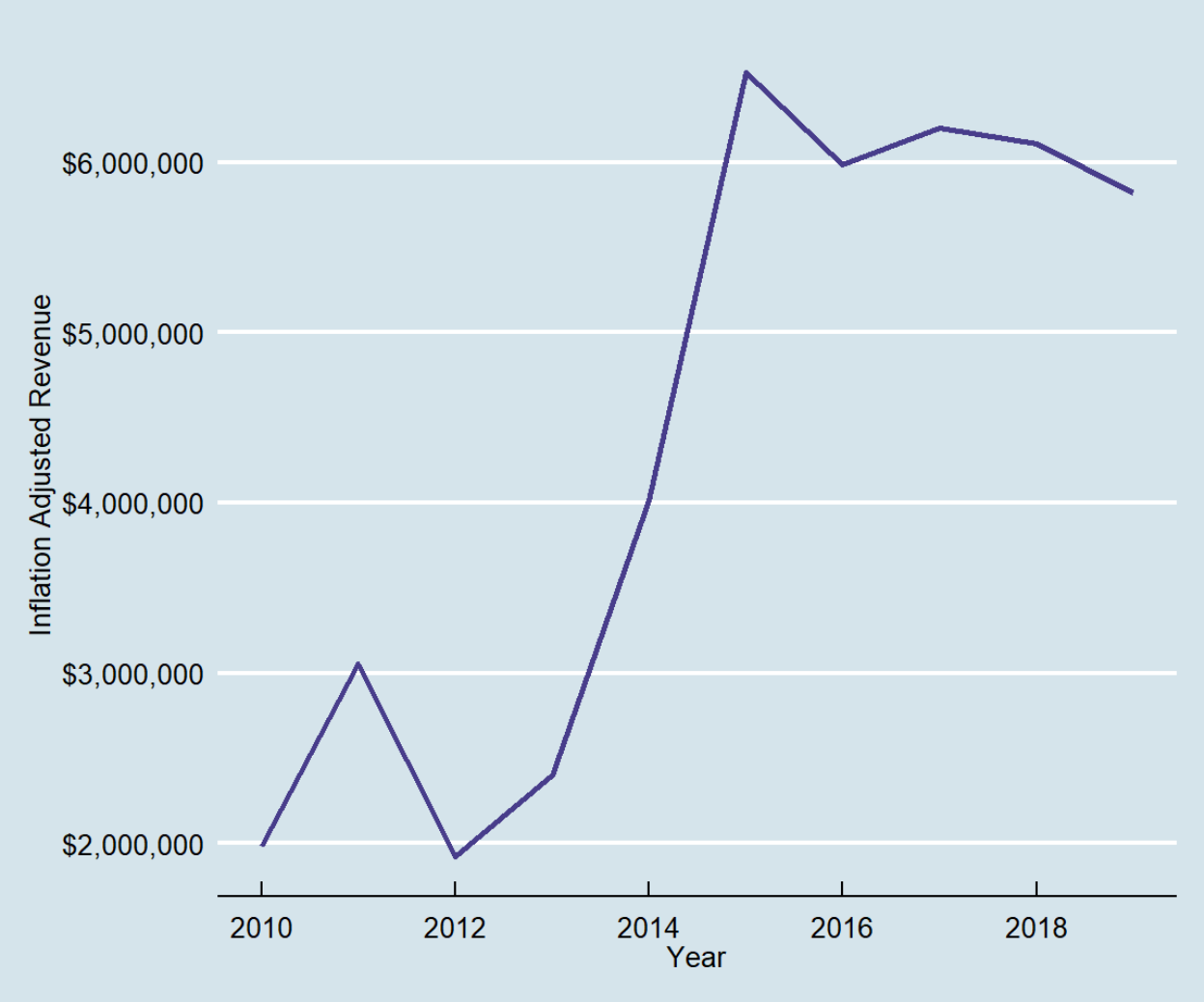


Figure 4-12. Inflation-adjusted ex-vessel revenue (dollars) for the HMS purse seine fishery, 2010-2019.

Harpoon fishery

Inflation adjusted ex-vessel revenue in 2019 was $5,817,785 compared to $124,270 in 2018.

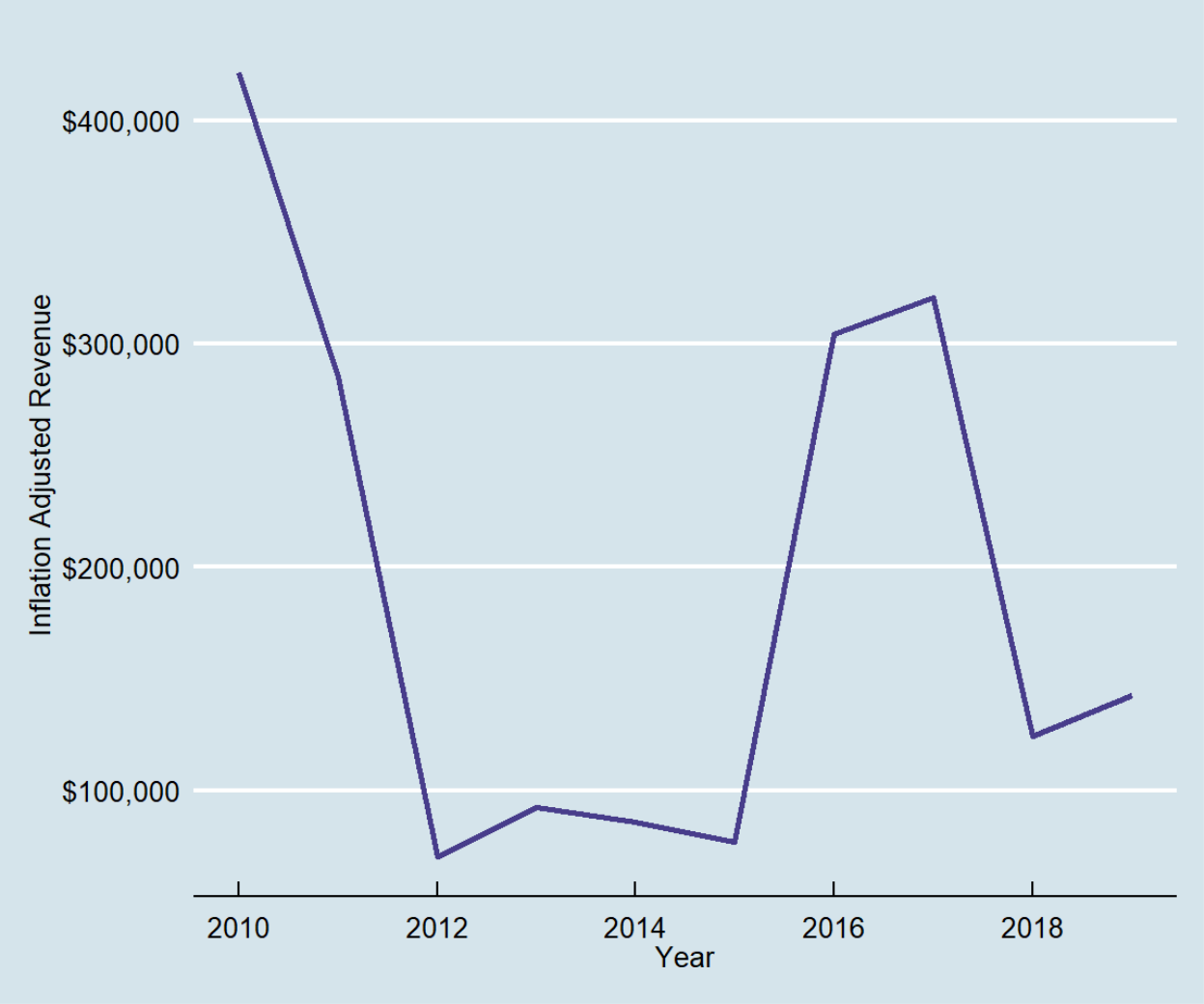


Figure 4-13. Inflation-adjusted ex-vessel revenue (dollars) for the harpoon fishery for swordfish, 2010-2019.

5. Recreational Fisheries

Recreational fishery catch tables are found in Appendix B as well as online.

5.1. Fishery Descriptions

5.1.1. 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 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.

5.1.2. 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.

5.2. Recreational Fishery Performance

Data from Table R-4, Estimated number of highly migratory MUS kept and thrown back alive by recreational anglers fishing from California private vessels in U.S. EEZ waters and Table R-5 for Mexico waters is summarized in the figures below.

This figure shows estimated catch (retained plus discarded) by fleet, zone (Mexico or US waters), and species group for the years 2017 to 2019. The Tuna species group accounted for the most catch at 90%.

The CPFV fleet in Mexico waters accounted for 62% of catch followed by the CPFV fleet in US waters at 18%.

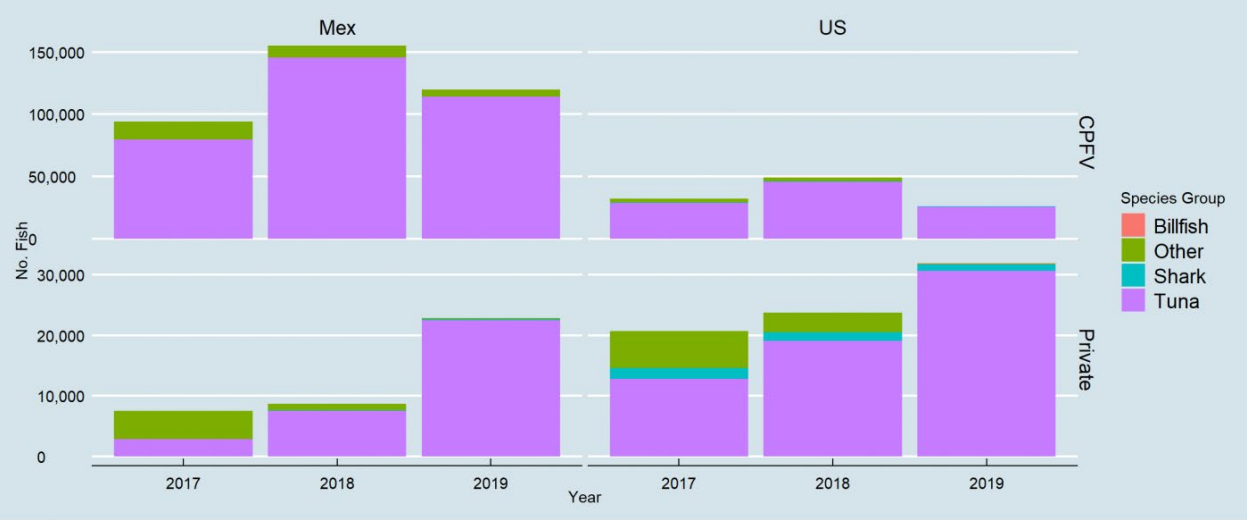


Figure 5-1. Total recreational catch (retained plus discarded), number of fish, by sector and zone, 2017-2019.

This figure shows catch by species (retained plus discarded) aggregated by fleet and zone, 2017-2019.

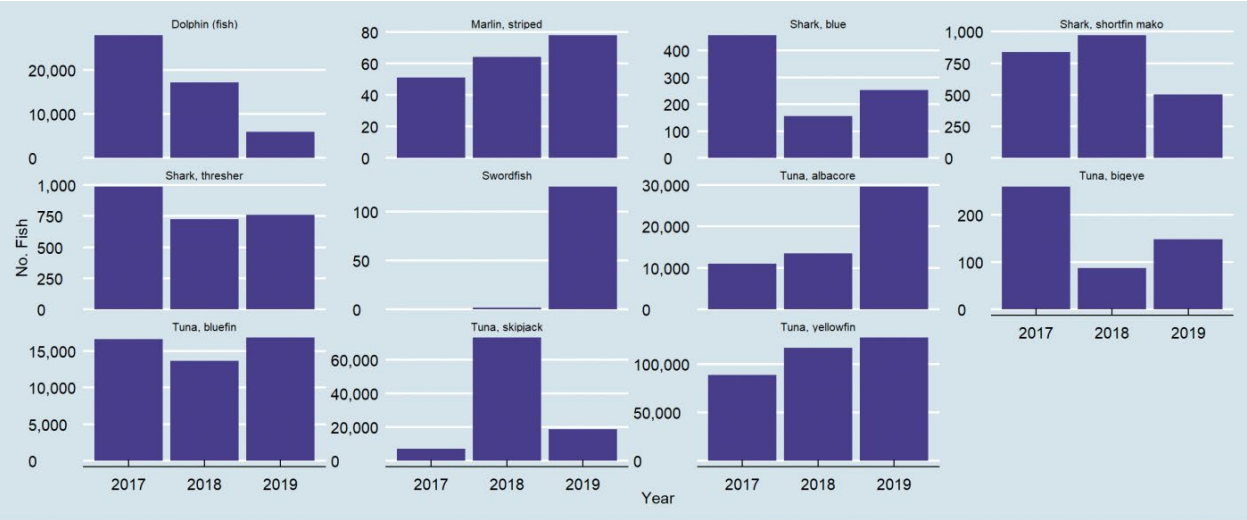


Figure 5-2. Total recreational catch (retained plus discarded), number of fish, by species, 2017-2019.

6. 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.)

The tables are included in Appendix C as well as online.

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.

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.

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 harvesters 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.

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.

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.

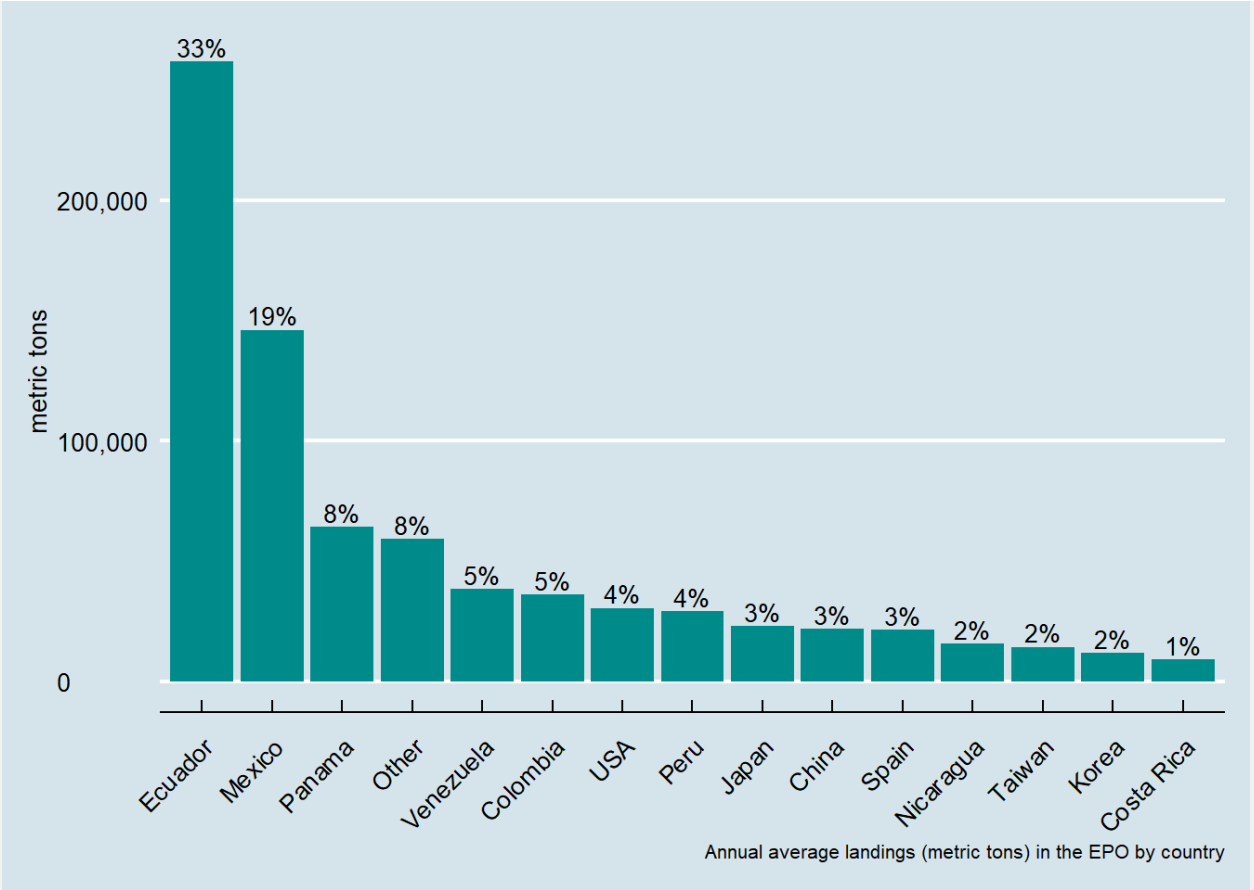
7. Pacific-Wide HMS Catch, 2008-2018

The data used in the graphs and summaries below use Inter-American Tropical Tuna Commission (IATTC) public domain data, Western and Central Pacific Fisheries Commission (WCPFC) Tuna Fishery Yearbook annual catch estimates, and International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) annual catch tables.

7.1. Eastern Pacific Ocean Landings (IATTC Data): 2009 – 2018

7.1.1. Landings by Country

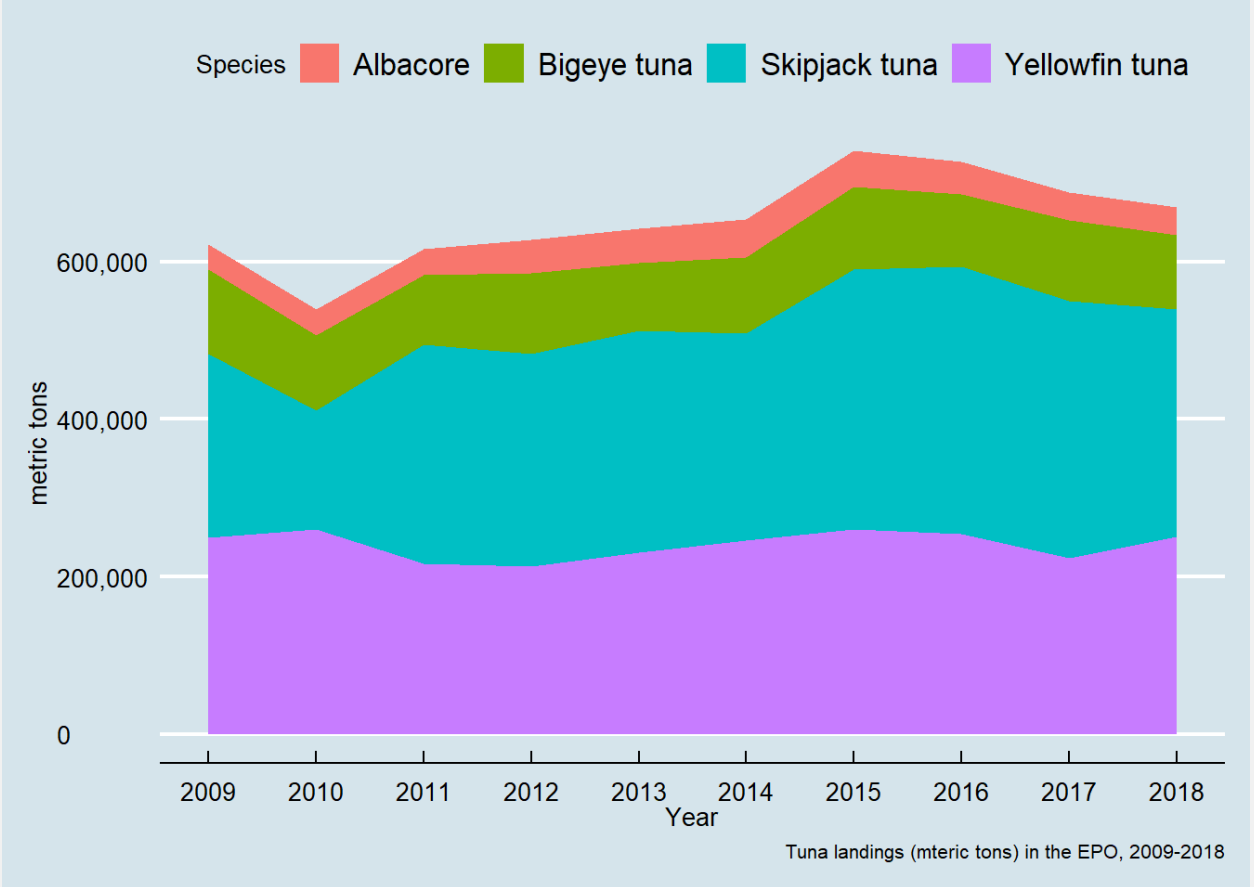
The plot below shows average annual landings by country for all species recorded in IATTC data.



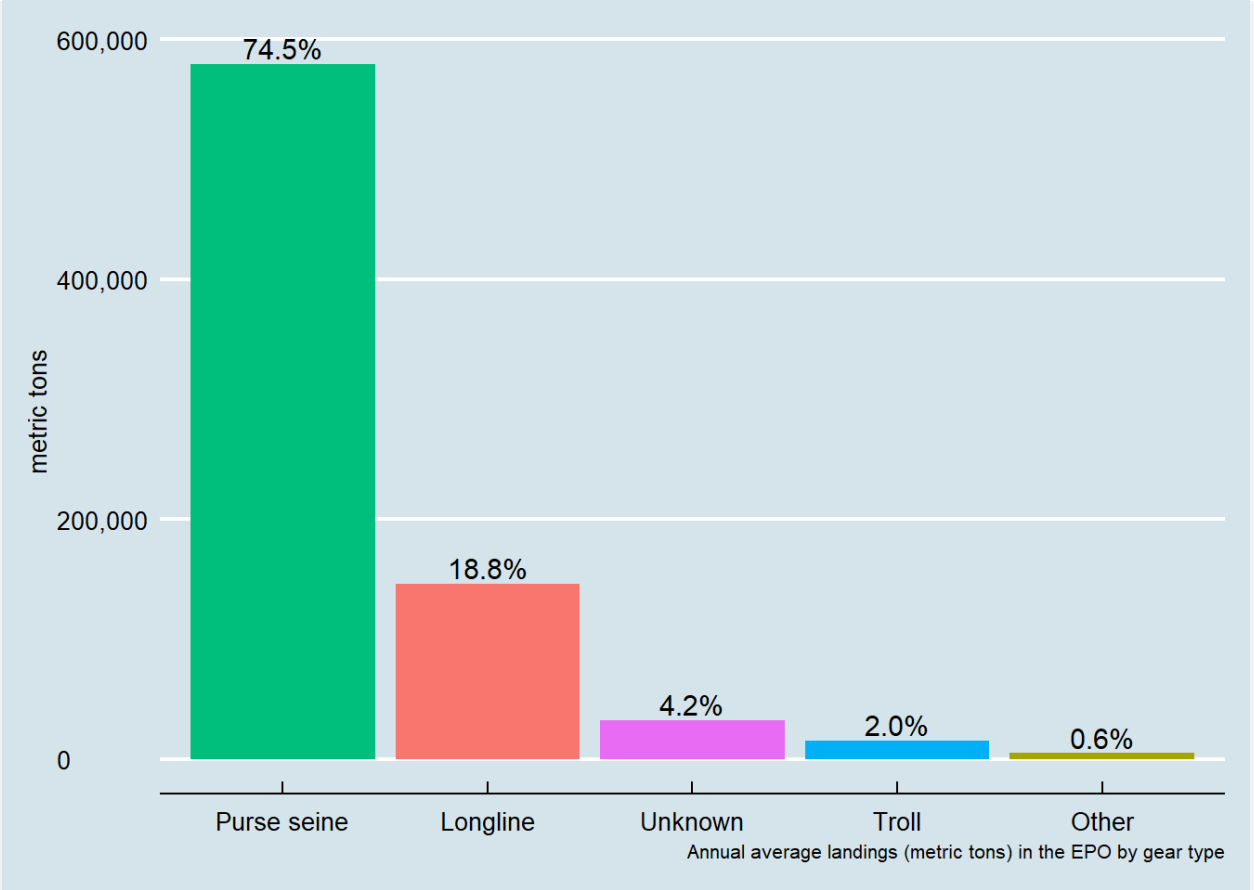
The Other category includes French Polynesia, Chile, Vanuatu, Canada, Belize, Guatemala, each of which has landings less than 1% of the total, and others not specified in the source data.

7.1.2. Landings by Species

During 2009-2018 Albacore accounted for 6.0% of total landings, Bigeye tuna for 14.8%, Skipjack tuna for 42.3%, and Yellowfin tuna for 36.9%.



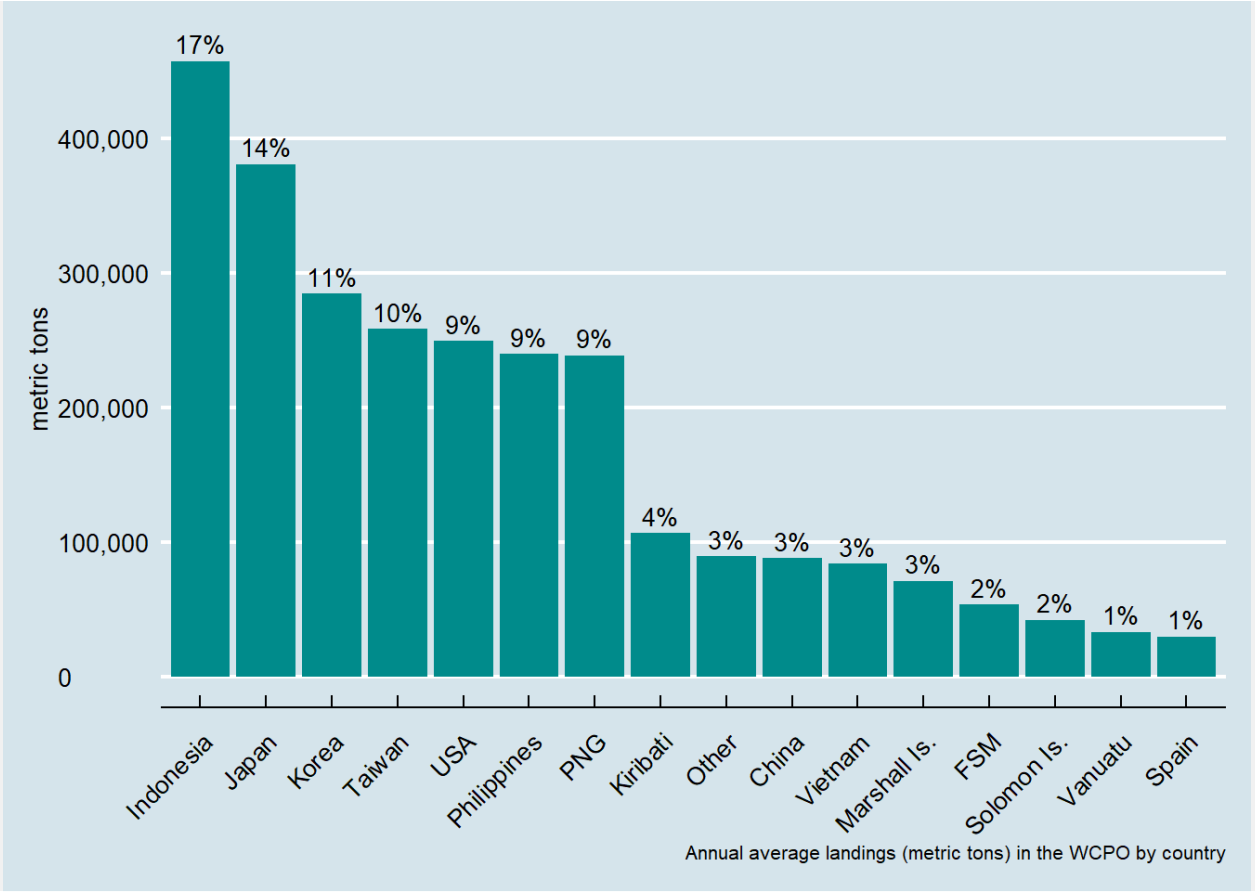
7.1.3. Landings by Gear



The Other category includes Recreational, Pole-and-line, Gillnet, Harpoon and others not specified in the source data.

7.2. Western and Central Pacific Ocean (WCPFC Data): 2009 – 2018

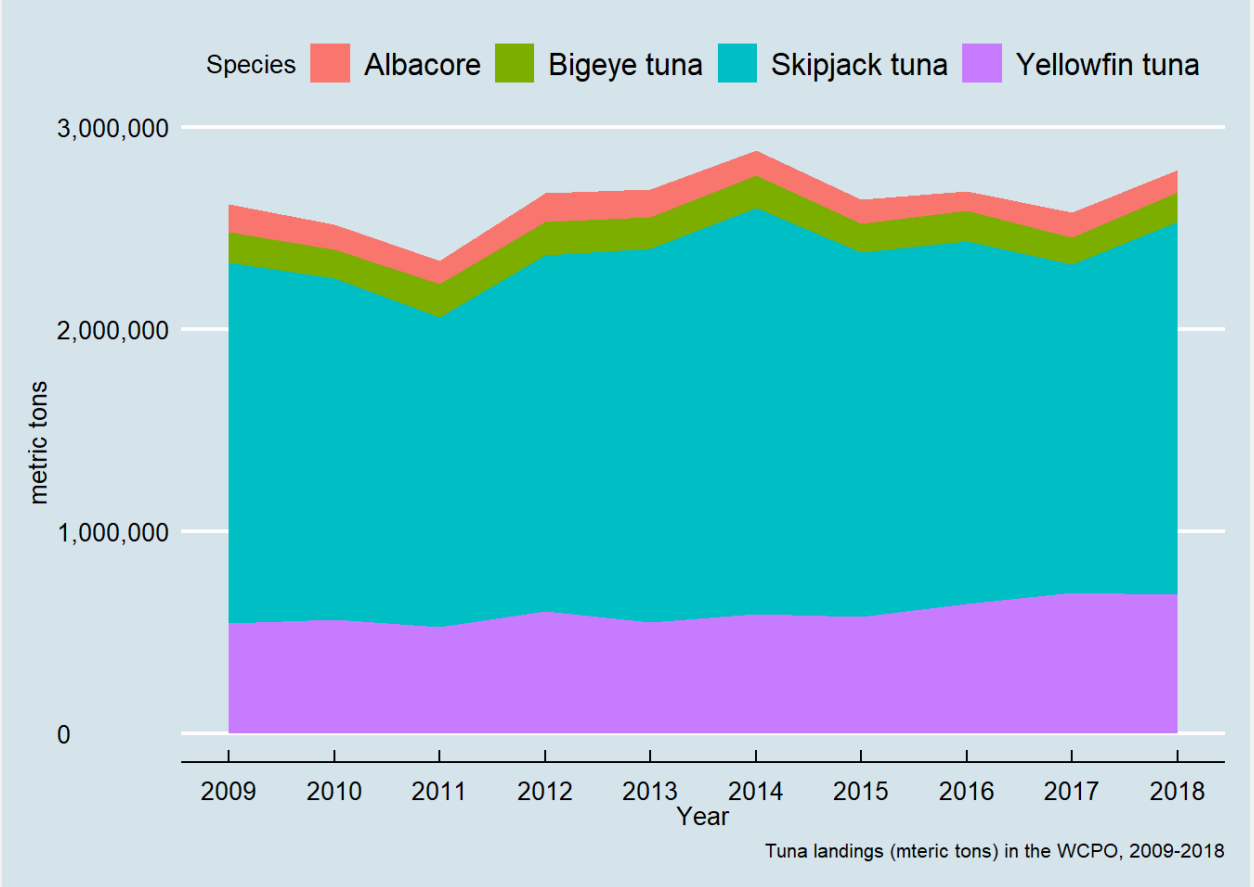
7.2.1. Landings by Country



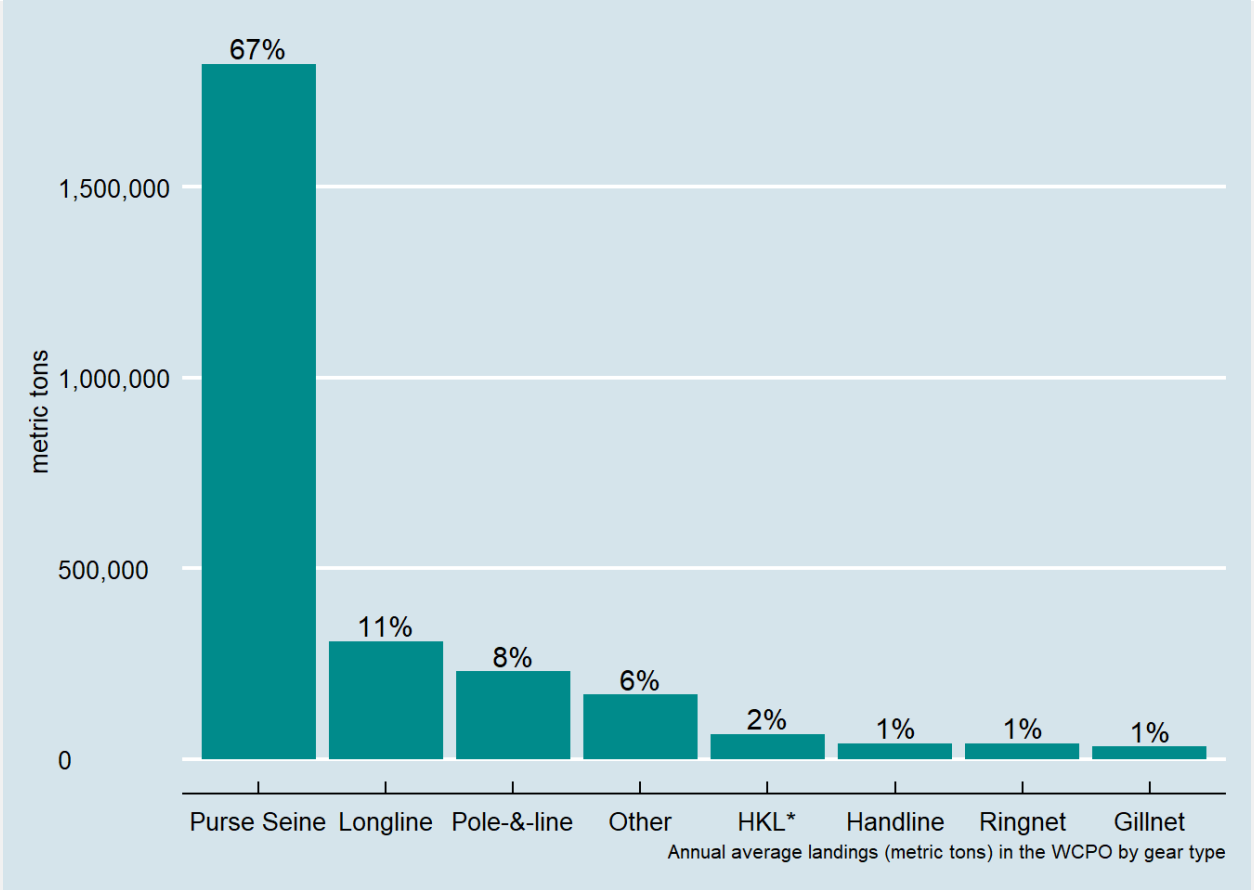
PNG: Papua New Guinea, FSM: Federated States of Micronesia; the Other category includes New Zealand, Fiji, Ecuador, Tuvalu, El Salvador, French Polynesia, Australia, Cook Islands, New Caledonia, Samoa, Palau, Tonga, Eastern Pacific Us Purse Seine Fleet, Belize, Tokelau, Niue, Canada, Senegal, each of which has landings less than 1% of the total.

7.2.2. Landings by Species

During the 2009- 2018 period, Albacore accounted for 4.7% of total landings, Bigeye tuna accounted for 5.7%, Skipjack tuna accounted for 67.0%, and Yellowfin tuna accounted for 22.7%.



7.2.3. Landings by Gear



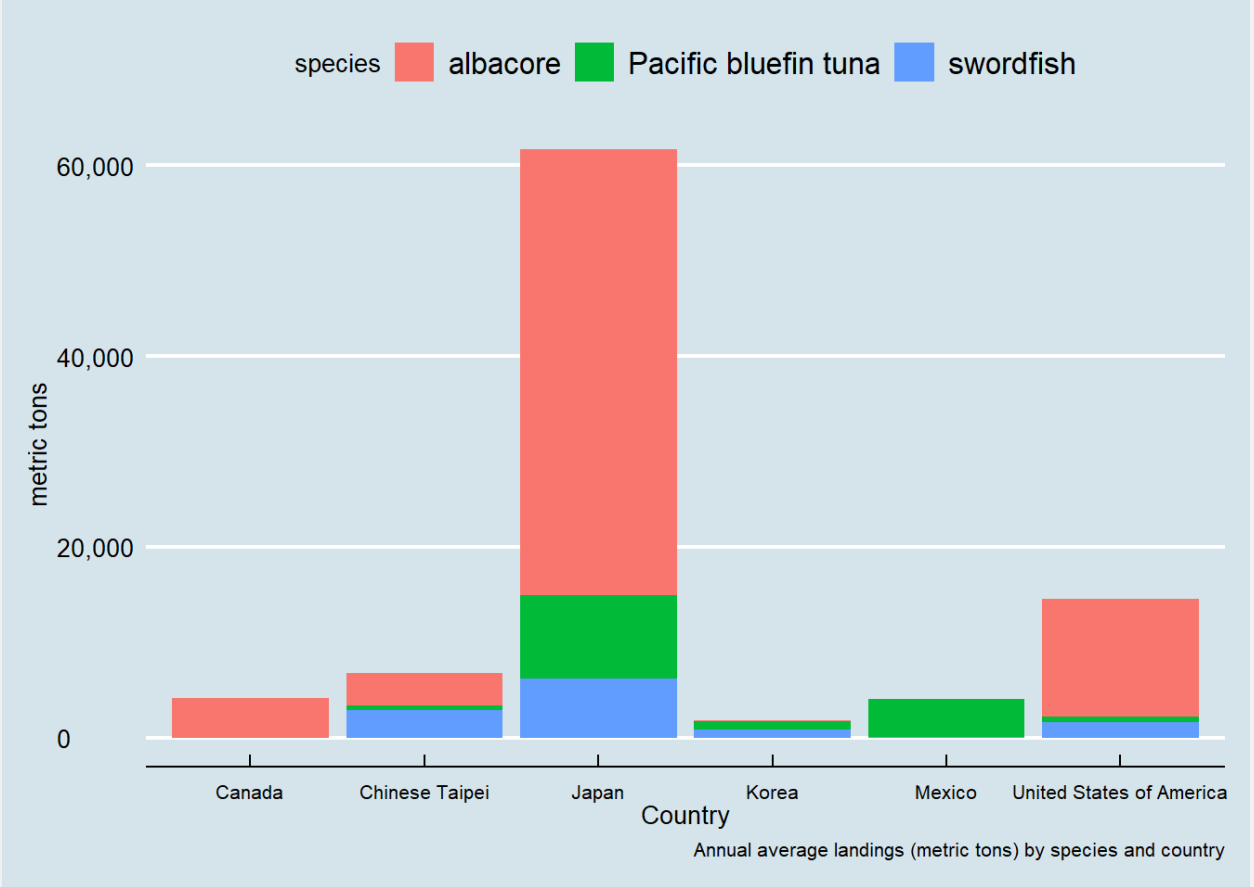
*Small-scale hook-and-line (Philippines and Indonesia). The Other category from source data.

7.3. North Pacific (ISC Data): 2009 – 2018

The ISC provides member country catch data for the species it assesses. Of these, landings of North Pacific albacore, Pacific bluefin tuna, and swordfish are summarized here. (The other assessed species are blue and short-fin mako sharks, and striped and blue marlins.). ISC catch table data provided in a suitable format for processing by the ISC Data Manager, Kiara Nishikawa.

7.3.1. Landings by Country

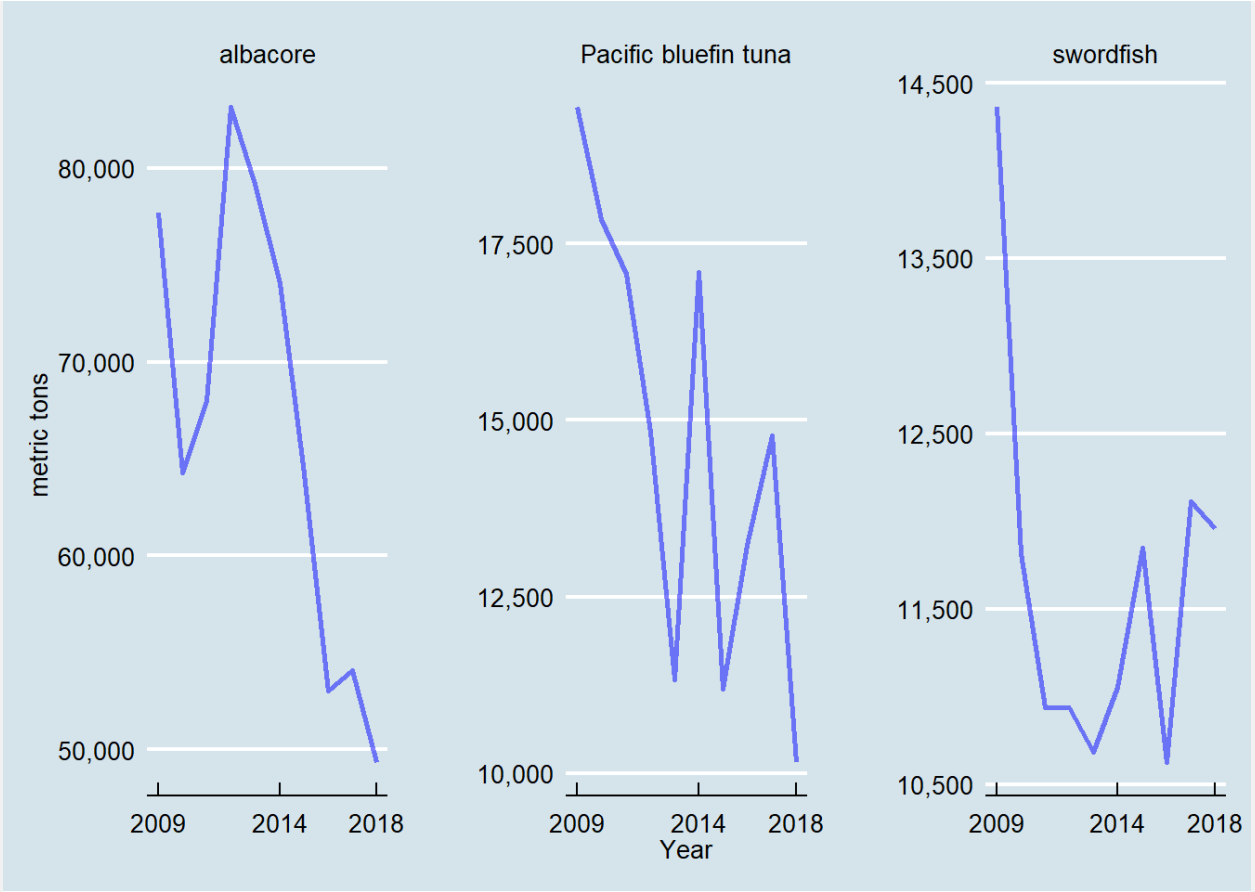
Japan accounts for the largest proportion of these three species landings, 66%, averaging 61,654 metric tons annually during the 2009-2018 period. U.S. landings averaged 14,550 metric tons or 16% of total landings.



7.3.2. Landings by Species

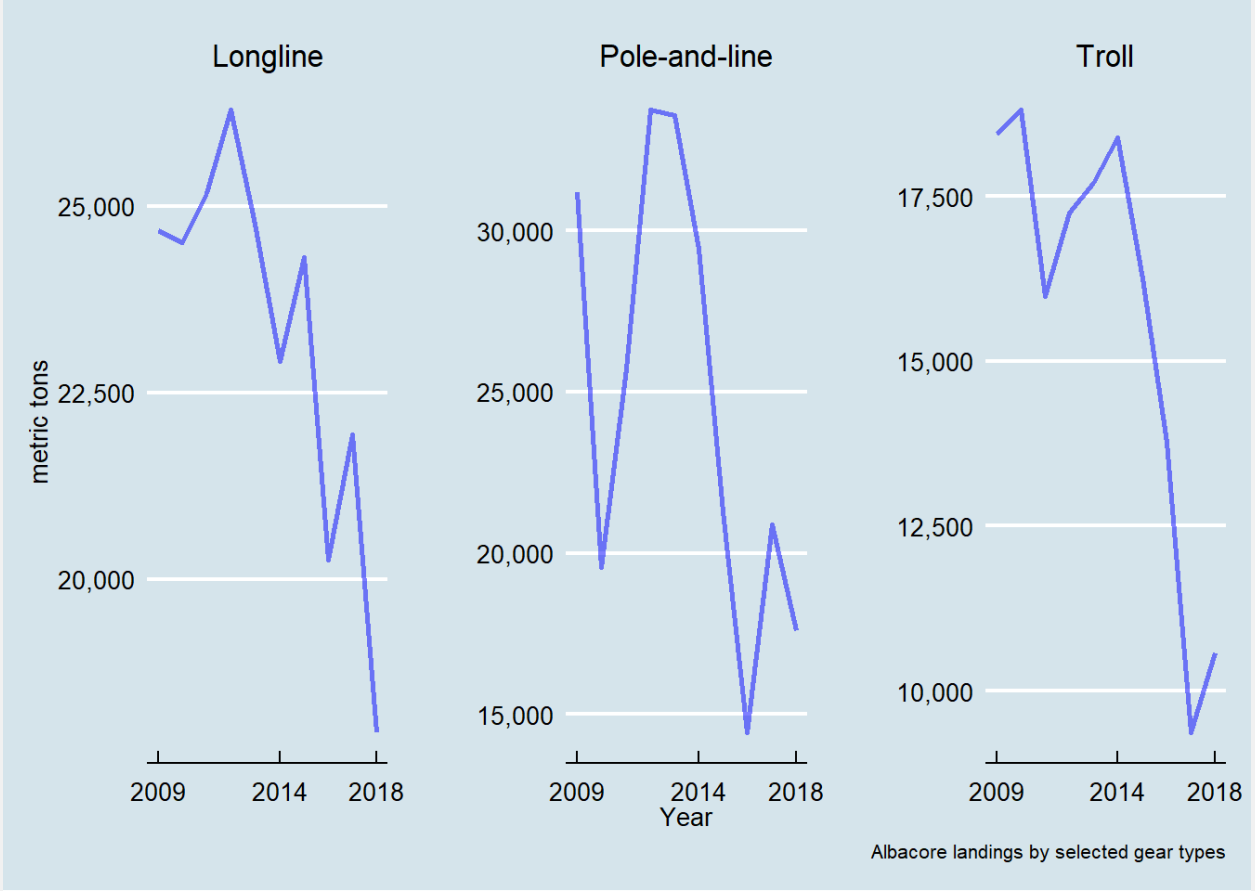
As depicted below, landings of albacore, Pacific bluefin, and swordfish have declined over this 10-year period. Albacore landings were lowest in 2018 at 49,318 mt, Pacific bluefin landings were lowest in 2018 at 10,148 mt, and swordfish landings were lowest in 2016 at 10,623 mt. The decline in Pacific bluefin

landings may be partially attributable to the implementation of catch limits in the WCPFC Northern Committee's stock rebuilding plan.



7.3.3. Albacore Landings by Gear Type

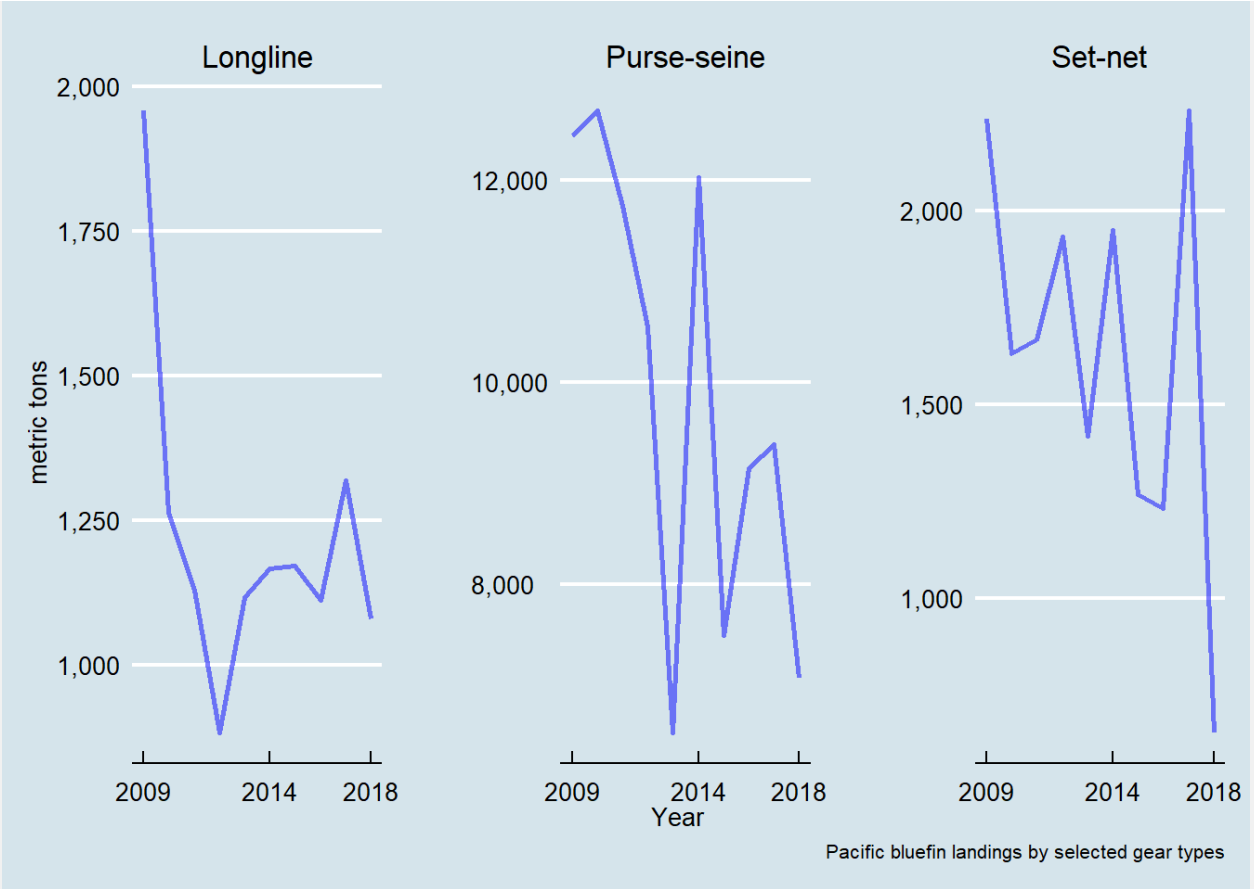
The gear types depicted below are the three top ranked in terms of landings and accounted for 95% of total albacore landings.



7.3.4. Pacific Bluefin Tuna Landings by Gear Type

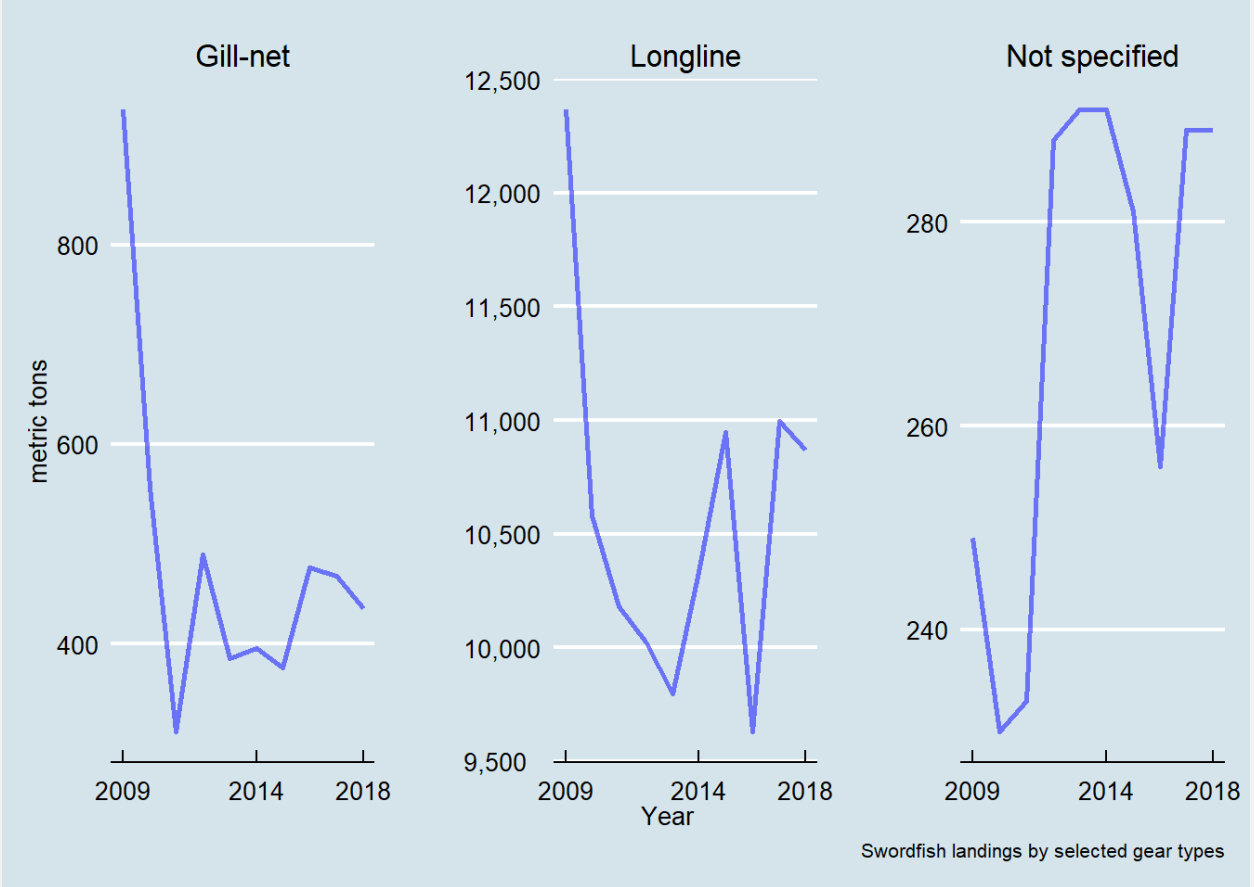
The gear types depicted below are the three top ranked in terms of landings and accounted for 87% of total Pacific bluefin landings. Setnet landings increased markedly in 2017 but fell dramatically in 2018. Setnet

is a passive gear so this may reflect increasing stock abundance and a subsequent management response to limit catch.



7.3.5. Swordfish Landings by Gear Type

The gear types depicted below are the three top ranked in terms of landings and accounted for 97% of total swordfish landings.



8. Status of HMS Stocks

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.

In the case of HMS in the Pacific, most stock assessments are conducted by several international organizations, established through conventions that function akin to treaties among sovereign governments. This makes it difficult, if not impossible, for the U.S., or any participating country, to unilaterally peer review the assessments sponsored by these organizations. Therefore, NMFS employs "other peer review processes" to determine whether the assessments constitute the best scientific information available for these transboundary stocks (81 FR 54561; August 16, 2016), including through participation by the U.S. government in these organizations. Once NMFS makes a best scientific information available (BSIA) determination on the outputs of an assessment produced by an international organization, the agency uses this information to determine the status of stocks relative to SDC identified in the FMP for the purposes of domestic management.

8.1. HMS Stock Assessments

8.1.1. Organizations That Conduct HMS Stock Assessments

Stock status is most reliably determined from stock assessments that integrate fishery and life history information across the range of the stock. A list of current stock assessments is provided in Section 8.4.

Inter-American Tropical Tuna Commission (IATTC)

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). The Fishery Status Reports summarize fisheries and stock status and the most recent stock assessment reports may be accessed on their 2018 Scientific Advisory Committee meeting page. All IATTC staff assessments and analyses are reviewed by the Scientific Advisory Committee.

In 2019, the IATTC scientific staff reported large uncertainties in the yellowfin tuna stock assessment model, and concluded that the results produced by the model are not a reliable indicator of stock status. The issues with the yellowfin tuna stock assessment model are similar to those presented at the 2018 SAC meeting for bigeye tuna. In the absence of reliable stock assessment models for both yellowfin and bigeye tuna for 2019, the IATTC scientific staff presented stock status indicators for these species. The results showed that bigeye and yellowfin tuna have been under increasing fishing pressure from purse seine sets associated with floating objects, such as FADs.

In 2020 the IATTC scientific staff completed new benchmark stock assessments for EPO yellowfin tuna and EPO bigeye tuna. These assessments were conducted within a new risk analysis framework instead of the previous "best assessment" approach. The risk analysis framework employs "…a variety of reference models … to represent plausible alternative hypotheses about the biology of the fish, the productivity of the stocks, and/or the operation of the fisheries, thus effectively incorporating uncertainty into the management advice as it is formulated." (DOCUMENT SAC-11-08 REV).

Secretariat of the Pacific Community Oceanic Fisheries Program (SPC-OFP)

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 2019 SPC assessed skipjack tuna in the western and central Pacific Ocean. SPC staff also conducted assessments of the oceanic whitetip shark stock in the Western and Central Pacific Ocean and the SW Pacific striped marlin stock in the WCPO; however, NMFS does not make status determinations for this stock.

In 2020 SPC assessed bigeye tuna and yellowfin tuna in the western and central Pacific Ocean.

International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC)

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. Shark species of interest include blue, shortfin, mako, bigeye thresher, pelagic thresher, silky, oceanic whitetip, and hammerhead species. The ISC Plenary reviews assessments and analyses, and ISC annual Plenary Reports provide stock status updates and conservation recommendations. ISC stock assessments can be found on its Stock Assessment webpage.

In 2019 the ISC Billfish Working Group completed an assessment for the Western and Central Pacific stock of striped marlin (*Kajikia audax*).

In 2020 ISC Working Groups completed benchmark stock assessments for North Pacific albacore and Pacific bluefin tuna. The Shark Working Group presented a sensitivity analysis for North Pacific blue shark; however, the Plenary concluded this was not suitable for changing stock status and conservation information as would be the case for a full update or benchmark assessment.

National Marine Fisheries Service (NMFS)

In 2016, NMFS Southwest Fisheries Science Center (SWFSC) scientists, in collaboration with scientists from Mexico, assessed the status of the stock of common thresher shark (*Alopias vulpinus*) along the West Coast of North America. This is the first assessment completed for this stock. This assessment was peer reviewed in 2017 and revised in 2018. NMFS has determined that the information presented in section 0 reflects BSIA for this stock, and a status determination is pending.

8.2. Assessment of Stock Status

National Standard 2 requires using the best scientific information available in management. This requires periodic updating of stock status for comparing against status determination criteria. HMS FMP Chapter 4 describes the management reference points used to assess stock status and the methods for determining the values for these reference points. These reference points are:

Maximum sustainable yield (MSY): MSY is 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. For management purposes MSY is usually expressed in terms of the following reference points:

> MSY fishing mortality rate (F_{MSY}): The fishing mortality rate that, if applied over the long term, would result in MSY.
>
> MSY stock size (B_{MSY}): The long-term average size of the stock or stock complex, measured in terms of spawning biomass or other appropriate measure of the stock's reproductive potential that would be achieved by fishing at F_{MSY}.

Status determination criteria (SDC) are quantifiable thresholds (or their proxies) that are used to determine if overfishing has occurred, or if the stock or stock complex is overfished. "Overfished" relates to biomass of a stock or stock complex, and "overfishing" pertains to a rate or level of removal of fish from a stock or stock complex. SDC are:

> Maximum fishing mortality threshold (MFMT): The level of fishing mortality (F), on an annual basis, above which overfishing is occurring. The MFMT or reasonable proxy may be expressed either as a single number (a fishing mortality rate or F value), or as a function of spawning biomass or other measure of reproductive potential.
>
> Overfishing limit (OFL): The annual amount of catch that corresponds to the estimate of MFMT applied to a stock or stock complex's abundance and is expressed in terms of numbers or weight of fish. The OFL is an estimate of the catch level above which overfishing is occurring.
>
> Minimum stock size threshold (MSST): The level of biomass below which the stock or stock complex is considered to be overfished.

Optimum yield (OY): The amount of fish that will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities and taking into account the protection of marine ecosystems.

HMS FMP section 4.2 describes the considerations for determining MSY. As part of the biennial process, the HMSMT will review recent stock assessments or other information as described below, and submit a draft SAFE document for review at the September Council meeting containing MSY estimates, noting if they are a change from the current value. At the request of the Council, the Scientific and Statistical Committee (SSC) will review these estimates and make recommendations to the Council on their application in management decisions. Based on this advice, the Council may recommend revisions to MSY estimates to NMFS.

HMS FMP section 4.4 describes how SDC are computed. NMFS uses the following status determination criteria to identify stocks subject to overfishing or that have become overfished as specified at MSA section 304(e).

MFMT equals F_{MSY}. The OFL is the annual amount of catch that corresponds to the estimate of MFMT applied to a stock or stock complex's abundance and is expressed in terms of numbers or weight of fish. Overfishing occurs when fishing mortality F is greater than the MFMT mortality or catch exceeds OFL for one year or more.

MSST is calculated as the greater of:

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

MSST or a reasonable proxy must be expressed in terms of spawning biomass or other reproductive potential. Should the estimated size of an HMS stock in a given year fall below this threshold, the stock is considered overfished.

In the case of species under international management, the Council should recommend that the appropriate RFMO consider adopting the SDCs determined pursuant to the HMS FMP as limit reference points for international management (see FMP Section 2.1).

Current Status Determination Criteria for HMS FMP Stocks

NMFS West Coast Region and Southwest Fisheries Science Center (SWFSC) make BSIA and status determinations for some but not all stocks of HMS FMP management unit species. The Pacific Islands Regional Office and Pacific Islands Fisheries Science Center (PIFISC) are the lead in making status and BSIA determinations for stocks occurring in the Western Pacific. Table 8-1 lists stock assessments used to make status determinations for the management unit species by the year the assessment was conducted, the organization conducting the assessment, and the lead NMFS Science Center for that stock. Table 8-2 and Table 8-3, provide estimates of the MSY, MFMT, MSST, any reference points adopted by RFMOs, and current status determinations. As noted above, NMFS uses these estimates as a basis for making status determinations.

Table 8-1. Current assessments for key stocks.

Stock	Assessment Year	Assessment Lead	Lead NMFS Science Center
North Pacific albacore tuna	2017	ISC	SWFSC
Blue shark in the NPO	2017	ISC	PIFSC/ SWFSC
Pacific bluefin tuna in the NPO	2018	ISC	SWFSC
Shortfin mako shark in the NPO	2018	ISC	PIFSC/ SWFSC
WCNPO swordfish	2018	ISC	PIFSC
Bigeye tuna in the EPO	2017	IATTC	SWFSC
Bigeye tuna in the EPO	2018	IATTC	SWFSC
Yellowfin tuna in the EPO	2017	IATTC	SWFSC
Yellowfin tuna in the EPO	2018	IATTC	SWFSC
Skipjack tuna in the EPO	2018	IATTC	SWFSC
Skipjack tuna in the EPO	2017	IATTC	SWFSC
Common thresher shark	2018	NMFS	SWFSC
Bigeye tuna in the WCPO	2017	SPC	PIFSC
Yellowfin tuna in the WCPO	2017	SPC	PIFSC

Table 8-2. Stock assessment information for the purposes of determining whether HMS stocks are subject to overfishing.

Stock	Assessment or Indicator Analysis	Assessment Year	Assessment Lead	MFMT (Fmsy or Proxy)	Current Fmsy or proxy quantity estimate	Current F quantity estimate	RFMO Ref. point (if adopted)	F/Fmsy ratio	Subject to Overfishing?
North Pacific albacore tuna	Assessment	2017	ISC	1-SPRMSY	0.84	1-SPR2012-14 = 0.51	NA	0.61	No
North Pacific albacore tuna	Assessment	2020	ISC	FMSY	0.83	F2015-17= 0.5	NA	0.6	No
Blue shark in the NPO	Assessment	2017	ISC	FMSY	0.35	F2002-14 = 0.13	NA	0.37	No
Pacific bluefin tuna in the NPO	Assessment	2018	ISC	1-SPRMSY	0.788	1-SPR2015-16 = 0.921	NA	1.17	Yes
Pacific bluefin tuna in the NPO	Assessment	2020	ISC	1-SPRMSY	0.79	1-SPR2016-18 = 0.86	NA	1.09	pending
Shortfin mako shark in the NPO	Assessment	2018	ISC	1-SPRMSY	0.26	1-SPRmsy2013-15 = 0.16	NA	0.62	No
WCNPO swordfish	Assessment	2018	ISC	FMSY	0.68	F2013-15 = 0.32	NA	0.47	No
Bigeye tuna in the EPO	Assessment	2017	IATTC	FMSY	NA	F2014-16 = NA	NA	F2014-16/Fmsy = 0.87	No
Bigeye tuna in the EPO	Assessment	2020	IATTC	FMSY	NA	NA	NA	median of F2017-19/Fmsy = 1.00	No
Yellowfin tuna in the EPO	Assessment	2018	IATTC	FMSY	NA	F2015-17 = NA	NA	F2015-17/Fmsy = 1.01	Yes
Yellowfin tuna in the EPO	Assessment	2020	IATTC	FMSY	NA	NA	NA	median of F2017-19/Fmsy = 0.65	pending
Skipjack tuna in the EPO	Assessment	2004	IATTC	NA	NA	NA	NA	NA	No

Stock	Assessment or Indicator Analysis	Assessment Year	Assessment Lead	MFMT (Fmsy or Proxy)	Current Fmsy or proxy quantity estimate	Current F quantity estimate	RFMO Ref. point (if adopted)	F/Fmsy ratio	Subject to Overfishing?
Common thresher shark	Assessment	2018	NMFS	1-SPRMSY	0.45	1-SPR2012-14 = 0.097	NA	0.21	No
Bigeye tuna in the WCPO	Assessment	2020	SPC	FMSY	0.05	F2018 = NA	NA	0.74	No
Bigeye tuna in the WCPO	Assessment	2017	SPC	FMSY	0.05	F2015= NA	NA	0.83	No
Yellowfin tuna in the WCPO	Assessment	2020	SPC	FMSY	0.105	F2018=NA	NA	0.366	No
Yellowfin tuna in the WCPO	Assessment	2017	SPC	FMSY	0.12	NA	NA	0.74	No**
EPO swordfish	Assessment	2014	ISC	U (exploitation rate = catch/biomass)	0.18	F2012 = 0.19	NA	1.11	Yes
EPO striped marlin	Assessment	2010	IATTC	F	NA	NA	NA	0.16	No
Dorado									Unknown
WCNPO striped marlin	Assessment	2019	ISC	FMSY	0.6	F3-12 ages in 2015-2017 = 1.07	NA	1.78	Yes
WCNPO striped marlin	Assessment	2015	ISC	FMSY	0.63	F2012 = 0.94	NA	1.49	Yes

Table 8-3. Stock assessment information for the purposes of determining whether HMS stocks are overfished

Stock	Bmsy or proxy	Current Bmsy or proxy quantity estimate	Current B quantity estimate	MSST (1-M*Bmsy or 0.5Bmsy)	Current B/MSST	RFMO Ref. point (if adopted)	Overfished?
North Pacific albacore tuna	SSBmsy	32,638 mt	SSB2015 = 80,618 mt	16,972 mt	4.75	20%SSBcurrent, F=0 =32,614 mt	No
North Pacific albacore tuna	SSBmsy	19,535 mt	SSB2018 = 58,858 mt	10,158 mt	5.794250837	20%SSBcurrent, F=0 =25,590 mt	No
Blue shark in the NPO	SSBmsy	179,539 mt	SSB2015 = 308,286	136,450-154,608 mt*	2.0 - 2.3	NA	No
Pacific bluefin tuna in the NPO	SSBmsy	135,874 mt	SSB2016 = 21,331 mt	101,905.5 mt	0.21	NA	Yes
Pacific bluefin tuna in the NPO	SSBmsy	131,363 mt	SSB2018 = 28,228 mt	98,522 mt	0.29	NA	pending
Shortfin mako shark in the NPO	SAmsy	633,700 female sharks	SA2016 = 860,200 female sharks	(1-0.128)*633700 = 552,586 female sharks	1.6	NA	No
WCNPO swordfish	SSBmsy	15,702 mt	SSB2016 = 29,403 mt	(1-0.22)*15702 = 12,248 mt	2.4	NA	No
Bigeye tuna in the EPO	B (biomass of age 3+ quarters old fish) at MSY	96,360 mt	B (biomass of age 3+ quarters old fish at beginning of 2017) = 118,523	48,130 mt	2.9	NA	No
Bigeye tuna in the EPO	NA	NA	NA	NA	S2020/0.5*SMSY= 1.84	NA	No
Yellowfin tuna in the EPO	SMSY (unitless index of spawning biomass at MSY)	3,634	S = 3,925 (S is an unitless index of spawning biomass)	1,817	2.1	NA	No

Stock	Bmsy or proxy	Current Bmsy or proxy quantity estimate	Current B quantity estimate	MSST (1-M*Bmsy or 0.5Bmsy)	Current B/MSST	RFMO Ref. point (if adopted)	Overfished?
Yellowfin tuna in the EPO	NA	NA	NA	NA	S2020/0.5*SMSY= 3.16	NA	pending
Skipjack tuna in the EPO	NA	NA	NA	NA	NA	NA	No*****
Common thresher shark	SSBMSY	101,500 mature females	SSB = 136,800 mature females	97,500 mature females	1.4	NA	No
Bigeye tuna in the WCPO	SSBMSY	320,162 mt	544,162 mt	NA	NA	20%SBF=0 where SBF=0 is average over 2008–2017	Not overfished
Bigeye tuna in the WCPO	SSBmsy	454,100 mt	558,543 mt	NA	NA	NA	No
Yellowfin tuna in the WCPO	SSBmsy	860,326 mt	2,090.592 mt	NA	NA	20%SBF=0 where SBF=0 is average over 2005–2014	No
Yellowfin tuna in the WCPO	SBF=0	2,178,220 mt	NA	NA	NA	20%SBF=0 where SBF=0 is average over 2005–2014	No**
EPO swordfish	BMSY	31,200	B2012 = 58,590 mt	20,280 mt	3****	NA	No
EPO striped marlin	SSBMSY	1246 mt	SSB2009 = 1488 mt	623 mt	2.32	NA	No
Dorado							Unknown
WCNPO striped marlin	SSBMSY	2604 mt	SSB2017 = 981 mt	1302 mt	0.75	NA	Yes
WCNPO striped marlin	SSBMSY	2819 mt	SSB2013 = 1094 mt	1410 mt	0.77	NA	Yes

Notes:
Blimit = 136,450-154,608 because mortality changes with age and ranges from 0.24-0.14 for mature fish; females are 50% mature at age 5-6.
For WCPO Yellowfin tuna the status determination was made in 2014 and 2017 results reiterated same.

For the 2017 WCPO bigeye tuna assessment, the ratios of F/Fmsy and B/Bmsy were calculated, but the separate F, Fmsy, B, and Bmsy estimates were not available. No minimum stock size threshold (MSST)/overfished threshold could be calculated, but because the stock was above Bmsy, it had to be above MSST.

For EPO swordfish, looks like they actually used B2012/Bmsy = 1.87 for the status determination instead of B2012/Bmsst = 3; status is the same, not overfished

For EPO skipjack, no minimum stock size threshold (MSST) (or overfished threshold) was calculated, but because the stock was above Bmsy, it was above MSST.

RFMO Consideration of Biological Reference Points and Harvest Strategies

The WCPFC has adopted harvest strategies for two stocks relevant to two HMS FMP management unit species for which status determination criteria have been established: North Pacific albacore and Pacific bluefin tuna. The North Pacific albacore harvest strategy includes a biomass-based limit reference point (LRP) of 20%SSBcurrent$_{F=0}$. The target reference point (TRP) for this stock will be determined following a comprehensive analysis under a management strategy evaluation (MSE) approach. The Pacific bluefin harvest strategy includes an initial rebuilding target of the median SSB estimated for the period 1952 through 2014, to be reached by 2024 with at least 60% probability, and a second rebuilding target of 20%SSB$_{F=0}$, to be reached by 2034, or 10 years after reaching the initial rebuilding target, whichever is earlier, with at least 60% probability. SSB$_{F=0}$ is the expected spawning stock biomass under average recruitment conditions without fishing. The Northern Committee will develop limit and target reference points through an MSE process.

The WCPFC maintains a webpage describing its current harvest strategies. The WCPFC intends to adopt harvest strategies for key stocks and fisheries in its Convention Area consistent with Conservation and Management Measure 2014-06.

The IATTC adopted the elements of the Pacific bluefin tuna harvest strategy in Resolution C-18-02. This harvest strategy is based on recommendations from the Joint IATTC/WCPFC Northern Committee Working Group, which met concurrently during the 2016, 2017, and 2018 Northern Committee meetings.

8.3. Catches of HMS Management Unit Species in West Coast Fisheries

Table 8-4 compares estimates of stockwide and U.S. West Coast catch of HMS management unit species. This information can inform considerations of the "relative impact of U.S. fishing vessels on the stock" when the Council considers responses to a notification that a stock is subject to overfishing or overfished "due to excessive international fishing pressure." When notified by NMFS, Magnuson-Stevens Act section 304(i) requires the Council to develop recommendations for domestic regulations and international actions taking into account this relative impact.

Table 8-4. Stockwide and regional catches for HMS management unit species (x1,000 mt round weight), 2012–16.

Species (stock)	Stockwide Catch	U.S. West Coast Catch		Average Annual Fractional Catch
		Commercial	Recreational[6]	
TUNAS				
Albacore (NPO)	53–83[1]	10–14	0.7-1	0.20
Bluefin (NPO)	11–15[1]	<0.4	0.1-0.3	0.05
Bigeye (EPO)	85–105[2]	<0.05-0.5	<0.01	<0.01
Skipjack (EPO)	270–338[2]	<0.1	<0.01–0.1	<0.01
Yellowfin (EPO)	231–260[2]	0.01-1	0.1–0.8	<0.01
BILLFISHES				
Striped Marlin (EPO)	1.3–2.8[2]	<0.01[3]	0.02[4]	0.01
Swordfish (EPO)	10–11[1]	0.5–0.7	<0.01	0.14
SHARKS				
Common Thresher	Unknown	<0.1	0.01-0.03	
Shortfin Mako	Unknown	<0.05	0.01-0.02	
Blue (NPO)	18-31[1]	<0.06[3]	<0.01	<0.01
OTHER				
Dorado	4.5–5.5[5]	<0.01	0.01–0.2	0.01

Notes:

Data are from updated commercial (HMS SAFE Table 3), CPFV and private recreational catches (HMS SAFE Tables R-1, R-4, R-6) with weight conversions of 8.7 kg/albacore, 8.7 kg/bluefin, 10.0 kg/bigeye tuna, 3.0 kg/skipjack, 4.9 kg/yellowfin, 57.9 kg/striped marlin, 113 kg/swordfish, 29.2 kg/common thresher, 16.8 kg/mako, 8 kg/blue shark, and 5.6 kg/dorado.

[1] International Scientific Committee Eighteenth Plenary Report Catch Tables, July 2018.

[2] IATTC public domain data, EPO total estimated catch by year, flag, gear, species (Oct. 2017).

[3] Striped marlin and blue shark commercial catches include estimates from the drift gillnet observed catch.

[4] Striped marlin recreational catch is estimated at 300 fish/year based on club records plus CPFV logbook recorded catch.

[5] FAO Area 77 catch FAO global fishery production dataset. Extracted October 1, 2018

[6.] 2014-2016, U.S. EEZ.

8.4. Current Stock Assessments for Species Managed under the HMS FMP

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

Tunas

- **North Pacific Albacore (2020):** Stock Assessment of Albacore Tuna in the North Pacific Ocean in 2020. Report of the Albacore Working Group. International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean 15-20 July 2020.
- **South Pacific Albacore (2018)**: Stock Assessment of South Pacific albacore tuna. Tremblay-Boyer L., J. Hampton, S. McKechnie and G. Pilling. Oceanic Fisheries Programme, The Pacific Community (SPC). WCPFC-SC14-2018/ SA-WP-05 Rev. 2. August 2, 2018.
- **Pacific Bluefin (2020):** Stock Assessment of Pacific Bluefin Tuna in the Pacific Ocean in 2020. ISC Pacific Bluefin Tuna Working Group. International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean 15-20 July 2020.
- **Bigeye (EPO) (2020)**: Bigeye Tuna in the Eastern Pacific Ocean, 2019: Benchmark Assessment. Haikun Xu, Mark N. Maunder, Carolina Minte-Vera, Juan L. Valero, Cleridy Lennert-Cody, and Alexandre Aires-da-Silva. Prepared for the Eleventh Meeting of the Inter-American Tropical Tuna Commission (IATTC) Scientific Advisory Committee. Doc SAC-11-06.
- **Bigeye (WCPO) (2020):** Stock assessment of bigeye tuna in the western and central Pacific Ocean. N. Ducharme Barth, M. Vincent, J. Hampton, P. Hamer, P. Williams, G. Pilling. Scientific Committee Sixteenth Regular Session, August 11-20, 2020. SC16-SA-WP-03.
- **Skipjack (EPO) (2019):** Updated Indicators Of Stock Status for Skipjack Tuna in the Eastern Pacific Ocean. Maunder, M. Prepared for the Tenth Meeting of the IATTC SAC, May 13-17, 2019, La Jolla, California USA. Doc SAC-10-09.
- **Skipjack (WCPO) (2019):** Stock assessment of skipjack tuna in the western and central Pacific Ocean (25July) – Rev.02. Vincent, M., G. Pilling and J. Hampton. Scientific Committee Fifteenth Regular Session. Western and Central Pacific Fisheries Commission, August 12-19, 2019. WCPFC-SC15-2019/SA-WP-05.
- **Yellowfin (EPO) (2020):** Yellowfin Tuna in the Eastern Pacific Ocean, 2019: Benchmark Assessment. Carolina Minte-Vera, Mark N. Maunder, Haikun Xu, Juan L. Valero, Cleridy E. Lennert-Cody, and Alexandre Aires-da-Silva. Prepared for the Eleventh Meeting of the Inter-American Tropical Tuna Commission (IATTC) Scientific Advisory Committee. Doc SAC-10-07.
- **Yellowfin (WCPO) (2020):** Stock assessment of yellowfin tuna in the western and central Pacific Ocean. M. Vincent, N. Ducharme Barth, J. Hampton, P. Hamer, P. Williams, G. Pilling. Scientific Committee Sixteenth Regular Session, August 11-20, 2020. SC16-SA-WP-04.

Billfishes

- **Striped marlin (WCPO) (2019):** Stock Assessment Report for Striped Marlin *(Kajikia audax)* in the Western and Central North Pacific Ocean Through 2017. Report of the Billfish Working

Group. International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean, July 11-15, 2019, Taipei, Taiwan.

- **Striped Marlin (SW Pacific – WCPO) (2019):** Stock assessment of SW Pacific striped marlin in the WCPO. Ducharme Barth, N., Pilling, G. and Hampton, J. Scientific Committee Fiftheenth Regular Session. Western and Central Pacific Fisheries Commission, August 12-19, 2019. WCPFC-SC15-2019/SA-WP-07.
- **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 (WCNPO) (2018):** Stock Assessment of Swordfish (*Xiphias gladius*) in the Western and Central North Pacific Ocean Through 2016. ISC Billfish Working Group. Prepared for the Eighteenth Meeting of the ISC, July 11-16, 2018, Yeosu, Republic of Korea.
- **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).

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) (2018):** Status of Common Thresher Sharks, *Alopias Vulpinus*, along the West Coast of North America: Updated Stock Assessment Based on Alternative Life History. Teo, S., Garcia Rodriguez, E. and Sosa-Nishizaki. O. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-595. https://doi.org/10.7289/V5/TM-SWFSC-595
- **Shortfin Mako Shark (NPO) (2018):** Stock Assessment of Shortfin Mako Shark in the North Pacific Ocean through 2016. Report of the Shark Working Group. International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. July 11-16, 2018, Yeosu, Republic of Korea.

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.

9. Research and Resources

- Research
  - HMS research and data needs (Chapter 7 in the 2018 edition of the Council research and data needs document)
  - American Fishermen's Research Foundation
  - California State University, Long Beach
  - Centro de Investigacion Cientofica y Educacion Superior de Ensenada
  - Monterey Bay Aquarium and Monterey Bay Aquarium Tuna Research and Conservation Center
  - Moss Landing Marine Lab
  - NOAA Pacific Islands Fisheries Science Center
  - NOAA Southwest Fisheries Science Center. also see SWFSC Report on HMS Research
  - Pfleger Institute of Environmental Research
  - Scripps Institute of Oceanography
  - Tagging of Pacific Pelagics
- Regional fishery management
  - Inter-American Tropical Tuna Commission (conducts HMS stock assessments)
  - Western and Central Pacific Fisheries Commission
  - International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (conducts HMS stock assessments)
  - SPC Oceanic Fisheries Programme (conducts stock assessments)
  - Western Pacific Fishery Management Council
- State and interstate fisheries commissions
  - California Department of Fish and Wildlife
  - Oregon Department of Fish and Wildlife
  - Pacific States Marine Fisheries Commission
  - Washington Department of Fish and Wildlife
  - NOAA West Coast Regional Office (HMS management)
- Sport and commercial fishing industry related associations
  - American Albacore Fishing Association
  - Oregon Albacore Commission
  - Sportfishing Association of California
  - United Anglers of Southern California (Facebook)
  - Western Fishboat Owner's Association

Table Key

Table 1. West Coast commercial HMS landings (round mt), nominal revenue ($1,000s), and average prices ($/lb) by species and year.

Table 2. West Coast commercial HMS landings (round mt), nominal revenue ($1,000s), and average prices by fishery, 2013-2014.

Table 3. West Coast commercial landings (round mt) of HMS by all HMS and non-HMS gears, 1981-2019.

Table 4. West Coast real commercial ex-vessel revenues (inflation adjusted, 2019, $1,000s) from HMS landings by all HMS and non-HMS gears, 1981-2019.

Table 5. Number of vessels and commercial landings (round mt) in the West Coast albacore surface hook-and-line (troll and baitboat) fishery, 1990-2019, Canadian vessels included.

Table 6. Real commercial ex-vessel revenues (inflation adjusted, 2019, $1,000s) for the West Coast albacore surface hook-and-line (troll and baitboat) fishery, 1990–2019, Canadian vessels included.

Table 7. Monthly commercial landings (number, weight in round mt) and real commercial ex-vessel revenue (inflation adjusted, 2019, $1,000s) of albacore by the surface hook-and-line (troll and baitboat) fishery, by state, 2012-2019, Canadian vessels included.

Table 8. Annual commercial landings (number, weight in round mt) and real ex-vessel revenue (inflation adjusted, 2019, $1,000s) of albacore by the surface hook-and-line (troll and baitboat) fishery, by port group, 2017-2019, Canadian vessels included.

Table 9. Number of vessels, commercial landings (round mt), and ex-vessel revenue (current $) of albacore and in the West Coast albacore surface hook-and-line (troll and baitboat) fishery (in U.S. west coast ports), Canadian and US vessels compared.

Table 10. Number of vessels, commercial landings (round mt), and ex-vessel revenue (inflation adjusted, 2019, $1,000s) of albacore in the West Coast albacore surface hook-and-line (troll and baitboat) fishery by state, 1990-2019, Canadian vessels included.

Table 11. Average nominal price-per-pound ($/lb) for albacore by month and by state, 2017-2019, Canadian vessels included.

Table 12. Number of vessels and commercial landings (round mt) in the West Coast drift gillnet fishery, 1990-2019.

Table 13. Real commercial ex-vessel revenues (inflation adjusted, 2019, $1,000s) for the West Coast drift gillnet fishery, 1990-2019.

Table 14. Monthly commercial landings (number, weight in round mt) and real ex-vessel revenue (inflation adjusted, 2019, $1,000s) of a) common thresher shark and b) swordfish in the drift gillnet fishery, 2017-2019.

Tables 15. Annual commercial landings (number, weight in round mt) and ex-vessel revenue (inflation adjusted, 2019, $1,000s) for a) common thresher shark and b) swordfish landings in California port groups in the drift gillnet fishery, 2017-2019. (CCA: Central California)

Table 16. Number of vessels and commercial landings (round mt) in the West Coast harpoon fishery, 1990-2019.

Table 17. Real commercial ex-vessel revenues (inflation adjusted, 2019, $1,000s) for the West Coast harpoon fishery, 1990-2019.

Table 18. Monthly commercial landings (number, weight in round mt) and real commercial ex-vessel revenue (inflation adjusted, 2019, $1,000s) of swordfish by the harpoon fishery, 2017-2019.

Table 19. Annual commercial landings (number and weight in round mt) and ex-vessel revenue (inflation adjusted, 2019, $1,000s) of swordfish by port group in the harpoon fishery, 2017-2019.

Table 20. Number of vessels and commercial HMS landings (round mt) by Hawaii permitted longline vessels in West Coast ports, 1990-2019

Table 21. Real commercial ex-vessel revenues from HMS landings (inflation adjusted, 2019, $1,000s) by Hawaii permitted longline vessels in West Coast ports, 1990-2019.

Table 22. Number of vessels and commercial landings (round mt) for HMS tunas in the West Coast purse seine fishery, 1990-2019.

Table 23. Real commercial ex-vessel revenues (inflation adjusted, 2019, $1,000s) from HMS tunas in the West Coast purse seine fishery, 1990-2019.

Table 24. Number of vessels in HMS fisheries other than the West Coast albacore surface hook-and-line (troll and baitboat) fishery by state, 1990-2019.

Table 25. Landings and revenue of HMS with non-HMS gears by a) state and b) gear type (data grouped for last 3 years). Number of landings, weight (mt), and nominal revenue.

Table 26. a) Landings (mt) and b) ex-vessel revenue (current dollars, $1,000s) by species management group (includes shoreside commercial and tribal).

Table 27. Number of vessels and commercial landings (round mt) in the West Coast South Pacific albacore surface hook-and-line (troll and baitboat) fishery, 1992-2019.

Table 28. Real commercial ex-vessel revenues (inflation adjusted, 2019, $1,000s) for the West Coast South Pacific albacore surface hook-and-line (troll and baitboat) fishery, 1992–2019.

Table 29. The number of vessels, commercial landings (round mt), and ex-vessel revenue (inflation adjusted, 2019, $1,000) for HMS Ecosystem Component species, 1990-2019.

Table 30. Inflation adjustment derived from Bureau of Economic Analysis Table 1.1.9 (Implicit Price Deflators for Gross Domestic Product).

Table 1. West Coast commercial HMS landings (round mt), nominal revenue ($1,000s), and average prices ($/lb) by species and year.
Time run: 4/22/2020 8:20:41 AM

		2018			2019		
		Landings (mt)	Revenue	Average Price	Landings (mt)	Revenue	Average Price
Tunas	Albacore Tuna	6,951	24,931	$1.63	7,583	27,829	$1.66
	Bigeye Tuna	615	4,006	$2.96	597	4,243	$3.22
	Bluefin Tuna	65	398	$2.77	274	730	$1.21
	Skipjack Tuna	1,124	955	$0.39	19	20	$0.47
	Yellowfin Tuna	1,417	1,714	$0.55	460	1,033	$1.02
Swordfish	Swordfish	548	2,668	$2.21	321	1,678	$2.37
Sharks	Blue Shark	3	1		15	6	$0.20
	Common Thresher	45	73	$0.74	56	83	$0.67
	Shortfin Mako Shark	29	52	$0.82	34	55	$0.74
Dorado	Dorado/Dolphinfish	12	51	$1.99	21	90	$1.92
Total HMS		**10,809**	**34,851**		**9,379**	**35,767**	

Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow.
Average price per pound not reported for cells highlighted in orange because landings less than 5 mt.
Blank cells indicate null value (no data exist for that stratum).
Revenue and weight rounded to nearest whole unit. If revenue or weight was 1 it was rounded to nearest 0.1 of a unit.
Revenues are not adjusted for inflation.
Average prices are estimated as revenue divided by round pounds

Table 2. West Coast commercial HMS landings (round mt), nominal revenue ($1,000s), and average prices by fishery, 2013-2014.
Time run: 4/22/2020 8:22:19 AM

	2018			2019		
Fishery	Landings (mt)	Revenue ($1,000)	Average Price ($/lb)	Landings (mt)	Revenue ($1,000)	Average Price ($/lb)
Drift Gillnet	205	849	$1.88	93	382	$1.87
Harpoon	10	124	$5.73	12	142	$5.42
Longline	1,069	6,109	$2.59	895	5,817	$2.95
Other Fisheries	87	500	$2.60	462	2,121	$2.08
Purse Seine	2,500	2,426	$0.44	598	633	$0.48
Surface Hook and	6,938	24,842	$1.62	7,319	26,671	$1.65
Grand Total	**10,809**	**34,851**		**9,379**	**35,767**	

Confidential values (less than 3 vessels or dealers) are not reported, and the cells are highlighted yellow
If landings less than 5 mt average price per pound not reported and cell highlighted orange.
Revenues are not adjusted for inflation.
Average prices are estimated as revenue divided by round pounds.
Data for Canadian surface hook-and-line vessels fishing in the U.S. EEZ are excluded from the table.

Table 3. West Coast commercial landings (round mt) of HMS by all HMS and non-HMS gears, 1981-2019.
Time run: 4/22/2020 8:22:45 AM

	Tunas						Swordfish	Sharks			Dorado	
Year	Albacore	Bigeye Tuna	Bluefin Tuna	Skipjack Tuna	Unspecified	Yellowfin	Swordfish	Blue Shark	Common	Shortfin	Dorado/Dolphi	**Total**
1981	13,712	1,167	867	57,868	39	76,090	749	92	1,521	182	3	**152,295**
1982	5,409	967	2,404	41,903	50	61,768	1,112	26	1,848	351	1	**115,844**
1983	9,578	21	763	44,994	55	55,739	1,762	7	1,331	217	0.0	**114,472**
1984	12,654	125	635	31,251	1,014	35,062	2,889	1	1,279	159	3	**85,077**
1985	7,301	6	3,253	2,976	468	15,024	3,417	1	1,190	149	0.0	**33,789**
1986	5,242	28	4,731	1,360	143	21,516	2,529	1	974	311		**36,840**
1987	3,159	49	822	5,723	128	23,200	1,802	1	562	402		**35,854**
1988	4,912	6	803	8,862	10	19,519	1,635	3	500	321	0.0	**36,577**
1989	2,214	0.0	1,018	4,505	76	17,614	1,358	6	503	255	0.0	**27,554**
1990	3,027	2	925	2,255	46	8,509	1,235	19	356	373	0.0	**16,751**
1991	1,676	7	103	3,407	11	4,177	1,029	0.0	583	218	0.0	**11,216**
1992	4,901	6	1,087	2,585	10	3,349	1,545	1	292	142	3	**13,925**
1993	6,165	25	558	4,538	15	3,794	1,766	0.0	275	122	16	**17,281**
1994	10,751	46	915	2,111	32	5,055	1,699	12	329	127	41	**21,124**
1995	6,529	48	713	7,036	1	3,038	1,162	5	269	95	5	**18,906**
1996	14,173	62	4,687	5,454	3	3,346	1,198	0.0	319	96	9	**29,352**
1997	11,291	82	2,250	6,069	10	4,774	1,459	0.0	319	132	4	**26,397**
1998	13,914	52	1,949	5,845	11	5,799	1,408	2	360	100	3	**29,448**
1999	9,781	108	186	3,758	12	1,353	2,033	0.0	320	62	17	**17,634**
2000	9,071	84	312	779	0.0	1,158	2,656	0.0	296	80	42	**14,484**
2001	11,194	52	195	57	0.0	654	2,205	2	372	46	15	**14,798**
2002	10,031	10	11	236	1	543	1,726	41	300	81	0.0	**12,984**
2003	16,668	35	36	348		465	2,135	0.0	300	69	5	**20,066**
2004	14,539	22	10	306	9	487	1,184	0.0	115	54	1	**16,732**
2005	9,054		206	522		285	296	0.0	178	33	0.0	**10,580**
2006	12,785		0.0	47		76	541	0.0	159	45	2	**13,661**
2007	11,593		44	5		104	549	9	203	44	2	**12,558**
2008	11,136	27	0.0	2	0.0	65	531	0.0	147	35	1	**11,950**
2009	12,335		415	5		45	413	1	106	30	0.0	**13,353**
2010	11,855		1			0.0	369	0.0	96	21	3	**12,349**
2011	11,049	45	118	1		0.0	609	0.0	76	19	3	**11,924**
2012	13,935	49	43	0.0		1	402	0.0	70	27	10	**14,540**
2013	12,937		10	0.0		5	532	0.0	71	30	0.0	**13,591**
2014	12,466	185	407	19	1	1,008	573	0.0	40	24	17	**14,744**
2015	11,312	440	98	109	0.0	595	624	0.0	57	20	26	**13,287**
2016	10,457	523	355	35	1	379	629	0.0	49	29	20	**12,481**
2017	7,468	519	485	41		1,748	685	1	66	38	11	**11,066**
2018	6,950	614	65	1,124		1,417	615	3	45	29	11	**10,876**
2019	7,583	597	273	19		459	421	14	56	33	21	**9,479**

Blank cells indicate null value (no data exist for that stratum).
Weight rounded to the nearest mt. If less than 1 mt was landed, weight rounded to nearest 0.1 mt
If a record is confidential (fewer than 3 vessels or dealers) data is suppressed and it is highlighted yellow

Table 4. West Coast real commexrcial e-vessel revenues (inflation adjusted, 2019, $1,000s) from HMS landings by all HMS and non-HMS gears, 1981-2019.
Time run: 4/22/2020 8:29:22 AM

	Tunas						Swordfish	Sharks			Dorado	
Year	Albacore Tuna	Bigeye Tuna	Bluefin Tuna	Skipjack Tuna	Unspecified	Yellowfin Tuna	Swordfish	Blue Shark	Common	Shortfin Mako	Dorado/Dolphin	**Total**
1981	10,928	647	510	27,328	30	40,674	1,382	24	608	67	1	**82,200**
1982	3,510	528	1,176	17,702	43	32,543	2,236	8	866	148	0	**58,760**
1983	5,558	21	483	16,640	43	27,002	3,087	2	669	104	0	**53,610**
1984	8,105	82	426	11,676	1,220	17,445	5,474	1	773	89	2	**45,295**
1985	4,030	9	1,370	1,029	500	7,139	6,520	1	883	94	0.2	**21,576**
1986	3,064	45	2,300	449	98	8,967	6,312	1	839	212		**22,287**
1987	2,605	90	1,045	2,249	228	14,162	5,647	1	602	363		**26,991**
1988	4,796	14	1,089	4,865	42	14,218	5,112	1	515	342	0.3	**30,995**
1989	2,067	1	694	2,154	70	11,370	4,510	2	516	302	0.3	**21,685**
1990	3,187	5	652	1,077	32	5,320	4,052	6	362	419	1	**15,114**
1991	1,655	25	68	1,578	12	2,342	3,717	1	568	243	1	**10,209**
1992	6,879	27	677	845	13	2,203	4,532	1	278	138	4	**15,596**
1993	7,171	130	461	2,012	45	2,956	5,489	0.4	281	136	26	**18,706**
1994	12,658	193	1,050	1,098	35	2,835	6,017	10	366	155	47	**24,464**
1995	7,406	166	677	3,042	3	1,949	4,204	2	306	106	4	**17,864**
1996	17,722	169	2,627	2,595	18	2,103	3,948	0.4	393	109	6	**29,691**
1997	13,210	239	1,839	3,650	15	3,309	4,076	0.2	392	151	7	**26,886**
1998	12,660	182	1,987	3,493	41	3,928	4,008	4	419	118	7	**26,847**
1999	12,028	447	603	1,869	41	972	5,742	0.1	420	75	33	**22,231**
2000	11,941	394	376	336	2	860	8,194	1	397	92	44	**22,636**
2001	14,661	227	332	24	1	331	6,207	1	422	54	14	**22,274**
2002	10,272	62	30	92	5	424	4,619	13	363	89	0.5	**15,971**
2003	17,918	193	55	118		329	5,771	0.3	357	85	8	**24,833**
2004	20,692	112	29	82	41	337	3,646	0.4	149	74	4	**25,167**
2005	16,200		106	227		246	1,478	0.3	211	45	1	**18,515**
2006	19,069		3	32		140	2,205	0.2	242	64	14	**21,769**
2007	17,818		48	4		123	2,577	2	278	65	8	**20,922**
2008	24,212	172	3	3	3	105	1,985	0.3	235	55	8	**26,781**
2009	23,393		374	5		141	1,651	2	167	46	4	**25,783**
2010	25,275		5			6	1,883	0.1	135	28	14	**27,346**
2011	37,846	285	209	2		1	2,898	0.1	89	33	10	**41,373**
2012	40,807	327	86	1		12	1,860	0.0	101	47	32	**43,273**
2013	38,009		62	3		37	2,447	0.0	112	55	5	**40,731**
2014	30,457	1,400	578	14	3	944	2,828	0.0	64	45	54	**36,388**
2015	27,427	2,915	124	70	6	621	3,394	0.4	87	39	83	**34,765**
2016	35,545	3,352	644	32	2	566	3,545	0.0	82	52	69	**43,888**
2017	33,410	3,326	673	40		2,319	3,786	0.7	102	68	51	**43,777**
2018	24,508	3,938	392	939		1,685	3,226	1	73	52	50	**34,862**
2019	27,829	4,243	730	20		1,033	2,530	7	83	56	90	**36,620**

Blank cells indicate null value (no data exist for that stratum).
Ex-vessel revenues rounded to the nearest $1,000. If less than $1,000 was landed Ex-vessel revenue rounded to nearest 0.1
If a record is confidential (fewer than 3 vessels or dealers) data is suppressed and it is highlighted yellow

Table 5. Number of vessels and commercial landings (round mt) in the West Coast albacore surface hook-and-line (troll and baitboat) fishery, 1990-2019, Canadian vessels included.

Time run: 4/22/2020 8:23:20 AM

		Albacore	Other HMS	**Total**
	# Vessels	Landings (mt)	Landings (mt)	
1990	369	2,976		**2,976**
1991	179	1,654		**1,654**
1992	606	4,780	0.3	**4,781**
1993	613	5,974	0.2	**5,974**
1994	716	10,671		**10,671**
1995	476	6,474	0.6	**6,475**
1996	724	14,077	0.2	**14,077**
1997	1192	11,229	1	**11,231**
1998	866	13,588	0.4	**13,589**
1999	813	9,481	0.9	**9,482**
2000	761	8,969	0.8	**8,970**
2001	979	11,068	2	**11,070**
2002	734	10,002	0.7	**10,003**
2003	888	16,606	0.2	**16,607**
2004	779	14,497	0.3	**14,498**
2005	597	9,028	0.1	**9,028**
2006	634	12,772		**12,772**
2007	674	11,508	0.0	**11,508**
2008	524	11,134	0.2	**11,134**
2009	684	12,300	0.2	**12,300**
2010	650	11,829		**11,829**
2011	680	11,019	0.4	**11,019**
2012	811	13,885	0.1	**13,885**
2013	700	12,675	0.4	**12,676**
2014	602	12,431	0.1	**12,431**
2015	567	11,267		**11,267**
2016	566	10,436	0.2	**10,436**
2017	506	7,422	0.1	**7,422**
2018	442	6,938	0.2	**6,938**
2019	544	7,318	0.6	**7,319**

Blank cells indicate null value (no data exist for that stratum).

Landed Weight rounded to nearest mt. If landed weight is less than 1 mt weight is rounded to nearest 0.1 mt.

Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow.

Table 6. Real commercial ex-vessel revenues (inflation adjusted, 2019, $1,000s) for the West Coast albacore surface hook-and-line (troll and baitboat) fishery, 1990–2019, Canadian vessels included.

Time run: 4/22/2020 8:31:18 AM

	Albacore	Other HMS	**Total**
Year	Adj. Revenue	Adj. Revenue	
1990	3,126		**3,126**
1991	1,631		**1,631**
1992	6,666	0.2	**6,666**
1993	6,979	0.1	**6,979**
1994	12,571		**12,571**
1995	7,348	0.4	**7,348**
1996	17,632	0.3	**17,632**
1997	13,141	2	**13,142**
1998	12,245	1	**12,246**
1999	11,728	1	**11,730**
2000	11,829	1	**11,830**
2001	14,538	3	**14,541**
2002	10,245	1	**10,246**
2003	17,885	0.5	**17,885**
2004	20,635	0.5	**20,635**
2005	16,153	0.1	**16,153**
2006	19,032		**19,032**
2007	17,704	0.2	**17,704**
2008	24,207	0.4	**24,207**
2009	23,362	0.3	**23,363**
2010	25,218		**25,218**
2011	37,759	1	**37,760**
2012	40,619	0.6	**40,620**
2013	37,004	0.8	**37,005**
2014	30,349	0.2	**30,350**
2015	27,316		**27,316**
2016	35,448	0.8	**35,448**
2017	33,163	0.7	**33,164**
2018	24,419	0.6	**24,420**
2019	26,667	4	**26,671**

Blank cells indicate null value (no data exist for that stratum).

Revenue rounded to nearest $1,000. If revenue is less than $1,000 revenue rounded to nearest 0.1

Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow

Table 7. Monthly commercial landings (number, weight in round mt) and real commercial ex-vessel revenue (inflation adjusted, 2019, $1,000s) of albacore by the surface hook-and-line (troll and baitboat) fishery, by state, 2012-2019, Canadian vessels included.
Time run: 4/22/2020 8:24:20 AM

2017

	California			Oregon			Washington			Coastwide		
Month	# Landings	Landings (mt)	Adj. Revenue	# Landings	Landings (mt)	Adj. Revenue	# Landings	Landings (mt)	Adj. Revenue	# Landings	Landings (mt)	Adj. Revenue
Jun				20	14	56				20	14	56
Jul				352	583	2,754	203	680	3,214	555	1,263	5,968
Aug	63	43	184	306	851	4,537	223	1,233	6,006	592	2,128	10,727
Sep	68	41	205	291	477	2,621	256	2,136	9,001	615	2,655	11,827
Oct	27	19	88	93	226	1,090	125	1,109	5,618	245	1,354	6,796
Nov												
Grand Total	**158**	**103**	**477**	**1062**	**2,151**	**11,056**	**807**	**5,158**	**23,839**	**2027**	**7,412**	**35,372**

2018

	California			Oregon			Washington			Coastwide		
Month	# Landings	Landings (mt)	Adj. Revenue	# Landings	Landings (mt)	Adj. Revenue	# Landings	Landings (mt)	Adj. Revenue	# Landings	Landings (mt)	Adj. Revenue
Jun				28	27	117				28	27	117
Jul	5	4	18	295	1,201	4,608	129	853	3,186	429	2,059	7,812
Aug	51	24	106	323	893	3,131	279	1,979	6,827	653	2,895	10,064
Sep	65	109	289	235	444	1,582	200	1,297	4,578	500	1,850	6,449
Oct	18	14	47	30	70	279	11	20	64	59	104	389
Nov												
Dec												
Grand Total	**139**	**151**	**459**	**911**	**2,634**	**9,716**	**619**	**4,148**	**14,654**	**1669**	**6,933**	**24,829**

2019

	California			Oregon			Washington			Coastwide		
Month	# Landings	Landings (mt)	Adj. Revenue	# Landings	Landings (mt)	Adj. Revenue	# Landings	Landings (mt)	Adj. Revenue	# Landings	Landings (mt)	Adj. Revenue
Jun												
Jul				65	146	608	66	313	1,190	131	459	1,799
Aug	90	73	275	619	1,512	5,485	333	1,909	6,937	1042	3,494	12,697
Sep	88	49	218	409	927	3,291	293	1,586	5,718	790	2,562	9,227
Oct	69	193	687	138	393	1,460	62	216	794	269	802	2,940
Dec												
Grand Total	**247**	**315**	**1,179**	**1231**	**2,978**	**10,844**	**754**	**4,023**	**14,639**	**2232**	**7,316**	**26,662**

Blank cells indicate null value (no data exist for that stratum).
Revenue and weight rounded to nearest whole unit. If revenue or weight was < 1 it was rounded to nearest 0.1 of a unit.
Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow
The number of landings was calculated as the number of distinct vessels making landings in a state on a landing day.

Table 8. Annual commercial landings (number, weight in round mt) and real ex-vessel revenue (inflation adjusted, 2019, $1,000s) of albacore by the surface hook-and-line (troll and baitboat) fishery, by port group, 2017-2019, Canadian vessels included.
Time run: 4/22/2020 8:24:52 AM

	2017			2018			2019		
	# Landing	Landings (mt)	Adj. Revenue	# Landing	Landings (mt)	Adj. Revenue	# Landing	Landings (mt)	Adj. Revenue
Puget Sound	21	29	170	5	12	46	15	41	135
Washington Coast	785	5,131	23,670	512	3,945	13,839	733	3,979	14,486
Other				111	194	778	9	4	18
Washington Total	**806**	**5,159**	**23,840**	**628**	**4,150**	**14,663**	**757**	**4,023**	**14,639**
Astoria-Tillamook	160	350	1,860	148	481	1,786	238	461	1,739
Newport	417	927	4,949	389	1,247	4,646	457	1,352	4,939
Coos Bay	402	793	3,818	332	850	3,072	474	1,093	3,896
Brookings	85	82	435	45	56	212	64	73	273
Oregon Total	**1064**	**2,152**	**11,062**	**914**	**2,634**	**9,716**	**1233**	**2,978**	**10,846**
Crescent City	37	32	143	26	47	140	39	85	287
Eureka	70	52	238	68	55	198	91	79	332
Fort Brag	21	8	36	20	10	47	43	13	71
Bodega Bay	6	2	13	7	5	21	10	7	22
San Francisco	11	4	27	5	21	10	41	39	126
Monterey									
Morro Bay	13	4	24				13	9	41
Santa Barbara									
Los Angeles									
San Diego									
California Total	**158**	**102**	**482**	**126**	**137**	**415**	**237**	**231**	**878**
Grand Total	**2028**	**7,414**	**35,384**	**1668**	**6,923**	**24,795**	**2227**	**7,234**	**26,365**

Blank cells indicate null value (no data exist for that stratum).
Revenue and weight rounded to nearest whole unit. If revenue or weight was < 1 it was rounded to nearest 0.1 of a unit.
Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow
The number of landings was calculated as the number of distinct vessels making landings in a state on a landing day.

Table 9. Number of vessels, commercial landings (round mt), and ex-vessel revenue (current $) of albacore and in the West Coast albacore surface hook-and-line (troll and baitboat) fishery (in U.S. west coast ports), Canadian and US vessels compared.
Time run: 4/22/2020 8:25:57 AM

	Canadian Vessels			U.S. Vessels		
Year	# Vessels	Landings (mt)	Adj. Revenue	# Vessels	Landings (mt)	Adj. Revenue
1990				369	2,976	9,561
1991				179	1,654	4,668
1992	9	77	294	598	4,704	17,957
1993				612	5,952	18,171
1994				714	10,648	31,393
1995				472	6,407	17,449
1996	66	868	2,403	658	13,209	38,467
1997	32	399	1,064	1160	10,831	28,330
1998	29	961	1,614	837	12,628	25,197
1999	52	713	1,827	761	8,769	23,113
2000	57	889	2,399	704	8,081	21,667
2001	52	806	2,333	927	10,262	26,005
2002	38	702	1,419	696	9,300	17,933
2003	105	3,118	6,368	783	13,488	26,190
2004	52	1,130	3,973	727	13,367	31,612
2005	45	811	2,849	552	8,217	23,374
2006	19	397	1,102	615	12,374	27,992
2007	22	357	985	652	11,151	24,700
2008	47	1,336	4,604	478	9,798	29,182
2009	26	650	1,874	658	11,649	30,215
2010	41	938	3,487	609	10,891	30,403
2011	47	1,187	6,733	633	9,832	41,925
2012				811	13,885	50,386
2013	22	650	2,968	679	12,025	41,347
2014	12	415	1,297	590	12,016	33,760
2015	11	245	656	557	11,022	30,236
2016	9	189	912	557	10,247	38,373
2017	11	236	1,423	495	7,186	33,988
2018	8	221	829	434	6,717	24,013
2019				539	7,216	26,296

Blank cells indicate null value (no data exist for that stratum).
Revenue and weight rounded to nearest whole unit.
Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow

Table 10. Number of vessels, commercial landings (round mt), and ex-vessel revenue (inflation adjusted, 2019, $1,000s) of albacore in the West Coast albacore surface hook-and-line (troll and baitboat) fishery by state, 1990-2019, Canadian vessels included.
Time run: 4/22/2020 8:26:25 AM

	California			Oregon			Washington		
Year	# Vessels	Landings (mt)	Adj. Revenue	# Vessels	Landings (mt)	Adj. Revenue	# Vessels	Landings (mt)	Adj. Revenue
1990	108	808	2,699	211	943	3,058	102	1,225	3,804
1991	83	656	1,864	71	571	1,642	42	428	1,161
1992	138	1,149	4,592	352	1,767	6,509	225	1,864	7,151
1993	211	1,634	5,389	367	2,157	6,220	205	2,183	6,629
1994	274	3,097	10,179	328	2,131	5,883	261	5,443	15,396
1995	138	777	2,179	230	2,283	6,221	206	3,414	9,236
1996	290	5,049	15,983	385	4,059	11,211	213	4,968	13,676
1997	611	3,296	8,434	498	4,158	10,888	240	3,775	10,072
1998	385	2,338	4,723	371	4,718	9,262	218	6,532	12,826
1999	431	5,398	14,347	309	2,045	5,419	186	2,039	5,175
2000	350	1,800	5,212	375	3,972	10,589	177	3,197	8,265
2001	473	2,849	6,902	473	4,064	10,461	205	4,156	10,975
2002	320	2,666	5,257	269	1,978	4,020	239	5,357	10,075
2003	327	1,695	3,369	385	4,118	8,240	323	10,793	20,948
2004	191	1,339	3,138	450	4,878	11,906	300	8,280	20,540
2005	97	455	1,338	383	3,668	11,134	223	4,904	13,751
2006	80	201	618	368	3,864	9,867	312	8,707	18,609
2007	156	772	1,882	413	4,748	11,305	215	5,988	12,499
2008	70	383	1,125	336	4,026	12,489	224	6,725	20,171
2009	131	361	1,087	420	4,599	11,915	271	7,339	19,087
2010	136	729	2,002	423	4,841	14,241	241	6,259	17,647
2011	141	612	2,507	442	4,392	21,112	226	6,015	25,039
2012	189	603	2,228	446	4,508	16,745	329	8,774	31,413
2013	137	315	1,168	396	4,574	17,283	280	7,786	25,865
2014	50	200	608	380	3,978	11,739	294	8,254	22,710
2015	26	42	175	353	3,409	9,622	299	7,817	21,094
2016	34	115	477	373	3,277	12,996	267	7,043	25,813
2017	67	107	496	311	2,152	11,062	224	5,163	23,852
2018	64	153	462	276	2,635	9,716	195	4,151	14,663
2019	106	316	1,181	329	2,979	10,846	202	4,024	14,640

Blank cells indicate null value (no data exist for that stratum).
Revenue and weight rounded to nearest whole unit.
Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow

Table 11. Average nominal price-per-pound ($/lb) for albacore by month and by state, 2017-2019, Canadian vessels included.
Time run: 4/22/2020 8:35:20 AM

	2017			2018			2019		
Month	California	Oregon	Washington	California	Oregon	Washington	California	Oregon	Washington
Jun		$1.74			$1.96				
Jul		$2.09	$2.09	$1.90	$1.74	$1.69		$1.88	$1.73
Aug	$1.89	$2.36	$2.16	$2.01	$1.59	$1.57	$1.70	$1.65	$1.65
Sep	$2.20	$2.44	$1.87	$1.20	$1.62	$1.60	$2.03	$1.61	$1.64
Oct	$2.01	$2.14	$2.24	$1.51	$1.82	$1.43	$1.61	$1.68	$1.67
Nov									
Dec									

Blank cells indicate null value (no data exist for that stratum).
If a record is confidential (fewer than 3 vessels or dealers) data is

Table 12. Number of vessels and commercial landings (round mt) in the West Coast drift gillnet fishery, 1990-2019.
Time run: 4/22/2020 8:35:44 AM

Year	# Vessels	Blue Shark	Common	Non-HMS FMP	Shortfin Mako	Swordfish	Tunas	**Landings (mt)**
1990	141		163	2	197	1,133	29	**1,523**
1991	121		379	2	107	945	31	**1,463**
1992	120		92	2	102	1,407	69	**1,671**
1993	124		210	9	80	1,413	233	**1,944**
1994	129		203	1	61	762	89	**1,115**
1995	118		144	11	74	773	88	**1,091**
1996	112	0	168	1	78	764	123	**1,134**
1997	109		218	1	109	704	115	**1,147**
1998	99		238	4	76	877	124	**1,320**
1999	85		88	1	41	589	126	**844**
2000	69		82	1	46	532	69	**729**
2001	60		200	0	23	265	98	**586**
2002	51		108	1	48	299	25	**481**
2003	43		166	1	47	200	29	**444**
2004	35		51		19	181	20	**271**
2005	38		125	1	15	220	27	**388**
2006	39		93	1	32	444	7	**577**
2007	40		144	0	29	490	7	**670**
2008	39		98		19	406	2	**525**
2009	35		38		21	258	7	**325**
2010	26		41	2	10	62	6	**120**
2011	21		55		8	119	24	**206**
2012	17		37	2	9	118	13	**180**
2013	18		48		16	102	12	**179**
2014	21		26		7	127	5	**165**
2015	19		32		7	101	6	**146**
2016	21		32		12	183	11	**237**
2017	18		42	0	13	179	2	**236**
2018	21		26		11	148	20	**205**
2019	15		25		7	52	10	**93**

Number of drift gillnet vessels (see Table 27) landing swordfish, common thresher shark, mako shark, or blue shark.
Values not reported for cells highlighted in yellow due to confidentiality requirements (less than three vessels or dealers)
Blank cells indicate null value (no data exist for that stratum).

Table 13. Real commercial ex-vessel revenues (inflation adjusted, 2019, $1,000s) for the West Coast drift gillnet fishery, 1990-2019.
Time run: 4/22/2020 8:36:11 AM

Year	# Vessels	Blue Shark	Common	Non-HMS FMP	Shortfin Mako	Swordfish	Tunas	**Adj. Revenue**
1990	141		538	6	637	11,054	126	**12,360**
1991	121		1,072	5	324	9,720	132	**11,253**
1992	120		271	4	267	10,837	274	**11,653**
1993	124		533	18	233	10,997	747	**12,529**
1994	129		555	3	183	7,121	409	**8,271**
1995	118		346	25	201	7,085	286	**7,943**
1996	112	0	473	2	204	6,162	419	**7,261**
1997	109		568	5	271	4,913	508	**6,266**
1998	99		592	9	192	5,660	466	**6,919**
1999	85		218	2	103	3,986	310	**4,619**
2000	69		213	0	108	3,325	230	**3,877**
2001	60		477	0	52	1,744	227	**2,500**
2002	51		273	1	97	2,048	72	**2,492**
2003	43		378	1	103	1,381	78	**1,942**
2004	35		113		45	1,221	73	**1,451**
2005	38		229	2	30	1,500	84	**1,846**
2006	39		217	2	63	2,453	15	**2,749**
2007	40		261	0	55	3,019	28	**3,363**
2008	39		207		38	2,001	7	**2,254**
2009	35		79		42	1,275	25	**1,422**
2010	26		64	4	14	467	23	**571**
2011	21		71		17	864	107	**1,059**
2012	17		71	4	19	889	59	**1,042**
2013	18		88		29	739	65	**920**
2014	21		43		13	881	28	**965**
2015	19		44		13	639	20	**716**
2016	21		52		23	1,179	62	**1,316**
2017	18		56	0	24	938	14	**1,031**
2018	21		35		18	712	84	**849**
2019	15		29		13	281	59	**382**

Values not reported for cells highlighted in yellow due to confidentiality requirements (less than three vessels or dealers)
Blank cells indicate null value (no data exist for that stratum).

Table 14. Monthly commercial landings (number, weight in round mt) and real ex-vessel revenue (inflation adjusted, 2019, $1,000s) of a) common thresher shark and b) swordfish in the drift gillnet fishery, 2017-2019.

Time run: 4/22/2020 8:36:37 AM

a) Common Thresher Shark

	2017			2018			2019		
Month	# Landings	Landings (mt)	Revenue	# Landings	Landings (mt)	Revenue	# Landings	Landings (mt)	Revenue
JAN-AUG	28	22	26	25	20	26	19	16	17
SEP	3						1		
OCT	4	2	5	4	0.4	1	3		
NOV	15	7	10	15	3	5	10	4	6
DEC	25	9	14	10	3	4	8	4	6

b) Swordfish

	2017			2018			2019		
Month	# Landings	Landings (mt)	Revenue	# Landings	Landings (mt)	Revenue	# Landings	Landings (mt)	Revenue
JAN-AUG	33	33	222	34	36	197	32	24	132
SEP	3			2			2		
OCT	6	6	41	20	14	72	11	3	17
NOV	36	64	326	37	57	276	15	9	43
DEC	38	74	341	26	40	163	22	16	89

Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow.
Revenue and weight rounded to nearest whole unit. If revenue or weight was < 1 it was rounded to nearest 0.1 of a unit.
Blank cells indicate null value (no data exist for that stratum).
The number of landings was calculated as the number of distinct vessels making landings in a state on a landing day.

Tables 15. Annual commercial landings (number, weight in round mt) and ex-vessel revenue (inflation adjusted, 2019, $1,000s) for a) common thresher shark and b) swordfish landings in California port groups in the drift gillnet fishery, 2017-2019. (CCA: Central California)
Time run: 4/22/2020 8:37:23 AM

a) Common Thresher Shark

	2017			2018			2019		
Port	# Landings	Landings (mt)	Adj. Revenue	# Landings	Landings (mt)	Adj. Revenue	# Landings	Landings (mt)	Adj. Revenue
Morro North	10	6	9	7	15	19	11	5	6
Santa Barbara-Los Angeles Areas	32	15	24	15	2	4	11	9	8
San Diego Areas	32	19	20	32	9	13	19	11	16
CCA	1								

b) Swordfish

	2017			2018			2019		
Port	# Landings	Landings (mt)	Adj. Revenue	# Landings	Landings (mt)	Adj. Revenue	# Landings	Landings (mt)	Adj. Revenue
Morro North	12	30	118	10	24	94	9	5	22
Santa Barbara-Los Angeles-San	105	148	807	109	123	617	73	47	259
CCA	1								

Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow.
Port areas are grouped together to maintain data confidentiality requirements.
Blank cells indicate null value (no data exist for that stratum).
Revenue and weight rounded to nearest whole unit. If revenue or weight was 1 it was rounded to nearest 0.1 of a unit.
The number of landings was calculated as the number of distinct vessels making landings in a state on a landing day.

Table 16. Number of vessels and commercial landings (round mt) in the West Coast harpoon fishery, 1990-2019.
Time run: 4/22/2020 8:37:44 AM

Year	# Vessels	Swordfish	Other HMS	**Total**
1990	52	65	3	**67**
1991	33	20	1.0	**21**
1992	48	75	3	**78**
1993	42	169	0.8	**170**
1994	48	157	0.7	**158**
1995	39	97	2	**99**
1996	31	81	1	**82**
1997	32	84	3	**87**
1998	27	48	0.8	**49**
1999	30	82	0.4	**82**
2000	26	90	0.4	**90**
2001	23	52	0.6	**53**
2002	29	90	0.7	**90**
2003	35	107	0.3	**107**
2004	29	69	0.9	**70**
2005	24	76	0.6	**77**
2006	24	72	3	**75**
2007	28	59	0.5	**59**
2008	32	48	0.5	**49**
2009	29	50	0.8	**51**
2010	26	37	0.5	**38**
2011	17	24	0.7	**25**
2012	10	5		**5**
2013	13	6		**6**
2014	11	6		**6**
2015	12	5		**5**
2016	19	25		**25**
2017	21	28		**28**
2018	14	10		**10**
2019	16	12		**12**

Count of vessels landing HMS (excluding striped marlin, pelagic thresher shark, and bigeye thresher shark) with harpoon gear.
Blank cells indicate null value (no data exist for that stratum).
Landed Weight rounded to nearest mt. If landed weight is less than 1 mt weight is rounded to nearest 0.1 mt.
Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow.

Table 17. Real commercial ex-vessel revenues (inflation adjusted, 2019, $1,000s) for the West Coast harpoon fishery, 1990-2019.
Time run: 4/22/2020 8:38:13 AM

Year	# Vessels	Swordfish	Other HMS	**Total**
1990	52	935	10	**945**
1991	33	302	3	**305**
1992	48	962	10	**972**
1993	42	1,815	3	**1,818**
1994	48	1,997	3	**2,000**
1995	39	1,168	6	**1,174**
1996	31	955	5	**960**
1997	32	1,013	8	**1,021**
1998	27	591	2	**593**
1999	30	889	1	**890**
2000	26	1,061	1	**1,062**
2001	23	648	2	**650**
2002	29	920	2	**922**
2003	35	1,124	0.8	**1,125**
2004	29	873	3	**876**
2005	24	896	2	**898**
2006	24	834	6	**840**
2007	28	714	2	**715**
2008	32	535	1	**536**
2009	29	544	2	**546**
2010	26	420	2	**421**
2011	17	284	1	**285**
2012	10	70		**70**
2013	13	92		**92**
2014	11	85		**85**
2015	12	77		**77**
2016	19	304		**304**
2017	21	320		**320**
2018	14	124		**124**
2019	16	142		**142**

Count of vessels landing HMS (excluding striped marlin, pelagic thresher shark, and bigeye thresher shark) with harpoon gear.
Blank cells indicate null value (no data exist for that stratum).
Revenue rounded to nearest $1,000. If revenue is less than $1,000 it is rounded to nearest 0.1.
Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow.

Table 18. Monthly commercial landings (number, weight in round mt) and real commercial ex-vessel revenue (inflation adjusted, 2019, $1,000s) of swordfish by the harpoon fishery, 2017-2019.

Time run: 4/22/2020 8:38:41 AM

2017

	California # Landings	California Landings (mt)	California Adj. Revenue
Jan-May			
Jun	12	2	35
Jul	26	7	90
Aug	21	3	51
Sep	13	2	33
Oct	18	6	70
Nov	9	4	26
Dec	5	1	8
Total	**104**	**27**	**315**

2018

	California # Landings	California Landings (mt)	California Adj. Revenue
Jan-May			
Jun	6	0.0	15
Jul	9	1	26
Aug	6	0.0	11
Sep	11	3	44
Oct			
Nov	7	1	16
Dec			
Total	**39**	**8**	**114**

2019

	California # Landings	California Landings (mt)	California Adj. Revenue
Jun			
Jul	3	0.0	5
Aug	15	3	49
Sep	15	3	38
Oct	14	3	42
Nov	4	0.0	5
Total	**51**	**11**	**141**

Blank cells indicate null value (no data exist for that stratum).

Revenue and weight rounded to nearest whole unit. If revenue or weight was < 1 it was rounded to nearest 0.1 of a unit.

Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow

The number of landings was calculated as the number of distinct vessels making landings in a state on a landing day.

Table 19. Annual commercial landings (number and weight in round mt) and ex-vessel revenue (inflation adjusted, 2019, $1,000s) of swordfish by port group in the harpoon fishery, 2017-2019.
Time run: 4/22/2020 8:39:02 AM

	2017			2018			2019		
	# Landings	Landings (mt)	Adj. Revenue	# Landings	Landings (mt)	Adj. Revenue	# Landings	Landings (mt)	Adj. Revenue
Santa Barbara	15	4	50	13	3	32	6	1	8
Los Angeles	60	17	188	21	5	69	37	10	119
San Diego	32	7	82	9	2	23	10	1	15
Grand Total	**107**	**28**	**319**	**43**	**9**	**124**	**53**	**11**	**142**

Blank cells indicate null value (no data exist for that stratum).
Revenue and weight rounded to nearest whole unit. If revenue or weight was < 1 it was rounded to nearest 0.1 of a unit.
Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow
The number of landings was calculated as the number of distinct vessels making landings in a state on a landing day.

Table 20. Number of vessels and commercial HMS landings (round mt) by Hawaii permitted longline vessels in West Coast ports, 1990-2019
Time run: 4/22/2020 8:39:26 AM

Year	# Vessels	Landings (mt)
1990	1	
1991	2	
1992	3	54
1993	6	203
1994	26	902
1995	23	355
1996	16	438
1997	21	760
1998	26	584
1999	32	1,351
2000	40	2,031
2001	37	1,963
2002	19	
2003	21	1,804
2004	17	939
2006	1	
2008	3	67
2009	2	
2010	6	277
2011	9	
2012	7	
2013	7	
2014	13	588
2015	16	809
2016	17	830
2017	12	872
2018	21	871
2019	17	692

Count of Hawaii permited vessels landing HMS (excluding striped marlin, pelagic thresher shark, and bigeye thresher shark) with longline gear in West Coast ports (see Table 27).
Blank cells indicate null value (no data exist for that stratum).
Landed Weight rounded to nearest mt. If landed weight is less than 1 mt weight is rounded to nearest 0.1 mt.
Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow.

Table 21. Real commercial ex-vessel revenues from HMS landings (inflation adjusted, 2019, $1,000s) by Hawaii permitted longline vessels in West Coast ports, 1990-2019.

Time run: 4/22/2020 8:39:26 AM

Year	# Vessels	Adj. Revenue
1990	1	
1991	2	
1992	3	184
1993	6	667
1994	26	2,580
1995	23	926
1996	16	1,086
1997	21	1,673
1998	26	1,531
1999	32	3,705
2000	40	5,989
2001	37	5,091
2002	19	
2003	21	4,284
2004	17	2,442
2006	1	
2008	3	158
2009	2	
2010	6	1,241
2011	9	
2012	7	
2013	7	
2014	13	2,948
2015	16	4,537
2016	17	4,505
2017	12	4,847
2018	21	4,773
2019	17	4,581

Count of Hawaii permited vessels landing HMS (excluding striped marlin, pelagic thresher shark, and bigeye thresher shark) with longline gear in West Coast ports (see Table 27).

Blank cells indicate null value (no data exist for that stratum).

Revenue rounded to nearest $1,000. If revenue is less than $1,000 it is rounded to nearest 0.1.

Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow.

Table 22. Number of vessels and commercial landings (round mt) for HMS tunas in the West Coast purse seine fishery, 1990-2019.
Time run: 4/22/2020 8:47:08 AM

Year	# Vessels	Landings (mt)
1990	23	6,517
1991	15	6,671
1992	23	5,762
1993	17	5,577
1994	19	5,369
1995	18	8,840
1996	21	12,238
1997	24	11,539
1998	25	10,519
1999	12	4,026
2000	15	2,173
2001	12	805
2002	2	
2003	3	862
2004	9	770
2005	8	1,006
2006	1	
2007	4	223
2008	2	
2009	7	460
2011	2	
2012	1	
2014	8	1,413
2015	11	758
2016	9	686
2017	9	2,206
2018	14	2,500
2019	11	598

Count of vessels landing HMS (excluding striped marlin, pelagic thresher shark, and bigeye thresher shark) with purse seine gear.

Blank cells indicate null value (no data exist for that stratum).
Landed Weight rounded to nearest mt. If landed weight is less than 1 mt weight is rounded to nearest 0.1 mt.
Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow.

Table 23. Real commercial ex-vessel revenues (inflation adjusted, 2019, $1,000s) from HMS tunas in the West Coast purse seine fishery, 1990-2019.
Time run: 4/22/2020 8:47:32 AM

Year	# Vessels	Adj. Revenue
1990	23	11,663
1991	15	9,897
1992	23	7,434
1993	17	7,485
1994	19	8,389
1995	18	11,313
1996	21	15,187
1997	24	16,933
1998	25	15,512
1999	12	4,937
2000	15	2,810
2001	12	967
2002	2	
2003	3	833
2004	9	697
2005	8	902
2006	1	
2007	4	344
2008	2	
2009	7	544
2011	2	
2012	1	
2014	8	1,634
2015	11	659
2016	9	773
2017	9	2,742
2018	14	2,426
2019	11	633

Count of vessels landing HMS (excluding striped marlin, pelagic thresher shark, and bigeye thresher shark) with purse seine gear.

Blank cells indicate null value (no data exist for that stratum).

Revenue rounded to nearest $1,000. If revenue is less than $1,000 it is rounded to nearest 0.1.

Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow.

Table 24. Number of vessels in HMS fisheries other than the West Coast albacore surface hook-and-line (troll and baitboat) fishery by state, 1990-2019.
Time run: 4/22/2020 8:47:58 AM

	California						Oregon				Washington	Coastwide						California Total	Oregon Total	Washington	Coastwide Total
Year	DGNLM	HAR	LL	LL-FMP	LX	PS-HMS-EPO	DGNLM	LL	LX	PS-HMS-EPO	LX	DGNLM	HAR	LL	LL-FMP	LX	PS-HMS-EPO				
1990	141	52	1		192	23			1			141	52	1		193	23	**409**	**1**		**410**
1991	121	33	2		115	15						121	33	2		115	15	**286**			**286**
1992	120	48	3		187	23			1			120	48	3		188	23	**381**	**1**		**382**
1993	124	42	6		161	17			2		2	124	42	6		165	17	**350**	**2**	**2**	**354**
1994	129	48	26		123	19						129	48	26		123	19	**345**			**345**
1995	117	39	23		130	18	2		3		1	119	39	23		134	18	**327**	**5**	**1**	**333**
1996	112	31	16		95	21	3		3			115	31	16		98	21	**275**	**6**		**281**
1997	109	32	21		129	24	4		1			113	32	21		130	24	**315**	**5**		**320**
1998	98	27	26	1	134	25	6		3			104	27	26	1	137	25	**311**	**9**		**320**
1999	81	30	32	1	83	12	4		5		4	85	30	32	1	92	12	**239**	**9**	**4**	**252**
2000	69	26	40	1	103	15	1		4			70	26	40	1	107	15	**254**	**5**		**259**
2001	60	23	36	1	83	12		1	3			60	23	37	1	86	12	**215**	**4**		**219**
2002	51	29	19	1	75	2	1		1			52	29	19	1	76	2	**177**	**2**		**179**
2003	43	35	21	1	68	3	1		1	1		44	35	21	1	69	4	**171**	**3**		**174**
2004	35	29	17	1	61	9	1		5			36	29	17	1	66	9	**152**	**6**		**158**
2005	38	24		1	34	8			7			38	24		1	41	8	**105**	**7**		**112**
2006	39	24	1	1	51	1			1			39	24	1	1	52	1	**117**	**1**		**118**
2007	40	28		1	45	4			1			40	28		1	46	4	**118**	**1**		**119**
2008	39	32	2	1	57	2		1	2			39	32	3	1	59	2	**133**	**3**		**136**
2009	35	29	2	1	58	7						35	29	2	1	58	7	**132**			**132**
2010	26	26	6	1	33							26	26	6	1	33		**92**			**92**
2011	21	17	9	1	30	2			1			21	17	9	1	31	2	**80**	**1**		**81**
2012	17	10	7	1	39	1			2			17	10	7	1	41	1	**75**	**2**		**77**
2013	18	13	7	1	38				1			18	13	7	1	39		**77**	**1**		**78**
2014	21	11	13	2	81	8			1			21	11	13	2	82	8	**136**	**1**		**137**
2015	19	12	16	3	122	11						19	12	16	3	122	11	**183**			**183**
2016	21	19	17	2	88	9			2			21	19	17	2	90	9	**156**	**2**		**158**
2017	18	21	12	2	79	9			3			18	21	12	2	82	9	**141**	**3**		**144**
2018	21	14	21	2	98	14			2			21	14	21	2	100	14	**170**	**2**		**172**
2019	15	16	17	4	98	11			5			15	16	17	4	103	11	**161**	**5**		**166**

Blank cells indicate null value (no data exist for that stratum).
State values may not sum to coastwide total because of vessels making landings in more than one state.
Vessel may make landings in more than one fishery, so the number of vessels participating in individual fisheries may not total the number of vessels fishing in the state.

Table 25. Landings and revenue of HMS with non-HMS gears by a) state and b) gear type (data grouped for last 3 years). Number of landings, weight (mt), and nominal revenue.

Time run: 4/22/2020 8:48:27 AM

a) Landings and revenue by state

	California			Oregon			Washington		
Species Group	# Landings	Landings (mt)	Revenue ($1,000)	# Landings	Landings (mt)	Revenue ($1,000)	# Landings	Landings (mt)	Revenue ($1,000)
Other HMS	63	115	522				3	3	10
Sharks	1095	105	179	261	8	0.6	80	3	5
Grand Total	**1158**	**220**	**701**	**261**	**8**	**1**	**83**	**6**	**15**

b) Landings and revenue by gear

	Non-HMS Net Gear			Other Non-HMS Gear		
	# Landings	Landings (mt)	Revenue ($1,000)	# Landings	Landings (mt)	Revenue ($1,000)
Other HMS	24	11	38	34	27	131
Sharks	1055	75	146	373	12	8
Total	**1079**	**86**	**184**	**407**	**39**	**139**

Blank cells indicate null value (no data exist for that stratum).
Revenue and weight rounded to nearest whole unit. If revenue or weight was < 1 it was rounded to nearest 0.1 of a unit.
Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow.
The number of landings was calculated as the number of distinct vessels making landings in a state on a landing day.

Table 26. a) Landings (mt) and b) ex-vessel revenue (current dollars, $1,000s) by species management group (includes shoreside commercial and tribal).
Time run: 4/22/2020 9:26:39 AM

a) Landings

Year	CPS	Crab	Groundfish	HMS	Other	Salmon	Shellfish	Shrimp	Total	HMS, % of
1981	139,768	9,652	103,343	26,883	14,787	7,972	10,813	19,186	332,403	172%
1982	126,969	8,235	119,354	17,244	12,201	8,823	3,623	13,433	309,881	110%
1983	69,346	7,861	98,977	54,957	11,116	2,935	3,288	6,879	255,358	351%
1984	63,821	7,176	89,803	43,926	10,719	2,178	3,661	5,618	226,902	281%
1985	68,174	8,558	90,922	14,153	13,699	5,046	2,447	13,609	216,608	90%
1986	84,041	8,390	82,479	12,963	19,801	7,377	508	26,892	242,451	83%
1987	90,440	9,373	91,981	12,859	24,574	9,410	457	31,514	270,608	82%
1988	108,363	17,509	92,247	14,995	27,929	12,515	344	32,832	306,734	96%
1989	113,411	16,813	99,371	7,694	31,002	6,868	425	36,398	311,982	49%
1990	88,509	14,507	94,539	9,854	29,771	4,685	320	25,631	267,815	63%
1991	90,591	7,027	105,546	10,975	25,075	3,734	262	20,156	263,365	70%
1992	60,595	15,882	132,554	13,586	19,248	2,048	328	36,422	280,664	87%
1993	79,172	18,075	116,393	16,914	16,199	2,213	537	23,496	272,999	108%
1994	85,673	18,167	135,676	16,031	14,632	1,801	336	15,752	288,068	103%
1995	128,068	17,467	134,491	14,011	13,741	4,755	300	12,312	325,146	90%
1996	135,919	25,139	146,451	25,935	12,800	3,306	158	14,919	364,625	166%
1997	151,056	13,013	143,569	23,137	11,742	3,697	98	18,881	365,192	148%
1998	74,371	12,388	131,009	16,310	7,695	1,850	57	5,662	249,341	104%
1999	170,508	16,192	125,907	11,866	9,226	2,716	45	14,121	350,581	76%
2000	225,741	13,565	123,033	10,937	9,832	3,751	114	16,283	403,257	70%
2001	195,825	11,851	103,554	12,717	8,981	3,369	93	18,602	354,992	81%
2002	182,834	16,123	75,056	10,834	9,665	5,163	168	26,246	326,090	69%
2003	125,358	34,070	82,888	17,635	7,953	6,104	108	14,594	288,711	113%
2004	144,317	28,557	122,302	15,182	8,288	5,719	191	9,688	334,244	97%
2005	157,884	25,098	135,453	10,040	8,218	4,296	113	11,404	352,506	64%
2006	159,782	35,707	151,259	13,498	7,721	1,190	137	8,913	378,207	86%
2007	195,044	20,722	117,498	12,519	8,597	1,451	148	11,604	367,583	80%
2008	145,496	17,434	97,780	11,610	10,178	264	177	15,835	298,772	74%
2009	171,618	23,442	82,187	13,272	9,628	476	240	14,954	315,816	85%
2010	201,484	25,047	94,139	11,924	8,926	1,031	258	20,763	363,572	76%
2011	174,183	26,840	128,709	11,766	9,370	1,196	200	30,052	382,316	75%
2012	209,726	21,001	90,918	14,189	10,078	2,350		29,841	378,103	91%
2013	186,319	36,474	127,880	13,098	11,101	3,236		32,159	410,267	84%
2014	150,019	20,185	121,728	14,369	9,756	3,365		42,005	361,426	92%
2015	65,932	6,242	83,100	12,374	7,967	1,927	307	47,323	225,172	79%
2016	55,568	26,657	113,899	11,552	6,419	816	371	24,742	240,025	74%
2017	72,249	23,983	184,928	10,002	5,922	733	331	15,900	314,048	64%
2018	58,382	27,454	170,608	9,785	5,405	931	472	23,348	296,386	63%
2019	31,446	21,979	182,354	8,346	4,829	1,932	433	18,339	269,657	53%
Pct of Total	39.8%	5.9%	37.2%	5.0%	4.1%	1.2%	0.3%	6.6%	100.0%	
Total	**4,837,999**	**713,853**	**4,523,884**	**609,945**	**494,791**	**143,228**	**31,866**	**806,305**	12,161,871	
Annual Average	124,051	18,304	115,997	15,640	12,687	3,673	885	20,674	311,843	

b) ex-vessel revenue

Year	CPS	Crab	Groundfish	HMS	Other	Salmon	Shellfish	Shrimp	Total	HMS % of
1981	$64,506	$46,746	$107,393	$104,504	$25,674	$75,788	$29,296	$55,621	$509,528	226%
1982	$63,121	$44,463	$134,110	$54,707	$21,697	$84,010	$15,750	$39,875	$457,733	118%
1983	$54,257	$53,441	$113,189	$127,588	$21,930	$19,651	$10,663	$27,846	$428,566	276%
1984	$27,746	$48,743	$101,043	$115,501	$22,305	$22,412	$12,632	$20,704	$371,086	250%
1985	$39,412	$52,886	$113,202	$53,091	$27,543	$42,170	$12,319	$26,797	$367,418	115%
1986	$38,082	$48,749	$111,926	$50,229	$38,794	$49,905	$4,301	$66,362	$408,348	109%
1987	$40,239	$52,877	$138,813	$57,952	$42,063	$89,148	$5,119	$94,174	$520,386	125%
1988	$45,974	$83,745	$127,877	$58,964	$54,906	$127,185	$4,070	$58,353	$561,074	128%
1989	$40,650	$74,267	$123,680	$32,077	$62,653	$48,087	$6,021	$54,746	$442,180	69%
1990	$38,527	$82,383	$111,388	$32,159	$70,597	$38,050	$4,712	$50,558	$428,373	70%
1991	$38,597	$38,928	$121,901	$28,537	$80,462	$23,815	$3,421	$44,014	$379,675	62%
1992	$30,689	$66,440	$116,793	$41,451	$67,828	$15,199	$5,602	$48,510	$392,513	90%
1993	$26,905	$70,737	$102,262	$47,240	$60,314	$14,304	$7,246	$31,562	$360,569	102%
1994	$33,942	$84,245	$106,522	$47,266	$57,442	$11,389	$4,576	$36,626	$382,009	102%
1995	$57,703	$99,530	$133,171	$33,681	$53,113	$23,717	$4,923	$34,364	$440,200	73%
1996	$64,815	$114,361	$123,966	$62,146	$46,379	$14,089	$3,464	$36,074	$465,293	135%
1997	$65,922	$79,181	$119,900	$52,343	$43,589	$14,984	$1,667	$34,043	$411,629	113%
1998	$14,425	$70,236	$78,208	$37,675	$28,324	$8,378	$103	$20,206	$257,556	82%
1999	$60,846	$98,676	$82,743	$33,869	$34,632	$14,045	$71	$28,831	$353,712	73%
2000	$58,410	$89,235	$86,539	$32,166	$37,927	$19,971	$227	$28,955	$353,430	70%
2001	$44,124	$73,223	$69,421	$33,537	$32,715	$14,663	$246	$23,161	$291,089	73%
2002	$43,931	$81,052	$57,554	$23,433	$31,728	$19,709	$497	$29,104	$287,009	51%
2003	$46,736	$157,717	$63,930	$37,613	$28,198	$28,528	$181	$15,291	$378,193	81%
2004	$42,601	$133,804	$60,669	$38,401	$28,491	$40,177	$609	$14,272	$359,023	83%
2005	$54,499	$106,153	$69,217	$29,020	$26,052	$30,438	$354	$17,779	$333,511	63%
2006	$49,807	$160,206	$74,292	$32,876	$26,975	$12,449	$439	$13,377	$370,421	71%
2007	$53,466	$125,151	$70,363	$30,247	$25,997	$15,208	$430	$18,263	$339,125	65%
2008	$52,339	$105,644	$81,690	$36,383	$31,915	$2,362	$574	$27,123	$338,029	79%
2009	$84,955	$121,016	$76,512	$35,110	$30,042	$2,903	$784	$17,512	$368,834	76%
2010	$96,975	$130,019	$77,641	$35,474	$33,662	$10,283	$783	$23,139	$407,975	77%
2011	$88,263	$176,654	$104,201	$52,375	$39,690	$12,381	$576	$43,254	$517,393	113%
2012	$96,350	$168,587	$81,871	$51,881	$40,133	$24,359		$41,755	$504,935	112%
2013	$100,863	$242,251	$82,613	$46,424	$41,542	$38,901		$43,067	$595,660	100%
2014	$92,099	$179,350	$80,172	$39,929	$43,172	$35,333		$61,603	$531,657	86%
2015	$30,964	$66,427	$71,925	$33,469	$38,262	$22,494	$698	$88,937	$353,177	72%
2016	$45,479	$203,281	$77,845	$43,043	$35,516	$12,957	$1,049	$46,811	$465,980	93%
2017	$72,568	$176,991	$97,955	$40,307	$34,851	$11,337	$711	$26,414	$461,134	87%
2018	$42,651	$203,709	$81,558	$29,237	$34,482	$13,876	$1,442	$45,213	$452,168	63%
2019	$19,046	$168,417	$83,344	$29,832	$30,901	$22,293	$1,264	$36,425	$391,521	65%
Pct of Total	13.3%	28.5%	22.3%	$0	9.4%	6.3%	0.7%	9.0%	100.0%	
Total	**$2,062,484**	**$4,179,519**	**$3,717,397**	**$1,801,734**	**$1,532,497**	**$1,126,946**	**$146,819**	**$1,470,717**	**$16,038,114**	
Annual Average	$52,884	$107,167	$95,318	$46,198	$39,295	$28,896	$4,078	$37,711	$411,234	

Confidential data (less than 3 vessels or dealers) are suppressed and highlighted yellow.
Revenue and weight rounded to nearest whole unit. If revenue or weight was 1 it was rounded to nearest 0.01 of a unit.
Blank cells indicate a null value (no data exist for that stratum).

Table 27. Number of vessels and commercial landings (round mt) in the West Coast South Pacific albacore surface hook-and-line (troll and baitboat) fishery, 1992-2019.

Time run: 4/22/2020 8:49:28 AM

	No. Vessels	Landings (mt)
1992	3	
1998	6	203
1999	4	63
2000	2	
2004	1	
2010	1	
2012	1	
2013	4	254
2014	1	
2015	1	
2016	2	
2017	5	
2018	1	
2019	5	

Blank cells indicate null value (no data exist for that stratum).

Landed Weight rounded to nearest mt. If landed weight is less than 1 mt weight is rounded to nearest 0.1 mt.

Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow.

Table 28. Real commercial ex-vessel revenues (inflation adjusted, 2019, $1,000s) for the West Coast South Pacific albacore surface hook-and-line (troll and baitboat) fishery, 1992–2019.

Time run: 4/22/2020 8:50:01 AM

	Albacore
Year	Adj. Revenue
1992	
1998	660
1999	157
2000	
2004	
2010	
2012	
2013	1,177
2014	
2015	
2016	
2017	
2018	
2019	

Blank cells indicate null value (no data exist for that stratum).

Revenue rounded to nearest $1,000. If revenue is less than $1,000 revenue rounded to nearest 0.1.

Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow.

Table 29. The number of vessels, commercial landings (round mt), and ex-vessel revenue (inflation adjusted, 2019, $1,000) for HMS Ecosystem Component species, 1990-2019.

Time run: 4/22/2020 8:50:44 AM

		Pelagic Thresher Shark		Bigeye Thresher Shark	
Year	# Vessels	Landings (mt)	Adj. Revenue	Landings (mt)	Adj. Revenue
1990	73	1	3	31	60
1991	57			32	42
1992	52	0.5	1.0	21	24
1993	72	0.5	0.7	43	45
1994	72			37	52
1995	71	5	13	31	38
1996	43	1	2	20	27
1997	67	35	93	32	52
1998	36	2	4	11	14
1999	30	10	27	7	10
2000	35	3	4	5	7
2001	17	2	4	2	12
2002	9				
2003	19	4	4	6	5
2004	19	2	3	5	5
2005	19			10	8
2006	15	0.1	0.3	4	6
2007	19	2	3	5	5
2008	18			6	6
2009	18			7	6
2010	7				
2011	6				
2012	1				
2013	5			0.6	0.7
2014	5	6	10		
2015	12	3	4	1	2
2016	5	0.3	0.4	1	3
2017	7			2	4
2018	6	0.2	0.3		
2019	18	5	10	1.0	1

Count of vessels landing HMS ecosystem component species (pelagic thresher shark and bigeye thresher shark) with any gear.

Blank cells indicate null value (no data exist for that stratum).

Landed Weight rounded to nearest mt. If landed weight is less than 1 mt weight is rounded to nearest 0.1 mt.

Revenue rounded to nearest $1,000. If revenue is less than $1,000 it is rounded to nearest 0.1.

Confidential data (less than 3 vessels or dealers) is suppressed and highlighted yellow.

Table 30. Inflation adjustment derived from Bureau of Economic Analysis Table 1.1.9 (Implicit Price Deflators for Gross Domestic Product).

Time run: 4/22/2020 8:51:17 AM

Year	Inflation	Price Deflator
1981	2.386	46.273
1982	2.247	49.132
1983	2.163	51.056
1984	2.087	52.898
1985	2.023	54.571
1986	1.983	55.670
1987	1.936	57.046
1988	1.870	59.059
1989	1.799	61.374
1990	1.734	63.671
1991	1.677	65.825
1992	1.640	67.325
1993	1.602	68.920
1994	1.569	70.392
1995	1.536	71.868
1996	1.509	73.183
1997	1.483	74.445
1998	1.467	75.283
1999	1.446	76.370
2000	1.414	78.078
2001	1.384	79.790
2002	1.362	81.052
2003	1.338	82.557
2004	1.302	84.780
2005	1.263	87.421
2006	1.226	90.066
2007	1.194	92.486
2008	1.171	94.285
2009	1.162	95.004
2010	1.149	96.111
2011	1.125	98.118
2012	1.104	100.000
2013	1.085	101.755
2014	1.065	103.638
2015	1.054	104.717
2016	1.044	105.801
2017	1.024	107.794
2018	1.000	110.420
2019	1.000	110.420

Data downloaded from Bureau of Economic Analysis Table 1.1.9 (Implicit Price Deflators for Gross Domestic Product).

Table R1. Recreational albacore catch (number of kept fish) for charter and private boats by year and port, 2017-2019.

Port Area**	2017			2018			2019		
	Charter	Private	Combined	Charter	Private	Combined	Charter	Private	Combined
North Coast	0	51	51	0	24	24	99	1,639	1,737
Westport	14,050	9,998	24,048	10,989	9,878	20,867	19,363	33,994	53,357
Ilwaco	1,399	4,929	6,329	880	3,513	4,393	4,722	27,802	32,524
Washington Subtotal	**15,449**	**14,978**	**30,428**	**11,869**	**13,415**	**25,284**	**24,184**	**63,435**	**87,618**
Astoria	6	223	229	0	9	9	0	1,929	1,929
Garibaldi	34	1,595	1,629	27	1,716	1,743	583	11,733	12,316
Pacific City	0	222	222	0	48	48	0	2,826	2,826
Depoe Bay	220	200	420	159	1,403	1,562	2,629	3,214	5,843
Newport	97	1,096	1,193	125	4,124	4,249	1,944	7,984	9,928
Florence	0	0	0	0	13	13	0	0	0
Winchester Bay	0	1,474	1,474	0	5,519	5,519	0	14,984	14,984
Charleston	135	7,818	7,953	301	10,086	10,387	359	41,083	41,442
Bandon	70	60	130	89	572	661	450	2,248	2,698
Gold Beach	0	76	76	0	27	27	0	592	592
Brookings	37	2,491	2,528	0	1,288	1,288	27	5,751	5,778
Oregon Subtotal	**599**	**15,255**	**15,854**	**701**	**24,805**	**25,506**	**5,992**	**92,344**	**98,336**
Redwood District	656	3,522	4,178	529	6,171	6,700	1,656	8,173	9,829
Wine District	421	6,068	6,489	750	5,731	6,481	1,424	17,629	19,053
San Francisco District	19	182	201	9	191	200	493	143	636
Central District	0	0	0	0	11	11	0	0	0
Channel District	0	0	0	0	0	0	0	0	0
South District	0	0	0	0	0	0	0	0	0
California Subtotal	**1,096**	**9,772**	**10,868**	**1,288**	**12,104**	**13,392**	**3,573**	**25,945**	**29,518**
Mexican Waters	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Oregon-Washington Total	**16,048**	**30,233**	**46,282**	**12,570**	**38,220**	**50,790**	**30,176**	**155,779**	**185,954**
U.S. Total	**17,144**	**40,005**	**57,150**	**13,858**	**50,324**	**64,182**	**33,749**	**181,724**	**215,472**
Coastwide Total	**17,144**	**40,005**	**57,150**	**13,858**	**50,324**	**64,182**	**33,749**	**181,724**	**215,472**

** California catch is summarized by CRFS Sampling District. For a description, see: California Recreational Fisheries Survey

California Data Sources: Charter data comes from California Commercial Passenger Fishing Vessel (CPFV) logbooks extracted from CDFW Marine Logs System data portal on May 20, 2020; California Recreational Fisheries Survey (CRFS) Total Private and Rental Boat (PR) data, including private access and night fishing (PR-PAN) extracted from the CFRS Data Portal May 2020.

Table R2. Recreational albacore effort (angler **days***) for charter and private boats by year and port, 2017-2019.

Port Area**	2017			2018			2019		
	Charter	Private	Combined	Charter	Private	Combined	Charter	Private	Combined
North Coast	0	62	62	0	46	46	15	375	391
Westport	1,636	3,926	5,562	1,312	4,074	5,386	1,611	6,469	8,080
Ilwaco	804	1,989	2,794	670	1,740	2,410	983	4,985	5,967
Washington Subtotal	**2,440**	**5,977**	**8,418**	**1,982**	**5,860**	**7,842**	**2,609**	**11,829**	**14,438**
Astoria	28	141	169	0	34	34	0	415	415
Garibaldi	49	777	826	37	904	941	140	2,044	2,184
Pacific City	0	140	140	0	72	72	0	475	475
Depoe Bay	176	210	386	74	380	454	631	724	1,355
Newport	148	617	765	93	990	1,083	574	1,797	2,371
Florence	0	0	0	0	26	26	0	0	0
Winchester Bay	0	444	444	0	907	907	0	2,002	2,002
Coos Bay	75	2,312	2,387	118	1,887	2,005	68	5,088	5,156
Bandon	29	87	116	30	115	145	46	339	385
Gold Beach	0	12	12	0	18	18	0	96	96
Brookings	6	413	419	0	227	227	10	862	872
Oregon Subtotal	**511**	**5,153**	**5,664**	**352**	**5,560**	**5,912**	**1,469**	**13,842**	**15,311**
Redwood District	128	NA	NA	70	NA	NA	396	NA	NA
Wine District	91	NA	NA	148	NA	NA	217	NA	NA
San Francisco District	29	NA	NA	6	NA	NA	105	NA	NA
Central District	0	NA	NA	0	NA	NA	0	NA	NA
Channel District	0	NA	NA	0	NA	NA	0	NA	NA
South District	0	NA	NA	0	NA	NA	0	NA	NA
California Subtotal	**248**	**NA**	**NA**	**224**	**NA**	**NA**	**718**	**NA**	**NA**
Mexican Waters	**0**	**NA**	**NA**	**0**	**NA**	**NA**	**0**	**NA**	**NA**
Oregon-Washington Total	**2,951**	**11,130**	**14,082**	**2,334**	**11,420**	**13,754**	**4,078**	**25,671**	**29,749**
U.S. Total	**3,199**	**NA**	**NA**	**2,558**	**NA**	**NA**	**4,796**	**NA**	**NA**
Coastwide Total	**3,199**	**NA**	**NA**	**2,558**	**NA**	**NA**	**4,796**	**NA**	**NA**

* 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.

** California catch is summarized by CRFS Sampling District. For a description, see: California Recreational Fisheries Survey

Private boat estimates for effort are not available by species for California.

California Data Source: California Commercial Passenger Fishing Vessel (CPFV) logbooks extracted from CDFW Marine Logs System data portal on May 20, 2020.

Table R3. Recreational albacore catch per unit of effort (number of kept fish/angler **day***) for charter and private boats by year and port, 2017-2019.

Port Area**	2017			2018			2019		
	Charter	Private	Combined	Charter	Private	Combined	Charter	Private	Combined
North Coast	0.0	0.8	0.8	0.0	0.5	0.5	6.6	4.4	4.4
Westport	8.6	2.5	4.3	8.4	2.4	3.9	12.0	5.3	6.6
Ilwaco	1.7	2.5	2.3	1.3	2	1.8	4.8	5.6	5.5
Washington Subtotal	**6.3**	**2.5**	**3.6**	**6.0**	**2.3**	**3.2**	**9.3**	**5.4**	**6.1**
Astoria	0.2	1.6	1.4	0.0	0.3	0.3	0.0	4.7	4.7
Garibaldi	0.7	2.1	2.0	0.7	1.9	1.9	4.2	5.7	5.6
Pacific City	0.0	1.6	1.6	0.0	0.7	0.7	0.0	6.0	6.0
Depoe Bay	1.3	1.0	1.1	2.1	3.7	3.4	4.2	4.4	4.3
Newport	0.7	1.8	1.6	1.3	4.2	3.9	3.4	4.4	4.2
Florence	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0
Winchester Bay	0.0	3.3	3.3	0.0	6.1	6.1	0.0	7.5	7.5
Coos Bay	1.8	3.4	3.3	2.6	5.3	5.2	5.3	8.1	8.0
Bandon	2.4	0.7	1.1	3.0	5.0	4.6	9.8	6.6	7.0
Gold Beach	0.0	6.3	6.3	0.0	1.5	1.5	0.0	6.2	6.2
Brookings	6.2	6.0	6.0	0.0	5.7	5.7	2.7	6.7	6.6
Oregon Subtotal	**1.2**	**3.0**	**2.8**	**2.0**	**4.5**	**4.3**	**4.1**	**6.7**	**6.4**
Redwood District	5.1	NA	NA	7.6	NA	NA	4.2	NA	NA
Wine District	4.6	NA	NA	5.1	NA	NA	6.6	NA	NA
San Francisco District	0.7	NA	NA	1.5	NA	NA	4.7	NA	NA
Central District	0.0	NA	NA	0.0	NA	NA	0.0	NA	NA
Channel District	0.0	NA	NA	0.0	NA	NA	0.0	NA	NA
South District	0.0	NA	NA	0.0	NA	NA	0.0	NA	NA
California Subtotal	**4.4**	**NA**	**NA**	**5.8**	**NA**	**NA**	**5.0**	**NA**	**NA**
Mexican Waters	**0.0**	**NA**	**NA**	**0.0**	**NA**	**NA**	**0.0**	**NA**	**NA**
Oregon-Washington Total	**5.4**	**2.7**	**3.3**	**5.4**	**3.3**	**3.7**	**7.4**	**6.1**	**6.3**
U.S. Total	**5.4**	**NA**	**NA**	**5.4**	**NA**	**NA**	**7.0**	**NA**	**NA**
Coastwide Total	**5.4**	**NA**	**NA**	**5.4**	**NA**	**NA**	**7.0**	**NA**	**NA**

* 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.

** California catch is summarized by CRFS Sampling District. For a description, see: California Recreational Fisheries Survey

Private boat estimates for CPUE are not available by species for California.

California Data Source: California Commercial Passenger Fishing Vessel (CPFV) logbooks extracted from CDFW Marine Logs System data portal on May 20, 2020.

Table R-4. Estimated number of highly migratory MUS kept or released by recreational anglers fishing from California private vessels in U.S. EEZ waters, 2017-2019.

	2017			2018			2019		
	No. Fish			No. Fish			No. Fish		
Species	Kept[1]	Released alive[2]	Released dead[2]	Kept[1]	Released alive[2]	Released dead[2]	Kept[1]	Released alive[2]	Released dead[2]
Tuna									
Albacore	9,772	98	5	12,104	29	0	25,945	96	0
Bigeye	0	0	0	0	0	0	0	0	0
Pacific Bluefin	664	27	0	723	8	0	460	0	0
Skipjack	168	91	0	1,547	2,400	0	395	137	0
Yellowfin	1,896	111	0	2,197	61	0	3,459	159	0
Billfishes									
Striped Marlin	10	10	0	20	0	0	6	18	0
Swordfish	0	0	0	0	0	0	81	12	0
Sharks									
Blue	13	241	0	7	85	0	8	82	0
Common Thresher	236	694	0	254	407	0	180	540	0
Shortfin Mako	198	346	0	199	458	0	148	142	0
Other Fish									
Dorado	4,801	1,272	29	3,149	126	0	65	0	0
Total	**17,758**	**2,890**	**34**	**20,200**	**3,574**	**0**	**30,747**	**1,186**	**0**

Additional Processing Information: [1]Sampler examined fish plus angler reported kept fish: [2]The angler reported the fish released alive or dead.
Source: California Recreational Fisheries Survey (CRFS) Total Private and Rental Boat (PR) data, including private access and night fishing (PR-PAN) extracted from the CFRS Data Portal May 2020.

Table R-5. Estimated number of highly migratory MUS kept or released by recreational anglers fishing from California private vessels in Mexico EEZ waters, 2017-2019.

	2017			2018			2019		
	No. Fish			No. Fish			No. Fish		
Species	Kept[1]	Released alive[2]	Released dead[2]	Kept[1]	Released alive[2]	Released dead[2]	Kept[1]	Released alive[2]	Released dead[2]
Tuna									
Albacore	0	0	0	0	0	0	0	0	0
Bigeye	0	0	0	0	0	0	0	0	0
Pacific Bluefin	570	31	0	164	0	0	731	27	0
Skipjack	546	271	0	3,040	2,523	0	1,613	2,269	0
Yellowfin	1,312	86	0	1,760	10	0	16,903	999	0
Billfishes									
Striped Marlin	0	0	0	0	0	0	0	0	0
Swordfish	0	0	0	0	0	0	13	0	0
Sharks									
Blue	0	21	0	0	10	0	0	64	0
Common Thresher	0	0	0	0	0	0	0	0	0
Shortfin Mako	10	23	0	0	68	0	42	39	0
Other Fish									
Dorado	3,473	1,143	0	888	178	0	120	11	0
Total	**5,911**	**1,575**	**0**	**5,852**	**2,789**	**0**	**19,422**	**3,409**	**0**

Additional Processing Information: [1]Sampler examined fish plus angler reported kept fish: [2]The angler reported the fish released alive or dead.
Source: California Recreational Fisheries Survey (CRFS) Total Private and Rental Boat (PR) data, including private access and night fishing (PR-PAN) extracted from the CFRS Data Portal May 2020.

Table R-6. Number of highly migratory MUS kept or released by recreational anglers fishing from California charter vessels in U.S. EEZ waters*, 2017-2019

	2017		2018		2019	
	No. Fish		No. Fish		No. Fish	
Species	Kept	Released[1]	Kept	Released[1]	Kept	Released[1]
Tuna						
Albacore	1,096	8	1,288	0	3,573	37
Bigeye	0	0	69	0	18	20
Pacific Bluefin	11,424	36	9,866	22	3,312	33
Skipjack	1,953	209	15,927	2,410	984	241
Yellowfin	13,566	329	15,885	209	17,241	147
Billfishes						
Striped Marlin	7	1	0	4	0	1
Swordfish	0	0	2	0	17	3
Sharks						
Blue	91	90	1	52	44	53
Common Thresher	42	17	39	25	26	15
Shortfin Mako	103	152	131	106	34	96
Other Fish						
Dorado	2,805	133	3,152	78	45	3
Total	**31,087**	**975**	**46,360**	**2,906**	**25,294**	**649**

* U.S. EEZ waters include catch from CDFG blocks 877-882 which straddle the U.S.-Mexico border

[1]Released includes both fish released alive or dead

Source: California Commercial Passenger Fishing Vessel (CPFV) logbooks extracted from CDFW Marine Logbook System data portal on May 20, 2020.

Table R-7. Number of highly migratory MUS kept or released by recreational anglers fishing from California charter vessels in Mexico EEZ waters, 2017-2019.

	2017		2018		2019	
	No. Fish		No. Fish		No. Fish	
Species	Kept	Released[1]	Kept	Released[1]	Kept	Released[1]
Tuna						
Albacore	0	0	0	0	0	0
Bigeye	250	10	8	0	110	0
Pacific Bluefin	3,845	27	2,884	6	12,220	44
Skipjack	3,097	667	35,447	9,704	10,587	2,403
Yellowfin	65,867	5,891	90,176	6,892	84,648	3,951
Billfishes						
Striped Marlin	3	20	3	37	6	47
Swordfish	0	0	0	0	0	0
Sharks						
Blue	0	1	0	0	0	1
Common Thresher	0	1	0	0	0	0
Shortfin Mako	6	1	7	4	3	1
Other Fish						
Dorado	13,147	1,191	9,259	364	4,953	770
Total	**86,215**	**7,809**	**137,784**	**17,007**	**112,527**	**7,217**

[1]Released includes both fish released alive or dead

Source: California Commercial Passenger Fishing Vessel (CPFV) logbooks extracted from CDFW Marine Logbook System data portal on May 20, 2020.

Table 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	94.6	5.2	0.2	13,398	84
2015	66.5	33.4	0.1	4,391	100	96.5	3.3	0.2	11,595	86
2016	54.8	44.4	0.8	2,842	100	97.9	1.4	0.7	10,777	79
2017	11.2	75.0	13.8	1,830	100	91.2	0.2	8.7	7,430	81
2018	30.8	68.9	0.3	2,717	100	95.4	3.8	0.8	7,728	72
2019 [8]	51.7	44.9	3.4	2,402	100	93.0	4.2	2.8	7,797	76

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 20.03.31

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

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

Year	Canadian Fleet [1]										
	Landings (metric tons) [2]					Number of Landings			Number of Landing Vessels		
	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]
1995	230	67	67	104	401	76	4	7	53	3	4
1996	662	311	868	106	1,636	93	33	102	62	20	66
1997	563	294	399	147	1,109	67	25	54	51	14	32
1998	1,892	281	961	82	2,935	173	30	67	104	16	29
1999	1,574	484	713	193	2,480	274	69	106	158	35	52
2000	2,432	537	889	424	3,745	346	79	110	160	44	57
2001	3,474	617	806	364	4,644	520	51	92	193	31	52
2002	3,866	181	702	347	4,915	465	29	71	169	17	38
2003	3,781	2,132	3,118	655	7,554	464	241	285	177	87	105
2004	2,586	977	1,130	3,590	7,306	659	141	89	198	67	52
2005	3,473	745	811	286	4,570	513	88	85	195	49	45
2006	5,281	327	397	300	5,978	495	35	31	161	18	19
2007	5,596	283	357	73	6,025	559	29	35	191	20	22
2008	3,693	1,236	1,359	122	5,174	341	106	114	123	42	46
2009	4,662	642	650	298	5,610	434	53	47	134	30	26
2010	4,961	811	958	446	6,364	502	78	76	154	45	42
2011	4,059	1,094	1,179	170	5,408	453	89	93	174	47	47
2012	2,219	0	0	265	2,484	276	0	0	174	0	0
2013	4,301	609	650	168	5,119	278	39	41	177	19	22
2014	4,130	395	415	256	4,801	339	26	28	147	12	12
2015	3,978	244	245	160	4,383	408	19	19	160	11	11
2016	2,634	186	189	22	2,845	388	17	17	150	9	9
2017	1,583	248	236	0	1,831	240	21	20	121	12	11
2018	2,483	234	221	0	2,717	275	20	19	121	9	8
2019 [12]	2,235	139	102	28	2,402	269	12	9	122	7	5

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

Year	US fleet[13]									
	Landings (metric tons)					Number of Landings			Number of Vessels that landed fish [7]		
	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			6,407	1,753	8,160			1,000			472
1996			13,209	2,188	15,397			1,710			658
1997			10,831	3,009	13,840			3,674			1,160
1998			12,628	1,135	13,763			2,470			838
1999			8,809	1,422	10,231			2,619			772
2000			8,086	1,574	9,660			2,230			707
2001			10,263	972	11,235			3,453			929
2002		^	9,298	163	9,461		<3	2,432		<3	696
2003		^	13,491	487	13,978		<3	2,821		<3	782
2004		444	13,367	24	13,835		10	2,727		<3	727
2005		83	8,217	9	8,309		4	1,761		3	552
2006		^	12,374		12,374		<3	2,163		<3	615
2007		674	11,143		11,817		13	2,471		9	651
2008	721	455	9,768		10,489	19	9	1,700	11	6	477
2009	721	664	11,621		12,342	16	12	2,596	11	8	655
2010	919	601	10,871		11,790	24	17	2,339	16	9	609
2011	611	282	9,840		10,451	21	12	2,560	13	8	640
2012	0	0	13,861		13,861	0	0	3,309	0	0	816
2013	514	289	12,019		12,533	16	9	2,559	12	6	684
2014	1459	1,290	12,108		13,567	36	30	2,513	18	17	590
2015	756	557	11,038		11,794	30	20	2,389	19	13	560
2016	482	511	10,266		10,777	22	22	2,488	12	15	557
2017	659	328	7,102		7,761	27	16	2,008	14	13	495
2018	680	855	6,873		7,728	28	28	1,656	13	20	434
2019 [12]	367	578	7,219		7,797	12	18	2,222	7	12	540

Data Sources and Notes for Table 2:

[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 of minimum bound (not expanded) and are based on incomplete fish slip data and reports from Canadian buyers/processors.

[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 , 04/01/2020 . 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 20.03.31

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

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

Year	Canadian Fleet [1]						
	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]
1995	Unlimited	9	175	N/A	191	5,535	197
1996	Unlimited	83	90	N/A	4,222	2,813	1,130
1997	Unlimited	59	67	N/A	1,972	1,010	1,339
1998	Unlimited	91	92	N/A	3,234	1,274	1,507
1999	Unlimited	176	162	N/A	4,316	1,689	965
2000	Unlimited	184	131	N/A	6,738	1,189	842
2001	Unlimited	207	176	N/A	7,697	1,754	570
2002	Unlimited	200	124	N/A	7,207	686	431
2003	Unlimited	177	119	N/A	7,111	892	425
2004	170 vessels or 680 vessel fishing months	202	172	627	7,551	2,125	266
2005	140 vessels or 560 vessel fishing months	154	196	410	5,309	2,940	315
2006	125 vessels or 500 vessel fishing months	139	148	396	4,500	1,401	342
2007	94 vessels or 376 vessel fishing months	119	191	368	4,809	2,081	12
2008	94 vessels or 376 vessel fishing months	122	79	338	4,993	360	420
2009	110	107	116	N/A	5,722	675	143
2010	110	109	153	N/A	3,848	2,887	559
2011	110	108	146	N/A	6,549	1,771	285
2012	0	0	174	N/A	0	5,084	890
2013	45 vessels	43	181	N/A	1,870	4,299	296
2014	45 vessels	44	156	N/A	1,774	2,944	27
2015	45 vessels	43	161	N/A	1,435	3,792	17
2016	45 vessels	43	151	N/A	1,892	3,407	60
2017	45 vessels	45	101	N/A	2,865	1,343	770
2018	45 vessels	45	118	N/A	2,228	1,924	44
2019 [9]	45 vessels	42	119	N/A	1,621	2,008	253

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

Year	U.S. Fleet[11]					
	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* [7, 8]	*Fishing Effort in US EEZ (boat fishing days)* [10]	*Fishing Effort in Canadian EEZ (boat fishing days)* [10]	*Fishing Effort on high seas (boat fishing days)* [10, 11]
1995	Unlimited	472	71	1,461	960	6,786
1996	Unlimited	658	6	3,574	14	10,229
1997	Unlimited	1160	46	4,520	570	10,838
1998	Unlimited	838	3	3,042	26	8,834
1999	Unlimited	772	19	12,560	273	7,859
2000	Unlimited	707	12	8,883	67	4,970
2001	Unlimited	929	15	9,280	75	5,560
2002	Unlimited	696	31	8,132	212	3,552
2003	Unlimited	782	9	10,919	126	2,395
2004	170 vessels or 680 vessel fishing months	727	21	11,079	213	1,184
2005	140 vessels or 560 vessel fishing months	552	31	9,943	316	914
2006	125 vessels or 500 vessel fishing months	615	32	9,883	96	1,043
2007	94 vessels or 376 vessel fishing months	651	14	10,713	135	233
2008	94 vessels or 376 vessel fishing months	477	39	7,947	327	1,031
2009	Historical level	655	27	12,002	262	719
2010	Historical level	609	51	10,542	342	1,961
2011	Historical level	640	30	13,619	117	941
2012	0	816	^	14,636	^	380
2013	Historical level	703	21	12,242	229	452
2014	Historical level	617	35	11,425	659	116
2015	Historical level	574	39	10,770	549	186
2016	Historical level	569	31	12,280	251	213
2017	Historical level	518	15	11,293	39	1,287
2018	Historical level	452	26	10,255	476	363
2019 [9]	Historical level	556	16	10,054	414	546

Data Sources and Notes for Table 3

[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] Number of US vessels that fished in US or Canadian EEZs are not expanded.

[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 20.03.31

[10] Estimates of US effort in US EEZ, Canadian EEZ and high seas in boat fishing days are expanded and calculated by multiplying the proportion of reported logbook effort in each zone by the estimated annual effort. Estimation of annual effort has changed in 2017 (Documented in ISC working paper ISC17/STATWG/WP-1)

[11] Proportion of US effort in high seas zone was estimated from logbook data, and includes effort in U.S. EEZ off Alaska.

* = no data, ^ = confidential data (less than 3 vessels)