

**STATE OF ALASKA
GROUNDFISH FISHERIES**

ASSOCIATED INVESTIGATIONS IN 2023



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of the Canada-United States Groundfish Committee

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STATE OF ALASKA GROUND FISH FISHERIES AND ASSOCIATED INVESTIGATIONS IN 2023

I. Agency Overview

A. Description of the State of Alaska commercial groundfish fishery program (Division of Commercial Fisheries)

The Alaska Department of Fish and Game (ADF&G) has jurisdiction over all commercial groundfish fisheries (does not include Pacific halibut) within the internal waters of the state and to three nautical miles offshore along the outer coast. A provision in the federal Gulf of Alaska (GOA) Groundfish Fishery Management Plan (FMP) gives the State of Alaska limited management authority for demersal shelf rockfish (DSR) in federal waters east of 140° W longitude. The North Pacific Fisheries Management Council (Council) acted in 1997 to remove black and blue (now called deacon) rockfish from the GOA FMP. In 2007, dark rockfish was removed from both the GOA and the Bering Sea and Aleutian Islands (BSAI) FMPs. Thus, in these areas the state manages these species in both state and federal waters. The state also manages the lingcod resource in both state and federal waters of Alaska. The state manages some groundfish fisheries occurring in Alaska waters in parallel with National Oceanic and Atmospheric Administration (NOAA), adopting federal seasons and, in some cases, allowable gear types as specified by NOAA. The information related in this report is from the state-managed groundfish fisheries only.

The State of Alaska is divided into three maritime regions for marine commercial fisheries management. ADF&G personnel are listed in Appendix I by division and region. The Southeast Region extends from the Exclusive Economic Zone (EEZ) equidistant line boundary in Dixon Entrance north and westward to 144° W longitude and includes all of Yakutat Bay (Appendix II). The Central Region includes the Inside and Outside Districts of Prince William Sound (PWSA) and Cook Inlet including the North Gulf District off Kenai Peninsula. The Westward Region includes all territorial waters of the Gulf of Alaska south and west of Cape Douglas and includes North Pacific Ocean waters adjacent to Kodiak, and the Aleutian Islands as well as all U.S. territorial waters of the Bering, Beaufort, and Chukchi Seas.

1. Southeast Region

The **Southeast Region** Commercial Fisheries groundfish staff are in Sitka, Juneau, and Ketchikan. Sitka staff are comprised of the project leader, two fishery biologists, and one seasonal fishery technician. Staff in Juneau include one full-time fishery biologist and one seasonal fishery biologist, and Ketchikan staff include one fishery biologist and one seasonal fishery technician. In addition, the project provides support for port samplers in Petersburg to sample groundfish landings. The project also receives biometric assistance from ADF&G headquarters in Juneau.

The Southeast Region's groundfish project has responsibility for research and management of all commercial groundfish resources in the territorial waters of the Eastern GOA as well as in federal waters for demersal shelf rockfish (DSR); black, deacon, and dark rockfishes; and lingcod. The project cooperates with the federal government for management of the adjacent EEZ. The Ketchikan fishery biologist and project leader attend meetings of the Council's GOA Groundfish Plan Team and produce the annual stock assessment for DSR for consideration by the Council.

Project activities center around fisheries monitoring, resource assessment, and inseason management of the groundfish resources. Inseason management decisions are based on data collected from the fisheries and resource assessment surveys. Primary tasks include fish ticket collection, editing, and data entry for both state and federally managed fisheries; dockside sampling of sablefish, lingcod, Pacific cod, and rockfish landings; and logbook collection and data entry. Two sablefish assessment surveys and one rockfish survey were conducted in 2023.

2. Central Region

The **Central Region** commercial fisheries groundfish management and research staff are located in Homer. The management staff in Homer consists of an area management biologist, an assistant area management biologist, a research analyst, a fisheries biologist, and two seasonal fisheries technicians; additional seasonal technicians are utilized in Homer and Cordova as funding allows for sampling, observing, and age reading. The research staff in Homer consist of a groundfish research project lead, a fishery biologist, and a research analyst. Commercial Fisheries groundfish staff in Homer are supported by regional staff in Anchorage.

Commercial fisheries groundfish staff are responsible for the research and management of groundfish species harvested in Central Region, which includes state waters of the Cook Inlet Area (CIA) and the Prince William Sound Area (PWSA), and in federal waters for lingcod, and black, deacon, and dark rockfishes. Within the Central Region, groundfish species of primary interest include sablefish, Pacific cod, walleye pollock, lingcod, rockfishes, and skates. Groundfish, fishery dependent information is collected by management staff through commercial groundfish sampling, fisher interviews, logbooks, and onboard observing. Commercial harvest information (fish tickets) is processed in Homer for state and federal fisheries landings in Central Region ports. For some fisheries, logbooks are required, and data are collected and entered into local databases to provide additional information, including catch composition, catch per unit effort (CPUE), depth, and location data (Contact Martin Schuster). Groundfish, fishery independent information was historically collected by research staff through bottom trawl surveys in Kamishak Bay and Kachemak Bay of the CIA and the Inside District of the PWSA, longline surveys in the Inside District of the PWSA, and ROV surveys in the Inside District of the PWSA and the North Gulf Coast District of the CIA. The Central Region bottom trawl surveys targeted Tanner crab in CIA and PWSA within a consistent historical survey grid from 1990-2019 and captured commercially important groundfish species and generated population indices (CPUE and relative abundance). Current fishery independent surveys that observe groundfish in the Central Region are the PWSA bottom trawl survey in the Inside District of the PWSA and the black rockfish hydroacoustic survey in the North Gulf Coast District of the CIA. Starting in 2020, the PWSA bottom trawl survey assessed new commercial Tanner crab districts and did not complete the historical survey grid again until 2023. Division of Commercial Fisheries funding for CIA bottom trawl surveys was eliminated after 2015 and from 2017-2019 the surveys were funded by Division of Sport Fish. Since 2019, CIA bottom trawl surveys have not been funded nor conducted. The current PWSA bottom trawl survey is conducted on Central Region's *R/V Solstice* and the CIA hydroacoustic survey is conducted on Westward Region's *R/V K-Hi-C* (Contact Wyatt Rhea-Fournier).

3. Westward Region

The **Westward Region** Groundfish management and research staff are in Kodiak and Dutch Harbor. Kodiak staff is comprised of a regional groundfish management biologist, an area

groundfish management biologist, an assistant area groundfish management biologist, a groundfish research project leader, an assistant groundfish research project biologist, a groundfish dockside sampling program coordinator, a groundfish dockside sampling program assistant biologist, a lead trawl survey biologist, an assistant trawl survey biologist, a fish ticket processing technician, and several seasonal dockside sampling technicians. An area management biologist, an assistant area groundfish management biologist and a fish ticket processing technician are in the Dutch Harbor office. Seasonal dockside sampling also occurs in Chignik, Sand Point, and King Cove. The *R/V Resolution*, *R/V K-Hi-C*, and *R/V Instar* hail from Kodiak and conduct a variety of groundfish related activities in the waters around Kodiak, the south side of the Alaska Peninsula, and in the eastern Aleutian Islands.

Major groundfish activities include: fish ticket editing and entry for approximately 7,000 tickets from both state and federal fisheries; analysis of data collected on an annual multi-species trawl survey encompassing the waters adjacent to the Kodiak archipelago, Alaska Peninsula, and Eastern Aleutians; management of black rockfish, dark rockfish, state-waters Pacific cod, lingcod, and Aleutian Island state-waters sablefish fisheries; conducting dockside interviews and biological data collections from commercial groundfish landings; and a number of research projects. In addition, the Westward Region has a member on the Council's GOA Groundfish Plan Team.

4. Headquarters

a. Alaska Fisheries Information Network

The 1996 Magnuson-Stevens Act called for developing regional fishery databases coordinated between state and federal agencies. The Alaska Fisheries Information Network (AKFIN), created in 1997, accomplishes this objective. The AKFIN program provides the essential fishery catch data needed to manage Alaska's groundfish and crab resources within the legislative requirements of the Act in Section 303(a)5. Alaska has diverse data collection needs that are like other states. But the extensive geographic area and complexity of fisheries management tools used in Alaska have resulted in AKFIN becoming a cooperative structure that is responsive to the needs to improve data collection. The Pacific States Marine Fisheries Commission (PSMFC) manages the AKFIN grant with the funding shared by ADF&G statewide, AKFIN contract, and the PSMFC sponsored AKFIN Support Center (AKFIN-SC) in Portland, Oregon. ADF&G has primary responsibility for the collection, editing, maintenance, analysis, and dissemination of these data and performs this responsibility in a comprehensive program.

The overall goal of ADF&G's AKFIN program is to provide accurate and timely fishery data that are essential to management, pursuant to the biological conservation, economic and social, and research and management objectives of the FMPs for groundfish and crab. The specific objectives related to the groundfish fisheries are to collect groundfish fishery landing information, including catch and biological data, from Alaskan marine waters extending from Dixon Entrance to the BSAI;

- 1) to determine ages for groundfish samples using age structures (as otoliths, vertebrae, and spines) arising from statewide commercial catch and resource survey sampling conducted by ADF&G;
- 2) to provide the support mechanisms needed to collect, store, and report commercial groundfish harvest and production data in Alaska;

- 3) to integrate existing fishery research data into secure and well-maintained databases with consistent structures and definitions;
- 4) to increase the quality and accuracy of fisheries data analysis and reporting to better meet the needs of ADF&G personnel, AKFIN partner agencies, and the public, and to make more of this information available via web-access while maintaining the department's confidentiality standards;
- 5) to provide GIS services for AKFIN fishery information mapping to ADF&G Division of Commercial Fisheries personnel and participate in GIS and fishery data analyses and collaboration with other AKFIN partner agencies; and
- 6) to provide internal oversight of the AKFIN contract between the ADF&G and the PSMFC.

Groundfish species include walleye pollock, Pacific cod, sablefish, skates, various flatfish, various rockfish, Atka mackerel, lingcod, sharks, and miscellaneous species.

The foundation of the state's AKFIN project is an extensive port sampling system for collection and editing of fish ticket data from virtually all the major ports of landing from Ketchikan to Adak and the Pribilof Islands, with major emphasis on Sitka, Homer, Kodiak, and Dutch Harbor. The port sampling program includes collection of harvest data, such as catch and effort, and the collection of biological data on the species landed. Age determination is based on samples of age structures collected from landed catches. A dockside sampling program provides for collection of accurate biological data (e.g., size, weight, sex, maturity, and age) and verifies self-reported harvest information submitted on fish tickets from shoreside deliveries of groundfish throughout coastal Alaska. In addition, the GOA Groundfish FMP and the BSAI Groundfish FMP require the collection of groundfish harvest data (fish tickets) in the North Pacific. The AKFIN program is necessary for management and for the analytical and reporting requirements of the FMPs.

The state's AKFIN program is supported by a strong commitment to development and maintenance of a computer database system designed for efficient storage and retrieval of the catch and production data on a wide area network and the internet. It supports the enhancement of the fish ticket information collection effort including regional fishery monitoring and data management; GIS database development and fishery data analysis; catch and production database development and access; the Age Determination Unit laboratory; database management and administration; fisheries data collection and reporting; and fisheries information services.

Local ADF&G personnel maintain close contact with fishers, processors, and enforcement to maintain a high quality of accuracy in the submitted fish ticket records. Groundfish landings are submitted electronically from the interagency electronic reporting system, eLandings, to the eLandings repository database. Signed copies of the fish tickets are submitted to the local offices of ADF&G within seven days of landing. Data are reviewed, compared to other observations, edited, and verified. Once data are processed by local staff members, the fish ticket data are pulled into the ADF&G database of record; the statewide groundfish fish ticket database. Fish ticket data are immediately available to inseason management via the analysis and reporting tool, OceanAK. Verified fish ticket data are also available immediately after processing from this tool, as well.

Within the confines of confidentiality agreements, raw data are distributed to the National Marine Fishery Service (NMFS, NOAA Fisheries, both the Alaska Regional office and the Alaska Fishery Science Center), the Council, the Commercial Fisheries Entry Commission (CFEC), and the

AKFIN Support Center on a regularly scheduled basis. Summary groundfish catch information is also provided to the Pacific States Fisheries Information Network (PACFIN), the State of Alaska Board of Fisheries (BOF), NOAA Fisheries, Council and the AKFIN Support Center.

The fishery information collected by the AKFIN program is not only essential for managers and scientists who must set harvest levels and conserve the fisheries resources, but it is also valuable for the fishermen and processors directly involved in the fisheries, as well as the public. To meet those needs, the department has designed, implemented, and continues to improve database systems to store and retrieve fishery data, and continues to develop improvements to fishery information systems to provide data to other agencies and to the public.

Groundfish fishery milestones for this ongoing ADF&G AKFIN program are primarily the annual production of catch records and biological samples. In calendar year 2023, ADF&G AKFIN personnel processed 17,049 groundfish fish tickets, collected 27,303 groundfish biological samples and measured 17,650 age structures (see tables below for regional breakdown). These basic measures of ongoing production in support of groundfish marine fisheries management by AKFIN funded ADF&G personnel are representative of the level of annual productivity by the AKFIN program since its inception in 1997 (Contact Lee Hulbert).

Groundfish Fish Tickets Processed - Calendar Year 2023

ADF&G Region	Total fish tickets
1 - Southeast	8,097
2 - Central	2,010
4 - Westward; Kodiak, Chignik, AK Pen.	5,749
4 - Westward; BSAI	1,193
Total	17,049

Groundfish Biological Data Collection - Calendar Year 2023

ADF&G Region	AWL samples collected	Age estimates produced by regional personnel	Age estimates produced by the ADU lab
1 - Southeast	6,006	n/a	5,443
2 - Central	9,511	3,990	4,320
4 - Westward	11,786	3,897	n/a
Total	27,303	7,887	9,763

b. Interagency Electronic Reporting System - eLandings (Contact David Loomis)

ADF&G maintains a commercial harvest database, based on landing report receipts – fish tickets. These data are comprehensive for commercial salmon, herring, shellfish, and groundfish from 1969 to present. Data are stored in an Oracle relational database and available to statewide staff via the OceanAK reporting tool. Data are transferred annually to CFEC, where additional license and value information is merged with all fish ticket records. Once completed, the data are provided to the AKFIN support center, then summarized and made available to PACFIN.

Beginning in 2001, the agencies tasked with commercial fisheries management in Alaska (ADF&G, NOAA Fisheries, IPHC) began development of consolidated landing, production, and IFQ reporting from a sole source – the Interagency Electronic Reporting System (IERS). The goal

is to move all fisheries dependent data to electronic reporting systems (Figure 1). The web-based reporting component of this system is eLandings (Figure 2). The application for the at-sea catcher processor fleet is seaLandings. Vessels using the seaLandings application upload landing and production reports to the centralized database. tLandings was developed to address electronic reporting on-board groundfish and salmon tender vessels. The application and the landings reports are stored on a portable thumb drive and are delivered to the shoreside processor for upload to the eLandings repository database. Fisheries management agencies use a separate application, the IERS Agency Interface, to view and edit landing reports. The IERS management/development team have implemented an electronic logbook application, eLogbook, currently used by groundfish catcher processors and longline catcher vessels. The IERS has been successfully operated in Alaska's commercial fisheries since August 2005. To date, approximately 1.99 million landing reports have been submitted to the eLandings repository database. More than 99% of all groundfish landings are submitted electronically.

Our approach, throughout this project, has been staged implementation which allows a small staff to successfully manage this ambitious project. Salmon fisheries are more diverse and seasonal than groundfish and crab fisheries. ADF&G will always support conventional, paper-based reporting for smaller buyers and processors. In November 2015, ADF&G adopted a regulation to require larger seafood processors to use the tLandings application for all tendered salmon. All tendered groundfish must be reported using the tLandings application, as well. During the 2023 salmon season, 97% percent of all salmon landings were submitted electronically.

Functionality for Southeast crab processors was added to eLandings in 2021 to implement the use of tLandings for crab deliveries, making forward progress on the goal to implement electronic reporting for all fisheries. TLandings can be used for all crab deliveries has started to get adopted by more processors throughout the state. Miscellaneous Shellfish reporting is also being added. That landing report type is currently under development with a goal of implementing eLandings and tLandings reporting in 2025.

The new Processor HTML5 web application had final beta testing in the fall of 2023. A hybrid system was then initially released for a small subset of users which incorporates the newly developed groundfish landing reports component with the legacy eLandings application for additional analysis and feedback. All processor users were migrated to the new system for all fisheries in eLandings by the start of 2024. Despite extensive testing by the eLandings staff and beta testers, some issues with the new system could not be identified until HTML5 was in production and being used regularly by processors. Since the initial release the development team has primarily focused on production support to address any issues with the new application.

Interagency Electronic Reporting Program Components

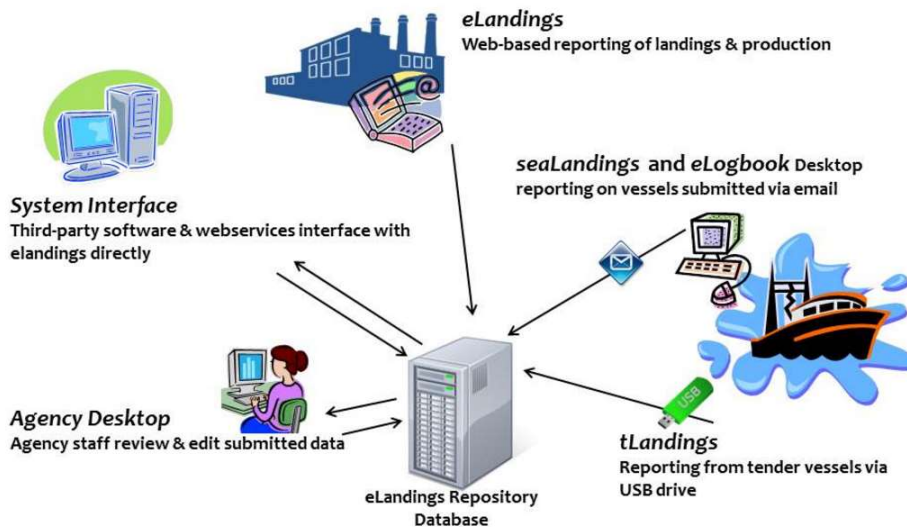


Figure 1.—Data are reported by the seafood industry using eLandings web, seaLandings and tLandings. Agency staff review, edit and verify landing and production reports within the eLandings agency desktop tool. Industry can pull harvest data for their company from the database using the eLandings system interface tools.

The IERS features include electronic landing and production reports, real time quota monitoring, immediate data validation, and printable (.pdf) fish ticket reports. The IERS provides processors with web-based electronic catch and production data extraction using an XML output. ADF&G personnel, funded by AKFIN, Rationalized Crab Cost Recovery funds, and IFQ Halibut/Sablefish Cost Recovery funds, participate in the IERS project on the development, implementation, and maintenance levels. During 2023, the IERS recorded 149,554 landing reports in crab, groundfish, and salmon fisheries. The IERS is extensively documented on a public and secure wiki at:

<https://elandings.atlassian.net/wiki/spaces/doc/pages/10427531/eLandings+User+Manual>.

Local ADF&G personnel in six locations throughout the state of Alaska (Ketchikan, Sitka, Juneau, Homer, Kodiak, and Dutch Harbor) maintain close contact with groundfish fishers, processors, and state/federal enforcement to maintain a high quality of accuracy in the submitted fish ticket records. The Interagency Electronic Reporting System – eLandings, seaLandings, tLandings, and eLogbook applications, with immediate data validation and business rules, has improved data quality and allows personnel to function at a higher level. User support is provided by ADFG and NMFS staff, who monitor the eLandings Help Desk email address. IFQ reporting support is provided by the NOAA Fisheries Data Technicians.

Interagency Electronic Reporting System

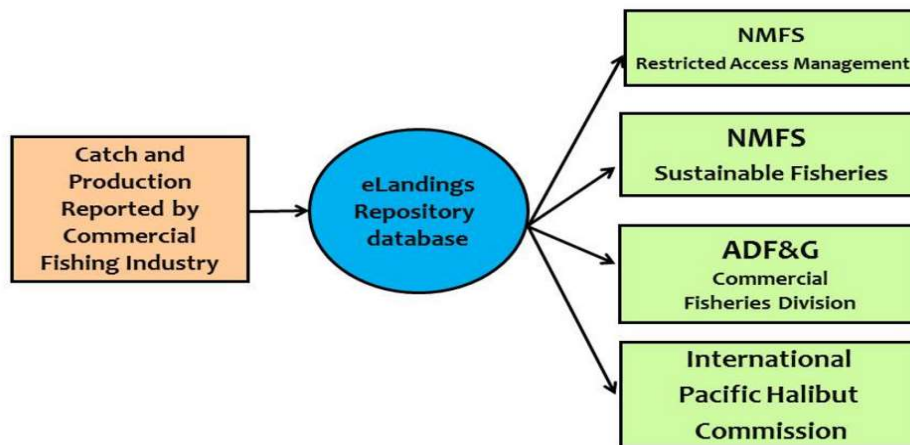


Figure 2.—Interagency staff have established methods to pull data from the repository database into their databases of record. The ADF&G fish ticket records are pulled into the commercial fisheries fish ticket database once data verification has occurred.

Landing and production data are submitted to a central database, validated and reviewed, and pulled to the individual agency databases. Landing data are available to agency personnel within seconds of submission of the report. Printable documentation of the landing report and the Individual Fishery Quota debit are created within the applications. Signed fish tickets continue to be submitted to local offices of ADF&G for additional review and comparison to other data collection documents. These documents include vessel/fisher logbooks, agency observer datasets, and dockside interviews with vessel operators.

Detailed data are distributed to the State of Alaska CFEC annually. As outlined in State of Alaska statute, 16.05.815, detailed groundfish data are available to the NOAA Fisheries-Alaska regional office from the eLandings repository database. The AKFIN Support Center receives groundfish data on a monthly schedule, which is summarized and provided to PACFIN. The CFEC merges the ADF&G fish ticket data with fisher permit and vessel permit data. This dataset is then provided to the AKFIN Support Center, which distributes the data to the professional staff of the Council, NOAA Alaska Science Center staff, and summarized data to PACFIN. Summary groundfish catch information is also posted on the ADF&G Commercial Fisheries website: <http://www.cf.adfg.state.ak.us/geninfo/finfish/grndfish/grndhome.php>. Summarized data are provided to the BOF, the Council, and to the State of Alaska legislature as requested.

5. Gene Conservation Laboratory

The ADF&G Gene Conservation Laboratory (GCL) is a statewide program located in Anchorage. The mission of the GCL is to protect genetic resources and provide genetic information and advice to department staff, policy makers, and the public to support management of resources.

In the past, the GCL collected genetic information on black, yelloweye, light and dark dusky rockfish, and pollock. The GCL used traditional genetic markers, such as allozymes, mitochondria DNA, and microsatellites, to identify larval and juvenile rockfish (Seeb and Kendall 1991), to study population structure of black rockfish in the Gulf of Alaska (Seeb and Seeb 2005), and to

investigate spatial and temporal genetic diversity in walleye pollock from Gulf of Alaska, eastern Bering Sea, and eastern Kamchatka (Olsen et al. 2002).

In 2019, the GCL developed an operational plan with Division of Sport Fish to sample and analyze yelloweye and black rockfish from inside and outside waters of Prince William Sound, North Gulf of Alaska, and Southeast Alaska (Howard et al. 2019a-c). The GCL used Restriction site Associated DNA Sequencing (RAD-Seq) to develop a new set of Single Nucleotide Polymorphism (SNP) genetic markers and presented this work at the 2020 Alaska Marine Science Symposium. The GCL has genotyped black and yelloweye rockfish from inside and outside waters from southern and northern Southeast Alaska, Prince William Sound, and Kodiak Island to investigate genetic population structure. The final set of samples consisting of 96 Black Rockfish from the Northern Gulf of Alaska (NGA) was incorporated into the project and subsequently analyzed. The latest findings were presented at the State Rockfish Initiative Workshop held in the spring of 2023. The report is currently in the process of being prepared.

6. Age Determination Unit

The Mark, Tag, and Age (MTA) Laboratory's Age Determination Unit (ADU) is the statewide groundfish and invertebrate age reading program based out of Juneau, AK. The ADU is responsible for providing age data support to regional commercial fisheries programs to monitor population health, assess stock size and growth, and research species life history. The ADU is also responsible for monitoring and improving the quality of age data through precision testing of production data and continual training of age readers. During 2023, the ADU received 11,258 otolith sets from Central and Southeast Alaska commercial and survey sampling (representing 14 groundfish species). The ADU produced 10,423 ages and distributed 9,763 ages to region managers, including data from samples received in previous years but processed in 2023. Age data quality is assessed through precision monitoring using additional, independent estimates. A random 30% of specimens and reads with outlying fish and otolith size-at-age are selected for precision testing (data are compared to estimated ranges from growth models; otolith measurements are described below). Discrepancies between precision tests and original ages are resolved through development of independent age estimates by the disputing readers. During 2023, quality control procedures resulted in an additional 7,263 age estimates. Personnel learn to interpret seasonal banding patterns through training with experienced age readers and independent reading of preprocessed age structures. Trained personnel also continue to calibrate on preprocessed structures to insure consistency of age estimates. Training and calibration procedures resulted in an additional 1,556 age estimates. Given production, quality control, and training procedures, the ADU recorded 19,242 groundfish ages.

Correlations have been found between fish length, otolith morphometrics, and age. The ADU collects otolith measurements and uses them to identify and resolve age estimation, specimen sequence, data entry, and species identification errors. Otolith length, height, and weight are recorded from a minimum of one age structure per fish (18,219 otoliths in 2023, representing 14 groundfish species). To identify possible age estimation errors, the ADU compares fish length, otolith weight, and age to estimated fish and otolith size-at-age ranges for lingcod, black rockfish, yelloweye rockfish, roughey rockfish, shortraker rockfish, shortspine thornyhead, and sablefish. Estimated size-at-age values were developed from Ludwig von Bertalanffy and exponential growth models, and reasonable error ranges per size were entered into a database table.

To ensure consistency of age criteria across programs, the ADU exchanges specimens and data, attends workshops, and presents research through the Committee of Age Reading Experts (CARE; Working Group of the TSC). In 2023, ADU personnel participated in the 2023 CARE meeting in Seattle, WA, age structure exchanges to address agency and TSC concerns, and helped prepare CARE documents for the age manual and reporting. During this period, the ADU initiated and concluded a rougheye rockfish exchange with the Alaska Fisheries Science Center in Seattle, WA (AFSC). Further, ADU and AFSC personnel hosted an Age and Growth Workshop at the 2023 Western Groundfish Conference to distribute current research and best practices for estimating/validating ages and reconstructing life histories.

The ADU groundfish age estimation is funded by the State of Alaska and AKFIN. In fiscal year 2023, approximately 60% of funding was provided by the State of Alaska, and 40% by AKFIN. During 2023, the ADU employed 7 people (approximately 50-man months) to age, process samples, enter data, maintain sample archives, measure samples, and complete other support tasks.

B. Description of the State of Alaska sport groundfish program (Division of Sport Fish)

ADF&G manages all sport groundfish fisheries within the internal waters of the state, in coastal waters out to three miles offshore, and throughout the EEZ, except for the sport halibut fishery which is managed by the IPHC and NMFS. The Alaska BOF extended existing state regulations governing the sport fishery for all marine species into the waters of the EEZ off Alaska in 1998. This was done under provisions of the Magnuson-Stevens Fishery Conservation and Management Act that stipulate that states may regulate fisheries that are not regulated under a federal FMP or other applicable federal regulations. No sport fisheries are included in the GOA FMP.

Most management and research efforts are directed at halibut, rockfish, lingcod, and sablefish; the primary bottomfish species targeted by the sport fishery. Statewide data collection programs include an annual mail survey (Statewide Harvest Survey, SWHS) that estimates overall catch and harvest (in number of fish) of halibut, rockfishes (all species combined), lingcod, Pacific cod, sablefish, and sharks (all species combined), and a mandatory charter logbook program to assess harvest and release of selected species including halibut, rockfish (pelagic, yelloweye, or other nonpelagic), lingcod, sablefish, and salmon shark in the charter boat sport fishery.

The lack of stock assessment information for state-managed species has prevented development of abundance-based fishery objectives. As a result, management is based on building a conservative regulatory framework specifying bag and possession limits, seasons, and methods and means. Stock status is evaluated by examining time series data on age, size, and sex composition. The lack of stock assessments, coupled with increasing effort and harvest in several groundfish sport fisheries, accentuate the need for developing comprehensive management plans and harvest strategies that include the sport and commercial sectors. Efforts are currently underway to develop stock assessments and comprehensive management plans for black and yelloweye rockfish in several areas throughout the state.

Regional programs with varying objectives address estimation of sport fishery statistics including harvest and release magnitude and biological characteristics such as species, age, size, and sex composition. Research is funded through sport fishing license sales, state general funds, and the Federal Aid in Sport Fish Restoration Act (“Dingell-Johnson Act”). There are essentially two maritime regions for marine sport fishery management in Alaska.

1. Southeast Region

The **Southeast Region** extends from the EEZ boundary in Dixon Entrance north and westward to Cape Suckling, at approximately 144° W longitude. Regional staff in Juneau coordinate a data collection program for halibut and groundfish in conjunction with a regionwide salmon harvest studies project. The regional research coordinator, project leader, and the project research analyst are based in Juneau. The project biometrician is stationed in Anchorage. Since 2014, the area management biologists in Yakutat, Juneau, Sitka, Petersburg/Wrangell, Ketchikan, and Craig have been responsible for the onsite daily supervision of the field technicians throughout the region. A total of 25-30 technicians work at the major ports in the Southeast region, where they interview anglers and charter operators and collect data from sport harvests of halibut and groundfish while also collecting data on sport harvests of salmon.

Biological data collected included lengths of halibut, rockfish, lingcod, and sablefish, sex of lingcod, sex and age of black rockfish at Ketchikan, Sitka, and Elfin Cove, sex and age of halibut at Ketchikan, Sitka, and Elfin Cove; technicians also collect other basic data including the sport fishery sector (charter or unguided) and the statistical areas fished. Data summaries were provided to the Alaska BOF, other ADF&G staff (especially through the Statewide Rockfish Initiative (SRI)), the public, and a variety of other agencies such as the Council, IPHC, and NOAA Fisheries.

The Regional Management Coordinator and Area Management Biologists in Yakutat, Haines/Skagway, Sitka, Juneau, Petersburg/Wrangell, Craig, and Ketchikan are responsible for groundfish management in those local areas, except halibut, in state and federal waters. The demersal shelf rockfish and lingcod sport fisheries are managed under the direction of the Demersal Shelf Rockfish Delegation of Authority and Provisions for Management (5 AAC 47.065) and the Lingcod Delegation of Authority and Provisions for Management (5 AAC 47.060) for allocations set by the Alaska BOF.

2. Southcentral Region

The **Southcentral Region** includes state and federal waters from Cape Suckling to Cape Newenham, including PWS, Cook Inlet, Kodiak, the Alaska Peninsula, the Aleutian Islands, and Bristol Bay. The Southcentral Region groundfish staff consists of two regional management biologists as well as area management biologists and assistants for the following areas: (1) PWS and the North Gulf areas, (2) Lower Cook Inlet, and (3) Kodiak, Alaska Peninsula, and the Aleutian Islands. In addition, a region-wide harvest assessment project is based in the Anchorage office, consisting of a project leader, project assistant, and five technicians. Seasonal technicians and program staff collected data from the sport harvest at six major ports in the region: Valdez, Whittier, Seward, Anchor Point/Deep Creek, Homer, and Kodiak. Ongoing assessment of sport harvest and fishery characteristics at major ports throughout the region includes interviews of anglers and charter boat operators and sampling of the sport harvest. Data collected included length, age, and sex of halibut, rockfishes, lingcod, and sharks; sablefish, Pacific cod, and other infrequently harvested sport bottomfish species may also be sampled opportunistically. All non-halibut age reading was done in Homer, and the staff members are active participants in CARE. Halibut otoliths were forwarded to the IPHC for age reading. Southcentral Region staff are responsible for management of groundfish fisheries, except halibut, in state and federal waters.

In both Regions, staff provide sport halibut harvest statistics to the IPHC and the Council, assist in development and analysis of the statewide charter logbook program and SWHS, provide

information to the BOF, advisory committees, and local fishing groups, draft and review proposals for sport groundfish regulations, and disseminate information to the public.

II. Surveys

Fishery surveys, where applicable, are addressed in research sections by species.

III. Marine Reserves

Nothing to report for this year.

IV. Groundfish Research, Assessment, and Management

A. Hagfish

1. Research

In 2016, the **Southeast Region** began an opportunistic survey for hagfish *Eptatretus stoutii* and *E. deani* during the annual shrimp pot surveys to gather information on distribution and life history information including: size at maturity, fecundity, sex ratio, length, and weight frequencies. Survey sampling continued in 2017 and stations were expanded to Clarence Strait based on bycatch occurrence of hagfish during the sablefish longline survey. Samples were collected in Ernest Sound and Behm Canal using longlined 20-L bucket traps dispersed 5.5 m apart with each trap consisting of 9.5 mm escape holes, 1 kg weight, and a 102 mm entry funnel and destruct device. Each set was sampled for count-by-weight (number of hagfish and weight per trap) and a sub-sample of 5 hagfish per trap or 125 per set were frozen and sampled for biological information in the lab. A total of 828 hagfish were sampled with the largest length recordings for *E. deani* at 77 cm for females and 62 cm for males. A total of 541 sampled hagfish were identifiable as males or females and were used to calculate size at 50% maturity (L50; Figure 3) (Contact Rhea Ehresmann).

2. Assessment

There are no stock assessments for hagfish.

3. Management

A commissioner's permit is required before a directed fishery may be prosecuted for hagfish. This permit may restrict depth, dates, area, and gear, establish minimum size limits, and require logbooks and/or observers, or any other condition determined to be necessary for conservation and management purposes. Gear is restricted to 3,000 gallons in volume using any combination of gear types included Korean style traps, buckets, and barrels per vessel. In 2018, six hagfish management areas were created within the Southeast Region. In 2023, one commissioner's permit was issued for directed fishing of hagfish in the **Southeast Region**.

4. Fisheries

The directed fishery for hagfish in the Southeast region has a total annual guideline harvest level (GHL) of 77.1 mt. No hagfish were harvested in the 2023 directed fishery. The primary species caught is *E. deani* and a market has been developing for Alaskan hagfish where they are sold for food. Currently in the **Westward, Central, and Southeast Regions** hagfish are allowed up to 20% as bycatch in aggregate with other groundfish during directed fisheries for groundfish.

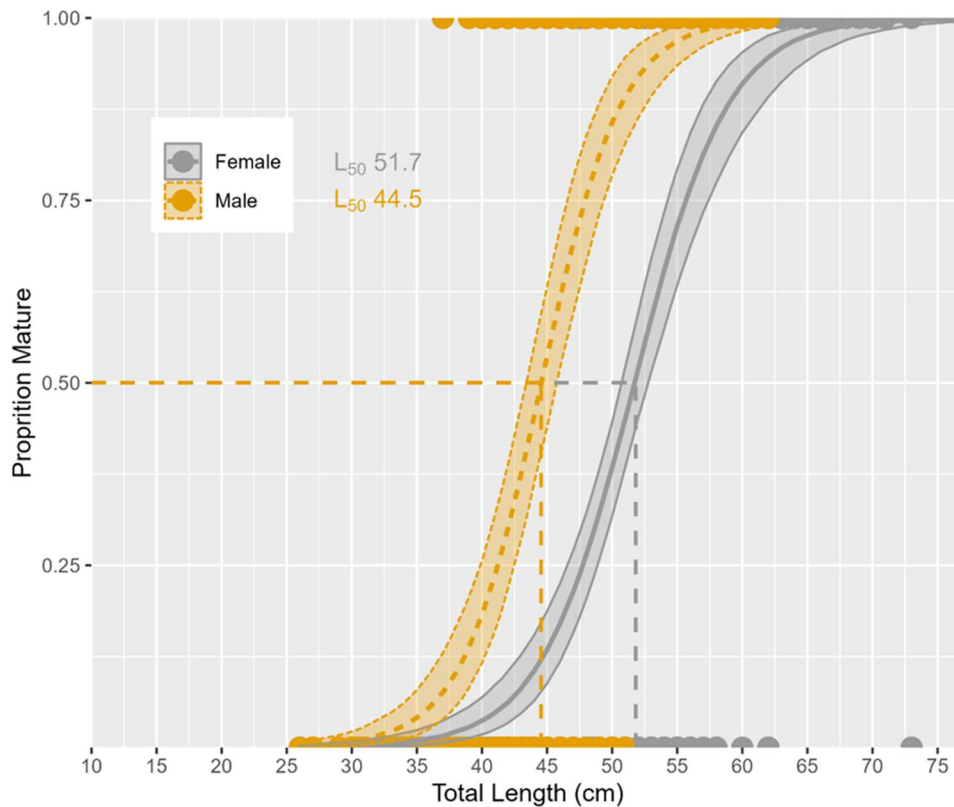


Figure 3.—Preliminary size at 50% maturity with 95% confidence intervals for male (44.5 cm, n=216) and female (51.7 cm, n=325) *E. deani* in southern Southeast Alaska.

B. Dogfish and other sharks

1. Research

The **Division of Sport Fish—Southcentral Region** collected harvest and fishery information on sharks through the groundfish harvest assessment program although no specific research objectives were identified. Interviews were conducted representing 1,670 boat-trips and 9,353 angler-days of effort targeting or harvesting groundfish species in 2023. Interviewed anglers caught zero Pacific sleeper sharks, 2 salmon sharks and kept 1, and caught 335 Pacific spiny dogfish and kept 9. No sharks were sampled for biological data (Contact Clay McKean).

2. Assessment

There are no stock assessments for dogfish or sharks.

3. Management

Directed fisheries for spiny dogfish in the Central and Southeast Regions are allowed under terms of a commissioner's permit. The commercial bycatch allowance in the **Southeast Region** is 35% round weight of the target species in longline and power or hand troll fisheries. Full retention of dogfish bycatch is permitted in the salmon set net fishery in Yakutat. In the **Central Region**, bycatch had historically been set at 20% of the round weight of the target species on board a vessel, the maximum allowable retention amount in regulation; however, since 2014, allowable bycatch

levels of all shark species in aggregate (includes spiny dogfish) were set at 15% by emergency order (EO), except for the PWS pollock trawl fishery where allowable bycatch for sharks was set at 0.96% by EO.

The practice of “finning” is prohibited; all sharks retained must be sold or utilized and have fins, head, and tail attached at the time of landing. “Utilize” means use of the flesh of the shark for human consumption, for reduction to meal for production of food for animals or fish, for bait or for scientific, display, or educational purposes.

Sport fishing for sharks is allowed under the statewide Sport Shark Fishery Management Plan adopted by the BOF in 1998. The plan recognizes the lack of stock assessment information, the potential for rapid growth of the fishery, and the potential for overharvest, and sets a statewide daily bag limit of one shark and a season limit of two sharks of any species except spiny dogfish which have a daily bag limit of five. Sport demand for sharks continued to be low in 2023.

4. Fisheries

No applications for commissioner’s permits were received in the **Southeast Region** in 2023, and no permits have been issued in **Central Region** since 2006. During 2023, there was 0.87 mt harvest of spiny dogfish as bycatch in CIA and 0.97 mt harvested in PWS.

Estimates of the 2023 sport harvest of sharks are not yet available, but harvest in 2022 was estimated at 74 sharks of all species in Southeast Alaska and 78 sharks in Southcentral Alaska. The precision of these estimates was relatively low. The statewide charter logbook program also required reporting of the number of salmon sharks kept in the charter fishery. In 2022, 15 salmon sharks were harvested by charter anglers in Southeast, 16 were harvested in Southcentral. Charter anglers are believed to account for most of the sport salmon shark harvest.

C. Skates

1. Research

The **Central Region** CIA and PWSA bottom trawl survey complete accounting for big and longnose skate began in 1999 and for Bering skate in 2001. Age structures have not been collected consistently during these surveys (Figure 4).

2. Assessment

There are no stock assessments for skates in state waters but the PWSA trawl survey biomass time series as well as biomass time series from other Central Region trawl surveys in Kachemak and Kamishak Bays in CIA have recently been included in the federal stock assessment of the skate stock complex in the GOA (Ormseth 2019).

3. Management

A commissioner’s permit is required before a directed commercial fishery may be prosecuted for skates. This permit may restrict depth, dates, area, and gear, establish minimum size limits, and require logbooks and/or observers, or any other condition determined to be necessary for conservation and management purposes.

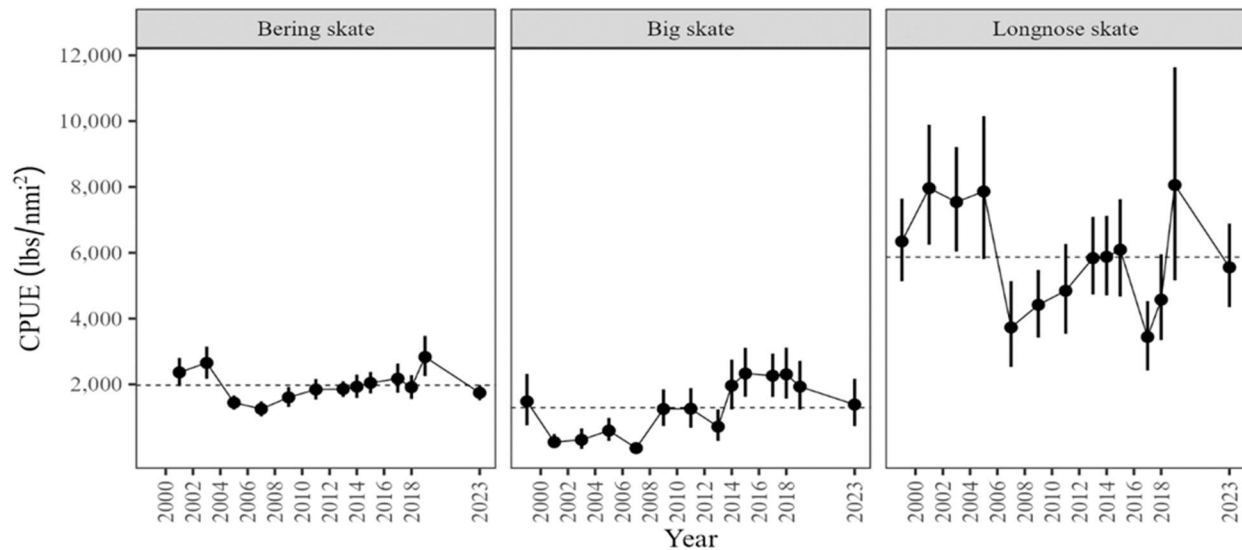


Figure 4.—Bering, Big, and Longnose skate CPUE from the Prince William Sound Area bottom trawl survey. Horizontal dotted line is time series mean. Vertical lines are the standard error.

4. Fisheries

Currently in the **Central Region**, skates are harvested commercially as bycatch up to 5% of target species; this allowable bycatch level is set by EO to align with the NMFS maximum retainable allowance (MRA) for skates in the GOA.

A directed fishery in PWSA for big and longnose skates was prosecuted under the authority of a commissioner's permit in 2009 and 2010. However, the fishery was deemed unsustainable, and no permits were issued thereafter. The permit stipulated seasons, district, gear, and included a logbook requirement.

In the CIA, skate harvest was 17.0 mt in 2023, an increase from 12.0 mt in 2022. In PWS, skate harvest was 25.4 mt in 2023, an increase from 15.5 mt in 2022. Due to bycatch limits set as a percentage of the targeted species, harvest levels of the target species affect the amount of bycatch harvested.

Over the last ten years, in **Southeast Region**, skate landings in internal waters of Northern Southeast Inside (NSEI) and Southern Southeast Inside (SSEI) fluctuated with a low harvest in 2023 of 2.5 mt and a high in 2014 of 22.2 mt. In 2023, a total of 2.5 mt of skates were landed. Skate harvest fluctuates with current market value.

D. Pacific cod

1. Research

Commercial landings in the **Southeast Region**, **Central Region**, and the **Westward Region** are sampled for length, weight, age, sex, and stage of maturity. Harvest rate and biological information are gathered from fish ticket records, port sampling programs, a tagging program, and during stock assessment surveys for other species. A mandatory logbook program was initiated in 1997 for the state waters of Southeast Alaska.

Age Determination Unit personnel are collaborating with NOAA Alaska Fishery Science Center, Little Port Walter staff, and University of Alaska faculty and students to perform a long-term Pacific cod and walleye pollock rearing study. Juvenile fish are being raised under constant monitoring to investigate techniques to study life history and condition. Methods include studying daily marks and otolith growth through fluorescent stains and near infrared spectroscopy as well as testing blood, tissue, and bone samples across ontogeny to study changes in chemistry and hormones across life stages. In 2023, a University of Alaska Fairbanks graduate student started work processing otoliths to reconstruct larval life history, and AFSC, ADU, and UAF personnel processed plasma samples to get estimated hormone activity.

The **Central Region** CIA and PWSA bottom trawl survey complete accounting for Pacific cod began in 1991 (Figure 5). The collection of otoliths for aging Pacific cod from trawl surveys began in 1993, was discontinued in 2006, and was reinstituted in 2018 for PWSA surveys (Contact Wyatt Rhea- Fournier). Otoliths collected from bottom trawl surveys in PWSA indicated Pacific cod ages ranged from 2–20 years old, with an average age of 7 years old.

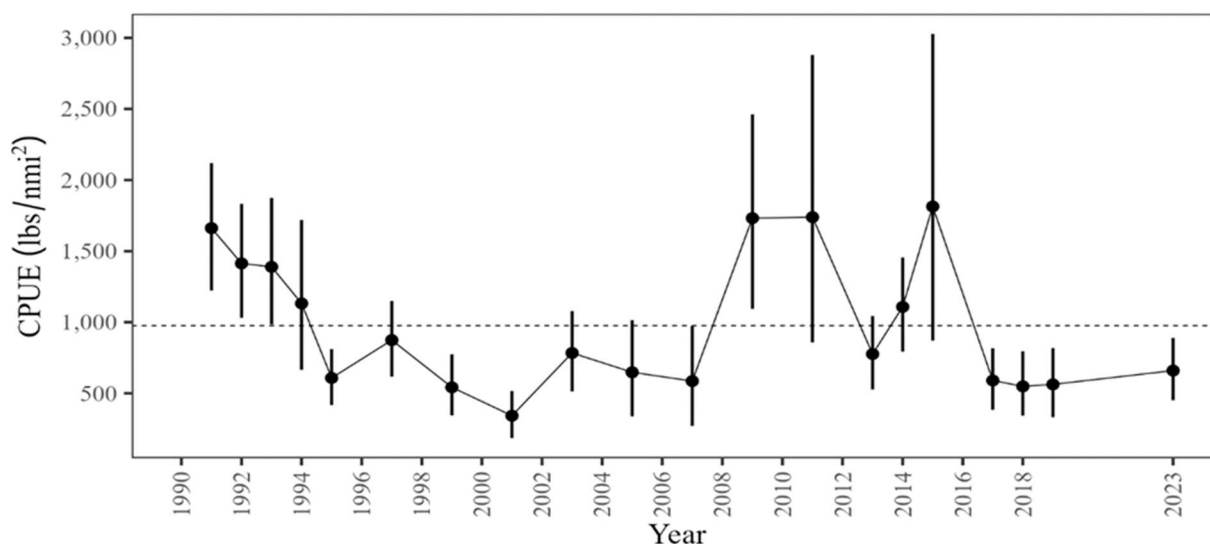


Figure 5.—Pacific cod CPUE from the Prince William Sound Area bottom trawl survey. Horizontal dotted line is time series mean. Vertical lines are the standard error.

In the **Central Region**, skipper interviews and biological sampling of commercial Pacific cod deliveries from CIA and PWSA during 2023 occurred in Homer, Seward, and Whittier. Sample data collected included date and location of harvest, species, length, weight, sex, and gonad condition (maturity stage). There was a total of 5,551 Pacific cod samples collected dockside in 2023 with an average fork length of 68 cm and average weight of 3.91 kg (8.62 lb.). Data are provided to NMFS for use in stock assessment.

In the **Westward Region**, port sampling of state-managed Pacific cod fisheries continued in 2023. Skippers were interviewed for information on effort, location, and bycatch. Length, weight, gonadal maturity, and otolith samples were collected (Contact Sonya El Mejjati). Staff from the Kodiak office aged 2,342 otoliths for the 2023 season.

The **Division of Sport Fish—Southcentral Region** creel sampling program also collects data on Pacific cod catch by stat area (on a vessel-trip basis) through dockside interviews, and lengths of sport-caught Pacific cod, though this is a secondary objective and there are no sample size targets. Interviewed anglers caught 5,811 Pacific cod in 2023, of which 4,866 were retained. Biological data were collected from 91 Pacific cod in Southcentral Region (Contact Clay McKean). No information is collected in the Southeast Region creel survey program on the Pacific cod sport fishery.

2. Assessment

No stock assessment programs were conducted for Pacific cod.

3. Management

The internal waters of the **Southeast Region** are comprised of two areas, NSEI and SSEI Subdistricts. The GHR was based on average historic harvest levels rather than on a biomass-based acceptable biological catch (ABC) estimate. The Pacific cod GHR is managed on the calendar year cycle and applies directed fishery harvest as well as incidental bycatch. Management of the directed Pacific cod fishery uses a July 1 to June 30 timeline to coincide with seasonal fishery activity that primarily targets spawning aggregation from October to April. This fishery has the most participation in the winter months, and inseason management actions such as small area closures are implemented to spread out the fleet and reduce the risk of localized depletion. In 2022, the BOF passed a regulation to require registrations for the directed Pacific cod fishery. Pacific cod in state waters along the outer coast are managed in conjunction with the Total Allowable Catch (TAC) levels set by the federal government for the adjacent EEZ waters.

In the GOA, Pacific cod Management Plans are established for fisheries in five groundfish areas: **Prince William Sound, Cook Inlet, Kodiak, Chignik, and South Alaska Peninsula**. Included within the plans are season, gear, and harvest specifications. Initially the state-waters fisheries were restricted to pot or jig gear to minimize halibut bycatch and avoid the need to require onboard observers in the fishery. However, in PWSA the use of longline gear has been permitted since 2009 in response to the very low levels of effort and harvest by pot and jig gear and high level of interest from the longline gear group. Guideline harvest levels are further allocated by gear type.

Annual GHs are based on the estimate of ABC of Pacific cod as established by the Council. Current GHs are set at 25% of the Central Gulf of Alaska (CGOA) ABC, apportioned between the Kodiak, Chignik, and Cook Inlet areas, 25% of the Eastern Gulf ABC for the PWSA, and 30% of the Western Gulf Pacific cod ABC for the South Alaska Peninsula Area. Most CGOA state-waters fisheries open after the respective gear sector closure in the federal Pacific cod A season, generally late winter through early spring; the exception being Kodiak Area state-waters Pacific cod for vessels using jig gear which opens concurrently with the federal season on January 1. A 58-ft overall length (OAL) vessel size limit is in place for the Chignik and South Alaska Peninsula Areas. The Cook Inlet and Kodiak Areas have a harvest cap for vessels larger than 58-ft OAL that limits harvest to a maximum of 25% of the overall GH. If the GH is not fully harvested, the fishery management plans allow removal of area exclusivity, vessel size restrictions, and gear limits later in the season to increase harvest to promote achievement of GHs.

In the **Bering Sea/Aleutian Islands area**, a Pacific cod Management Plan for an exclusive Aleutian Islands Subdistrict, west of 170° W longitude, state-waters fishery has been adopted.

Included within the plan are season, gear, and harvest specifications. The fishery GHL is set by regulation at 39% of the Aleutian Islands ABC for Pacific cod and may not exceed 15 million lbs.

Currently, on January 1, the Aleutian Islands state-waters Pacific cod season opens in the Adak Section, between 175° W long and 178° W long, to vessels 60-ft OAL or less using trawl and jig gear, vessels 100-ft OAL or less using pot gear, and vessels 58-ft OAL or less using longline gear. The state waters of the Aleutian Islands Subdistrict, west of 170° W long, open 4 days after the closure of the federal Bering Sea-Aleutian Islands for vessels catcher-vessel greater than or equal to 60-ft in OAL pot gear fishery closes or at noon on February 1, whichever occurs first. When waters west of 170° W long are open, trawl vessels may not be greater than 60 -ft OAL, pot vessels may not be greater than 100-ft OAL, jig vessel may not be more than 60-ft OAL and longline vessels may not be greater than 58-ft OAL. The Aleutian Islands Subdistrict has a harvest cap for vessels larger than 60-ft OAL that limits harvest to a maximum of 35% of the overall GHL. If the GHL is not fully harvested, the fishery management plan allows removal of area exclusivity, removal of trip and harvest limits, and allowing larger pot and travel vessel to participate later in the season to increase harvest to promote achievement of the GHL.

A state-waters Pacific cod fishery management plan has also been adopted in waters of the Bering Sea near Dutch Harbor. The Dutch Harbor Subdistrict Pacific cod season is open to vessels 58-ft or less OAL using pot gear, with a limit of 60 pots. The fishery GHL is set at 12% of the Bering Sea ABC for Pacific cod in 2023. The season opens seven days after the federal Bering Sea–Aleutian Islands pot/longline sector’s season closure, and may close and re-open as needed to coordinate with federal fishery openings. Additionally, there is a Pacific cod season open to vessels 58-ft or less OAL using jig gear. The fishery GHL is set at 100,000 pounds which is subtracted from the overall Bering Sea ABC for Pacific cod. The season opens May 1. If the GHLs are not fully harvested, the fishery management plans allow removal of area exclusivity, vessel size restrictions, and gear limits later in the season to increase harvest to promote achievement of GHL.

There is no bag, possession, or size limit for Pacific cod in the sport fisheries in Alaska, and the season is open year-round. Sport harvest of Pacific cod is estimated through the SWHS.

4. Fisheries

Most of the Pacific cod harvested in the **Southeast Region** are taken by longline gear in the NSEI Subdistrict during the winter months. Prior to 1993 much of the cod taken in Southeast Alaska commercial fisheries was utilized as bait in fisheries for other species. In recent years, the Pacific cod harvest has been largely sold for human consumption. A total of 44 mt of Pacific cod were harvested in Southeast state-managed (internal waters) fisheries during the 2022–2023 season with 26 mt harvested from the directed fishery (Figure 6).

For **Central Region** state-waters Pacific cod fisheries, the dominant gear type has been pot gear in CIA and longline gear in PWSA fisheries with each gear type allocated 85% of GHLs in respective areas. In CIA, 25% of the GHL is allocated to jig gear and in PWSA, 25% is allocated to pot and jig gear combined.

Gear type allocations vary by management area in the **Westward Region** state-waters Pacific cod fisheries. In the **Kodiak, Chignik, and South Alaska Peninsula** state-waters Pacific cod fisheries, pot gear and jig gear are legal gear types. Pot gear is the dominant gear type in the Chignik and South Alaska Peninsula Areas as pot gear is allocated 90% and 85% of the area GHL, respectively.

In the Kodiak Area, pot and jig vessels are each allocated 50% of the GHL; however, two regulatory rollover provisions may change GHL allocations between gear types if GHLs are not on track to be met. In the **Dutch Harbor Subdistrict** state-waters Pacific cod fishery, pot and jig gear are legal gear types however each gear has a separate allocation. In the **Aleutian Islands Subdistrict** state-waters fishery, trawl, jig, longline, and pot are all legal gear types; however, only pot and trawl vessels participated in 2023.

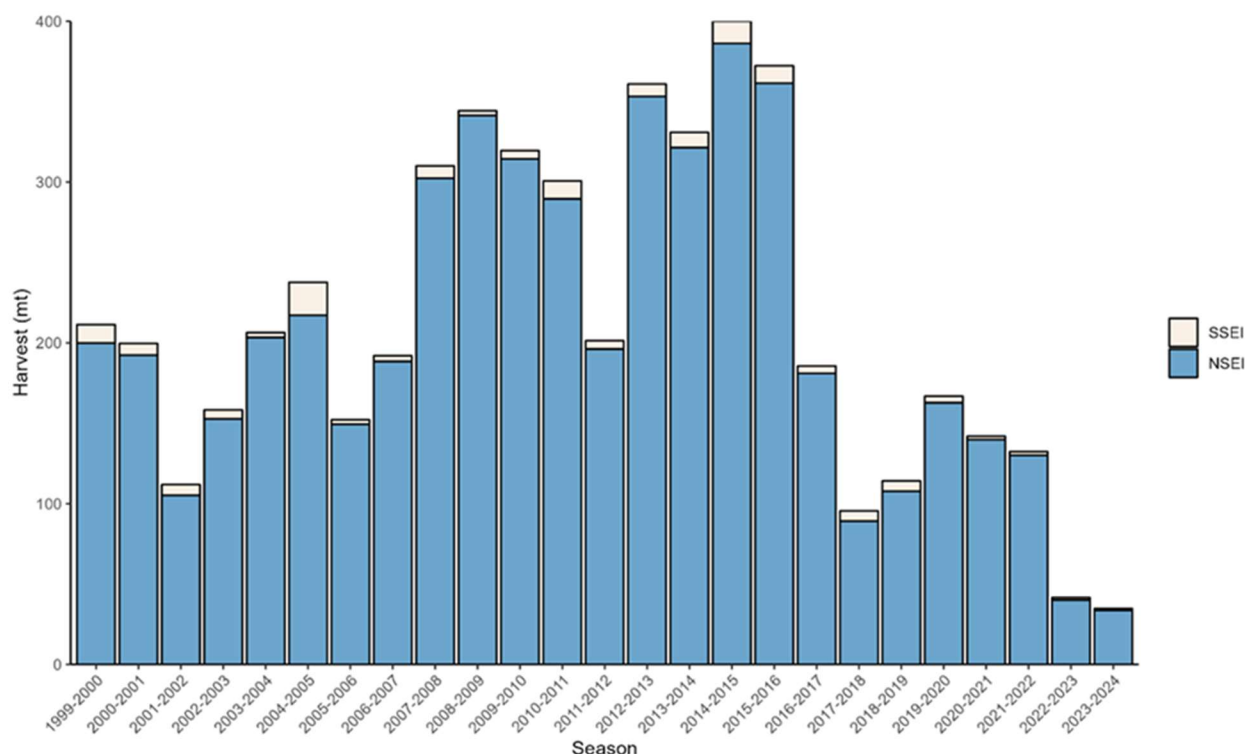


Figure 6.—Seasonal harvest (mt) of Pacific cod for the directed and bycatch fisheries in the Northern Southeast Inside (NSEI) Subdistrict, shown in blue, and the Southern Southeast Inside (SSEI) Subdistrict, shown in tan, between the 2000–2024 seasons. Note that the 2023–2024 season is ongoing, so these numbers may change.

In the **Central Region**, the CIA state-waters fishery GHL is 3.75% of the federal CGOA Pacific cod ABC and the PWSA GHL is 25% of the EGOA ABC. The 2023 GHLs for the state-waters Pacific cod seasons in the CIA and PWSA of the Central Region were 556 mt and 585 mt, respectively. The CIA GHL decreased 25% from 2022 to 2023 and in PWSA, the GHL also decreased 25%.

Pacific cod harvest during 2023 state-waters seasons was 536 mt from CIA and 592 mt from PWSA. In CIA, the GHL is allocated 85% to pot gear and 15% to jig gear; pot vessels harvested 111% of their allocation and jig vessels harvested 14% of their allocation. For PWSA, the GHL is allocated 85% to longline gear and 15% to jig and pot gear combined; longline vessels achieved 95% of their allocation and pot vessels achieved 135% of the jig and pot combined allocation. There was no jig harvest.

In the **Westward Region**, the Kodiak Area state-waters Pacific cod GHL is based on 12.5% of the annual CGOA Pacific cod ABC, the Chignik Area GHL is based on 8.75% of the annual CGOA

ABC, and the South Alaska Peninsula Area GHl is based on 30% of the WGOA Pacific cod ABC. The 2023 Pacific cod GHls were 1,854 mt in the Kodiak Area, 1,298 mt in the Chignik Area and 2,239 mt in the South Alaska Peninsula Area. Total state-waters Pacific cod catch in the Kodiak and South Alaska Peninsula was 1,954 mt and 2,230 mt, respectively. One vessel participated in the Chignik state-waters fishery in 2023 and harvest is confidential. In the Aleutian Islands Subdistrict state-waters Pacific cod 2023 GHl 5,386 mt. Legal gear is limited to nonpelagic trawl, pots, longline and jig gear during state-waters the Pacific cod fishery. The 2023 total state-waters Pacific cod catch for the Aleutian Islands Subdistrict is 4,502 mt. The Dutch Harbor Subdistrict state-waters Pacific cod 2023 GHl for pot gear is based on 12% of the annual Bering Sea Pacific cod ABC which totaled 17,380 mt. In 2023, the total state-waters catch for the Dutch Harbor Subdistrict pot gear fishery was 17,050 mt. The Dutch Harbor Subdistrict state-waters Pacific cod GHl for jig gear is 45 mt, which is subtracted from the annual Bering Sea Pacific cod ABC. The 2023 harvest for this fishery is confidential due to limited participation.

Estimates of the 2023 sport harvest of Pacific cod are not yet available from the SWHS, but the 2022 estimates were 16,259 fish in the **Southeast Region** and 37,492 fish in the **Southcentral Region**. The estimated annual harvests for the recent five-year period (2018–2022) averaged 13,898 fish in Southeast Alaska and 16,804 fish in Southcentral Alaska.

E. Walleye Pollock

1. Research

Age Determination Unit personnel in the **Southeast Region** are collaborating with NOAA Alaska Fishery Science Center, Little Port Walter staff, and University of Alaska Fairbanks faculty and students to perform a long-term Pacific cod and Walleye pollock rearing study. Juvenile fish are being raised under constant monitoring to investigate techniques to study life history and condition. Methods include studying daily marks and otolith growth through fluorescent stains and near infrared spectroscopy as well as testing blood, tissue, and bone samples across ontogeny to study changes in chemistry and hormones across life stages.

In the **Central Region** skipper interviews and biological sampling of PWSA commercial trawl pollock deliveries during 2023 occurred in Kodiak. Sample data collected included date and location of harvest, species, length, weight, sex, and gonad condition. There was a total of 1,201 walleye pollock samples collected dockside in 2023 with an average fork length of 47 cm and average weight of 0.89 kg (1.96 lb.). Otoliths were collected from 701 sampled fish.

The **Central Region** CIA and PWSA bottom trawl survey complete accounting for pollock began in 1994 (Figure 7). The collection of otoliths for aging pollock from trawl surveys began in 1994, discontinued in 2006, and was reinstituted in 2022 for PWSA surveys (Contact Wyatt Rhea-Fournier). Otoliths collected from bottom trawl surveys in PWSA indicated pollock ages ranged from 1–13 years old, with an average age of 6 years old.

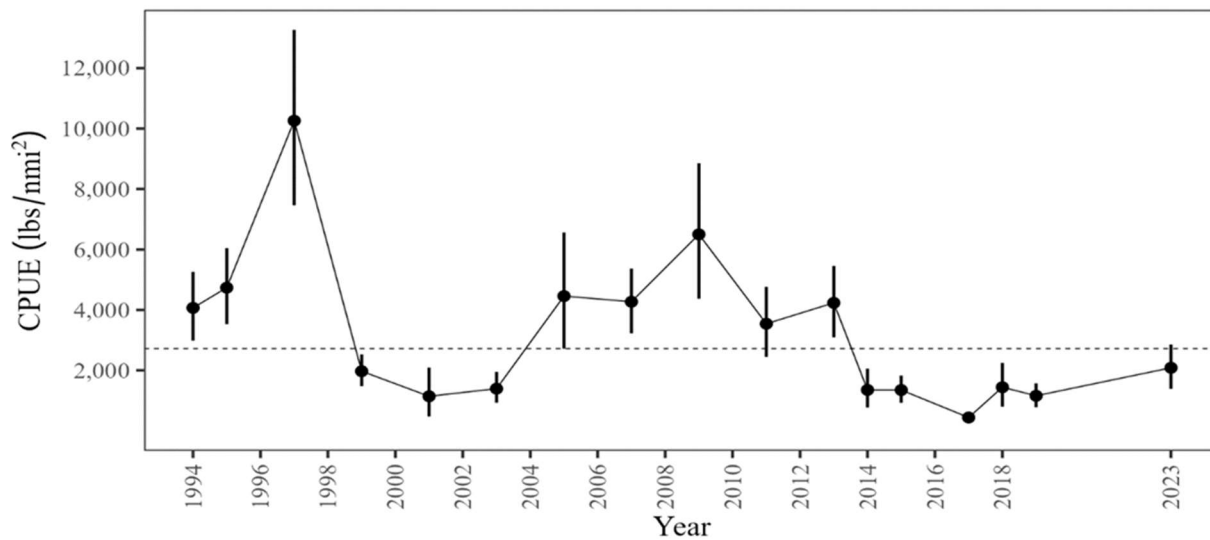


Figure 7.—Walleye pollock CPUE from the Prince William Sound Area bottom trawl survey. Horizontal dotted line is time series mean. Vertical lines are the standard error.

Beginning in 1998, spatial patterns of genetic variation were investigated in six populations of walleye pollock from three regions: North America – Gulf of Alaska (GOA); North America – Bering Sea; and Asia – East Kamchatka. The annual stability of the genetic signal was measured in replicate samples from three of the North American populations. Allozyme and mtDNA markers provided concordant estimates of spatial and temporal genetic variation. These data show significant genetic variation between North American and Asian pollock as well as evidence that spawning aggregations in GOA, such as PWSA, are genetically distinct and may merit consideration as distinct stocks. These data also provide evidence of inter-annual genetic variation in two of three North American populations. Gene diversity values show this inter-annual variation is of similar magnitude to the spatial variation among North American populations, suggesting the rate and direction of gene flow among some spawning aggregations is highly variable. This study was published in 2002 in the Fishery Bulletin (Olsen et al. 2002; Contact Bill Templin).

The **Division of Sport Fish—Southcentral Region** creel sampling program collects data on walleye pollock catch by stat area (on a vessel-trip basis) through dockside interviews. In the Southcentral Region, interviewed anglers caught 410 walleye pollock and retained 122 of these fish in 2023 (Contact Clay McKean). No information on walleye pollock is collected in the **Southeast Region** creel survey program, nor is this species accounted for in the SWHS or charter logbook programs statewide.

2. Assessment

No stock assessment work was conducted on pollock.

3. Management

Prince William Sound Area pollock pelagic trawl fishery regulations include a January 13 registration deadline, logbooks, catch reporting, check-in and check-out provisions, and accommodation of an ADF&G observer upon request. The PWSA Inside District is divided into three sections for pollock management: Port Bainbridge, Knight Island, and Hinchinbrook, with

the harvest from any section limited to a maximum of 60% of the GHL. Additionally, the fishery is managed under a 5% maximum bycatch allowance that is further divided into five species or species groups. In addition, the PWSA Rockfish Management Plan allows only 0.5% rockfish bycatch during this pollock fishery. In 2013, new management measures were implemented to set the PWSA pollock GHL at 2.5% of the federal Gulf of Alaska ABC. For **CIA**, directed fishing for pollock is managed under a “Miscellaneous Groundfish” commissioner’s permit. Initiated in December 2014, a commissioner’s permit fishery for pollock using seine gear was prosecuted through 2016. In **Central Region**, pollock is also retained as bycatch to other directed groundfish fisheries, primarily Pacific cod.

There are no bag, possession, or size limits for pollock in the sport fisheries in Alaska. Harvest of pollock is not explicitly estimated by the SWHS and no pollock harvest information is collected in charter logbooks or creel surveys in Southeast Alaska.

4. Fisheries

The 2023 PWSA pollock pelagic trawl fishery opened January 20 and closed March 28. There were 27 landings made by 20 vessels with a total harvest of 3,252 mt, 98% of the 3,316 mt GHL, not including the test fishery. Rockfish bycatch during the fishery totaled 6.5 mt, well below the 16.6 mt allowed as bycatch to the pollock harvested. The harvest of salmon was within the bycatch limit; 1.1 mt was harvested with a GHL of 1.3 mt. In the CIA, no seine pollock commissioner’s permits were issued in 2023. Pollock was harvested in **Central Region** as bycatch to other groundfish fisheries at low levels; in 2023, 1.12 mt was harvested in CIA and 1.97 mt in PWSA.

F. Pacific Whiting (hake)

1. Research

There was no research conducted on Pacific whiting (hake).

2. Assessment

There are no stock assessments for Pacific whiting (hake).

3. Management

A commissioner’s permit is required in **Central Region** and **Southeast Region** before a directed fishery may be prosecuted for Pacific Whiting (hake). This permit may restrict depth, dates, area, and gear, establish minimum size limits, and require logbooks and/or observers, or any other condition determined to be necessary for conservation and management purposes.

4. Fisheries

There was no directed fishery for Pacific whiting (hake). Currently in **Central Region** and **Southeast Region** Pacific whiting (hake) are grouped with the “other groundfish” assemblage and are allowed up to 20% as bycatch in aggregate during directed fisheries for groundfish.

G. Grenadiers

1. Research

There was no research conducted on grenadiers.

2. Assessment

There are no stock assessments for grenadiers.

3. Management

A commissioner's permit is required in **Central Region** and **Southeast Region** before a directed fishery may be prosecuted for grenadiers. This permit may restrict depth, dates, area, and gear, establish minimum size limits, and require logbooks and/or observers, or any other condition determined to be necessary for conservation and management purposes.

4. Fisheries

There was no directed fishery for grenadiers. Currently in the **Central Region** and **Southeast Region** grenadiers are considered part of the "other groundfish" assemblage and are allowed up to 20% as bycatch in aggregate during directed fisheries for groundfish.

H. Rockfishes

Commercial rockfish fisheries are managed under three assemblages: DSR, pelagic shelf rockfish (PSR), and slope rockfish. DSR include the following species: yelloweye, quillback, China, copper, rosethorn, canary, and tiger. PSR include black, deacon, dusky, dark, yellowtail, and widow. Slope rockfish contain all other *Sebastes* species. Thornyhead, *Sebastolobus* species, are defined separately; in Central Region, thornyhead rockfish harvest is combined with slope rockfish for reporting.

1. Research

In the **Southeast Region**, biological samples of rockfish are collected from the directed commercial DSR fishery; however, sampling effort was expanded in 2008 to include the sampling of DSR caught as bycatch in the IFQ halibut fishery. The sampling of the halibut fishery was started in part to obtain more samples in years that the directed fishery was not opened. Fishery data are also collected from the logbook program, which is mandatory for most groundfish fisheries. The logbook program is designed to obtain detailed information regarding specific harvest location. In 2023, length, weight and age structures were collected from 295 yelloweye rockfish caught in the halibut commercial longline fisheries. There were no yelloweye rockfish sampled from the directed fishery due to ongoing directed fishery closures. No black rockfish samples were collected in 2023 due to limited effort and harvest in the directed commercial black rockfish fishery. In collaboration with the ADF&G Statewide Rockfish Initiative (SRI) group, in 2021 a maturity project began in Southeast Alaska to gain more information on life history parameter estimates for both yelloweye and black rockfish. In 2023, 13 yelloweye rockfish were collected for maturity samples.

Skipper interviews and port sampling of commercial rockfish deliveries in **Central Region** during 2023 occurred in Homer, Seward, and Whittier. Efforts throughout the year were directed at the sampling of rockfish delivered as bycatch to other groundfish and halibut fisheries, primarily DSR and slope species. The directed jig fishery in the CIA that targets PSR opens July 1 and historically has been the focus of rockfish sampling during the last half of the year. Sample data collected includes date and location of harvest, species, length, weight, sex, gonad condition, and otoliths. There were 1,921 combined rockfish sampled dockside in 2023. Rockfish sampling was prioritized according to management and assessment needs, with an emphasis on black rockfish (n=431) and

yelloweye rockfish (n=1,070), the primary species of concern identified by the Statewide Rockfish Initiative working group. Quillback rockfish (n=188) were also prioritized as a high number are encountered as bycatch in other targeted longline fisheries. Other species including dark, dusky, shortraker, and rougheye rockfish were sampled on an opportunistic basis as time allowed. Homer staff determine ages of PSR and DSR otoliths; otoliths from slope and thornyhead rockfish species are sent to the ADF&G Age Determination Unit in Juneau. Genetics and gonad collections, as well as age structure exchanges, have been conducted as collaborative interdivisional research as part of the SRI initiated in 2017; additionally, genetics samples were collected for NOAA staff as interagency collaborative research.

Funding for **Central Region** DSR ROV surveys ended in 2016. The rougheye/blackspotted rockfish complex composed >90% of the rockfish catch by weight in the **Central Region** CIA and PWSA bottom trawl survey with complete accounting beginning in 1991 (Figure 8). The collection of otoliths for aging rougheye/blackspotted rockfish from trawl surveys spans the years 1991–2023 (Contact Wyatt Rhea-Fournier). Otoliths collected from bottom trawl surveys in PWSA indicated rougheye/blackspotted rockfish ranged in age from 1–72 years old, with an average age of 12 years old.

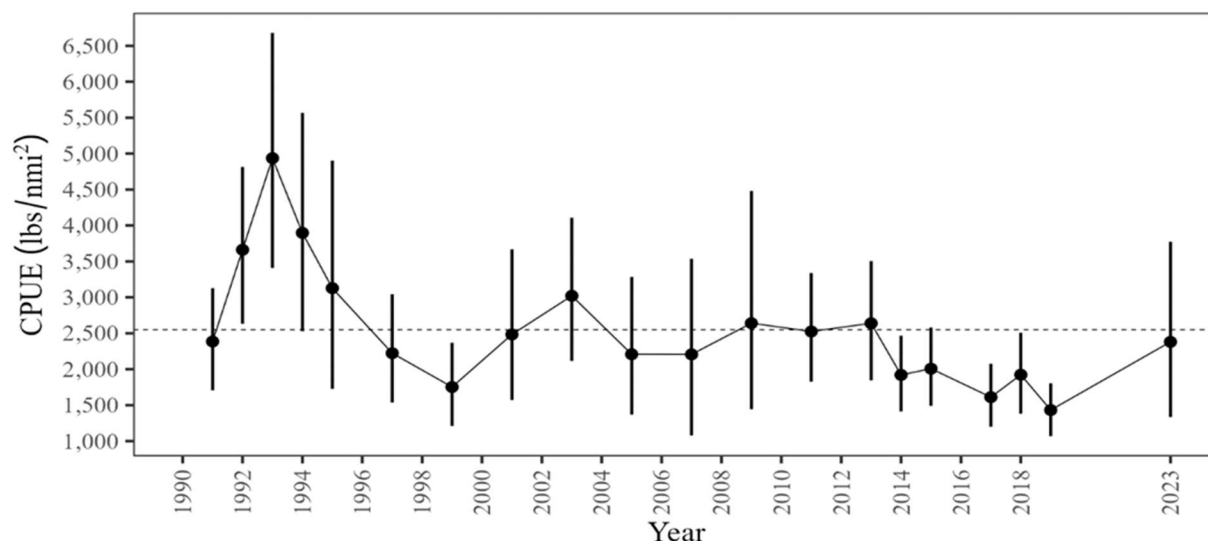


Figure 8.—Rougheye/blackspotted rockfish complex CPUE from the Prince William Sound Area bottom trawl survey. Horizontal dotted line is time series mean. Vertical lines are the standard error.

A hydroacoustic survey was initiated in 2019 in the North Gulf District to develop an index of abundance for black rockfish following Westward Region’s survey methodology. This survey is conducted biennially (2019, 2021, and 2023) with Westward Division of Commercial Fish staff, equipment, and vessel. As part of the ADF&G Statewide Rockfish Initiative, Central Region is developing a black rockfish assessment model for the CIA and a yelloweye rockfish assessment model for Inside waters of the PWSA in collaboration with the Division of Sport Fish. Data for both models include commercial and sport fishery removals along with length and age compositions from each fishery. As part of this effort, commercial and sport harvest reconstructions are being developed for those years where either known harvest is not available for commercial landing from fish tickets or is presently difficult to estimate for sport fishery

landings. These data-moderate assessments are utilizing an integrated stock assessment framework implemented in the Stock Synthesis Data Limited Tool (SS-DL) developed by Jason Cope (<https://github.com/shcaba/SS-DL-tool>) (Contact Wyatt Rhea-Fournier).

The **Westward Region** continued port sampling of several commercial rockfish species in 2023. Rockfish sampling concentrated on black and dark rockfish with opportunistic sampling of other miscellaneous *Sebastes* species. Skippers were interviewed for information on effort, location, and bycatch. Length, weight, gonadal maturity, and otolith samples were collected (Contact Sonya El Mejjati). Staff from the Kodiak office aged 1,050 black rockfish, 500 dark rockfish and 5 yelloweye otoliths for the 2023 season. The Westward Region also continued to conduct hydroacoustic surveys of black and dark rockfish in the Northeast, Afognak, Southeast, and Westside districts of the Kodiak Management Area in 2023 to generate biomass estimates for both black and dark rockfish. Surveys of Northeast, Afognak, Eastside, Southeast, and Westside districts in the Kodiak Management Area will continue in 2024. As one of ADF&G's SRI research priorities, a black rockfish maturity study was initiated in 2019 and collections continued through 2021 and 2023 with the goal of updating biological parameters for black rockfish in the Kodiak Area (Contact Carrie Worton).

The **Division of Sport Fish—Southeast Region** continued to collect catch and harvest data from rockfish as part of a marine harvest onsite creel survey program with rockfish harvests tabulated back to 1978 in some ports. Rockfish objectives included estimation of 1) species composition, 2) length composition and average weight, as derived from a length-weight regression relationship, 3) age and sex composition of black rockfish at Ketchikan, Sitka, and Elfin Cove, 4) genetic composition of black rockfish from inside and outside ports, and 5) biomass of total sport removals (harvest and release mortality). Primary species harvested in Southeast Alaska included those from the pelagic assemblage (primarily black and dusky rockfish), and lesser amounts of slope species such as silvergray, shortraker, and redbanded rockfish. A total sample size of 6,496 rockfish was obtained from the sport harvests at the ports of Ketchikan, Craig, Wrangell, Petersburg, Juneau, Sitka, Elfin Cove, and Yakutat in 2023 (Contact Chris Hinds).

The **Division of Sport Fish—Southcentral Region** continued collection of harvest and fishery information on rockfish as part of the harvest assessment program. Rockfish objectives included estimation of 1) species composition, 2) age, sex, and length composition of primary species, and 3) the spatial distribution of rockfish harvest and groundfish effort by port. The 2023 total sample size from the sport harvests at Seward, Valdez, Whittier, Kodiak, Central Cook Inlet, and Homer was 2,989 rockfish, of which 2,122 were black rockfish and 249 were yelloweye rockfish. Interviewed anglers in the Southcentral Region caught 13,192 rockfish in 2023, of which 11,223 were retained. (Contact Clay McKean). The Division of Sport Fish continues to conduct research in PWSA deepwater release of rockfish. These studies are ongoing through 2024. Results will be published as an ADF&G Fishery Data Series report or journal publication once completed (Contact Brittany Blain-Roth or Donald Arthur). In addition, a University of Alaska, Fairbanks Graduate Student/ADF&G Biologist collected life history information on yelloweye rockfish to improve estimates of maturity, fecundity and skip-spawning between Prince William Sound and Northern Gulf of Alaska (Contact Brittany Blain-Roth or Donald Arthur). Similar data continue to be collected from black rockfish in the same area. Mr. Arthur completed his master's thesis work in 2020, and it is published as "The Reproductive Biology of Yelloweye Rockfish (*Sebastes ruberrimus*) in Prince William Sound and the Northern Gulf of Alaska." The chapters are 1)

Maturity, Ovarian Cycle, and Skip Spawning of Yelloweye Rockfish *Sebastes ruberrimus* in Prince William Sound and the Northern Gulf of Alaska and 2) Fecundity of Yelloweye Rockfish *Sebastes ruberrimus* in the Northern Gulf of Alaska. In addition, a journal publication is available in the North American Journal of Fisheries Management (April 2022) titled “Alaskan Yelloweye Rockfish *Sebastes ruberrimus* fecundity revealed through an automated egg count and digital imagery method.”

The **Age Determination Unit** continues to conduct research to improve our knowledge of the life history of rockfishes. In 2023, ADU staff focused their efforts on shortraker rockfish. ADU personnel, in collaboration with the University of Alaska Fairbanks, Gordon Kruse, Franz Meuter, Vanessa von Beila, and Bryan Black ADU personnel completed a manuscript describing age validation work using bomb radiocarbon, species identification using otolith shape, and biochronologies for shortraker rockfish in Prince William Sound (Contact Kevin McNeel). Mark Tag and Age Lab personnel also continue to build on yelloweye rockfish hormone reconstructions using opercula and bone. Mark Tag and Age Lab personnel also continued research reconstructing lifetime rockfish hormone profiles using opercula and bone. Staff coordinated with SRI sampling programs to collect opercula and vertebrae from yelloweye and black rockfish with paired ovary samples to validate hormone levels extracted from bone with histologically assigned reproductive status (Contact Dion Oxman).

2. Assessment

The **Southeast Region** performs multi-year stock assessments for DSR in the Southeast District. Biomass is estimated by management area as the product of yelloweye rockfish density determined from line transect surveys, the area of rocky habitat within the 100-fathom contour no deeper than 180 m, and the average weight of yelloweye rockfish. Yelloweye rockfish density for the stock assessment is based on the most recent estimate by management area. Yelloweye rockfish densities for each area are multiplied by the current year’s average commercial fishery weight of yelloweye rockfish specific to that management area. In the past, the yelloweye biomass estimate was expanded to the entire DSR assemblage by multiplying the proportion of other DSR species in the commercial catch (2.0 to 4.0%). However, starting in 2015, the non-yelloweye DSR biomass estimate has been calculated from catch data from recreational, commercial, and subsistence fisheries and added to the yelloweye ABC to obtain a total for the entire DSR assemblage. There is no stock assessment information available for DSR in NSEI and SSEI management areas, and surveys for non-DSR species (e.g., black rockfish) have not been conducted since 2002.

Prior to 2012, line transect surveys were conducted using a manned submersible. Since 2012, visual surveys have been conducted using a remotely operated vehicle (ROV). The last ROV surveys were conducted in 2023 in the East Yakutat (EYKT) section, 2022 in the Central Southeast Outside (CSEO) and Northern Southeast Outside (NSEO) sections, and 2020 in the Southern Southeast Outside (SSEO) section. Density estimates were derived from each of these surveys except for the 2023 EYKT management area where the data analyzation is in progress (Figure 9). Density estimates by area for the most recent submersible surveys ranged from 1,033–1,949 yelloweye rockfish per km² with CV estimates of 15–27%. The most recent density estimates for NSEO in 2022 was 1,033 yelloweye rockfish per km² (CV = 27%), SSEO in 2020 was 1,949 yelloweye rockfish per km² (CV = 15%), CSEO in 2022 was 1,178 yelloweye rockfish per km² (CV = 16%), and EYKT is under review. In addition, fish lengths for yelloweye rockfish, lingcod,

black rockfish, and halibut are measured from ROV video data using stereo camera imaging software (SeaGIS, Ltd; Contact Rhea Ehresmann).

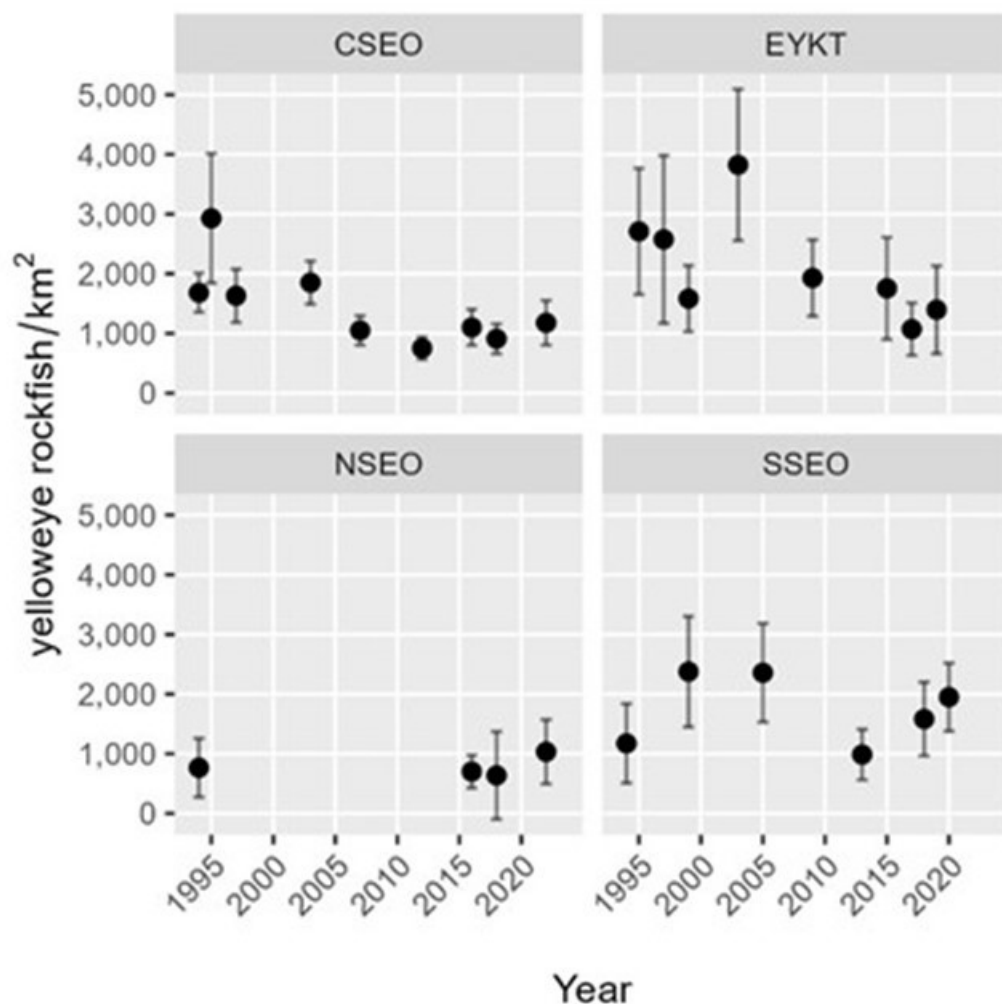


Figure 9.—Density estimates of yelloweye rockfish with 95% confidence intervals in the Southeast Outside management areas.

Central Region conducts ROV surveys along the northern Gulf of Alaska coast from the Kenai Peninsula to PWSA to monitor the local abundance of DSR in selected index sites; however, assessment surveys have not been conducted in recent years (Contact Mike Byerly or Wyatt Rhea-Fournier).

In the **Westward Region** rockfish surveys using hydroacoustic equipment were deployed to assess black and dark rockfish stocks in the Kodiak Management Area. Surveyed areas included the Northeast, Afognak, Southeast, and Westside districts of the Kodiak Management Area (Contact Carrie Worton).

3. Management

Management of DSR in the **Southeast Region** is based upon a combination of total allowable catch (TAC), guideline harvest range (GHR), seasons, gear restrictions, and trip and bycatch limits. Directed commercial harvest of DSR is restricted to hook-and-line gear. Directed fishing quotas are set for Southeast Outside management areas (NSEO, CSEO, SSEO, and EYKT) based on the stock assessment. Directed fishery quotas for the two internal water management areas (NSEI and SSEI) are set at 25 mt annually. Regulations adopted in 1994 included logbook requirements and 5-day trip limits of 6,000 pounds sold per vessel in all areas except EYKT where the trip limit was 12,000 pounds. New regulations adopted in 2018 further restricted trip limit rules by prohibiting additional fish to taken or allowed on board a vessel until the trip limit period expired. The EYKT trip limit amount was also reduced to 8,000 pounds.

The directed DSR fishery season in SEO occurs in the winter, prior to the start of the commercial halibut IFQ season. The SEO TAC for DSR is set after decrementing estimated subsistence harvest, the remainder is allocated 84% to the commercial sector and 16% to the sport sector. The 2023 ABC for DSR was 244 mt, which resulted in a TAC of 237 mt with allocations of 199 mt to commercial fisheries and 38 mt to sport fisheries. Estimated subsistence harvest for 2023 was 7 mt. A significant portion of the total commercial harvest is taken as bycatch during the halibut fishery. Each year DSR bycatch is estimated and decremented from the commercial TAC prior to determining whether an area has enough quota remaining to prosecute a directed fishery. In 2022, the BOF approved new regulations to require full retention of all rockfish, including thornyhead rockfish, in all groundfish fisheries for Southeast waters.

Management of the commercial black rockfish fishery in the Southeast Region is based upon a combination of GHLs and gear restrictions. Directed fishery GHLs are set by management area and range from 11 mt in EYKT and IBS to 57 mt in SSEOC with a total GHL of 147 mt for the Eastern Gulf of Alaska Area. A series of open and closed areas was also created for managers to better understand the effects of directed fishing on black rockfish stocks. Halibut and groundfish fishermen are required to retain and report all rockfish caught (Contact Rhea Ehresmann).

In the **Central Region**, commercial rockfish fisheries in Cook Inlet and PWSA areas are managed under their respective regulatory Rockfish Management Plans. Plan elements include a fishery GHL of 68 mt for each area and 5-day trip limits of approximately 0.5 mt in the Cook Inlet District, 1.8 mt in the North Gulf District, and 1.4 mt in PWSA. Rockfish regulations underwent significant change beginning in 1996 when the BOF formalized the GHL into a harvest cap for all rockfish species in Cook Inlet and PWSA areas and adopted a 5% rockfish bycatch limit for jig gear during the state-waters Pacific cod season. In 1998, the BOF adopted a directed rockfish season opening of July 1 for the CIA and restricted legal gear to jigs to target PSR species. At the spring 2000 BOF meeting, the BOF closed directed rockfish fishing in PWSA and established a bycatch-only fishery with mandatory full retention of all incidentally harvested rockfish. In November 2004, the BOF also adopted a full retention requirement for rockfish in the CIA and restricted the directed harvest to PSR. Rockfish bycatch levels were also set at 20% during the sablefish fishery, 5% during the state-waters Pacific cod season, and 10% during other directed fisheries. In 2010, the BOF adjusted rockfish bycatch levels for Cook Inlet to 10% during halibut and directed groundfish, other than rockfish, and 20% nonpelagic rockfish during the directed PSR fishery. In addition, logbooks are required during the CIA directed jig fishery. In 2014, the BOF adopted regulations to adjust rockfish bycatch levels during the parallel Pacific cod season in PWSA to

5%, for consistency with the PWSA state-waters season; in addition, a 0.05% rockfish bycatch limit was established for the PWSA pollock pelagic trawl fishery. Proceeds from rockfish landed in excess of allowable bycatch and harvest levels are surrendered to the State of Alaska.

The **Westward Region** has conservatively managed black rockfish since 1997, when management control was transferred to the State. Area GHGs were set at 75% of the average production from 1978–1995 and sections were created to further distribute effort and thereby lessen the potential for localized depletion. Since 1997, section GHGs have been reduced in some areas that have received large amounts of effort.

In the Kodiak Area, vessels may not possess or land more than 2.3 mt of black rockfish in a 5-day period. Additionally, vessel operators are required to register for a single groundfish district fishery at a time. Registration requirements also exist for the Chignik and South Alaska Peninsula Areas. In the Kodiak Area, fishers may retain up to 20% of black rockfish by weight caught incidentally during other jig gear fisheries and 5% by weight caught incidentally during non-jig gear fisheries; in the Chignik and South Alaska Peninsula Areas, black rockfish may be retained up to 5% by weight by all gear types. In the Aleutian Islands District of the Bering-Sea Aleutian Islands Area, fishers may retain up to 20% of black rockfish and 20% for dark rockfish caught in the Bering Sea–Aleutian Islands area incidentally during other fisheries. A voluntary logbook program was initiated in 2000 in the hope of obtaining CPUE estimates as well as more detailed harvest locations; the logbook program was made mandatory in 2005 (Contact Nathaniel Nichols).

In 2023, the Kodiak Area black rockfish GHG was 55 mt, allocated across five districts. Commercial harvest occurred in four of the five districts, and GHGs were attained in three districts of the Kodiak Area for a total harvest of 46 mt. The Chignik and South Alaska Peninsula area GHGs were 45 mt and 34 mt, respectively. No black rockfish harvest occurred in the Chignik and South Alaska Peninsula Areas in 2023. The Aleutian Islands GHG for black rockfish was 41 mt allocated across three sections. No vessels made directed black rockfish landings in the Aleutian Islands Area; all harvest was incidental retention. In 2023, less than 1 mt of black and 7.1 mt of dark rockfish were harvested incidental to other groundfish species.

Sport fisheries are managed primarily under the same three assemblages in Southeast and under two assemblages in Southcentral waters: pelagic, defined the same as for commercial fisheries, and nonpelagic, which includes all other species of the genus *Sebastes*.

Beginning in 2020, a functioning deepwater release mechanism was required on all vessels sport fishing in Alaskan saltwater, and all rockfish not harvested were required to be released at depth of capture or at a depth of 100 feet.

For the 2023 season, the **Southeast Region's** sport bag and possession limit for pelagic rockfish was five fish per day, 10 in possession for all anglers—with one exception in the Sitka Pelagic Rockfish Special Area of CSEO where nonresident anglers were restricted to a two fish per day, four in possession and resident anglers were restricted to a four fish per day, eight in possession. The sport fishery in Southeast outside waters is allocated a portion of the TAC (16%) for demersal shelf rockfish. In 2023, all Southeast Alaskan waters were closed to retention of yelloweye rockfish, while only resident anglers were allowed a bag limit of one and possession limit of two DSR (besides yelloweye). There was a bag limit of one and possession limit of two slope rockfish in all waters of Southeast Alaska for all anglers during 2023.

As in Southeast Alaska, sport rockfish regulations in the **Southcentral Region** largely rely on bag limits for regulating effort and are more restrictive for nonpelagic species to account for their lower natural mortality rates. The open season for rockfish was year-round in all areas. In 2023, the bag limit in Cook Inlet was reduced by emergency order to three rockfish daily, only one of which could be a nonpelagic species; the possession limit was two bag limits. The bag limit in PWSA was reduced by emergency order to three rockfish per day, with a possession limit of eight rockfish; only one per day and one in possession could be a nonpelagic species. In addition, yelloweye rockfish were closed to retention for the months of May and June. The bag limit in the North Gulf Coast area was reduced by emergency order to three rockfish per day, only one of which could be a nonpelagic species; the possession limit was two bag limits. In addition, at December 2023 Alaska Board of Fisheries meeting the board adopted a proposal to change in regulation the bag and possession limits in Cook Inlet and PWSA, matching the emergency orders issued in 2023. The bag limit for Chiniak and Marmot Bay areas off Kodiak was three rockfish, of which no more than two per day could be nonpelagic and one per day could be a yelloweye. The bag limit in the remainder of Kodiak was five rockfish per day of which no more than two per day could be nonpelagic species, and no more than one per day of the nonpelagic species could be a yelloweye. The bag limit in the Alaska Peninsula and Aleutian Islands was 10 rockfish per day. For all areas off Kodiak, the Alaska Peninsula, and the Aleutian Islands, the possession limit was two bag limits.

In 2017 the department began the SRI, an interdivisional process to develop comprehensive harvest strategies for groundfish, beginning with black and yelloweye rockfish using information from all fisheries. Commercial and sport fisheries are currently managed separately, and several areas of the state lack annual harvest targets for the sport fishery. There was agreement on the need to develop harvest strategies that applied to all removals and an integrated approach to management, to set harvest guidelines and control rules. The department is committed to developing abundance-based goals where assessment is possible and simpler strategies where information is lacking. The initial focus on black and yelloweye rockfish is to address immediate management needs and serve as models for other groundfish species.

4. Fisheries

Directed fisheries for only black rockfish occurred in the **Southeast Region** in 2023. Harvest in the directed black rockfish fishery in Southeast Outside District (SEO) was confidential and black rockfish bycatch harvest in all groundfish, halibut, and salmon troll fisheries was 2.4 mt. The directed fisheries for DSR in SEO and inside waters were closed again due to stock health concerns. DSR was taken as bycatch with 184.8 mt harvested in SEO and 42.5 mt in internal waters in all groundfish, halibut, and salmon troll fisheries. Slope, PSR, and thornyhead rockfish were also taken as bycatch in internal waters with 52.1 mt harvested in 2023.

For **Central Region** commercial rockfish fisheries, both the Cook Inlet and PWSA areas have a rockfish GHL of 68 mt, which includes both directed and bycatch harvest. In the CIA in 2023, the total rockfish harvest was 20.5 mt, a decrease from 22.0 mt in 2022. In CIA, the PSR harvest was 10.86 mt primarily from the directed PSR fishery by jig gear, the only allowable gear type in that fishery (9.93 mt), with the remainder harvested by longline gear during other directed groundfish and halibut fisheries. Harvest of other rockfish (DSR and slope species) was 9.85 mt with the majority from longline gear (9.33 mt) and the remainder from jig gear during other directed groundfish and halibut fisheries. In PWSA, rockfish are only harvested as bycatch, there is no

directed fishery. The PWSA harvest of 74.0 mt in 2023 a decrease from 89.3 mt in 2022, a decrease of approximately 17%. This harvest surpassed the GHF by tons; this bycatch and increase in harvest has come primarily from the individual quota fishery halibut fishery. This bycatch only fishery is based on a percentage of the directed harvest.

Sport harvest (guided and unguided; resident and nonresident) of all rockfish species combined was historically estimated primarily through the SWHS (all species combined). Charter vessel logbooks provide reported harvest for the guided sector in three categories - pelagic, yelloweye, other nonpelagic (excluding yelloweye). Additionally, species-specific data are available only from creel surveys, with the exception of yelloweye rockfish which is captured in charter logbooks.

Harvest reporting areas for these programs are different than commercial reporting areas, making direct comparisons difficult. Methods were recently developed to estimate sport harvest in numbers of fish for black and yelloweye rockfish in the same geographic reporting areas as used in commercial fisheries (Howard et al. 2020). Additional methods are being developed to estimate sport removals by weight and for other rockfish species (contact Adam Reimer).

Sport rockfish harvest is typically estimated in numbers of fish. Estimates of the 2023 harvest are not yet available from the SWHS, but the 2022 estimates for all species combined were 200,453 fish in Southeast and 179,591 fish in Southcentral Alaska. The average annual harvest estimates for the recent five-year period (2018–2022) were 154,346 rockfish in Southeast Alaska and 148,000 fish in Southcentral Alaska. Rockfish harvest in the sport fishery has increased substantially in recent years, likely in response to more restrictive limits for other sport-caught fish (e.g., Pacific halibut, king salmon), causing concern for some rockfish species in some areas throughout the state.

I. Thornyhead rockfish

1. Research

There was no research conducted on thornyhead rockfish.

2. Assessment

There are no stock assessments for thornyhead rockfish.

3. Management

There is no directed fishery for thornyhead rockfish, and they may only be harvested as bycatch in halibut and other groundfish fisheries.

4. Fisheries

In **Central Region** thornyhead rockfish are retained as bycatch up to 10% in aggregate with other rockfish during a halibut or directed groundfish fishery, with exceptions occurring in PWSA for the bycatch allowance in the directed sablefish fishery (20%), Pacific cod (5%), and directed pollock trawl fishery (0.05%). For directed drift or set gillnet fisheries for salmon or herring up to 10% of thornyhead rockfish combined with other rockfish in aggregate may be retained. Proceeds from bycatch overages are forfeited to ADF&G.

In **Southeast Region**, thornyhead are retained as bycatch, based on the round weight of the target species, of up to 15% in aggregate with other rockfish. Any bycatch overages that occurred in state waters are forfeited to ADF&G.

J. Sablefish

1. Research

In 2023, sablefish longline surveys were conducted for both the NSEI and SSEI areas in the **Southeast Region**. These surveys are designed to measure trends in relative abundance and biological characteristics of the sablefish population. Biological data collected in these surveys include length, weight, sex, and maturity stage. Otoliths are collected and sent to the ADU in Juneau. The cost of these surveys is offset by the sale of the fish landed. The department plans to allow permit holders to harvest their PQS aboard future NSEI longline surveys.

In addition to longline surveys, a mark-recapture survey is conducted using longlined pots in most years since 2000. This survey has used the state research vessel *Medeia* since 2012 and marks, tags, and releases sablefish. The mark-recapture results serve as a component of the NSEI stock assessment. Due to funding shortfalls, however, a survey was not conducted in 2023 (Contact Rhea Ehresmann).

Between 1999 and 2005 sablefish were opportunistically tagged in PWSA in **Central Region**, on ADF&G trawl surveys. Sablefish tagging surveys were conducted in PWSA in 2011, 2013, and 2015 using pot longline gear. There were 1,203 fish, 318 fish, and 26 fish tagged in 2011, 2013, and 2015, respectively. To date, 352 fish have been recaptured from the 2011 survey and 65 were captured from the 2013 survey and 10 from the 2015 survey. Of all tagged releases, 52% have been recaptured within PWSA and 43% outside in the GOA with the remainder of unknown location.

The **Central Region** CIA and PWSA bottom trawl survey complete accounting for sablefish began in 1992 (Figure 10). The collection of otoliths for aging sablefish from trawl surveys began in 1992 and indicates that the catch composed of predominantly 1 and 4-yr old fish (Contact Wyatt Rhea- Fournier). Otoliths collected in PWSA bottom trawl surveys, from 1992–2023, indicated sablefish ages ranged from 1–22 years old, with an average age of 3 years old.

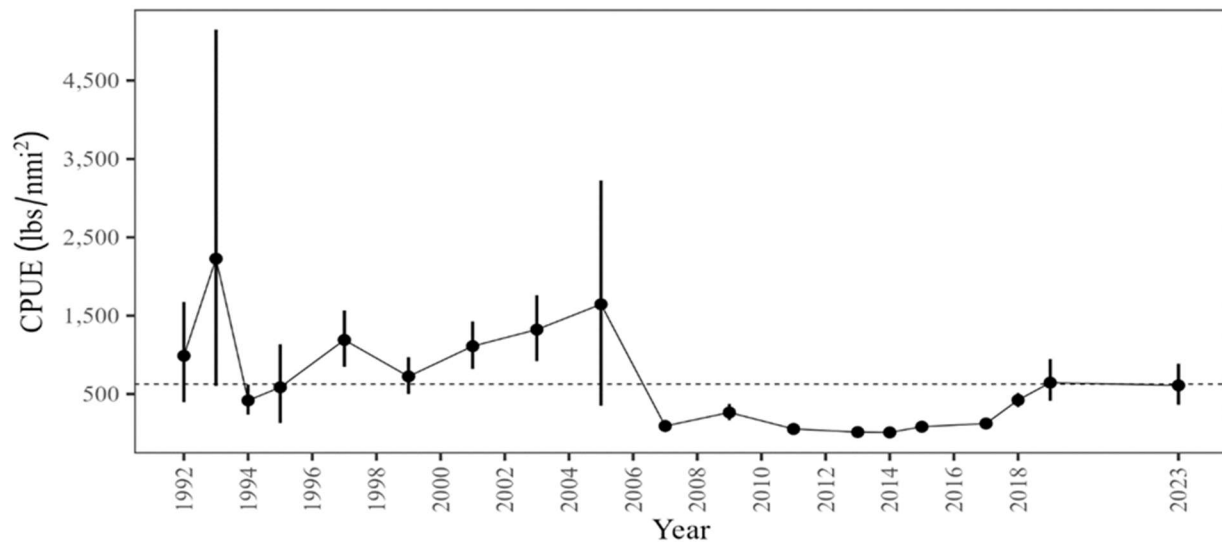


Figure 10.—Sablefish CPUE from the Prince William Sound Area bottom trawl survey. Horizontal dotted line is time series mean. Vertical lines are the standard error.

In **Central Region**, skipper interviews and biological sampling in 2023 occurred Whittier. Data collected included date and location of harvest, length, weight, sex, gonad condition, and otoliths. There were a total of 250 sablefish samples collected dockside in 2023 with an average fork length of 60 cm and average weight of 2.40 kg (5.29 lb.). Otoliths are sent to the Age Determination Unit. Logbooks are required in both the PWSA and Cook Inlet fisheries to provide catch and effort data by date and location.

The Division of Sport Fish—Southeast Region collects catch, harvest, and biological data from sablefish as part of a marine harvest survey program. Catch, harvest and release estimates from both the SWHS and charter logbook programs are typically integrated with Southeast marine harvest survey program to obtain estimates across all angler types. Ports sampled in 2023 included Juneau, Sitka, Craig, Petersburg/Wrangell, Elfin Cove, Yakutat, and Ketchikan. Length data were collected from 570 sablefish in 2023, primarily from the ports of Sitka (n = 365), Petersburg (83), and Elfin Cove (61) (Contact Chris Hinds). Port sampling of sablefish is opportunistic in **Southcentral Region** and is not a primary objective of the program; port samplers in Southcentral Alaska measured zero sablefish from the sport harvest in 2023, reflecting the relatively low harvests. Interviewed anglers in Southcentral Region retained 29 of 30 sablefish caught in 2023.

The **Age Determination Unit** worked with the AFSC, Auke Bay Laboratories to publish work investigating the use of age-0 lapillar and sagittal otoliths to infer daily growth in juvenile sablefish in the Gulf of Alaska (Strasburger et. al. 2023). Evaluations of laboratory reared juvenile sablefish found close agreement in daily age between otoliths, strong linear relationships between otolith size and fish size, and peak otolith increment width in both structures between 14°C and 18°C and at maximum feed rations. These findings support current and previous studies, and investigators plan to publish methods and findings (Contact Kevin McNeel).

2. Assessment

In the **Southeast Region**, the department uses mark-recapture methods with external tags and fin clips to estimate abundance and exploitation rates for sablefish in the NSEI Subdistrict. Sablefish are captured with pot gear in May or June, marked with a tag and a fin clip then released. Tags are recovered from the fishery and fish are counted at the processing plants and observed for fin clips. In addition to the mark-recapture work, an annual longline survey is conducted in NSEI to provide biological data as well as relative abundance information. In the NSEI Subdistrict, the 2023 recommended ABC was 713.6 mt, a 9% increase from 2022. The ABC was generated using a statistical catch-at-age (SCAA) model, which reduces reliance on the annual mark-recapture project by integrating multiple indices of abundance and biological data (catch, mark-recapture abundance estimates, survey and fishery CPUE, and survey length and age composition data). In the SSEI Subdistrict, the 2023 annual harvest objective (AHO) was set at 291.8 mt, the same AHO as 2022. For SSEI, an annual longline survey is conducted to provide biological data as well as relative abundance information. Unlike NSEI, the department does not currently estimate the absolute abundance of SSEI sablefish. There appears to be substantial movement of sablefish in and out of the SSEI area, which violates the assumption of a closed population; consequently, Peterson mark-recapture estimates of abundance or exploitation rates are not possible for this fishery. Instead, the SSEI sablefish population is managed based on relative abundance trends from survey and fishery CPUE data, as well as with survey and fishery biological data that are used to describe the age and size structure of the population and detect recruitment events (Contact Rhea Ehresmann).

3. Management

There are three separate internal water areas in Alaska which have state-managed limited-entry commercial sablefish fisheries. The NSEI and SSEI (**Southeast Region**) and the PWSA Inside District (**Central Region**) each have separate seasons and GHLS. In the CIA, there is a state-managed open access sablefish fishery with a separate GHL.

In the **Southeast Region** both the SSEI and NSEI sablefish fisheries have been managed under a license limitation program since 1984. In 1994 the BOF adopted regulations implementing an equal share quota system where the annual GHL was divided equally between permit holders and the season was extended to allow for a more orderly fishery. In 1997 the BOF adopted this equal share system as a permanent management measure for both the NSEI and SSEI sablefish fisheries. During the February 2009 BOF meeting, the BOF made no changes affecting the regulation of commercial sablefish fisheries; however, bag and possession limits were established for the sablefish sport fishery. At the 2012 BOF meeting, a regulation was passed to require personal use and subsistence sablefish household fishing permits. Bag (50 fish per permit), vessel (200 fish per vessel), and hook (350 per permit) limits were adopted for personal use sablefish fishing at the 2015 BOF meeting. In 2017, the CFEC approved a public petition for SSEI longline permit holders to fish pot gear due to whale depredation and rockfish bycatch issues, thus making the permit a longline/pot permit. The NSEI fishery was restricted to longline gear only at this time. In 2018, the BOF amended SSEI sablefish longline and pot seasons to a concurrent season occurring from June 1 to November 15, adopted new regulations to require commercial sablefish pots to have two 4-inch circular escape rings and allowed for the possession of live sablefish for delivery as a live product. In 2018, the BOF also approved the use of pots in the personal use sablefish fishery with a limit of two pots per person, 8 pots per vessel. In 2022, the BOF and CFEC approved a public petition for NSEI longline permit holders to fish pot gear due to whale depredation and rockfish bycatch issues, thus making the permit a longline/pot permit like SSEI. The BOF also reduced the circular escape ring size from 4-inch to 3.75-inch for commercial pots; similarly, all personal use and subsistence pots are required to have at least two 3.75-inch diameter escape rings and tunnel eye openings to match the commercial pot specifications.

There is no open-access sablefish fishery in the Southeast Outside District as there are limited areas that are deep enough to support sablefish populations inside state waters. In some areas of the Gulf, the state opens the fishery concurrent with the EEZ opening. These fisheries, which occur in CIA's North Gulf District and the Aleutian Island District, are open access in state waters, as the state cannot legally implement IFQ management at this time. The fishery GHLS are based on historic catch averages and are closed once these have been reached.

In **Central Region**, the CIA sablefish GHL is set using a historic baseline harvest level adjusted annually by the relative change to the ABC in the federal CGOA. In 2004, the BOF adopted a sablefish fishery-specific registration, logbook requirement, and 48-hour trip limit of 1.8 mt in the CIA. For PWSA, a limited-entry program that included gear restrictions and established vessel size classes was adopted in 1996. Between 1996 and 2014, the PWSA fishery GHL was set at 110 mt, which is the midpoint of the harvest range set by a habitat-based estimate. Tagging studies conducted by NMFS and ADF&G indicate that sablefish populations throughout GOA including PWSA are likely mixed. Therefore, the GHL was adjusted by applying the relative change each year in the NMFS GOA sablefish ABC, which is derived from NMFS stock assessment surveys. The GHL was adjusted beginning in 2015 by applying the relative change in the GOA-wide ABC

for sablefish back to 1994; this adjustment continued in 2021. PWSA fishery management developed through access limitation and in 2003 into a shared quota system wherein permit holders are allocated shares of the GHL. Shares are equal within each of four vessel size classes but differ between size classes. In 2009, the BOF adopted regulations which included a registration deadline, logbooks, and catch reporting requirements; new season dates of April 15–August 31 were also adopted. The new season opening date, one month later than in previous years, was adopted to reduce the opportunity for whale depredation on hooked sablefish which predominately occurred prior to May 1.

The sole **Westward Region** sablefish fishery occurs in the Aleutian Islands. The GHL for the Aleutian Islands is set at 5% of the combined Bering Sea Aleutian Islands ABC. From 1995 to 2000 the fishery opened concurrently with the EEZ IFQ sablefish fishery. In 2001 the BOF changed the opening date of the state-waters fishery to May 15 to provide small vessel operators an opportunity to take advantage of potentially better weather conditions. From 1995 to 2000 all legal groundfish gear types were permissible during the fishery. Effective in 2001, longline, pot, jig and hand troll became the only legal gear types. Vessels participating in the fishery are required to register and fill out logbooks provided by ADF&G. In 2013, the BOF changed the season opening and closing dates reverting them back to coincide with the federal IFQ season.

The **Southeast Region sport fishery** for sablefish was regulated for the first time in 2009. Sport limits in 2023 were four fish per day, four in possession, with an annual limit of eight fish applied to nonresidents. The sablefish sport fishery in the remainder of Alaska has no limits.

4. Fisheries

In the **Southeast Region**, the 2023 NSEI AHO was set at 632.2 mt of sablefish. The fishery is managed by equal quota share with each permit holder allowed 8.7 mt. The NSEI sablefish fishery opens August 15 and closes November 15 by regulation. The 73 permit holders landed a total of 579.4 mt. The SSEI quota was set at 291.8 mt with an equal quota share of 13.3 mt for each of the 19 permit holders for longline/pot gear and three permit holders for pot gear. The SSEI sablefish fishery season allows longline/pot gear permits to fish from June 1–November 15. The 22 permit holders landed a total of 169.9 mt of sablefish (Contact Rhea Ehresmann).

In the **Central Region**, the 2023 CIA sablefish fishery opened at noon July 15 with a GHL of 53.6 mt and closed by regulation on December 31; 2 vessels made 2 landings for a harvest of 0.18 mt of sablefish, an 89% decrease from the harvest in 2023. The 2023 PWSA sablefish fishery opened April 15 with a GHL of 121.9 mt and closed on August 31. PWSA sablefish harvest totaled 62.3 mt, a decrease of 30% from 2022. There has been an increase in the use of pot gear in the fishery in recent years in response to excessive orca whale depredation on sablefish in PWSA. For 2023, 47% of the sablefish was harvested with longline gear and 53% with pot gear.

Within the **Westward Region**, only the Aleutian Islands have sufficient habitat to support mature sablefish populations of enough magnitude to permit commercial fishing. All other sections within the region are closed by regulation to avoid the potential for localized depletion from the small amounts of habitat within the jurisdiction of the state. Bycatch from the areas closed to directed fishing is limited to 1%. The 2023 Aleutian Island fishery opened concurrent with the IFQ season, on March 10 with pot, longline, jig and hand troll gear allowed. The GHL was set at 865.0 mt for the state-waters fishery. The harvest from the 2023 Aleutian Islands sablefish fishery was 869.2 mt. The season closed on October 1 (Contact Asia Beder).

The most recent sablefish sport harvest estimates from the SWHS are for 2022. The estimated harvest was 23,992 fish in Southeast Alaska and 5,452 fish in Southcentral Alaska. SWHS estimates are suspected to be biased due to misidentification and misreporting. Sablefish are not commonly taken by anglers in most areas of the state, and relatively high catches were reported from some areas where sablefish are rarely or never observed by creel survey crews. Charter logbooks indicated guided harvests of 16,969 sablefish in Southeast Alaska and 797 sablefish in Southcentral Alaska in 2022 (Contact Chris Hinds, Clay McKean).

K. Lingcod

1. Research

In the **Southeast Region**, dockside sampling of lingcod caught in the commercial fishery continued in 2023 in Sitka with 965 fish sampled for biological data. Otoliths were sent to the ADU in Juneau for age determination (Contact Rhea Ehresmann).

In the **Central Region**, skipper interviews and port sampling in 2023 were conducted in Homer and Whittier. Data obtained included date and location of harvest, length, weight, sex, and age structures. There was a total of 164 lingcod samples collected dockside in 2023 from the CIA directed fishery; sampled lingcod had an average fork length of 106 cm and average (whole) weight of 11.24 kg (24.78 lb.). Otoliths were sent to the ADU in Juneau. Gonad condition (stage of maturity) was generally not determined as nearly all fish were delivered gutted; however, evidence of sex (vent/papilla) was required by EO to remain intact on lingcod by having fishers cut one inch forward of the vent when gutting fish. Funding for Central Region lingcod ROV surveys ended in 2016 and no surveys have been conducted in recent years (Contact Wyatt Rhea-Fournier).

The Division of Sport Fish—Southeast Region continued to collect catch, harvest, and biological data from lingcod as part of a marine harvest survey program with lingcod harvests tabulated back to 1987 in some ports. Data collected in the program include statistics on effort, catch, and harvest of lingcod taken by Southeast Alaska sport anglers. Ports sampled in 2023 included Juneau, Sitka, Craig, Petersburg/Wrangell, Elfin Cove, Yakutat, and Ketchikan. Length and sex data were collected from 2,181 lingcod in 2023, primarily from the ports of Yakutat (n=579), Craig (485), Ketchikan (270), Sitka (503), and Elfin Cove (321). An additional 81 lengths were collected from various ports with no sex data collected (Contact Chris Hinds).

The Division of Sport Fish—Southcentral Region continued collection of harvest and fishery information on lingcod through the groundfish harvest assessment program. Lingcod objectives include estimation of 1) the age, sex, and length composition of lingcod harvests by ports and 2) the geographic distribution of harvest by each fleet. The program sampled 493 lingcod from the sport harvest at Seward, Valdez, Whittier, Kodiak, and Homer in 2023. These ports account for most of the sport lingcod harvest in Southcentral Alaska. Anglers interviewed in Southcentral caught 2,072 lingcod in 2023, of which 921 were retained (Contact Clay McKean).

The **Age Determination Unit**, in collaboration with the Gulf of Alaska Bottomfish program (GOAB) and member agencies of the Committee of Age Reading Experts (CARE), compared lingcod otolith and fin spine age estimation methods. The ADU and GOAB performed direct comparisons between methods using paired structures collected in Southcentral and Southeast Alaska by GOAB and the Southeast Alaska Region port sampling program and results were presented at the Western Groundfish Conference. Comparisons showed an average difference

between methods of -0.72 years and average percent error/average coefficient of variation were 6.23/8.81%, respectively. Member agencies of CARE have continued efforts to collect paired structures for further investigations (Contact Kevin McNeel or Chris Hinds).

2. Assessment

There is no stock assessment for lingcod in the **Southeast Region**.

Central Region conducts ROV surveys along the northern Gulf of Alaska coast from the Kenai Peninsula to PWSA to estimate local abundance and biomass of lingcod concurrently with DSR. No surveys were conducted in 2023 (Contact Mike Byerly or Wyatt Rhea-Fournier).

3. Management

Management of commercial lingcod fisheries in the **Southeast Region** is based upon a combination of GHRs, season, and gear restrictions. Regulations include a winter closure for all users, except longliners, between December 1 and May 15 to protect nest-guarding males. GHs were reduced in 2000 in all areas and allocations were made between directed commercial fishery, sport fishery, longline fisheries, and salmon troll fisheries. The 27-inch minimum commercial size limit remains in effect and fishermen are requested to keep a portion of their lingcod with the head on and proof of gender to facilitate biological sampling of the commercial catch. Vessel registration is required, and trip limits are utilized by ADF&G staff when needed for the fleet to stay within their allocations. The directed fishery is limited to jig or dinglebar troll gear. In 2003 the BOF established a super-exclusive directed fishery registration for lingcod permit holders fishing in the IBS area.

The **Central Region** has directed commercial fisheries for lingcod in Cook Inlet and PWSA areas. Regulations for the commercial lingcod fishery include open season dates of July 1 to December 31 and a minimum size requirement of 35 inches (89 cm) overall or 28 inches (71 cm) from the front of the dorsal fin to the tip of the tail. The directed lingcod fishery in the CIA is limited to jig gear only. Guideline harvest levels are 24 mt for CIA and 3.3 mt in the PWSA Inside District and 11.5 mt for the PWSA Outside District. Resurrection Bay, near Seward, is closed to commercial harvest of lingcod. In PWSA and Cook Inlet, lingcod may be retained as bycatch, 20% of the directed groundfish harvest.

In the **Southeast Region**, sport harvests of lingcod are incorporated into a regionwide lingcod management plan. This plan reduced GHs for all fisheries (combined) in seven management areas and allocated a portion of the GH for each area to the sport fishery. Since 2000, harvest limit reductions, size limits, and mid-season closures have been implemented by emergency order in various management areas to ensure sport harvests do not exceed allocations. The sport fishery lingcod season for 2023 was May 16–November 30. Charter vessel operators and crew members were prohibited from retaining lingcod while guiding clients. For resident anglers, the limits regionwide were one fish per day and two in possession, with no size limits or annual limits. Additional restrictions were put into place for nonresidents to keep harvest from exceeding allocations specified by the Alaska BOF:

- 1) In the Northern Southeast area, nonresidents were allowed one fish daily and in possession, the fish must be 30–35 inches in length or at least 55 inches in length, and the annual limit was two fish, of which one must be 30–35 inches in length and one must be at least 55 inches in length;

- 2) In the Southern Southeast area, nonresidents were allowed one fish daily and in possession, the fish must be 30–40 inches in length or at least 55 inches in length, and the annual limit was two fish, of which one must be 30–40 inches in length and one must be at least 55 inches in length.
- 3) In the Yakutat area, nonresidents were allowed one fish daily and in possession, no size limits, and the annual limit was two fish.

In addition, the Pinnacles area near Sitka has been closed to sport fishing year-round for all groundfish since 1997 (Contact Jeff Nichols).

A suite of regulations was established in 1993 for sport lingcod fisheries in **Southcentral Alaska** considering the lack of quantitative stock assessment information. Resurrection Bay remained closed to lingcod fishing year-round to rebuild and protect the population, although there is no formal rebuilding plan. The season was closed region-wide from January 1 through June 30 to protect spawning and nest guarding lingcod. Daily bag and possession limits in 2022 were two fish in the CIA and one fish in North Gulf Coast and Prince William Sound areas. Limits were two fish per day, four in possession in the Kodiak area. All areas except Kodiak had a minimum size limit of 35 inches to protect spawning females (Contact Jay Baumer or Matt Miller).

4. Fisheries

Lingcod are the target of a “dinglebar” troll fishery in the **Southeast Region**. Dinglebar troll gear is power troll gear modified to fish for groundfish. Additionally, lingcod are landed as significant bycatch in the DSR longline, halibut longline, and salmon troll fisheries. The directed fishery landed 155.8 mt of lingcod in 2023. An additional 60.8 mt was landed as bycatch in halibut and other groundfish fisheries and 15.6 mt in the salmon troll fishery.

Central Region commercial lingcod harvests have primarily occurred in the North Gulf District of the CIA and PWSA. The 2023 Cook Inlet lingcod harvest was 1.5 mt, 6% of the 23.8 mt GHL. Approximately 4% of the lingcod harvest from CIA was taken as bycatch in longline fisheries and the remainder was harvested in the directed mechanical jig and hand troll fishery. In PWSA, lingcod harvest in 2023 was 5.75 mt, a 50% decrease from 11.6 mt harvested in 2022. PWSA lingcod harvest was 76% longline gear and 24% mechanical jig.

In the **Westward Region**, no directed lingcod effort occurred during 2023. All lingcod were harvested incidental to other federal and state managed groundfish fisheries. The 2023 harvest totaled 14 mt in the Kodiak Area, 16 mt in the Chignik Area, and <1 mt in the South Alaska Peninsula and Aleutian Islands – Bering Sea Areas combined.

Sport lingcod harvest estimates from the SWHS for 2022 (the most recent year available) were 23,293 lingcod in Southeast Alaska and 19,733 lingcod in Southcentral Alaska. The average estimated annual harvest for the recent five-year period (2018-2022) was 16,444 fish in Southeast Alaska and 14,256 fish in Southcentral Alaska.

L. Atka Mackerel

1. Research

There was no research on Atka mackerel.

2. Assessment

There are no state stock assessments for Atka mackerel.

3. Management

A commissioner's permit is required in **Central Region** and **Southeast Region** before a directed fishery may be prosecuted for Atka mackerel. This permit may restrict depth, dates, area, and gear, establish minimum size limits, and require logbooks and/or observers, or any other condition determined to be necessary for conservation and management purposes.

4. Fisheries

There was no directed fishery for Atka mackerel. Currently in the **Central Region** and **Southeast Region** Atka mackerel are considered part of the "other groundfish" assemblage and are allowed up to 20% as bycatch in aggregate in directed fisheries for groundfish.

M. Flatfish

1. Research

There was no research on flatfish.

2. Assessment

There are no stock assessments for flatfish.

3. Management

Trawl fisheries for flatfish are allowed in four small areas in the internal waters of the **Southeast Region** under a special permit issued by the department. The permits are generally issued for no more than a month at a time and specify the area fished and other requirements. Trawl gear is limited to beam trawls, and mandatory logbooks are required, observers can be required, and there is a 20,000-pound weekly trip limit.

In **Central Region** flatfish may be harvested in a targeted fishery only under the authority of an ADF&G commissioner's permit. The permit may stipulate fishing depth, seasons, areas, allowable sizes of harvested fish, gear, logbooks, and other conditions determined to be necessary for conservation or management purposes.

There are no bag, possession, or size limits for flatfish (excluding Pacific halibut) in the sport fisheries in Alaska. Harvest of flatfish besides Pacific halibut are not explicitly estimated by the SWHS and no information is collected in the creel surveys and port sampling of the sport fisheries in Southcentral or Southeast Alaska. Flatfish are occasionally taken incidentally to other species and in small shore fisheries, but the sport harvest is believed to be negligible.

4. Fisheries

No effort has occurred in the **Southeast Region** fishery in recent years. Since 2000, only one vessel has applied for a commissioner's permit to participate in this fishery; this vessel made a single flatfish landing in 2014. Due to limited participation, harvest information is confidential for this landing. The Southeast flatfish trawl areas are also the sites of a shrimp beam trawl fishery. In the past, most of the Southeast harvest was starry flounder.

In **Central Region** during 2023, there were no commissioner's permits issued for flatfish.

In state waters of the **Westward Region**, the State of Alaska adopts most NOAA Fisheries regulations, and the flatfish fishery is managed under a parallel management structure.

N. Pacific Halibut and IPHC Activities

The sport halibut fishery is monitored by the **Division of Sport Fish**. Data on sport fishery effort and harvest are collected through port sampling in Southeast and Southcentral Alaska, the SWHS, and saltwater charter logbooks. Estimates of harvest and related information are provided annually to the IPHC for use in the annual stock assessment, and to the North Pacific Fishery Management Council (Council). The Council's Scientific and Statistical Committee has periodically reviewed the state's estimation and projection methods. ADF&G provides an analysis each year that is used by the Council to recommend regulatory changes for the charter fishery to keep its harvest within allocations specified in the Catch Sharing Plan for Guided Sport and Commercial Fisheries in Alaska. The Council's recommendations are incorporated by the IPHC as annual management measures for the charter fishery. Estimates of sport harvest and associated analyses are posted on the North Pacific Fishery Management Council's web page at <http://www.npfmc.org> (Contact Brianna Bowman).

O. Other groundfish species

In 1997 the BOF approved a new policy that would strictly limit the development of fisheries for other groundfish species in the **Southeast Region**. Fishermen are required to apply for a permit for miscellaneous groundfish if they wish to participate in a directed fishery for species that do not already have regulations in place. Permits do not have to be issued if there are management and conservation concerns. The state also has a regulation that requires that the bycatch rate of groundfish be set annually for each fishery by emergency order unless otherwise specified in regulation.

V. Ecosystem Studies

N/A

VI. Other Related Studies

ADF&G manages state groundfish fisheries under regulations set triennially by the BOF.

ADF&G announces the open and closed fishing periods consistent with the established regulations and has authority to close fisheries at any time for justifiable conservation reasons. The department also cooperates with NOAA Fisheries in regulating fisheries in offshore waters.

A. User Pay/Test Fish Programs

The department receives receipt authority from the state legislature that allows us to conduct stock assessment surveys by recovering costs through sale of fish taken during the surveys. Receipt authority varies by region. In the **Southeast Region**, several projects are funded through test fish funds, notably the sablefish longline assessments and mark-recapture work, the herring fishery, and some salmon assessments.

VII. Publications

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ADF&G home page: <http://www.adfg.alaska.gov>

Commercial fisheries: <http://www.adfg.alaska.gov/index.cfm?adfg=fishingCommercial.main>

Sport fisheries: <http://www.adfg.alaska.gov/index.cfm?adfg=fishingSport.main>

Advisory announcements: <http://www.adfg.alaska.gov/index.cfm?adfg=newsreleases.main>

Groundfish and shellfish statistical area charts:

<http://www.adfg.alaska.gov/index.cfm?adfg=CommercialByFisheryGroundfish.groundfishmaps>

Age Determination Unit: <http://mtalab.adfg.alaska.gov/ADU/>

Gene Conservation Laboratory Home Page:

<http://www.adfg.alaska.gov/index.cfm?adfg=fishinggeneconservationlab.main>

Statewide Rockfish Initiative

<https://www.adfg.alaska.gov/index.cfm?adfg=fishingRockfish.initiative>

Rockfish conservation:

<http://www.adfg.alaska.gov/index.cfm?adfg=fishingSportFishingInfo.rockfishconservation>

ADF&G Groundfish Overview Page:

<http://www.adfg.alaska.gov/index.cfm?adfg=CommercialByFisheryGroundfish.main>

Region I, Southeast Region, Groundfish Home Page:

<http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareasoutheast.groundfish>

Region II, Central Region, Groundfish Pages:

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APPENDICES

Appendix I. Alaska Department of Fish and Game staff (updated 04/03/2024).

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Fishery Biologist I Josh Dore P.O. Box 115526 Juneau, AK 99811 (907) 465-4241	Fishery Technician IV Mark Plumb P.O. Box 115526 Juneau, AK 99811 (907) 465-1076	

SOUTHEAST REGION

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SPORT FISH DIVISION**STATEWIDE**

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SOUTHEAST REGION

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SOUTHCENTRAL REGION

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	Chief Biometrician Jiaqi Huang Division of Sport Fish-RTS 333 Raspberry Road Anchorage, AK 99518-1565 (907) 267-2327	

Appendix II. Map depicting State of Alaska commercial fishery management regions.

