STOCK ASSESSMENT AND FISHERY EVALUATION REPORT FOR THE GROUNDFISH FISHERIES OF THE GULF OF ALASKA AND BERING SEA/ALEUTIAN ISLANDS AREA:

ECONOMIC STATUS OF THE GROUNDFISH FISHERIES OFF ALASKA, 2022

Anna Abelman, Michael Dalton, Ben Fissel, Brian Garber-Yonts, Stephen Kasperski,
Jean Lee, Dan Lew, Chang Seung, Michael D. Smith,
Marysia Szymkowiak, Sarah Wise.

24 March, 2023

The authors of the Groundfish SAFE Economic Status Report invite users to provide feedback regarding the quality and usefulness of the Report and recommendations for improvement. AFSC's Economic and Social Sciences Research Program staff continually strive to improve the SAFE Economic Status Reports for Alaska Groundfish and BSAI Crab to incorporate additional analytical content and synthesis, improve online accessibility of public data in electronic formats, and otherwise improve the utility of the reports to users. We welcome any and all comments and suggestions for improvements to the SAFE Economic Status Reports. Please contact Michael D. Smith at michael.d.smith@noaa.gov with any comments or suggestions to improve the Economic SAFEs.

This report will be available at:
www.fisheries.noaa.gov/alaska/ecosystems/economic-status-reports-gulf-alaska-and-bering-sea-aleutian-islands

Time series and plots of data presented in this report are available at:
https://reports.psmfc.org/akfin/f?p=501:2001

For access to data, data visualizations, and other tools for understanding the economic and sociocultural dimensions of Alaska fisheries, visit the Alaska Fisheries Human Dimension Data Explorer:
https://reports.psmfc.org/akfin/f?p=501:2000.

Regarding a change in the title of this annual report series: effective calendar year 2022, the formal subtitle of this report references the year of the stock assessment cycle for which it is issued: ECONOMIC STATUS OF THE GROUNDFISH FISHERIES OFF ALASKA, 2022. This reverses a discrepancy between the year-designation of annual editions of other document series associated with the annual Stock Assessment of Fishery Evaluation Report, including the Ecosystem Status Report, and that used previously for the Economic Status report. The title change is made solely to clarify document referencing; no changes in the scope or content of this or future editions of the report are implied.

For additional information concerning this report contact:

Michael D. Smith
Resource Ecology and Fisheries Management Division
Alaska Fisheries Science Center
7600 Sand Point Way N.E.
Seattle, Washington 98115-6349
(302) 648-6160
michael.d.smith@noaa.gov

Contents

List of Figures

List of Tables

Chapter 1

Economic Status of Groundfish Fisheries of the BSAI: Summary and Report Card

The Economic SAFE report contains detailed information about economic aspects of the groundfish fisheries, including figures and tables, economic performance indices, 2022 product price and ex-vessel price projections, year-to-date information on volume and value, an Amendment 80 fishery economic data report (EDR) summary, an Amendment 91 fishery EDR summary, a Gulf Trawl fishery EDR summary, and market profiles for the most commercially valuable species. Data tables are organized into four sections: (1) All Alaska, (2) BSAI, (3) GOA, and (4) Pacific halibut. The figures and tables in the report provide estimates of total groundfish catch, groundfish discards and discard rates, prohibited species catch (PSC) and PSC rates, the ex-vessel value of the groundfish catch, the ex-vessel value of the catch in other Alaska fisheries, the gross product value of the resulting groundfish seafood products, the number and sizes of vessels that participated in the groundfish fisheries off Alaska, vessel activity, and employment on at-sea processors. Generally, the data presented in this report cover 2017-2021, but limited catch and ex-vessel value data are reported for earlier years to illustrate the rapid development of the domestic groundfish fishery since the 1980s and to provide a more complete historical perspective on catch. The data behind the tables from this and past Economic SAFE reports will be available online at: https://reports.psmfc.org/akfin and https://psesv.psmfc.org/PSESV-2/.

1.1 Report Summary: Economic Status of Alaska Commercial Groundfish Fisheries

The commercial FMP groundfish fisheries off Alaska had a total catch of 2.01 million metric tons (mt) in 2021 (including catch in federal and state waters) (Fig 3.1 and Table 4.1), a decrease of 4 % from 2020. Groundfish accounted for 81.84 % of Alaska's 2021 total catch (Table 4.6). Total catches of Alaska's FMP groundfish fisheries increased in 2021 for pollock, sablefish, and Atka mackerel, and decreased for Pacific cod, and the flatfish and rockfish species complexes (Table 4.1). The contributions of the major groundfish species or species groups to the total catch are depicted in Fig 3.1.

The aggregate ex-vessel value of the FMP groundfish fisheries off Alaska was $759.57 million, which was 37.7% of the ex-vessel value of all commercial fisheries off Alaska in 2021 (Table 4.3).[1] After adjustment for inflation, the real ex-vessel value of FMP groundfish decreased $40.09 million in 2021 and the aggregate real ex-vessel price decreased 1.2% to $0.18 per pound (Table 4.6). Nominal pollock ex-vessel prices increased 6.9% to $0.14 per pound in the Bering Sea and Aleutian Islands (BSAI), and 5.1% to $0.12 per pound in the Gulf of Alaska (GOA) (Tables 4.13 and 4.31). Pacific cod nominal ex-vessel prices decreased 13.4% to $0.34 per pound in the BSAI, and decreased 0.5% to $0.39 per pound in the GOA. Among the other species that are the focus of the shoreside ex-vessel fisheries: The GOA flatfish ex-vessel price fell 19.8%, GOA rockfish prices were stable, and GOA sablefish prices increased 20.3% (in nominal terms). For BSAI FMP groundfish in aggregate, the change in price was larger than the change in catch (Figures 5.6, 5.10), while in the GOA, prices and catch were both increasing with the change in catch the more dominant of the two. For other fisheries in Alaska, halibut, salmon, herring, and shellfish ex-vessel revenues increased (Table 4.6).

The gross value of the 2021 groundfish catch after primary processing (first-wholesale) was $2.14 billion (Table 4.7), a decrease of 2.5% in real terms from 2021. This change was the combined effect of a 6.5% increase in the real aggregate 2021 first-wholesale price to $1.27 per pound which was offset by aggregate production volumes decreasing 8.4% to 765.3 to thousand mt (Table 4.7). In the BSAI, aggregate first-wholesale value decreased 3.4% and value was increasing for pollock, and sablefish but was decreasing or stable for nearly all other species including Pacific cod, rockfish, and flatfish (Table 4.17). The average first-wholesale price for all products was increasing for most species with the exception of Atka mackerel and some flatfish species (Table 4.18). In the GOA, aggregate first-wholesale value increased (26.1%) with increases in value for all species except for flatfish (Table 4.35). Prices were increasing for most species with the exception of some flatfish species (Tables 4.34 and 4.36)

Starting in 2020, COVID-19 has had an unprecedented impact on fisheries in Alaska. Undoubtedly, one of the significant economic impacts experienced by the industry were the mitigation costs experienced by the fishing and processing industries to continue to supply national and global markets for seafood. This report does not provide a comprehensive accounting of these costs, as they are not part of our existing EDR data collections. The core economic data tables in this report focus on catch, revenues, and effort and changes occurring during the most recent year.

The first-wholesale value of Alaska's FMP groundfish fisheries accounted for 45.2% of Alaska's total first-wholesale value from commercial fisheries (Table 4.7). First-wholesale value of Alaska's fisheries products other than FMP groundfish fisheries totaled $2.6 billion, most of which ($1.92 billion) came from Pacific salmon. Pacific salmon value increased 34.43%, in part, because of the typical cycle in salmon returns and production, though year-over-year prices were down. Pacific halibut fisheries, which are concentrated in the Gulf of Alaska, saw an increase of 75.2% in value in 2021 to $152.8 million as a result of substantial increases in prices and volume.

The groundfish fisheries off Alaska are an important segment of the U.S. fishing industry. In 2020, it accounted for 53.99% of the weight of total U.S. domestic landings and 17.21% of the ex-vessel value of total U.S. domestic landings (Fisheries of the United States, 2020). Alaska fisheries as a whole (including salmon, halibut, herring, and shellfish) accounted for 60.96% of the weight of total U.S. domestic landings and 33.02% of the ex-vessel value of total U.S. domestic landings.

[1]The data required to estimate net benefits to either the participants in fisheries or the Nation, such as cost or quota value (where applicable) data, are not available. Unless otherwise noted 'value' should be interpreted as gross revenue.

NOAA Fisheries collects only limited data on employment in the fisheries off Alaska. The most direct measure available is the number of 'crew weeks' on at-sea processing vessels and catcher vessels of FMP groundfish. These data indicate that in 2021 crew weeks for both sectors totaled 107,559 with the majority of them (92,697.5) occurring in the BSAI groundfish fishery (Tables 4.25, 4.43, 4.26, and 4.44). In the BSAI, the months with the highest employment correspond with the peak of the pollock seasons in February-March and July-September. In the Gulf of Alaska, crew weeks peak February-May with the catcher vessel hook and line fisheries targeting sablefish and Pacific cod. Relative to 2020, annual crew weeks in Alaska decreased in 2021 by 10.4 %.

1.2 Report Card Metrics for the Alaska Commercial Groundfish Fisheries, 1993-2021

The purpose of the report card metrics is to give a broad overview of the economic health of Alaska's FMP groundfish fisheries (Figure 1.1). The metrics cover the years 1993-2021 to help elucidate trends and provide historical context to the current state of the fishing industry. In general, these metrics focus on FMP groundfish fisheries, which are also the focus of this economic status report. As a result, halibut and salmon are not well represented by these metrics (except that the share of shoreside value for the top 5 ports does include salmon and halibut). The economic report card includes 9 items[2]:

1) Real first-wholesale revenue[3] index which measures changes in the first-wholesale revenue produced by all FMP groundfish species in Alaska using 2020 as the base year (value=100).

2) Real first-wholesale price index, which measures changes in first wholesale prices produced from all FMP groundfish species in Alaska using 2020 as the base year (value=100).

3) Production volume divided by total catch, where total catch is inclusive of discards and PSC. This metric approximates a recovery rate of product relative to total extractions across all FMP groundfish species.

4) The effective global share of Alaska pollock and cod catch, defined as the average shares of global catch volume weighted by Alaska first-wholesale revenue shares. This metric demonstrates how large the Alaska pollock and cod fisheries are relative to the global supply of these species which provides information as to the potential influence of changes in Alaska catches on global prices for these species.

5) Real effective exchange rate index, which is an average of foreign currencies to U.S. dollar exchange rate weighted by fisheries exports to each country.[4] The Alaska seafood industry exports approximately 80% of it's groundfish products. This metric provides information about how exchange rates are impacting Alaska groundfish producers across all of their export partners.

6) Ratio of ex-vessel over first-wholesale revenues. This revenue share is a function of a number of different factors including the value added from processing, bargaining power, global prices, and processing and harvesting costs.

[2](Vovchenko, 2020)
[3](Stupachenko, 2019)
[4](Park, 2014)

7) Real first wholesale revenue per fishing week, where fishing weeks are defined as the number of vessels active in each week of the year, and is a productivity-related metric that can be thought of as revenue per unit effort.

8) Alaska resident share of FMP groundfish shoreside ex-vessel value, where residency is determined by the owner address of delivering vessels. This metric measures the share of gross FMP groundfish revenues staying in Alaska versus those going to vessel owners in other states.

9) Share of shoreside all Alaska fisheries ex-vessel value for the top 5 ports, which is not limited to just FMP groundfish to provide a more comprehensive account of community revenues. This metric measures the degree of concentration of landings across Alaska communities.

Real first wholesale value index in 2021 was unchanged, and remained within one standard deviation of the long-run mean (panel 1). The drop in this index during 2020 was, in part, due to reduced catch primarily associated with TAC reductions in some key species, although BSAI pollock catches were lower that anticipated due to poor fishing conditions. Additionally, real first wholesale prices, which have been persistently low over the last decade, dropped to below one standard deviation of the historical mean in 2020, recovering slightly in 2021 but remaining below the bound in 2021, as COVID-19 related supply chain disruptions and food service closures put downward pressure on prices (panel 2). Production per-unit-catch remained relatively high in 2021, but continued a downward trend below levels seen over the last decade (panels 3). Globally, Alaska has a significant effective share of pollock and cod at approximately 40%, which has remained stable since 2014 (panel 4). The effective real exchange rate index was stable in 2021 at the upper standard-deviation bound, signaling minimal year-over-year exchange rate pressure on Alaska fish product export prices (panel 5). The ratio of ex-vessel to wholesale revenues dropped significantly in 2016 as a result of low ex-vessel prices, particularly for pollock, and has remained at a relatively low range in recent years, and in 2021 continued a downward trend since 2019 to drop below the lower 1-standard deviation bound (panel 6). This was largely related to the decrease in production per-unit catch (panel 3). Revenue per-unit-effort (measured by fishing weeks) was approximately level in 2021, remaining high at the margin of one standard deviation above the long-run average (panel 7). Both revenue and fishing weeks declined in 2021, however the percent decrease in real first-wholesale value (with decreasing production and prices) was greater than the percent decrease in fishing weeks (greatest in the CP sector). The share of shoreside revenue to AK residents continued a 5-year downward trend in 2021, dropping below one standard deviation from the long-run mean in 2020, and falling further to a historical low in 2021 (panel 8). This was due to Alaska resident's share of revenue in Pacific cod, which decreased from 48% in 2019 to 42% in 2020 with the closure of federal Pacific cod fisheries in the GOA. Roughly 63% of the shoreside revenues were concentrated in the top 5 key ports in 2020, which established a historical high and appears to have been episodic, as the indicator approached the long-term mean of 51% in 2021 (panel 9).

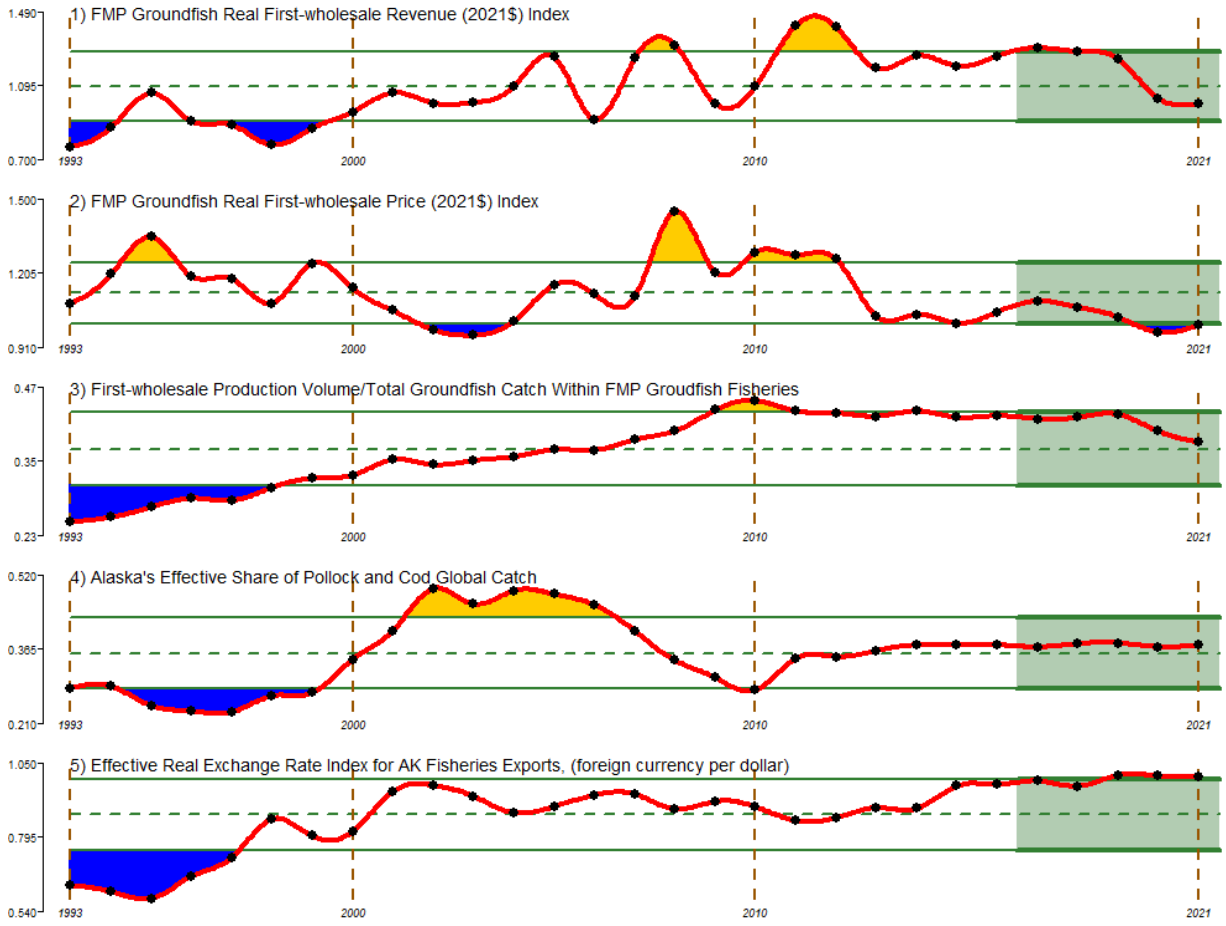

Figure 1.1: Economic report card metrics

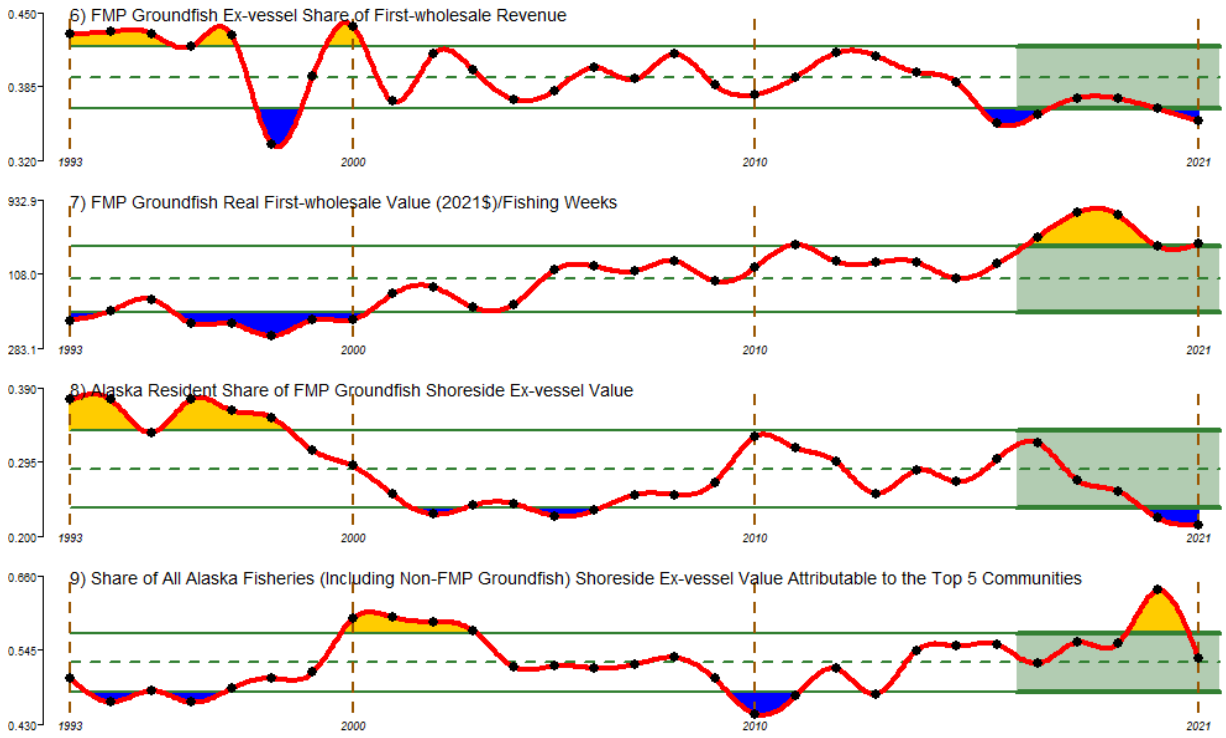

Figure 1.2: Economic report card metrics continued.

Chapter 2

Overview of Economic Status Report, 2022

2.1 Introduction

This report presents the economic status of groundfish fisheries off Alaska in terms of economic activity and outputs using estimates of catch, discards, prohibited-species catch (PSC), ex-vessel prices and value (i.e., revenue), effort (as measured by the size and level of activity of the groundfish fleet), and the first wholesale production volume and gross value of (i.e., F.O.B. Alaska revenue from) processed products.[1] The catch, ex-vessel value, fleet size, and activity data reported here reflect the fishing industry activities that are accounted for in the groundfish landings and production reports, North Pacific groundfish and halibut observer data, and the State of Alaska Commercial Operator's Annual Reports. Catch data in this report are sourced from the NMFS Alaska Regional Office (AKRO) catch-accounting system (CAS), which is used for in-season monitoring of groundfish and PSC quotas. The data descriptions, qualifications, and limitations noted in this overview of the fisheries and the footnotes to the tables are critical to understanding the information in this report. This report updates last year's report (Fissel et al. 2020) and is intended to serve as a reference document for those involved in making decisions with respect to conservation, management, and use of Gulf of Alaska (GOA) and Bering Sea and Aleutian Islands (BSAI) groundfish fishery resources.

In addition to catch that is counted against a federal Total Allowable Catch (TAC) quota (i.e., managed under a federal Fishery Management Plan (FMP)), estimates provided in some of the following tables may include catch from other Alaska groundfish fisheries (as indicated by the footnotes). The distinction between catch managed under a federal FMP and catch managed by the State of Alaska is not merely a geographical distinction between catch occurring in the U.S. Exclusive Economic Zone (EEZ) and catch occurring in Alaska state waters (3-mile limit). The State of Alaska maintains authority over some rockfish fisheries in the EEZ of the GOA, for example, and parallel fisheries in state waters are managed under federal FMPs. It is not always possible, depending on data source(s), to definitively identify a unit of catch, or associated units, such as revenue or price, as being part of a federal FMP or otherwise, as noted in the

[1] F.O.B. refers to the value (or price) excluding transportation costs. The acronym, F.O.B. stands for ''Free On Board".

footnotes. Additionally, unless explicitly indicated, phrases such as ''groundfish fisheries off Alaska" or ''Alaska groundfish", as used in this report, should not be construed to include any category of state or federally managed fishery or to refer to any specific geographic area. These and similar phrases may describe groundfish from both Alaska state waters and the federal EEZ off Alaska, groundfish managed only under federal FMPs, or managed under the authority of both NMFS and the state of Alaska.

The BSAI and GOA groundfish fisheries are widely considered to be among the best managed fisheries in the world. These fisheries produce high levels of catch, ex-vessel revenue, processed product revenue, exports, employment, and other measures of economic activity while maintaining ecological sustainability of the fish stocks. However, the data required to estimate the success of these management policies with respect to net benefits to either the participants in these fisheries or the Nation, such as cost or quota value data (where applicable), are not available for many of the fisheries. Fishery economists began discussing the potential for rent dissipation in fisheries managed with open-access catch policies long ago (Scott 1954, Gordon 1955). The North Pacific region has gradually moved away from such management, as discussed by Holland (2000), and instituted catch share programs in many of its fisheries. Seven of the seventeen catch-share programs currently in operation in the U.S. operate in the North Pacific, accounting for approximately 75% of Alaska's groundfish landings. By allocating the catch to individuals, cooperatives, communities, or other entities, catch share programs are intended to promote sustainability and increase economic benefits. Research on North Pacific fisheries has examined some of these issues after program implementation (e.g., Felthoven 2002, Homans and Wilen 2005, Wilen and Richardson 2008, Abbott et al. 2010, Fell and Haynie 2011, Torres and Felthoven 2014, Abbott et al. 2015).

There is considerable uncertainty concerning the future conditions of stocks, the resulting quotas, and potential changes to the fishery management regimes for the BSAI and GOA groundfish fisheries. The management tools used to allocate the catch among various user groups can significantly affect the economic health of the fishery as a whole or segments of the fishery. Changes in fishery management measures are expected to result from continued concerns with: 1) the catch of prohibited species; 2) the discard and utilization of groundfish catch; 3) the effects of the groundfish fisheries on marine mammals and sea birds; 4) other effects of the groundfish fisheries on the ecosystem and habitat; 5) the allocations of groundfish quotas among user groups; 6) maintaining sustainable fisheries and fishing communities that allow for new entrants into the fisheries; and 7) the response of the fisheries and ecosystem to climatic trends.

The remainder of this report is structured as follows: Section 2.2 gives a verbal description and important information for understanding the economic data tables in Section 4. Section 5 examines the economic performance of the North Pacific groundfish fisheries through market indices.

2.2 Description of the Economic Data Table

2.2.1 Groundfish and Prohibited Species Catch Data Description

Data Sources

Total catch estimates in the groundfish fisheries off Alaska are generated by NMFS from data collected through an extensive fishery observer program and from information provided through required industry reports of harvest and at-sea discards. The North Pacific Observer Program

(Observer Program), based at the NMFS Alaska Fisheries Science Center (AFSC), has had a vital role in the management of North Pacific groundfish fisheries since the late 1980s. Observer data are collected by NMFS-trained observers and provide scientific information for managing the groundfish fisheries and minimizing bycatch. Industry-reported data consists of catch and processed product amounts that are electronically recorded and submitted to NMFS through the Interagency Electronic Reporting System, known as eLandings. Observer information and industry reports are integrated into a NMFS application called the Alaska Catch Accounting System (CAS), which is used directly in managing fisheries.

The primary purpose of the CAS is to provide estimates of total catch for FMP species (including prohibited species) in the groundfish and halibut fisheries and allow the in-season monitoring of catch against the TACs and PSC limits. The harvests of groundfish in Federal waters are governed under fishery management plans (FMPs) that are specific to the Bering Sea and Aleutian Islands (BSAI) and Gulf of Alaska (GOA) regions. The groundfish TACs are established and monitored in terms of total catch, which is the sum of retained and discarded catch. In addition, the FMPs describe policy for setting bycatch limits for some species, such as halibut and salmon, whose retention is prohibited in the groundfish fisheries; bycatch of these species is referred to as Prohibited Species Catch (PSC).

In the CAS, at-sea sample and census data collected by observers are used to create discard and PSC rates (a ratio of the estimated discarded catch to the estimated total catch in sampled hauls). For trips that are unobserved, the discard and PSC rates are applied to industry-supplied landings of retained catch. Expanding on the observer data that are available, the extrapolation from observed vessels to unobserved vessels is based on varying levels of aggregated data. Data are matched based on processing sector (e.g., catcher/processor or catcher vessel), week, target fishery, gear, and federal reporting area. Further detail on the estimation procedure is available in Cahalan et al. (2014). With the exception of Pacific halibut PSC, all estimated at-sea discard is assumed to have 100% mortality. Halibut mortality rates are updated every three years based on the estimated condition of halibut sampled by observers (Williams 2012). These rates are applied to the total estimated halibut discards (for a gear type, FMP area (GOA or BSAI), fishery, and year).

Groundfish Catch Tables

The catch presented throughout these tables is total catch which includes retained and discarded catch. Catch data are sourced from the CAS. Catch for all Alaska including state and federal catches is displayed in Table 4.1. Retained catch for just FMP-managed groundfish is provided in Table 4.6 presents catch and real ex-vessel value by species and area (BSAI, GOA, and All Alaska). Tables 4.10 and 4.27 provide additional information for the BSAI and GOA, respectively, with aggregation of gear types and species specific catch data for flatfish and rockfish. Tables 4.11, 4.12, 4.28, 4.29 and 4.30 provide estimates of total catch by species, gear, and target species for the BSAI and GOA, respectively. In general, the species or species complex accounting for the largest proportion of retained catch on the trip or haul is considered the target species, with two exceptions. A target of pelagic pollock is assigned only if 95% or more of the total catch is pollock. In the BSAI, if flatfish species (flathead, rock, and yellowfin sole, and other flatfish) represent the largest amount of retained catch, then a target of yellowfin sole is assigned if this species represents at least 70% of the combined flatfish retained catch; otherwise, the flatfish species accounting for the greatest amount of retained flatfish catch is assigned as the target. Beginning in 2011, Kamchatka flounder was broken out from arrowtooth flounder in the BSAI. As such, the "other flatfish' ', and/or arrowtooth flounder target categories may not be directly comparable between 2011 and prior years in the historical catch data available online.

Groundfish Discards and Discard Rates

Discarded catch is the unretained catch of species that a vessel is, in general, legally able to target and retain (and thus does not include PSC). Discards are included in a vessel's total catch. Discards can occur for various reasons and in a variety of ways such as discarding of non-targets species, fish falling off of processing conveyor belts, dumping of large portions of nets before bringing them on-board the vessel, dumping fish from the decks, size sorting by crewmen, and quality-control. Discard rates can be high for non-target species. For the most common species (e.g. pollock and cod) retention requirements reduce the amount of discards for these species. The discard rate is the percent of total catch of a species that is discarded. Details on discard estimation can be found in Cahalan et al. (2014). The discards in the groundfish fisheries have received significant management attention by NMFS, the Council, Congress, and the public at large. Table 4.4 presents CAS estimates of discarded groundfish catch and discard rates (calculated as the percent of total catch that is discarded) by gear, area, and species for years 2017-2021.

Prohibited-Species Catch

Prohibited-species catch (PSC) is the catch of species that a vessel is prohibited from targeting and retaining due to their economic value to users outside the FMP groundfish fisheries. These species include Pacific halibut, king and tanner crab (*Chionoecetes*, *Lithodes*, and *Paralithodes spp.*), Pacific salmon (*Oncorhynchus spp.*), and Pacific herring (*Clupea pallasi*). Monitoring and minimizing the amount PSC in the Alaska groundfish fisheries has historically been an issue that has received significant management attention. The retention of these species was prohibited first in the foreign groundfish fisheries to ensure that groundfish fishermen had no incentive to target these species. Estimates of PSC for 2017-2021 are summarized by area and gear in Table 4.5.

The at-sea observer program was developed for foreign fleets and then extended to the domestic fishery. The observer program, managed by the Fisheries Monitoring and Analysis Division (FMA) of the Alaska Fisheries Science Center, resulted in fundamental changes in the nature of the PSC problem. First, by providing estimates of total groundfish catch and non-groundfish PSC by species, it reduced the concern that total fishing mortality was being vastly underestimated due to fish that were discarded at sea. Second, it made it possible to establish, monitor, and enforce the groundfish quotas in terms of total catch as opposed to only retained catch. Third, it made it possible to implement and enforce PSC quotas for the non-groundfish species that by regulation had to be discarded at sea. Finally, it provided extensive information that managers and the industry could use to assess methods to reduce PSC and PSC mortality. In summary, the observer program provided fishery managers with the information and tools necessary to prevent PSC from adversely affecting the stocks of the PSC species. An example of how this program is being used is the Bering Sea pollock fishery, which became completely observed in 2011. As a result, salmon PSC estimates in the Bering Sea pollock fishery are a census rather than a sample, and since 2011, there has been a fixed "hard cap'' in the fishery.[2] The information from the observer program helps identify the types of information and management measures that are required to reduce PSC to the extent practicable, as is required by the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

[2]These rules for salmon bycatch management were put in place through Amendment 91 to the BSAI FMP. For details see https://www.federalregister.gov/documents/2010/08/30/2010-20618/fisheries-of-the-exclusive-economic-zone-off-alaska-chinook-salmon-bycatch-management-in-the-bering

2.2.2 Ex-Vessel Prices and Value

The ex-vessel market is the transaction of catch delivered by vessels to processors. In general, ex-vessel prices are derived from Commercial Operator Annual Report (COAR) buying reports. Some catcher-vessels minimally processes (e.g., head-and-gut) the catch prior to delivery to the processor. The value of this on-board processing is discounted from the ex-vessel price so that it represents the round-weight (unprocessed) prices of the retained catch. Ex-vessel value is calculated by multiplying ex-vessel prices by retained catch. For the at-sea sector much of catch is both caught and processed for first-wholesale distribution by a single entity and as such a true "ex-vessel" market does not exist. For national accounting purposes the "ex-vessel' value of the at-sea sector are calculated by applying COAR buying prices for the corresponding species (complex), region, and gear-type of the retained catch. For a subset of fisheries that are prosecuted primarily by the at-sea catcher/processor fleet, and for which COAR buying data are sparse, we impute prices as a percentage (40%) of the estimated wholesale value per round weight. This percentage reflects the long-term average of the ratio of ex-vessel prices to head-and-gut (H&G) processed-product prices for species (primarily Pacific cod) that are well represented in COAR buying and production reports. Ex-vessel prices and value include post-season adjustments.

Tables 4.6 contains data on the real ex-vessel value and catch of groundfish and non-groundfish species in Alaska, adjusted to 2021 dollars by applying the Personal Consumption Expenditure Index (https://research.stlouisfed.org/fred2/series/PCEPI) to account for effects of inflation on fishermen's revenue. Table 4.8 provides estimates of ex-vessel value by residency (Alaska compared to the rest of the U.S., labeled 'Other') of primary vessel owners, area, and species. Residency of primary vessel owners are determined from the CAS combined with State of Alaska groundfish fish ticket data and vessel registration data, the latter of which includes the stated residency of the primary vessel owner. Residents of Alaska and of other states, particularly Washington and Oregon, are active participants in the BSAI and GOA groundfish fisheries. For the BSAI and GOA combined, 78% of the 2021 groundifsh ex-vessel value was accounted for by vessels with primary owners who indicated that they were not residents of Alaska.

Tables 4.13 and 4.31 contain estimated ex-vessel prices that are used with estimates of retained catch to calculate ex-vessel values (gross revenues) for the BSAI and GOA, respectively. Prices in these tables may include data from both federally-managed and state-managed fisheries. Estimates of ex-vessel value by area, gear, type of vessel, and species are presented in Tables 4.14 and 4.32 for the BSAI and GOA, respectively. Table 4.15 presents estimates of ex-vessel value of catch and value per vessel, vessel and permit counts, in the BSAI and the percent value of BSAI FMP groundfish and all BSAI fisheries by processor group. Table 4.15 provides these same data for the GOA.

2.2.3 First Wholesale Production, Prices, and Value

The first wholesale market is the first sale of fisheries products after initial processing by a commercial processor with a Federal Processor Permit (FPP). [3] Groundfish first wholesale production data are sourced from at-sea and shoreside groundfish production reports. Product pricing and value reflect COAR product report price data appended to these production data per the AKFIN product pricing index. While groundfish production reports are a federal reporting requirement, there is typically no distinction made in this reporting between product derived from

[3] An FPP is required for all processors receiving and/or processing groundfish harvested in Federal waters.

federally-managed catch and product derived from state-managed catch. Likewise, while COAR production reports include the area of processing, these data are insufficient for identifying the fishery inputs for units of finished production. As such, these tables reflect production volume and pricing from federal and some state-managed fisheries. Wholesale value and prices are given as F.O.B. (Free On Board) Alaska, indicating that transportation costs are not included in values and prices.

Table 4.7 reports estimates of the weight and first wholesale value of processed products from catch in the groundfish and non-groundfish commercial fisheries of Alaska. Estimates of first wholesale production weight of the processed products sourced from catch of groundfish are presented by species, product form, sector, and type of processor in Table 4.16 for the BSAI and Table 4.34 for the GOA. First-wholesale value (gross revenue) is presented in Tables 4.17 and 4.35 for the BSAI and GOA, respectively. Product price-per-pound estimates are presented in Tables 4.18 and 4.36, and estimates of total first wholesale product value per round metric ton of retained catch are reported in Table 4.19 and for the BSAI and GOA, respectively. For these tables we source the round weight of retained catch from CAS data rather than using product recovery rates to derive round weights from production data.

Tables 4.20 and 4.38 present number of processors, gross product value and value per processor, and percent of total wholesale value of processed groundfish accounted for by different processing groups, for the BSAI and GOA, respectively. Data in these tables are summarized from COAR product reporting, and no distinction is made between state-managed and federally-managed groundfish sources of production.

2.2.4 Effort (Fleet Size, Weeks, of Fishing, Crew weeks)

Data on measures of fishing capacity and effort in federally-managed Alaska groundfish fisheries, including fleet size, duration of fishing, and levels of harvesting and processing employment are sourced from CAS data, ADF&G groundfish fish tickets, North Pacific groundfish observer data, and at-sea groundfish production reports.

Vessel participation by area, vessel type, and target are shown in Table 4.9. Number of vessels, average and median length, and average and median capacity (registered net tonnage) of vessels by vessel type and gear are shown in Tables 4.21 and 4.39.

Tables 4.23 and 4.41 provide estimates of vessel weeks for catcher vessels in the BSAI and GOA, respectively, stratified by length class, area, gear, and target fishery. Tables 4.24 and 4.42 provide the same stratification of vessel weeks for catcher/processors in the BSAI and GOA, respectively. Vessel weeks are apportioned by catch volume in cases where a vessel is identified with activity in multiple gears, areas, and/or targets in a given week.

Catcher vessel crew weeks are sourced from ADF&G fish tickets/eLandings, which include data on the number of licensed crew working aboard vessels by month and area shown in Tables 4.25 and 4.43, in the BSAI and GOA, respectively. At-sea production reports provide that information for motherships and catcher/processors shown in Tables 4.26 and 4.44 for the BSAI and GOA, respectively. A single crew week represents one crew member aboard one vessel for a week. Crew weeks are apportioned by catch volume in cases where a vessel is identified with activity in multiple areas in a given week. These data do not include employment levels in the shoreside and inshore processing sectors.

2.2.5 Description of the Category ''Other" in Data Tables

The category 'Other' has different meanings in different tables, as described below.

- Table 4.7: ''Other" includes lingcod, non-crab shellfish (mussel, clam, scallop, shrimp), and various freshwater and anadromous finfish species other than federally managed groundfish, salmon, halibut, and herring (e.g., whitefish, trout, Arctic char).
- Tables 4.11, 4.12, 4.28, 4.29 and 4.30: "Other flatfish'' in the BSAI include Alaska Plaice and species within the BSAI other flatfish management complex, including starry flounder and dover, rex, butter, English, petrale, and sand sole.
- Table 4.5: "Other salmon'' are non-Chinook salmon species (sockeye, coho, pink, chum). "Other King crab'' are blue, golden (brown), and scarlet king crab species. "Other Tanner crab'' are snow, grooved, and triangle Tanner crab species.
- Table 4.14, 4.16: "Other flatfish'' in the BSAI include Alaska Plaice and species within the BSAI other flatfish management complex (starry flounder and dover, rex, butter, english, petrale, and sand sole)
- Tables 4.16, 4.17, 4.18, 4.34, 4.35, 4.36: "Other fillets'' for pollock include fillets with skin and ribs; fillets with skin, no ribs; fillets with ribs, no skin; and skinless/boneless fillets. "Flat Other'' includes BSAI Alaska Plaice and species within the BSAI other flatfish management complex (starry flounder and dover, rex, butter, english, petrale, and sand sole).
- Tables 4.19, 4.37: "Other'' species are primarily skate, squid, octopus, shark, and sculpin.

2.2.6 Additional Notes

- Confidential values are excluded from the computation of aggregates (e.g. sums and averages) within a table. This is particularly important to remember for highly stratified tables, such as Tables 4.13, 4.14, 4.16, 4.18, 4.31, 4.32, 4.34, and 4.36. Care should be taken when comparing totals from tables containing values suppressed for confidentiality. In general, preference should be given to aggregate numbers from less stratified tables.
- Within the data tables, numbers that are smaller than the level of precision used within the table are printed as '0'. For example, if a table uses the one decimal place level of precision, then an actual value of '0.01' is presented in the table as '0'.
- The Personal Consumption Expenditures: chain-type price index (https://research.stlouisfed.org/fred2/series/PCEPI) was used to deflate the ex-vessel estimates reported in Table 4.6. The PCE is used to adjust fishermen's ex-vessel revenues to account for the change in general US consumption expenditures. The GDP: chain-type price index https://research.stlouisfed.org/fred2/series/GDPCTPI) was used to deflate the first wholesale value estimates reported in Table 4.7. The GDP price index is used to adjust to fishermen's wholesale production revenues to account for the change in general US production prices. The use of these indices began in 2014. Before 2014 this annual report used the Producer Price Index (PPI) for unprocessed and packaged fish for real adjustments (http://data.bls.gov/cgi-bin/srgate.) using the series ID 'WPU0223').

- Estimates of U.S. imports and per-capita consumption of various fisheries products, previously published in Tables 54-56 of this report, are available in Fisheries of the United States (FUS), published annually by the NMFS Office of Science \& Technology. The most recent FUS is available at: https://www.fisheries.noaa.gov/national/sustainable-fisheries/fisheries-united-states
- Foreign exchange rates, which we've previously published in Tables 59
- Observer coverage costs: In previous years, Table 51 provided estimates of the numbers of vessels and plants with observers, the numbers of observer-deployment days, and observer costs by year and type of operation. In 2013, the restructured observer program was implemented and more detailed treatment of observer cost estimates can be found in the Observer Annual Report at: http://alaskafisheries.noaa.gov/fisheries/observer-program-reports

2.2.7 Request for Feedback

The data and estimates in this report are intended both to provide information that can be used to describe the Alaska groundfish fisheries and to provide the industry and others an opportunity to comment on the validity of these estimates. We hope that industry representatives and others will identify any data or estimates in this report that can be improved and provide the information and methods necessary to improve them for both past and future years. There are two reasons why it is important that such improvements be made. First, with better estimates, the report will be more useful in monitoring the economic performance of the fisheries and in identifying changes in economic performance that may be attributable to regulatory actions. Second, the estimates in this report often will be used as the basis for estimating the effects of proposed fishery management actions. Therefore, improved estimates in this report will allow more informed decisions by those involved in managing and conducting the Alaska groundfish fisheries. The industry and other stakeholders in these fisheries can further improve the usefulness of this report by suggesting other measures of economic performance that should be included in the report, or other ways of summarizing the data that are the basis for this report, and participating in voluntary survey efforts NMFS may undertake in the future to improve existing data shortages. Please contact Michael D Smith at [michael.d.smith@noaa.gov] with any comments or suggestions to improve the Economic SAFE.

2.2.8 Citations

Abbott, J.K., B. Garber-Yonts and J.E. Wilen. 2010. "Employment and Remuneration Effects of IFQs in the Bering Sea/Aleutian Islands Crab Fisheries.'' Marine Resource Economics 25(4): 333-354.

Abbott, J., A. Haynie, and M. Reimer. 2015. "Hidden Flexibility: Institutions, Incentives and the Margins of Selectivity in Fishing.'' Land Economics 91 (1): 169-195.

Cahalan, J., J. Gasper, and J. Mondragon. 2014. Catch sampling and estimation in the federal groundfish fisheries off Alaska, 2015 edition. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-286, 46 p. Available at: http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-286.pdf

Fell, H. and A. Haynie. 2011. "Estimating Time-varying Bargaining Power: A Fishery Application.'' Economic Inquiry 49(3): 685-696.

Fell, H. and A. Haynie. 2012. "Spatial Competition with Changing Market Institutions.'' Journal of Applied Econometrics, DOI: 10.1002/jae.2272.

Felthoven, R.G. 2002. "Effects of the American Fisheries Act on capacity, utilization and technical efficiency.'' Marine Resouces Economics 17(3): 181-206.

Fissel, B., M. Dalton, B. Garber-Yonts, A. Haynie, S. Kasperski, J. Lee, D. Lew, C. Seung, K. Sparks, M. Szymkowiak, and S. Wise. 2021. "Stock Assessment and Fishery Evaluation Report for the Groundfish Fisheries of the Gulf of Alaska and Bering Sea/Aleutian Island Area: Economic Status of the Groundfish Fisheries off Alaska, 2020'', NPFMC, November, 2021. https://www.fisheries.noaa.gov/alaska/ecosystems/economic-status-reports-gulf-alaska-and-bering-sea-aleutian-islands

Gordon, H.S. 1954. "The Economic Theory of a Common-Property Resource: The Fishery.'' The Journal of Political Economy 62(2): 124-142.

Holland, D. 2000. "Fencing the Commons: Regulatory Barbed Wire in the Alaskan Groundfish Fisheries.'' Marine Resource Economics 15(2): 141-149.

Homans, F., and J. Wilen. 2005. "Markets and rent dissipation in regulated open access fisheries.'' Journal of Environmental Economics and Management, 49: 381-404. National Marine Fisheries Service, 2020. Fisheries of the United States, 2021. https://www.fisheries.noaa.gov/national/sustainable-fisheries/fisheries-united-states#current-report

Scott, A.. 1955. "The fishery: the objectives of sole ownership.'' Journal of Political Economy 63(2): 116-124.

Torres, M. and R. Felthoven. 2014. "Productivity growth and product choice in catch share fisheries: The case of Alaska pollock.'' Marine Policy, 50: 280-289.

Williams, G.H. 2015. Recommendations for Pacic halibut discard mortality rates in the 2016-2018 groundfish fisheries off Alaska. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015: 381-397. Available at: http://www.iphc.int/publications/rara/2015/RARA2015_21DMR.pdf Wilen, J.E., E. Richardson. 2008 "Rent generation in the alaskan pollock conservation cooperative.'' FAO Fisheries Technical Paper, 361.

2.2.9 Acknowledgements

ESSRP wishes to thank the Alaska Fisheries Information Network (AKFIN) for database programming and data management services to support production of the Economic SAFE. Other parties who provided assistance or feedback in the assembly of this report or earlier versions include: Terry Hiatt, Ren Narita, Camille Kohler, Mike Fey (AKFIN); Jennifer Mondragon (NMFS Alaska Region Office, Sustainable Fisheries Division), Mary Furuness (NMFS Alaska Region Office, Sustainable Fisheries Division).

Chapter 3

Figures Reporting Economic Data of the Groundfish Fisheries Off Alaska

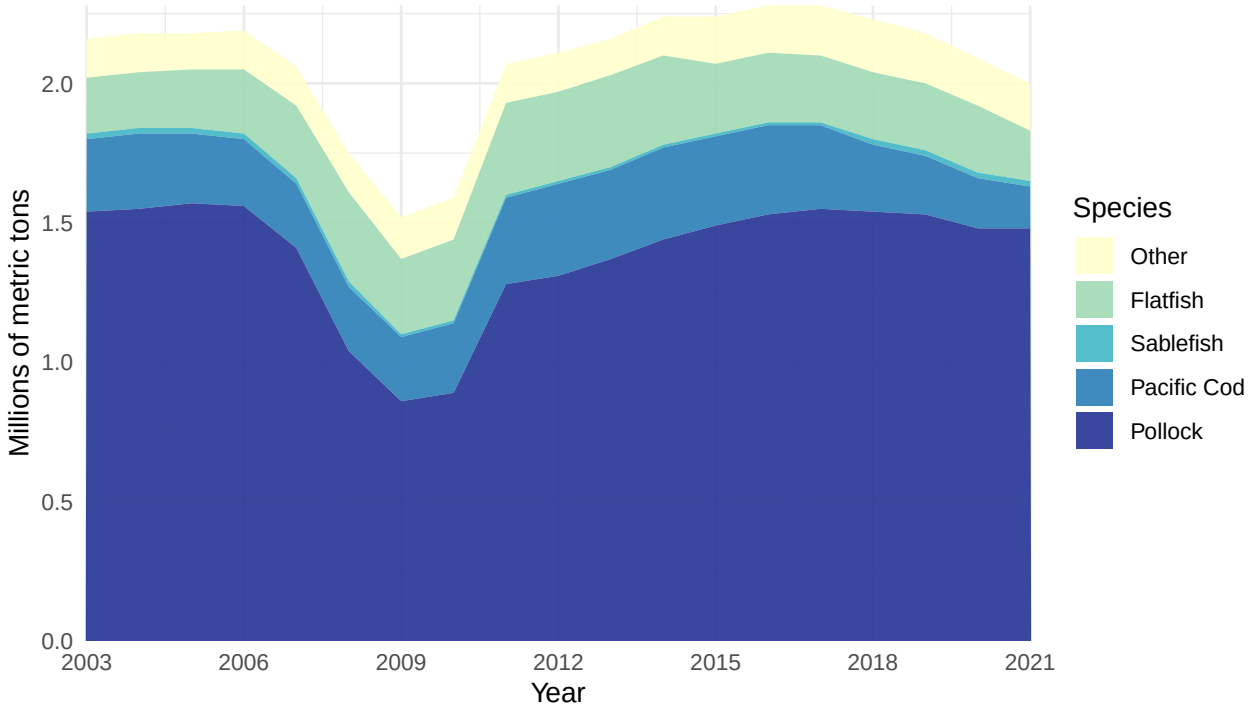

Figure 3.1: Groundfish catch in the commercial fisheries off Alaska by species

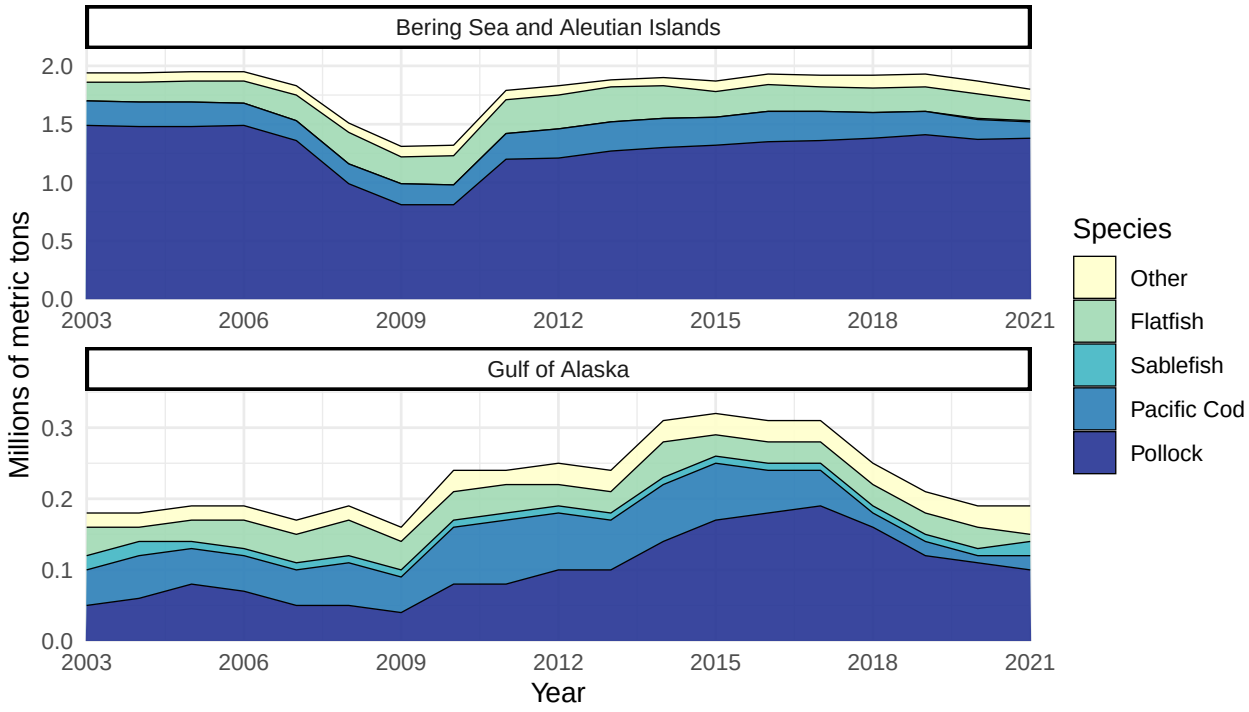

Figure 3.2: Groundfish catch in the commercial fisheries off Alaska by species

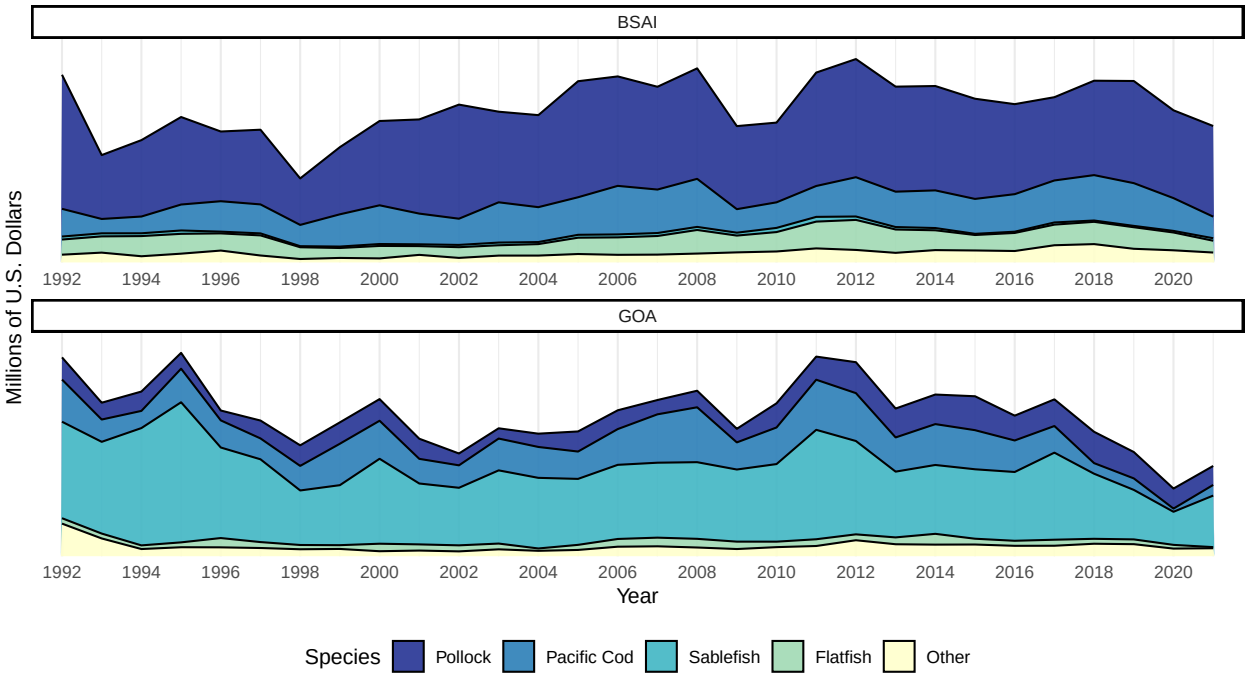

Figure 3.3: Real ex-vessel value of the groundfish catch in the commercial fisheries off Alaska by species, 1992- 2021 (base year = 2021)

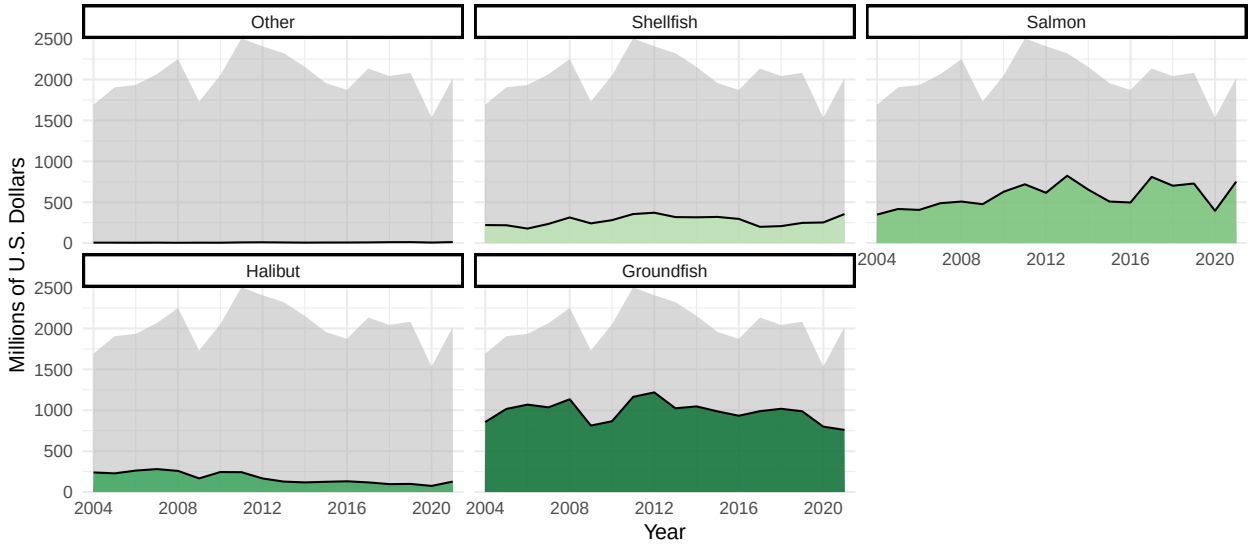

Figure 3.4: Real ex-vessel value of the domestic fish and shellfish catch off Alaska by species group, 2003- 2021 (base year = 2021)

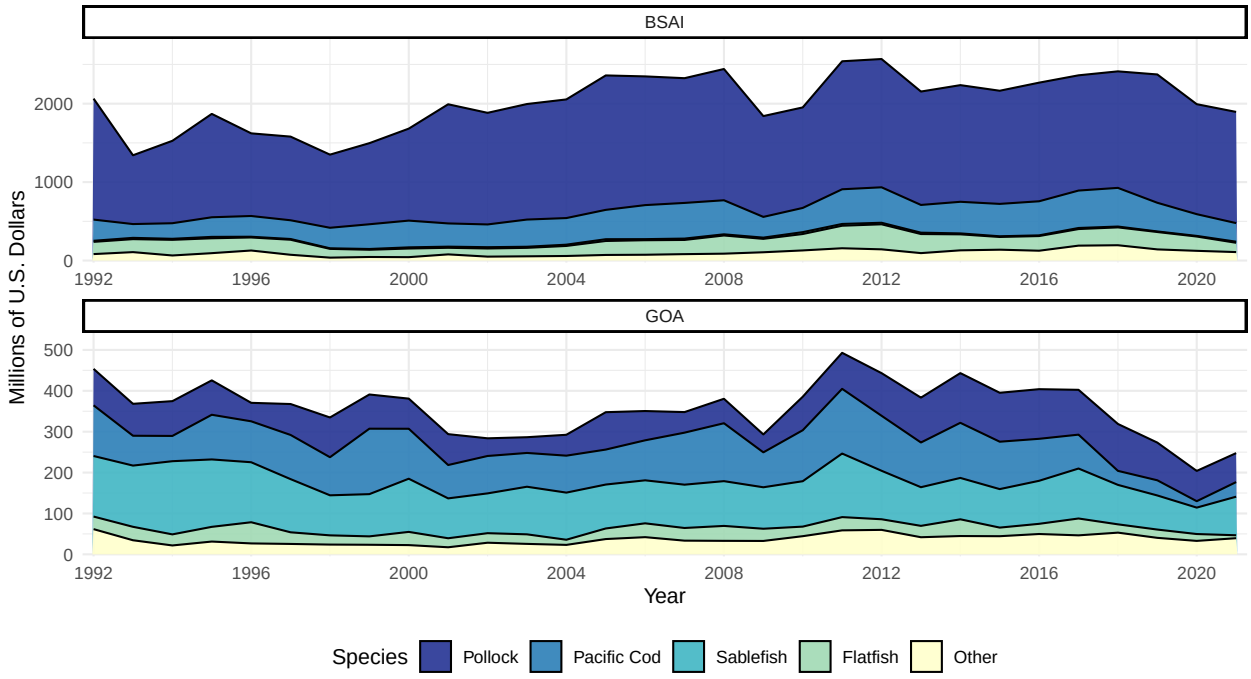

Figure 3.5: Real gross product value of the groundfish catch off Alaska by species, 1992- 2021 (base year = 2021)

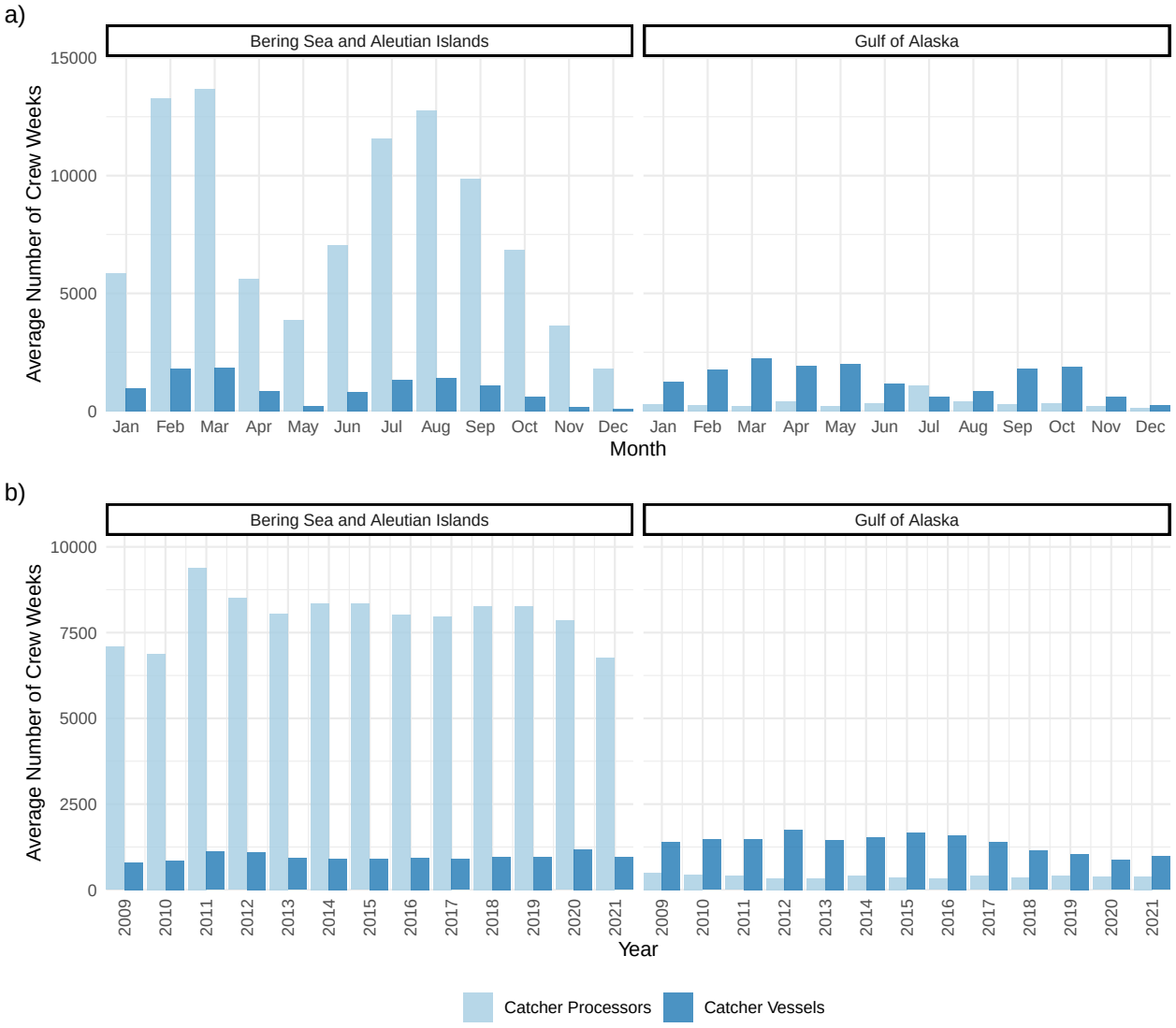

Figure 3.6: a) Average number of crew weeks in both BSAI and GOA by month for Catcher Processors and Catcher Vessels, 2009- 2021 , b) by year, 2009- 2021

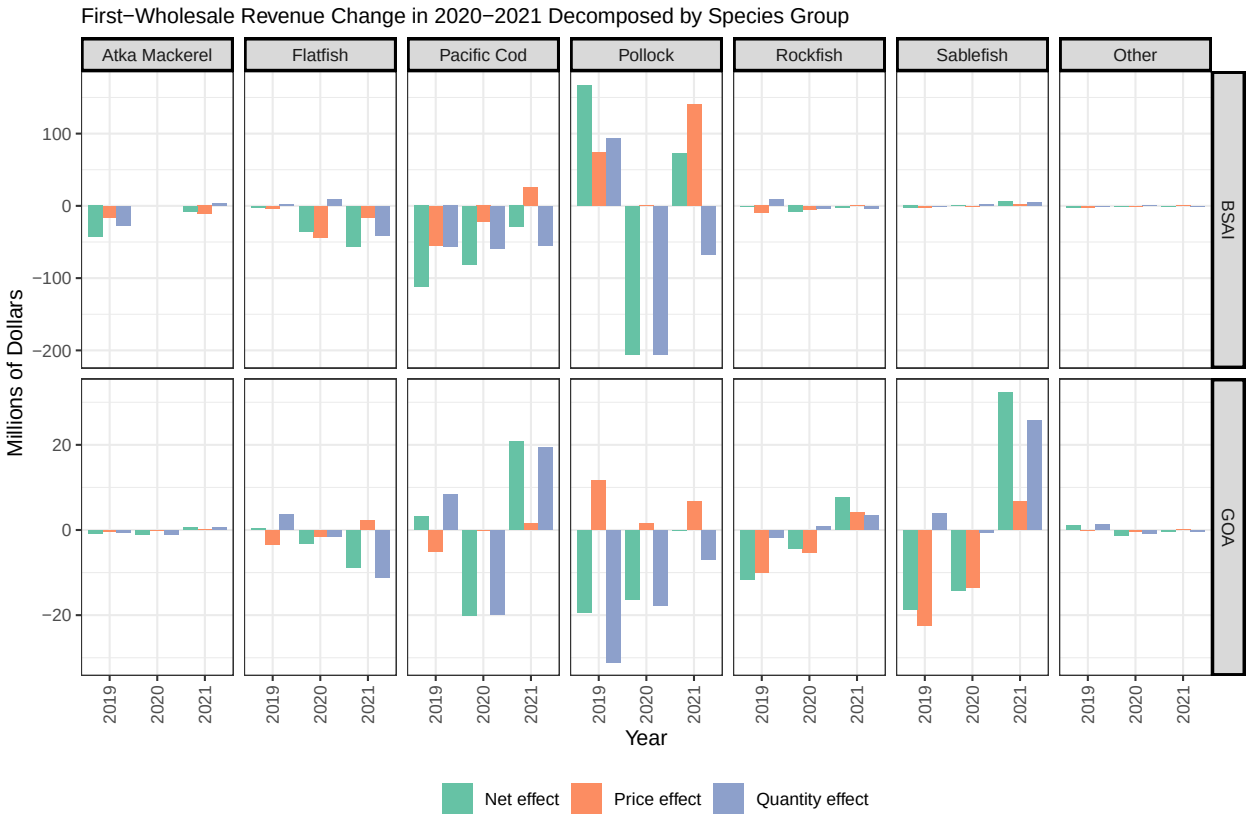

Figure 3.7: Decomposition of the change in first-wholesale revenues from 2018-2021 by species.

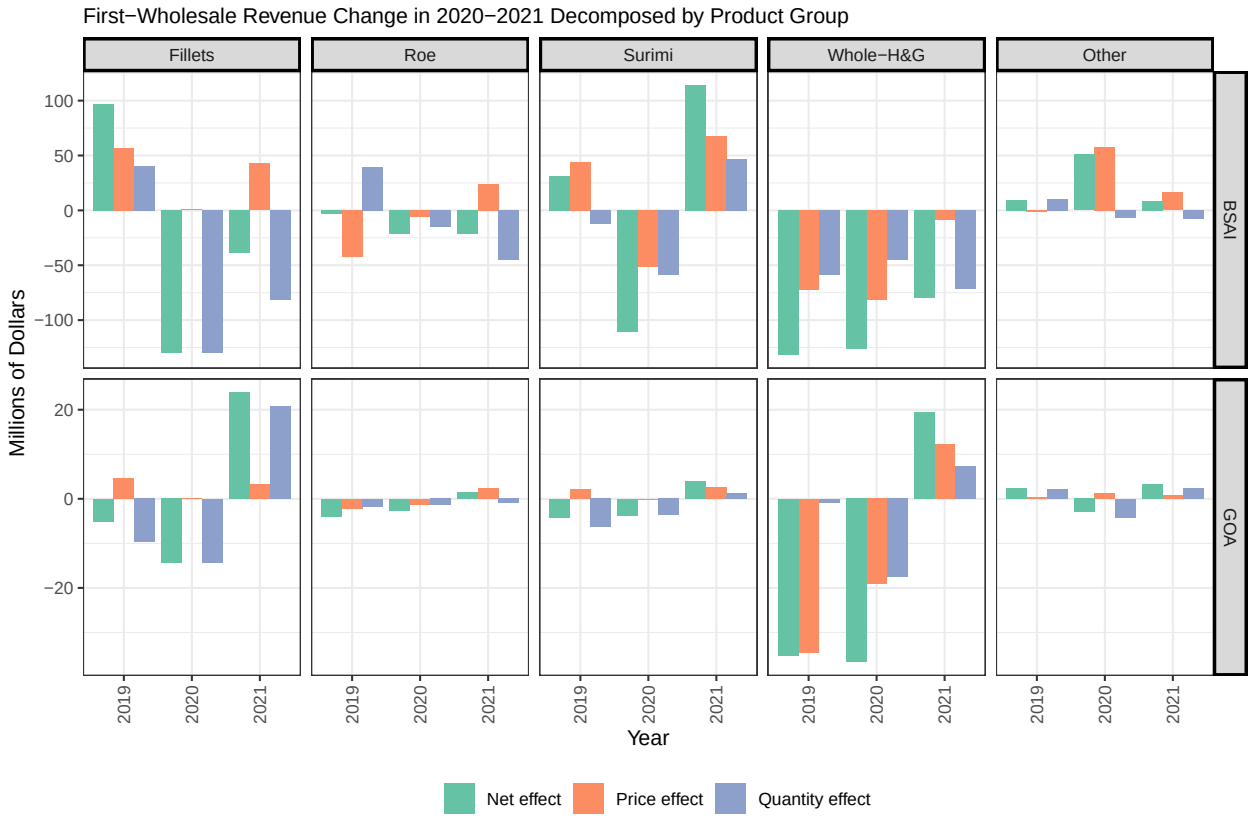

Figure 3.8: Decomposition of the change in first-wholesale revenues from 2018-2021 by product

Chapter 4

Tables Reporting Economic Data of the Groundfish Fisheries Off Alaska

4.1 Alaska Economic Data Tables

Table 4.1: Groundfish catch in the commercial fisheries off Alaska by area and species, 2012-2021 (1,000 metric tons, round weight).

		Pollock	Sablefish	Pacific Cod	Flatfish	Rockfish	Atka Mackerel	Total
Bering Sea And Aleutian Islands	2012	1,206.3	1.9	250.8	291.6	28.1	47.8	1,858.1
	2013	1,273.8	1.7	250.3	297.7	35.0	23.2	1,915.1
	2014	1,300.2	1.1	249.3	276.6	36.1	31.0	1,929.0
	2015	1,323.2	0.6	242.0	219.7	39.7	53.3	1,914.7
	2016	1,354.9	0.9	260.9	225.5	36.8	54.5	1,969.4
	2017	1,360.9	1.7	253.0	211.4	38.1	64.4	1,968.9
	2018	1,381.2	2.2	220.3	212.2	41.7	70.4	1,966.2
	2019	1,411.0	3.8	198.0	208.6	54.3	57.5	1,959.5
	2020	1,370.4	6.6	169.9	214.1	50.8	58.9	1,896.0
	2021	1,378.1	5.7	135.7	169.2	43.7	61.4	1,814.4
Gulf Of Alaska	2012	104.0	12.7	77.9	29.8	27.5	1.2	259.3
	2013	96.4	12.8	68.6	34.3	25.0	1.3	250.6
	2014	142.6	11.1	84.9	48.0	29.0	1.0	326.8
	2015	167.5	11.0	79.5	27.1	29.1	1.2	324.9
	2016	177.1	10.0	64.1	28.3	34.1	1.1	324.4
	2017	186.2	11.3	48.7	33.6	31.9	1.1	321.5
	2018	158.1	13.0	15.2	25.9	34.3	1.4	255.7
	2019	120.2	13.7	15.7	32.0	34.3	1.3	224.2
	2020	107.5	13.4	6.8	28.9	32.3	0.6	194.4
	2021	101.2	16.5	19.2	13.0	36.9	0.9	192.8
All Alaska	2012	1,310.2	14.7	328.8	321.4	55.6	49.0	2,117.4
	2013	1,370.1	14.5	318.9	332.0	59.9	24.5	2,165.8
	2014	1,442.9	12.2	334.3	324.6	65.1	32.0	2,255.8
	2015	1,490.8	11.7	321.5	246.8	68.8	54.5	2,239.6
	2016	1,532.1	10.9	324.9	253.9	70.9	55.6	2,293.8
	2017	1,547.0	13.0	301.8	245.0	70.0	65.5	2,290.5
	2018	1,539.2	15.2	235.4	238.2	76.0	71.8	2,221.9
	2019	1,531.3	17.5	213.8	240.7	88.7	58.7	2,183.7
	2020	1,477.9	20.0	176.8	243.0	83.1	59.5	2,090.4
	2021	1,479.3	22.2	154.9	182.2	80.6	62.3	2,007.2

Note The estimates are of total catch (i.e., retained and discarded catch).These estimates include catch from both federal and state of Alaska fisheries. As such, totals may be slightly larger than retained catch estimates provided in later tables.
Source NMFS Office of Science and Technology, Fisheries Statistics Division, Fisheries of the United States. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.2: Groundfish retained catch off Alaska by area, sector, and species, 2017-2021 (1,000 metric tons, round weight).

		Bering Sea and Aleutian Islands			Gulf of Alaska			All Alaska		
	Year	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total
Pollock	2017	710.38	642.24	1,352.63	183.26	1.07	184.33	893.65	643.31	1,536.96
	2018	718.33	651.43	1,369.77	155.28	0.60	155.88	873.61	652.04	1,525.65
	2019	735.60	666.24	1,401.84	118.56	0.33	118.89	854.16	666.57	1,520.73
	2020	725.04	633.32	1,358.36	106.29	0.34	106.63	831.32	633.66	1,464.99
	2021	718.18	645.69	1,363.87	98.47	1.03	99.50	816.65	646.72	1,463.37
Sablefish	2017	0.70	0.76	1.46	9.05	1.01	10.07	9.76	1.77	11.53
	2018	0.83	0.94	1.77	9.51	1.00	10.51	10.34	1.95	12.28
	2019	1.56	0.61	2.17	9.78	1.06	10.85	11.34	1.67	13.01
	2020	1.66	1.09	2.75	10.41	0.91	11.32	12.07	2.01	14.08
	2021	2.01	1.43	3.44	13.87	1.42	15.29	15.88	2.85	18.73
Pacific Cod	2017	87.97	162.10	250.07	41.87	6.10	47.97	129.84	168.20	298.04
	2018	82.48	135.53	218.01	12.66	1.75	14.40	95.14	137.28	232.41
	2019	77.53	118.40	195.93	12.90	1.55	14.45	90.42	119.95	210.38
	2020	68.34	99.05	167.39	4.77	0.07	4.84	73.11	99.12	172.23
	2021	52.64	79.40	132.04	15.97	0.17	16.14	68.61	79.57	148.19
Flatfish	2017	21.15	177.56	198.71	14.52	14.79	29.31	35.67	192.36	228.02
	2018	16.56	180.90	197.47	17.71	4.89	22.60	34.27	185.80	220.07
	2019	23.58	174.63	198.22	21.32	6.84	28.16	44.90	181.47	226.38
	2020	23.86	179.66	203.52	19.06	5.31	24.36	42.91	184.97	227.88
	2021	10.68	150.31	160.99	1.06	7.47	8.53	11.74	157.78	169.52
Rockfish	2017	2.53	32.97	35.50	11.31	15.60	26.90	13.83	48.56	62.40
	2018	3.51	35.28	38.79	14.69	16.69	31.38	18.20	51.97	70.17
	2019	4.89	44.98	49.87	14.90	15.87	30.78	19.79	60.86	80.65
	2020	5.31	40.70	46.01	15.52	14.76	30.28	20.83	55.46	76.29
	2021	2.31	38.31	40.62	17.80	17.54	35.34	20.11	55.85	75.96
Atka Mackerel	2017	4.57	59.48	64.05	0.13	0.52	0.65	4.70	60.00	64.71
	2018	5.65	63.86	69.51	0.18	1.10	1.28	5.83	64.96	70.78
	2019	3.25	53.59	56.85	0.11	0.79	0.90	3.36	54.39	57.75
	2020	5.63	52.49	58.13	*	0.51	0.51	5.63	53.00	58.64
	2021	3.73	56.85	60.59	0.0	0.59	0.59	3.74	57.44	61.18

Table 4.2: Groundfish retained catch off Alaska by area, sector, and species, 2017-2021 (1,000 metric tons, round weight). *(continued)*

		Bering Sea and Aleutian Islands			Gulf of Alaska			All Alaska		
	Year	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total
All Groundfish	2017	828.42	1,084.49	1,912.90	261.14	39.37	300.51	1,089.56	1,123.86	2,213.42
	2018	829.18	1,079.96	1,909.14	210.96	26.14	237.10	1,040.14	1,106.10	2,146.24
	2019	847.09	1,067.59	1,914.68	178.71	26.53	205.24	1,025.79	1,094.12	2,119.91
	2020	830.45	1,014.75	1,845.21	156.87	21.90	178.77	987.32	1,036.66	2,023.98
	2021	789.97	980.49	1,770.45	147.40	28.22	175.62	937.36	1,008.71	1,946.07

Note The estimates are of retained catch (i.e., excludes discarded catch). All groundfish include additional species categories. These estimates include only catch counted against federal TACs. Includes FMP groundfish catch on halibut targets. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.3: Groundfish ex-vessel value off Alaska by area, sector, and species,2017-2021 ($ millions).

		Bering Sea and Aleutian Islands			Gulf of Alaska			All Alaska		
	Year	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total
Pollock	2017	206.12	146.76	352.89	35.04	0.20	35.24	241.16	146.97	388.13
	2018	237.12	171.12	408.24	42.03	0.16	42.20	279.16	171.28	450.44
	2019	260.48	187.79	448.26	36.01	0.09	36.10	296.49	187.88	484.36
	2020	234.48	155.65	390.14	27.63	0.09	27.72	262.11	155.74	417.85
	2021	243.23	175.07	418.30	26.96	0.28	27.24	270.19	175.35	445.54
Sablefish	2017	5.83	3.23	9.06	105.98	9.02	115.00	111.81	12.25	124.06
	2018	3.08	2.65	5.73	81.44	6.30	87.74	84.53	8.95	93.47
	2019	4.44	1.38	5.81	61.84	5.46	67.30	66.27	6.84	73.11
	2020	2.65	2.41	5.07	43.34	2.45	45.79	45.99	4.86	50.86
	2021	7.51	3.91	11.42	69.20	5.03	74.22	76.71	8.94	85.64
Pacific Cod	2017	60.43	117.53	177.96	30.86	4.34	35.20	91.29	121.87	213.15
	2018	71.53	124.69	196.22	12.49	1.67	14.16	84.02	126.36	210.38
	2019	69.87	117.71	187.58	14.10	1.57	15.67	83.97	119.29	203.25
	2020	57.43	88.41	145.85	4.17	0.06	4.22	61.60	88.47	150.07
	2021	42.43	57.16	99.59	13.74	0.14	13.88	56.16	57.31	113.47
Flatfish	2017	9.34	77.86	87.20	3.79	3.86	7.65	13.13	81.72	94.85
	2018	8.07	88.21	96.28	4.94	1.37	6.31	13.01	89.58	102.59
	2019	11.28	83.31	94.59	4.65	1.49	6.15	15.94	84.80	100.74
	2020	9.26	69.63	78.90	3.62	1.01	4.63	12.89	70.64	83.53
	2021	3.60	50.75	54.36	0.16	1.14	1.30	3.76	51.89	55.66
Rockfish	2017	1.23	15.63	16.85	5.65	6.28	11.93	6.88	21.90	28.78
	2018	1.67	16.51	18.18	7.60	7.08	14.68	9.27	23.59	32.86
	2019	1.73	15.85	17.58	7.56	6.86	14.42	9.30	22.71	32.00
	2020	1.71	13.07	14.78	5.25	4.19	9.44	6.96	17.26	24.22
	2021	0.76	12.58	13.35	5.68	4.99	10.67	6.44	17.58	24.02
Atka Mackerel	2017	3.59	46.66	50.25	0.11	0.45	0.56	3.70	47.10	50.80
	2018	4.33	48.94	53.27	0.14	0.86	1.00	4.47	49.80	54.27
	2019	2.03	33.46	35.49	0.07	0.51	0.58	2.10	33.97	36.07
	2020	3.18	29.67	32.86	-0.01	0.30	0.30	3.18	29.98	33.16
	2021	1.82	27.67	29.49	0.00	0.39	0.40	1.82	28.07	29.89

Table 4.3: Groundfish ex-vessel value off Alaska by area, sector, and species,2017-2021 ($ millions). *(continued)*

		Bering Sea and Aleutian Islands			Gulf of Alaska			All Alaska		
	Year	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total
All Groundfish	2017	286.94	412.91	699.85	182.45	24.41	206.86	469.39	437.32	906.71
	2018	326.46	459.03	785.49	149.56	17.54	167.10	476.02	476.57	952.59
	2019	350.02	446.05	796.07	125.39	16.04	141.43	475.41	462.09	937.50
	2020	308.88	364.84	673.72	84.81	8.10	92.90	393.69	372.94	766.63
	2021	299.41	329.88	629.29	115.93	11.97	127.90	415.34	341.85	757.19

Note Ex-vessel value is calculated by multiplying ex-vessel prices (Tables 4.13 and 4.31) by the retained round weight catch. The value added by at-sea processing is not included in these estimates of ex-vessel value. All groundfish includes additional species categories.Values are not adjusted for inflation."*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.4: Discards and discard rates for groundfish catch off Alaska by gear, and species, 2017-2021 (1,000 metric tons, round weight).

		Fixed		Trawl		All Gear	
	Year	Total Discards	Discard Rate	Total Discards	Discard Rate	Total Discards	Discard Rate
Pollock	2017	0.8	11.0	9.2	1.0	10.0	1.0
	2018	0.6	10.0	12.8	1.0	13.4	1.0
	2019	0.7	11.0	9.7	1.0	10.4	1.0
	2020	0.5	11.0	12.1	1.0	12.6	1.0
	2021	0.5	15.0	14.9	1.0	15.4	1.0
Sablefish	2017	0.8	7.0	0.6	27.0	1.4	11.0
	2018	1.0	8.0	1.9	51.0	2.9	19.0
	2019	1.7	14.0	2.7	52.0	4.4	25.0
	2020	1.1	9.0	4.1	56.0	5.2	26.0
	2021	1.1	6.0	2.3	48.0	3.4	15.0
Pacific Cod	2017	2.8	1.0	0.9	1.0	3.6	1.0
	2018	2.2	1.0	0.7	1.0	2.9	1.0
	2019	2.0	1.0	1.2	2.0	3.3	2.0
	2020	1.9	2.0	2.3	4.0	4.2	2.0
	2021	2.0	2.0	2.8	6.0	4.8	3.0
Flatfish	2017	3.6	72.0	11.9	5.0	15.5	6.0
	2018	3.5	83.0	13.3	6.0	16.9	7.0
	2019	2.7	76.0	9.6	4.0	12.3	5.0
	2020	2.0	80.0	9.7	4.0	11.8	5.0
	2021	1.9	97.0	8.1	5.0	10.0	6.0
Rockfish	2017	1.1	51.0	6.3	9.0	7.4	11.0
	2018	1.2	53.0	4.5	6.0	5.8	8.0
	2019	1.1	51.0	6.5	8.0	7.6	9.0
	2020	0.7	47.0	5.7	7.0	6.5	8.0
	2021	0.6	46.0	3.9	5.0	4.5	6.0
Atka Mackerel	2017	0.0	70.0	0.7	1.0	0.8	1.0
	2018	0.0	79.0	0.7	1.0	0.7	1.0
	2019	0.0	68.0	0.7	1.0	0.7	1.0
	2020	0.0	49.0	0.8	1.0	0.8	1.0
	2021	0.1	98.0	0.8	1.0	0.8	1.0
All Groundfish	2017	37.4	13.0	37.6	2.0	75.1	3.0
	2018	32.4	14.0	41.2	2.0	73.6	3.0
	2019	21.8	10.0	38.7	2.0	60.6	3.0
	2020	19.8	11.0	41.5	2.0	61.3	3.0
	2021	18.3	11.0	37.1	2.0	55.4	3.0

Note All groundfish and all gear may include additional species or gear types.Discards rates are calculated as 100xdiscards/(total catch). See the seventh bullet in Section 2.2.6 for an explanation of 0 discards with positive discard rates. For details on discard estimation see Cahalan, J., J. Gasper, and J. Mondragon. 2014. Catch sampling and estimation in the federal groundfish fisheries off Alaska, 2015 edition. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-286, 46 p.
Source NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.5: Prohibited species catch (PSC) by species, area and gear, 2017-2021 (metric tons (t) or number in 1,000s).

	Gear	Year	Halibut (t)	Herring (t)	Chinook (1,000s)	Other salmon (1,000s)	Red King Crab (1,000s)	Other King Crab (1,000s)	Bairdi (1,000s)	Other tanner (1,000s)
Bering Sea And Aleutian Islands	Fixed	2017	193.00	0.00	0.03	0.21	39.78	75.37	371.99	182.54
		2018	133.00	0.00	0.07	0.18	350.52	48.06	275.49	77.38
		2019	88.00	0.00	0.02	0.33	47.26	12.16	128.39	98.06
		2020	94.00	0.00	0.02	0.13	23.26	10.60	90.65	163.65
		2021	109.00	0.00	0.02	0.05	296.84	55.13	42.93	88.49
	Trawl	2017	1,771.00	1,021.00	36.25	471.25	60.42	10.59	353.01	159.68
		2018	1,944.00	541.00	17.33	308.84	30.74	16.03	183.85	1,582.43
		2019	2,266.00	1,182.00	31.44	358.48	70.14	33.95	344.00	941.30
		2020	1,577.00	3,934.00	34.96	346.25	64.59	13.82	598.06	780.57
		2021	1,427.00	1,878.00	15.88	550.65	40.73	17.09	588.47	247.22
	All Gear	2017	1,964.00	1,021.00	36.28	471.45	100.20	85.95	725.00	342.22
		2018	2,076.00	541.00	17.40	309.02	381.26	64.10	459.34	1,659.81
		2019	2,354.00	1,182.00	31.47	358.81	117.39	46.11	472.39	1,039.35
		2020	1,671.00	3,934.00	34.98	346.38	87.86	24.42	688.72	944.22
		2021	1,535.00	1,878.00	15.89	550.70	337.57	72.22	631.40	335.71
Gulf Of Alaska	Fixed	2017	15.00	-	0.06	0.07	0.0	0.09	4.14	0.01
		2018	1.00	-	0.08	0.09	0.0	0.10	18.51	0.0
		2019	1.00	-	0.0	0.26	0.0	0.20	29.94	-
		2020	*	-	-	0.11	-	0.10	0.11	0.01
		2021	12.00	-	-	0.15	0.01	0.11	30.38	-
	Trawl	2017	1,214.00	6.00	24.93	5.67	-	0.24	122.82	-
		2018	1,192.00	45.00	17.00	9.15	-	0.32	235.73	-
		2019	1,099.00	81.00	23.90	6.41	-	0.36	245.17	-
		2020	788.00	67.00	11.75	3.32	*	0.06	623.01	-
		2021	367.00	19.00	17.18	3.57	*	0.12	15.37	-
	All Gear	2017	1,229.00	6.00	25.00	5.74	0.0	0.34	126.96	0.01
		2018	1,193.00	45.00	17.08	9.24	0.0	0.42	254.24	0.0
		2019	1,101.00	81.00	23.90	6.67	0.0	0.55	275.12	-
		2020	788.00	67.00	11.75	3.44	*	0.17	623.12	0.01
		2021	379.00	19.00	17.18	3.72	0.01	0.22	45.75	-

Note These estimates include only catches counted against federal TACs. Totals may include additional categories. Totals include halibut mortality taken by Amendment 80 vessels under the Exempted Fishing Permit No. 2015-02. The estimates of halibut bycatch mortality are based on the IPHC discard mortality rates that were used for in-season management. The halibut IFQ program allows retention of halibut in the hook-and-line groundfish fisheries, making true halibut bycatch numbers unavailable for these fisheries. This is particularly a problem in the GOA for all hook-and-line fisheries and in the BSAI for the sablefish hook-and-line fishery. Therefore, estimates of halibut bycatch mortality are not included in this table for those fisheries. There were substantial changes to the observer program in 2013 that could affect the comparability of 2013 and later years, to previous years. Excludes PSC on halibut targets. Excludes PSC in state fisheries (sablefish and P. cod targets in state waters). For details on prohibited species catch estimation see Cahalan, J., J. Gasper, and J. Mondragon. 2014. Catch sampling and estimation in the federal groundfish fisheries off Alaska, 2015 edition. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-286, 46 p. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.6: Catch and real ex-vessel value of the commercial fisheries off Alaska by species group and area, 2017-2021; calculations based on COAR (1,000 metric tons and $ millions, base year = 2021).

		Bering Sea and Aleutian Islands		Gulf of Alaska		All Alaska	
Year		Quantity	Value	Quantity	Value	Quantity	Value
2017	Groundfish	1,913.36	$ 762.61	301.90	$ 225.91	2,215.26	$ 988.52
	Salmon	115.41	$ 335.96	330.03	$ 473.94	445.44	$ 809.89
	Halibut	1.65	$ 20.89	7.02	$ 97.27	8.67	$ 118.16
	Herring	17.60	$ 2.61	13.25	$ 6.07	30.85	$ 8.68
	Shellfish	16.04	$ 175.75	2.75	$ 23.81	18.78	$ 199.56
	Other	-	-	1.00	$ 8.86	1.00	$ 8.86
	All Species	2,064.05	$ 1,297.80	655.95	$ 835.86	2,720.00	$ 2,133.66
2018	Groundfish	1,909.44	$ 838.67	238.83	$ 179.14	2,148.27	$ 1,017.81
	Salmon	116.17	$ 418.14	133.79	$ 283.67	249.97	$ 701.81
	Halibut	1.59	$ 16.48	6.73	$ 80.47	8.32	$ 96.94
	Herring	16.84	$ 2.44	3.70	$ 4.39	20.54	$ 6.82
	Shellfish	14.58	$ 172.15	4.64	$ 35.75	19.22	$ 207.90
	Other	-	-	1.40	$ 11.71	1.40	$ 11.71
	All Species	2,058.63	$ 1,447.88	389.08	$ 595.13	2,447.71	$ 2,043.00
2019	Groundfish	1,914.84	$ 837.32	207.70	$ 150.06	2,122.54	$ 987.38
	Salmon	116.70	$ 394.42	256.69	$ 334.44	373.38	$ 728.86
	Halibut	1.72	$ 16.10	6.97	$ 83.70	8.68	$ 99.80
	Herring	22.31	$ 2.41	0.94	$ 3.00	23.25	$ 5.41
	Shellfish	17.69	$ 203.66	5.84	$ 43.86	23.54	$ 247.52
	Other	-	-	1.48	$ 12.53	1.48	$ 12.53
	All Species	2,073.26	$ 1,453.91	479.62	$ 627.60	2,552.88	$ 2,081.50
2020	Groundfish	1,846.55	$ 702.21	182.21	$ 97.45	2,028.76	$ 799.66
	Salmon	98.93	$ 240.63	122.88	$ 154.71	221.81	$ 395.33
	Halibut	1.53	$ 13.53	6.26	$ 61.51	7.79	$ 75.04
	Herring	3.01	$ 0.51	1.79	$ 3.42	4.80	$ 3.93
	Shellfish	19.50	$ 214.70	6.92	$ 38.14	26.42	$ 252.85
	Other	-	-	1.25	$ 7.08	1.25	$ 7.08
	All Species	1,969.52	$ 1,171.58	321.30	$ 362.31	2,290.82	$ 1,533.88
2021	Groundfish	1,770.98	$ 629.58	179.89	$ 129.99	1,950.87	$ 759.57
	Salmon	99.89	$ 374.81	265.79	$ 377.10	365.69	$ 751.92
	Halibut	1.36	$ 17.68	7.67	$ 110.51	9.02	$ 128.20
	Herring	10.58	$ 1.46	17.70	$ 6.65	28.28	$ 8.11
	Shellfish	23.59	$ 301.33	5.04	$ 53.85	28.62	$ 355.18
	Other	-	-	1.39	$ 13.34	1.39	$ 13.34
	All Species	1,906.40	$ 1,324.86	477.48	$ 691.45	2,383.88	$ 2,016.31

Note These estimates include the value of catch from both federal and state of Alaska fisheries. The data have been adjusted to 2021 dollars by applying the Personal Consumption Expenditure Index at https://research.stlouisfed.org/fred2/series/PCEPI to account for affects of inflation on fishermen's revenue.
Source NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; ADF&G Commercial Operators Annual Reports (COAR); and NMFS Office of Science and Technology, Fisheries Statistics Division, Fisheries of the United States. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.7: Production and real gross value of groundish and non-groundish products in the commercial fisheries of Alaska by species group and area of processing,2017-2021(1,000 metric tons product weight and $ millions, base year = 2021).

		Bering Sea and Aleutian Islands		Gulf of Alaska		All Alaska	
		Quantity	Value	Quantity	Value	Quantity	Value
2017	Groundfish	823.7	$ 2,361.3	136.8	$ 402.5	960.5	$ 2,763.8
	Salmon	74.6	$ 668.2	258.0	$ 1,408.4	332.7	$ 2,076.6
	Halibut	1.2	$ 24.8	6.3	$ 125.3	7.5	$ 150.0
	Herring	16.9	$ 16.1	14.2	$ 14.7	31.1	$ 30.7
	Crab	11.4	$ 244.8	1.7	$ 32.1	13.2	$ 276.8
	Other	-	-	2.1	$ 35.4	2.1	$ 35.4
	All Species	927.8	$ 3,315.1	419.1	$ 2,018.3	1,347.0	$ 5,333.4
2018	Groundfish	823.2	$ 2,411.7	113.5	$ 318.9	936.7	$ 2,730.6
	Salmon	79.8	$ 798.4	133.1	$ 881.8	212.9	$ 1,680.2
	Halibut	0.9	$ 16.6	5.6	$ 102.1	6.5	$ 118.7
	Herring	12.7	$ 11.4	3.7	$ 9.0	16.4	$ 20.4
	Crab	9.6	$ 186.3	2.7	$ 56.7	12.2	$ 242.9
	Other	-	-	1.5	$ 20.1	1.5	$ 20.1
	All Species	926.1	$ 3,424.4	260.2	$ 1,388.6	1,186.3	$ 4,813.0
2019	Groundfish	831.4	$ 2,372.4	100.5	$ 273.3	931.9	$ 2,645.7
	Salmon	83.5	$ 772.2	205.2	$ 1,056.8	288.7	$ 1,829.0
	Halibut	1.1	$ 14.8	6.0	$ 99.9	7.1	$ 114.7
	Herring	19.2	$ 17.2	0.9	$ 4.9	20.2	$ 22.0
	Crab	12.8	$ 246.4	3.2	$ 66.0	16.0	$ 312.4
	Other	0.0	$ 0.1	1.6	$ 25.4	1.6	$ 25.5
	All Species	948.1	$ 3,423.1	317.4	$ 1,526.3	1,265.5	$ 4,949.3
2020	Groundfish	753.0	$ 1,993.4	82.9	$ 204.1	835.8	$ 2,197.5
	Salmon	60.5	$ 545.0	104.0	$ 711.9	164.5	$ 1,256.9
	Halibut	1.2	$ 13.4	4.4	$ 73.8	5.6	$ 87.2
	Herring	0.5	$ 0.6	4.1	$ 8.1	4.6	$ 8.7
	Crab	14.0	$ 235.0	4.0	$ 71.0	18.0	$ 306.0
	Other	-	-	1.1	$ 14.3	1.1	$ 14.3
	All Species	829.1	$ 2,787.4	200.4	$ 1,083.1	1,029.5	$ 3,870.5
2021	Groundfish	692.0	$ 1,894.9	73.3	$ 247.6	765.3	$ 2,142.4
	Salmon	64.8	$ 655.9	204.7	$ 1,260.9	269.6	$ 1,916.9
	Halibut	1.1	$ 18.3	6.4	$ 134.5	7.5	$ 152.8
	Herring	8.2	$ 10.4	22.6	$ 26.9	30.9	$ 37.3
	Crab	16.3	$ 363.2	3.7	$ 104.0	20.0	$ 467.1
	Other	-	-	1.0	$ 21.2	1.0	$ 21.2
	All Species	782.4	$ 2,942.6	311.7	$ 1,795.1	1,094.2	$ 4,737.7

Note These estimates include the value of catch from both federal and state of Alaska fisheries. The data have been adjusted to 2021 dollars by applying the Personal Consumption Expenditure Index at https://research.stlouisfed.org/fred2/series/PCEPI to account for affects of inflation on fishermen's revenue.
Source NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; ADF&G Commercial Operators Annual Reports (COAR); and NMFS Office of Science and Technology, Fisheries Statistics Division, Fisheries of the United States. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.8: Percentage of ex-vessel value of the groundfish catch of Alaska by area, residency, and species, 2017-2021; calculations based on COAR.

		Bering Sea and Aleutian Islands		Gulf of Alaska		All Alaska	
	Year	Alaska	Other	Alaska	Other	Alaska	Other
Pollock	2017	5 %	95 %	48 %	52 %	9 %	91 %
	2018	6 %	94 %	46 %	54 %	10 %	90 %
	2019	8 %	92 %	48 %	52 %	11 %	89 %
	2020	4 %	96 %	52 %	48 %	7 %	93 %
	2021	8 %	92 %	50 %	50 %	11 %	89 %
Sablefish	2017	38 %	62 %	61 %	39 %	59 %	41 %
	2018	27 %	73 %	61 %	39 %	60 %	40 %
	2019	36 %	64 %	61 %	39 %	60 %	40 %
	2020	29 %	71 %	65 %	35 %	61 %	39 %
	2021	58 %	42 %	62 %	38 %	61 %	39 %
Pacific Cod	2017	24 %	76 %	71 %	29 %	31 %	69 %
	2018	23 %	77 %	70 %	30 %	26 %	74 %
	2019	27 %	73 %	71 %	29 %	30 %	70 %
	2020	28 %	72 %	84 %	16 %	29 %	71 %
	2021	28 %	72 %	73 %	27 %	34 %	66 %
Flatfish	2017	20 %	80 %	37 %	63 %	22 %	78 %
	2018	22 %	78 %	56 %	44 %	24 %	76 %
	2019	23 %	77 %	59 %	41 %	26 %	74 %
	2020	22 %	78 %	59 %	41 %	25 %	75 %
	2021	21 %	79 %	27 %	73 %	22 %	78 %
Rockfish	2017	22 %	78 %	40 %	60 %	29 %	71 %
	2018	21 %	79 %	38 %	62 %	28 %	72 %
	2019	22 %	78 %	37 %	63 %	29 %	71 %
	2020	22 %	78 %	43 %	57 %	30 %	70 %
	2021	23 %	77 %	44 %	56 %	32 %	68 %
Atka Mackerel	2017	27 %	73 %	29 %	71 %	27 %	73 %
	2018	27 %	73 %	17 %	83 %	26 %	74 %
	2019	27 %	73 %	14 %	86 %	27 %	73 %
	2020	27 %	73 %	14 %	86 %	27 %	73 %
	2021	26 %	74 %	6 %	94 %	25 %	75 %
All Groundfish	2017	14 %	86 %	58 %	42 %	24 %	76 %
	2018	14 %	86 %	56 %	44 %	22 %	78 %
	2019	16 %	84 %	56 %	44 %	22 %	78 %
	2020	13 %	87 %	59 %	41 %	19 %	81 %
	2021	14 %	86 %	58 %	42 %	22 %	78 %

Note These estimates include only catches counted against federal TACs. Ex-vessel value is calculate using prices from Tables 4.13 and 4.31. Please refer to Tables 4.13 and 4.31 for a description of the price derivation. Catch delivered to motherships is classified by the residency of the owner of the mothership. All other catch is classified by the residence of the owner of the fishing vessel. All groundfish include additional species categories. For catch for which the residence is unknown, there are either no data or the data have been suppressed to preserve confidentiality. Values are not adjusted for inflation.
Source NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; ADF&G Commercial Operators Annual Reports (COAR); and NMFS Office of Science and Technology, Fisheries Statistics Division, Fisheries of the United States. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.9: Number of vessels that caught groundfish of Alaska by area, vessel category, gear, and target,2017-2021.

		Bering Sea and Aleutian Islands			Gulf of Alaska			All Alaska		
	Year	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total
Pollock	2017	87	31	118	65	-	65	133	31	164
	2018	85	27	112	69	2	71	133	28	161
	2019	84	30	114	62	-	62	125	30	155
	2020	88	29	117	60	1	61	131	29	160
	2021	86	32	118	57	2	59	126	33	159
Sablefish	2017	15	7	22	268	5	273	275	9	284
	2018	17	9	26	274	6	280	283	13	296
	2019	13	5	18	249	6	255	255	10	265
	2020	13	7	20	247	5	252	252	10	262
	2021	20	4	24	245	5	250	258	8	266
Pacific Cod	2017	128	45	173	238	9	247	331	45	376
	2018	144	49	193	149	3	152	265	50	315
	2019	149	47	196	173	3	176	301	47	348
	2020	151	38	189	100	-	100	246	38	284
	2021	115	31	146	184	2	186	277	31	308
Flatfish	2017	8	27	35	19	4	23	27	28	55
	2018	9	26	35	34	4	38	42	27	69
	2019	9	26	35	30	4	34	39	27	66
	2020	8	25	33	22	5	27	30	26	56
	2021	7	21	28	4	4	8	11	22	33
Rockfish	2017	3	16	19	127	11	138	130	19	149
	2018	4	21	25	110	9	119	114	24	138
	2019	5	22	27	105	9	114	110	24	134
	2020	6	18	24	90	8	98	96	22	118
	2021	4	21	25	74	7	81	78	23	101
Atka Mackerel	2017	4	12	16	-	1	1	4	13	17
	2018	4	14	18	1	2	3	5	16	21
	2019	4	14	18	-	-	-	4	14	18
	2020	3	13	16	-	-	-	3	13	16
	2021	4	14	18	-	-	-	4	14	18

Table 4.9: Number of vessels that caught groundfish of Alaska by area, vessel category, gear, and target,2017-2021. *(continued)*

		Bering Sea and Aleutian Islands			Gulf of Alaska			All Alaska		
	Year	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total
All Targets	2017	182	68	250	522	22	544	644	70	714
	2018	196	66	262	467	16	483	588	68	656
	2019	195	65	260	468	19	487	594	67	661
	2020	206	59	265	414	14	428	556	61	617
	2021	171	55	226	432	14	446	543	57	600

Note The target is determined based on vessel, week, catching mode, NMFS area, and gear. These estimates include only vessels that fished part of federal TACs. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; ADF&G Commercial Operators Annual Reports (COAR); and NMFS Office of Science and Technology, Fisheries Statistics Division, Fisheries of the United States. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

4.2 Bering Sea & Aleutian Island Economic Data Tables

Table 4.10: Bering Sea and Aleutian Islands groundfish retained catch by vessel type, gear and species, 2020-2021 (1,000 metric tons, round weight).

		Catcher Vessels				Catcher Processors				Total			
	Year	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear
Pollock	2017	-	-	710.4	710.4	-	-	635.9	642.2	-	-	1,346.2	1,352.6
	2018	-	-	718.3	718.3	-	-	646.2	651.4	-	-	1,364.5	1,369.8
	2019	-	-	735.6	735.6	-	-	660.6	666.2	-	-	1,396.2	1,401.8
	2020	-	-	725.0	725.0	-	-	629.0	633.3	-	-	1,354.0	1,358.4
	2021	-	-	718.2	718.2	-	-	642.6	645.7	-	-	1,360.8	1,363.9
Pacific Cod	2017	0.1	43.2	44.7	88.0	124.3	5.8	31.9	162.1	124.4	49.0	76.7	250.0
	2018	0.9	42.2	39.3	82.5	100.9	4.3	30.3	135.5	101.8	46.5	69.6	217.9
	2019	1.2	43.1	33.3	77.5	88.6	4.2	25.6	118.3	89.8	47.3	58.8	195.8
	2020	1.0	35.8	31.6	68.3	73.6	3.4	22.1	99.0	74.5	39.2	53.6	167.4
	2021	0.2	30.5	21.9	52.6	58.9	2.3	18.1	79.4	59.1	32.8	40.1	132.0
Sablefish	2017	0.2	*	0.1	0.2	0.1	*	0.5	0.5	0.2	*	0.5	0.8
	2018	0.2	0.3	0.3	0.8	0.1	*	0.6	0.7	0.3	0.3	0.9	1.5
	2019	0.2	0.5	0.8	1.6	0.0	*	0.4	0.4	0.2	0.5	1.2	2.0
	2020	0.1	0.0	1.6	1.7	0.0	*	0.7	0.7	0.1	0.0	2.2	2.3
	2021	0.1	1.4	0.4	1.9	0.0	*	0.8	0.9	0.2	1.4	1.3	2.8
Atka Mackerel	2017	-	-	4.4	4.4	-	-	59.4	59.4	-	-	63.8	63.8
	2018	-	-	5.6	5.7	-	-	63.8	63.9	-	-	69.5	69.5
	2019	-	-	3.3	3.3	-	-	53.6	53.6	-	-	56.8	56.8
	2020	-	-	5.6	5.6	-	-	52.5	52.5	-	-	58.1	58.1
	2021	-	-	3.7	3.7	-	-	56.9	56.9	-	-	60.6	60.6
Yellowfin	2017	-	-	15.2	15.2	0.1	-	113.3	113.4	0.1	-	128.6	128.6
	2018	-	-	12.2	12.3	0.2	-	114.9	115.0	0.2	-	127.1	127.3
	2019	-	-	17.3	17.3	0.0	-	108.8	108.8	0.0	-	126.1	126.1
	2020	-	-	16.1	16.1	*	-	115.6	115.6	*	-	131.6	131.6
	2021	-	-	8.0	8.0	*	-	98.7	98.7	*	-	106.7	106.7
Rock Sole	2018	*	-	1.6	1.6	0.0	-	25.6	25.6	0.0	-	27.1	27.1
	2019	*	-	2.4	2.4	0.0	-	22.0	22.0	0.0	-	24.4	24.4
	2017	-	-	3.1	3.1	0.0	-	30.8	30.8	0.0	-	33.9	33.9
	2020	-	-	2.6	2.6	*	-	22.0	22.0	*	-	24.7	24.7
	2021	-	-	0.6	0.6	*	-	12.8	12.8	*	-	13.4	13.4
Flathead Sole	2019	*	-	0.8	0.8	0.0	-	14.1	14.1	0.0	-	14.9	14.9
	2017	-	-	0.6	0.6	0.0	-	7.5	7.5	0.0	-	8.1	8.1
	2018	-	-	0.8	0.8	*	-	9.4	9.4	*	-	10.2	10.2
	2020	-	-	1.0	1.1	0.0	-	7.2	7.2	0.0	-	8.3	8.3
	2021	-	-	0.7	0.7	0.0	-	8.7	8.8	0.0	-	9.5	9.5

Table 4.10: Bering Sea and Aleutian Islands groundfish retained catch by vessel type, gear and species, 2020-2021 (1,000 metric tons, round weight). *(continued)*

		Catcher Vessels				Catcher Processors				Total			
	Year	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear
Arrowtooth	2017	*	-	0.1	0.1	0.3	-	5.2	5.5	0.3	-	5.4	5.7
	2018	0.0	-	0.2	0.2	0.2	-	5.6	5.7	0.2	-	5.8	6.0
	2020	*	-	0.3	0.3	0.1	-	9.4	9.5	0.1	-	9.7	9.8
	2021	*	-	0.2	0.2	0.0	-	7.7	7.8	0.0	-	8.0	8.0
	2019	-	-	0.6	0.6	0.2	-	8.3	8.5	0.2	-	8.9	9.1
	2020	*	-	0.2	0.2	0.0	-	6.9	7.0	0.0	-	7.2	7.2
Kamchatka Flounder	2017	-	-	0.1	0.1	0.0	-	4.1	4.1	0.0	-	4.2	4.2
	2018	-	-	0.0	0.0	0.0	-	2.8	2.9	0.0	-	2.9	2.9
	2019	-	-	0.1	0.1	0.0	-	4.1	4.1	0.0	-	4.2	4.2
	2021	-	-	0.0	0.0	0.0	-	6.4	6.4	0.0	-	6.4	6.4
	2019	*	-	0.0	0.0	0.5	-	2.2	2.8	0.5	-	2.3	2.8
	2020	*	-	0.0	0.0	0.3	-	1.9	2.1	0.3	-	1.9	2.1
Turbot	2021	*	-	0.0	0.0	0.0	-	1.5	1.5	0.0	-	1.5	1.5
	2017	-	-	0.0	0.0	0.9	-	1.8	2.7	0.9	-	1.8	2.7
	2018	-	-	0.0	0.0	0.3	-	1.5	1.7	0.3	-	1.5	1.7
	2020	*	-	3.5	3.5	0.0	-	16.2	16.2	0.0	-	19.7	19.7
	2017	-	-	2.0	2.0	*	-	13.4	13.4	*	-	15.4	15.4
Other Flatfish	2018	-	-	1.7	1.7	*	-	20.5	20.5	*	-	22.2	22.2
	2019	-	-	2.4	2.4	0.0	-	14.3	14.3	0.0	-	16.7	16.7
	2021	-	-	1.1	1.1	*	-	14.4	14.4	*	-	15.4	15.4
	2018	*	-	3.0	3.0	0.0	-	29.4	29.4	0.0	-	32.4	32.4
	2019	*	-	4.4	4.4	0.0	-	35.4	35.4	0.0	-	39.8	39.8
Pacific Ocean Perch	2020	*	-	4.4	4.4	*	-	33.1	33.1	*	-	37.5	37.5
	2017	-	-	2.3	2.3	0.0	-	28.0	28.0	0.0	-	30.3	30.3
	2021	-	-	2.1	2.1	*	-	31.6	31.6	*	-	33.7	33.7
	2018	*	-	0.4	0.4	0.0	-	4.8	4.9	0.0	-	5.2	5.2
	2021	*	-	0.2	0.2	*	-	5.5	5.5	*	-	5.6	5.6
Northern Rockfish	2017	-	-	0.2	0.2	0.0	-	4.2	4.2	0.0	-	4.4	4.4
	2019	-	-	0.4	0.4	*	-	8.2	8.2	*	-	8.6	8.6
	2020	-	-	0.8	0.8	0.0	-	6.5	6.5	0.0	-	7.3	7.3
	2017	0.0	-	0.0	0.1	0.0	-	0.7	0.8	0.1	-	0.8	0.8
	2018	0.0	-	0.1	0.1	0.0	-	1.0	1.0	0.1	-	1.0	1.1
Other Rockfish	2019	0.0	-	0.1	0.1	0.0	-	1.3	1.3	0.0	-	1.3	1.4
	2020	0.0	-	0.1	0.1	0.0	-	1.1	1.1	0.0	-	1.1	1.2
	2021	0.0	-	0.0	0.0	0.0	-	1.2	1.2	0.0	-	1.2	1.3

Table 4.10: Bering Sea and Aleutian Islands groundfish retained catch by vessel type, gear and species, 2020-2021 (1,000 metric tons, round weight). *(continued)*

		Catcher Vessels				Catcher Processors				Total			
	Year	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear
Other Groundfish	2017	*	-	1.0	1.1	7.7	-	1.7	9.4	7.7	-	2.7	10.5
	2018	0.0	-	1.6	1.8	9.5	-	2.5	12.0	9.5	-	4.2	13.8
	2019	0.0	-	0.5	0.7	6.3	-	2.7	9.1	6.4	-	3.2	9.7
	2020	0.0	-	0.5	0.6	6.6	-	1.9	8.4	6.6	-	2.3	9.1
	2021	0.0	-	0.4	0.4	6.2	-	2.2	8.5	6.2	-	2.6	8.9
All Groundfish	2017	0.3	-	784.2	827.8	139.8	-	938.4	1,084.0	140.0	-	1,722.7	1,911.8
	2018	1.2	-	785.2	829.2	116.3	-	959.0	1,079.6	117.5	-	1,744.2	1,908.7
	2019	1.4	-	801.9	847.1	101.4	-	961.5	1,067.1	102.8	-	1,763.5	1,914.2
	2020	1.1	-	793.4	830.4	85.0	-	925.9	1,014.3	86.1	-	1,719.3	1,844.7
	2021	0.3	-	757.6	789.9	68.3	-	909.2	979.9	68.7	-	1,666.9	1,769.8

Note The estimates are of retained catch (i.e., excludes discarded catch). All groundfish include additional species categories. These estimates include only catch counted against federal TACs. Includes FMP groundfish catch on halibut targets. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; ADF&G Commercial Operators Annual Reports (COAR); and NMFS Office of Science and Technology, Fisheries Statistics Division, Fisheries of the United States. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.11: Bering Sea & Aleutian Islands groundfish retained catch by vessel type, gear and species, Catcher Vessels 2020-2021 (1,000 metric tons, round weight).

Gear		Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Kamchatka Flounder	Flathead Sole	Rock Sole	Turbot	Yellowfin	Flat Other	Rockfish	Atka Mackerel	Other	All Species
Hook And Line	*2020*	Sablefish	-	*	-	-	-	-	-	-	-	-	*	-	-	*
		Pacific Cod	*	*	0.9	*	-	-	-	-	-	*	*	-	*	0.9
		All Targets	*	0.1	1.0	*	*	-	-	*	-	*	0.0	-	0.0	1.1
	2021	Sablefish	-	*	-	-	-	-	-	-	-	-	*	-	*	*
		Pacific Cod	*	-	0.2	-	-	-	-	-	-	-	-	-	-	0.2
		All Targets	*	0.1	0.2	*	-	-	-	*	-	-	0.0	-	0.0	0.3
Pot	*2020*	Sablefish	-	*	*	*	-	-	-	*	-	-	*	-	-	*
		Pacific Cod	0.0	0.0	35.8	*	-	0.0	*	*	0.0	0.0	0.0	0.0	0.1	36.0
		Rockfish	-	-	-	-	-	-	-	-	-	-	*	-	-	*
		All Targets	0.0	0.0	35.8	*	-	0.0	*	*	0.0	0.0	0.0	0.0	0.1	36.0
	2021	Sablefish	-	1.4	*	*	-	-	-	-	-	-	*	-	-	1.4
		Pacific Cod	0.0	0.0	30.5	*	-	0.0	*	-	0.0	*	*	0.0	0.0	30.5
		All Targets	0.0	1.4	30.5	*	-	0.0	*	-	0.0	*	*	0.0	0.0	31.9
Trawl	*2020*	Pollock, Bottom	27.4	0.4	0.8	0.0	*	0.1	0.0	0.0	0.1	0.1	0.8	0.3	0.0	30.2
		Pollock, Pelagic	694.5	1.0	4.3	0.2	0.0	0.6	0.2	0.0	0.0	0.3	1.1	0.1	0.2	702.5
		Pacific Cod	0.3	0.0	23.7	0.0	*	0.0	0.1	*	0.1	0.0	*	*	0.0	24.3
		Flathead Sole	*	-	*	-	*	*	*	-	*	*	-	-	*	*
		Rock Sole	0.4	-	0.5	0.0	*	0.0	0.9	-	1.1	0.5	-	-	0.0	3.3
		Yellowfin	2.1	-	1.8	0.1	0.0	0.3	1.5	*	14.7	2.6	-	-	0.1	23.3
		Other Flatfish	*	-	*	-	-	*	*	-	*	*	-	-	*	*
		Rockfish	0.2	0.1	0.1	0.0	0.2	*	*	*	-	0.0	2.2	0.5	0.0	3.4
		Atka Mackerel	0.1	0.0	0.5	0.0	0.0	-	0.0	*	*	*	1.1	4.7	0.1	6.5
		All Targets	725.0	1.6	31.6	0.3	0.2	1.0	2.6	0.0	16.1	3.5	5.3	5.6	0.5	793.4
	2021	Pollock, Bottom	13.5	0.1	0.7	0.0	-	0.0	0.0	*	0.0	0.0	0.1	0.3	0.0	14.8
		Pollock, Pelagic	702.9	0.3	3.0	0.1	*	0.4	0.1	0.0	0.0	0.1	0.4	0.2	0.2	707.6
		Pacific Cod	0.3	*	17.0	0.0	-	0.0	0.0	-	0.0	0.0	0.0	*	0.0	17.4
		Flathead Sole	0.0	-	0.0	0.0	*	0.1	0.0	-	0.1	0.0	-	-	*	0.3
		Rock Sole	*	-	*	-	-	*	*	-	*	*	-	-	*	*
		Yellowfin	1.1	-	0.9	0.1	0.0	0.2	0.5	-	7.9	0.9	-	-	0.2	11.8
		Other Flatfish	*	-	*	-	-	-	*	-	*	*	-	-	*	*
		Rockfish	0.2	0.0	0.0	0.0	0.0	0.0	0.0	-	-	0.0	1.2	0.1	*	1.6
		Atka Mackerel	0.1	*	0.4	0.0	*	*	0.0	*	-	0.0	0.6	3.2	0.0	4.3
		All Targets	718.2	0.4	21.9	0.2	0.0	0.7	0.6	0.0	8.0	1.1	2.3	3.7	0.4	757.6
All Gear	*2020*	All Targets	725.0	1.7	68.3	0.3	0.2	1.1	2.6	0.0	16.1	3.5	5.3	5.6	0.6	830.4
	2021	All Targets	718.2	1.9	52.6	0.2	0.0	0.7	0.6	0.0	8.0	1.1	2.3	3.7	0.4	789.9

Note The estimates are of retained catch (i.e., excludes discarded catch). All groundfish include additional species categories. These estimates include only catch counted against federal TACs. Includes FMP groundfish catch on halibut targets. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.12: Bering Sea & Aleutian Islands groundfish retained catch by vessel type, gear and species, Catcher Processors 2020-2021 (1,000 metric tons, round weight).

Gear		Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Kamchatka Flounder	Flathead Sole	Rock Sole	Turbot	Yellowfin	Flat Other	Rockfish	Atka Mackerel	Other	All Species
Hook And Line	*2020*	Pollock, Bottom	*	-	*	-	-	-	-	-	-	-	-	-	-	*
		Sablefish	*	0.0	*	*	-	-	-	*	-	-	*	-	*	0.0
		Pacific Cod	4.3	*	73.6	0.1	0.0	0.0	*	0.1	*	0.0	0.0	0.0	6.6	84.7
		Turbot	*	*	*	*	*	-	-	0.2	-	-	0.0	-	*	0.2
		Rockfish	-	-	-	-	-	*	-	*	-	-	*	-	-	*
		Halibut	-	-	*	-	-	-	-	-	-	-	-	-	-	*
		All Targets	4.3	0.0	73.6	0.1	0.0	0.0	*	0.3	*	0.0	0.0	0.0	6.6	85.0
	2021	Pollock, Bottom	*	-	*	-	-	-	-	-	-	-	-	-	*	*
		Sablefish	*	*	*	*	-	-	-	*	-	-	*	-	*	*
		Pacific Cod	3.1	0.0	58.9	0.0	0.0	0.0	*	0.0	*	*	0.0	*	6.2	68.3
		Rockfish	*	*	*	-	-	-	-	*	-	-	*	-	*	*
		Halibut	-	-	*	-	-	-	-	-	-	-	-	-	-	*
		All Targets	3.1	0.0	58.9	0.0	0.0	0.0	*	0.0	*	*	0.0	*	6.2	68.3
Pot	*2020*	Sablefish	-	*	-	-	-	-	-	-	-	-	-	-	-	*
		Pacific Cod	*	*	3.4	-	-	-	-	-	-	-	-	-	*	3.4
		All Targets	*	*	3.4	-	-	-	-	-	-	-	-	-	*	3.4
	2021	Sablefish	-	*	-	-	-	-	-	-	-	-	-	-	-	*
		Pacific Cod	*	-	2.3	-	-	-	-	-	-	-	*	-	*	2.3
		All Targets	*	*	2.3	-	-	-	-	-	-	-	*	-	*	2.3
	2020	Pollock, Bottom	23.4	0.0	0.7	0.4	0.1	0.4	0.3	0.1	0.8	0.2	1.6	0.0	0.1	28.0
		Pollock, Pelagic	574.6	0.0	2.6	0.1	0.0	0.7	0.2	0.0	0.1	0.1	0.7	0.0	0.2	579.4
		Sablefish	0.0	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	-	0.1
		Pacific Cod	0.2	-	1.1	0.0	0.0	0.0	0.3	*	0.0	0.0	0.0	0.0	0.0	1.7
		Arrowtooth	0.6	0.1	0.2	3.9	1.0	0.5	0.0	0.2	0.1	0.3	0.4	0.0	0.1	7.5
		Kamchatka Flounder	0.6	0.4	0.0	1.6	4.7	0.1	0.0	0.8	*	0.1	1.1	*	0.0	9.3
		Rock Sole	4.4	*	4.1	0.1	0.0	0.3	11.7	*	9.0	1.9	0.0	-	0.1	31.7
		Turbot	0.1	0.0	0.0	0.1	0.3	0.2	0.0	0.5	*	0.0	0.0	-	0.0	1.4
		Yellowfin	21.9	0.0	10.1	1.8	0.1	3.0	9.0	0.0	104.7	12.7	*	-	0.9	164.3
		Other Flatfish	0.1	*	0.1	*	*	0.1	0.1	*	0.1	0.4	*	*	*	0.9
		Rockfish	1.6	0.1	0.8	0.5	0.5	0.1	0.0	0.1	0.0	0.1	27.1	7.9	0.1	38.8
		Atka Mackerel	0.4	0.0	1.7	0.2	0.2	0.0	0.0	*	*	0.0	9.8	44.5	0.2	57.0
		All Targets	629.0	0.7	22.1	9.4	6.9	7.2	22.0	1.9	115.6	16.2	40.7	52.5	1.9	925.9

Table 4.12: Bering Sea & Aleutian Islands groundfish retained catch by vessel type, gear and species, Catcher Processors 2020-2021 (1,000 metric tons, round weight). *(continued)*

Gear	Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Kamchatka Flounder	Flathead Sole	Rock Sole	Turbot	Yellowfin	Flat Other	Rockfish	Atka Mackerel	Other	All Species
Trawl	Pollock, Bottom	33.9	*	2.0	0.2	0.0	0.3	0.3	0.0	0.7	0.1	0.4	*	0.2	38.2
	Pollock, Pelagic	586.6	0.0	1.9	0.1	0.0	0.6	0.3	0.0	0.1	0.1	0.9	0.0	0.2	590.8
	Sablefish	*	*	-	*	*	*	*	*	*	*	*	-	*	*
	Pacific Cod	0.2	*	1.4	0.0	0.0	0.0	0.2	*	0.0	0.0	*	*	0.0	1.9
	Arrowtooth	0.6	0.1	0.2	2.9	0.5	0.5	0.0	0.2	*	0.3	0.3	0.0	0.1	5.8
	Kamchatka Flounder	0.4	0.3	0.0	1.2	4.7	*	*	0.5	-	0.0	0.9	0.1	0.0	8.1
2021	Rock Sole	1.5	-	1.3	0.2	0.0	0.1	4.3	-	4.3	1.4	*	-	0.1	13.1
	Turbot	0.0	*	0.0	0.1	0.1	0.1	*	0.3	-	0.1	0.1	*	*	0.8
	Yellowfin	15.2	-	7.7	1.2	0.1	2.7	7.1	0.0	91.2	9.9	0.0	*	1.3	136.2
	Other Flatfish	0.6	0.0	0.2	0.0	0.0	0.1	0.2	0.1	0.9	1.9	0.1	-	0.0	4.1
	Rockfish	1.7	0.2	0.9	0.5	0.5	0.1	0.0	0.1	0.0	0.1	24.7	6.7	0.1	35.5
	Atka Mackerel	0.3	0.1	1.5	0.2	0.2	0.0	0.0	0.1	*	0.0	10.7	50.1	0.2	63.4
	All Targets	642.6	0.8	18.1	7.7	6.4	8.7	12.8	1.5	98.7	14.4	38.3	56.9	2.2	909.2
All Gear	*2020* All Targets	633.3	0.7	99.0	9.5	7.0	7.2	22.0	2.1	115.6	16.2	40.7	52.5	8.4	1,014.3
	2021 All Targets	645.7	0.9	79.4	7.8	6.4	8.8	12.8	1.5	98.7	14.4	38.3	56.9	8.5	979.9

Note The estimates are of retained catch (i.e., excludes discarded catch). All groundfish include additional species categories. These estimates include only catch counted against federal TACs. Includes FMP groundfish catch on halibut targets. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.13: Bering Sea & Aleutian Islands ex-vessel prices in the groundfish fisheries by gear, and species, 2020-2021; calculations based on COAR ($/lb, round weight).

		Shoreside			At Sea			All Sectors		
	Year	Fixed	Trawl	All Gear	Fixed	Trawl	All Gear	Fixed	Trawl	All Gear
Pollock	2017	0.01	0.14	0.14	0.01	0.10	0.10	0.01	0.12	0.12
	2018	0.14	0.16	0.16	0.14	0.12	0.12	0.14	0.14	0.14
	2019	0.16	0.17	0.17	0.16	0.13	0.13	0.16	0.14	0.14
	2020	0.01	0.15	0.15	0.01	0.11	0.11	0.01	0.13	0.13
	2021	0.06	0.16	0.16	0.06	0.12	0.12	0.06	0.14	0.14
Pacific Cod	2017	0.33	0.29	0.32	0.34	0.28	0.33	0.34	0.29	0.32
	2018	0.41	0.38	0.40	0.44	0.35	0.41	0.43	0.36	0.41
	2019	0.44	0.37	0.42	0.48	0.35	0.44	0.47	0.36	0.43
	2020	0.42	0.35	0.39	0.43	0.31	0.40	0.43	0.32	0.40
	2021	0.39	0.34	0.37	0.34	0.30	0.32	0.35	0.32	0.34
Sablefish	2017	3.98	1.17	3.77	3.98	1.17	1.86	3.98	1.17	2.74
	2018	2.12	0.81	1.69	2.12	0.81	1.27	2.12	0.81	1.47
	2019	1.92	0.75	1.30	1.92	0.75	1.01	1.92	0.75	1.21
	2020	1.50	0.67	0.94	1.50	0.67	0.98	1.50	0.67	0.95
	2021	1.96	0.77	1.72	1.96	0.77	1.21	1.96	0.77	1.49
Atka Mackerel	2017	0.01	0.36	0.35	0.01	0.36	0.36	0.01	0.36	0.36
	2018	0.20	0.35	0.35	0.20	0.35	0.35	0.20	0.35	0.35
	2019	0.01	0.28	0.28	*	0.28	0.28	0.01	0.28	0.28
	2020	0.01	0.26	0.26	0.01	0.26	0.26	0.01	0.26	0.26
	2021	0.02	0.22	0.22	*	0.22	0.22	0.02	0.22	0.22
Yellowfin	2017	0.01	0.20	0.18	0.01	0.20	0.20	0.01	0.20	0.20
	2018	0.01	0.22	0.18	0.01	0.22	0.22	0.01	0.22	0.22
	2019	0.01	0.22	0.10	0.01	0.22	0.22	0.01	0.22	0.22
	2020	0.01	0.18	0.12	*	0.18	0.18	0.01	0.18	0.18
	2021	0.01	0.15	0.14	*	0.15	0.15	0.01	0.15	0.15
Rock Sole	2017	0.01	0.20	0.20	0.01	0.20	0.20	0.01	0.20	0.20
	2018	0.01	0.22	0.22	0.01	0.22	0.22	0.01	0.22	0.22
	2019	0.01	0.22	0.22	0.01	0.22	0.22	0.01	0.22	0.22
	2020	*	0.18	0.18	*	0.18	0.18	*	0.18	0.18
	2021	*	0.15	0.15	*	0.15	0.15	*	0.15	0.15

Table 4.13: Bering Sea & Aleutian Islands ex-vessel prices in the groundfish fisheries by gear, and species, 2020-2021; calculations based on COAR ($/lb, round weight). *(continued)*

		Shoreside			At Sea			All Sectors		
	Year	Fixed	Trawl	All Gear	Fixed	Trawl	All Gear	Fixed	Trawl	All Gear
Flathead Sole	2017	0.01	0.20	0.20	0.01	0.20	0.20	0.01	0.20	0.20
	2018	0.01	0.22	0.22	*	0.22	0.22	0.01	0.22	0.22
	2019	0.01	0.22	0.22	0.01	0.22	0.22	0.01	0.22	0.22
	2020	0.01	0.18	0.17	0.01	0.18	0.18	0.01	0.18	0.18
	2021	0.01	0.15	0.15	0.01	0.15	0.15	0.01	0.15	0.15
Turbot	2017	-	0.20	0.20	0.01	0.20	0.14	0.01	0.20	0.14
	2018	-	0.22	0.22	0.01	0.22	0.19	0.01	0.22	0.19
	2019	*	0.22	0.22	0.01	0.22	0.18	0.01	0.22	0.18
	2020	*	0.18	0.18	0.01	0.18	0.16	0.01	0.18	0.16
	2021	*	0.15	0.15	0.01	0.15	0.15	0.01	0.15	0.15
Arrowtooth	2017	*	0.20	0.20	0.01	0.20	0.19	0.01	0.20	0.19
	2018	0.01	0.22	0.22	0.01	0.22	0.22	0.01	0.22	0.22
	2019	*	0.22	0.22	0.01	0.22	0.21	0.01	0.22	0.21
	2020	0.01	0.18	0.17	0.01	0.18	0.17	0.01	0.18	0.17
	2021	0.01	0.15	0.15	0.01	0.15	0.15	0.01	0.15	0.15
Kamchatka Flounder	2018	-	*	*	0.01	0.22	0.22	0.01	0.22	0.22
	2019	-	*	*	0.01	0.22	0.22	0.01	0.22	0.22
	2020	*	*	*	0.01	0.18	0.18	0.01	0.18	0.18
	2017	-	-	-	0.01	0.20	0.20	0.01	0.20	0.20
	2021	-	-	-	0.01	0.15	0.15	0.01	0.15	0.15
Other Flatfish	2017	*	0.20	0.20	*	0.20	0.20	*	0.20	0.20
	2018	0.01	0.22	0.22	0.01	0.22	0.22	0.01	0.22	0.22
	2019	0.01	0.22	0.21	0.01	0.22	0.22	0.01	0.22	0.22
	2020	0.01	0.18	0.18	0.01	0.18	0.18	0.01	0.18	0.18
	2021	*	0.15	0.15	*	0.15	0.15	*	0.15	0.15
Pacific Ocean Perch	2017	*	0.21	0.21	1.00	0.21	0.21	1.00	0.21	0.21
	2018	*	0.21	0.21	0.77	0.21	0.21	0.77	0.21	0.21
	2019	0.74	0.16	0.16	0.74	0.16	0.16	0.74	0.16	0.16
	2020	*	0.15	0.15	*	0.15	0.15	*	0.15	0.15
	2021	*	0.15	0.15	*	0.15	0.15	*	0.15	0.15

Table 4.13: Bering Sea & Aleutian Islands ex-vessel prices in the groundfish fisheries by gear, and species, 2020-2021; calculations based on COAR ($/lb, round weight). *(continued)*

		Shoreside			At Sea			All Sectors		
	Year	Fixed	Trawl	All Gear	Fixed	Trawl	All Gear	Fixed	Trawl	All Gear
Northern Rockfish	2017	*	0.21	0.21	1.00	0.21	0.21	1.00	0.21	0.21
	2018	*	0.21	0.21	0.77	0.21	0.21	0.77	0.21	0.21
	2019	*	0.16	0.16	*	0.16	0.16	*	0.16	0.16
	2020	-	0.15	0.15	0.36	0.15	0.15	0.36	0.15	0.15
	2021	*	0.15	0.15	*	0.15	0.15	*	0.15	0.15
Other Rockfish	2017	1.00	0.21	0.83	1.00	0.21	0.27	1.00	0.21	0.29
	2018	0.77	0.21	0.61	0.77	0.21	0.23	0.77	0.21	0.24
	2019	0.74	0.16	0.41	0.74	0.16	0.17	0.74	0.16	0.18
	2020	0.36	0.15	0.23	0.36	0.15	0.15	0.36	0.15	0.15
	2021	0.38	0.15	0.32	0.38	0.15	0.15	0.38	0.15	0.16
Other Groundfish	2017	0.31	0.21	0.22	0.31	0.01	0.25	0.31	0.07	0.24
	2018	0.32	0.18	0.20	0.32	0.02	0.25	0.32	0.07	0.25
	2019	0.45	0.09	0.25	0.45	0.03	0.31	0.45	0.03	0.31
	2020	0.41	0.03	0.16	0.41	0.02	0.31	0.41	0.02	0.31
	2021	0.19	0.12	0.12	0.19	0.02	0.14	0.19	0.02	0.14

Note Prices are for catch from both federal and state of Alaska fisheries. The ex-vessel price is calculated as value of landings divided by estimated or actual round weight. Prices for catch processed by an at-sea processor without a COAR buying record (e.g., from catcher processors) are set using the prices for the matching species (group), region and gear-types for which buying records exist shoreside. Trawl-caught sablefish, rockfish and flatfish in the BSAI and trawl-caught Atka mackerel in both the BSAI and the GOA are not well represented in the COAR buying records. A price was calculated for these categories from product-report prices; the price in this case is the value of the first wholesale products divided by the calculated round weight and multiplied by a constant 0.4, a coarse estimate of the value added by processing based. The "All Alaska/All gear" column is the average weighted by retained catch. Values are not adjusted for inflation. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.14: Bering Sea & Aleutian Islands ex-vessel value of the groundfish catch by vessel category, gear, and species, 2017-2021; calculations based on COAR ($ millions).

		Catcher Vessels				Catcher Processor				All Sectors			
	Year	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear
Pollock	2017	-	-	205.54	205.54	-	-	147.13	147.35	-	-	352.68	352.89
	2018	-	-	236.67	236.67	-	-	169.89	171.57	-	-	406.56	408.24
	2019	-	-	259.81	259.81	-	-	186.50	188.45	-	-	446.31	448.27
	2020	-	-	233.70	233.70	-	-	156.30	156.44	-	-	390.00	390.14
	2021	-	-	242.79	242.79	-	-	175.11	175.53	-	-	417.90	418.32
Pacific Cod	2017	0.08	31.63	22.28	53.98	93.25	4.38	26.36	123.99	93.33	36.01	48.64	177.98
	2018	0.84	38.16	26.00	65.00	97.20	4.12	29.90	131.22	98.04	42.28	55.90	196.22
	2019	1.16	42.04	19.06	62.26	93.51	4.43	27.39	125.34	94.67	46.47	46.45	187.59
	2020	0.89	33.04	19.51	53.43	70.20	3.26	18.99	92.45	71.08	36.30	38.50	145.88
	2021	0.17	26.17	12.98	39.32	43.68	1.71	14.92	60.31	43.85	27.88	27.90	99.63
Sablefish	2017	1.41	*	0.14	1.55	0.73	*	1.61	2.34	2.14	*	1.75	3.89
	2018	1.01	1.59	0.49	3.08	0.28	*	1.11	1.38	1.28	1.59	1.59	4.46
	2019	0.87	2.19	1.36	4.41	0.29	*	0.83	1.12	1.16	2.19	2.18	5.53
	2020	0.41	1.89	2.19	4.49	0.21	*	1.13	1.35	0.62	1.89	3.33	5.84
	2021	0.80	5.95	0.71	7.47	0.28	*	1.63	1.91	1.09	5.95	2.34	9.38
Atka Mackerel	2017	-	-	0.01	0.01	-	-	50.24	50.24	-	-	50.25	50.25
	2018	-	-	0.39	0.39	-	-	53.02	53.03	-	-	53.42	53.42
	2019	-	-	0.14	0.14	-	-	35.36	35.36	-	-	35.50	35.50
	2020	-	-	0.24	0.24	-	-	32.65	32.65	-	-	32.89	32.89
	2021	-	-	0.23	0.23	-	-	29.29	29.29	-	-	29.52	29.52
Yellowfin	2017	-	-	0.01	0.01	0.0	-	56.79	56.79	0.0	-	56.80	56.80
	2018	-	-	0.14	0.14	0.01	-	62.05	62.06	0.01	-	62.19	62.19
	2019	-	-	0.01	0.01	0.0	-	60.39	60.39	0.0	-	60.40	60.40
	2020	-	-	0.01	0.01	*	-	51.18	51.18	*	-	51.19	51.19
	2021	-	-	0.0	0.0	*	-	36.06	36.06	*	-	36.06	36.06
Rock Sole	2017	-	-	0.15	0.15	0.0	-	14.84	14.84	0.0	-	14.99	14.99
	2018	*	-	0.18	0.18	0.0	-	13.11	13.11	0.0	-	13.28	13.28
	2019	*	-	0.09	0.09	0.0	-	11.59	11.59	0.0	-	11.68	11.68
	2020	-	-	0.07	0.07	*	-	9.53	9.53	*	-	9.60	9.60
	2021	-	-	0.02	0.02	*	-	4.52	4.52	*	-	4.54	4.54

Table 4.14: Bering Sea & Aleutian Islands ex-vessel value of the groundfish catch by vessel category, gear, and species, 2017-2021; calculations based on COAR ($ millions). *(continued)*

		Catcher Vessels				Catcher Processor				All Sectors			
	Year	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear
Flathead Sole	2017	-	-	0.14	0.14	0.0	-	3.44	3.44	0.0	-	3.58	3.58
	2018	-	-	0.18	0.18	*	-	4.80	4.80	*	-	4.98	4.98
	2019	*	-	0.15	0.15	0.0	-	6.99	6.99	0.0	-	7.14	7.14
	2020	-	-	0.25	0.26	0.0	-	2.98	2.98	0.0	-	3.23	3.23
	2021	-	-	0.13	0.13	0.0	-	3.07	3.07	0.0	-	3.20	3.20
Arrowtooth	2017	*	-	0.02	0.02	0.01	-	2.36	2.38	0.01	-	2.39	2.40
	2018	0.0	-	0.05	0.05	0.01	-	2.79	2.79	0.01	-	2.84	2.84
	2019	-	-	0.06	0.06	0.01	-	4.20	4.21	0.01	-	4.26	4.27
	2020	*	-	0.07	0.07	0.01	-	3.73	3.74	0.01	-	3.80	3.81
	2021	*	-	0.03	0.03	0.0	-	2.68	2.68	0.0	-	2.71	2.71
Kamchatka Flounder	2017	-	-	*	*	0.0	-	1.86	1.86	0.0	-	1.86	1.86
	2018	-	-	0.0	0.0	0.0	-	1.40	1.40	0.0	-	1.40	1.40
	2019	-	-	0.0	0.0	0.0	-	2.01	2.01	0.0	-	2.01	2.01
	2020	*	-	0.0	0.0	0.0	-	2.80	2.80	0.0	-	2.80	2.80
	2021	-	-	*	*	0.0	-	2.18	2.18	0.0	-	2.18	2.18
Turbot	2017	-	-	0.0	0.0	0.03	-	0.80	0.83	0.03	-	0.80	0.83
	2018	-	-	0.0	0.0	0.01	-	0.74	0.74	0.01	-	0.74	0.75
	2019	*	-	0.0	0.0	0.02	-	1.09	1.11	0.02	-	1.09	1.11
	2020	*	-	0.0	0.0	0.01	-	0.76	0.77	0.01	-	0.76	0.77
	2021	*	-	0.0	0.0	0.0	-	0.52	0.52	0.0	-	0.52	0.52
Other Flatfish	2017	-	-	0.04	0.04	*	-	6.80	6.80	*	-	6.84	6.84
	2018	-	-	0.07	0.07	0.0	-	10.79	10.79	0.0	-	10.86	10.86
	2019	-	-	0.07	0.07	0.0	-	7.95	7.95	0.0	-	8.02	8.02
	2020	*	-	0.13	0.13	0.0	-	7.55	7.55	0.0	-	7.68	7.68
	2021	-	-	0.04	0.04	*	-	5.20	5.20	*	-	5.24	5.24
Pacific Ocean Perch	2017	-	-	0.31	0.31	0.0	-	13.94	13.94	0.0	-	14.24	14.24
	2018	*	-	0.53	0.53	0.0	-	14.60	14.60	0.0	-	15.13	15.13
	2019	*	-	0.67	0.67	0.0	-	13.33	13.33	0.0	-	14.00	14.00
	2020	*	-	0.59	0.59	*	-	11.45	11.45	*	-	12.05	12.05
	2021	-	-	0.19	0.19	*	-	10.86	10.86	*	-	11.05	11.05

Table 4.14: Bering Sea & Aleutian Islands ex-vessel value of the groundfish catch by vessel category, gear, and species, 2017-2021; calculations based on COAR ($ millions). *(continued)*

		Catcher Vessels				Catcher Processor				All Sectors			
	Year	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear
Northern Rockfish	2017	-	-	0.0	0.0	0.01	-	2.05	2.06	0.01	-	2.05	2.06
	2018	*	-	0.01	0.01	0.01	-	2.44	2.44	0.01	-	2.44	2.45
	2019	-	-	0.01	0.01	*	-	3.01	3.01	*	-	3.02	3.02
	2020	-	-	0.02	0.02	0.01	-	2.33	2.34	0.01	-	2.35	2.36
	2021	*	-	0.0	0.0	*	-	1.85	1.85	*	-	1.85	1.85
Other Rockfish	2017	0.05	-	0.0	0.05	0.14	-	0.38	0.52	0.19	-	0.38	0.57
	2018	0.03	-	0.0	0.05	0.07	-	0.48	0.55	0.11	-	0.49	0.60
	2019	0.02	-	0.01	0.03	0.04	-	0.47	0.52	0.07	-	0.49	0.55
	2020	0.01	-	0.01	0.03	0.02	-	0.37	0.38	0.03	-	0.38	0.41
	2021	0.01	-	0.0	0.01	0.02	-	0.41	0.43	0.03	-	0.41	0.44
Other Groundfish	2017	*	-	0.34	0.40	5.19	-	0.07	5.25	5.19	-	0.41	5.65
	2018	0.0	-	0.51	0.64	6.78	-	0.15	6.93	6.78	-	0.67	7.56
	2019	0.02	-	0.03	0.17	6.38	-	0.19	6.57	6.40	-	0.22	6.74
	2020	0.0	-	0.02	0.15	5.90	-	0.10	5.99	5.90	-	0.11	6.14
	2021	0.0	-	0.05	0.06	2.64	-	0.09	2.73	2.64	-	0.14	2.78
All Species	2017	1.54	-	228.99	262.21	99.58	-	328.67	432.63	101.12	-	557.66	694.84
	2018	1.88	-	265.23	306.99	106.04	-	367.25	477.41	107.92	-	632.48	784.40
	2019	2.06	-	281.48	327.89	102.22	-	361.29	467.94	104.28	-	642.77	795.83
	2020	1.31	-	256.82	293.19	76.49	-	301.84	381.60	77.81	-	558.66	674.79
	2021	0.98	-	257.18	290.29	47.04	-	288.37	337.13	48.02	-	545.56	627.42

Note Ex-vessel value is calculated by multiplying ex-vessel prices by the retained round weight catch. Refer to Table 4.13 for a description of the price derivation. The value added by at-sea processing is not included in these estimates of ex-vessel value. All groundfish includes additional species categories. Values are not adjusted for inflation. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.15: Bering Sea & Aleutian Islands vessel and permit counts, ex-vessel value, value per vessel, and percent value of BSAI FMP groundfish and all BSAI fisheries by fleet, 2017-2021; calculations based on COAR ($ millions).

	Year	Vessels	Permits	Ex-vessel Value $million	Ex-vessel Value per Vessel $1,000	Percent Value, BSAI FMP Groundfish	Percent Value, All BSAI Fisheries
AFA CV	2017	16	16	158.55	9,909.07	22.67	13.36
	2018	86	17	261.64	3,042.31	33.32	19.41
	2019	23	23	102.10	4,439.33	12.83	7.40
	2020	20	20	76.38	3,819.16	11.30	6.90
	2021	15	15	177.72	11,847.73	28.25	13.56
AFA CP	2017	16	15	21.65	1,353.37	3.10	1.83
	2018	25	25	105.99	4,239.55	13.50	7.86
	2019	3	3	*	*	*	*
	2020	19	19	123.64	6,507.32	18.30	11.18
	2021	82	17	256.91	3,133.01	40.84	19.61
A80	2017	18	12	6.50	361.01	0.93	0.55
	2018	21	18	39.75	1,892.80	5.06	2.95
	2019	20	20	148.13	7,406.25	18.62	10.74
	2020	3	2	*	*	*	*
	2021	22	7	8.44	383.48	1.34	0.64
BSAI Trawl	2017	86	16	227.99	2,650.99	32.60	19.22
	2018	19	19	166.09	8,741.77	21.15	12.32
	2019	82	22	282.40	3,443.93	35.49	20.47
	2020	86	20	255.93	2,975.91	37.88	23.13
	2021	14	13	9.59	684.85	1.52	0.73
CV Hook and Line	2017	1	1	*	*	*	*
	2018	78	17	42.40	543.57	5.40	3.14
	2019	14	8	3.05	218.02	0.38	0.22
	2020	15	16	28.21	1,880.93	4.18	2.55
	2021	1	1	*	*	*	*
CP Hook and Line	2017	65	18	36.07	554.91	5.16	3.04
	2018	15	15	165.00	10,999.72	21.01	12.24
	2019	8	6	*	*	*	*
	2020	12	5	*	*	*	*
	2021	65	17	27.89	429.05	4.43	2.13
Sablefish IFQ	2017	19	19	149.47	7,867.09	21.37	12.60
	2018	1	1	*	*	*	*
	2019	18	18	21.23	1,179.60	2.67	1.54
	2020	16	5	3.33	207.88	0.49	0.30
	2021	19	19	101.35	5,334.12	16.11	7.73
Pot	2017	5	4	*	*	*	*
	2018	21	9	3.49	166.11	0.44	0.26
	2019	83	17	46.59	561.37	5.86	3.38
	2020	94	17	36.44	387.67	5.39	3.29
	2021	2	4	*	*	*	*

Table 4.15: Bering Sea & Aleutian Islands vessel and permit counts, ex-vessel value, value per vessel, and percent value of BSAI FMP groundfish and all BSAI fisheries by fleet, 2017-2021; calculations based on COAR ($ millions). *(continued)*

	Year	Vessels	Permits	Ex-vessel Value $million	Ex-vessel Value per Vessel $1,000	Percent Value, BSAI FMP Groundfish	Percent Value, All BSAI Fisheries
	2017	28	28	99.03	3,536.78	14.16	8.35
	2018	7	6	*	*	*	*
Jig	2019	16	16	191.01	11,938.08	24.01	13.85
	2020	13	13	150.88	11,606.32	22.33	13.64
	2021	17	17	46.95	2,761.82	7.46	3.58

Note These tables include the value of groundfish purchases reported by processing plants, as well as by other entities, such as markets and restaurants, that normally would not report sales of groundfish products.Keep this in mind when comparing ex-vessel values in this table to gross processed-product values. The data are for catch from both federal and state of Alaska fisheries. The category "BSAI Trawl" does not include trawl vessel in the other categories (e.g. "AFA CV", "AFA CP", "A80"), for example TLAS. The column 'permits' is a count of federal groundfish processor permits. Values are not adjusted for inflation.
Source ADF&G Commercial Operators Annual Reports (COAR); and ADF&G Intent to Operate (ITO) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.16: Bering Sea & Aleutian Islands production of groundfish products by species, 2017-2021, (1,000 metric tons product weight).

		2017			2018			2019			2020			2021		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
Pollock	Whole Fish	0.04	0.25	0.30	0.01	0.27	0.28	0.15	0.22	0.37	0.01	0.36	0.37	*	0.17	0.17
	Head And Gut	24.21	-	24.21	21.47	*	21.47	17.68	*	17.68	16.22	*	16.22	11.81	*	11.81
	Roe	11.71	6.72	18.43	13.00	7.64	20.64	16.18	11.77	27.95	15.73	8.96	24.68	11.51	4.44	15.95
	Deep-Skin Fillets	45.10	13.03	58.13	40.96	15.75	56.72	39.34	18.81	58.15	34.16	15.98	50.14	34.64	*	34.64
	Other Fillets	42.13	56.69	98.82	53.94	56.97	110.91	66.04	62.60	128.63	48.87	50.37	99.24	40.49	42.99	83.48
	Surimi	102.60	94.13	196.73	104.36	92.16	196.53	104.67	87.57	192.24	91.22	80.54	171.77	98.58	89.17	187.75
	Minced Fish	17.05	9.44	26.49	13.06	7.35	20.41	12.25	7.35	19.59	15.73	11.38	27.11	14.07	13.18	27.25
	Fishmeal	27.94	34.69	62.63	28.22	38.36	66.58	30.51	39.33	69.84	29.37	40.03	69.40	29.49	37.72	67.20
	Other Products	13.32	24.88	38.20	13.97	24.93	38.90	16.34	27.13	43.47	10.41	23.40	33.81	13.06	22.80	35.86
	All Products	284.10	239.84	523.94	289.00	243.43	532.44	303.17	254.76	557.93	261.72	231.02	492.74	253.65	210.47	464.12
Pacific Cod	Whole Fish	0.22	*	0.22	0.16	0.15	0.32	0.01	0.28	0.29	0.01	0.11	0.11	*	0.06	0.06
	Head And Gut	80.09	12.28	92.38	66.10	12.94	79.04	58.78	11.47	70.25	47.30	7.74	55.04	37.47	8.49	45.96
	Roe	0.47	1.73	2.20	1.05	2.50	3.55	1.31	1.69	3.01	0.85	2.02	2.87	0.88	1.41	2.29
	Fillets	0.14	9.88	10.01	0.14	10.23	10.36	0.23	7.80	8.02	0.18	7.33	7.51	0.25	5.36	5.61
	Other Products	7.07	7.66	14.73	6.81	7.33	14.14	7.39	6.01	13.40	6.21	5.87	12.08	5.21	3.73	8.94
	All Products	87.99	31.55	119.54	74.26	33.15	107.41	67.72	27.25	94.97	54.55	23.07	77.62	43.81	19.06	62.86
Sablefish	Head And Gut	0.42	0.45	0.87	0.56	0.40	0.96	0.34	0.58	0.92	0.56	0.55	1.12	0.77	0.92	1.69
	Other Products	0.05	0.04	0.08	0.09	0.03	0.13	0.04	0.02	0.05	0.01	0.02	0.03	0.01	0.06	0.06
	All Products	0.46	0.49	0.95	0.65	0.43	1.09	0.38	0.59	0.97	0.57	0.57	1.15	0.78	0.98	1.76
Atka Mackerel	Whole Fish	6.40	*	6.40	6.62	0.29	6.91	0.47	*	0.47	0.49	0.06	0.54	*	0.02	0.02
	Head And Gut	35.45	-	35.45	36.21	*	36.21	32.82	*	32.82	33.35	*	33.35	34.93	-	34.93
	Other Products	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.01	0.02	0.00	0.04	0.04	0.00	0.21	0.21
	All Products	41.85	0.00	41.85	42.83	0.30	43.13	33.29	0.01	33.30	33.84	0.10	33.94	34.93	0.23	35.16
Yellowfin	Whole Fish	9.23	-	9.23	6.88	0.20	7.08	4.88	-	4.88	8.00	-	8.00	0.69	-	0.69
	Head And Gut	67.77	-	67.77	69.59	-	69.59	70.31	-	70.31	73.20	-	73.20	61.68	-	61.68
	Fillets	*	-	*	-	-	-	-	-	-	-	-	-	-	-	-
	Other Products	0.09	0.00	0.10	0.05	0.02	0.08	0.04	0.00	0.04	0.08	0.01	0.09	0.14	0.00	0.14
	All Products	77.10	0.00	77.10	76.53	0.23	76.75	75.22	0.00	75.23	81.27	0.01	81.28	62.51	0.00	62.51

Table 4.16: Bering Sea & Aleutian Islands production of groundfish products by species, 2017-2021, (1,000 metric tons product weight). *(continued)*

		2017			2018			2019			2020			2021		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
Rock Sole	Whole Fish	1.56	*	1.56	0.43	0.06	0.49	0.49	*	0.49	0.92	*	0.92	0.30	-	0.30
	Head And Gut	17.33	-	17.33	14.21	*	14.21	12.57	-	12.57	12.17	-	12.17	6.17	-	6.17
	Fillets	*	*	*	0.00	-	0.00	-	*	*	*	-	*	-	-	-
	Other Products	0.13	0.07	0.20	0.07	0.03	0.10	0.15	0.05	0.20	0.07	0.06	0.13	0.20	0.03	0.23
	All Products	19.02	0.07	19.09	14.72	0.08	14.80	13.22	0.05	13.27	13.16	0.06	13.22	6.67	0.03	6.70
Flathead Sole	Whole Fish	0.10	*	0.10	0.37	0.06	0.43	0.05	-	0.05	0.31	*	0.31	0.24	-	0.24
	Head And Gut	4.03	-	4.03	5.09	*	5.09	7.88	-	7.88	3.54	-	3.54	4.22	*	4.22
	Fillets	-	-	-	*	*	*	-	-	-	*	-	*	-	-	-
	Other Products	0.05	0.05	0.11	0.05	0.04	0.10	0.12	0.10	0.21	0.13	0.23	0.36	0.10	0.10	0.20
	All Products	4.19	0.05	4.25	5.52	0.10	5.62	8.04	0.10	8.14	3.99	0.23	4.21	4.56	0.10	4.66
Turbot	Whole Fish	-	-	-	-	-	-	*	-	*	-	-	-	-	-	-
	Head And Gut	1.75	-	1.75	1.19	-	1.19	1.92	-	1.92	1.45	-	1.45	1.05	-	1.05
	Other Products	0.68	0.00	0.68	0.42	0.00	0.42	0.74	0.00	0.74	0.57	0.00	0.57	0.34	*	0.34
	All Products	2.43	0.00	2.43	1.61	0.00	1.61	2.66	0.00	2.67	2.02	0.00	2.02	1.39	*	1.39
Kamchatka Flounder	Whole Fish	-	-	-	-	-	-	-	-	-	*	-	*	-	-	-
	Head And Gut	2.05	-	2.05	1.40	-	1.40	2.13	-	2.13	3.97	-	3.97	3.62	-	3.62
	Fishmeal	0.00	-	0.00	0.00	-	0.00	0.00	*	0.00	0.01	-	0.01	0.00	-	0.00
	Other Products	-	-	-	*	-	*	-	-	-	*	-	*	-	-	-
	All Products	2.05	-	2.05	1.40	-	1.40	2.13	*	2.13	3.97	-	3.97	3.62	-	3.62
Arrowtooth	Whole Fish	*	-	*	*	-	*	-	-	-	*	-	*	*	-	*
	Head And Gut	3.46	-	3.46	2.92	-	2.92	4.86	-	4.86	5.43	-	5.43	4.26	-	4.26
	Fillets	-	-	-	-	-	-	*	-	*	-	-	-	-	-	-
	Other Products	0.01	0.02	0.03	0.01	0.04	0.05	0.02	0.05	0.07	0.02	0.10	0.12	0.01	0.03	0.04
	All Products	3.46	0.02	3.48	2.93	0.04	2.97	4.88	0.05	4.93	5.45	0.10	5.55	4.27	0.03	4.30

Table 4.16: Bering Sea & Aleutian Islands production of groundfish products by species, 2017-2021, (1,000 metric tons product weight). *(continued)*

		2017			2018			2019			2020			2021		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
	Whole Fish	1.33	0.04	1.37	0.36	*	0.36	0.61	0.06	0.67	0.58	0.10	0.68	0.56	*	0.56
	Head And Gut	7.11	*	7.11	11.55	*	11.55	8.75	*	8.75	10.29	-	10.29	7.89	*	7.89
	Fillets	-	*	*	-	*	*	-	-	-	-	*	*	-	-	-
Other Flatfish	Other Products	0.01	0.01	0.02	0.04	0.01	0.05	0.38	0.02	0.40	0.02	0.08	0.10	0.01	0.05	0.06
	All Products	8.45	0.04	8.49	11.94	0.01	11.96	9.74	0.07	9.82	10.89	0.17	11.06	8.46	0.05	8.51
	Whole Fish	0.41	0.41	0.82	2.08	0.13	2.21	0.67	0.39	1.06	0.49	0.28	0.77	0.03	*	0.03
	Head And Gut	13.82	*	13.82	14.17	*	14.17	17.31	*	17.31	16.59	-	16.59	15.97	-	15.97
Pacific Ocean Perch	Other Products	0.27	0.03	0.30	0.19	0.06	0.25	0.66	0.20	0.86	0.28	0.40	0.67	0.16	0.21	0.37
	All Products	14.50	0.44	14.94	16.44	0.19	16.63	18.63	0.59	19.22	17.36	0.67	18.03	16.17	0.21	16.37
	Whole Fish	-	*	*	*	*	*	-	*	*	-	*	*	-	-	-
	Head And Gut	2.03	-	2.03	2.26	*	2.26	3.89	*	3.89	3.05	-	3.05	2.38	-	2.38
Northern Rockfish	Other Products	0.00	*	0.00	0.00	*	0.00	0.01	0.00	0.01	0.01	0.03	0.03	0.00	0.00	0.01
	All Products	2.03	*	2.03	2.27	*	2.27	3.90	0.00	3.90	3.05	0.03	3.08	2.38	0.00	2.39
	Whole Fish	0.17	0.00	0.18	0.15	*	0.15	0.42	*	0.42	0.21	*	0.21	0.29	*	0.29
	Head And Gut	0.27	0.01	0.28	0.35	0.01	0.36	0.27	0.01	0.28	0.30	0.01	0.31	0.33	*	0.33
Other Rockfish	Other Products	0.00	0.00	0.01	0.00	0.00	0.01	0.16	0.00	0.17	0.00	0.00	0.01	0.00	0.00	0.00
	All Products	0.45	0.02	0.46	0.50	0.01	0.51	0.86	0.01	0.87	0.52	0.01	0.53	0.62	0.00	0.62
	Whole Fish	*	0.26	0.26	0.02	0.50	0.52	0.00	0.34	0.35	*	0.04	0.04	0.00	0.50	0.50
	Head And Gut	0.01	*	0.01	0.04	0.07	0.12	0.02	0.06	0.08	0.01	0.09	0.09	0.02	*	0.02
	Roe	-	-	-	*	-	*	-	-	-	-	-	-	-	-	-
	Fillets	-	-	-	*	-	*	-	-	-	-	-	-	-	-	-
Other Groundfish	Fishmeal	0.06	0.17	0.23	0.04	0.07	0.12	0.17	0.60	0.77	0.10	1.59	1.69	0.33	0.48	0.81
	Other Products	2.40	*	2.40	3.42	0.02	3.44	2.65	*	2.65	2.17	*	2.17	2.17	0.00	2.17
	All Products	2.48	0.43	2.91	3.52	0.67	4.19	2.84	1.00	3.84	2.28	1.72	3.99	2.52	0.98	3.50
	Other	*	-	*	-	-	-	-	-	-	-	-	-	-	-	-

Table 4.16: Bering Sea & Aleutian Islands production of groundfish products by species, 2017-2021, (1,000 metric tons product weight). *(continued)*

		2017			2018			2019			2020			2021		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
All Species	Whole Fish	19.48	0.97	20.45	17.09	1.66	18.75	7.76	1.29	9.05	11.01	0.94	11.95	2.11	0.75	2.86
	Head And Gut	259.81	12.75	272.56	247.12	13.42	260.54	239.53	12.12	251.64	227.43	8.39	235.82	192.56	9.42	201.98
	Roe	12.17	8.46	20.63	14.06	10.14	24.19	17.50	13.46	30.96	16.58	10.97	27.55	12.38	5.86	18.24
	Fillets	0.14	9.88	10.01	0.14	10.23	10.36	0.23	7.80	8.02	0.18	7.33	7.51	0.25	5.36	5.61
	Deep-Skin Fillets	45.10	13.03	58.13	40.96	15.75	56.72	39.34	18.81	58.15	34.16	15.98	50.14	34.64	*	34.64
	Other Fillets	42.13	56.69	98.82	53.94	56.97	110.91	66.04	62.60	128.63	48.87	50.37	99.24	40.49	42.99	83.48
	Surimi	102.60	94.13	196.73	104.36	92.16	196.53	104.67	87.57	192.24	91.22	80.54	171.77	98.58	89.17	187.75
	Minced Fish	17.05	9.44	26.49	13.06	7.35	20.41	12.25	7.35	19.59	15.73	11.38	27.11	14.07	13.18	27.25
	Fishmeal	28.01	34.86	62.87	28.26	38.43	66.70	30.68	39.93	70.62	29.48	41.62	71.09	29.82	38.20	68.02
	Other Products	24.09	32.76	56.85	25.13	32.55	57.68	28.70	33.60	62.30	19.98	30.24	50.22	21.43	27.21	48.64
	All Products	550.57	272.96	823.54	544.13	278.66	822.79	546.69	284.51	831.20	494.64	257.76	752.40	446.33	232.14	678.47
	Other	*	-	*	-	-	-	-	-	-	-	-	-	-	-	-

Note Total includes additional species not listed in the production details as well as confidential data from Tables 4.31 and 4.32. These estimates are for catch from both federal and state of Alaska fisheries. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.17: Bering Sea & Aleutian Islands gross value of groundfish products by species, 2017-2021, ($ million).

		2017			2018			2019			2020			2021		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
Pollock	Whole Fish	0.0	0.2	0.3	0.0	0.3	0.3	0.2	0.5	0.6	0.0	0.4	0.4	*	0.2	0.2
	Head And Gut	29.0	-	29.0	27.5	*	27.5	24.5	*	24.5	20.2	*	20.2	13.5	*	13.5
	Roe	85.9	31.0	116.9	90.5	40.9	131.4	89.9	42.3	132.2	81.3	29.1	110.4	75.5	14.2	89.7
	Deep-Skin Fillets	150.1	41.3	191.4	136.7	49.5	186.2	137.9	67.2	205.1	133.0	54.8	187.8	145.4	*	145.4
	Other Fillets	107.8	145.8	253.5	154.2	164.4	318.6	218.7	203.2	421.9	161.7	155.4	317.1	141.8	140.5	282.3
	Surimi	370.2	207.2	577.4	316.7	234.1	550.8	341.5	240.6	582.2	263.3	208.1	471.4	321.8	263.9	585.8
	Minced Fish	26.1	13.1	39.2	19.7	10.8	30.4	21.8	12.0	33.8	31.6	19.5	51.1	37.6	24.7	62.3
	Fishmeal	45.7	50.7	96.4	48.1	51.8	99.9	67.3	42.9	110.2	103.6	47.9	151.5	92.5	59.9	152.4
	Other Products	16.1	17.9	34.0	17.2	20.7	37.9	18.5	21.4	39.9	13.7	20.7	34.4	18.1	20.6	38.7
	All Products	830.8	507.3	1,338.1	810.5	572.6	1,383.1	920.3	630.2	1,550.5	808.3	535.8	1,344.1	846.1	524.0	1,370.1
Pacific Cod	Whole Fish	0.4	*	0.4	0.3	0.3	0.5	0.0	0.3	0.3	0.0	0.1	0.2	*	0.1	0.1
	Head And Gut	287.9	32.5	320.4	276.0	48.5	324.5	216.8	31.1	247.9	156.9	18.4	175.3	143.3	18.9	162.2
	Roe	0.6	2.7	3.4	2.5	7.2	9.7	2.3	3.4	5.7	1.5	4.6	6.1	1.7	3.6	5.3
	Fillets	0.5	81.2	81.7	0.9	93.3	94.2	1.6	67.6	69.2	1.3	60.5	61.8	2.3	50.8	53.1
	Other Products	13.6	15.2	28.7	11.8	18.0	29.8	11.3	12.1	23.4	9.9	12.5	22.4	7.7	8.3	16.0
	All Products	303.1	131.6	434.7	291.6	167.3	458.8	232.0	114.5	346.5	169.6	96.2	265.8	155.0	81.7	236.7
Sablefish	Head And Gut	4.7	7.2	11.9	4.2	5.0	9.3	2.3	4.7	7.0	3.3	4.1	7.4	5.3	8.3	13.7
	Other Products	0.1	0.5	0.6	0.1	0.6	0.8	0.1	0.1	0.1	0.0	0.2	0.2	0.0	0.5	0.5
	All Products	4.8	7.7	12.5	4.4	5.7	10.0	2.4	4.8	7.1	3.3	4.3	7.6	5.4	8.9	14.2
Atka Mackerel	Whole Fish	11.9	*	11.9	15.0	0.5	15.5	1.0	*	1.0	0.8	0.1	0.8	*	0.0	0.0
	Head And Gut	114.8	-	114.8	112.7	*	112.7	84.0	*	84.0	77.6	*	77.6	70.0	-	70.0
	Other Products	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.3
	All Products	126.6	0.0	126.6	127.7	0.5	128.1	85.0	0.0	85.0	78.4	0.1	78.5	70.0	0.3	70.2
Yellowfin	Whole Fish	12.4	-	12.4	10.8	0.3	11.1	6.9	-	6.9	7.2	-	7.2	0.7	-	0.7
	Head And Gut	98.2	-	98.2	125.4	-	125.4	121.9	-	121.9	100.4	-	100.4	74.5	-	74.5
	Fillets	*	-	*	-	-	-	-	-	-	-	-	-	-	-	-
	Other Products	0.2	0.0	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.3	0.0	0.3
	All Products	110.8	0.0	110.8	136.3	0.3	136.6	128.8	0.0	128.8	107.8	0.0	107.8	75.5	0.0	75.5

Table 4.17: Bering Sea & Aleutian Islands gross value of groundfish products by species, 2017-2021, ($ million). *(continued)*

		2017			2018			2019			2020			2021		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
Rock Sole	Whole Fish	2.0	*	2.0	0.7	0.1	0.8	1.0	*	1.0	1.0	*	1.0	0.4	-	0.4
	Head And Gut	28.0	-	28.0	28.2	*	28.2	23.2	-	23.2	19.8	-	19.8	7.3	-	7.3
	Fillets	*	*	*	0.0	-	0.0	-	*	*	*	-	*	-	-	-
	Other Products	0.2	0.1	0.3	0.1	0.0	0.2	0.2	0.1	0.3	0.1	0.1	0.2	0.4	0.0	0.4
	All Products	30.2	0.1	30.3	29.0	0.1	29.1	24.3	0.1	24.4	20.9	0.1	21.0	8.1	0.0	8.1
Turbot	Whole Fish	-	-	-	-	-	-	*	-	*	-	-	-	-	-	-
	Head And Gut	9.3	-	9.3	6.4	-	6.4	10.7	-	10.7	6.9	-	6.9	5.0	-	5.0
	Other Products	2.2	0.0	2.2	1.0	0.0	1.0	1.7	0.0	1.7	1.5	0.0	1.5	0.9	*	0.9
	All Products	11.5	0.0	11.5	7.4	0.0	7.4	12.3	0.0	12.3	8.4	0.0	8.4	5.9	*	5.9
Flathead Sole	Whole Fish	0.1	*	0.1	0.7	0.1	0.7	0.1	-	0.1	0.4	*	0.4	0.2	-	0.2
	Head And Gut	7.7	-	7.7	11.0	*	11.0	14.9	-	14.9	5.0	-	5.0	5.4	*	5.4
	Fillets	-	-	-	*	*	*	-	-	-	*	-	*	-	-	-
	Other Products	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.3	0.5	0.2	0.1	0.3
	All Products	7.9	0.1	8.0	11.8	0.1	11.9	15.2	0.1	15.3	5.6	0.3	5.9	5.9	0.1	6.0
Kamchatka Flounder	Whole Fish	-	-	-	-	-	-	-	-	-	*	-	*	-	-	-
	Head And Gut	6.7	-	6.7	3.9	-	3.9	4.7	-	4.7	7.7	-	7.7	7.4	-	7.4
	Fishmeal	0.0	-	0.0	0.0	-	0.0	0.0	*	0.0	0.0	-	0.0	0.0	-	0.0
	Other Products	-	-	-	*	-	*	-	-	-	*	-	*	-	-	-
	All Products	6.7	-	6.7	3.9	-	3.9	4.7	*	4.7	7.7	-	7.7	7.4	-	7.4
Arrowtooth	Whole Fish	*	-	*	*	-	*	-	-	-	*	-	*	*	-	*
	Head And Gut	9.9	-	9.9	5.6	-	5.6	9.4	-	9.4	8.6	-	8.6	6.8	-	6.8
	Fillets	-	-	-	-	-	-	*	-	*	-	-	-	-	-	-
	Other Products	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1
	All Products	9.9	0.0	9.9	5.6	0.1	5.7	9.4	0.1	9.5	8.6	0.1	8.8	6.9	0.0	6.9

Table 4.17: Bering Sea & Aleutian Islands gross value of groundfish products by species, 2017-2021, ($ million). *(continued)*

		2017			2018			2019			2020			2021		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
Other Flatfish	Whole Fish	2.3	0.1	2.4	0.5	*	0.5	1.7	0.2	1.9	1.3	0.1	1.4	0.9	*	0.9
	Head And Gut	12.7	*	12.7	16.4	*	16.4	12.5	*	12.5	13.6	-	13.6	7.7	*	7.7
	Fillets	-	*	*	-	*	*	-	-	-	-	*	*	-	-	-
	Other Products	0.0	0.0	0.0	0.1	0.0	0.1	0.5	0.0	0.5	0.0	0.1	0.1	0.0	0.1	0.1
	All Products	15.0	0.1	15.2	17.0	0.0	17.0	14.6	0.2	14.8	14.9	0.2	15.1	8.6	0.1	8.7
Pacific Ocean Perch	Whole Fish	0.5	0.5	1.0	2.8	0.2	3.0	1.1	0.4	1.4	0.8	0.3	1.0	0.0	*	0.0
	Head And Gut	34.6	*	34.6	34.5	*	34.5	31.2	*	31.2	27.5	-	27.5	27.1	-	27.1
	Other Products	0.4	0.0	0.4	0.3	0.1	0.4	0.8	0.6	1.4	0.5	0.5	1.0	0.3	0.3	0.6
	All Products	35.5	0.5	36.1	37.6	0.3	37.9	33.0	1.0	34.0	28.8	0.7	29.5	27.5	0.3	27.7
Northern Rockfish	Whole Fish	-	*	*	*	*	*	-	*	*	-	*	*	-	-	-
	Head And Gut	3.4	-	3.4	3.9	*	3.9	5.9	*	5.9	3.2	-	3.2	2.2	-	2.2
	Other Products	0.0	*	0.0	0.0	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	All Products	3.4	*	3.4	3.9	*	3.9	5.9	0.0	5.9	3.2	0.0	3.2	2.2	0.0	2.2
Other Rockfish	Whole Fish	0.9	0.0	0.9	0.6	*	0.6	1.6	*	1.6	0.7	*	0.7	1.1	*	1.1
	Head And Gut	0.7	0.1	0.7	0.9	0.0	0.9	0.8	0.0	0.8	0.6	0.0	0.7	0.7	*	0.7
	Other Products	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
	All Products	1.6	0.1	1.6	1.4	0.0	1.5	2.6	0.1	2.6	1.4	0.0	1.4	1.8	0.0	1.8
Other Groundfish	Whole Fish	*	0.5	0.5	0.0	1.2	1.2	0.0	0.5	0.5	*	0.1	0.1	0.0	0.5	0.5
	Head And Gut	0.0	*	0.0	0.1	0.4	0.5	0.1	0.1	0.2	0.0	0.2	0.2	0.1	*	0.1
	Roe	-	-	-	*	-	*	-	-	-	-	-	-	-	-	-
	Fillets	-	-	-	*	-	*	-	-	-	-	-	-	-	-	-
	Fishmeal	0.1	0.3	0.4	0.1	0.1	0.2	0.2	0.8	1.0	0.2	1.8	2.0	0.6	0.6	1.2
	Other Products	4.5	*	4.5	7.6	0.1	7.7	5.2	*	5.2	4.0	*	4.0	3.5	0.0	3.5
	All Products	4.6	0.8	5.3	7.8	1.8	9.6	5.5	1.4	6.9	4.2	2.1	6.3	4.3	1.1	5.4

Table 4.17: Bering Sea & Aleutian Islands gross value of groundfish products by species, 2017-2021, ($ million). *(continued)*

		2017			2018			2019			2020			2021		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
All Species	Whole Fish	30.6	1.3	31.9	31.4	2.8	34.2	13.5	1.8	15.3	12.2	1.0	13.2	3.4	0.8	4.2
	Head And Gut	647.6	39.8	687.4	656.8	54.0	710.8	562.7	36.0	598.6	451.2	22.8	474.1	376.3	27.2	403.5
	Roe	86.6	33.7	120.3	93.0	48.1	141.2	92.2	45.7	137.9	82.8	33.7	116.5	77.2	17.9	95.0
	Fillets	0.5	81.2	81.7	0.9	93.3	94.2	1.6	67.6	69.2	1.3	60.5	61.8	2.3	50.8	53.1
	Deep-Skin Fillets	150.1	41.3	191.4	136.7	49.5	186.2	137.9	67.2	205.1	133.0	54.8	187.8	145.4	*	145.4
	Other Fillets	107.8	145.8	253.5	154.2	164.4	318.6	218.7	203.2	421.9	161.7	155.4	317.1	141.8	140.5	282.3
	Surimi	370.2	207.2	577.4	316.7	234.1	550.8	341.5	240.6	582.2	263.3	208.1	471.4	321.8	263.9	585.8
	Minced Fish	26.1	13.1	39.2	19.7	10.8	30.4	21.8	12.0	33.8	31.6	19.5	51.1	37.6	24.7	62.3
	Fishmeal	45.8	51.0	96.8	48.2	51.9	100.1	67.5	43.6	111.1	103.8	49.7	153.5	93.1	60.5	153.6
	Other Products	37.1	33.9	71.1	38.4	39.8	78.2	38.7	34.4	73.1	30.2	34.4	64.6	31.4	30.2	61.6
	All Products	1,502.3	648.4	2,150.7	1,495.9	748.7	2,244.7	1,496.1	752.3	2,248.4	1,271.0	639.9	1,911.0	1,230.3	616.4	1,846.8

Note Total includes additional species not listed in the production details as well as confidential data from Tables 4.31 and 4.32. These estimates are for catch from both federal and state of Alaska fisheries. Values are not adjusted for inflation. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.18: Bering Sea & Aleutian Islands price per pound of groundfish products by species and processing mode, 2017-2021, ($/lb).

		2017		2018		2019		2020		2021	
	Product	At-Sea	Shoreside	At-Sea	Shoreside	At-Sea	Shoreside	At-Sea	Shoreside	At-Sea	Shoreside
Pollock	Whole Fish	0.29	0.42	0.42	0.55	0.47	0.95	0.71	0.45	*	0.47
	Head And Gut	0.54	-	0.58	*	0.63	*	0.56	*	0.52	*
	Roe	3.33	2.09	3.16	2.43	2.52	1.63	2.34	1.47	2.98	1.45
	Deep-Skin Fillets	1.51	1.44	1.51	1.43	1.59	1.62	1.77	1.56	1.90	*
	Other Fillets	1.16	1.17	1.30	1.31	1.50	1.47	1.50	1.40	1.59	1.48
	Surimi	1.64	1.00	1.38	1.15	1.48	1.25	1.31	1.17	1.48	1.34
	Minced Fish	0.69	0.63	0.68	0.66	0.81	0.74	0.91	0.78	1.21	0.85
	Fishmeal	0.74	0.66	0.77	0.61	1.00	0.49	1.60	0.54	1.42	0.72
	Other Products	0.55	0.33	0.56	0.38	0.51	0.36	0.60	0.40	0.63	0.41
	All Products	1.33	0.96	1.27	1.07	1.38	1.12	1.40	1.05	1.51	1.13
Pacific Cod	Whole Fish	0.87	*	0.83	0.74	0.28	0.54	0.97	0.58	*	0.56
	Head And Gut	1.63	1.20	1.89	1.70	1.67	1.23	1.50	1.08	1.73	1.01
	Roe	0.62	0.71	1.08	1.31	0.81	0.90	0.81	1.03	0.88	1.17
	Fillets	1.79	3.73	2.98	4.14	3.18	3.93	3.22	3.74	4.20	4.30
	Other Products	0.87	0.90	0.79	1.11	0.69	0.91	0.72	0.97	0.67	1.01
	All Products	1.56	1.89	1.78	2.29	1.55	1.91	1.41	1.89	1.60	1.94
Sablefish	Head And Gut	5.12	7.22	3.42	5.70	3.07	3.70	2.65	3.40	3.15	4.09
	Other Products	0.87	6.31	0.61	8.58	0.90	1.67	1.12	3.22	0.89	4.38
	All Products	4.68	7.16	3.02	5.92	2.85	3.64	2.62	3.39	3.12	4.10

Table 4.18: Bering Sea & Aleutian Islands price per pound of groundfish products by species and processing mode, 2017-2021, ($/lb). *(continued)*

		2017		2018		2019		2020		2021	
	Product	At-Sea	Shoreside	At-Sea	Shoreside	At-Sea	Shoreside	At-Sea	Shoreside	At-Sea	Shoreside
Atka Mackerel	Whole Fish	0.84	*	1.03	0.70	0.94	*	0.73	0.51	*	0.50
	Head And Gut	1.47	-	1.41	*	1.16	*	1.06	*	0.91	-
	Other Products	0.55	0.80	0.77	0.70	0.58	0.56	0.79	0.52	0.88	0.55
	All Products	1.37	0.80	1.35	0.70	1.16	0.56	1.05	0.52	0.91	0.55
Yellowfin	Whole Fish	0.61	-	0.71	0.61	0.64	-	0.41	-	0.46	-
	Head And Gut	0.66	-	0.82	-	0.79	-	0.62	-	0.55	-
	Fillets	*	-	-	-	-	-	-	-	-	-
	Other Products	0.74	0.80	0.83	0.70	0.63	0.56	0.80	0.52	0.85	0.55
	All Products	0.65	0.80	0.81	0.62	0.78	0.56	0.60	0.52	0.55	0.55
Rock Sole	Whole Fish	0.59	*	0.75	0.46	0.90	*	0.47	*	0.57	-
	Head And Gut	0.65	-	0.83	*	0.79	-	0.64	-	0.52	-
	Head And Gut With Roe	1.24	-	1.50	-	1.32	-	1.28	-	0.90	-
	Fillets	*	*	2.73	-	-	*	*	-	-	-
	Other Products	0.63	0.80	0.72	0.70	0.58	0.56	0.79	0.52	0.86	0.55
	All Products	0.72	0.80	0.89	0.53	0.83	0.56	0.72	0.52	0.55	0.55

Table 4.18: Bering Sea & Aleutian Islands price per pound of groundfish products by species and processing mode, 2017-2021, ($/lb). *(continued)*

		2017		2018		2019		2020		2021	
	Product	At-Sea	Shoreside	At-Sea	Shoreside	At-Sea	Shoreside	At-Sea	Shoreside	At-Sea	Shoreside
Flathead Sole	Whole Fish	0.61	*	0.82	0.52	0.80	-	0.58	*	0.42	-
	Head And Gut	0.87	-	0.98	*	0.86	-	0.64	-	0.59	*
	Fillets	-	-	*	*	-	-	*	-	-	-
	Other Products	0.59	0.80	0.70	0.70	0.57	0.56	0.80	0.52	0.85	0.55
	All Products	0.86	0.80	0.97	0.60	0.86	0.56	0.64	0.52	0.58	0.55
Turbot	Whole Fish	-	-	-	-	*	-	-	-	-	-
	Head And Gut	2.41	-	2.44	-	2.51	-	2.17	-	2.17	-
	Other Products	1.45	0.80	1.04	0.70	1.03	0.56	1.18	0.52	1.14	*
	All Products	2.14	0.80	2.08	0.70	2.10	0.56	1.89	0.52	1.92	*
Arrowtooth	Whole Fish	*	-	*	-	-	-	*	-	*	-
	Head And Gut	1.30	-	0.87	-	0.88	-	0.72	-	0.73	-
	Fillets	-	-	-	-	*	-	-	-	-	-
	Other Products	0.65	0.80	0.70	0.70	0.58	0.56	0.81	0.52	0.84	0.55
	All Products	1.30	0.80	0.87	0.70	0.87	0.56	0.72	0.52	0.73	0.55
Kamchatka Flounder	Whole Fish	-	-	-	-	-	-	*	-	-	-
	Head And Gut	1.48	-	1.27	-	0.99	-	0.88	-	0.92	-
	Fishmeal	0.67	-	0.82	-	0.57	*	0.78	-	0.86	-
	Other Products	-	-	*	-	-	-	*	-	-	-
	All Products	1.48	-	1.27	-	0.99	*	0.88	-	0.92	-

Table 4.18: Bering Sea & Aleutian Islands price per pound of groundfish products by species and processing mode, 2017-2021, ($/lb). *(continued)*

		2017		2018		2019		2020		2021	
	Product	At-Sea	Shoreside	At-Sea	Shoreside	At-Sea	Shoreside	At-Sea	Shoreside	At-Sea	Shoreside
Other Flatfish	Whole Fish	0.78	1.62	0.68	*	1.26	1.37	1.03	0.30	0.76	*
	Head And Gut	0.81	*	0.64	*	0.65	*	0.60	-	0.44	*
	Fillets	-	*	-	*	-	-	-	*	-	-
	Other Products	0.65	0.80	0.82	0.71	0.57	0.57	0.80	0.54	0.83	0.57
	All Products	0.81	1.49	0.64	0.71	0.68	1.19	0.62	0.41	0.46	0.57
Pacific Ocean Perch	Whole Fish	0.57	0.54	0.61	0.61	0.72	0.44	0.73	0.41	0.48	*
	Head And Gut	1.14	*	1.11	*	0.82	*	0.75	-	0.77	-
	Other Products	0.60	0.80	0.70	0.70	0.57	1.33	0.82	0.52	0.87	0.55
	All Products	1.11	0.56	1.04	0.64	0.80	0.74	0.75	0.48	0.77	0.55
Northern Rockfish	Whole Fish	-	*	*	*	-	*	-	*	-	-
	Head And Gut	0.77	-	0.79	*	0.69	*	0.47	-	0.43	-
	Other Products	0.61	*	0.63	*	0.57	0.69	0.81	0.52	0.87	0.55
	All Products	0.77	*	0.79	*	0.69	0.69	0.47	0.52	0.43	0.55
Other Rockfish	Whole Fish	2.29	0.69	1.72	*	1.71	*	1.58	*	1.79	*
	Head And Gut	1.14	2.42	1.14	1.74	1.26	2.00	0.94	1.60	0.91	*
	Other Products	0.75	0.76	0.87	0.82	0.57	0.78	0.79	0.84	1.21	0.94
	All Products	1.58	1.93	1.31	1.58	1.35	1.71	1.21	1.41	1.32	0.94

Table 4.18: Bering Sea & Aleutian Islands price per pound of groundfish products by species and processing mode, 2017-2021, ($/lb). *(continued)*

		2017		2018		2019		2020		2021	
	Product	At-Sea	Shoreside	At-Sea	Shoreside	At-Sea	Shoreside	At-Sea	Shoreside	At-Sea	Shoreside
Other Groundfish	Whole Fish	*	0.80	0.12	1.08	1.54	0.64	*	1.11	0.59	0.47
	Head And Gut	0.78	*	0.81	2.70	1.19	1.10	0.71	1.09	2.09	*
	Roe	-	-	*	-	-	-	-	-	-	-
	Fillets	-	-	*	-	-	-	-	-	-	-
	Fishmeal	0.71	0.78	0.74	0.70	0.57	0.57	0.84	0.52	0.88	0.55
	Other Products	0.84	*	1.01	1.43	0.89	*	0.83	*	0.74	1.24
	All Products	0.84	0.79	1.00	1.23	0.88	0.62	0.83	0.56	0.77	0.51

Note These estimates are based on data from both federal and state of Alaska fisheries. Prices based on confidential data have been excluded. Values are not adjusted for inflation. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.19: Bering Sea & Aleutian Islands total product value per round metric ton of retained catch by processor type, species, and year, 2017-2021, ($/mt).

Sector	Species	2017	2018	2019	2020	2021
Motherships	Pollock	*	974	1,007	918	1,011
	Pacific Cod	*	397	331	297	*
Catcher/Processors	Pollock	1,128	1,063	1,192	1,095	1,120
	Sablefish	5,788	4,565	3,671	2,752	3,517
	Pacific Cod	1,756	2,024	1,808	1,613	1,837
	Flatfish	969	1,076	1,060	859	735
	Rockfish	1,162	1,142	864	753	787
	Atka Mackerel	1,977	1,845	1,501	1,357	1,171
	Other	473	629	575	483	421
Shoreside Processors	Pollock	860	959	1,032	893	958
	Sablefish	11,007	6,856	3,089	1,983	4,511
	Pacific Cod	1,714	2,268	1,706	1,558	1,730
	Flatfish	690	621	625	502	404
	Rockfish	958	867	733	459	619
	Other	934	1,246	4,647	5,191	5,255

Note These estimates include the product value of catch from both federal and state of Alaska fisheries. Values are not adjusted for inflation. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region At-sea and Shoreside Production Reports; ADF&G Commercial Operators Annual Reports (COAR); and NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.20: Bering Sea & Aleutian Islands number of processors, gross product value, value per processor, and percent value of BSAI FMP groundfish of processed groundfish by processor group, 2017-2021 ($ millions).

	Year	Processors	Wholesale Value ($million)	Wholesale Value per Processor ($1,000)	Percent Value, BSAI FMP Groundfish
AFA CP	2017	16	747.99	46,749.63	36.34
	2018	14	678.20	48,442.66	31.91
	2019	15	808.70	53,913.09	37.89
	2020	13	679.31	52,254.47	36.20
	2021	15	727.83	48,521.69	39.79
A80	2017	19	392.40	20,652.76	19.07
	2018	19	426.16	22,429.62	20.05
	2019	20	373.07	18,653.72	17.48
	2020	19	311.26	16,382.01	16.58
	2021	19	244.16	12,850.41	13.35
CP Hook and Line	2017	29	246.04	8,484.03	11.95
	2018	26	225.39	8,668.79	10.61
	2019	24	183.18	7,632.61	8.58
	2020	21	139.30	6,633.32	7.42
	2021	17	130.30	7,664.92	7.12
Sablefish IFQ	2017	6	1.68	280.05	0.08
	2018	8	1.84	230.39	0.09
	2019	5	0.70	139.83	0.03
	2020	4	1.61	403.70	0.09
	2021	4	2.48	619.37	0.14
Motherships & Inshore Floating Procs.	2017	2	*	*	*
	2018	3	116.49	38,828.46	5.48
	2019	4	123.52	30,879.46	5.79
	2020	3	111.94	37,312.65	5.96
	2021	3	122.18	40,727.51	6.68
BSAI Shoreside Processors	2017	7	555.74	79,391.83	27.00
	2018	7	629.17	89,881.78	29.60
	2019	7	638.33	91,189.69	29.91
	2020	7	605.58	86,511.87	32.27
	2021	8	598.18	74,772.84	32.70

Note The data are for catch from both federal and state of Alaska fisheries. The processor groups are defined as follows: "AFA CP" are the AFA catcher processors. "A80" are the catcher processors as defined under Amendment 80 of the BSAI FMP. "CP Hook and Line" are the hook and line catcher processors. "Sablefish IFQ" are processors processing sablefish IFQ. Values are not adjusted for inflation.
Source ADF&G Commercial Operators Annual Reports (COAR); and ADF&G Intent to Operate (ITO) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.21: Bering Sea & Aleutian Islands number of vessels, average and median length, and average and median capacity (tonnage) of vessels that caught groundfish by vessel type, and gear, 2017-2021.

	Year	Vessels	Average Length (feet)	Median Length (feet)	Average Capacity (tons)	Median Capacity (tons)
AFA CV	2017	86	126	123.0	159	133
	2018	86	127	123.0	162	133
	2019	82	127	123.0	161	133
	2020	86	128	124.0	164	135
	2021	82	127	124.0	163	135
AFA CP	2017	16	290	285.0	1,562	1,592
	2018	15	301	285.0	1,838	1,747
	2019	16	292	296.0	1,645	1,592
	2020	13	306	300.0	1,907	1,747
	2021	15	292	285.0	1,698	1,647
A80	2017	19	181	185.0	466	473
	2018	19	181	185.0	458	473
	2019	20	185	185.0	471	473
	2020	19	189	186.0	500	586
	2021	19	191	186.0	508	586
BSAI Trawl	2017	16	122	112.0	171	132
	2018	21	150	144.0	301	276
	2019	18	127	130.0	188	132
	2020	15	150	144.0	296	276
	2021	14	118	130.0	158	132
CV Hook and Line	2017	3	55	59.0	40	47
	2018	6	53	56.0	75	95
	2019	8	44	38.0	27	29
	2020	9	44	39.0	26	21
	2021	2	35	35.0	20	20
CP Hook and Line	2017	28	148	141.0	350	296
	2018	25	148	141.0	336	258
	2019	23	152	150.0	372	308
	2020	20	151	140.0	378	303
	2021	17	151	140.0	392	308
Sablefish IFQ	2017	23	86	72.0	111	96
	2018	27	92	98.0	122	127
	2019	21	92	72.0	144	105
	2020	18	86	58.0	126	105
	2021	24	85	58.0	125	98
Pot	2017	65	83	58.0	118	105
	2018	78	80	58.0	107	105
	2019	83	76	58.0	102	105
	2020	94	74	58.0	99	99
	2021	66	73	58.0	107	105

Table 4.21: Bering Sea & Aleutian Islands number of vessels, average and median length, and average and median capacity (tonnage) of vessels that caught groundfish by vessel type, and gear, 2017-2021. *(continued)*

	Year	Vessels	Average Length (feet)	Median Length (feet)	Average Capacity (tons)	Median Capacity (tons)
Jig	2017	1	42	42.0	26	26
	2018	1	42	42.0	26	26
	2019	3	46	42.0	29	26
	2020	3	41	42.0	28	26
	2021	1	42	42.0	26	26
No Fleet/ Other	2017	2	31	30.0	14	13
	2018	1	34	34.0	17	17
	2020	1	34	34.0	17	17
	2021	1	51	51.0	21	21

Note These estimates include only vessels fishing part of federal TACs. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.22: Bering Sea & Aleutian Islands number of vessels that caught groundfish by month, vessel type, and gear, 2017-2021.

	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Catcher Vessels														
Hook And Line														
	2017	-	1	2	2	4	3	7	4	9	2	-	-	18
	2018	-	-	4	5	2	3	5	5	7	4	5	1	19
	2019	2	4	6	6	5	4	3	4	5	4	4	1	17
	2020	1	5	6	10	6	2	4	5	2	2	1	-	17
	2021	1	1	1	2	2	1	2	1	2	3	3	-	9
Pot														
	2017	48	21	25	25	7	4	1	-	11	13	15	33	63
	2018	58	37	37	6	5	3	-	-	19	25	17	11	76
	2019	72	41	42	5	3	2	1	1	28	12	12	10	80
	2020	77	47	48	6	3	5	4	2	30	7	2	2	96
	2021	46	36	37	10	4	7	7	6	24	10	6	1	70
Trawl														
	2017	71	92	79	70	6	68	69	65	46	14	2	-	102
	2018	77	96	91	62	8	61	67	70	60	3	3	-	105
	2019	80	92	90	66	6	56	66	74	58	26	6	-	100
	2020	81	85	87	59	14	60	72	74	73	62	6	-	99
	2021	29	80	87	88	42	59	64	69	50	25	2	-	96
All Gear														
	2017	119	114	106	97	17	75	77	69	66	29	17	33	182
	2018	135	132	129	73	15	67	72	75	86	32	24	12	196
	2019	154	137	138	77	14	62	70	79	91	42	22	11	195
	2020	159	137	141	75	23	67	77	79	104	71	9	2	206
	2021	76	117	125	100	48	67	72	76	75	37	11	1	171
Catcher Processors														
Hook And Line														
	2017	27	27	26	21	11	20	25	26	25	24	24	24	29
	2018	22	24	21	14	6	16	18	20	20	21	21	18	27
	2019	17	18	20	14	6	10	17	21	21	19	16	14	25
	2020	15	16	15	13	7	7	13	16	17	15	15	8	21
	2021	12	12	12	11	8	12	13	16	15	10	6	4	17
Pot														
	2017	5	2	2	2	-	-	-	1	5	5	2	3	6
	2018	5	2	2	2	1	1	-	1	5	2	-	1	6
	2019	5	2	2	-	-	-	-	-	5	1	3	2	6
	2020	5	1	2	2	1	-	-	1	5	2	-	-	5
	2021	3	1	1	2	1	-	-	-	3	3	2	1	5
Trawl														
	2017	26	33	33	27	19	29	32	32	29	19	14	2	35
	2018	29	33	35	25	21	29	30	33	33	22	14	4	35
	2019	27	34	35	25	22	30	29	32	30	29	15	3	35
	2020	27	34	34	24	19	22	28	31	30	28	16	6	34
	2021	26	33	33	31	20	30	27	31	26	19	13	6	34
All Gear														
	2017	58	62	61	50	30	49	57	58	59	48	40	29	68
	2018	56	59	58	41	28	46	48	54	58	45	35	23	66
	2019	49	54	57	39	28	40	46	53	56	49	34	19	65
	2020	47	51	51	38	27	29	41	48	52	45	31	14	59
	2021	41	46	46	44	29	42	40	47	43	32	21	11	55

Note These estimates include only vessels fishing part of federal TACs. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.23: Bering Sea & Aleutian Islands catcher vessel (excluding catcher/processors) weeks of fishing groundfish by vessel-length class (feet), gear, and target, 2017-2021.

		Hook & Line		Pot			Trawl			All Gear		
	Year	<60ft	60-124ft	<60ft	60-124ft	>= 125ft	<60ft	60-124ft	>= 125ft	<60ft	60-124ft	>= 125ft
Pollock	2017	-	-	-	-	-	-	844	517	-	844	517
	2018	-	-	-	-	-	-	900	521	-	900	521
	2019	-	-	-	-	-	0	945	534	0	945	534
	2020	-	-	-	-	-	-	1,176	727	-	1,176	727
	2021	-	-	-	-	-	-	988	607	-	988	607
Sablefish	2017	29	6	-	25	12	-	-	-	29	31	12
	2018	13	14	15	20	6	-	-	-	28	34	6
	2019	6	14	18	13	7	-	-	-	24	27	7
	2020	2	2	32	9	5	-	-	-	34	11	5
	2021	6	3	60	23	10	-	-	-	67	26	10
Pacific Cod	2017	21	-	395	173	39	-	208	33	416	381	72
	2018	47	1	373	152	29	37	199	44	458	352	73
	2019	82	-	458	153	24	6	143	40	546	296	64
	2020	86	1	486	148	22	7	108	23	579	257	45
	2021	18	-	408	137	7	23	100	21	450	237	28
Flatfish	2017	-	-	-	-	-	-	48	53	-	48	53
	2018	-	-	-	-	-	-	32	46	-	32	46
	2019	1	-	-	-	-	-	59	72	1	59	72
	2020	-	-	-	-	-	-	48	51	-	48	51
	2021	-	-	-	-	-	-	28	30	-	28	30
Rockfish	2017	-	-	-	-	-	-	3	4	-	3	4
	2018	0	-	-	-	-	-	3	3	0	3	3
	2019	1	-	-	-	-	-	4	11	1	4	11
	2020	-	-	-	-	-	-	5	13	1	5	13
	2021	-	-	-	-	-	-	2	6	-	2	6
Atka Mackerel	2017	-	-	-	-	-	-	5	15	-	5	15
	2018	-	-	-	-	-	-	9	21	-	9	21
	2019	-	-	-	-	-	-	4	8	-	4	8
	2020	-	-	-	-	-	-	7	18	-	7	18
	2021	-	-	-	-	-	-	5	12	-	5	12

Table 4.23: Bering Sea & Aleutian Islands catcher vessel (excluding catcher/processors) weeks of fishing groundfish by vessel-length class (feet), gear, and target, 2017-2021. *(continued)*

		Hook & Line		Pot			Trawl			All Gear		
	Year	<60ft	60-124ft	<60ft	60-124ft	>= 125ft	<60ft	60-124ft	>= 125ft	<60ft	60-124ft	>= 125ft
All Groundfish	2017	50	6	-	-	-	-	1,109	623	445	1,312	674
	2018	60	15	-	-	-	37	1,143	635	486	1,330	670
	2019	90	14	-	-	-	6	1,154	664	572	1,334	695
	2020	88	3	-	-	-	7	1,344	832	614	1,504	859
	2021	24	3	-	-	-	23	1,123	677	516	1,285	694

Note These estimates include only vessels fishing part of federal TACs. A vessel that fished more than one category in a week is apportioned a partial week based on catch weight. A target is determined based on vessel, week, processing mode, NMFS area, and gear. All groundfish include additional target categories. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.24: Bering Sea & Aleutian Islands catcher/processor vessel weeks of fishing groundfish by vessel-length class (feet), gear, and target, 2017-2021.

		Hook & Line			Pot			Trawl			All Gear			
	Year	<60ft	60-124ft	125-230ft	<60ft	60-124ft	125-230ft	60-124ft	125-230ft	>230ft	<60ft	60-124ft	125-230ft	>230ft
Pollock	2017	-	-	-	-	-	-	0	5	301	-	0	5	301
	2018	-	-	-	-	-	-	0	6	317	-	0	6	317
	2019	-	-	-	-	-	-	2	7	312	-	2	7	312
	2020	-	-	-	-	-	-	0	10	332	-	0	11	332
	2021	-	-	-	-	-	-	2	8	296	-	2	8	296
Sablefish	2017	19	-	1	-	9	-	0	0	-	19	9	1	-
	2018	0	6	2	-	17	-	-	3	-	0	23	5	-
	2019	7	-	1	-	-	7	-	0	-	7	-	9	-
	2020	-	-	2	-	-	9	0	1	-	-	0	13	-
	2021	-	0	2	-	-	17	-	1	-	-	0	20	-
Pacific Cod	2017	8	207	762	13	20	44	1	11	7	21	228	817	7
	2018	9	126	640	-	28	23	2	17	7	9	157	680	7
	2019	7	57	599	15	21	21	1	11	8	22	80	631	8
	2020	2	62	482	-	19	21	0	5	2	2	81	508	2
	2021	-	45	406	-	22	15	0	4	4	-	67	425	4
Flatfish	2017	-	-	26	-	0	-	88	406	52	-	88	433	52
	2018	-	-	13	-	-	-	94	421	56	-	94	433	56
	2019	-	-	16	-	-	-	95	435	76	-	95	451	76
	2020	-	-	10	-	-	-	57	425	70	-	57	435	70
	2021	-	-	-	-	-	-	64	364	66	-	64	364	66
Rockfish	2017	-	-	-	-	-	-	3	45	4	-	3	45	4
	2018	-	-	1	-	-	-	3	43	6	-	3	44	6
	2019	-	-	0	-	-	-	5	60	8	-	5	60	8
	2020	-	-	0	-	-	-	5	61	7	-	5	61	7
	2021	-	0	0	-	-	-	9	55	11	-	9	55	11
Atka Mackerel	2017	-	-	-	-	-	-	7	105	11	-	7	105	11
	2018	-	-	-	-	-	-	7	122	12	-	7	122	12
	2019	-	-	-	-	-	-	5	88	12	-	5	88	12
	2020	-	-	-	-	-	-	5	96	6	-	5	96	6
	2021	-	-	-	-	-	-	6	113	14	-	6	113	14

Table 4.24: Bering Sea & Aleutian Islands catcher/processor vessel weeks of fishing groundfish by vessel-length class (feet), gear, and target, 2017-2021. *(continued)*

		Hook & Line			Pot			Trawl			All Gear			
	Year	<60ft	60-124ft	125-230ft	<60ft	60-124ft	125-230ft	60-124ft	125-230ft	>230ft	<60ft	60-124ft	125-230ft	>230ft
All Groundfish	2017	27	207	790	13	29	44	99	574	375	40	336	1,408	375
	2018	9	132	656	-	45	23	106	611	397	9	284	1,291	397
	2019	14	57	618	15	21	28	108	601	416	29	186	1,247	416
	2020	2	62	494	-	19	30	67	599	418	2	148	1,123	418
	2021	-	45	409	-	22	32	81	544	391	-	148	985	391

Note These estimates include only vessels fishing part of federal TACs. A vessel that fished more than one category in a week is apportioned a partial week based on catch weight. A target is determined based on vessel, week, processing mode, NMFS area, and gear. All groundfish include additional target categories. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.25: Bering Sea & Aleutian Islands catcher vessel crew weeks in the groundfish fisheries by month, 2017-2021.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2017	1,102.0	1,768.5	1,660.5	989.0	238.0	739.0	1,430.0	1,115.5	871.5	339.5	236.5	241.5	10,731.5
2018	1,229.0	2,049.0	2,043.0	708.0	201.0	822.0	1,167.5	1,314.0	1,254.0	427.0	169.0	120.5	11,504.0
2019	1,082.0	2,013.5	2,116.0	649.0	225.0	729.0	1,050.0	1,475.0	1,254.0	465.5	345.5	94.5	11,499.0
2020	1,124.5	2,644.0	1,843.0	793.0	308.0	601.0	1,031.0	1,701.5	1,676.0	1,275.5	53.0	-	13,050.5
2021	882.0	1,698.0	2,008.0	1,511.0	307.0	656.0	1,357.5	1,238.0	1,053.0	550.0	150.0	26.0	11,436.5

Note Crew weeks are calculated by summing weekly reported crew size over vessels and time period. These estimates include only vessels targeting groundfish counted toward federal TACs. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region At-sea Production Reports. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.26: Bering Sea & Aleutian Islands at-sea processor vessel crew weeks in the groundfish fisheries by month, 2017-2021.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2017	6,262	12,765	12,817	7,719	3,454	6,229	14,410	11,861	9,408	4,966	3,641	2,055	95,587
2018	5,792	13,559	15,843	5,232	3,750	8,022	11,726	12,878	12,374	4,982	3,201	1,897	99,256
2019	3,705	13,534	16,009	4,825	3,979	6,887	11,256	15,040	11,163	7,559	4,094	1,198	99,249
2020	3,824	16,312	12,475	4,929	4,013	4,183	9,344	13,599	11,198	10,443	3,071	834	94,225
2021	3,603	11,024	11,965	6,540	3,711	6,205	13,098	10,813	7,792	3,722	1,979	809	81,261

Note Crew weeks are calculated by summing weekly reported crew size over vessels and time period. These estimates include only vessels targeting groundfish counted toward federal TACs. Catcher processors typically account for 90-95% of the total at-sea crew weeks in all areas. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region At-sea Production Reports. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

4.3 Gulf of Alaska Economic Data Tables

Table 4.27: Gulf of Alaska groundfish retained catch by vessel type, gear, and species, 2017-2021 (1,000 metric tons, round weight).

		Central Gulf				Western Gulf				All Gulf			
	Year	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear
Pollock	2017	-	-	133.1	133.2	-	-	49.2	49.2	-	-	184.2	184.3
	2018	-	-	118.3	118.3	-	-	30.5	30.5	-	-	155.7	155.8
	2019	-	-	87.8	87.8	-	-	21.7	21.7	-	-	118.7	118.7
	2020	-	-	80.5	80.5	-	-	19.0	19.0	-	-	106.8	106.8
	2021	-	-	74.8	74.8	-	-	15.7	15.7	-	-	97.6	97.6
Pacific Cod	2017	3.8	11.3	5.3	20.5	4.4	15.0	7.6	27.0	8.7	26.4	12.9	48.0
	2018	1.5	3.1	2.1	6.7	1.4	4.5	1.4	7.3	3.3	7.6	3.5	14.4
	2019	1.5	3.2	2.1	6.8	1.3	4.3	1.6	7.2	3.3	7.5	3.7	14.4
	2020	0.4	1.0	2.2	3.6	0.2	0.7	0.1	1.1	1.0	1.7	2.3	5.1
	2021	3.4	4.4	3.3	11.0	1.4	3.2	1.6	6.2	5.1	7.6	4.9	17.6
Sablefish	2017	3.0	0.4	0.7	4.2	0.8	0.2	0.1	1.1	8.2	0.9	1.0	10.1
	2018	2.9	0.5	0.6	4.0	0.7	0.4	0.1	1.2	8.4	1.1	0.9	10.5
	2019	2.5	1.1	0.7	4.3	0.7	0.4	0.3	1.3	7.8	1.9	1.1	10.8
	2020	1.2	2.5	0.8	4.6	0.2	1.0	0.2	1.4	5.6	4.7	1.0	11.3
	2021	0.6	5.2	0.9	6.6	0.1	1.6	0.2	1.9	4.3	9.8	1.0	15.2
Atka Mackerel	2017	-	-	0.2	0.2	-	-	0.4	0.4	-	-	0.7	0.7
	2018	-	-	0.7	0.7	-	-	0.6	0.6	-	-	1.3	1.3
	2019	-	-	0.5	0.5	-	-	0.6	0.6	-	-	1.1	1.1
	2020	-	-	0.0	0.0	-	-	0.5	0.5	-	-	0.5	0.5
	2021	-	-	0.2	0.2	-	-	0.3	0.3	-	-	0.6	0.6
Arrowtooth	2017	0.0	-	24.8	24.8	0.0	-	0.1	0.1	0.0	-	24.9	24.9
	2018	0.0	-	16.2	16.2	0.0	-	0.0	0.1	0.0	-	16.3	16.3
	2019	*	-	22.4	22.4	*	-	0.2	0.2	0.0	-	22.6	22.6
	2020	*	-	19.5	19.5	0.0	-	0.2	0.2	0.0	-	19.8	19.8
	2021	0.0	-	7.6	7.6	*	-	0.1	0.1	0.0	-	7.7	7.7
Flathead Sole	2017	-	-	1.9	1.9	-	-	0.0	0.0	-	-	1.9	1.9
	2018	-	-	2.0	2.0	-	-	0.0	0.0	-	-	2.0	2.0
	2019	-	-	2.1	2.1	*	-	0.0	0.0	*	-	2.2	2.2
	2020	-	-	1.8	1.8	-	-	0.1	0.1	-	-	1.8	1.8
	2021	-	-	0.3	0.3	-	-	0.1	0.1	-	-	0.3	0.3

Table 4.27: Gulf of Alaska groundfish retained catch by vessel type, gear, and species, 2017-2021 (1,000 metric tons, round weight). *(continued)*

		Central Gulf				Western Gulf				All Gulf			
	Year	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear
Rex Sole	2017	-	-	1.2	1.2	-	-	0.0	0.0	-	-	1.2	1.2
	2018	-	-	1.1	1.1	-	-	0.0	0.0	-	-	1.2	1.2
	2019	-	-	1.1	1.1	-	-	0.0	0.0	-	-	1.1	1.1
	2020	-	-	1.0	1.0	-	-	0.0	0.0	-	-	1.0	1.0
	2021	-	-	0.2	0.2	*	-	0.0	0.0	*	-	0.2	0.2
Shallow-Water Flatfish	2017	-	-	2.0	2.0	*	-	0.0	0.0	*	-	2.0	2.0
	2018	-	-	2.5	2.5	*	-	0.0	0.0	*	-	2.5	2.5
	2019	-	-	2.5	2.5	-	-	0.0	0.0	-	-	2.5	2.5
	2020	*	-	4.1	4.1	-	-	0.0	0.0	*	-	4.1	4.1
	2021	*	-	0.1	0.1	-	-	0.0	0.0	*	-	0.2	0.2
Deep-Water Flatfish	2017	-	-	0.1	0.1	0.0	-	0.0	0.0	0.0	-	0.1	0.1
	2018	-	-	0.1	0.1	*	-	*	*	*	-	0.1	0.1
	2019	-	-	0.0	0.0	*	-	*	*	*	-	0.0	0.0
	2020	-	-	0.1	0.1	-	-	*	*	*	-	0.1	0.1
	2021	-	-	0.0	0.0	-	-	*	*	*	-	0.0	0.0
Pacific Ocean Perch	2017	0.0	-	14.9	14.9	*	-	2.6	2.6	0.0	-	17.5	17.5
	2018	0.0	-	17.1	17.1	-	-	3.1	3.1	0.0	-	20.3	20.3
	2019	*	-	17.3	17.3	*	-	3.1	3.1	*	-	20.5	20.5
	2020	-	-	21.3	21.3	-	-	1.3	1.3	*	-	22.6	22.6
	2021	*	-	25.1	25.1	*	-	1.6	1.6	*	-	26.8	26.8
Northern Rockfish	2017	0.0	-	1.5	1.5	0.0	-	0.2	0.2	0.0	-	1.7	1.7
	2018	*	-	2.0	2.0	*	-	0.3	0.3	*	-	2.3	2.3
	2019	-	-	1.8	1.8	*	-	0.8	0.8	*	-	2.6	2.6
	2020	*	-	1.6	1.6	-	-	0.8	0.8	*	-	2.4	2.4
	2021	-	-	1.6	1.6	-	-	0.7	0.7	-	-	2.3	2.3
Dusky Rockfish	2017	0.0	-	2.3	2.3	0.0	-	0.1	0.1	0.0	-	2.4	2.4
	2018	0.0	-	2.8	2.8	0.0	-	0.0	0.0	0.0	-	2.8	2.8
	2019	0.0	-	2.0	2.0	0.0	-	0.2	0.2	0.0	-	2.2	2.2
	2020	0.0	-	1.8	1.8	*	-	0.2	0.2	0.0	-	2.1	2.1
	2021	0.0	-	2.6	2.6	*	-	0.1	0.1	0.0	-	2.8	2.8

Table 4.27: Gulf of Alaska groundfish retained catch by vessel type, gear, and species, 2017-2021 (1,000 metric tons, round weight). *(continued)*

		Central Gulf				Western Gulf				All Gulf			
	Year	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear
Other Rockfish	2017	0.3	-	1.2	1.6	0.1	-	0.1	0.2	0.9	-	1.6	2.5
	2018	0.3	-	1.4	1.7	0.1	-	0.2	0.2	1.0	-	1.7	2.7
	2019	0.2	-	1.0	1.2	0.1	-	0.2	0.2	0.9	-	1.4	2.3
	2020	0.1	-	0.8	0.9	0.0	-	0.1	0.1	0.7	-	0.9	1.7
	2021	0.1	-	0.9	1.0	0.0	-	0.1	0.1	0.6	-	1.1	1.7
Other Groundfish	2017	0.1	-	0.8	1.0	0.2	-	0.0	0.2	0.3	-	0.8	1.3
	2018	0.0	-	0.8	0.9	0.0	-	0.0	0.1	0.1	-	0.8	1.0
	2019	0.1	-	0.9	1.1	0.0	-	0.0	0.1	0.1	-	0.9	1.3
	2020	0.0	-	0.8	0.8	0.0	-	0.0	0.0	0.0	-	0.8	0.8
	2021	0.1	-	0.1	0.2	0.0	-	0.0	0.0	0.1	-	0.1	0.2

Note The estimates are of retained catch (i.e., excludes discarded catch). All groundfish include additional species categories. These estimates include only catch counted against federal TACs. Includes FMP groundfish catch on halibut targets. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.28: All Gulf of Alaska groundfish retained catch by species, gear, and target fishery, 2020-2021, (1,000 metric tons, round weight).

Gear		Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Flathead Sole	Rex Sole	Flat Deep	Flat Shallow	Rockfish	Atka Mackerel	Other	All Species
Hook And Line	*2020*	Sablefish	*	5.2	0.0	*	-	-	*	-	0.5	-	*	5.7
		Pacific Cod	0.0	-	0.9	-	-	-	-	*	0.0	-	0.0	0.9
		Halibut	*	0.4	0.1	0.0	-	-	-	-	0.2	-	0.0	0.7
		Rockfish	-	*	0.0	-	-	-	-	-	0.0	-	-	0.0
		All Targets	0.0	5.6	1.0	0.0	-	-	*	*	0.8	-	0.0	7.3
	2021	Sablefish	*	3.7	0.0	*	-	-	-	-	0.3	-	0.0	4.0
		Pacific Cod	0.0	0.0	3.4	*	-	-	-	-	0.0	-	0.1	3.5
		Halibut	*	0.3	0.2	0.0	-	*	*	-	0.3	-	0.0	0.8
		Rockfish	-	-	0.0	-	-	-	-	*	0.0	-	-	0.0
		All Targets	0.0	4.0	3.6	0.0	-	*	*	*	0.6	-	0.1	8.3
Pot	*2020*	Pollock, Bottom	-	-	*	-	-	-	-	-	-	-	-	*
		Sablefish	-	4.6	0.0	*	-	-	-	-	0.0	-	*	4.6
		Pacific Cod	0.0	-	1.7	-	-	-	-	-	-	-	0.0	1.8
		Halibut	-	0.1	*	-	-	-	-	-	0.0	-	*	0.1
		All Targets	0.0	4.6	1.7	*	-	-	-	-	0.0	-	0.0	6.4
	2021	Sablefish	-	9.8	0.0	*	-	-	-	-	0.0	-	-	9.8
		Pacific Cod	0.0	*	7.6	-	*	-	-	*	*	-	0.0	7.6
		Halibut	-	0.1	*	-	-	-	-	-	0.0	-	-	0.1
		Rockfish	-	*	-	-	-	-	-	-	*	-	-	*
		All Targets	0.0	9.8	7.6	*	*	-	-	*	0.0	-	0.0	17.5
Trawl	*2020*	Pollock, Bottom	10.6	0.0	0.7	1.6	0.2	0.1	0.0	0.1	0.4	*	0.1	13.9
		Pollock, Pelagic	94.8	0.0	0.1	0.3	0.0	0.0	*	0.0	0.4	*	0.0	95.6
		Sablefish	0.0	0.2	0.0	0.0	0.0	0.0	*	-	0.1	-	0.0	0.3
		Pacific Cod	*	*	0.0	*	*	-	*	*	*	-	*	0.0
		Arrowtooth	0.6	0.2	0.8	16.5	1.3	0.7	0.0	0.7	0.9	*	0.6	22.3
		Rex Sole	*	*	*	*	*	*	-	*	*	*	-	*
		Flatfish, Shallow	0.0	0.0	0.3	0.3	0.1	0.0	*	1.3	0.0	*	0.1	2.1
		Rockfish	0.5	0.5	0.1	0.7	0.1	0.2	0.0	0.0	26.1	0.5	0.0	28.8
		All Targets	106.6	1.0	2.1	19.5	1.7	1.0	0.1	2.1	27.9	0.5	0.8	163.1
	2021	Pollock, Bottom	24.0	0.0	2.7	0.4	0.0	0.0	*	0.1	0.5	-	0.1	27.9
		Pollock, Pelagic	72.2	0.0	0.1	0.2	0.0	0.0	*	0.0	0.3	0.0	0.0	72.9
		Sablefish	0.0	0.3	0.0	0.0	*	*	*	*	0.0	-	0.0	0.3
		Pacific Cod	0.0	0.1	1.7	*	0.0	*	-	0.0	*	*	*	1.8
		Arrowtooth	0.0	0.1	*	5.0	0.1	0.1	0.0	*	0.7	*	*	6.1
		Flathead Sole	*	-	-	*	*	*	-	*	-	-	-	*
		Flatfish, Shallow	*	*	*	*	*	*	*	*	*	*	*	*
		Rockfish	1.2	0.6	0.2	2.0	0.1	0.1	0.0	0.0	31.3	0.6	0.0	36.1
		All Targets	97.4	1.0	4.8	7.7	0.3	0.2	0.0	0.1	32.9	0.6	0.1	145.2

Table 4.28: All Gulf of Alaska groundfish retained catch by species, gear, and target fishery, 2020-2021, (1,000 metric tons, round weight). *(continued)*

Gear		Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Flathead Sole	Rex Sole	Flat Deep	Flat Shallow	Rockfish	Atka Mackerel	Other	All Species
All Gear	*2020*	All Targets	106.6	11.2	4.8	19.5	1.7	1.0	0.1	2.1	28.6	0.5	0.8	176.8
	2021	All Targets	97.4	14.9	16.0	7.7	0.3	0.2	0.0	0.1	33.5	0.6	0.2	171.0

Note Totals may include additional categories. The target is derived from an algorithm used to determine preponderance of catch, accounting for processor, trip, processing mode, NMFS area, and gear. These estimates include only catch counted against federal TACs. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.29: Western Gulf of Alaska groundfish retained catch by species, gear, and target fishery, 2020-2021, (1,000 metric tons, round weight).

Gear		Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Flathead Sole	Rex Sole	Flat Deep	Flat Shallow	Rockfish	Atka Mackerel	Other	All Species
Hook And Line	*2020*	Sablefish	-	0.2	*	*	-	-	-	-	0.0	-	-	0.2
		Pacific Cod	-	-	0.2	-	-	-	-	-	*	-	-	0.2
		Halibut	-	0.0	0.0	0.0	-	-	-	-	0.0	-	0.0	0.0
		All Targets	-	0.2	0.2	0.0	-	-	-	-	0.0	-	0.0	0.4
	2021	Sablefish	-	0.1	*	-	-	-	-	-	0.0	-	-	0.1
		Pacific Cod	*	-	0.3	-	-	-	-	-	-	-	*	0.3
		Halibut	-	0.0	0.0	*	-	*	-	-	0.0	-	0.0	0.0
		All Targets	*	0.1	0.3	*	-	*	-	-	0.0	-	0.0	0.5
Pot	*2020*	Pollock, Bottom	-	-	*	-	-	-	-	-	-	-	-	*
		Sablefish	-	1.0	0.0	-	-	-	-	-	0.0	-	*	1.0
		Pacific Cod	0.0	-	0.7	-	-	-	-	-	-	-	*	0.7
		Halibut	-	*	*	-	-	-	-	-	*	-	*	*
		All Targets	0.0	1.0	0.7	-	-	-	-	-	0.0	-	*	1.7
	2021	Sablefish	-	1.6	*	-	-	-	-	-	0.0	-	-	1.6
		Pacific Cod	*	*	3.2	-	*	-	-	*	*	-	*	3.2
		Halibut	-	*	-	-	-	-	-	-	-	-	-	*
		All Targets	*	1.6	3.2	-	*	-	-	*	0.0	-	*	4.9
Trawl	*2020*	Pollock, Bottom	1.1	*	0.0	0.0	0.0	*	-	0.0	*	-	0.0	1.2
		Pollock, Pelagic	17.7	0.0	0.1	0.1	0.0	0.0	-	0.0	0.0	*	0.0	17.9
		Rockfish	0.2	0.2	0.0	0.0	0.1	0.0	*	0.0	2.4	0.5	*	3.4
		All Targets	19.0	0.2	0.1	0.2	0.1	0.0	*	0.0	2.4	0.5	0.0	22.5
	2021	Pollock, Bottom	*	*	*	*	*	*	-	*	*	-	*	*
		Pollock, Pelagic	15.5	0.0	0.0	0.1	0.0	0.0	-	0.0	0.0	*	0.0	15.6
		Pacific Cod	0.0	-	1.6	*	0.0	*	-	0.0	-	*	*	1.6
		Rockfish	0.2	0.1	*	0.0	0.1	0.0	*	0.0	2.5	0.3	*	3.3
		All Targets	15.7	0.2	1.6	0.1	0.1	0.0	*	0.0	2.5	0.3	0.0	20.6
All Gear	*2020*	All Targets	19.0	1.4	1.1	0.2	0.1	0.0	*	0.0	2.4	0.5	0.0	24.6
	2021	All Targets	15.7	1.9	5.2	0.1	0.1	0.0	*	0.0	2.6	0.3	0.0	25.9

Note Totals may include additional categories. The target is derived from an algorithm used to determine preponderance of catch, accounting for processor, trip, processing mode, NMFS area, and gear. These estimates include only catch counted against federal TACs. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.30: Central Gulf of Alaska groundfish retained catch by species, gear, and target fishery, 2020-2021, (1,000 metric tons, round weight).

Gear		Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Flathead Sole	Rex Sole	Flat Deep	Flat Shallow	Rockfish	Atka Mackerel	Other	All Species
Hook And Line	*2020*	Sablefish	-	1.1	0.0	*	-	-	-	-	0.1	-	*	1.2
		Pacific Cod	0.0	-	0.4	-	-	-	-	*	0.0	-	*	0.4
		Halibut	-	0.1	0.1	-	-	-	-	-	0.0	-	0.0	0.2
		Rockfish	-	-	0.0	-	-	-	-	-	0.0	-	-	0.0
		All Targets	0.0	1.2	0.4	*	-	-	-	*	0.1	-	0.0	1.8
	2021	Sablefish	*	0.5	0.0	*	-	-	-	-	0.0	-	*	0.5
		Pacific Cod	0.0	0.0	2.8	*	-	-	-	-	0.0	-	0.1	2.9
		Halibut	*	0.1	0.1	0.0	-	-	-	-	0.1	-	0.0	0.2
		Rockfish	-	-	0.0	-	-	-	-	*	0.0	-	-	0.0
		All Targets	0.0	0.6	2.9	0.0	-	-	-	*	0.1	-	0.1	3.6
Pot	*2020*	Sablefish	-	2.5	0.0	*	-	-	-	-	0.0	-	*	2.5
		Pacific Cod	*	-	1.0	-	-	-	-	-	-	-	0.0	1.0
		Halibut	-	0.0	*	-	-	-	-	-	0.0	-	-	0.0
		All Targets	*	2.5	1.0	*	-	-	-	-	0.0	-	0.0	3.5
	2021	Sablefish	-	5.1	0.0	*	-	-	-	-	0.0	-	-	5.2
		Pacific Cod	0.0	-	4.4	-	-	-	-	-	*	-	0.0	4.4
		Halibut	-	0.0	*	-	-	-	-	-	*	-	-	0.0
		All Targets	0.0	5.2	4.4	*	-	-	-	-	0.0	-	0.0	9.6
Trawl	*2020*	Pollock, Bottom	9.5	0.0	0.7	1.6	0.2	0.1	0.0	0.1	0.4	*	0.1	12.7
		Pollock, Pelagic	69.7	0.0	0.1	0.1	0.0	0.0	*	0.0	0.3	*	0.0	70.3
		Sablefish	0.0	0.2	0.0	0.0	0.0	0.0	*	-	0.1	-	0.0	0.3
		Pacific Cod	*	*	0.0	*	*	-	*	*	*	-	*	0.0
		Arrowtooth	0.6	0.2	0.8	16.5	1.3	0.7	0.0	0.7	0.9	*	0.6	22.3
		Rex Sole	*	*	*	*	*	*	-	*	*	*	-	*
		Flatfish, Shallow	0.0	0.0	0.3	0.3	0.1	0.0	*	1.3	0.0	*	0.1	2.1
		Rockfish	0.4	0.4	0.1	0.7	0.0	0.1	0.0	0.0	23.7	*	0.0	25.5
		All Targets	80.2	0.8	2.0	19.3	1.6	0.9	0.1	2.1	25.4	*	0.8	133.1
	2021	Pollock, Bottom	22.6	0.0	2.7	0.4	0.0	0.0	*	0.1	0.5	-	0.1	26.5
		Pollock, Pelagic	51.0	0.0	0.0	0.1	0.0	0.0	*	0.0	0.3	0.0	0.0	51.5
		Sablefish	0.0	0.3	0.0	0.0	*	*	*	*	0.0	-	0.0	0.3
		Pacific Cod	*	0.1	0.1	*	-	-	-	*	*	-	*	0.2
		Arrowtooth	0.0	0.1	*	5.0	0.1	0.1	0.0	*	0.7	*	*	6.1
		Flathead Sole	*	-	-	*	*	*	-	*	-	-	-	*
		Flatfish, Shallow	*	*	*	*	*	*	*	*	*	*	*	*
		Rockfish	0.9	0.5	0.2	2.0	0.0	0.1	0.0	0.0	28.8	0.2	0.0	32.8
		All Targets	74.6	0.9	3.2	7.5	0.2	0.2	0.0	0.1	30.3	0.2	0.1	117.4
	2020	All Targets	80.2	4.5	3.4	19.3	1.6	0.9	0.1	2.1	25.6	*	0.8	138.5

Table 4.30: Central Gulf of Alaska groundfish retained catch by species, gear, and target fishery, 2020-2021, (1,000 metric tons, round weight). *(continued)*

Gear		Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Flathead Sole	Rex Sole	Flat Deep	Flat Shallow	Rockfish	Atka Mackerel	Other	All Species
All Gear	*2021*	All Targets	74.6	6.6	10.4	7.5	0.2	0.2	0.0	0.1	30.4	0.2	0.2	130.6

Note Totals may include additional categories. The target is derived from an algorithm used to determine preponderance of catch, accounting for processor, trip, processing mode, NMFS area, and gear. These estimates include only catch counted against federal TACs. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.31: Gulf of Alaska ex-vessel prices in the groundfish fisheries by gear, and species, 2017-2021; calculations based on COAR ($/lb, round weight).

	Year	Fixed	Trawl	All Gear
Pollock	2017	0.09	0.09	0.09
	2018	0.04	0.12	0.12
	2019	0.12	0.14	0.14
	2020	0.03	0.12	0.12
	2021	0.08	0.12	0.12
Pacific Cod	2017	0.34	0.33	0.33
	2018	0.46	0.41	0.45
	2019	0.50	0.46	0.49
	2020	0.42	0.36	0.39
	2021	0.41	0.35	0.39
Sablefish	2017	5.32	3.93	5.18
	2018	3.93	2.34	3.78
	2019	2.99	1.31	2.81
	2020	1.95	0.69	1.83
	2021	2.28	1.21	2.20
Atka Mackerel	2017	0.02	0.39	0.39
	2018	*	0.36	0.36
	2019	-	0.29	0.29
	2020	-	0.27	0.27
	2021	-	0.30	0.30
Arrowtooth	2017	0.09	0.12	0.12
	2018	0.24	0.13	0.13
	2019	0.06	0.10	0.10
	2020	0.02	0.09	0.09
	2021	0.25	0.07	0.07
Flathead Sole	2017	*	0.12	0.12
	2018	0.24	0.13	0.13
	2019	*	0.10	0.10
	2020	-	0.09	0.09
	2021	*	0.07	0.07
Rex Sole	2017	-	0.12	0.12
	2018	-	0.13	0.13
	2019	-	0.10	0.10
	2020	-	0.09	0.09
	2021	*	0.07	0.07
Shallow-Water Flatfish	2017	0.09	0.12	0.12
	2018	0.24	0.13	0.13
	2019	-	0.10	0.10
	2020	*	0.09	0.09
	2021	*	0.07	0.07
Deep-Water Flatfish	2017	0.09	0.12	0.12
	2018	*	0.13	0.13
	2019	*	0.10	0.10
	2020	*	0.09	0.09
	2021	*	0.07	0.07

Table 4.31: Gulf of Alaska ex-vessel prices in the groundfish fisheries by gear, and species, 2017-2021; calculations based on COAR ($/lb, round weight). *(continued)*

	Year	Fixed	Trawl	All Gear
Pacific Ocean Perch	2017	0.82	0.18	0.18
	2018	0.87	0.19	0.19
	2019	0.75	0.19	0.19
	2020	*	0.13	0.13
	2021	0.59	0.13	0.13
Northern Rockfish	2017	0.85	0.18	0.18
	2018	0.72	0.19	0.19
	2019	*	0.19	0.19
	2020	*	0.13	0.13
	2021	-	0.13	0.13
Dusky Rockfish	2017	0.81	0.18	0.19
	2018	0.84	0.19	0.19
	2019	0.77	0.19	0.20
	2020	0.65	0.13	0.13
	2021	0.59	0.13	0.13
Other Rockfish	2017	0.80	0.18	0.41
	2018	0.86	0.19	0.43
	2019	0.78	0.19	0.43
	2020	0.65	0.13	0.35
	2021	0.59	0.13	0.29

Note Prices are for catch from both federal and state of Alaska fisheries. The unfrozen landings price is calculated as landed value divided by estimated or actual round weight. Prices for catch processed by an at-sea processor without a COAR buying record (e.g., from catcher processors) are set using the prices for the matching species (group), region and gear-types for which buying records exist. Trawl-caught sablefish, rockfish and flatfish in the GOA and trawl-caught Atka mackerel in both the GOA and the GOA are not well represented in the COAR buying records. A price was calculated for these categories from product-report prices; the price in this case is the value of the first wholesale products divided by the calculated round weight and multiplied by a constant 0.4 to correct for value added by processing. The "All Alaska/All gear" column is the average weighted by retained catch. Values are not adjusted for inflation. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.32: Gulf of Alaska ex-vessel value of the groundfish catch by vessel category, gear, and species, 2017-2021; calculations based on COAR ($ millions).

		Central Gulf				Western Gulf				All Gulf			
	Year	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear
Pollock	2017	-	-	25.45	25.47	-	-	9.41	9.42	-	-	35.23	35.25
	2018	-	-	32.03	32.04	-	-	8.28	8.28	-	-	42.24	42.25
	2019	-	-	26.68	26.68	-	-	6.59	6.59	-	-	36.12	36.12
	2020	-	-	20.92	20.92	-	-	4.94	4.94	-	-	27.80	27.80
	2021	-	-	20.50	20.50	-	-	4.83	4.83	-	-	27.32	27.32
Pacific Cod	2017	2.82	8.41	3.86	15.09	3.15	11.16	5.49	19.80	6.31	19.57	9.35	35.23
	2018	1.55	3.16	1.93	6.63	1.34	4.59	1.33	7.25	3.29	7.74	3.26	14.29
	2019	1.69	3.60	2.18	7.46	1.36	4.84	1.59	7.79	3.54	8.44	3.77	15.74
	2020	0.39	0.95	1.74	3.08	0.18	0.71	0.11	1.00	0.91	1.66	1.85	4.42
	2021	3.02	3.94	2.55	9.51	1.25	2.92	1.36	5.52	4.58	6.86	3.91	15.35
Sablefish	2017	35.44	5.18	6.28	46.90	9.30	2.63	0.57	12.50	95.64	10.98	8.50	115.12
	2018	24.81	4.72	3.07	32.60	6.24	3.10	0.81	10.14	72.75	10.03	5.02	87.80
	2019	16.49	7.18	2.17	25.84	4.77	2.60	0.76	8.12	51.81	12.67	3.29	67.78
	2020	5.31	10.88	1.29	17.48	0.76	4.51	0.25	5.52	23.98	20.24	1.54	45.76
	2021	2.86	26.07	2.36	31.29	0.63	8.07	0.40	9.10	21.54	49.63	3.06	74.23
Atka Mackerel	2017	-	-	0.18	0.18	-	-	0.41	0.41	-	-	0.59	0.59
	2018	-	-	0.56	0.56	-	-	0.53	0.53	-	-	1.09	1.09
	2019	-	-	0.31	0.31	-	-	0.42	0.42	-	-	0.73	0.73
	2020	-	-	0.0	0.0	-	-	0.30	0.30	-	-	0.30	0.30
	2021	-	-	0.33	0.33	-	-	0.23	0.23	-	-	0.56	0.56
Arrowtooth	2017	0.0	-	6.48	6.48	0.01	-	0.03	0.04	0.01	-	6.51	6.52
	2018	0.0	-	4.57	4.57	0.0	-	0.26	0.27	0.01	-	4.83	4.84
	2019	0.0	-	4.97	4.97	0.0	-	0.10	0.10	0.0	-	5.09	5.09
	2020	*	-	3.73	3.73	0.0	-	0.04	0.04	0.0	-	3.77	3.77
	2021	0.0	-	1.19	1.19	*	-	0.04	0.04	0.0	-	1.24	1.24
Flathead Sole	2017	-	-	0.49	0.49	-	-	0.01	0.01	-	-	0.50	0.50
	2018	-	-	0.56	0.56	-	-	0.04	0.04	-	-	0.60	0.60
	2019	-	-	0.53	0.53	*	-	0.03	0.03	*	-	0.55	0.55
	2020	-	-	0.34	0.34	-	-	0.02	0.02	-	-	0.35	0.35
	2021	-	-	0.07	0.07	-	-	0.01	0.01	-	-	0.09	0.09

Table 4.32: Gulf of Alaska ex-vessel value of the groundfish catch by vessel category, gear, and species, 2017-2021; calculations based on COAR ($ millions). *(continued)*

		Central Gulf				Western Gulf				All Gulf			
	Year	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear
Rex Sole	2017	-	-	0.36	0.36	-	-	0.01	0.01	-	-	0.37	0.37
	2018	-	-	0.45	0.45	-	-	0.02	0.02	-	-	0.47	0.47
	2019	-	-	0.33	0.33	-	-	0.01	0.01	-	-	0.34	0.34
	2020	-	-	0.22	0.22	-	-	0.01	0.01	-	-	0.22	0.22
	2021	-	-	0.04	0.04	*	-	0.0	0.0	*	-	0.04	0.04
Shallow-Water Flatfish	2017	-	-	0.53	0.53	*	-	0.0	0.0	*	-	0.54	0.54
	2018	-	-	0.70	0.70	*	-	0.01	0.01	*	-	0.71	0.71
	2019	-	-	0.55	0.55	-	-	0.01	0.01	-	-	0.56	0.56
	2020	*	-	0.79	0.79	-	-	0.0	0.0	*	-	0.79	0.79
	2021	*	-	0.22	0.22	-	-	0.0	0.0	*	-	0.22	0.22
Deep-Water Flatfish	2017	-	-	0.02	0.02	0.0	-	0.0	0.0	0.0	-	0.02	0.02
	2018	-	-	0.02	0.02	*	-	0.0	0.0	*	-	0.02	0.02
	2019	-	-	0.01	0.01	*	-	0.0	0.0	*	-	0.01	0.01
	2020	-	-	0.01	0.01	-	-	*	*	*	-	0.01	0.01
	2021	-	-	0.0	0.0	-	-	*	*	*	-	0.0	0.0
Pacific Ocean Perch	2017	0.0	-	5.90	5.90	*	-	1.03	1.03	0.0	-	8.01	8.01
	2018	0.0	-	7.19	7.19	-	-	1.33	1.33	0.0	-	9.90	9.90
	2019	*	-	7.44	7.44	*	-	1.32	1.32	*	-	10.09	10.09
	2020	-	-	6.01	6.01	-	-	0.37	0.37	*	-	6.79	6.79
	2021	*	-	7.12	7.12	*	-	0.45	0.45	*	-	8.04	8.04
Northern Rockfish	2017	0.0	-	0.59	0.59	0.0	-	0.08	0.08	0.0	-	0.66	0.67
	2018	0.0	-	0.84	0.84	*	-	0.12	0.12	0.0	-	0.95	0.96
	2019	-	-	0.77	0.77	*	-	0.34	0.34	*	-	1.11	1.11
	2020	*	-	0.45	0.45	-	-	0.21	0.21	*	-	0.66	0.66
	2021	-	-	0.46	0.46	-	-	0.20	0.20	-	-	0.66	0.66
Dusky Rockfish	2017	0.03	-	0.90	0.94	0.02	-	0.03	0.05	0.06	-	0.93	0.99
	2018	0.02	-	1.16	1.18	0.0	-	0.02	0.02	0.03	-	1.19	1.22
	2019	0.03	-	0.87	0.90	0.01	-	0.08	0.09	0.03	-	0.95	0.99
	2020	0.01	-	0.52	0.53	*	-	0.06	0.06	0.01	-	0.58	0.59
	2021	0.01	-	0.75	0.76	*	-	0.04	0.04	0.01	-	0.80	0.81

Table 4.32: Gulf of Alaska ex-vessel value of the groundfish catch by vessel category, gear, and species, 2017-2021; calculations based on COAR ($ millions). *(continued)*

		Central Gulf				Western Gulf				All Gulf			
	Year	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear	Hook And Line	Pot	Trawl	All Gear
Other Rockfish	2017	0.54	-	0.49	1.03	0.18	-	0.05	0.22	1.66	-	0.62	2.29
	2018	0.56	-	0.60	1.17	0.14	-	0.07	0.21	1.88	-	0.75	2.64
	2019	0.39	-	0.44	0.83	0.11	-	0.07	0.17	1.61	-	0.61	2.24
	2020	0.16	-	0.22	0.39	0.02	-	0.03	0.05	1.06	-	0.29	1.39
	2021	0.12	-	0.27	0.40	0.01	-	0.03	0.04	0.80	-	0.35	1.19
Other Groundfish	2017	0.10	-	0.83	1.05	0.14	-	0.02	0.23	0.27	-	0.85	1.31
	2018	0.04	-	0.76	0.86	0.04	-	0.05	0.16	0.11	-	0.81	1.05
	2019	0.07	-	0.95	1.13	0.02	-	0.02	0.14	0.11	-	0.98	1.30
	2020	0.01	-	0.78	0.79	0.0	-	0.01	0.01	0.02	-	0.78	0.81
	2021	0.09	-	0.08	0.18	0.03	-	0.0	0.03	0.13	-	0.08	0.23

Note Ex-vessel value is calculated by multiplying ex-vessel prices by the retained round weight catch from Tables 4.13 and 4.31. Please refer to Tables 4.13 and 4.31 for a description of the price derivation. The value added by at-sea processing is not included in these estimates of ex-vessel value. All groundfish includes additional species categories. Values are not adjusted for inflation. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.33: Gulf of Alaska vessel and permit counts, ex-vessel value, value per vessel, and percent value of GOA FMP groundfish and all GOA fisheries by processor group, 2017-2021; calculations based on COAR ($ millions).

	Year	Vessels	Permits	Ex-vessel Value per Vessel $1,000	Ex-vessel Value $million	Percent Value, GOA FMP Groundfish	Percent Value, All GOA Fisheries
Western Gulf Trawl	2017	42	15	17.13	407.92	8.54	2.27
	2018	36	12	12.85	356.82	7.94	2.33
	2019	35	10	11.33	323.73	8.21	1.92
	2020	33	10	6.34	191.99	6.93	1.79
	2021	33	11	7.61	230.58	5.97	1.13
Central Gulf Trawl	2017	58	13	52.37	903.01	26.11	6.94
	2018	61	14	54.45	892.62	33.66	9.88
	2019	62	16	48.20	777.38	34.94	8.17
	2020	62	15	37.01	596.99	40.49	10.47
	2021	52	13	35.94	691.14	28.20	5.34
CV Hook and Line	2017	85	34	2.98	35.05	1.49	0.39
	2018	69	27	2.62	37.98	1.62	0.48
	2019	72	31	2.26	31.34	1.64	0.38
	2020	28	19	0.56	20.08	0.62	0.16
	2021	59	21	2.50	42.32	1.96	0.37
CP Hook and Line	2017	9	9	4.31	478.94	2.15	0.57
	2018	3	3	1.38	458.47	0.85	0.25
	2019	3	3	1.66	552.90	1.20	0.28
	2021	2	2	*	*	*	*
Sablefish IFQ	2017	261	40	100.71	385.87	50.20	13.34
	2018	262	39	77.72	296.63	48.04	14.10
	2019	250	42	60.52	242.09	43.88	10.26
	2020	242	44	42.60	176.04	46.60	12.05
	2021	238	41	68.92	289.57	54.07	10.23
Pot	2017	110	26	19.77	179.75	9.86	2.62
	2018	58	21	7.87	135.68	4.86	1.43
	2019	59	16	8.65	146.60	6.27	1.47
	2020	38	17	1.87	49.20	2.05	0.53
	2021	70	23	7.25	103.59	5.69	1.08
Jig	2017	105	33	0.15	1.44	0.08	0.02
	2018	98	37	0.36	3.68	0.22	0.07
	2019	110	40	0.62	5.68	0.45	0.11
	2020	97	45	0.49	5.09	0.54	0.14
	2021	100	39	1.04	10.37	0.81	0.15

Note These tables include the value of groundfish purchases reported by processing plants, as well as by other entities, such as markets and restaurants, that normally would not report sales of groundfish products. Keep this in mind when comparing ex-vessel values in this table to gross processed-product values. The data are for catch from both federal and state of Alaska fisheries. The column "permits" is a count of federal groundfish processor permits. Values are not adjusted for inflation.
Source ADF&G Commercial Operators Annual Reports (COAR); and ADF&G Intent to Operate (ITO) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.34: Gulf of Alaska production of groundfish products by species, 2017-2021 (1,000 metric tons, round weight).

	Product	2017	2018	2019	2020	2021
Pollock	Whole Fish	9.34	0.56	3.12	0.42	0.33
	Head And Gut	37.39	39.83	28.41	22.62	14.02
	Roe	1.09	2.39	1.89	1.55	1.03
	Deep-Skin Fillets	0.63	*	*	0.23	*
	Other Fillets	15.09	13.08	8.80	7.60	8.65
	Surimi	10.61	9.77	6.95	5.43	5.93
	Minced Fish	1.44	0.98	0.84	1.80	0.76
	Fishmeal	*	1.11	*	*	0.50
	Other Products	2.46	1.34	1.07	0.30	0.42
	All Products	78.06	69.06	51.09	39.95	31.64
Pacific Cod	Whole Fish	0.14	0.25	0.26	0.03	0.05
	Head And Gut	6.11	1.92	3.02	1.15	1.69
	Salted/Split	-	-	-	*	-
	Roe	1.04	0.37	0.38	0.19	0.53
	Fillets	6.52	2.00	2.37	1.12	2.70
	Other Products	3.58	1.04	1.44	0.47	1.56
	All Products	17.39	5.58	7.47	2.97	6.54
Sablefish	Head And Gut	5.28	5.84	6.54	6.44	8.85
	Other Products	0.36	0.29	0.43	0.35	0.60
	All Products	5.64	6.13	6.97	6.78	9.45
Atka Mackerel	Whole Fish	*	0.08	-	-	-
	Head And Gut	0.37	0.73	0.63	0.25	0.47
	Other Products	*	*	*	*	*
	All Products	0.37	0.81	0.63	0.25	0.47
Arrowtooth	Whole Fish	3.22	2.28	2.04	1.97	-
	Head And Gut	11.28	6.24	8.97	7.31	4.28
	Kirimi	-	-	-	*	-
	Fillets	*	*	*	-	-
	Other Products	*	0.01	*	*	*
	All Products	14.50	8.53	11.01	9.28	4.28
Flathead Sole	Whole Fish	0.45	1.02	1.09	1.09	-
	Head And Gut	0.46	0.28	0.27	0.20	0.20
	Kirimi	*	*	*	*	-
	Fillets	*	*	*	*	-
	Other Products	*	*	*	*	*
	All Products	0.91	1.29	1.35	1.29	0.20

Table 4.34: Gulf of Alaska production of groundfish products by species, 2017-2021 (1,000 metric tons, round weight). *(continued)*

	Product	2017	2018	2019	2020	2021
Rex Sole	Whole Fish	1.27	1.55	1.44	1.04	0.21
	Head And Gut	0.01	0.04	0.01	*	0.00
	Kirimi	-	*	-	-	-
	Fillets	0.00	*	*	*	*
	Other Products	*	*	*	*	*
	All Products	1.28	1.59	1.46	1.04	0.21
Shallow-Water Flatfish	Whole Fish	0.89	0.82	0.91	1.52	-
	Head And Gut	0.21	0.58	0.43	1.00	0.69
	Kirimi	*	*	*	*	*
	Fillets	*	*	*	*	-
	Other Products	*	*	*	*	*
	All Products	1.11	1.40	1.33	2.51	0.69
Deep-Water Flatfish	Whole Fish	*	0.00	*	*	-
	Head And Gut	*	0.01	*	*	-
	Fillets	*	*	*	*	-
	Other Products	*	-	-	-	-
	All Products	*	0.02	*	*	-
Pacific Ocean Perch	Whole Fish	2.71	3.38	2.75	4.87	2.88
	Head And Gut	8.19	10.26	10.00	9.26	12.07
	Other Products	0.16	0.09	0.25	0.16	0.35
	All Products	11.06	13.73	13.01	14.29	15.31
Northern Rockfish	Whole Fish	0.00	0.01	*	*	*
	Head And Gut	0.83	1.23	1.39	1.26	1.21
	Other Products	0.01	0.00	0.00	0.00	*
	All Products	0.84	1.25	1.39	1.26	1.21
Dusky Rockfish	Whole Fish	0.28	0.06	0.14	0.32	0.25
	Head And Gut	0.97	1.42	1.17	0.88	1.32
	Other Products	0.07	0.02	0.01	0.02	0.02
	All Products	1.31	1.50	1.32	1.22	1.59
Other Rockfish	Whole Fish	0.54	0.62	0.45	0.31	0.27
	Head And Gut	0.68	0.76	0.59	0.44	0.46
	Other Products	0.13	0.09	0.10	0.10	0.07
	All Products	1.34	1.46	1.14	0.84	0.80

Table 4.34: Gulf of Alaska production of groundfish products by species, 2017-2021 (1,000 metric tons, round weight). *(continued)*

	Product	2017	2018	2019	2020	2021
Other Groundfish	Whole Fish	0.01	0.01	0.23	0.04	0.15
	Head And Gut	0.07	0.02	0.05	0.01	0.00
	Kirimi	*	-	-	-	-
	Fillets	-	*	-	-	-
	Fishmeal	*	*	*	*	*
	Other Products	0.35	0.32	0.40	0.31	0.13
	All Products	0.43	0.36	0.68	0.36	0.29
All Species	Whole Fish	18.84	10.64	12.43	11.60	4.14
	Head And Gut	71.85	69.16	61.48	50.81	45.28
	Salted/Split	-	-	-	*	-
	Kirimi	*	*	*	*	*
	Roe	2.13	2.76	2.27	1.74	1.56
	Fillets	6.53	2.00	2.37	1.12	2.70
	Deep-Skin Fillets	0.63	*	*	0.23	*
	Other Fillets	15.09	13.08	8.80	7.60	8.65
	Surimi	10.61	9.77	6.95	5.43	5.93
	Minced Fish	1.44	0.98	0.84	1.80	0.76
	Fishmeal	*	1.11	*	*	0.50
	Other Products	7.11	3.20	3.70	1.71	3.16
	All Products	134.23	112.71	98.84	82.05	72.69

Note Total includes additional species not listed in the production details as well as confidential data from Tables 4.31 and 4.32. These estimates are for catch from both federal and state of Alaska fisheries. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.35: Gulf of Alaska gross value of groundfish products by species, 2017-2021, ($ million).

	Product	2017	2018	2019	2020	2021
Pollock	Whole Fish	5.7	0.5	1.9	0.3	0.4
	Head And Gut	30.1	36.2	32.6	25.9	14.4
	Roe	4.3	9.7	5.9	3.8	4.2
	Deep-Skin Fillets	2.1	*	*	0.8	*
	Other Fillets	32.9	33.6	26.9	23.2	29.5
	Surimi	17.7	20.7	16.6	12.8	16.7
	Minced Fish	1.5	1.3	1.4	3.4	1.4
	Fishmeal	*	1.5	*	*	0.9
	Other Products	2.5	1.4	0.7	0.2	1.0
	All Products	96.7	104.9	85.9	70.5	68.6
Pacific Cod	Whole Fish	0.2	0.5	0.8	0.0	0.1
	Head And Gut	20.3	8.6	8.5	3.5	5.8
	Salted/Split	-	-	-	*	-
	Roe	1.6	1.1	0.9	0.4	1.3
	Fillets	45.3	19.2	21.5	10.1	25.5
	Other Products	8.0	2.6	3.5	0.9	3.1
	All Products	75.5	31.9	35.2	15.0	35.8
Sablefish	Head And Gut	108.2	88.0	73.8	58.3	87.5
	Other Products	3.1	1.9	5.3	3.7	6.8
	All Products	111.3	89.9	79.0	62.0	94.3
Atka Mackerel	Whole Fish	*	0.2	-	-	-
	Head And Gut	1.2	2.3	1.6	0.6	1.3
	Other Products	*	*	*	*	*
	All Products	1.2	2.5	1.6	0.6	1.3
Arrowtooth	Whole Fish	4.9	1.5	0.8	1.6	-
	Head And Gut	26.7	9.3	11.0	7.6	5.2
	Kirimi	-	-	-	*	-
	Fillets	*	*	*	-	-
	Other Products	*	0.0	*	*	*
	All Products	31.5	10.8	11.7	9.2	5.2
Flathead Sole	Whole Fish	0.6	1.2	0.9	0.9	-
	Head And Gut	0.7	0.6	0.5	0.3	0.3
	Kirimi	*	*	*	*	-
	Fillets	*	*	*	*	-
	Other Products	*	*	*	*	*
	All Products	1.3	1.8	1.4	1.2	0.3

Table 4.35: Gulf of Alaska gross value of groundfish products by species, 2017-2021, ($ million). *(continued)*

	Product	2017	2018	2019	2020	2021
Rex Sole	Whole Fish	2.8	3.3	3.1	1.9	0.2
	Head And Gut	0.0	0.1	0.0	*	0.0
	Kirimi	-	*	-	-	-
	Fillets	0.0	*	*	*	*
	Other Products	*	*	*	*	*
	All Products	2.8	3.4	3.2	1.9	0.2
Shallow-Water Flatfish	Whole Fish	1.2	1.1	0.9	1.5	-
	Head And Gut	0.3	1.2	0.9	1.7	1.4
	Kirimi	*	*	*	*	*
	Fillets	*	*	*	*	-
	Other Products	*	*	*	*	*
	All Products	1.5	2.3	1.8	3.2	1.4
Deep-Water Flatfish	Whole Fish	*	0.0	*	*	-
	Head And Gut	*	0.0	*	*	-
	Fillets	*	*	*	*	-
	Other Products	*	-	-	-	-
	All Products	*	0.0	*	*	-
Pacific Ocean Perch	Whole Fish	3.3	4.0	2.8	4.7	2.6
	Head And Gut	24.1	27.7	19.1	15.9	24.4
	Other Products	0.8	0.4	1.9	1.6	2.3
	All Products	28.1	32.1	23.8	22.2	29.4
Northern Rockfish	Whole Fish	0.0	0.0	*	*	*
	Head And Gut	1.8	2.8	2.5	1.7	1.8
	Other Products	0.1	0.0	0.0	0.0	*
	All Products	1.9	2.8	2.5	1.7	1.8
Dusky Rockfish	Whole Fish	0.4	0.1	0.2	0.5	0.3
	Head And Gut	2.1	3.6	2.3	1.5	2.5
	Other Products	0.5	0.1	0.1	0.2	0.2
	All Products	3.0	3.8	2.6	2.2	3.0
Other Rockfish	Whole Fish	2.4	2.5	1.8	1.1	0.9
	Head And Gut	3.0	3.2	2.0	1.4	1.1
	Other Products	0.8	1.0	1.2	0.9	0.9
	All Products	6.2	6.7	5.0	3.4	2.9

Table 4.35: Gulf of Alaska gross value of groundfish products by species, 2017-2021, ($ million). *(continued)*

	Product	2017	2018	2019	2020	2021
Other Groundfish	Whole Fish	0.0	0.0	0.8	0.1	0.5
	Head And Gut	0.2	0.1	0.2	0.0	0.0
	Kirimi	*	-	-	-	-
	Fillets	-	*	-	-	-
	Fishmeal	*	*	*	*	*
	Other Products	1.7	1.4	1.7	1.3	0.5
	All Products	1.9	1.5	2.7	1.4	1.0

Note Total includes additional species not listed in the production details as well as confidential data from Tables 4.31 and 4.32. These estimates are for catch from both federal and state of Alaska fisheries. Values are not adjusted for inflation. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.36: Gulf of Alaska price per pound of groundfish products by species, 2017-2021, ($/lb).

	Product	2017	2018	2019	2020	2021
Pollock	Whole Fish	0.28	0.37	0.27	0.32	0.52
	Head And Gut	0.36	0.41	0.52	0.52	0.47
	Roe	1.80	1.83	1.42	1.10	1.88
	Deep-Skin Fillets	1.49	*	*	1.46	*
	Other Fillets	0.99	1.16	1.39	1.39	1.54
	Surimi	0.76	0.96	1.08	1.07	1.28
	Minced Fish	0.46	0.61	0.75	0.87	0.86
	Fishmeal	*	0.62	*	*	0.82
	Other Products	0.45	0.49	0.28	0.37	1.12
	All Products	0.56	0.69	0.76	0.80	0.98
Pacific Cod	Whole Fish	0.81	0.86	1.42	0.59	0.79
	Head And Gut	1.51	2.04	1.28	1.39	1.55
	Roe	0.68	1.28	1.04	0.99	1.11
	Fillets	3.15	4.35	4.12	4.09	4.28
	Other Products	1.02	1.12	1.09	0.88	0.89
	All Products	1.97	2.59	2.14	2.30	2.48
Sablefish	Head And Gut	9.30	6.83	5.12	4.11	4.48
	Other Products	3.92	2.99	5.58	4.85	5.20
	All Products	8.95	6.65	5.15	4.15	4.53
Atka Mackerel	Whole Fish	*	0.97	-	-	-
	Head And Gut	1.47	1.42	1.17	1.10	1.25
	Other Products	*	*	*	*	*
	All Products	1.47	1.38	1.17	1.10	1.25
Arrowtooth	Whole Fish	0.69	0.30	0.17	0.37	-
	Head And Gut	1.07	0.67	0.55	0.47	0.55
	Fillets	*	*	*	-	-
	Other Products	*	0.38	*	*	*
	All Products	0.99	0.57	0.48	0.45	0.55
Flathead Sole	Whole Fish	0.59	0.53	0.39	0.38	-
	Head And Gut	0.74	0.95	0.87	0.66	0.76
	Fillets	*	*	*	*	-
	Other Products	*	*	*	*	*
	All Products	0.67	0.62	0.49	0.42	0.76

Table 4.36: Gulf of Alaska price per pound of groundfish products by species, 2017-2021, ($/lb). *(continued)*

	Product	2017	2018	2019	2020	2021
Rex Sole	Whole Fish	0.99	0.97	0.98	0.83	0.51
	Head And Gut	1.45	1.35	1.44	*	0.58
	Fillets	0.34	*	*	*	*
	Other Products	*	*	*	*	*
	All Products	0.99	0.98	0.98	0.83	0.51
Shallow-Water Flatfish	Whole Fish	0.61	0.61	0.44	0.43	-
	Head And Gut	0.68	0.90	0.93	0.79	0.91
	Fillets	*	*	*	*	-
	Other Products	*	*	*	*	*
	All Products	0.63	0.73	0.60	0.58	0.91
Deep-Water Flatfish	Whole Fish	*	0.45	*	*	-
	Head And Gut	*	0.39	*	*	-
	Fillets	*	*	*	*	-
	Other Products	*	-	-	-	-
	All Products	*	0.40	*	*	-
Pacific Ocean Perch	Whole Fish	0.55	0.54	0.46	0.44	0.42
	Head And Gut	1.33	1.22	0.87	0.78	0.92
	Other Products	2.18	2.02	3.36	4.29	2.98
	All Products	1.15	1.06	0.83	0.70	0.87
Northern Rockfish	Whole Fish	0.76	0.42	*	*	*
	Head And Gut	1.01	1.04	0.83	0.63	0.69
	Other Products	2.11	1.96	2.81	2.44	*
	All Products	1.03	1.03	0.83	0.63	0.69
Dusky Rockfish	Whole Fish	0.62	0.72	0.77	0.71	0.57
	Head And Gut	1.00	1.14	0.88	0.77	0.86
	Other Products	2.98	2.48	3.04	4.87	3.79
	All Products	1.02	1.15	0.88	0.82	0.86
Other Rockfish	Whole Fish	1.98	1.86	1.81	1.62	1.55
	Head And Gut	2.01	1.93	1.55	1.44	1.08
	Other Products	2.91	4.76	5.34	4.52	5.58
	All Products	2.08	2.08	1.99	1.86	1.66

Table 4.36: Gulf of Alaska price per pound of groundfish products by species, 2017-2021, ($/lb). *(continued)*

	Product	2017	2018	2019	2020	2021
	Whole Fish	2.19	0.94	1.66	0.92	1.66
	Head And Gut	1.41	1.84	1.79	0.79	2.11
	Fillets	-	*	-	-	-
Other	Fishmeal	*	*	*	*	*
Groundfish	Other Products	2.18	2.01	1.89	1.89	1.60
	All Products	2.06	1.96	1.81	1.76	1.64

Note These estimates are based on data from both federal and state of Alaska fisheries. Prices based on confidential data have been excluded. Values are not adjusted for inflation. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.37: Gulf of Alaska total product value per round metric ton of retained catch by species and year, 2017-2021, ($/mt).

	2017	2018	2019	2020	2021
Pollock	542	684	735	664	710
Sablefish	11,043	8,537	7,229	5,448	6,166
Pacific Cod	1,572	2,194	2,422	2,952	2,012
Flatfish	1,233	795	641	593	689
Rockfish	1,452	1,445	1,098	974	1,048
Atka Mackerel	1,734	1,785	1,443	1,165	1,552
Other	1,496	1,440	2,085	1,670	3,486

Note These estimates include the product value of catch from both federal and state of Alaska fisheries. Values are not adjusted for inflation. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region At-sea and Shoreside Production Reports; ADF&G Commercial Operators Annual Reports (COAR); and NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.38: Gulf of Alaska number of processors, gross product value, value per processor, and percent value of GOA FMP groundfish of processed groundfish by processor group, 2017-2021 ($ millions).

	Year	Processors	Wholesale Value ($million)	Wholesale Value per Processor ($1,000)	Percent Value, GOA FMP Groundfish
Central And Western Gulf Trawl	2017	11	50.35	4,576.89	10.96
	2018	9	34.64	3,849.20	8.30
	2019	11	28.78	2,616.46	7.71
	2020	9	21.89	2,431.82	9.50
	2021	7	27.58	3,939.59	8.80
CP Hook and Line	2017	11	10.22	929.25	2.22
	2018	7	2.94	420.58	0.71
	2019	7	2.46	351.83	0.66
	2020	4	0.08	19.74	0.03
	2021	5	3.28	655.13	1.05
Sablefish IFQ	2017	6	5.38	896.88	1.17
	2018	5	4.35	870.40	1.04
	2019	7	3.89	555.68	1.04
	2020	5	2.13	426.97	0.93
	2021	5	5.26	1,051.81	1.68
Motherships & Inshore Floating Procs.	2017	4	114.32	28,579.92	24.88
	2018	3	113.17	37,724.78	27.12
	2019	3	106.14	35,379.26	28.42
	2020	2	*	*	*
	2021	2	*	*	*
Kodiak Shoreside Procs.	2017	8	139.67	17,458.44	30.40
	2018	8	138.62	17,328.11	33.22
	2019	6	111.06	18,509.63	29.74
	2020	7	98.76	14,108.99	42.85
	2021	6	113.31	18,884.98	36.16
Southcentral Gulf Shoreside Procs.	2017	11	39.37	3,578.73	8.57
	2018	11	29.05	2,640.61	6.96
	2019	10	24.43	2,442.82	6.54
	2020	10	15.55	1,554.54	6.74
	2021	8	27.29	3,410.84	8.71
Southeastern Gulf Shoreside Procs.	2017	14	40.24	2,874.21	8.76
	2018	14	34.41	2,458.15	8.25
	2019	17	33.28	1,957.36	8.91
	2020	15	25.78	1,718.70	11.18
	2021	17	36.80	2,164.97	11.74
Western Gulf Shoreside Procs.	2017	3	59.88	19,959.23	13.03
	2018	2	*	*	*
	2019	3	63.45	21,149.68	16.99
	2020	4	38.55	9,638.21	16.73
	2021	3	49.89	16,631.06	15.92

Note The data are for catch from both federal and state of Alaska fisheries. The processor groups are defined as follows: "Western and Central Gulf Trawl" are the processors in the Western and Central Gulf. "CP Hook and Line" are the hook and line catcher processors. "Sablefish IFQ" are processors processing sablefish IFQ. Values are not adjusted for inflation.
Source ADF&G Commercial Operators Annual Reports (COAR); and ADF&G Intent to Operate (ITO) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.39: Gulf of Alaska number of vessels, average and median length, and average and median capacity (tonnage) of vessels that caught groundfish by vessel type, and gear, 2017-2021.

	Year	Vessels	Average Length (feet)	Median Length (feet)	Average Capacity (tons)	Median Capacity (tons)
Central And Western Gulf Trawl	2017	79	90	88.0	124	114.0
	2018	78	88	87.0	115	114.0
	2019	76	89	87.0	130	115.0
	2020	70	90	87.0	135	115.0
	2021	68	92	88.0	141	115.0
CV Hook and Line	2017	49	43	42.0	26	24.0
	2018	33	44	42.0	27	24.0
	2019	32	44	42.0	26	24.0
	2020	2	47	47.0	20	19.5
	2021	36	44	42.0	27	24.0
CP Hook and Line	2017	10	141	128.0	344	133.0
	2018	3	101	119.0	245	153.0
	2019	2	135	119.0	262	133.0
	2021	2	159	158.5	389	389.0
Sablefish IFQ	2017	262	56	57.0	47	36.0
	2018	262	57	57.0	48	39.0
	2019	254	57	57.0	48	36.0
	2020	241	57	57.0	49	39.5
	2021	245	58	57.0	52	41.0
Pot	2017	108	61	58.0	57	48.0
	2018	58	65	58.0	62	51.0
	2019	60	66	58.0	67	51.0
	2020	38	52	55.0	43	41.0
	2021	64	61	58.0	64	52.0
Jig	2017	103	37	36.0	14	13.0
	2018	98	39	36.0	14	12.0
	2019	108	40	41.0	16	15.0
	2020	94	39	38.0	15	15.0
	2021	96	38	38.0	21	15.0
No Fleet/ Other	2017	8	41	38.0	15	11.0
	2018	8	39	35.0	14	10.0
	2019	8	43	40.0	14	11.0
	2020	4	39	40.0	16	16.0
	2021	3	62	68.0	45	24.0

Note These estimates include only vessels fishing part of federal TACs. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.40: Gulf of Alaska number of vessels that caught groundfish by month, vessel type, and gear, 2017-2021.

Sector	Gear	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Catcher Vessels	Hook And Line	2017	54	81	124	164	172	129	79	73	122	104	56	19	371
		2018	10	48	98	125	178	123	59	103	174	114	103	17	353
		2019	29	59	140	173	150	123	60	93	113	106	69	10	351
		2020	4	19	88	98	143	86	54	72	100	113	38	5	291
		2021	31	44	93	116	134	60	50	40	58	85	50	29	280
	Pot	2017	74	86	89	91	16	11	9	5	11	18	15	8	127
		2018	24	30	46	10	14	11	5	6	16	14	13	5	78
		2019	24	24	39	15	18	13	4	7	22	25	18	3	88
		2020	1	8	37	22	35	28	20	33	55	62	36	3	137
		2021	30	24	52	63	87	57	39	33	60	80	55	27	206
	Trawl	2017	37	45	61	42	21	17	5	4	53	60	35	1	68
		2018	12	53	51	25	19	14	2	35	59	61	28	2	69
		2019	32	47	50	25	25	22	1	20	47	50	21	-	65
		2020	28	37	43	19	24	16	4	33	44	51	11	-	61
		2021	17	52	45	19	16	12	5	-	48	35	13	-	61
	All Gear	2017	165	208	258	292	206	155	91	81	185	177	105	28	522
		2018	46	131	187	158	211	146	66	142	248	188	141	24	467
		2019	85	130	221	209	191	156	65	119	180	177	106	13	468
		2020	33	64	163	134	190	123	72	127	175	195	74	8	414
		2021	77	118	169	169	204	111	77	61	152	168	101	49	432
Catcher Processors	Hook And Line	2017	-	3	7	7	3	2	2	1	6	3	1	1	11
		2018	-	2	5	3	1	2	1	1	3	-	1	-	7
		2019	-	1	1	1	2	2	2	1	4	2	2	-	8
		2020	-	-	1	1	2	1	-	1	1	-	-	-	4
		2021	-	3	2	1	-	-	2	1	1	2	3	-	5
	Pot	2020	-	-	-	-	-	-	-	-	-	1	1	-	1
		2021	-	-	-	-	2	2	-	-	-	1	1	-	3
	Trawl	2017	-	1	2	2	2	4	10	6	4	4	2	1	11
		2018	-	-	1	2	1	5	8	4	4	1	1	1	9
		2019	-	-	1	1	1	3	6	6	5	4	2	1	11
		2020	-	-	1	3	2	4	7	5	2	1	1	-	9
		2021	-	-	-	-	1	5	6	6	3	2	1	1	7
	All Gear	2017	-	4	9	9	5	6	12	7	10	7	3	2	22
		2018	-	2	6	5	2	7	9	5	7	1	2	1	16
		2019	-	1	2	2	3	5	8	7	9	6	4	1	19
		2020	-	-	2	4	4	5	7	6	3	2	2	-	14
		2021	-	3	2	1	3	7	8	7	4	5	5	1	14

Note These estimates include only vessels fishing part of federal TACs. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.41: Gulf of Alaska catcher vessel (excluding catcher/processors) weeks of fishing groundfish by vessel-length class (feet), gear, and target ,2017-2021.

		Hook & Line		Pot		Trawl		All Gear	
	Year	<60ft	60-124ft	<60ft	60-124ft	<60ft	60-124ft	<60ft	60-124ft
Pollock	2017	-	-	-	-	180	516	180	516
	2018	-	-	-	-	187	487	187	487
	2019	-	-	-	-	142	389	142	389
	2020	-	-	-	-	144	422	144	422
	2021	-	-	-	-	82	463	82	463

Table 4.41: Gulf of Alaska catcher vessel (excluding catcher/processors) weeks of fishing groundfish by vessel-length class (feet), gear, and target ,2017-2021. *(continued)*

		Hook & Line		Pot		Trawl		All Gear	
	Year	<60ft	60-124ft	<60ft	60-124ft	<60ft	60-124ft	<60ft	60-124ft
Sablefish	2017	1,334	274	131	45	-	9	1,465	328
	2018	1,463	287	134	57	-	18	1,597	362
	2019	1,322	298	200	62	-	12	1,522	371
	2020	1,005	164	467	201	1	10	1,473	375
	2021	727	47	785	316	-	10	1,513	373
Pacific Cod	2017	574	-	880	209	109	58	1,563	268
	2018	371	1	190	93	29	3	590	96
	2019	394	1	171	80	41	7	606	88
	2020	254	-	80	5	-	2	335	7
	2021	529	8	223	37	57	8	809	53
Flatfish	2017	-	-	-	-	-	102	-	102
	2018	-	-	-	-	26	136	29	136
	2019	-	-	-	-	17	165	17	165
	2020	-	-	-	-	2	150	3	150
	2021	-	-	-	-	-	1	-	1
Rockfish	2017	278	2	-	-	7	86	285	88
	2018	250	7	-	-	5	98	256	105
	2019	238	1	-	-	6	113	245	114
	2020	186	-	-	-	6	112	192	112
	2021	109	-	-	-	3	116	113	116
Atka Mackerel	2018	-	-	-	-	-	0	-	0
All Groundfish	2017	2,194	276	-	-	297	771	3,502	1,302
	2018	2,095	295	-	-	247	742	2,669	1,187
	2019	1,959	300	-	-	207	686	2,536	1,127
	2020	1,452	164	-	-	152	696	2,152	1,066
	2021	1,367	55	-	-	142	599	2,518	1,007

Note These estimates include only vessels fishing part of federal TACs. A vessel that fished more than one category in a week is apportioned a partial week based on catch weight. A target is determined based on vessel, week, processing mode, NMFS area, and gear. All groundfish include additional target categories. "*" indicates a confidential value; "-" indicates no applicable data or value.

Source NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.42: Gulf of Alaska catcher/processor vessel weeks of fishing groundfish by vessel-length class (feet), gear, and target, 2017-2021.

		Hook & Line			Pot	Trawl			All Gear			
Target	Year	<60ft	60-124ft	125-230ft	125-230ft	60-124ft	125-230ft	>230ft	<60ft	60-124ft	125-230ft	>230ft
Pollock	2018	-	-	-	-	0	0	-	-	0	0	-
	2020	-	-	-	-	-	0	-	-	-	0	-
	2021	-	-	-	-	1	0	-	-	1	0	-
Sablefish	2017	9	-	19	-	-	-	-	9	-	19	-
	2018	10	-	21	-	0	-	-	10	0	21	-
	2019	8	-	23	-	0	-	-	8	0	23	-
	2020	9	-	11	7	-	-	-	9	-	18	-
	2021	9	-	7	17	-	-	-	9	-	24	-
Pacific Cod	2017	-	23	24	-	1	-	-	-	24	24	-
	2018	7	7	1	-	-	-	-	7	7	1	-
	2019	1	6	3	-	-	-	-	1	6	3	-
	2021	-	-	11	-	-	-	-	-	-	11	-
Flatfish	2017	-	-	-	-	62	16	-	-	62	16	-
	2018	-	-	-	-	34	4	-	-	34	4	-
	2019	-	-	-	-	45	10	-	-	45	10	-
	2020	-	-	-	-	28	10	3	-	28	10	3
	2021	-	-	-	-	22	11	3	-	22	11	3
Rockfish	2017	-	-	0	-	5	32	0	-	5	32	0
	2018	-	-	-	-	7	35	-	-	7	35	-
	2019	-	-	-	-	5	34	1	-	5	34	1
	2020	-	-	-	-	1	33	4	-	1	33	4
	2021	-	-	-	-	2	40	7	-	2	40	7
Atka Mackerel	2017	-	-	-	-	1	-	-	-	1	-	-
	2018	-	-	-	-	0	0	-	-	0	0	-
All Groundfish	2017	9	24	43	-	69	48	0	9	92	91	0
	2018	17	7	23	-	42	40	-	17	48	62	-
	2019	9	6	25	-	50	44	1	9	56	69	1
	2020	9	-	11	7	29	43	7	9	29	61	7
	2021	9	-	18	17	25	51	10	9	25	86	10

Note These estimates include only vessels fishing part of federal TACs. A vessel that fished more than one category in a week is apportioned a partial week based on catch weight. A target is determined based on vessel, week, processing mode, NMFS area, and gear. All groundfish include additional target categories. "*" indicates a confidential value; "-" indicates no applicable data or value.

Source NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; ADF&G Commercial Operators Annual Reports (COAR); and NMFS Office of Science and Technology, Fisheries Statistics Division, Fisheries of the United States. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.43: Gulf of Alaska catcher vessel crew weeks in the groundfish fisheries by month, 2017-2021.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2017	1,500	2,191	2,262	2,556	1,486	1,185	598	616	1,682	1,858	648	228	16,810
2018	352	1,144	1,378	1,323	1,721	1,270	494	808	2,240	1,842	926	156	13,654
2019	428	1,055	1,492	1,396	1,642	1,209	442	924	1,456	1,712	729	72	12,558
2020	116	640	1,018	970	1,525	852	458	914	1,395	2,004	512	34	10,436
2021	490	984	1,390	1,138	1,740	799	598	509	1,208	1,882	774	223	11,734

Note Crew weeks are calculated by summing weekly reported crew size over vessels and time period. These estimates include only vessels targeting groundfish counted toward federal TACs. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region At-sea Production Reports. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.44: Gulf of Alaska at-sea processor vessel crew weeks in the groundfish fisheries by month, 2017-2021.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2017	-	113	463	262	135	317	1,116	615	592	297	156	*	4,066
2018	-	*	146	194	116	490	877	408	247	*	*	*	2,478
2019	-	*	*	*	134	332	604	556	526	346	312	*	2,810
2020	-	-	*	203	318	571	670	429	86	*	*	-	2,277
2021	-	72	*	*	126	609	1,164	408	294	250	205	*	3,128

Note Crew weeks are calculated by summing weekly reported crew size over vessels and time period. These estimates include only vessels targeting groundfish counted toward federal TACs. Catcher processors typically account for 90-95% of the total at-sea crew weeks in all areas. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region At-sea Production Reports. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

4.4 Economic Data Tables for the Commercial Pacific Halibut Fishery

Table 4.45: Catch (net landed weight) in the commercial Pacific halibut fisheries off Alaska by region, 2017-2021, (hundreds of metric tons).

Year	Gulf Of Alaska	Bering Sea And Aleutian Islands	All Alaska
2017	70.19	16.50	86.68
2018	67.27	15.93	83.19
2019	69.67	17.16	86.83
2020	62.65	15.33	77.99
2021	76.66	13.58	90.24

NoteThese estimates include catch from all Alaska commercial fisheries (including CDQ). Net weight is dressed, head-off, slime and ice deducted. "*" indicates a confidential value; "-"indicates no applicable data or value.
Source ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.46: Catch (net landed weight) and percent of regional catch in the commercial Pacific halibut fisheries off Alaska by vessel length (feet) and region, 2017-2021, (hundreds of metric tons).

Year	Length	Gulf of Alaska		Bering Sea and Aleutian Islands		All Alaska	
		Net Tons	Percent	Net Tons	Percent	Net Tons	Percent
2017	<20	0.10	0.0	*	*	0.10	0.0
	20-29	1.88	0.03	1.05	0.06	2.93	0.03
	30-39	11.15	0.16	2.82	0.17	13.97	0.16
	40-49	25.94	0.37	3.21	0.20	29.15	0.34
	50-59	21.34	0.31	5.65	0.35	27.00	0.31
	>=60	9.48	0.14	3.65	0.22	13.13	0.15
2018	<20	0.09	0.0	*	*	0.09	0.0
	20-29	1.48	0.02	1.05	0.07	2.53	0.03
	30-39	11.18	0.17	3.13	0.20	14.32	0.17
	40-49	26.20	0.39	3.23	0.20	29.43	0.36
	50-59	19.66	0.29	4.91	0.31	24.57	0.30
	>=60	8.50	0.13	3.44	0.22	11.94	0.14
2019	<20	0.09	0.0	*	*	0.09	0.0
	20-29	1.73	0.02	0.92	0.05	2.65	0.03
	30-39	12.53	0.18	3.12	0.19	15.65	0.18
	40-49	26.48	0.38	2.90	0.17	29.38	0.34
	50-59	19.86	0.29	5.95	0.35	25.80	0.30
	>=60	8.86	0.13	3.93	0.23	12.79	0.15
2020	<20	*	*	*	*	0.0	0.0
	20-29	1.75	0.03	*	*	1.75	0.02
	30-39	11.57	0.19	1.34	0.09	12.91	0.17
	40-49	24.00	0.38	2.59	0.17	26.59	0.34
	50-59	17.35	0.28	7.10	0.47	24.45	0.32
	>=60	7.85	0.13	3.93	0.26	11.78	0.15
2021	<20	0.07	0.0	*	*	0.07	0.0
	20-29	2.19	0.03	*	*	2.19	0.03
	30-39	13.77	0.18	0.61	0.08	14.38	0.17
	40-49	28.79	0.38	2.52	0.35	31.31	0.37
	50-59	22.58	0.30	*	*	22.58	0.27
	>=60	9.13	0.12	4.08	0.57	13.21	0.16

Note Excludes vessels in the Annette Island commercial Pacific halibut fishery. These estimates include catch from all Alaska commercial fisheries (including CDQ). Net weight is dressed, head-off, slime and ice deducted. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.47: Non-halibut prohibited species catch on commercial Pacific halibut target trips off Alaska by PSC species and area, 2017-2021.

Zone	Year	Chinook Salmon (Count)	Non-Chinook Salmon (Count)	Herring (Tons)	Bairdi Tanner Crab (Count)	Opilio Tanner (Snow) Crab (Count)	Red King Crab (Count)	Other King Crab (Count)
Gulf Of Alaska	2017	*	81	-	*	*	114	46
	2018	-	62	-	131	1	17	96
	2019	17	93	-	57	-	2	28
	2020	-	-	-	1	0.0	-	199
	2021	-	21	-	76	-	*	572
Bering Sea And Aleutian Islands	2017	-	-	-	53	71	182	820
	2018	-	32	*	32	128	35	610
	2019	*	*	*	22	47	3	551
	2020	*	0.0	-	28	75	0.0	558
	2021	0.0	0.0	0.0	32	147	20	22

Note These estimates include catch from all Alaska commercial fisheries (including CDQ). For details on prohibited species catch estimation see Cahalan, J., J. Gasper, and J. Mondragon. 2014. Catch sampling and estimation in the federal groundfish fisheries off Alaska, 2015 edition. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-286, 46 p. "*" indicates a confidential value; "-"indicates no applicable data or value.
Source NMFS Alaska Regional Office Prohibited Species Catch database. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.48: Ex-vessel value and price in the commercial Pacific halibut fisheries off Alaska by region, 2017-2021, ($ millions and $/lb net weight, respectively).

	Gulf of Alaska		Bering Sea and Aleutian Islands		All Alaska	
Year	Value	Price	Value	Price	Value	Price
2017	89.31	5.77	19.18	5.27	108.48	5.68
2018	75.38	5.08	15.44	4.40	90.82	4.95
2019	79.59	5.18	15.31	4.05	94.89	4.96
2020	59.30	4.29	13.02	3.85	72.32	4.21
2021	110.51	6.54	17.68	5.91	128.20	6.44

Note These estimates include catch from all Alaska commercial fisheries (including CDQ). Price is calculated as landed value divided by net weight. Values are not adjusted for inflation. Net weight is dressed, head-off, slime and ice deducted. "*" indicates a confidential value; "-"indicates no applicable data or value.
Source ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.49: Ex-vessel value and price in the commercial Pacific halibut fisheries off Alaska by IPHC area, 2017-2021, ($ millions and $/lb net weight, respectively).

Area		2017	2018	2019	2020	2021
2c	Value	23.09	19.25	19.79	15.25	27.28
	Price	5.86	5.06	5.26	4.28	6.34
3a	Value	46.04	40.46	45.25	31.41	65.57
	Price	5.81	5.15	5.28	4.32	6.66
3b	Value	16.48	13.35	12.24	10.35	12.13
	Price	5.61	5.01	5.03	4.33	6.66
4a	Value	7.48	6.07	5.79	4.70	9.28
	Price	5.48	4.54	3.86	3.82	5.89
4b	Value	5.98	5.07	4.50	3.77	4.93
	Price	5.14	4.40	4.16	3.80	5.88
4cde	Value	9.41	6.63	7.32	6.85	9.01
	Price	5.28	4.34	4.07	3.91	5.95

Note Values and prices are for catch from all Alaska commercial fisheries (including CDQ). Price is calculated as landed value divided by net weight. Values are not adjusted for inflation. Net weight is dressed, head-off, slime and ice deducted. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.50: Ex-vessel value and average annual revenue per vessel in the commercial Pacific halibut fisheries off Alaska by region and vessel length (feet), 2017-2021, ($ millions and $ thousands, respectively).

Year	Length	Gulf of Alaska		Bering Sea and Aleutian Islands		All Alaska	
		Value	Avg. Value/Vessel	Value	Avg. Value/Vessel	Value	Avg. Value/Vessel
2017	<20	0.13	9.86	*	*	0.27	12.07
	20-29	2.40	25.31	1.19	41.02	3.59	29.22
	30-39	14.11	56.23	3.22	94.83	17.34	63.04
	40-49	32.90	122.29	3.75	234.41	36.65	134.73
	50-59	27.15	205.70	6.51	260.43	33.66	255.02
	>=60	12.21	313.11	4.36	256.66	16.57	394.63
2018	<20	0.10	7.46	*	*	0.29	14.40
	20-29	1.65	20.09	0.97	37.28	2.62	24.45
	30-39	12.49	50.38	2.99	80.78	15.48	57.35
	40-49	29.28	108.05	3.16	185.68	32.44	117.96
	50-59	21.99	167.90	4.74	197.67	26.74	201.04
	>=60	9.71	236.92	3.39	199.26	13.10	297.75
2019	<20	0.10	6.29	*	*	0.50	18.42
	20-29	1.98	22.47	0.83	31.82	2.80	24.82
	30-39	14.11	54.91	2.74	76.07	16.85	59.96
	40-49	30.50	122.99	2.63	187.60	33.13	130.94
	50-59	22.49	178.51	5.24	227.72	27.73	218.34
	>=60	10.25	256.24	3.48	193.39	13.73	319.31
2020	<20	*	*	*	*	0.29	17.09
	20-29	1.66	21.04	*	*	1.72	19.94
	30-39	10.88	47.28	1.16	50.62	12.04	49.96
	40-49	22.84	92.11	2.22	147.87	25.06	99.06
	50-59	16.37	136.38	5.98	314.61	22.34	183.14
	>=60	7.42	200.43	3.34	196.76	10.76	269.02
2021	<20	0.09	6.51	*	*	0.25	11.81
	20-29	3.13	44.03	*	*	3.18	40.27
	30-39	19.60	84.11	0.80	42.00	20.39	84.28
	40-49	41.59	176.25	3.21	292.09	44.81	187.48
	50-59	32.40	263.45	*	*	40.39	323.13
	>=60	13.50	385.85	5.47	341.99	18.98	499.38

Note Values are for catch from all Alaska commercial fisheries (including CDQ). Excludes vessels in the Annette Island commercial Pacific halibut fishery. Length is measured in feet. Values are not adjusted for inflation. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.51: Ex-vessel value port ranking, annual ex-vessel value, price and percent of statewide value in the commercial Pacific halibut fisheries off Alaska, 2017-2021, ($ millions and $/lb net weight).

Port		2017	2018	2019	2020	2021
Ex-Vessel Value	Homer	12.38	13.27	15.07	13.86	25.62
	Seward	13.23	13.20	11.82	5.81	15.44
	Kodiak	17.88	11.07	10.35	7.20	13.11
	Akutan	*	*	*	*	*
	Juneau	4.04	5.48	*	6.17	9.79
	Sitka	*	6.55	7.35	5.08	8.74
	Yakutat	*	*	*	*	*
	Petersburg	9.47	6.56	6.43	4.23	7.77
	Dutch Harbor	*	*	*	*	*
	St Paul Island	*	*	3.23	*	*
Price	Homer	5.82	5.34	5.43	4.50	7.11
	Seward	5.79	5.14	5.40	4.37	6.93
	Kodiak	5.59	4.95	4.80	4.03	6.32
	Akutan	*	*	*	*	*
	Juneau	6.01	5.10	*	4.51	6.48
	Sitka	*	5.21	5.54	4.21	6.24
	Yakutat	*	*	*	*	*
	Petersburg	5.93	4.86	4.98	4.17	6.28
	Dutch Harbor	*	*	*	*	*
	St Paul Island	*	*	3.92	*	*
Percent State Value	Homer	11 %	15 %	16 %	19 %	20 %
	Seward	12 %	15 %	12 %	8 %	12 %
	Kodiak	16 %	12 %	11 %	10 %	10 %
	Akutan	*	*	*	*	*
	Juneau	4 %	6 %	*	9 %	8 %
	Sitka	*	7 %	8 %	7 %	7 %
	Yakutat	*	*	*	*	*
	Petersburg	9 %	7 %	7 %	6 %	6 %
	Dutch Harbor	*	*	*	*	*
	St Paul Island	*	*	3 %	*	*
Rank	Homer	3	1	1	1	1
	Seward	2	2	2	5	2
	Kodiak	1	3	3	3	3
	Akutan	11	13	15	7	4
	Juneau	8	7	5	4	5
	Sitka	6	5	4	6	6
	Yakutat	9	8	7	9	7
	Petersburg	4	4	6	8	8
	Dutch Harbor	5	6	8	2	9
	St Paul Island	10	11	10	24	27

Note Displays only the 10 Alaska ports of landing with the highest average ex-vessel value over the last 5 years. Values and prices are for catch from all Alaska commercial fisheries (including CDQ). Price is calculated as landed value divided by net weight. Net weight is dressed, head-off, slime and ice deducted. Values are not adjusted for inflation. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.52: First wholesale production volume, value and price in the commercial Pacific halibut fisheries off Alaska by product, 2017-2021, (1000s of metric tons, $ millions and $/lb net weight, respectively).

Year	Product	Price	Quantity	Value
Head And Gut	2017	7.39	5.64	91.86
	2018	6.84	5.01	75.59
	2019	6.37	5.07	71.12
	2020	5.75	3.42	43.34
	2021	8.35	5.27	97.07
Fillet	2017	13.65	1.40	42.05
	2018	12.92	1.16	33.17
	2019	11.44	1.38	34.76
	2020	10.26	1.70	38.47
	2021	14.45	1.66	52.81
Other Products	2017	2.68	0.46	2.74
	2018	2.39	0.33	1.73
	2019	1.92	0.66	2.80
	2020	1.64	0.50	1.81
	2021	2.32	0.61	3.12
All Products	2017	8.27	7.50	136.64
	2018	7.71	6.50	110.50
	2019	6.94	7.11	108.69
	2020	6.75	5.62	83.62
	2021	9.21	7.54	153.01

Note Landings, values and prices for catch from all Alaska commercial fisheries (including CDQ). Price is calculated as landed value divided by net weight. Net weight is dressed, head-off, slime and ice deducted. Values are not adjusted for inflation. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source NMFS Alaska Region Production Reports. ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.53: Number of vessels catching Pacific halibut commercially off Alaska and median vessel length by region and vessel length class, 2017-2021.

Class	Year	Gulf of Alaska		Bering Sea and Aleutian Islands		All Alaska	
		Vessels	Median Length	Vessels	Median Length	Vessels	Median Length
<20	2017	13	18	9	18	22	18
	2018	13	17	7	18	20	18
	2019	16	18	11	18	27	18
	2020	7	18	10	18	17	18
	2021	14	18	7	18	21	18
20-29	2017	95	25	29	28	123	26
	2018	82	26	26	28	107	27
	2019	88	26	26	28	113	27
	2020	79	26	7	28	86	26
	2021	71	26	8	28	79	26
30-39	2017	251	34	34	32	275	33
	2018	248	34	37	32	270	34
	2019	257	34	36	32	281	33
	2020	230	34	23	32	241	34
	2021	233	34	19	32	242	34
40-49	2017	269	45	16	48	272	45
	2018	271	45	17	48	275	45
	2019	248	45	14	48	253	45
	2020	248	45	15	48	253	45
	2021	236	45	11	48	239	45
50-59	2017	132	58	25	58	132	58
	2018	131	58	24	58	133	58
	2019	126	58	23	58	127	58
	2020	120	58	19	58	122	58
	2021	123	58	21	58	125	58
>=60	2017	39	73	17	76	42	74
	2018	41	72	17	76	44	73
	2019	40	72	18	76	43	74
	2020	37	73	17	76	40	74
	2021	35	74	16	75	38	74

Note Excludes vessels in the Annette Island commercial Pacific halibut fishery. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.54: Total vessel days fishing Pacific halibut commercially off Alaska by area, 2017-2021.

Year	Gulf Of Alaska	Bering Sea And Aleutian Islands	All Alaska
2017	12,425	2,797	14,828
2018	12,792	2,646	15,106
2019	12,960	3,220	15,745
2020	12,020	2,380	14,003
2021	13,578	2,060	15,227

Note Excludes vessels in the Annette Island commercial Pacific halibut fishery. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4.55: Crew days fishing Pacific halibut commercially off Alaska by month and area, 2017-2021.

Area	Year	Mar-Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Gulf Of Alaska	2017	9,296	8,904	5,534	3,581	5,290	6,209	4,566	646
	2018	8,738	8,359	5,735	4,000	6,287	6,756	4,699	1,102
	2019	10,090	8,244	5,040	3,816	5,450	5,832	5,208	1,615
	2020	4,899	6,384	4,543	4,121	5,393	6,475	6,072	1,919
	2021	7,686	6,938	5,120	4,329	5,443	5,650	5,567	3,364
Bering Sea And Aleutian Islands	2017	346	1,384	2,091	1,891	2,857	1,540	1,104	192
	2018	455	1,270	1,456	2,044	2,986	1,766	679	105
	2019	864	1,566	1,927	2,376	2,577	1,986	950	260
	2020	722	1,047	1,284	1,350	2,541	1,876	735	45
	2021	294	873	1,119	1,271	1,986	1,864	1,086	423
All Alaska	2017	9,569	10,121	7,499	5,332	7,609	7,459	5,362	838
	2018	9,121	9,402	7,027	5,931	8,845	8,307	5,351	1,157
	2019	10,857	9,635	6,863	5,938	7,727	7,289	5,893	1,835
	2020	5,585	7,284	5,668	5,391	7,478	7,890	6,603	1,961
	2021	7,956	7,791	6,120	5,329	7,155	7,086	6,352	3,513

Note Excludes vessels in the Annette Island commercial Pacific halibut fishery because crew size is not reported for this fishery. Minimal fishing occurs in March and to ensure confidentiality it is combined with April. "*" indicates a confidential value; "-" indicates no applicable data or value.
Source ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Chapter 5

Economic Performance Indices for the North Pacific Groundfish Fisheries

5.1 Introduction

Fisheries markets are complex. A multitude of factors influence demand, supply, price, catch composition, product types produced and other market activity. Indices are a common method used by agencies to synthesize market information in a digestible format. Indices establish a baseline that helps characterize trends in the market for values, prices and quantities of fisheries goods. Market indices have many uses. From a management perspective indices can both retrospectively characterize changes in the market that may be related to policy decisions (such as a change in TAC), or allow managers to evaluate current market conditions in the context of future policy change. Indices may also be useful to market participants when making business decisions.

This section of the Economic Status of the Groundfish Fisheries off Alaska attempts to distill the numerous factors that affect the North Pacific groundfish markets into a simple set of indices that can be used to track performance. Indices of value, price and quantity are presented for the Bering Sea and Aleutian Island (BSAI) at-sea, the BSAI shoreside, and the Gulf of Alaska (GOA). Figure 5.1 displays the ex-vessel and first-wholesale values for the BSAI and GOA at-sea and shoreside sectors. For the BSAI at-sea sector, index analysis will focus on the wholesale market; for the BSAI shoreside and GOA sectors, index analysis will consider the wholesale and ex-vessel markets. To help understand and evaluate the indices, we plot the value share stratified by species and product type for wholesale markets, and by species and gear type for the ex-vessel markets. Value share is the proportion of total value from each of the stratified components, such as the proportion of total value that comes from pollock. Additionally, bar graphs provide detail on the division of production among species, product types and gear types. Specifically, for the wholesale market, these graphs show the composition of species within product types and the composition of product type for a given species, and in the ex-vessel market, they show composition of species harvested by a given gear type and the composition of gear types used to harvest a species.

Aggregate indices, by their very nature, cumulative over the many species, products types, and gear types in a sector. The values, prices, and quantities from individual components of these factors (e.g., individual species) may contribute to the movements of the aggregate indices in very different ways. The myriad of market influences make it difficult to disentangle the relative

importance of different species or products when monitoring aggregate performance, a problem that can be approached by using a value-share decomposition to examine the influence of these different components on the aggregate index. Decomposition relates the indices for each of the components of a single factor to the aggregate through its value share. For example, consider an aggregate price index for a sector. The aggregate price index is a function of the prices of all the species sold (e.g., pollock, Pacific cod, sablefish). Here, species type is the factor and the component indices of this factor are the price indices for all the species (e.g., pollock price index, Pacific cod price index). The importance of each individual species price index is determined by the proportion of total value in the sector for the species. By decomposing the aggregate index in this way, one can see how each of the species price indices influence the movement in the aggregate price index. Similar value-share decompositions are also constructed for product types in the wholesale market, and for gear types in the ex-vessel market.

The primary tools we will use to analyze market performance are Figures 5.2-5.11. The index figures in Figures 5.2-5.11 are designed to help the reader visualize changes in the indices and relate the changes to shifts in aggregate value, prices, and quantities. All indices use 2018 as the base year for the index. All calculations and statistics are made using nominal U.S. dollars (i.e., not adjusted for inflation).[1] Aggregate indices are located in the upper-left panel and the value share decomposition of the aggregate index is below in the lower-left panels of the figures. Changes in the indices have been color coded to indicate the relevance in determining aggregate index movements. The relevance of a change in the price index in year t is calculated by $(year-on-year\ growth\ rate)*(share\ weight) = (I_{i,t}/I_{i,t-1}-1)*\tilde{w}(i,t)$ where $I_{i,t}$ is the level of the index and $\tilde{w}(i,t) = \frac{p_{i,t}*q_{i,t}}{\sum_j p_{j,t}*q_{j,t}}$ is the year t value share and i, j enumerates species, products, or gear types depending on the index. When the value $(year-on-year\ growth\ rate)*(share\ weight)$ is roughly zero, indicating little to no change or influence on the aggregate index, it is colored blue. When this value is less than -0.1, the index is colored red to indicate that it has had a significant negative impact on the aggregate index. When this value is greater than 0.1, the index is colored green, indicating a significant positive impact on the aggregate index. Shades in between these colors indicate intermediate impacts. The indices can take on these "significant colors" if the percentage change is large and/or the value share is large. The value share plot in the upper-right corner of each figure helps to discern the difference. For each sector and market, two decompositions are presented. The wholesale market is decomposed by species and product type, and the ex-vessel market is decomposed by species and gear type. To help relate the different decompositions, bar graphs in the lower-right panel of each figure show the composition of one factor (e.g., product type) for each relevant category of the other factor (e.g., species) as measured by production. The height of the bars shows the annual output in that market. Only the components of a factor with a value share greater than 1% have been plotted, although all prices and quantities were used in the construction of the aggregate index. Ex-vessel indices are constructed using catch that is counted against a federal total allowable catch (TAC). Hereafter, "wholesale value" and "ex-vessel value" refer to the revenue from production at the first wholesale level or from sales of catch on the ex-vessel market, respectively. Walleye pollock will often be referred to simply as "pollock"; similarly, Pacific cod will often be referred to as "cod". The "other" product type contains all products that are not fillets, H&G, surimi, meal and oil, or roe. In particular, the "other" product type includes whole fish and minced fish.

[1] U.S. nominal dollars are used so price indices capture unadjusted changes in prices throughout time, allowing them to be used as deflator indices. For readers comparing these indices to other figures in the SAFE denominated in inflation adjusted terms, this adjustment should be kept in mind.

Understanding the indices and their construction facilitates accurate interpretation. To properly interpret the indices, the reader must realize that the indices are merely descriptive and characterize the state of the market relative to other periods, and display the co-movement of different species, product types, or gear types both individually and in aggregate. The indices have no inherent causal interpretation. For example, it would be wrong to assert from these indices that a change in surimi prices "caused" a change in pollock price. Nor could we say the opposite. We can say that they are connected, as surimi is a significant portion of the value from pollock in some regions, but causality is beyond the scope of indices. Carefully designed regression analysis is better suited for addressing such causality questions. The indices are displayed graphically in Section 5.2 followed by tables with the index values.

5.2 Economic Indices of the North Pacific Groundfish Fisheries

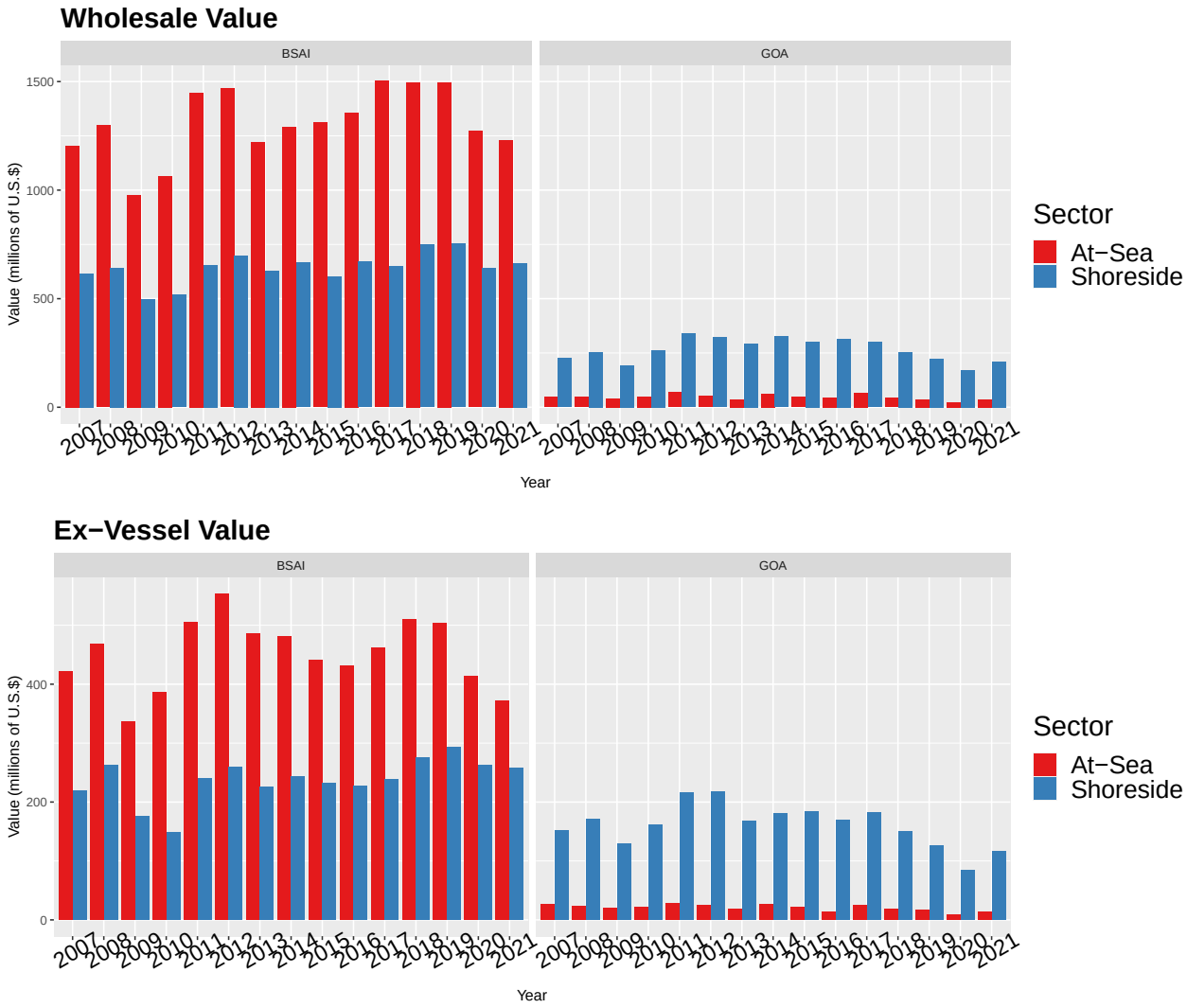

Figure 5.1: Wholesale and ex-vessel value by region and sector 2007 - 2021 .

Source NMFS Alaska Region's Catch-accounting system (CAS) and Weekly Production Report (WPR) estimates; Alaska Department of Fish and Game (ADF&G) Commercial Operator's Annual Report (COAR), National Marine Fisheries Service. P.O. Box 15700, Seattle, WA 98115-0070.

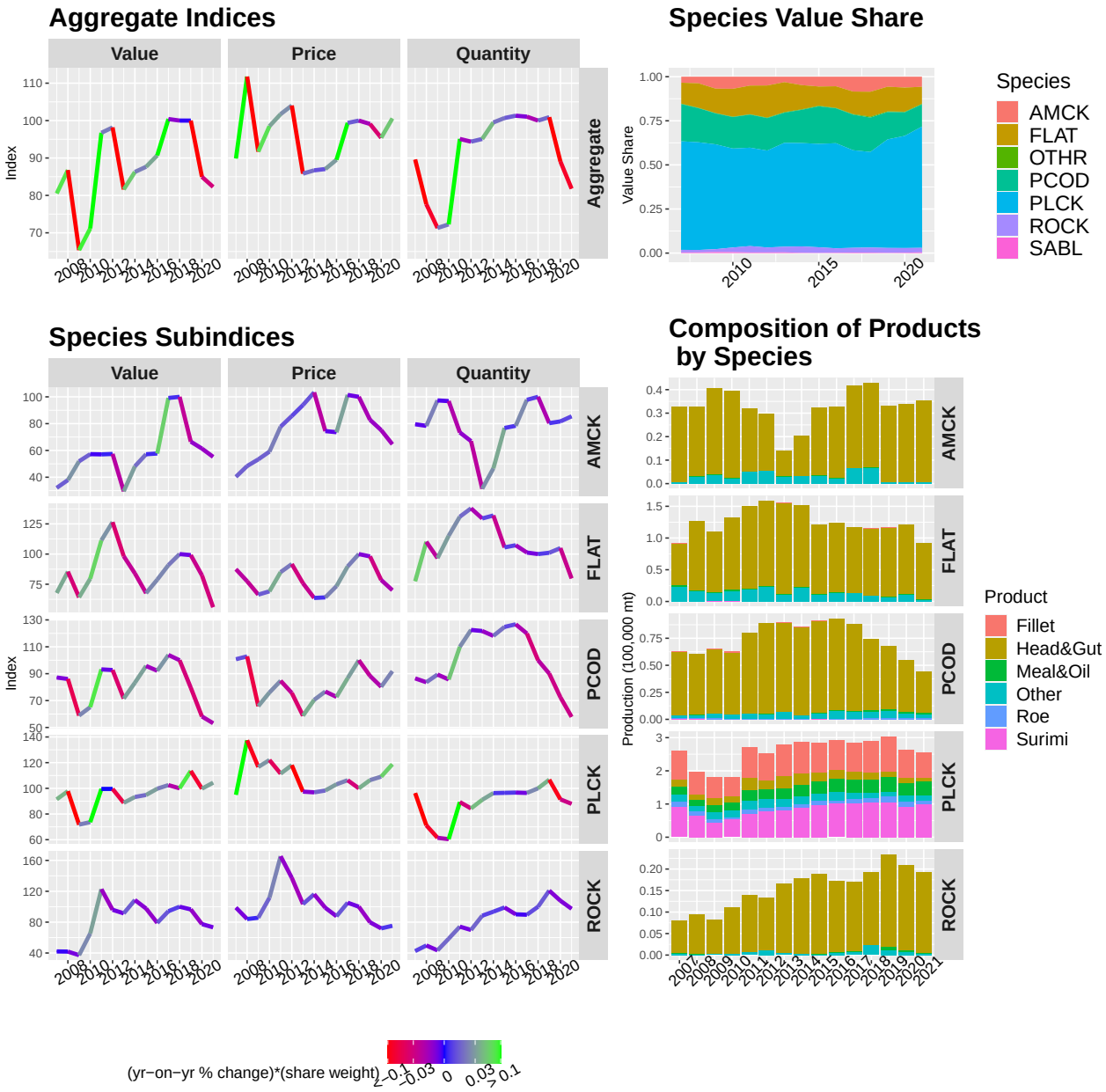

Figure 5.2: BSAI at-sea wholesale market: species decomposition 2007 - 2021 (Index 2018 = 100).

Notes Index values for 2016- 2021, notes and source information for the indices are in Table 5.1. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

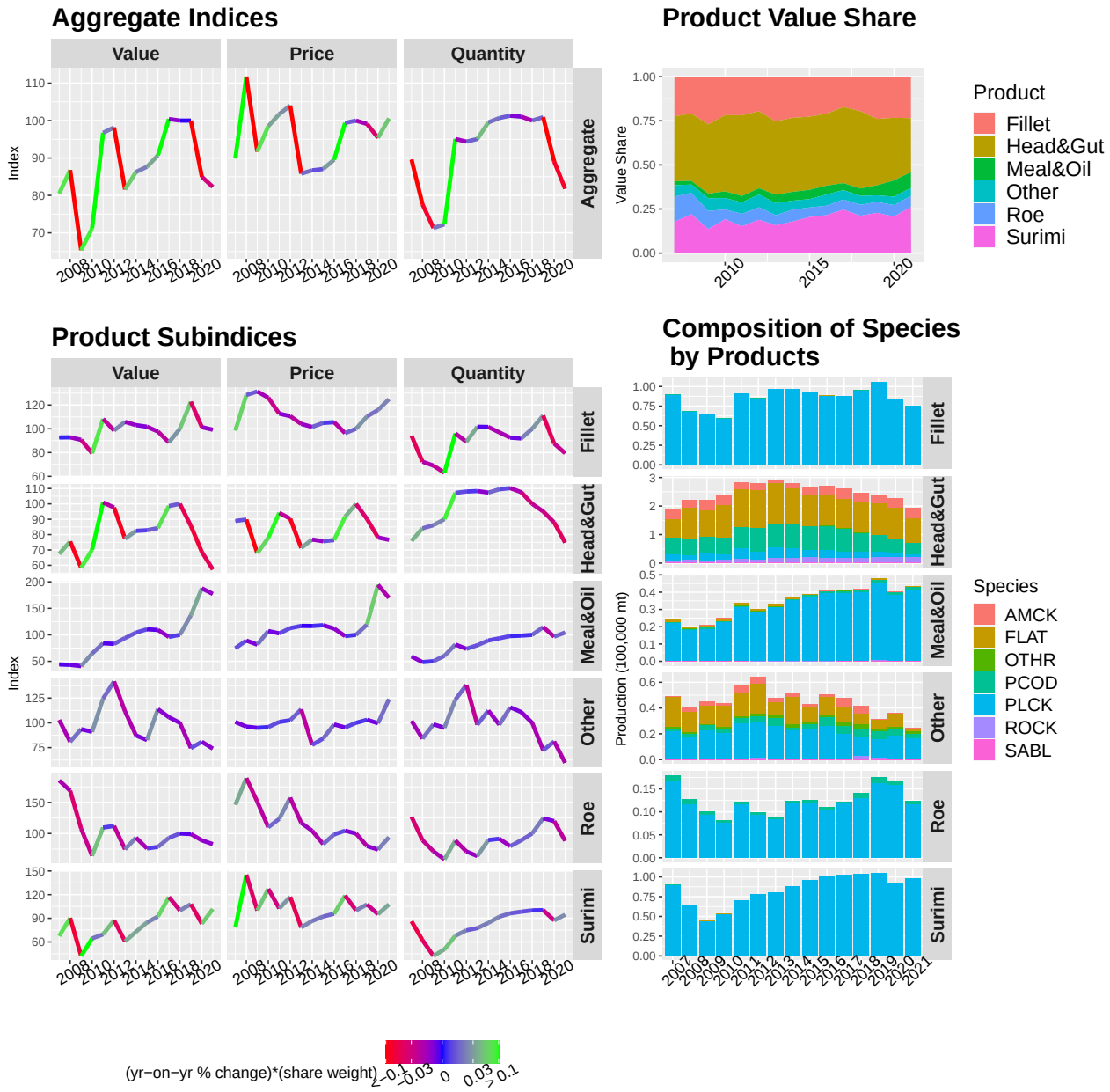

Figure 5.3: BSAI at-sea wholesale market: species decomposition 2007 - 2021 (Index 2018 = 100).

Notes Index values for 2016-2021, notes and source information for the indices are in Table 5.2. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

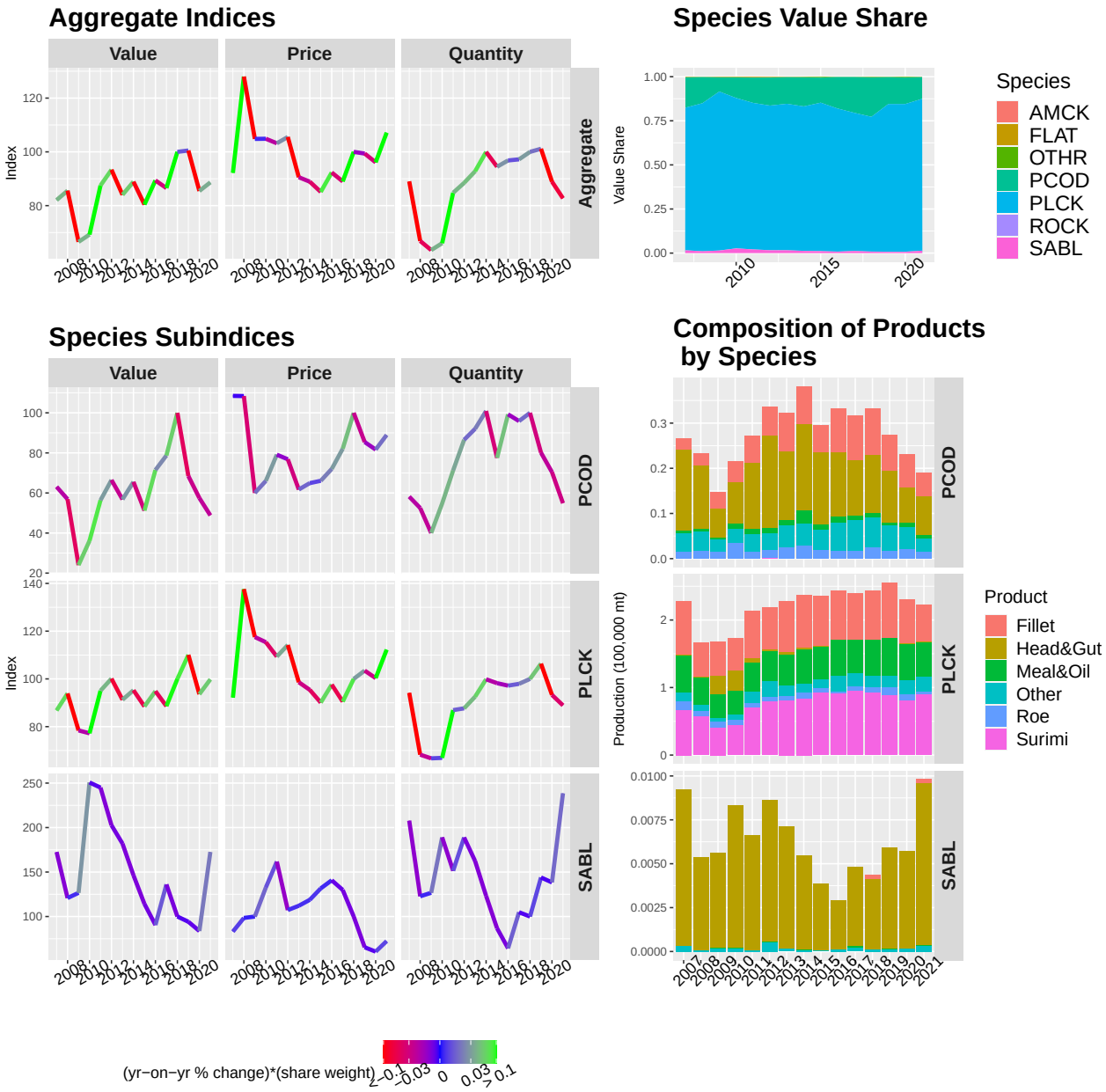

Figure 5.4: BSAI shoreside wholesale market: species decomposition 2007 - 2021 (Index 2018 = 100).

Notes Index values for 2016-2021, notes and source information for the indices are in Table 5.3. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

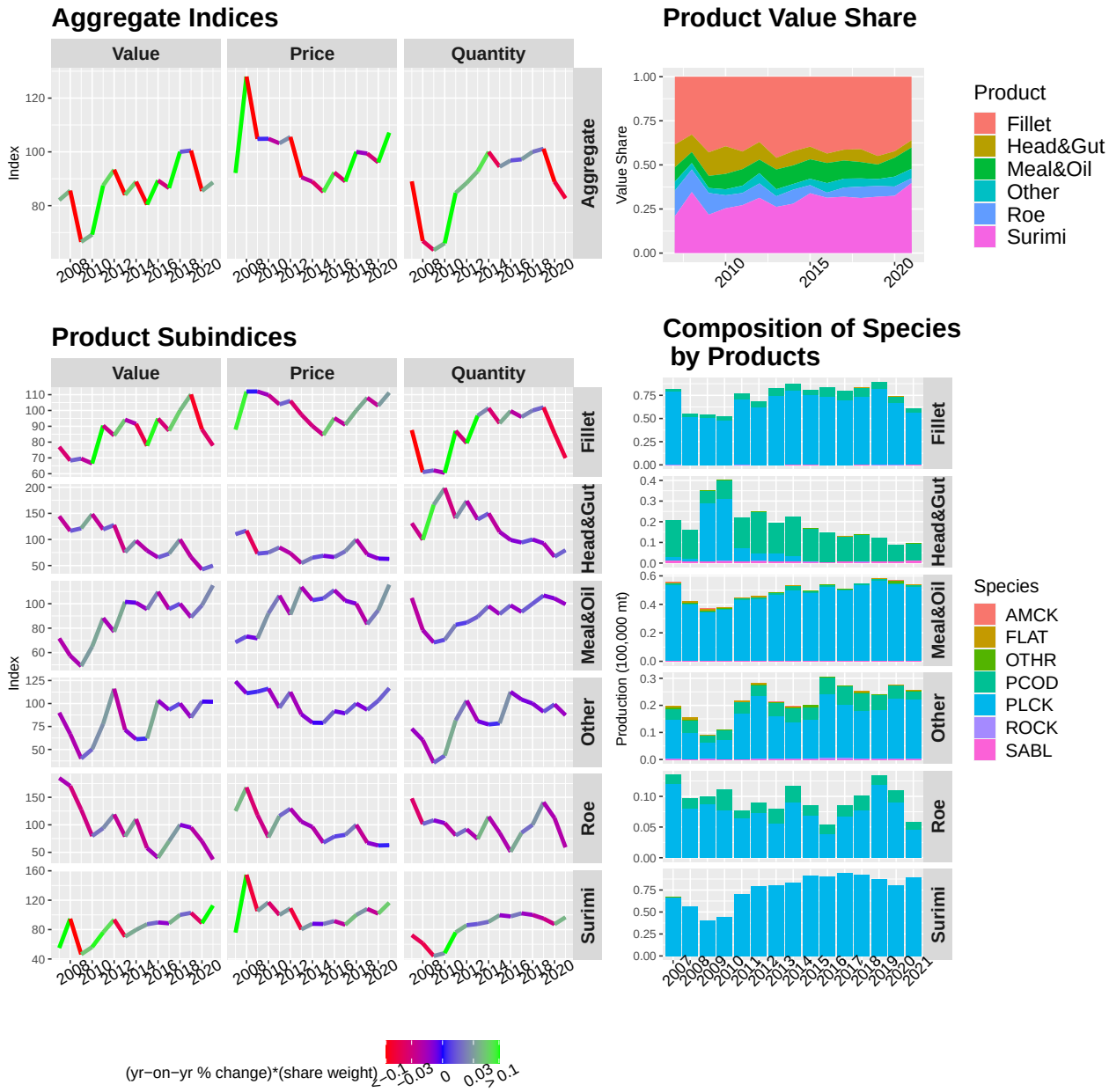

Figure 5.5: BSAI shoreside wholesale market: product decomposition 2007 - 2021 (Index 2018 = 100).

Notes Index values for 2016-2021, notes and source information for the indices are in Table 5.4. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

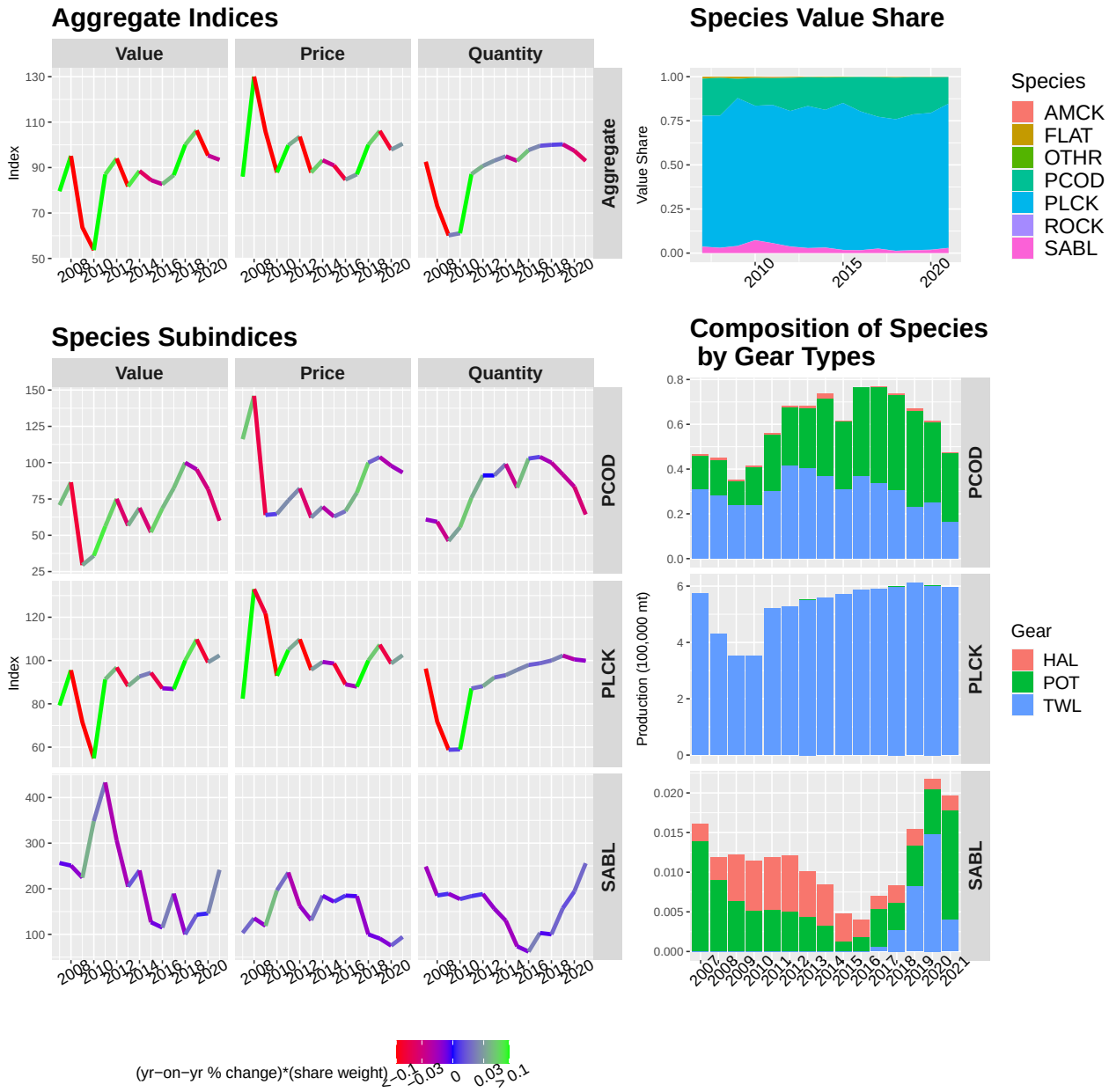

Figure 5.6: BSAI shoreside ex-vessel market: species decomposition 2007 - 2021 (Index 2018 = 100).

Notes Index values for 2016-2021, notes and source information for the indices are in Table 5.5. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

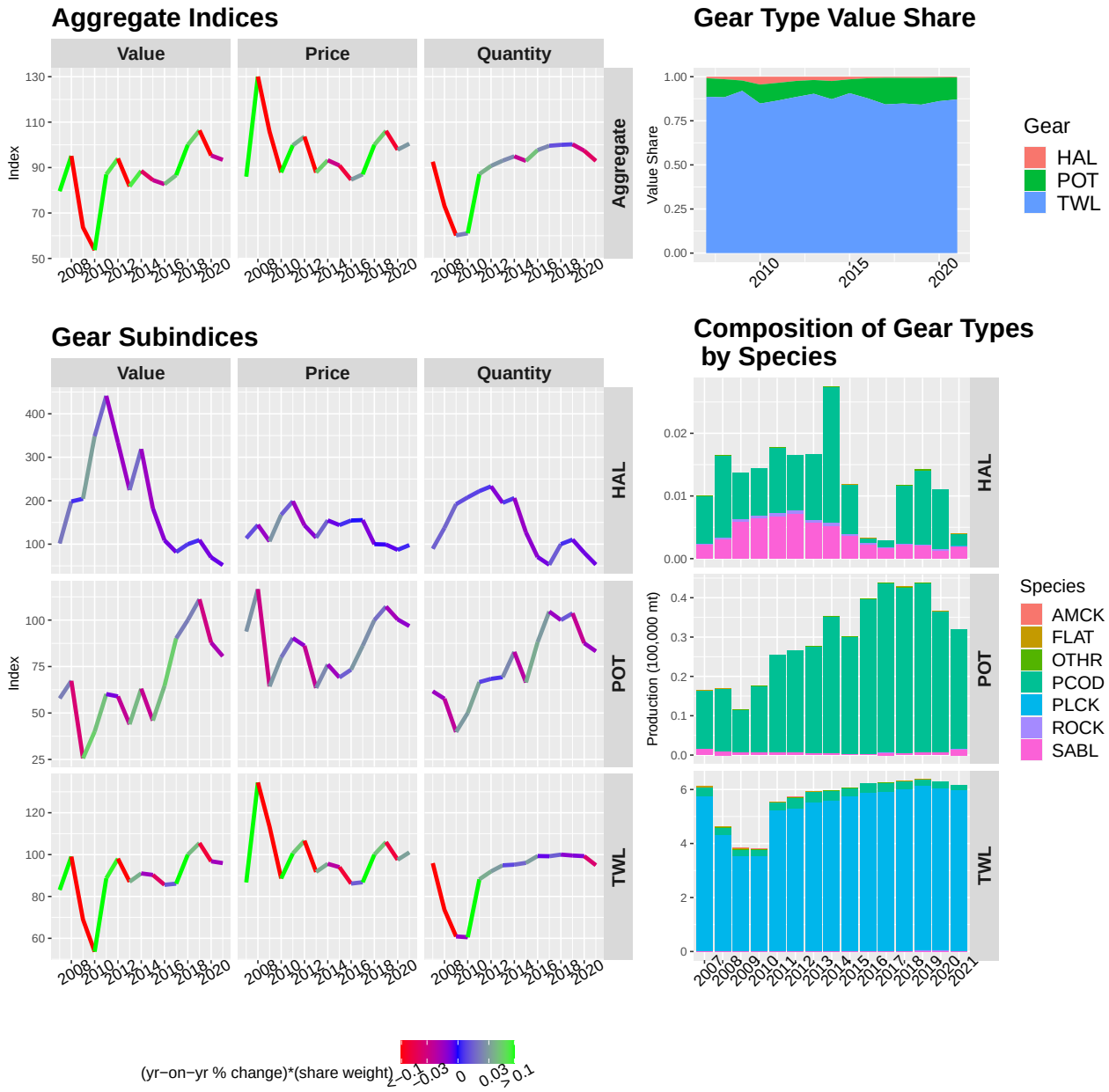

Figure 5.7: BSAI shoreside ex-vessel market: gear decomposition 2007 - 2021 (Index 2018 = 100).

Notes Index values for 2016-2021, notes and source information for the indices are in Table 5.6. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

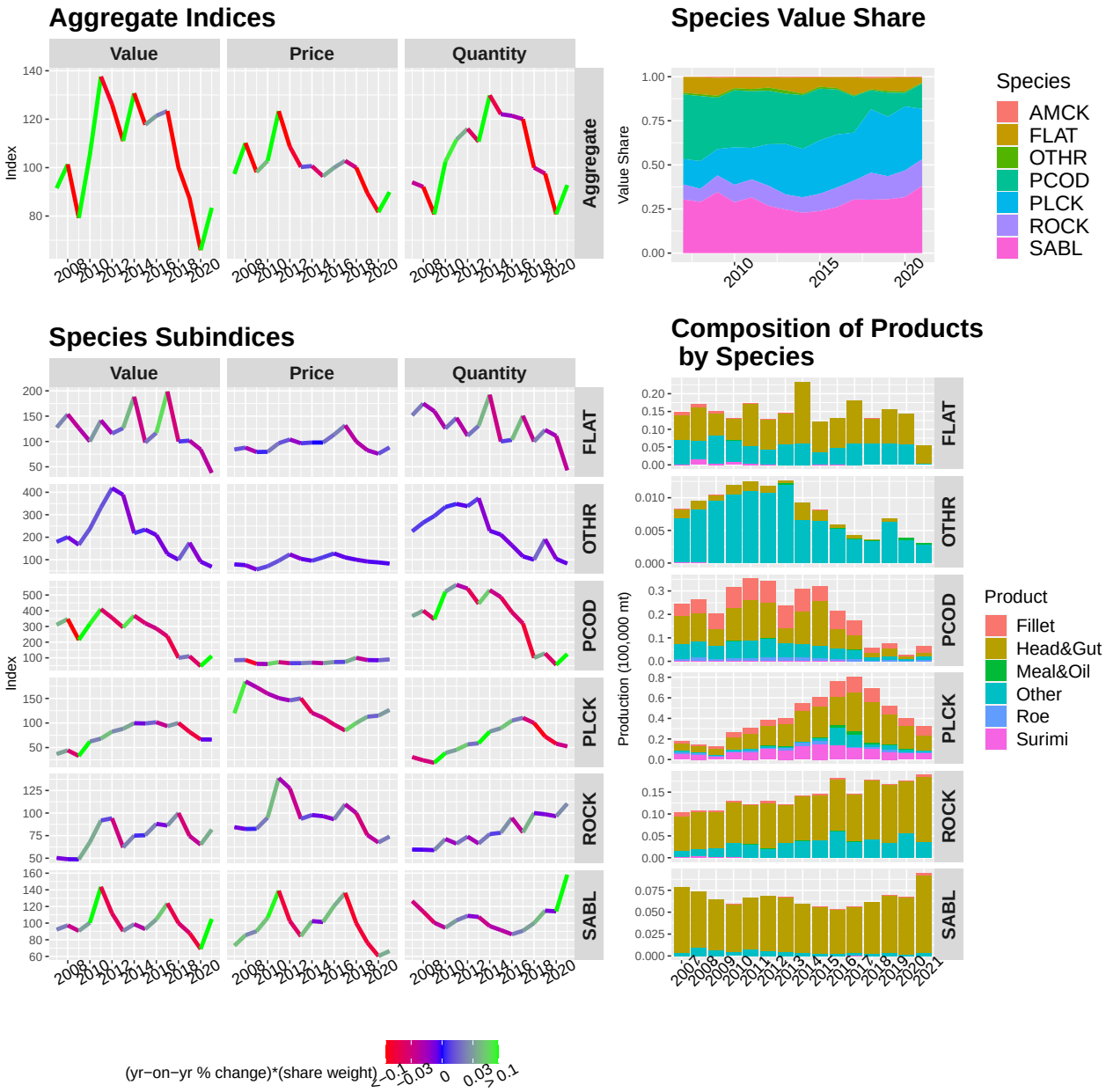

Figure 5.8: GOA wholesale market: species decomposition 2007 - 2021 (Index 2018 = 100).

Notes Index values for 2016- 2021, notes and source information for the indices are in Table 5.7. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

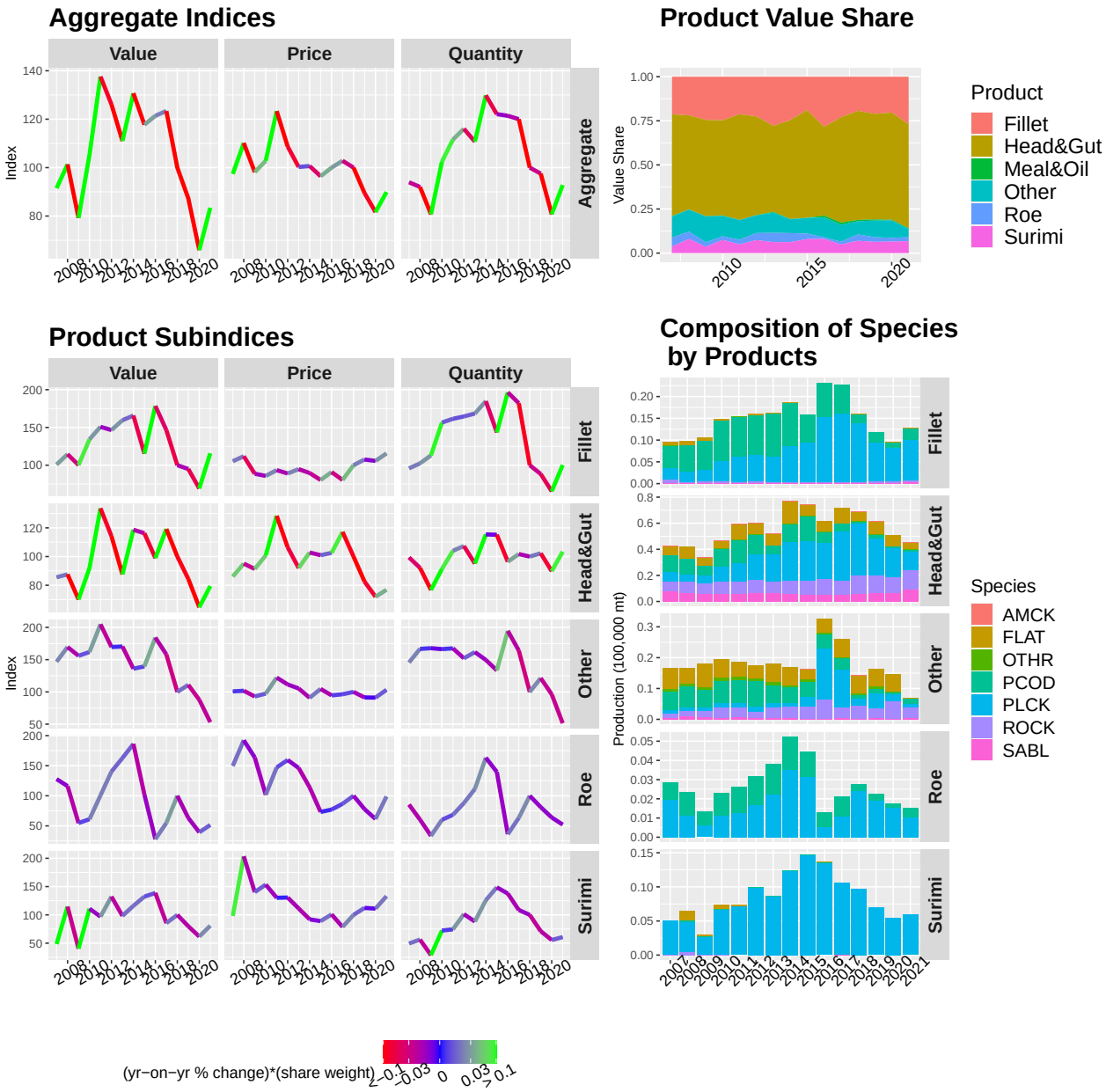

Figure 5.9: GOA wholesale market: product decomposition 2007 - 2021 (Index 2018 = 100).

Notes Index values for 2016- 2021, notes and source information for the indices are in Table 5.8. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

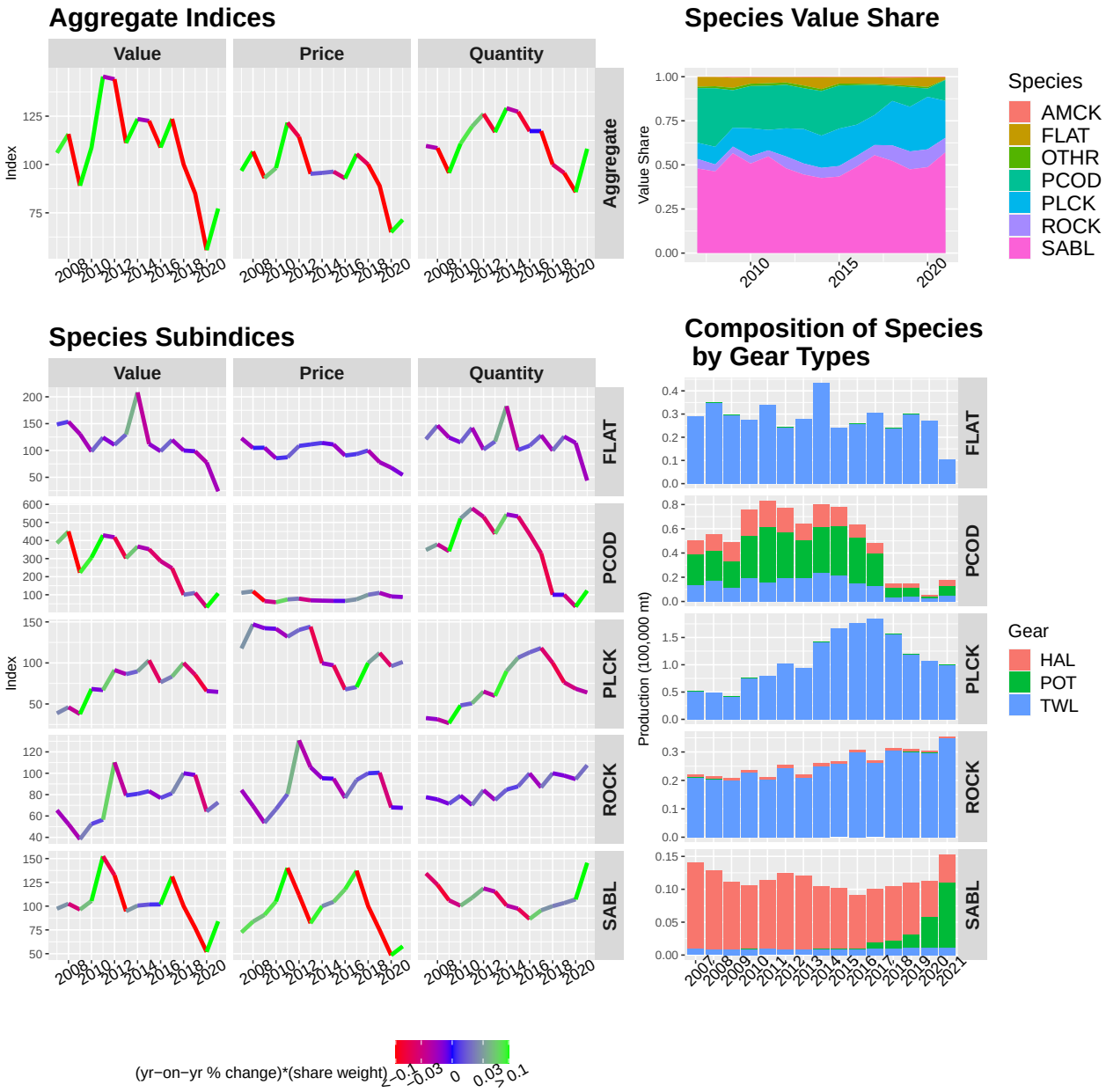

Figure 5.10: GOA ex-vessel market: species decomposition 2007 - 2021 (Index 2018 = 100).

Notes Index values for 2016- 2021, notes and source information for the indices are in Table 5.9. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

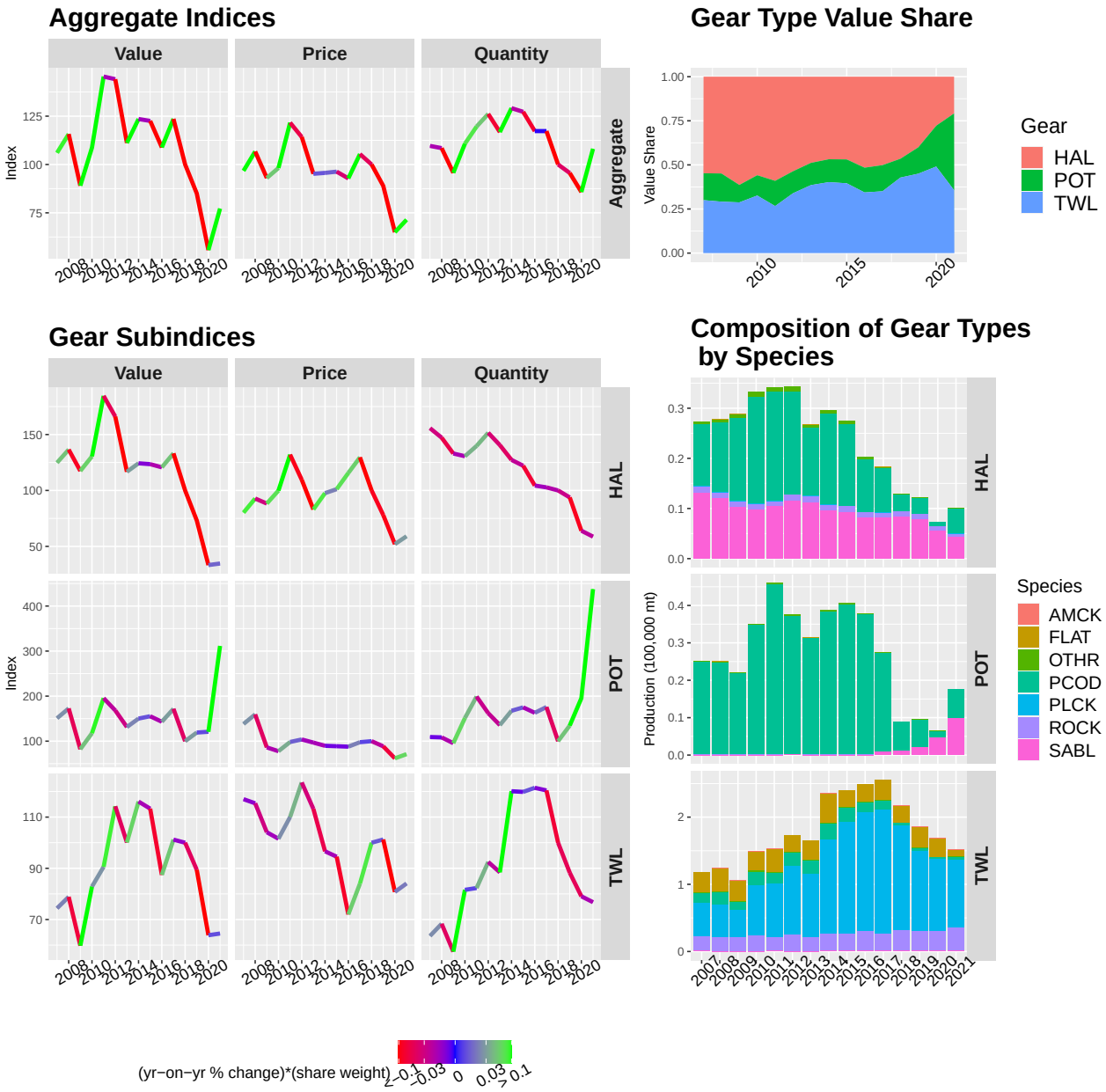

Figure 5.11: GOA ex-vessel market: gear decomposition 2007 - 2021 (Index 2018 = 100).

Notes Index values for 2016- 2021, notes and source information for the indices are in Table 5.10. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

Table 5.1: Species indices and value share for the BSAI at-sea first-wholesale market 2016-2021

Species	Index Type	2016	2017	2018	2019	2020	2021
Aggregate	Value	90.71	100.42	100.00	100.00	84.96	82.27
	Price	89.54	99.37	100.00	99.10	95.39	100.57
	Quantity	101.31	101.05	100.00	100.91	89.07	81.80
AMCK	Value	57.71	99.17	100.00	66.57	61.38	55.21
	Price	73.60	101.42	100.00	82.85	75.15	64.61
	Quantity	78.40	97.78	100.00	80.35	81.67	85.44
	Value Share	0.05	0.08	0.09	0.06	0.06	0.06
FLAT	Value	78.81	90.90	100.00	99.13	82.41	55.93
	Price	73.44	89.77	100.00	98.06	78.53	70.06
	Quantity	107.32	101.25	100.00	101.09	104.94	79.84
	Value Share	0.12	0.13	0.14	0.14	0.14	0.10
PCOD	Value	92.19	103.95	100.00	79.58	58.17	53.17
	Price	72.75	86.69	100.00	88.34	80.25	91.85
	Quantity	126.72	119.91	100.00	90.08	72.49	57.89
	Value Share	0.20	0.20	0.19	0.16	0.13	0.13
PLCK	Value	99.72	102.50	100.00	113.55	99.73	104.39
	Price	103.15	106.31	100.00	106.38	109.09	118.73
	Quantity	96.68	96.42	100.00	106.73	91.41	87.92
	Value Share	0.60	0.55	0.54	0.62	0.64	0.69
ROCK	Value	79.02	94.22	100.00	96.49	77.49	73.29
	Price	87.67	105.16	100.00	79.84	71.91	75.29
	Quantity	90.13	89.60	100.00	120.86	107.76	97.33
	Value Share	0.03	0.03	0.03	0.03	0.03	0.03

Notes Species with a value share less than 1% were not included in this table. All groundfish species were used to calculate aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting michael.d.smith@noaa.gov.

Source NMFS Alaska Region's Catch-accounting system (CAS) and Weekly Production Report (WPR) estimates; Alaska Department of Fish and Game (ADF&G) Commercial Operator's Annual Report (COAR), National Marine Fisheries Service. P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.2: Product indices and value share for the BSAI at-sea first-wholesale market 2016-2021

Product	Index Type	2016	2017	2018	2019	2020	2021
Aggregate	Value	90.71	100.42	100.00	100.00	84.96	82.27
	Price	89.54	99.37	100.00	99.10	95.39	100.57
	Quantity	101.31	101.05	100.00	100.91	89.07	81.80
Fillet	Value	97.64	88.52	100.00	122.70	101.38	99.18
	Price	105.53	96.34	100.00	110.40	115.77	124.84
	Quantity	92.53	91.89	100.00	111.14	87.57	79.44
	Value Share	0.21	0.17	0.20	0.24	0.23	0.24
Head&Gut	Value	84.26	98.61	100.00	85.67	68.70	57.29
	Price	76.42	91.64	100.00	90.14	78.14	76.60
	Quantity	110.25	107.61	100.00	95.04	87.92	74.80
	Value Share	0.41	0.43	0.44	0.38	0.35	0.31
Meal&Oil	Value	109.22	96.13	100.00	136.97	187.74	177.17
	Price	111.77	97.62	100.00	119.54	194.41	169.66
	Quantity	97.72	98.48	100.00	114.57	96.57	104.43
	Value Share	0.05	0.04	0.04	0.06	0.09	0.09
Other	Value	113.81	105.67	100.00	74.55	80.88	73.98
	Price	98.43	95.31	100.00	103.05	99.62	123.86
	Quantity	115.62	110.86	100.00	72.35	81.18	59.73
	Value Share	0.06	0.05	0.05	0.04	0.05	0.05
Roe	Value	78.39	93.06	100.00	99.13	88.98	82.94
	Price	98.50	104.47	100.00	79.64	74.22	93.90
	Quantity	79.59	89.07	100.00	124.46	119.89	88.32
	Value Share	0.05	0.06	0.06	0.06	0.07	0.06
Surimi	Value	92.18	116.89	100.00	107.84	83.16	101.63
	Price	95.72	118.90	100.00	107.52	95.14	107.59
	Quantity	96.31	98.31	100.00	100.30	87.41	94.46
	Value Share	0.22	0.25	0.21	0.23	0.21	0.26

Notes Products types 'Minced', 'Other' and those with a value share less than 1% were not included in this table. All product types were used to construct aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting michael.d.smith@noaa.gov.

Source NMFS Alaska Region's Catch-accounting system (CAS) and Weekly Production Report (WPR) estimates; Alaska Department of Fish and Game (ADF&G) Commercial Operator's Annual Report (COAR), National Marine Fisheries Service. P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.3: Species indices and value share for the BSAI shoreside first-wholesale market 2016-2021

Species	Index Type	2016	2017	2018	2019	2020	2021
Aggregate	Value	89.38	86.54	100.00	100.51	85.46	88.65
	Price	92.33	89.01	100.00	99.37	96.11	107.15
	Quantity	96.81	97.22	100.00	101.15	88.93	82.73
PCOD	Value	71.46	78.72	100.00	68.44	57.48	48.82
	Price	72.01	82.10	100.00	85.42	81.66	88.95
	Quantity	99.25	95.89	100.00	80.12	70.39	54.88
	Value Share	0.18	0.20	0.22	0.15	0.15	0.12
PLCK	Value	94.86	88.60	100.00	110.06	93.60	99.81
	Price	97.62	90.48	100.00	103.47	100.33	112.26
	Quantity	97.18	97.93	100.00	106.38	93.30	88.91
	Value Share	0.81	0.78	0.76	0.84	0.84	0.86
SABL	Value	90.46	136.09	100.00	94.09	83.72	172.59
	Price	140.76	129.86	100.00	65.40	60.51	72.36
	Quantity	64.27	104.80	100.00	143.88	138.36	238.53
	Value Share	0.01	0.01	0.01	0.01	0.01	0.01

Notes Species with a value share less than 1% were not included in this table. All groundfish species were used to calculate aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting michael.d.smith@noaa.gov.

Source NMFS Alaska Region's Catch-accounting system (CAS) and Weekly Production Report (WPR) estimates; Alaska Department of Fish and Game (ADF&G) Commercial Operator's Annual Report (COAR), National Marine Fisheries Service. P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.4: Product indices and value share for the BSAI shoreside first-wholesale market 2016-2021

Product	Index Type	2016	2017	2018	2019	2020	2021
Aggregate	Value	89.38	86.54	100.00	100.51	85.46	88.65
	Price	92.33	89.01	100.00	99.37	96.11	107.15
	Quantity	96.81	97.22	100.00	101.15	88.93	82.73
Fillet	Value	94.85	87.23	100.00	110.17	88.08	77.82
	Price	95.21	90.95	100.00	108.03	103.00	111.25
	Quantity	99.62	95.91	100.00	101.98	85.51	69.95
	Value Share	0.44	0.41	0.41	0.45	0.42	0.36
Head&Gut	Value	65.53	72.83	100.00	66.27	42.50	49.80
	Price	66.17	77.29	100.00	71.51	63.35	62.70
	Quantity	99.02	94.23	100.00	92.67	67.09	79.42
	Value Share	0.05	0.06	0.07	0.05	0.04	0.04
Meal&Oil	Value	109.68	95.62	100.00	88.86	98.71	114.96
	Price	111.12	102.49	100.00	83.26	94.66	115.50
	Quantity	98.70	93.29	100.00	106.73	104.28	99.53
	Value Share	0.11	0.10	0.09	0.08	0.11	0.12
Other	Value	103.30	93.14	100.00	84.81	102.12	101.88
	Price	91.65	89.27	100.00	93.14	103.08	116.68
	Quantity	112.71	104.33	100.00	91.05	99.06	87.32
	Value Share	0.05	0.05	0.05	0.04	0.06	0.05
Roe	Value	40.17	70.07	100.00	95.02	70.03	37.13
	Price	78.62	81.78	100.00	67.42	62.37	62.89
	Quantity	51.10	85.68	100.00	140.93	112.29	59.04
	Value Share	0.03	0.05	0.06	0.06	0.05	0.03
Surimi	Value	89.76	88.51	100.00	102.78	88.81	112.72
	Price	91.60	86.66	100.00	108.18	101.69	116.50
	Quantity	97.99	102.14	100.00	95.01	87.34	96.76
	Value Share	0.31	0.32	0.31	0.32	0.32	0.40

Notes Products types 'Minced', 'Other' and those with a value share less than 1% were not included in this table. All product types "were used to contruct aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting michael.d.smith@noaa.gov.

Source NMFS Alaska Region's Catch-accounting system (CAS) and Weekly Production Report (WPR) estimates; Alaska Department of Fish and Game (ADF&G) Commercial Operator's Annual Report (COAR), National Marine Fisheries Service. P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.5: Species indices and value share for the BSAI shoreside ex-vessel market 2016-2021

Species	Index Type	2016	2017	2018	2019	2020	2021
Aggregate	Value	82.68	86.68	100.00	106.36	95.33	93.41
	Price	84.64	87.04	100.00	106.12	97.86	100.49
	Quantity	97.68	99.59	100.00	100.22	97.41	92.95
PCOD	Value	68.55	82.55	100.00	95.36	81.68	60.02
	Price	66.65	79.39	100.00	103.87	97.86	93.22
	Quantity	102.84	103.97	100.00	91.81	83.46	64.38
	Value Share	0.20	0.22	0.24	0.21	0.20	0.15
PLCK	Value	87.18	86.83	100.00	109.75	99.17	102.36
	Price	89.02	87.93	100.00	107.30	98.65	102.45
	Quantity	97.94	98.75	100.00	102.29	100.52	99.91
	Value Share	0.79	0.75	0.75	0.77	0.78	0.82
SABL	Value	114.84	189.16	100.00	143.06	145.84	241.28
	Price	184.98	183.56	100.00	90.83	75.24	94.35
	Quantity	62.08	103.05	100.00	157.50	193.82	255.72
	Value Share	0.02	0.02	0.01	0.02	0.02	0.03

Notes Species with a value share less than 1% were not included in this table. All groundfish species were used to calculate" aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting michael.d.smith@noaa.gov.

Source NMFS Alaska Region's Catch-accounting system (CAS) and Weekly Production Report (WPR) estimates; Alaska Department of Fish and Game (ADF&G) Commercial Operator's Annual Report (COAR), National Marine Fisheries Service. P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.6: Gear indices and value share for the BSAI shoreside ex-vessel market 2016-2021

Gear	Index Type	2016	2017	2018	2019	2020	2021
Aggregate	Value	82.68	86.68	100.00	106.36	95.33	93.41
	Price	84.64	87.04	100.00	106.12	97.86	100.49
	Quantity	97.68	99.59	100.00	100.22	97.41	92.95
HAL	Value	108.83	81.68	100.00	109.43	69.71	51.85
	Price	154.47	155.36	100.00	99.10	86.82	97.83
	Quantity	70.45	52.58	100.00	110.43	80.30	53.00
	Value Share	0.01	0.01	0.01	0.01	0.01	0.00
POT	Value	64.63	90.17	100.00	111.20	87.90	80.56
	Price	73.32	86.21	100.00	107.26	100.36	96.78
	Quantity	88.15	104.59	100.00	103.68	87.58	83.23
	Value Share	0.11	0.15	0.14	0.15	0.13	0.12
TWL	Value	85.55	86.13	100.00	105.51	96.81	95.94
	Price	86.14	86.80	100.00	105.98	97.53	101.05
	Quantity	99.32	99.22	100.00	99.55	99.26	94.94
	Value Share	0.88	0.84	0.85	0.84	0.86	0.87

Notes The Fisher index method was used to construct the indices. Further details on index construction and gear decomposition can be found in the text or by contacting michael.d.smith@noaa.gov.

Source NMFS Alaska Region's Catch-accounting system (CAS) and Weekly Production Report (WPR) estimates; Alaska Department of Fish and Game (ADF&G) Commercial Operator's Annual Report (COAR), National Marine Fisheries Service. P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.7: Species indices and value share for the GOA first-wholesale market 2016-2021

Species	Index Type	2016	2017	2018	2019	2020	2021
Aggregate	Value	121.40	123.39	100.00	87.29	65.94	83.41
	Price	100.00	102.82	100.00	89.51	81.64	89.89
	Quantity	121.40	120.01	100.00	97.53	80.77	92.80
FLAT	Value	117.17	198.71	100.00	101.66	84.17	38.13
	Price	113.60	131.88	100.00	82.72	75.83	88.26
	Quantity	103.14	150.68	100.00	122.90	111.00	43.20
	Value Share	0.06	0.10	0.06	0.07	0.08	0.03
OTHR	Value	209.86	126.32	100.00	175.41	91.46	68.49
	Price	127.84	110.11	100.00	91.90	88.06	82.66
	Quantity	164.16	114.73	100.00	190.88	103.86	82.86
	Value Share	0.01	0.01	0.01	0.01	0.01	0.00
PCOD	Value	286.81	236.48	100.00	110.15	47.37	111.80
	Price	73.30	74.18	100.00	85.92	84.89	89.88
	Quantity	391.30	318.80	100.00	128.20	55.81	124.39
	Value Share	0.25	0.21	0.11	0.14	0.08	0.14
PLCK	Value	101.56	93.52	100.00	81.82	66.47	66.32
	Price	96.87	84.68	100.00	112.78	115.03	126.62
	Quantity	104.84	110.44	100.00	72.55	57.78	52.38
	Value Share	0.30	0.27	0.36	0.34	0.36	0.29
ROCK	Value	88.07	86.21	100.00	74.67	65.06	81.68
	Price	93.13	109.68	100.00	75.68	67.43	73.97
	Quantity	94.57	78.60	100.00	98.66	96.48	110.43
	Value Share	0.11	0.11	0.15	0.13	0.15	0.15
SABL	Value	104.51	123.70	100.00	87.97	68.98	104.96
	Price	120.73	136.28	100.00	76.52	60.43	66.35
	Quantity	86.57	90.77	100.00	114.97	114.15	158.20
	Value Share	0.26	0.30	0.30	0.31	0.32	0.38

Notes Species with a value share less than 1% were not included in this table. All groundfish species were used to calculate aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting michael.d.smith@noaa.gov.

Source NMFS Alaska Region's Catch-accounting system (CAS) and Weekly Production Report (WPR) estimates; Alaska Department of Fish and Game (ADF&G) Commercial Operator's Annual Report (COAR), National Marine Fisheries Service. P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.8: Product indices and value share for the GOA first-wholesale market 2016-2021

Product	Index Type	2016	2017	2018	2019	2020	2021
Aggregate	Value	121.40	123.39	100.00	87.29	65.94	83.41
	Price	100.00	102.82	100.00	89.51	81.64	89.89
	Quantity	121.40	120.01	100.00	97.53	80.77	92.80
Fillet	Value	178.51	146.49	100.00	94.94	69.19	115.78
	Price	90.87	80.44	100.00	107.49	105.69	115.58
	Quantity	196.45	182.11	100.00	88.32	65.47	100.17
	Value Share	0.28	0.23	0.19	0.21	0.20	0.27
Head&Gut	Value	98.93	119.22	100.00	84.44	64.70	79.43
	Price	102.57	117.17	100.00	82.58	72.01	76.83
	Quantity	96.45	101.75	100.00	102.25	89.84	103.39
	Value Share	0.50	0.60	0.62	0.60	0.61	0.59
Other	Value	184.19	158.11	100.00	110.89	87.75	53.14
	Price	94.64	96.33	100.00	91.40	91.14	103.22
	Quantity	194.62	164.14	100.00	121.33	96.28	51.49
	Value Share	0.11	0.10	0.07	0.09	0.10	0.05
Roe	Value	27.88	54.87	100.00	63.15	39.33	51.51
	Price	77.03	86.71	100.00	77.84	61.50	98.80
	Quantity	36.19	63.28	100.00	81.12	63.94	52.13
	Value Share	0.01	0.02	0.04	0.03	0.02	0.02
Surimi	Value	138.75	85.46	100.00	79.87	61.71	80.78
	Price	100.80	78.67	100.00	112.30	111.10	133.02
	Quantity	137.65	108.63	100.00	71.12	55.55	60.73
	Value Share	0.08	0.05	0.07	0.06	0.07	0.07

Notes Products types 'Minced' and those with a value share less than 1% were not included in this table. All product types were used to contruct aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting michael.d.smith@noaa.gov.

Source NMFS Alaska Region's Catch-accounting system (CAS) and Weekly Production Report (WPR) estimates; Alaska Department of Fish and Game (ADF&G) Commercial Operator's Annual Report (COAR), National Marine Fisheries Service. P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.9: Species indices and value share for the GOA ex-vessel market 2016-2021

Species	Index Type	2016	2017	2018	2019	2020	2021
Aggregate	Value	108.84	123.59	100.00	85.02	55.72	77.21
	Price	92.81	105.39	100.00	88.93	64.97	71.41
	Quantity	117.28	117.28	100.00	95.60	85.76	108.12
FLAT	Value	98.58	119.74	100.00	98.48	77.60	23.98
	Price	90.57	93.39	100.00	78.16	68.06	54.49
	Quantity	108.84	128.21	100.00	126.00	114.01	44.01
	Value Share	0.04	0.04	0.04	0.05	0.06	0.01
PCOD	Value	286.46	246.57	100.00	110.18	30.95	107.44
	Price	65.80	74.83	100.00	110.42	90.68	87.67
	Quantity	435.35	329.51	100.00	99.78	34.13	122.55
	Value Share	0.22	0.17	0.09	0.11	0.05	0.12
PLCK	Value	76.36	83.43	100.00	85.50	65.80	64.67
	Price	67.66	70.64	100.00	112.14	96.03	101.14
	Quantity	112.86	118.11	100.00	76.24	68.52	63.95
	Value Share	0.18	0.17	0.25	0.25	0.30	0.21
ROCK	Value	76.88	81.30	100.00	98.34	64.29	72.71
	Price	76.98	93.69	100.00	100.54	68.04	67.63
	Quantity	99.87	86.77	100.00	97.82	94.48	107.51
	Value Share	0.06	0.06	0.09	0.10	0.10	0.08
SABL	Value	101.82	131.12	100.00	77.20	51.90	83.98
	Price	117.75	137.20	100.00	74.76	48.44	57.71
	Quantity	86.48	95.57	100.00	103.27	107.13	145.52
	Value Share	0.49	0.56	0.52	0.48	0.49	0.57

Notes Species with a value share less than 1% were not included in this table. All groundfish species were used to calculate aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting michael.d.smith@noaa.gov.

Source NMFS Alaska Region's Catch-accounting system (CAS) and Weekly Production Report (WPR) estimates; Alaska Department of Fish and Game (ADF&G) Commercial Operator's Annual Report (COAR), National Marine Fisheries Service. P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.10: Gear indices and value share for the GOA ex-vessel market 2016-2021

Gear	Index Type	2016	2017	2018	2019	2020	2021
Aggregate	Value	108.84	123.59	100.00	85.02	55.72	77.21
	Price	92.81	105.39	100.00	88.93	64.97	71.41
	Quantity	117.28	117.28	100.00	95.60	85.76	108.12
HAL	Value	120.69	133.17	100.00	73.16	33.28	34.67
	Price	115.62	129.60	100.00	78.03	52.01	59.04
	Quantity	104.38	102.75	100.00	93.76	63.99	58.72
	Value Share	0.52	0.50	0.47	0.40	0.28	0.21
POT	Value	143.07	171.73	100.00	119.15	120.87	311.47
	Price	87.80	97.72	100.00	88.49	61.82	71.20
	Quantity	162.96	175.75	100.00	134.65	195.52	437.47
	Value Share	0.14	0.15	0.11	0.15	0.23	0.44
TWL	Value	87.44	101.19	100.00	89.41	63.87	64.54
	Price	72.00	84.04	100.00	101.25	80.77	84.07
	Quantity	121.44	120.41	100.00	88.30	79.07	76.76
	Value Share	0.34	0.35	0.43	0.45	0.49	0.36

Notes The Fisher index method was used to construct the indices. Further details on index construction and gear decomposition can be found in the text or by contacting michael.d.smith@noaa.gov.

Source NMFS Alaska Region's Catch-accounting system (CAS) and Weekly Production Report (WPR) estimates; Alaska Department of Fish and Game (ADF&G) Commercial Operator's Annual Report (COAR), National Marine Fisheries Service. P.O. Box 15700, Seattle, WA 98115-0070.

Chapter 6

Groundfish In-Season Ex-vessel Revenue Estimates for 2022

6.1 Overview

This section represents an ongoing effort to provide the NPFMC, industry, and the public with economic information that is up to date through September 2022 for use in setting Total Allowable Catches (TACs) for 2023 during the groundfish harvest specifications process. Other sections of the Groundfish Economic SAFE (hereafter GFEconSAFE) are currently reporting final 2021 prices and revenues. The data presented in this section are are 'nowcasts', predictions of the current 2022 year-to-date monthly ex-vessel revenues and landings for Alaska groundfish fisheries (methods are summarized in Section 6.2). These ex-vessel revenue predictions are the best estimates of 2022 North Pacific fisheries values currently available, but are likely to be different than the values that will be presented in the 2023 GFEconSAFE after finalization of the 2022 price and revenue data has occurred. Statistics reported below compare trends from January through September for each calendar year to be consistent with data available for 2022.

Harvest volumes in 2022 are down in Alaska approximately 7.5% compared with 2021 (138,000 MT) and 13% below (241,000 MT) the 5 year average baseline period (2017-2021; Figure 6.1 for January through September). Prices in 2022 were on average 2.5% higher than 2021 and 4% higher than the baseline average years. These trends are broadly consistent with the volume of U.S. exports of Alaska groundfish through September 2022. Estimated year-to-date 2022 revenues have risen by 5% compared to 2021 ($40 million) but are 9% below the 2017-2021 average values (-$77 million) between January and September.

On a percentage basis, BSAI harvest volumes fell by approximately 11% in 2022 compared with 2021 (-183,000 MT), and fell 15% relative to 2017-2021 (-255,000 MT). In contrast, the GOA in 2022 experienced a 31% increase in groundfish landings compared to 2021 (46,000 MT) and an 8% increase from the 2017-2021 average (14,000 MT), as shown in Figures 6.2 and 6.3.

The GOA experienced a larger percentage increase in estimated revenues in 2022 compared with 2021 by 22% ($24 million) but 2022 is estimated to essentially be at the 2017-2021 average. 2022 BSAI revenues are expected to be up 2.5% ($16 million) from 2021 levels but 11% below (-$78 million) the 2017-2021 average.

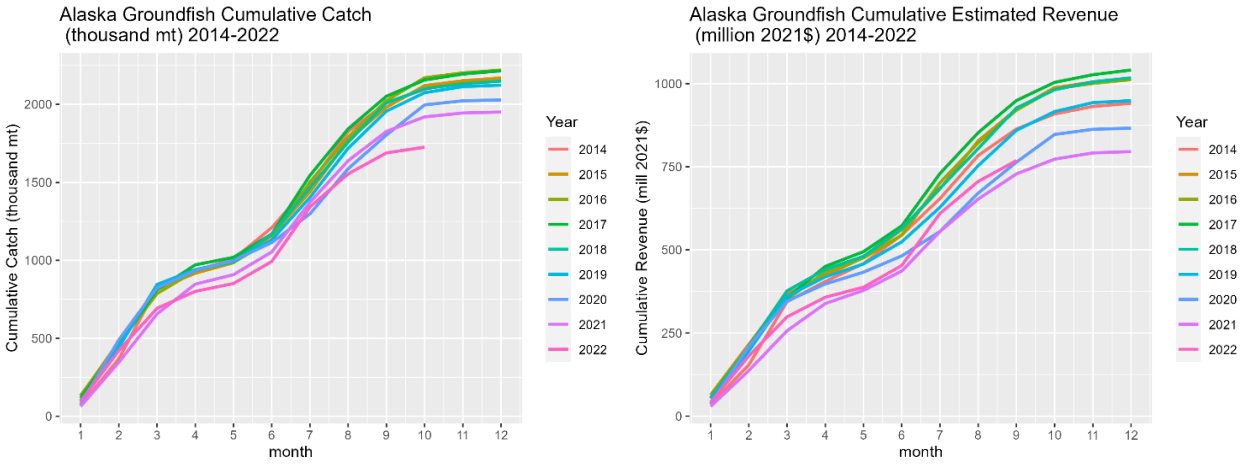

Figure 6.1: Alaska FMP Groundfish Cumulative Landings and Revenue by Year, 2014-2022.

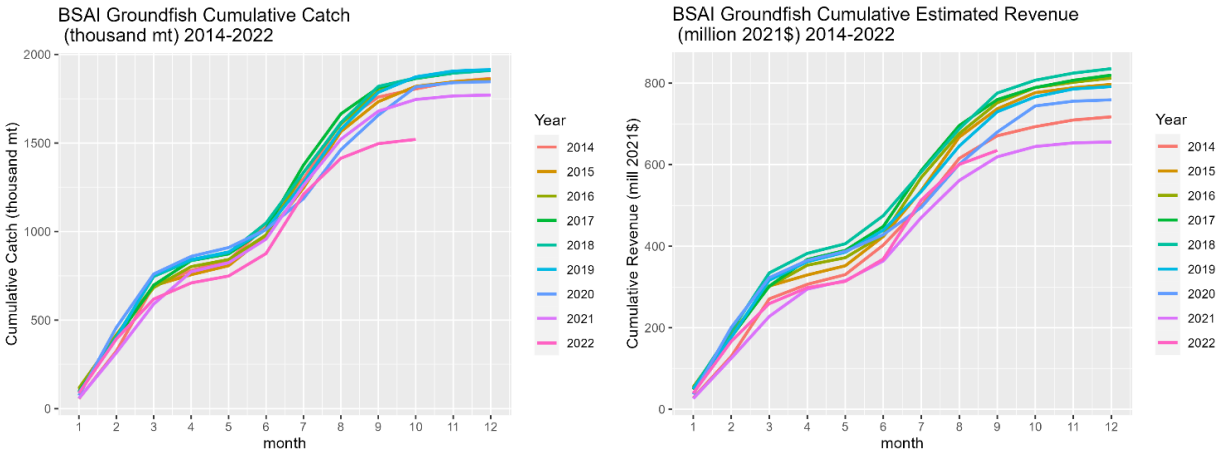

Figure 6.2: BSAI Groundfish Cumulative Landings and Ex-vessel Revenue by Year

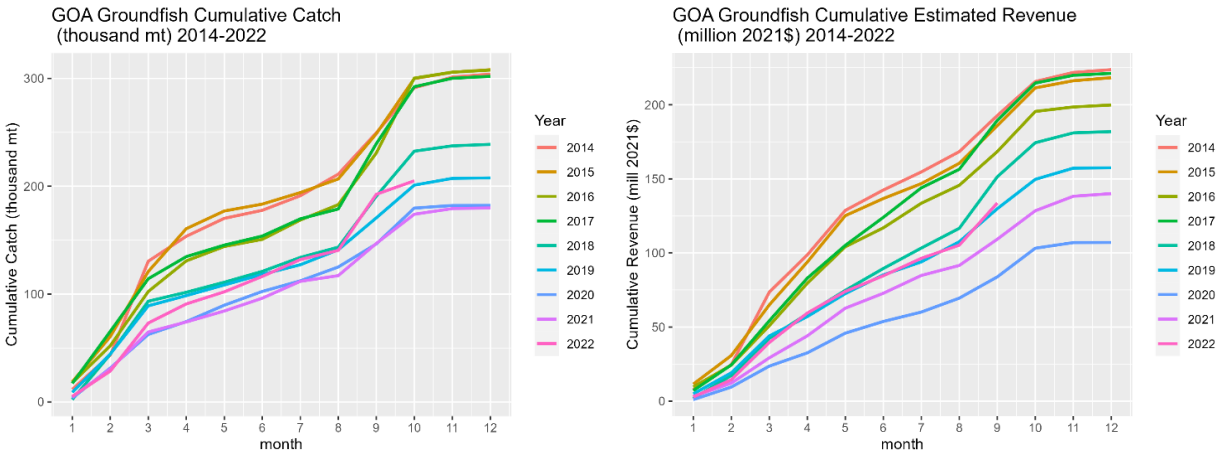

Figure 6.3: GOA Groundfish Cumulative Landings and Ex-vessel Revenue by Year

Alaska remains the region of the U.S. with the largest seafood export values over the January to September period (about $1.8 billion), and experienced a 7% increase in value in 2022 relative to 2021, and a 3% decline relative to the 2017-2021 baseline. China is the US's top export country for January-September seafood exports, and is a major importer of Alaska seafood. Exports to China (including cod, crab, pollock) decreased 20% from the baseline average to $170m in 2022 during January-September (NMFS Foreign Trade Data[1]). The U.S. dollar strengthened between 2021 and November 2022 against the Euro (12%), Yen (19%), and Yuan (3.5%) which will make Alaska seafood exports more expensive to European, Japanese, and Chinese consumers.

6.2 Methods

The method of "nowcasting" year-to-date monthly 2022 ex-vessel prices is analogous to the methods described in Section 7 of the GFEconSAFE. Ex-vessel price information for 2022 is available through e-landings reports (fishtickets) and serve as the basis for estimating current year monthly ex-vessel prices. These prices, which are preliminary and unadjusted for year-end adjustments (e.g., bonuses), are reconciled with final ex-vessel prices from the Catch Accounting System.[2] Unadjusted monthly ex-vessel fish ticket prices are used to estimate final monthly ex-vessel prices in 2022 through linear regression accounting for species, area, gear, and harvest sector.

Ex-vessel prices were modeled for six groups of groundfish: flatfish, Pacific cod, pollock, rockfish, sablefish, and other. These price models are highly significant with an R^2 of 0.95 or higher for flatfish, pollock, and Pacific cod; an R^2 of 0.75 or higher for rockfish and other species; and an R^2 of 0.65 for sablefish. These groups are stratified by BSAI and GOA, and for BSAI pollock and Pacific cod, shoreside and at-sea harvest sectors. Realized prices are then multiplied by the groundfish landings from the Catch Accounting System for 2014-2022 and estimated prices are applied to landings from January 2022 through September 2022 to obtain revenue estimates. These 2022 landings data and revenue estimates are based on the best currently available data, but are still considered preliminary. Caution should be taken in interpreting or extrapolating from these estimates as they are preliminary and may change. The baseline period of comparison with 2022 values will be relative to 2021 as well as the five year average from January-September of 2017-2021. All revenues were adjusted for inflation using the GDP deflator using 2021 as the base year.[3]

6.3 BSAI Groundfish Landings and Revenues through September 2022

Figures 6.1-6.3 display the cumulative landings and ex-vessel revenue of groundfish fisheries by month for Alaska, BSAI, and GOA, respectively. Figures 6.4-6.5 present the cumulative revenues by month and year for the BSAI in 2022 (the pink line), compared with each of the years 2014-2021.[4] The following section provides a brief summary of cumulative harvest and revenue trends of BSAI groundfish from January through September 2022.

[1] https://www.st.nmfs.noaa.gov/commercial-fisheries/foreign-trade/

[2] Only landings volume coded as fit for human consumption are considered as other landings volume are largely unpriced in e-landings. Because of this, landings initially destined for fishmeal are not included. This constituted a relatively small portion of the total landed volume.

[3] BEA Table 1.1.9:https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=3&isuri=1&nipatablelist=13

[4] Note that Atka mackerel is included in "other" grouping.

Estimated BSAI revenue from January through September 2022 are 2.5% above 2021 levels (an increase of $16 million from $619 million to $635 million) but 11% below the 2017-2021 baseline period (a decline of $78 million from $713 million; Figures 6.4 and 6.5). This decline is a result of the combination of lower volumes and lower prices across many species. The largest components of the decrease in value over the 2017-2021 period include an estimated $17 million decline in pollock at-sea revenues, $23 million reduction in Pacific cod at-sea revenues, $12 million in shoreside Pacific cod revenues, $38 million decrease in flatfish revenues, and $14 million reduction in other species revenues. These were offset by a $23 million increase in shoreside pollock revenues and a $9 million increase in sablefish revenues. Compared with 2021, estimated revenue declines in 2022 include $27 million in pollock at-sea revenues, $9 million in flatfish revenues, $1 million in other species revenues, and $1 million in rockfish revenues. Compared with 2021, estimated revenue increases in 2022 include $38 million in pollock shoreside revenues, $1 million in Pacific cod at-sea revenues, $7 million in shoreside Pacific cod revenues, and $7 million in sablefish revenues.

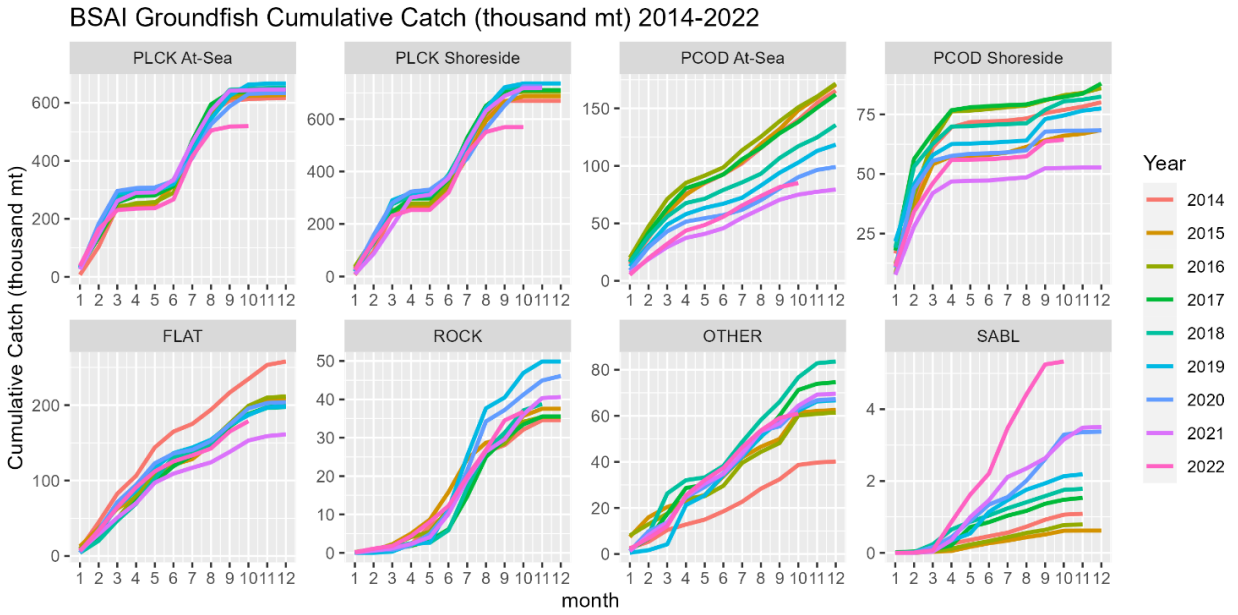

Figure 6.4: BSAI Cumulative Landings by Species and Year

BSAI Flatfish

Fishing through June was roughly consistent with previous years but began to slow down through September. Year-to-date revenues in 2022 were down with catch, and are below all other years. Average prices in 2022 are estimated to be at their lowest level over this period at just under $0.10/lb., down 50% from the 2017-2021 average of $0.20/lb. January to September BSAI flatfish catch in 2022 is up 20% from the 2021 level, and nearly equal to the 2017-2021 average by volume. Revenues are down 19% compared with 2021 and 51% lower than the average over 2017-2021 (Figures 6.4 and 6.5).

BSAI Pacific cod

Ex-vessel prices in 2022 have fallen 1% from 2021, and are 13% below the 2017-2021 average. BSAI shoreside catch of Pacific cod have increased by approximately 21% from January to September of 2022 relative to the same period in 2021, while shoreside catches are down 9% from the average January to September period from 2017-2021. Increased catches, combined with a slight decrease

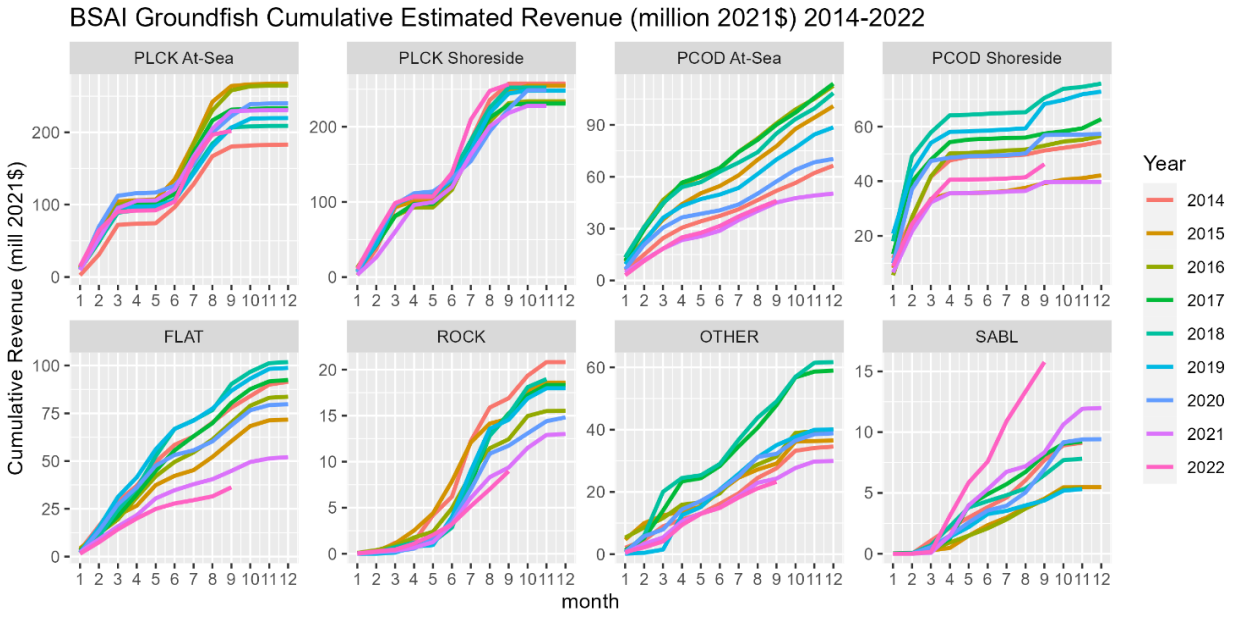

Figure 6.5: BSAI Cumulative Ex-vessel Revenue by Species and Year

in ex-vessel prices in 2022, has resulted in an increase in shoreside BSAI Pacific cod revenue from the January to September period of approximately 17%, compared with 2021; but is still 21% below the average over the January to September from 2017-2021 (Figures 6.4 and 6.5).

At-sea catch of BSAI Pacific cod has increased by approximately 16% from January to September 2022 relative to the same period in 2021, but at-sea catches are down 15% from the average January to September from 2017-2021. Estimated ex-vessel revenue for at-sea Pacific cod is roughly equal to the same period in 2021 but is down 34% for the January to September period of 2022 relative to the average from the same period in 2017-2021 (Figures 6.4 and 6.5).

BSAI Pollock

In 2022 shoreside pollock harvests through September are down 17% compared with 2021 and down 18% compared with the 2017-2021 average (Figure 6.4). Shoreside catches had been slow all year, but really slowed from July through September. However, shoreside pollock prices are estimated to increase to $0.20 per pound and are 34% above the 2017-2021 average. The combination of these two factors result in estimated 2022 BSAI pollock shoreside revenues being 17% higher than 2021 through September and 10% above the average over 2017-2021.

2022 BSAI at-sea pollock harvests have also been relatively slow in 2022 and are 19% below 2021 levels and 17% below the 2017-2021 average. Estimated ex-vessel revenues through September are estimated to be lower than the 2017-2021 average by approximately 8% while the at-sea pollock revenues are down nearly 12% in 2022 compared with the same period in 2021 (Figures 6.4 and 6.5).

BSAI Rockfish

2022 Rockfish ex-vessel prices are estimated to be down by 18% from 2021 and nearly 35% below the 2017-2021 average. BSAI Rockfish harvest volumes through September 2022 are up 17% from 2021 levels, and 2.5% above than the average January to September period of 2017-2021. The net

effect is that ex-vessel revenues through September of 2022 are estimated to be down 4% from the same period in 2021 and down by 32% from the 2017-2021 period (Figures 6.4 and 6.5).

BSAI Sablefish

There was a large increase in BSAI sablefish harvested over the summer of 2022 as shown in Figure 6.4. BSAI Sablefish landings through September 2022 nearly doubled from 2021 levels and were 159% above the 2017-2021 average (Figure 6.4). Revenue through September is up by 89% in 2022 compared to 2021 and increased by 130% relative to the 2017-2021 average over the same period (Figure 6.5).

6.4 GOA Groundfish Landings and Revenues through September 2022

Figures 6.6 and 6.7 present the cumulative revenues by month and year for GOA groundfish in 2022 (the pink line), compared with each of the years 2014-2021.[5] The following section provides a brief summary of cumulative harvest and revenue trends for GOA groundfish from January through September.

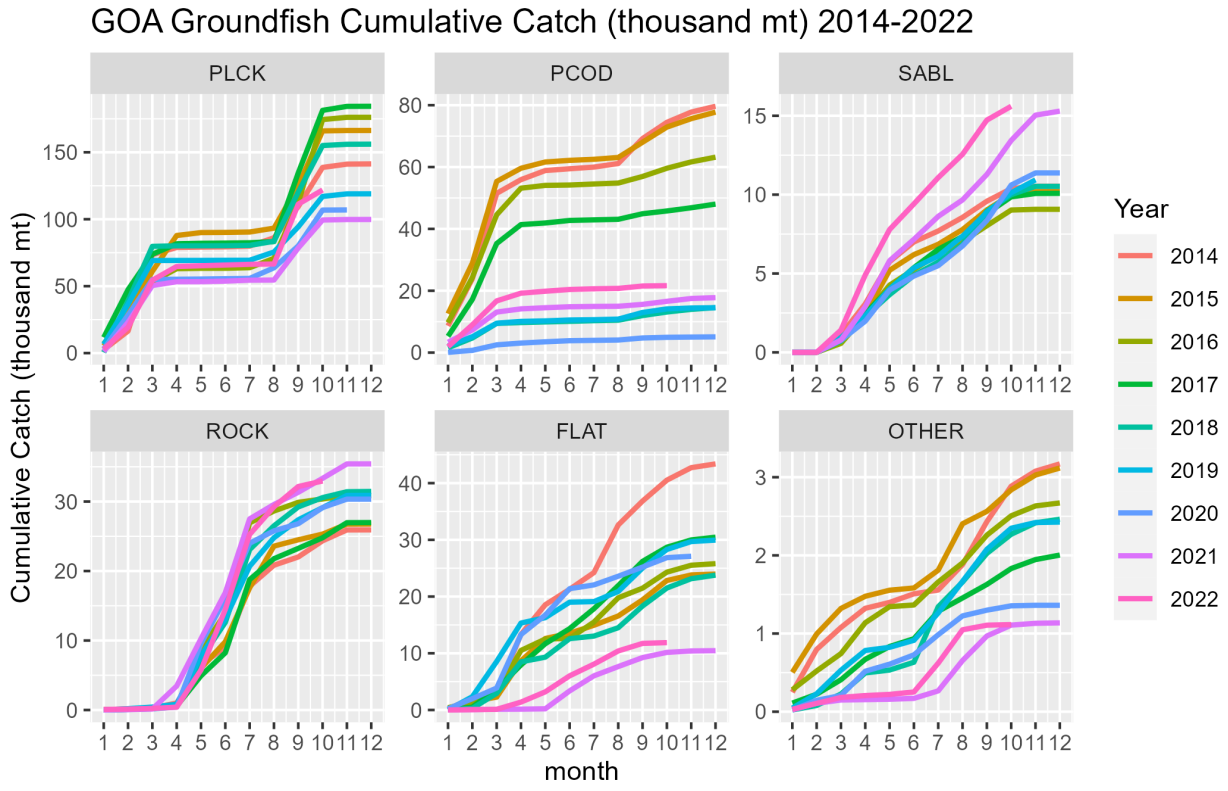

Figure 6.6: GOA Cumulative Landings by Species and Year

As a result of higher volumes and slightly lower prices in 2022, GOA groundfish is estimated to experience an increase of 22% in ex-vessel revenues relative to 2021, and was just above the

[5]Note that Atka mackerel is included in "other" grouping.

2017-2021 average at $133 million. Compared with 2021, revenue is only estimated to decline by $1 million in rockfish. Compared with 2021, estimated revenue increases in 2022 include $6 million in Pacific cod, $19 million in pollock, $2 million in flatfish, and $1 million in sablefish.

GOA Flatfish

January to September GOA flatfish catch in 2022 is up 27% from a low in 2021 and but is still 44% below the 2017-2021 average in terms of catch volume. Markets for GOA flatfish dried up early in the year, and there was almost no fishing through March. GOA flatfish revenues are estimated to increase by 53% compared with 2021, but are still 76% lower than the average over 2017-2021 (Figures 6.6 and 6.7).

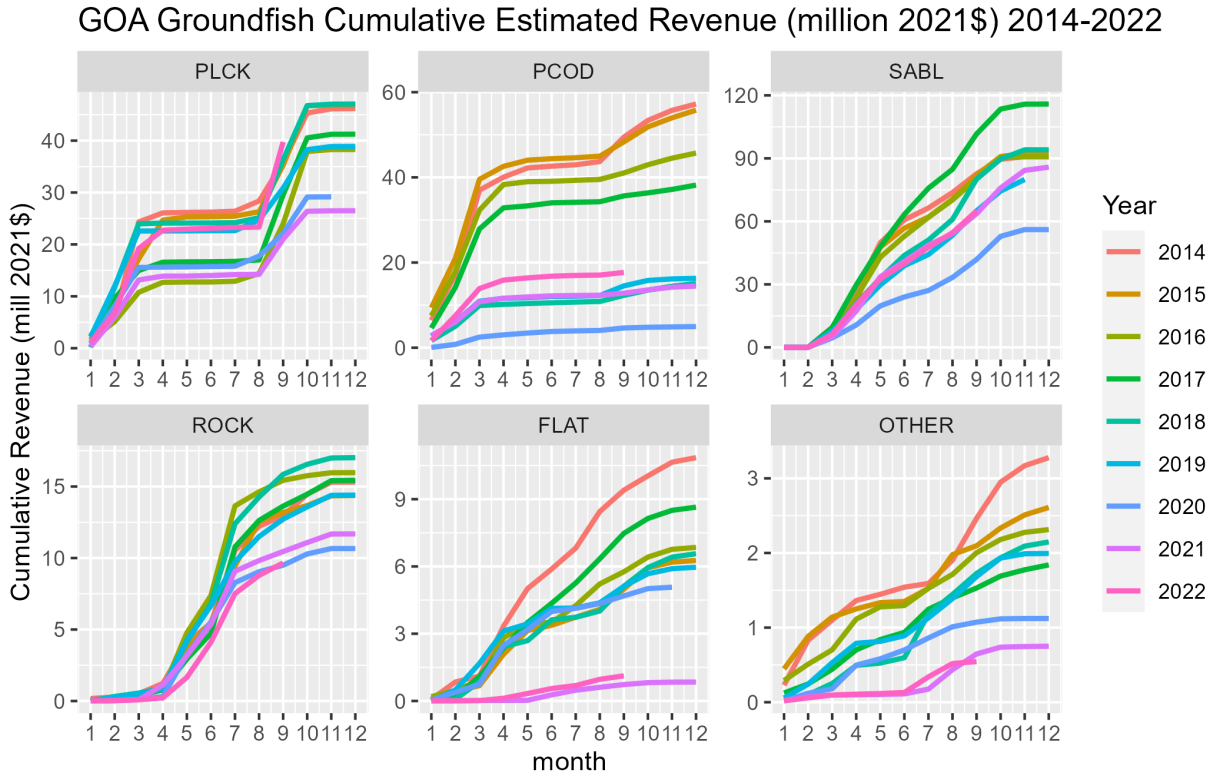

Figure 6.7: GOA Cumulative Ex-vessel Revenue by Species and Year

GOA Pacific cod

Ex-vessel prices in 2022 have stayed equal to their slightly depressed level in 2021. However, GOA landings of Pacific cod through September 2022 represent a 38% increase over the same period in 2021 at over 21,000 MT. Catches are up 19% from the average January to September period from 2017-2021, but not quite to the nearly 60,000 MT average from 2014-2017. Consequently, GOA shoreside Pacific cod revenues increased 38% from January to September in 2022 compared with 2021 and are 11% above the average over the same months from 2017-2021 (Figures 6.6 and 6.7).

GOA Pollock

2022 GOA pollock harvests through September are up 42% compared with 2021, and nearly 10% compared with the 2017-2021 average (Figure 6.6). GOA pollock prices are up 33% relative to 2021 and up 38% compared with the 2017-2021 average. GOA pollock ex-vessel revenues in 2022 are

estimated to be 89% higher than 2021 through September, and 42% above the average over the January to September period from 2017-2021.

GOA Rockfish

Rockfish ex-vessel prices in 2022 are are estimated to be 10% below 2021 levels and 34% below the 2017-2021 average. GOA Rockfish harvests through September 2022 are up 2.6% from 2021 levels and 17% above than the average January to September period from 2017-2021. Ex-vessel revenues through September of 2022 are estimated to be down 8% compared to the January to September period in 2021, and down 22% relative to the same period from 2017-2021 (Figures 6.6 and 6.7).

GOA Sablefish

The size-based pricing structure for sablefish and the catch composition of small sablefish continues to be a drag on sablefish prices with prices in 2022 declining by over 20% compared with 2021. GOA Sablefish landings through September 2022 were up 31% from 2021 levels and 59% above the 2017-2021 average (Figure 6.6), while revenue is up slightly by 2% from 2021 levels, and 8% below the January to September 2017-2021 average (Figure 6.7).

Chapter 7

Alaska Groundfish Price Projections

7.1 Introduction

The most recent year for which ex-vessel and first-wholesale prices (Tables 4.13, 4.18, 4.31, and 4.36 are available is 2021. These prices are largely derived from the Commercial Operators Annual Report (COAR). Because of the report's submission deadline, processing and validation of the data from the report are not completed until July of the following year. Thus, at the time of this report's writing (November 2022), the most recent COAR data available was for the previous year, 2021. To provide recent information, current (i.e., 2022) prices are estimated (''nowcast") using related data that is reported at a higher frequency and provides more contemporaneous information on the likely state of prices for 2022. Ex-vessel prices estimates are based on unadjusted prices [1] on fish tickets through the month of Sept. 2022. First-wholesale price estimates are based on export prices through the month of Sept. 2022, estimated global catch, and exchange rates for 2022. In addition to the nowcasts, ex-vessel and first-wholesale prices are projected out over the next 2 years (2023-2024). These projections give a probabilistic characterization of the range of future prices.

The species and products for which price projections are made approximately correspond with the prices in Tables 4.13, 4.18, 4.31, and 4.36 in Section 4 of this document. With the notable exception that first-wholesale estimates are made for all of Alaska, and no distinction is made between at-sea and shoreside prices. This corresponds with the export data which make no distinction between sectors, only the customs district of origin. Ex-vessel price estimates are only for the shoreside sectors.

Tables 7.1 and 7.2 summarize the price projections for the six years spanning 2019-2024. Prices between 2019-2021 are realized (actual) prices. The summary data provided for the years 2022-2024 are the expected price (mean) and 90% confidence bounds. Confidence bounds give the estimated probability that the price will fall within the bound. Thus, for the 5% bound, 5% of the simulated prices were less than the given value. Similarly, for the 95% bound, 95% of the simulated prices were less (and 5% were greater). Hence, the region between the 5% and 95% bounds can be interpreted as the 90% confidence bound. Smaller confidence bounds indicate less uncertainty in the projections. Prior to 2022 the confidence bounds for the nowcast were parametrically estimated and subsequent analysis indicated that realized prices were outside the confidence bounds too often. To remedy this, in nowcasts for 2022 and future nowcasts are using a nonparamteric estimate of the

[1] Unadjusted prices do not account for year-end bonuses

confidence bounds based on 10-fold crossvalidation of the nowcast model. These new confidence bounds, while larger, should more accurately capture the the range of potential prices for the nowcasts. In general, price projections (nowcasts) for the current year, 2022, continue to display a modest degree of volatility. As prices are projected past the current year the confidence bounds grow reflecting increased uncertainty further out in the future.

Methods are briefly outlined in Section 7.3. Sections 7.4 and 7.5 examines the individual ex-vessel and product price projections for 2022-2024. For these projections a more detailed characterization of the forecast distribution is given by the mean, median and 40%, 60%, 80%, and 90% confidence bounds. Figures plot the price projection results as well as historical realized prices.

7.2 Tabular Summary of Price Projection Results

Table 7.1: Groundfish ex-vessel price projection summary

Species	Region	Gear	stat.	2019	2020	2021	2022	2023	2024
Pollock	BSAI	Trawl	mean	0.167	0.154	0.16	0.184	0.179	0.177
			conf.int.90				[0.17,0.2]	[0.14,0.22]	[0.13,0.23]
	GOA		mean	0.138	0.118	0.124	0.144	0.145	0.145
			conf.int.90				[0.12,0.16]	[0.1,0.19]	[0.09,0.22]
Pacific Cod	BSAI	Trawl	mean	0.369	0.346	0.345	0.448	0.45	0.447
			conf.int.90				[0.43,0.46]	[0.31,0.63]	[0.27,0.7]
		Fixed	mean	0.443	0.418	0.389	0.473	0.482	0.491
			conf.int.90				[0.44,0.51]	[0.33,0.68]	[0.29,0.77]
	GOA	Trawl	mean	0.456	0.358	0.35	0.455	0.489	0.466
			conf.int.90				[0.41,0.5]	[0.35,0.66]	[0.28,0.73]
		Fixed	mean	0.504	0.424	0.409	0.466	0.496	0.496
			conf.int.90				[0.44,0.5]	[0.37,0.64]	[0.32,0.71]
Sablefish	GOA	Fixed	mean	2.986	1.95	2.281	2.691	2.719	2.768
			conf.int.90				[2.31,3.07]	[1.81,3.8]	[1.63,4.4]

Table 7.2: Groundfish wholesale price projection summary

Species	Product	stat.	2019	2020	2021	2022	2023	2024
Pollock	Surimi	mean	1.363	1.239	1.411	1.547	1.486	1.616
		conf.int.90				[1.12,1.98]	[0.95,2.18]	[1.02,2.44]
	Roe	mean	2.1	1.973	2.51	1.155	1.207	1.533
		conf.int.90				[0.01,2.59]	[0.01,3.47]	[0.01,5.7]
	Fillet	mean	1.481	1.445	1.535	1.676	1.663	1.659
		conf.int.90				[1.5,1.85]	[1.31,2.09]	[1.2,2.26]
	Deep-Skin Fillet	mean	1.6	1.698	1.838	1.827	1.84	1.845
		conf.int.90				[1.61,2.05]	[1.53,2.17]	[1.47,2.29]
	Head And Gut	mean	0.562	0.538	0.49	0.471	0.499	0.499
		conf.int.90				[0.34,0.6]	[0.34,0.7]	[0.33,0.71]
Pacific Cod	Fillet	mean	3.961	3.777	4.291	3.629	3.986	3.886
		conf.int.90				[3.21,4.04]	[3,5.17]	[2.78,5.35]
	Head And Gut	mean	1.587	1.444	1.599	1.663	1.705	1.747
		conf.int.90				[1.48,1.85]	[1.27,2.24]	[1.2,2.49]
Sablefish	Head And Gut	mean	4.915	3.947	4.35	4.147	4.097	4.166
		conf.int.90				[2.39,5.89]	[2.2,6.44]	[2.05,7.21]
Yellowfin (BSAI)	Head And Gut	mean	0.786	0.622	0.548	0.587	0.611	0.626
		conf.int.90				[0.45,0.73]	[0.43,0.83]	[0.41,0.92]
Rock Sole (BSAI)	Head And Gut With Roe	mean	1.321	1.283	0.903	1.115	1.127	1.155
		conf.int.90				[0.73,1.5]	[0.67,1.7]	[0.66,1.84]
	Head And Gut	mean	0.795	0.635	0.519	0.544	0.56	0.57
		conf.int.90				[0.3,0.79]	[0.28,0.93]	[0.27,0.98]
Arrowtooth	Head And Gut	mean	0.667	0.578	0.64	0.543	0.714	0.732
		conf.int.90				[0.29,0.8]	[0.31,1.36]	[0.31,1.42]
Atka Mackerel	Head And Gut	mean	1.162	1.055	0.913	0.32	0.316	0.34
		conf.int.90				[0.01,0.64]	[0.01,0.75]	[0.02,0.97]
Rockfish	Head And Gut	mean	0.836	0.74	0.804	0.691	0.685	0.705
		conf.int.90				[0.39,0.99]	[0.35,1.1]	[0.33,1.24]

7.3 Summary of Price Projection Methods

Prices are estimated using a two-step procedure. The same basic procedure is used for both ex-vessel and first wholesale nowcasts and projections The first step nowcasts the current year 2022prices based on currently available (as of Oct. 2022) partial year information. The second step projects prices forward using model simulations to give a probabilistic characterization of the range of future prices.

Current year first-wholesale prices (2022) were nowcast using export prices which are available with a minimal time lag of up to three months. Export prices through September 2022 were available for the current nowcasts. Export prices were obtained from the NMFS Science and Technology trade database. Nowcast models also incorporate 2022 exchange rate data and global catch estimates when they were determined to increase predictability. Global catch estimates for 2022 were obtained from the 2022 International Groundfish Forum and are primarily used in pollock and Pacific cod estimates. The data were used in a regression to estimate 2022 annual unit value first-wholesale prices of major species and product forms calculated from the COAR and published in Tables 4.18 and 4.36 of this report. The statistical relationship between export prices and first-wholesale prices was fairly strong for most products. The relationship tends to be stronger for products where a large share of the production volume is exported.

Nowcasts of 2022 ex-vessel prices were made for shoreside pollock, pacific cod, and sablefish for the predominant gear types used to harvest these species. Nowcasts were made using available fish-ticket prices through October 2022. These data were obtained through the Alaska Fisheries Information Network (AKFIN) from the V_ELLR_SLOG_PRODUCT database. Data were filtered to the major delivered product forms fit for human consumption and stratified by gear types accordingly. Prices are calculated as the remunerations received at the time of landing divided by the delivered volume. Because of this, these prices do not account for end-of-year bonuses or other post-season adjustments to price. The data were used in a regression to estimate 2022 annual unit value ex-vessel prices calculated from the COAR and published in Tables 4.13 and 4.31 of this report. By contrast, COAR based ex-vessel prices do account for end of bonuses and other post-season adjustments to price. The statistical relationship between raw partial year fish-ticket prices and annual COAR based ex-vessel prices was strong for the species and gear types presented.

Price projections for the years 2023-2024 were made using a suite of canonical time series models to estimate returns (the percent change in price). The primary suite of models used were within the class of ARMA time series models (Hamilton, 1994). Two exponential smoothing models were also used, however, these tended to contribute little to the price projections (Hyndman & Athanasopoulos, 2013). Changes in price return volatility (a measure of the dispersion of the return distribution) over time were also modeled. Confidence bounds for the estimated models were constructed using residual resampling methods. Simulations created a probabilistic distribution of potential returns that are consistent with historical deviations from the models. Price projections from the suite of models were then combined using weights that were determined by model fit. Prices were calculated from returns and statistics such as the mean and percentiles for confidence bounds were calculated from the forecast distribution. Only a small component of the future prices (2023-2024) was forecastable by the time series models, a feature that is common in price forecasts for commodities, and projections largely reflect the long-run trends and mean reversion estimated by the models. The primary value of these projections is to provide a credible range of potential future prices based on historical variation.

7.4 Ex-vessel Price Projections

7.4.1 Alaska Pollock Ex-vessel Prices

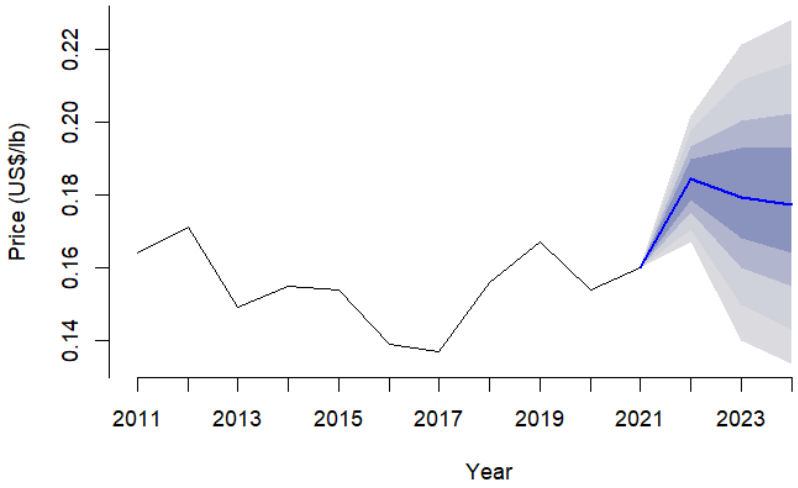

Figure 7.1: Pollock BSAI trawl ex-vessel price projections and confidence bounds

Table 7.3: Projected mean, probability bounds of pollock BSAI trawl ex-vessel prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	0.167	0.171	0.175	0.179	0.184	0.184	0.190	0.193	0.198	0.201
2023	0.140	0.150	0.160	0.168	0.179	0.180	0.193	0.200	0.211	0.221
2024	0.134	0.143	0.155	0.164	0.177	0.178	0.193	0.202	0.216	0.228

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Pollock BSAI trawl ex-vessel return volatility projections			
Hist. Avg.	2023	2024	Long-run
14.42	13.11	12.62	18.16

Pollock typically accounts for roughly three-quarters of the ex-vessel value for the BSAI catcher vessels (CV) in 2021 and is targeted using trawl gear. BSAI trawl CV pollock retained catch decreased 1% in 2021. The realized ex-vessel price of BSAI trawl pollock marginally increased 4% to \$0.16/lb in 2021. Price projections from last year's report indicated stable prices and had 95% confidence bounds of \$0.148/lb to \$0.158/lb with a median of \$0.153/lb, placing the realized price just outside the the projected range but within \$0.01 of the estimate. This year's price projections for the 2022 BSAI trawl pollock ex-vessel price have a median of \$0.184/lb with 95% confidence bounds of \$0.163/lb to \$0.205/lb (Figure 7.1). These estimates imply that the 2022 price will likely increase. Catch data through Oct. 15, 2022 indicate decreased year-over-year BSAI trawl CV pollock catches. BSAI trawl pollock ex-vessel price projections for 2023 and beyond based on historical trends indicate that expected prices may exhibit some mean reversion in 2023 and beyond. Because of the substantial volatility a range of potential increases or decreases are plausible.

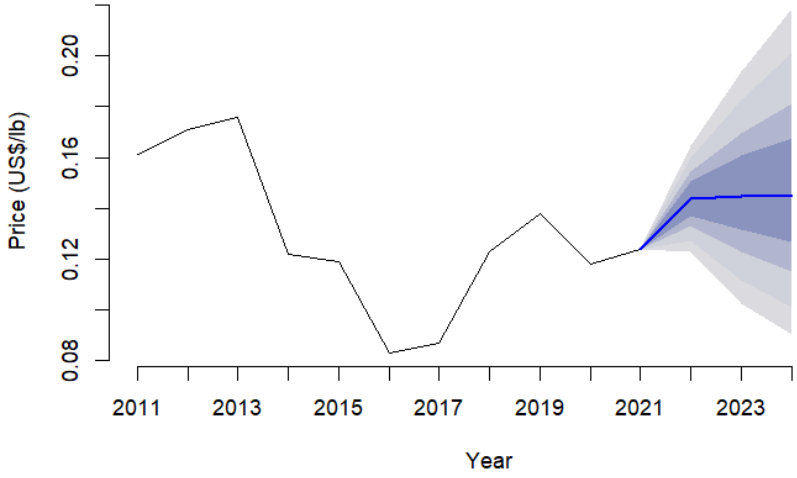

Figure 7.2: Pollock GOA trawl ex-vessel price projections and confidence bounds

Table 7.4: Projected mean, probability bounds of pollock GOA trawl ex-vessel prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	0.123	0.127	0.133	0.137	0.144	0.144	0.150	0.155	0.160	0.165
2023	0.102	0.112	0.123	0.132	0.145	0.146	0.161	0.170	0.183	0.194
2024	0.090	0.101	0.115	0.127	0.145	0.146	0.167	0.181	0.201	0.218

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Pollock GOA trawl ex-vessel return volatility projections			
Hist. Avg.	2023	2024	Long-run
18.24	18.25	18.53	18.30

Pollock has, in recent years, typically accounted for roughly one-third of the ex-vessel value for the GOA catcher vessels (CV) in 2021 and is targeted using trawl gear. GOA trawl CV pollock retained catch decreased 7% in 2021. The realized ex-vessel price of GOA trawl pollock increased 5% to $0.124/lb.

Price projections from last year's report indicated a decrease and had 95% confidence bounds of $0.098/lb to $0.115/lb with a median of $0.157/lb, placing the realized price outside the projected range but within $0.02 of the estimate. This year's price projections for the 2022 GOA trawl pollock ex-vessel price have a median of $0.144/lb with 95% confidence bounds of $0.119/lb to $0.169/lb (Figure 7.2). These estimates imply that the 2022 price will likely increase. Catch data through Oct. 15, 2022 show a 38% decrease in the year-over-year GOA trawl CV pollock catch. GOA trawl pollock ex-vessel price projections for 2023 and beyond based on historical trends indicate expected price could potentially exhibit mean reversion. Because of the substantial volatility a range of potential increases or decreases are plausible.

7.4.2 Pacific Cod Ex-vessel Prices

Pacific cod typically accounts for roughly one-fifth of the ex-vessel value for the BSAI catcher vessels in 2021 and catches from trawl gear account for roughly two-thirds of the BSAI Pacific cod value. BSAI trawl CV Pacific cod retained catch decreased 18% in 2021. The realized ex-vessel price of BSAI trawl Pacific cod was stable at 5% to $0.124/lb.

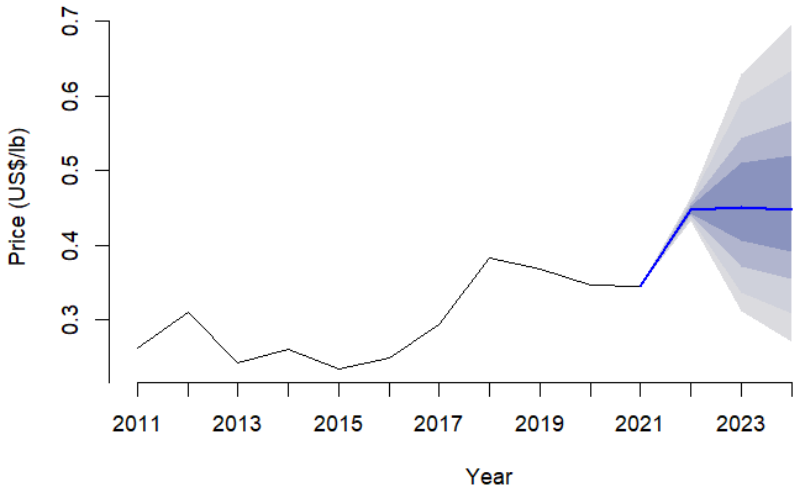

Figure 7.3: Pacific cod BSAI trawl ex-vessel price projections and confidence bounds

Table 7.5: Projected mean, probability bounds of pacific cod BSAI trawl ex-vessel prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	0.433	0.436	0.440	0.443	0.448	0.448	0.453	0.456	0.460	0.464
2023	0.311	0.337	0.372	0.406	0.450	0.460	0.510	0.543	0.591	0.629
2024	0.270	0.309	0.356	0.391	0.447	0.456	0.521	0.567	0.635	0.695

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Pacific cod BSAI trawl ex-vessel return volatility projections			
Hist. Avg.	2023	2024	Long-run
22.06	23.20	23.48	23.70

Price projections from last year's report indicated stable prices as well and had 95% confidence bounds of $0.334/lb to $0.342/lb with a median of $0.338/lb, placing the realized price outside the projected range but within $0.01. This year's price projections for the 2022 BSAI trawl Pacific cod ex-vessel price have a median of $0.448/lb with 95% confidence bounds of $0.43/lb to $0.467/lb (Figure 7.3). These estimates imply that prices in 2022 will likely increase. Catch data through Oct. 15, 2022 show a 14% increase in the year-over-year BSAI trawl Pacific cod catch. BSAI trawl Pacific cod ex-vessel price projections for 2023 and beyond based on historical trends indicate a significant range of potential increases or decreases are plausible.

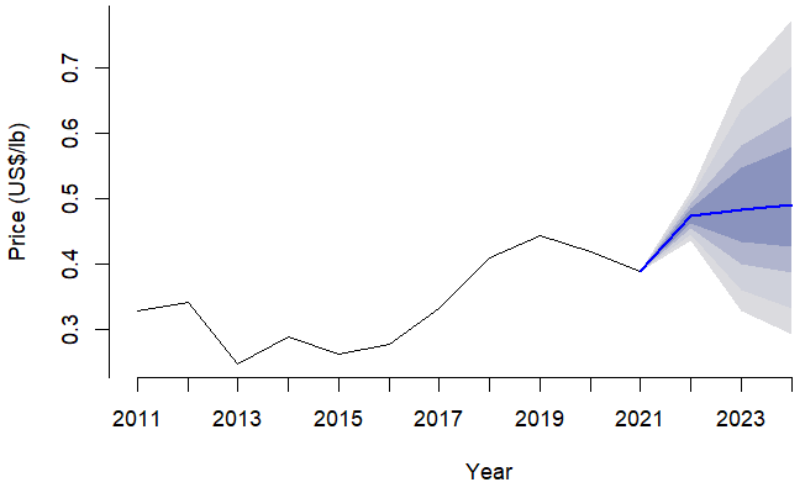

Figure 7.4: Pacific cod BSAI fixed gear ex-vessel price projections and confidence bounds

Table 7.6: Projected mean, probability bounds of pacific cod BSAI fixed gear ex-vessel prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	0.436	0.445	0.455	0.461	0.473	0.474	0.485	0.492	0.502	0.510
2023	0.328	0.361	0.400	0.433	0.482	0.491	0.547	0.581	0.635	0.684
2024	0.293	0.332	0.386	0.427	0.491	0.499	0.578	0.625	0.702	0.772

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Pacific cod BSAI fixed gear ex-vessel return volatility projections			
Hist. Avg.	2023	2024	Long-run
23.71	23.42	23.66	24.50

Pacific cod typically accounts for roughly one-fifth of the ex-vessel value for the BSAI catcher vessels in 2021 and catches from fixed gear accounted for two-thirds of the BSAI Pacific cod value. BSAI fixed gear Pacific cod retained catch decreased 16% in 2021. The realized ex-vessel price of BSAI fixed gear Pacific cod decreased 8% to $0.389/lb.

Price projections from last year's report indicated a decrease as well and had 95% confidence bounds of $0.370/lb to $0.389/lb with a median of $0.379/lb, placing the realized price within the projected range. This year's price projections for the 2022 BSAI fixed gear Pacific cod ex-vessel price have a median of $0.474/lb with 95% confidence bounds of $0.429/lb to $0.517/lb (Figure 7.4). These estimates imply that a price increase in 2022 is likely. Catch data through Oct. 15, 2022 show a 29% increase in the year-over-year BSAI fixed gear Pacific cod catch. BSAI fixed gear Pacific cod ex-vessel price projections for 2023 and beyond based on historical trends indicate that expected prices may trend up slightly. Because of the substantial volatility a range of potential increases or decreases are plausible.

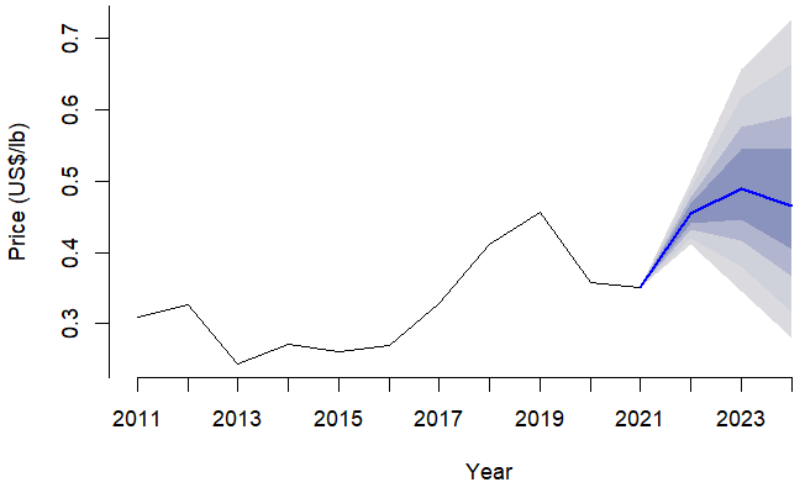

Figure 7.5: Pacific cod GOA trawl ex-vessel price projections and confidence bounds

Table 7.7: Projected mean, probability bounds of pacific cod GOA trawl ex-vessel prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	0.411	0.421	0.432	0.441	0.455	0.455	0.469	0.477	0.489	0.499
2023	0.346	0.380	0.417	0.445	0.489	0.496	0.545	0.576	0.618	0.658
2024	0.280	0.316	0.367	0.405	0.466	0.472	0.547	0.592	0.664	0.726

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Pacific cod GOA trawl ex-vessel return volatility projections			
Hist. Avg.	2023	2024	Long-run
19.78	19.78	19.78	19.78

Pacific cod accounted for 12% of the ex-vessel value for the GOA catcher vessels (CV) in 2021 and catches from trawl gear accounted for 25% of the GOA Pacific cod value. GOA trawl Pacific cod retained catch increased 135% in 2021. The realized ex-vessel price of GOA trawl Pacific cod decreased 2% to $0.35/lb.

Price projections from last year's report indicated a decrease as well and had 95% confidence bounds of $0.349/lb to $0.364/lb with a median of $0.352/lb, placing the realized price within the projected range. This year's price projections for the 2022 GOA trawl Pacific cod ex-vessel price have a median of $0.455/lb with 95% confidence bounds of $0.401/lb to $0.508/lb (Figure 7.5). These estimates imply that a prices in 2022 will likely increase. Catch data through Oct. 15 2022 show a 30% increase in the year-over-year GOA trawl CV Pacific cod catch. GOA trawl Pacific cod ex-vessel price projections for 2023 and beyond based on historical trends indicate that expected prices may trend up slightly. Because of the substantial volatility a range of potential increases or decreases are plausible.

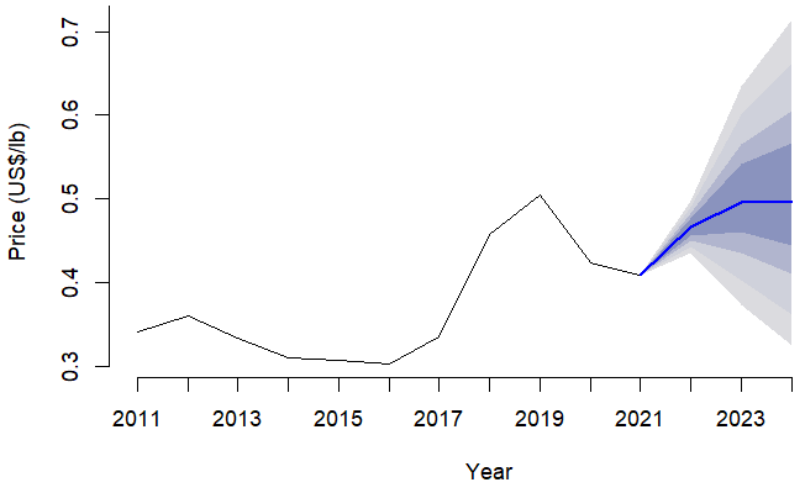

Figure 7.6: Pacific cod GOA fixed gear ex-vessel price projections and confidence bounds

Table 7.8: Projected mean, probability bounds of pacific cod GOA fixed gear ex-vessel prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	0.436	0.442	0.450	0.456	0.466	0.466	0.476	0.482	0.490	0.497
2023	0.373	0.403	0.435	0.460	0.496	0.502	0.542	0.565	0.600	0.635
2024	0.324	0.361	0.410	0.444	0.496	0.502	0.566	0.605	0.663	0.714

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Pacific cod GOA fixed gear ex-vessel return volatility projections			
Hist. Avg.	2023	2024	Long-run
16.95	16.52	16.93	17.56

Pacific cod accounted for 12% of the ex-vessel value for the GOA catcher vessels in 2021 and catches from fixed gear accounted for 75% of the GOA Pacific cod value. GOA fixed gear Pacific cod retained catch increased 357% in 2021 relative to 2020. The realized ex-vessel price of GOA fixed gear Pacific cod decreased 4% to $0.409/lb.

Price projections from last year's report indicated a decrease as well and had 95% confidence bounds of $0.379/lb to $0.40/lb with a median of $0.389/lb, placing the realized price above the projected range but within $0.02 of the estimate. This year's price projections for the 2022 GOA fixed gear Pacific cod ex-vessel price have a median of $0.466/lb with 95% confidence bounds of $0.429/lb to $0.503/lb (Figure7.6). These estimates imply that a price increase in 2022 is likely. Catch data through Oct. 15, 2022 show a 34% increase in the year-over-year GOA fixed gear Pacific cod catch. GOA fixed gear Pacific cod ex-vessel price projections for 2023 and beyond based on historical trends indicate that expected prices may trend up slightly. Because of the substantial volatility a range of potential increases or decreases are plausible.

7.4.3 Sablefish Ex-vessel Prices

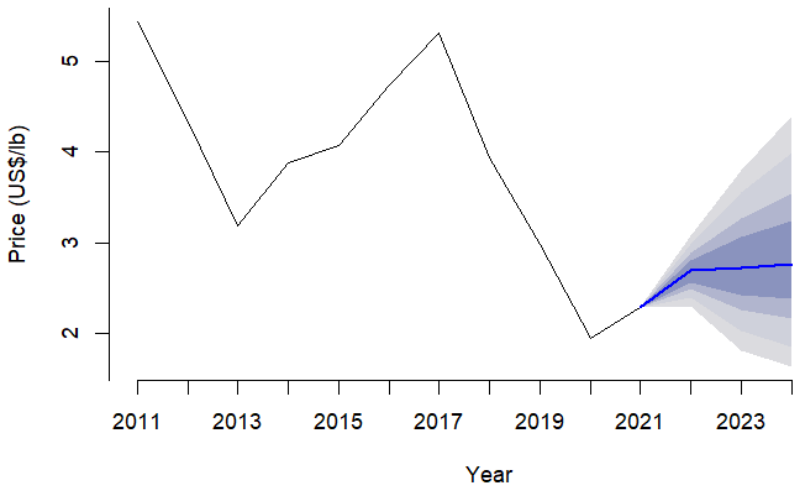

Figure 7.7: Sablefish GOA fixed gear ex-vessel price projections and confidence bounds

Table 7.9: Projected mean, probability bounds of sablefish GOA fixed gear ex-vessel prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	2.306	2.392	2.492	2.566	2.691	2.688	2.812	2.883	2.983	3.073
2023	1.815	2.035	2.255	2.428	2.719	2.748	3.067	3.268	3.557	3.805
2024	1.631	1.846	2.158	2.390	2.768	2.799	3.245	3.542	3.985	4.398

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Sablefish GOA fixed gear ex-vessel return volatility projections			
Hist. Avg.	2023	2024	Long-run
21.80	21.26	21.31	21.40

Sablefish accounted for 57% of the ex-vessel value in the GOA in 2021 and is targeted primarily by catcher vessels using fixed gear. GOA fixed gear sablefish retained catch increased 37% in 2021. The realized ex-vessel price of GOA fixed gear sablefish increased 14% to $2.281/lb.

Price projections from last year's report indicated a increase as well and had 95% confidence bounds of $1.926/lb to $2.323/lb with a median of $2.125/lb, placing the realized price within the projected range. This year's price projections for the 2022 GOA fixed gear sablefish ex-vessel price have a median of $2.688/lb with 95% confidence bounds of $2.231/lb to $3.149/lb (Figure 7.7). These estimates imply that prices in 2022 will likely increase. Catch data through Oct. 15, 2022 show a 29% increase in the year-over-year GOA fixed gear sablefish catch. GOA fixed gear sablefish ex-vessel price projections for 2023 and beyond based on historical trends indicate that expected prices may show mean reversion by increasing. Because of the substantial volatility a range of potential increases or decreases are plausible.

7.5 First-Wholesale Product Price Projections

7.5.1 Alaska Pollock

In the North Pacific FMP groundfish fisheries 68% of the wholesale value came from Alaska pollock in 2021 (Tables 4.17 and 4.35. The primary products produced from pollock are surimi, fillets and roe. Fillets have been divided into deep-skin fillets and all other fillets (which are simply labeled fillets).

7.5.1.1 Pollock Surimi First-Wholesale Prices

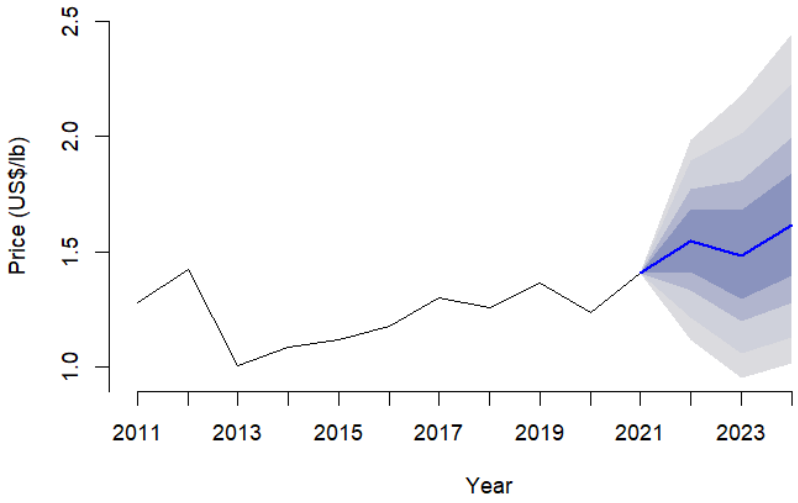

Figure 7.8: Pollock surimi wholesale price projections and confidence bounds

Table 7.10: Projected mean, probability bounds of pollock surimi wholesale prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	1.12	1.22	1.33	1.41	1.55	1.55	1.69	1.77	1.89	1.98
2023	0.95	1.06	1.20	1.30	1.49	1.48	1.68	1.81	2.01	2.18
2024	1.02	1.13	1.28	1.40	1.62	1.61	1.84	2.00	2.22	2.44

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Pollock surimi wholesale return volatility projections			
Hist. Avg.	2023	2024	Long-run
19.54	18.81	18.58	21.14

The production of pollock surimi increased 9% in 2021 and the first-wholesale price increased 12% to $1.411/lb. The price increase was consistent with the increase estimated last year but was above last year's estimated 95% confidence bounds for the 2021 price which were $1.317/lb and $1.394/lb with a median of $1.356/lb but within $0.06 of the estimate. The current first-wholesale surimi 2022

price projection have a median of $1.551/lb with 95% confidence bounds of $1.042/lb to $2.059/lb (Figure 7.8; Table 7.10). Surimi export prices tend to provide a reasonably good prediction of the state of surimi prices. These estimates imply that a price increase in 2022 is somewhat likely. Production data through Oct. 22, 2022 show a 17% decrease in year-over-year surimi production. Projections of surimi prices for 2023 and beyond indicate that based on historical patterns prices may fluctuate with and upward trend. Volatility projections suggest that the recent level of volatility may persist.

7.5.1.2 Pollock Fillet First-Wholesale Prices

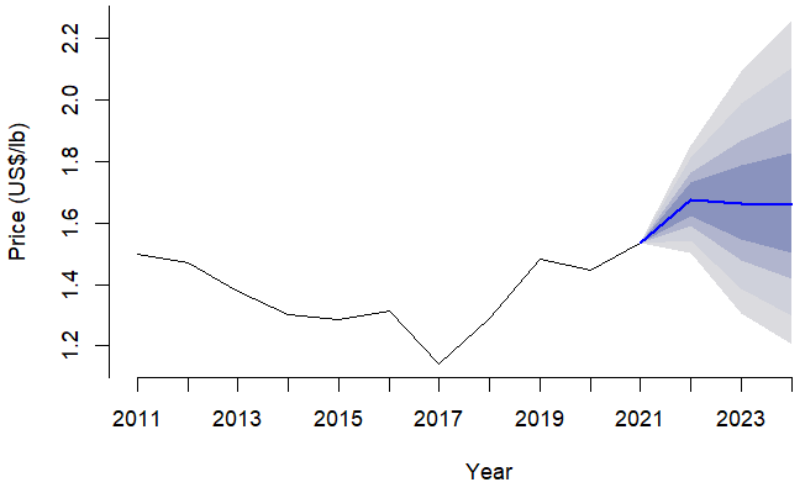

Figure 7.9: Pollock fillet wholesale price projections and confidence bounds

Table 7.11: Projected mean, probability bounds of pollock fillet wholesale prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	1.50	1.54	1.59	1.62	1.68	1.68	1.73	1.76	1.81	1.85
2023	1.31	1.39	1.48	1.55	1.66	1.66	1.79	1.87	1.99	2.09
2024	1.20	1.30	1.42	1.50	1.66	1.66	1.83	1.94	2.11	2.26

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Pollock fillet wholesale return volatility projections			
Hist. Avg.	2023	2024	Long-run
14.16	14.03	13.98	14.46

The production of pollock fillets decreased 14% in 2021 and prices increased 6% to $1.535/lb. The projection from last year indicated a marginal decrease and had a median of $1.439/lb and 95% confidence bounds of $1.369/lb to $1.507/lb placing the realized price above the confidence bounds and with $0.10 of the median estimate. Current projections for the 2022 fillet price have a median of $1.676/lb with 95% confidence bounds of $1.47/lb to $1.886/lb (Figure 7.9). These estimates imply that prices are likely to increase in 2022 though stable prices are within the projected range.

Production data through Oct. 22, 2022 show that year-over-year fillet production is down 3% in 2022. Projections of fillet prices for 2023 and beyond indicate that based on historical patterns expected prices do not exhibit a significant trend with the potential for some mean reversion. Because of the substantial volatility a range of potential increases or decreases are plausible.

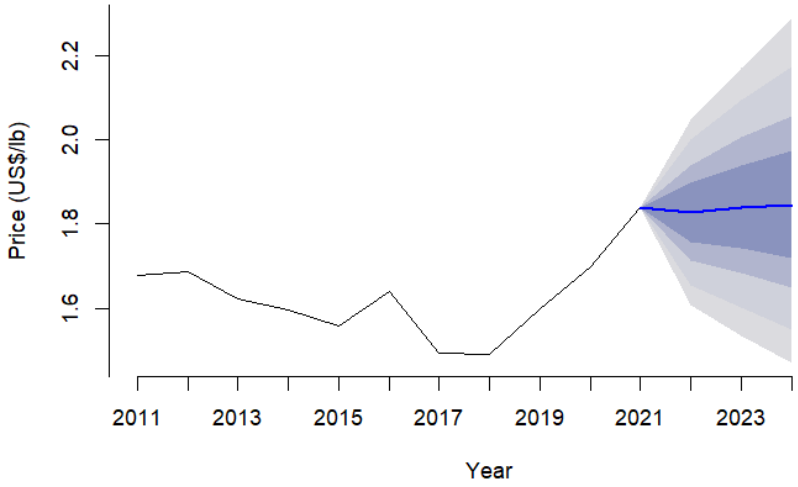

Figure 7.10: Pollock deep-skin fillet wholesale price projections and confidence bounds

Table 7.12: Projected mean, probability bounds of pollock deep-skin fillet wholesale prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	1.61	1.65	1.71	1.76	1.83	1.83	1.90	1.94	2.00	2.05
2023	1.53	1.60	1.68	1.74	1.84	1.84	1.94	2.01	2.10	2.17
2024	1.47	1.55	1.65	1.72	1.84	1.85	1.98	2.06	2.17	2.29

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Pollock deep-skin fillet wholesale return volatility projections			
Hist. Avg.	2023	2024	Long-run
8.88	7.71	9.00	12.62

The volume of deep-skin fillets produced decreased 4% and prices increased 8% to $1.838/lb in 2021. The price increase was inconsistent with the projected decrease from last year and was above last year's estimated 95% confidence bounds of $1.558/lb to $1.664/lb with a median of $1.661/lb. Current estimates for the 2022 deep-skin fillet price have a median of $1.825/lb with 95% confidence bounds of $1.564/lb to $2.096/lb (Figure 7.10). These estimates imply that the 2022 price will likely remain stable. Production data through Oct. 22 2022 indicate an 3% increase in year-over-year production. Projections of deep-skin fillet prices for 2023 and beyond based on historical trends indicate that expected prices do not exhibit a significant trend or potential mean reversion. Because of the substantial volatility a range of potential increases or decreases are plausible. Volatility estimates indicate that expected return volatility may increase in the future.

7.5.1.3 Pollock Roe First-Wholesale Prices

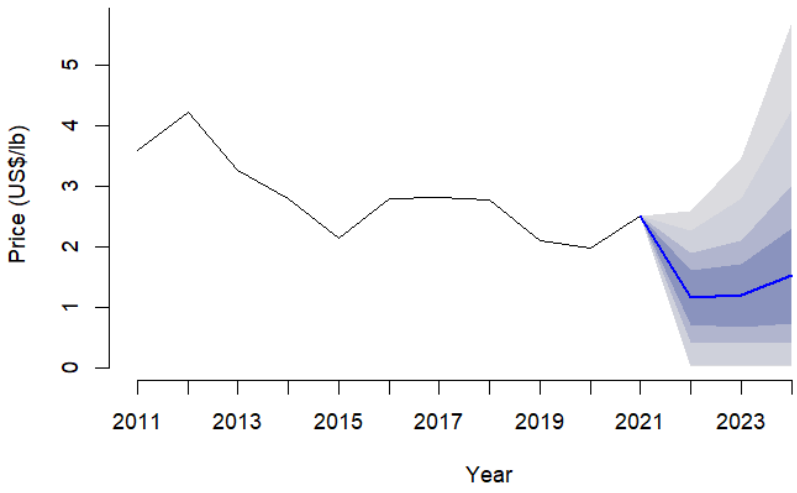

Figure 7.11: Pollock roe wholesale price projections and confidence bounds

Table 7.13: Projected mean, probability bounds of pollock roe wholesale prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	0.01	0.03	0.43	0.70	1.15	1.17	1.61	1.88	2.27	2.59
2023	0.01	0.03	0.39	0.66	1.21	1.14	1.71	2.10	2.79	3.47
2024	0.01	0.04	0.42	0.73	1.53	1.39	2.31	3.00	4.26	5.70

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Pollock roe wholesale return volatility projections			
Hist. Avg.	2023	2024	Long-run
27.24	42.64	55.68	26.37

Pollock roe production decreased 35% in 2021 and prices increased 21% to $2.51/lb. The projection from last year indicated a marginal decrease and had 95% confidence bounds of $1.406/lb and $2.226/lb and a median of $1.816/lb placing the realized price above the confidence bounds. The projected first-wholesale pollock roe price for 2022 has a median of $1.165/lb with 95% confidence bounds of $0.01/lb to $2.882/lb (Figure 7.11). These estimates imply that roe prices for 2022 will likely decrease though stable prices are within the projected range. Projections of roe prices for 2023 and beyond indicate that based on historical patterns prices may trend back up reverting back towards recent levels. Production data through Oct. 22, 2022 indicate that production is down 11% year-over-year. Because of the substantial volatility a range of potential increases or decreases are plausible. There is considerable volatility in pollock roe returns which is projected to continue in the long-run.

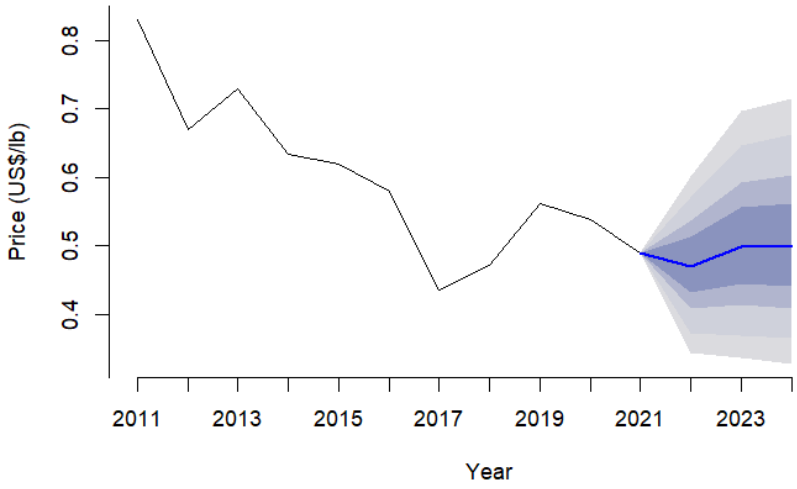

Figure 7.12: Pollock head and gut wholesale price projections and confidence bounds

Table 7.14: Projected mean, probability bounds of pollock head and gut wholesale prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	0.34	0.37	0.41	0.43	0.47	0.47	0.51	0.54	0.57	0.60
2023	0.34	0.37	0.41	0.44	0.50	0.50	0.56	0.59	0.65	0.70
2024	0.33	0.36	0.41	0.44	0.50	0.50	0.56	0.60	0.66	0.71

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Pollock head and gut wholesale return volatility projections			
Hist. Avg.	2023	2024	Long-run
15.03	14.54	15.20	14.84

7.5.1.4 Pollock H&G First-Wholesale Prices

Pollock head and gut production decreased 34% in 2021 and prices decreased 10% to $0.49/lb. The projection from last year indicated a stable prices and had estimated 95% confidence bounds of $0.453/lb to $0.626/lb with a median of $0.539/lb placing the realized price within the estimated confidence bounds and the median estimate with $0.05 of the realized price.

The projected first-wholesale pollock H&G price in 2022 has a median of $0.473/lb with 95% confidence bounds of $0.318/lb to $0.628/lb (Figure 7.12). These estimates imply that prices in 2022 will likely remain stable with some potential for a decrease. Production data through Oct. 22, 2021 indicate that 2022 H&G production is up 37% year-over-year. Export data on which projections are based do not have a distinct H&G code which contributes to the considerable volatility in H&G price projections. Because of the substantial volatility a range of potential increases or decreases are plausible in future years. Volatility projections indicate that future volatility may decrease marginally but remain fairly constant.

7.5.2 Pacific Cod First-Wholesale Prices

Pacific cod is mainly produced into the H&G product form, though fillets constitute a significant portion of the output, particularly for shoreside processors (Tables 4.17 and 4.35).

7.5.2.1 Pacific Cod H&G First-Wholesale Prices

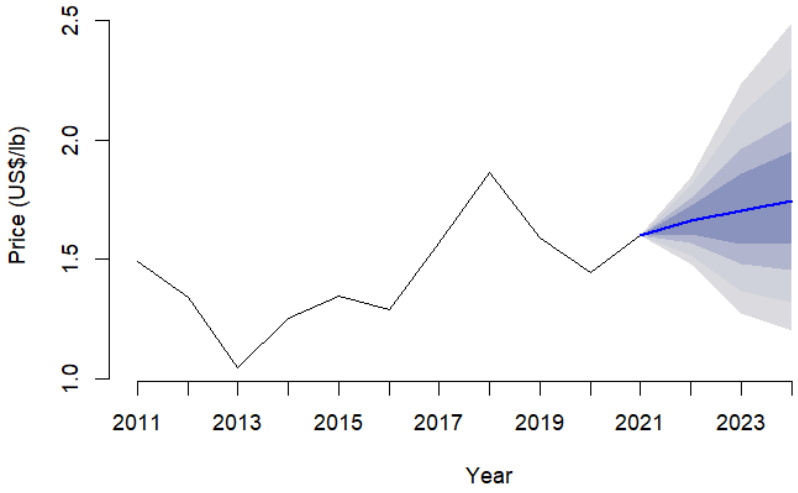

Figure 7.13: Pacific cod head and gut wholesale price projections and confidence bounds

Table 7.15: Projected mean, probability bounds of pacific cod head and gut wholesale prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	1.48	1.52	1.57	1.60	1.66	1.66	1.72	1.76	1.81	1.85
2023	1.27	1.37	1.48	1.56	1.70	1.71	1.86	1.96	2.11	2.24
2024	1.20	1.32	1.46	1.56	1.75	1.74	1.95	2.08	2.30	2.49

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Pacific cod head and gut wholesale return volatility projections			
Hist. Avg.	2023	2024	Long-run
16.79	16.57	16.99	17.01

Production of Pacific cod H&G decreased 15% in 2021 and realized prices increased 10% to $1.599/lb. Price projections from last year's report indicated an increase as well and had 95% confidence bounds of $1.441/lb to $1.556/lb with a median of $1.498/lb, placing the realized price above the projected range. The price projections for 2022 H&G prices have an estimated median of $1.662/lb with 95% confidence bounds of $1.445/lb to $1.88/lb (Figure 7.13). These estimates indicate that prices will likely be stable to increasing in 2022. Production data through Oct. 22, 2022 show a 4% reduction in the year-over-year production of H&G. Projections of cod H&G prices for

2023 and beyond indicate that based on historical patterns prices show a slightly increasing trend, but also confidence bounds show a wide range of potential future prices. Volatility projections indicate that future volatility may increase.

7.5.2.2 Pacific Cod Fillet First-Wholesale Prices

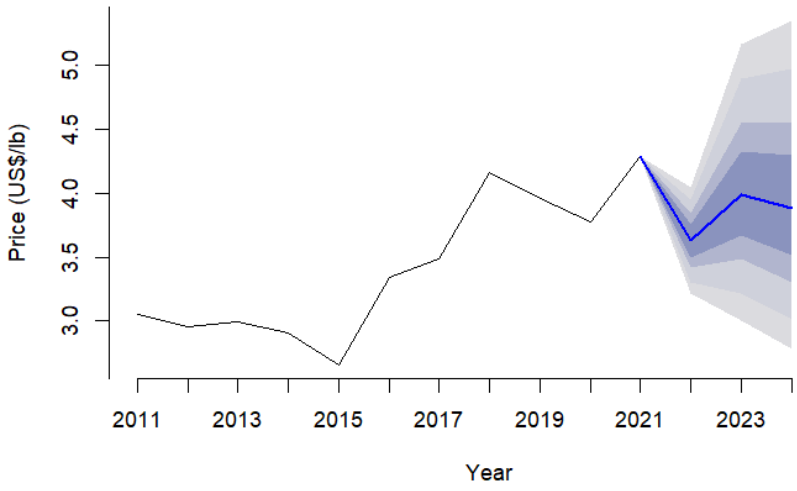

Figure 7.14: Pacific cod fillet wholesale price projections and confidence bounds

Table 7.16: Projected mean, probability bounds of pacific cod fillet wholesale prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	3.21	3.30	3.42	3.50	3.63	3.63	3.76	3.84	3.95	4.04
2023	3.00	3.22	3.49	3.67	3.99	3.99	4.33	4.55	4.90	5.17
2024	2.78	3.01	3.30	3.52	3.89	3.89	4.30	4.56	4.97	5.35

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Pacific cod fillet wholesale return volatility projections			
Hist. Avg.	2023	2024	Long-run
15.94	15.88	16.72	19.81

Production of Pacific cod fillets decreased 4% in 2021 as prices rose 12% to \$4.291/lb. Price projections from last year's report indicated a increase as well and had 95% confidence bounds of \$3.705/lb to \$4.159/lb with a median of \$3.934/lb, placing the realized price above the projected range. The current projections for 2022 first-wholesale cod fillets have median of \$3.628/lb with 95% confidence bounds of \$3.133/lb to \$4.13/lb (Figure 7.14). These estimates indicate that a decrease in 2022 cod fillet price is likely. The estimate of a first-wholesale price decrease is consistent with the decrease price in cod fillet export prices. Production data through Oct. 22, 2022 show a 65% reduction in the year-over-year production of fillets. Fillet price projections for 2023 and beyond indicate future prices may to rise reverting towards earlier levels. Confidence bounds show a wide

range of potential future prices reflecting the historical and projected volatility in the cod fillet price. Volatility projections indicate that future volatility may increase substantially.

7.5.3 Sablefish H&G First-Wholesale Prices

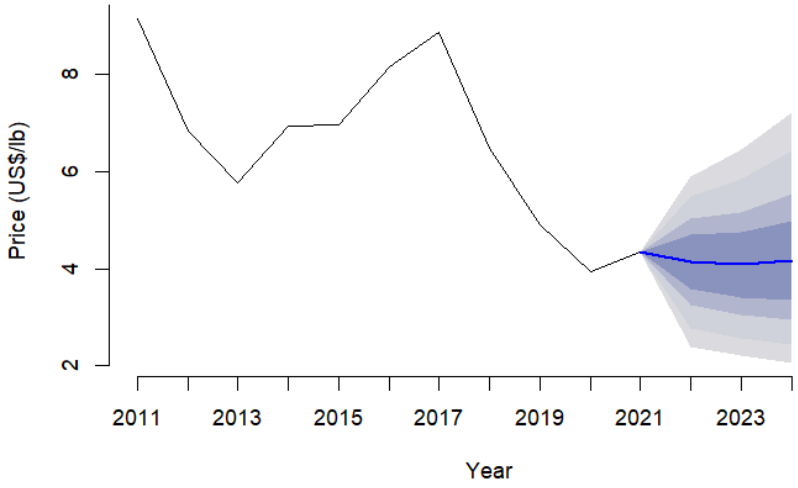

Figure 7.15: Sablefish head and gut ex-vessel price projections and confidence bounds

Table 7.17: Projected mean, probability bounds of sablefish head and gut ex-vessel prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	2.39	2.78	3.25	3.57	4.15	4.14	4.70	5.03	5.49	5.89
2023	2.20	2.57	3.05	3.41	4.10	4.06	4.75	5.17	5.84	6.44
2024	2.05	2.44	2.94	3.34	4.17	4.11	4.97	5.53	6.43	7.21

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Sablefish head and gut ex-vessel return volatility projections			
Hist. Avg.	2023	2024	Long-run
17.59	18.21	18.41	16.19

Sablefish is mostly produced into the head-and-gut product form at the first-wholesale level, typically comprising greater than 90% of the value from sablefish products. Sablefish H&G production in 2021 increased 40%. The realized price of sablefish H&G in 2021 increased 9% to \$4.35/lb. Price projections from last year's report indicated a increase and had 95% confidence bounds of \$4.018/lb to \$4.958/lb with a median of \$4.482/lb, placing the realized price within the projected range. This year's price projections for the 2022 first-wholesale sablefish H&G price have a median of \$4.141/lb with 95% confidence bounds of \$2.061/lb to \$6.208/lb (Figure 7.15). These estimates imply that a price decrease in 2022 is possible. However, sablefish export prices indicate rising prices and it's the increase in the Japanese exchange rate in the model that is resulting the estimate of a decrease in the first-wholesale price. Confidence bounds indicate that increases

or decreases are within the projected range. Production data through Oct. 22, 2022 show 40% increase in the year-over-year production of sablefish H&G. Projections of sablefish H&G prices for 2023 and beyond do not display a significant trend or mean reversion, but also confidence bounds show a wide range of potential future prices.

7.5.3.1 Atka Mackerel H&G First-Wholesale Prices

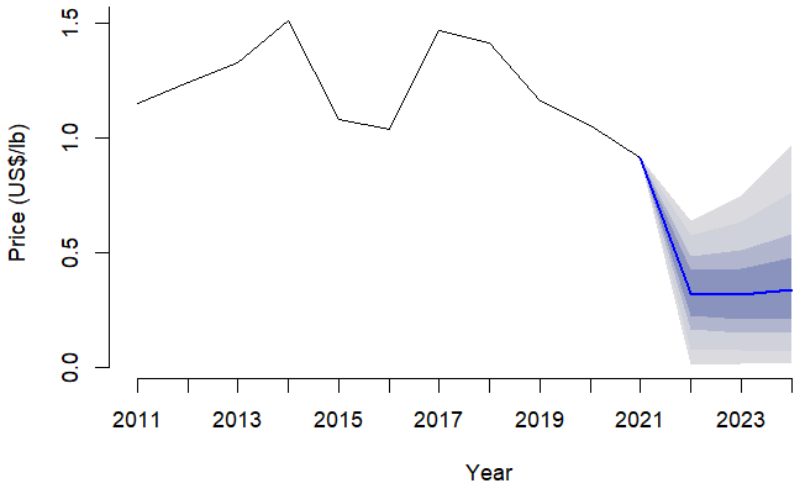

Figure 7.16: Atka mackerel head and gut wholesale price projections and confidence bounds

Table 7.18: Projected mean, probability bounds of atka mackerel head and gut wholesale prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	0.01	0.08	0.17	0.23	0.32	0.32	0.43	0.49	0.57	0.64
2023	0.01	0.07	0.15	0.21	0.32	0.31	0.43	0.51	0.63	0.75
2024	0.02	0.07	0.15	0.21	0.34	0.33	0.48	0.58	0.77	0.97

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Atka mackerel head and gut wholesale return volatility projections			
Hist. Avg.	2023	2024	Long-run
31.46	32.84	33.60	31.02

Greater than 90% of the Alaska caught Atka mackerel production volume is processed as head-and-gut. The Atka mackerel first-wholesale H&G production increased 5% in 2021 and price decreased 16% to \$0.913/lb. Price projections from last year's report had 95% confidence bounds of \$0.816/lb to \$1.149/lb with a median of \$0.981/lb, placing the realized price within the projected range. Current projections for the 2022 Atka mackerel H&G price have a median of \$0.324/lb with 95% confidence bounds of \$0.01/lb to \$0.699/lb (Figure 7.15). These estimates imply that the 2022 Atka mackerel price will likely decrease. Production data through Oct. 22,

2022 show a 3% decrease in the year-over-year production of H&G. Atka mackerel H&G price projections for 2023 and beyond based on historical trends indicate that expected prices do not exhibit a trend. Because of the substantial volatility a range of potential increases or decreases are plausible in the future. Volatility projections indicate future volatility levels will remain.

7.5.4 Flatfish First-Wholesale Prices

The two largest flatfish species in terms of market value and volume are yellowfin and rock sole in the BSAI. Arrowtooth flounder is the predominant species caught in the GOA and in also caught in substantial quantities in the BSAI. The market shares for other flatfish fisheries are comparatively smaller. Flatfish are primarily processed into the head-and-gut product form.

7.5.4.1 Yellowfin Sole H&G First-Wholesale Prices

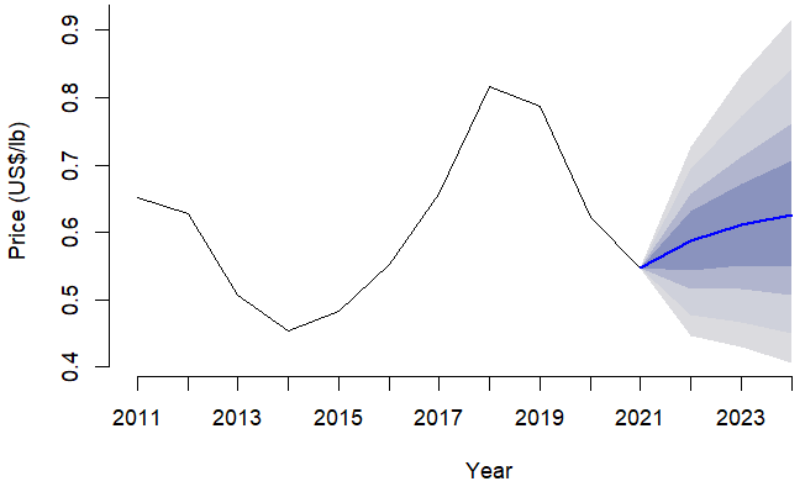

Figure 7.17: Yellowfin (BSAI) head and gut wholesale price projections and confidence bounds

Table 7.19: Projected mean, probability bounds of yellowfin (BSAI) head and gut wholesale prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	0.45	0.48	0.52	0.54	0.59	0.59	0.63	0.66	0.69	0.73
2023	0.43	0.47	0.52	0.55	0.61	0.61	0.67	0.71	0.77	0.83
2024	0.41	0.45	0.51	0.55	0.63	0.62	0.71	0.76	0.84	0.92

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Yellowfin (BSAI) head and gut wholesale return volatility projections

Hist. Avg.	2023	2024	Long-run
13.93	14.00	14.03	14.01

The yellowfin sole first-wholesale H&G production decreased 16% in 2021 and the first-wholesale price decreased 14% to $0.548/lb. The price projection from last year's report that estimated that prices would remain stable, but realized price was below the estimated 95% confidence bounds of $0.599/lb and $0.666/lb and median of $0.633/lb.

This year's projection for 2022 yellowfin sole H&G prices estimate a median of $0.588/lb with 95% confidence bounds of $0.42/lb to $0.753/lb (Figure 7.17). These estimates imply that a price increase in 2022 is somewhat likely, however the 2021 price falls within the projected bounds indicating the possibility that prices may remain stable.

Production data through Oct. 22, 2022 show a 27% increase in the year-over-year production of H&G. Yellowfin sole H&G price projections for 2023 and beyond based on historical trends indicate that expected prices may trend up slightly. Because of the substantial volatility a range of potential increases or decreases are plausible. Volatility projections indicate a decrease in future volatility.

7.5.4.2 Rock Sole H&G First-Wholesale Prices

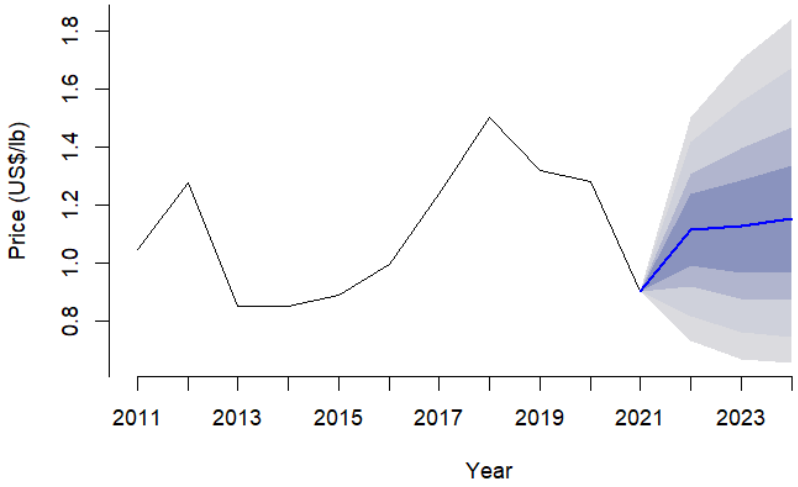

Figure 7.18: Rock sole (BSAI) head and gut with roe wholesale price projections and confidence bounds

Table 7.20: Projected mean, probability bounds of rock sole (BSAI) head and gut with roe wholesale prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	0.73	0.82	0.92	0.99	1.12	1.11	1.24	1.31	1.42	1.50
2023	0.67	0.76	0.88	0.97	1.13	1.12	1.29	1.40	1.56	1.70
2024	0.66	0.75	0.87	0.97	1.16	1.15	1.34	1.47	1.67	1.84

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Rock sole (BSAI) head and gut with roe wholesale return volatility projections

Hist. Avg.	2023	2024	Long-run
18.45	18.31	18.29	18.40

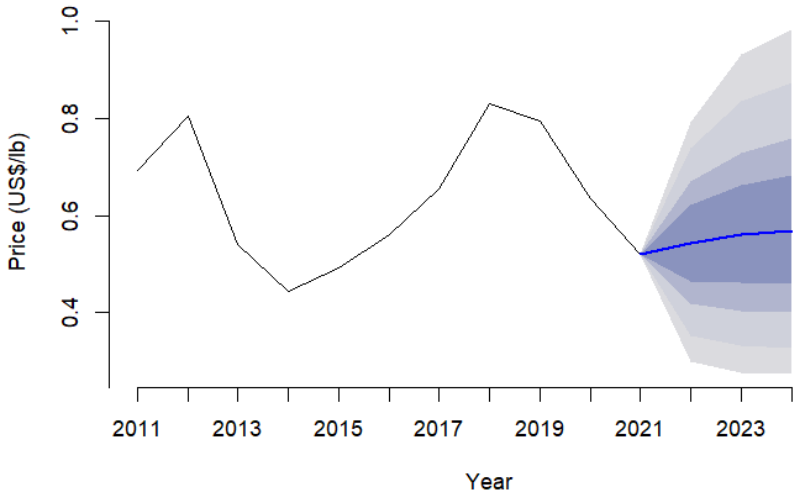

Figure 7.19: Rock sole (BSAI) head and gut wholesale price projections and confidence bounds

Table 7.21: Projected mean, probability bounds of rock sole (BSAI) head and gut wholesale prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	0.30	0.35	0.42	0.47	0.54	0.54	0.62	0.67	0.74	0.79
2023	0.28	0.33	0.40	0.46	0.56	0.56	0.66	0.73	0.84	0.93
2024	0.27	0.33	0.40	0.46	0.57	0.56	0.68	0.76	0.87	0.98

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Rock sole (BSAI) head and gut wholesale return volatility projections

Hist. Avg.	2023	2024	Long-run
22.29	21.83	22.59	22.70

The majority of rock sole is processed into two product forms; H&G with roe is a higher priced product with slightly different price dynamics than the other product form H&G (without roe) (Figures 7.18 and 7.19).

The first-wholesale production of rock sole H&G with roe decreased 85% in 2021 and the price decreased 42% to $0.903/lb. Price projections from last year's report indicated a decrease which had 95% confidence bounds of $1.106/lb and $1.172/lb with a median of $1.138/lb, placing the realized price below the projected range. This year's projection for the 2022 rock sole H&G with roe price has a median of $1.114/lb with 95% confidence bounds of $0.659/lb to $1.575/lb (Figure 7.18) indicating that it is likely that prices will increase. Production data through Oct. 22, 2022 show a 316% increase in the year-over-year production of H&G with roe. The price projection for 2023 and beyond stable with a slight upward trend. Because of the substantial volatility a range of potential increases or decreases are plausible in future years.

The first-wholesale production of rock sole H&G (without roe) decreased 42% in 2021 and the price decreased 22% to $0.519/lb. Price projections from last year's report indicated a decrease

which had 95% confidence bounds of $0.514/lb to $0.658/lb with a median of $0.586/lb, placing the realized price within the projected range. This year's projections estimate the 2022 rock sole H&G (without roe) price will be stable to slightly increasing with a median of $0.545/lb with 95% confidence bounds of $0.256/lb to $0.838/lb (Figure 7.19). Production data through Oct. 22, 2022 show a 19% increase in the year-over-year production of H&G for 2022. The price projection for 2023 and beyond indicate that prices will remain stable 2023.

7.5.4.3 Arrowtooth Flounder H&G First-Wholesale Prices

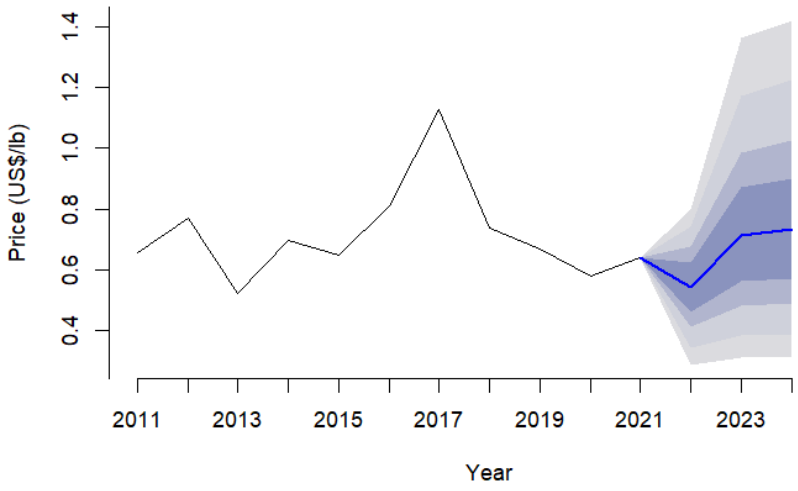

Figure 7.20: Arrowtooth head and gut wholesale price projections and confidence bounds

Table 7.22: Projected mean, probability bounds of arrowtooth head and gut wholesale prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	0.29	0.34	0.41	0.46	0.54	0.55	0.63	0.68	0.74	0.80
2023	0.31	0.39	0.48	0.56	0.71	0.70	0.87	0.99	1.17	1.36
2024	0.31	0.39	0.49	0.57	0.73	0.72	0.90	1.03	1.22	1.42

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Arrowtooth head and gut wholesale return volatility projections			
Hist. Avg.	2023	2024	Long-run
28.49	32.12	32.99	37.61

Arrowtooth flounder are primarily produced into the head-and-gut product form. The first-wholesale production of arrowtooth H&G decreased 33% in 2021 and the price increased 10% to $0.64/lb. This value was within last year's estimated 95% confidence bounds of $0.551/lb and $0.705/lb, and a median $0.628/lb. This year's price projections for the 2022 arrowtooth H&G price have a median of $0.546/lb with 95% confidence bounds of $0.236/lb to $0.847/lb (Figure

7.20). These estimates indicate that prices will may decrease with the potential for stable or a marginal price increase falling within the projected range.

Production data through Oct. 22, 2022 show a 3% increase in the year-over-year production of H&G for 2022. Projections for 2023 and beyond indicate an increase with a return to the pre-2021 levels. Because of the substantial volatility a range of potential increases or decreases are plausible. Export data aggregate arrowtooth into a general flatfish category which can reduce the accuracy of the model depending on how well year-over-year changes in the arrowtooth price match changes for this general flatfish group.

7.5.5 Rockfish H&G First-Wholesale Prices

Rockfish fisheries have historically been aggregated into a species complex in this report. Species within the complex include northern rockfish, Pacific Ocean perch, rougheye rockfish, shortraker rockfish, dusky rockfish and thornyhead rockfish. The only rockfish species defined in the export data is Pacific Ocean perch (POP) which is used to nowcast current first-wholesale prices for the aggregate rockfish complex. Price projections are included here to provide the best available estimates of prices given the information available. Rockfish are primarily produced into the head-and-gut product form.

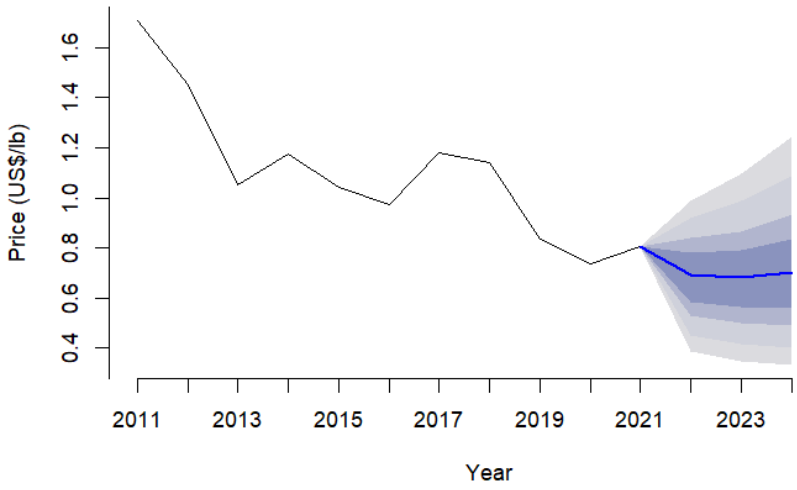

Figure 7.21: Rockfish head and gut wholesale price projections and confidence bounds

First-wholesale rockfish H&G prices increased 8% to $0.804/lb in 2021 (Figure 7.21). This value was within the last year's 95% confidence bounds of $0.733/lb and $0.984/lb with a median of $0.860/lb. Projections for the 2022 price have a median of $0.685/lb with 95% confidence bounds of $0.331/lb to $1.047/lb indicating that 2022 prices are likely to decrease although stable prices or marginal increases are within the projected range.

Table 7.23: Projected mean, probability bounds of rockfish head and gut wholesale prices (US$/lb)

	Lower						Upper			
	5%	10%	20%	30%	mean	Median	70%	80%	90%	95%
2022	0.39	0.45	0.53	0.59	0.69	0.69	0.78	0.84	0.92	0.99
2023	0.35	0.42	0.50	0.56	0.68	0.67	0.79	0.87	0.99	1.10
2024	0.33	0.40	0.49	0.56	0.70	0.69	0.84	0.93	1.09	1.24

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

Rockfish head and gut wholesale return volatility projections			
Hist. Avg.	2023	2024	Long-run
18.94	19.60	18.14	18.89

7.5.6 References

Hamilton, J.D. 1994. Time Series Analysis. Princeton, NJ: Princeton University Press.

Hyndman, R.J., & Athanasopoulos, G. 2013. Forecasting: principles and practice. http://otexts.org/fpp/. Accessed on Feb. 2014.

Chapter 8

Wholesale Market Profiles for Alaska Groundfish

8.1 Global Whitefish

The Alaska Groundfish Wholesale Market Profiles was prepared for Alaska Fisheries Science Center (AFSC) by McKinley Research Group in collaboration with AFSC and Pacific States Marine Fisheries Commission. This section is an extract from the full Profiles report.

Note: AKFIN and COAR data used in the Profiles report may not match other figures in the Economic SAFE exactly because different versions of the data sets were used independently in the analysis.

Prepared by:

McKinley Research Group Anchorage Office

3800 Centerpoint Drive, Suite 1100

Anchorage, AK 99503

McKinley Research Group Juneau Office

801 West 10th Street, Suite 100B Juneau, AK 99801

Website: www.mcdowellgroup.net

8.1.1 Executive Summary

This section of the **Economic Status Report of the Groundfish Fisheries off Alaska, 2022** is extracted from the content in the larger and more comprehensive Alaska Groundfish Wholesale Market Profiles (forthcoming). The analysis was conducted during 2022 and is based primarily on 2020 harvest and market data available at the time. For data sourced from NMFS and AKFIN the reader should refer to the Economic Status Report of the Groundfish Fisheries Off Alaska, 2020. The following section of the report covers the primary wholesale products for the high valued FMP groundfish species Alaska pollock, Pacific cod, sablefish, yellowfin sole, rock sole. The full Alaska Groundfish Wholesale Market Profiles report contains more extensive analysis and covers additional species and products not contained here, including Atka mackerel, Pacific Ocean perch, arrowtooth flounder, Pacific halibut, king crab and snow crab.

The profiles provide an overview of the wholesale markets related to primary Alaska groundfish species and/or products. Most of the wholesale data and analysis outside of this section pertains to first wholesale markets. This section and the Market Profiles report provide a broader analysis on wholesale markets from production to consumers. Each profile in this series contains detailed information about key markets and competing supply for individual species or products, while this chapter contextualizes Alaska groundfish production versus the rest of the world. Each profile characterizes wholesale production volume and value, product mix, supply chain, competing supply, and key markets. Values and prices throughout this section are nominal unless stated otherwise.

8.1.2 Data Sources

In general: Alaska groundfish and crab production were sourced from the NMFS Alaska Region At-sea and Shoreside Production Report which was combined with prices derived from the ADF&G Commercial Operators Annual Reports (COAR) to produce data on value (Data provided by the Alaska Fisheries Information Network (AKFIN)). Alaska groundfish harvest data for recent years are sourced from NMFS Alaska Region Blend and Catch-accounting System estimates and crab harvest from ADFG/CFEC Fish Tickets (Data provided by the Alaska Fisheries Information Network (AKFIN)). Historical harvest data for U.S. fisheries were sourced from NMFS Office of Science and Technology, Annual Commercial Fisheries Statistics Database. Global harvest data were sourced from FAO Fisheries and Aquaculture Department. Fisheries statistics and information. U.S. export and import trade data were sourced from NMFS Office of Science and Technology, Foreign Fishery Trade Data. Global export and import trade data were sourced from IHS Markit. Global Trade Atlas: International Import and Export Commodity Trade Data. Exchange rate data were sourced from Board of Governors of the Federal Reserve System (US), FRED, Federal Reserve Bank of St. Louis. For details on specific tables, figures or values see information in the notes, sources or contact authors.

8.1.3 Global Whitefish and Other Marine Fish Production

Alaska's groundfish fisheries are of particular global importance thanks to their production of whitefish; Alaska produces approximately 19 percent of global marine wild-harvest whitefish in annually. Whitefish generally refers to non-oily species, such as cod, pollock, haddock, hake, whiting, and benthic flatfish, such as sole, plaice, flounder, and halibut. These species - primarily caught in wild fisheries - also compete in global seafood markets with notable aquaculture species such as tilapia, pangasius, and catfish. Though different perceptions of quality and price premiums exist for this range of species, they are all competitors and may be substituted for each other based on price and availability.

Table 8.1: Global Whitefish Harvest (mt), 2020

	Primary Uses	2020 Harvest Volume (mt)	Alaska Pct. Of Global Production (2020)
Pollock	Meat, Surimi, Meal/Oil	3,544,000.00	41%
Hakes, Hoki, Lings, and Whiting	Meat, Surimi, Meal/Oil	3,088,000.00	0%
Cod* and Haddock	Meat	1,796,000.00	10%
Sole, Flounder, and Plaice	Meat	877,000.00	26%
Saithe	Meat	329,000.00	0%
Halibuts and Turbots	Meat	235,000.00	5%
Other Whitefish (Whitefish and Cod Varieties)	Meat	109,000.00	0%
Total Wild Whitefish (Capture Fisheries)		9,977,000.00	19%
Tilapias and Cichlids (Farmed and Capture)	Meat	6,366,000.00	0%
Pangasius (Farmed)	Meat	2,964,000.00	0%
Total - Tilapias and Pangasius		9,330,000.00	0%
Total Wild Whitefish, Tilapia, and Pangasius		19,307,000.00	10%

Note *Pacific and Atlantic cod only.

Source FAO, compiled by McKinley Research Group.

Globally, 10 million mt of whitefish were harvested in 2020, with pollock (primarily from the U.S. and Russia) being the largest component at 3.5 million mt. Following pollock, 3.1 million mt of hakes, hoki, lings, and whiting were harvested. While the majority of production of these high-volume species is used for meat, surimi production is a critically important product. Roe, fish meal, fish oil, and other ancillary products are also produced in significant volumes from these wild marine fish species.

After pollock and hakes/hoki/lings/whiting, the next most important whitefish species group is cod/haddock, with a total global harvest of 1.7 million metric tons. The vast majority of these fish is used to produce fillets that could represent a substitute for key Alaska groundfish species on a general level, especially in European and North American markets. While consumers generally will not substitute imported whitefish species for less expensive and traditionally palatable domestic species, frozen seafood manufacturers increasingly develop products and packaging that allows them to use multiple species for the same product, permitting them greater sourcing options and the ability to lower costs.

In addition to whitefish, Alaska's groundfish fisheries produce significant volumes of rockfish, Pacific Ocean perch, sablefish, and Atka mackerel. Though these species also have white flesh, they are treated separately in the global seafood marketplace due to their higher oil content and where they compete within the overall seafood hierarchy; rockfish would most closely compete with "snappers" while sablefish compete directly with the ultra-premium Antarctic and Patagonia toothfish. Alaska harvested more than 7 percent of the world's snappers, rockfish, sablefish, and Antarctic/Patagonia toothfish in 2020.

Table 8.2: Global Production of Groupers/Snappers/Rockfish and Sablefish/Toothfish (mt), 2020

Species Group	Primary Uses	2020 Harvest Volume (mt)	Alaska Pct. Of Global Production (2020)
Groupers, Snappers, and Rockfish (Includes Pacific Ocean Perch)	Meat	1,118,000	7%
Sablefish and Antarctic/Patagonia Toothfish	Meat	46,000	32%

Source FAO, compiled by McKinley Research Group.

8.1.4 Alaska's Position in the Global Whitefish Market

Alaska produces just a fraction of global whitefish production and is thus highly impacted by global macroeconomic trends, trade policies, and competing whitefish supply. In terms of supply, Russia (cod/pollock/flatfish), China (tilapia), Norway (cod), Japan (pollock/cod), New Zealand (hoki), and Vietnam (pangasius) are the biggest competitors for Alaska's groundfish industry in terms of high-volume whitefish species. Other species such as Pacific Ocean perch, sablefish, and Atka mackerel have both defined export markets and limited competition where Alaska is the primary export supplier and generally accounts for a large percent of global supply. As a result, species substitution is less common in markets for these species with price driven by local demand dynamics, currency fluctuations, and Alaska harvest volume. Once almost exclusively dependent on the Japanese market, sablefish is now well-known and sought-after by chefs and discerning consumers around the globe, thanks in large part to its popularization in Japanese fusion cuisine.

8.1.5 Summary of Key Alaska Groundfish Markets

With an estimated 24 percent of Alaska groundfish production remaining in the U.S in 2020 – and a great deal more processed in China and shipped back to the U.S. – the U.S. is the largest consumer market for Alaska groundfish. The domestic market share of the Alaska groundfish market has grown in recent years and is likely to remain steady or increase in coming years due to the U.S.-China trade conflict and the persistent strength of the U.S. dollar.

Export markets bought the remaining three-quarters of Alaska's total groundfish production in 2020, and an even larger percentage of surimi, roe, fish meal, and other groundfish products. China is the largest direct importer of Alaska groundfish, buying 23 percent of production volume in 2020. Most Alaska seafood exported to China is reprocessed in the country and then shipped on to final markets, mostly in the U.S., Europe, and Japan. China is especially important for the reprocessing of Alaska's flatfish: more than two-thirds of Alaska's flatfish production went to

China in 2022. Europe was the next largest importer of Alaska seafood and is an especially important market for Alaska pollock fillets and Pacific cod. Japan is a key buyer of most of Alaska's groundfish products and is the largest buyer of Alaska's pollock surimi, pollock roe, sablefish and Atka mackerel.

Table 8.3: Wholesale Sales of Alaska Groundfish (mt), 2020

Species	Wholesale Production	Domestic US**	Europe	China	Japan	Other	Total Exports
Alaska Pollock	400,656	86,945	124,516	28,597	62,346	98,251	313,711
Pacific Cod	80,574	38,171	8,751	17,405	5,512	10,735	42,403
Flatfish	135,907	24,307	422	90,532	2,249	18,397	111,599
Rockfish/POP	39,270	8,465	235	17,260	9,909	3,401	30,805
Atka Mackerel	34,191	4,468		7,288	20,125	2,311	29,724
Sablefish	7,930	1,290	73	1,019	5,118	430	6,640
Pacific Halibut	5,614	5,211		53		350	403
Other	4,408	2,117		29	31	2,230	2,291
Total	708,550	170,974	133,998	162,183	105,291	136,104	537,576
Percent of total		24%	19%	23%	15%	19%	76%

Note *Wholesale production and export figures for Alaska pollock exclude fish meal and fish oil. See the ancillary products chapter for more information about these products.

**Domestic U.S. sales estimated by subtracting exports from production. Industry interviews indicate this is likely an overestimate for the direct U.S. domestic market for groundfish including flatfish, rockfish, and Atka mackerel, due to data limitations. See species chapters for more information.

Source NMFS Alaska Region At-sea and Shoreside Production Reports (Data provided by the Alaska Fisheries Information Network), ADF&G (COAR), and McKinley Research Group estimates.

8.2 Alaska Walleye Pollock

Pollock or walleye pollock (*Gadus chalcogrammus*) is currently the largest groundfish fishery in the world, with stocks concentrated in the North Pacific Ocean. Pollock are commercially harvested by several countries, but U.S. (Alaska) and Russia are the largest producers by a wide margin, with U.S. harvests accounting for 42 percent of global harvests in 2020. Alaskan pollock accounted for for 39 percent of total U.S. commercial fishery landings and 13 percent of wholesale production value in 2020.

In 2020, pollock was the single most valuable and plentiful species in Alaska's seafood industry, accounting for 49 percent of production volume and 39 percent of first wholesale value. Alaska pollock is processed into fillets, surimi, roe, head/gut (H&G), fish meal, fish oil, and other products. Europe, Japan, and U.S. are the primary consumer markets.

Table 8.4: Summary Profile of Alaska Pollock Wholesale Production and Markets, 2020

Value and Volume		Key Products	Fillets	Surimi	Roe	Meal	Other
First Wholesale Production (mt)	533,530		37%	34%	8%	11%	10%
Pct. of Global Pollock Harvest	42%	Key Markets	Japan	Europe	US	Korea	China

Table 8.4: Summary Profile of Alaska Pollock Wholesale Production *(continued)*

Value and Volume		Key Products	Fillets	Surimi	Roe	Meal	Other
First Wholesale Value ($ millions)	1,416	Pct. of 1st Sales	16%	31%	22%	21%	7%
Pct. Change in Value from Prior 4-yr Avg.	-6%	YoY Change	-28%	-13%	-14%	-9%	-2%
Pct. of Alaska Groundfish Value	67%	Competing Species: Russian pollock, hake, hoki, tropical surimi, & cod.					

8.2.1 Alaskan Pollock Production

8.2.1.1 Wholesale Production and Value Summary

Pollock is one of the most valuable fisheries in Alaska, and even the world, due to its tremendous volume, production versatility, and white, mild-flavored flesh. Virtually all edible pollock products are frozen before being sold into wholesale markets. Alaska pollock harvests yielded 533,530 mt of processed product in 2020, with a first wholesale value of $1.42 billion.

Alaska pollock yield five primary product types: surimi, fillets, headed and gutted (H&G) fish, roe, and fish meal/oil. In 2020, of the 533,530 mt of pollock products produced, 33 percent of that volume was surimi, followed by 29 percent fillet, 13 percent fish meal, 7 percent H&G, 5 percent roe, and the remainder in other products such as minced meat, fish oil, and organs.

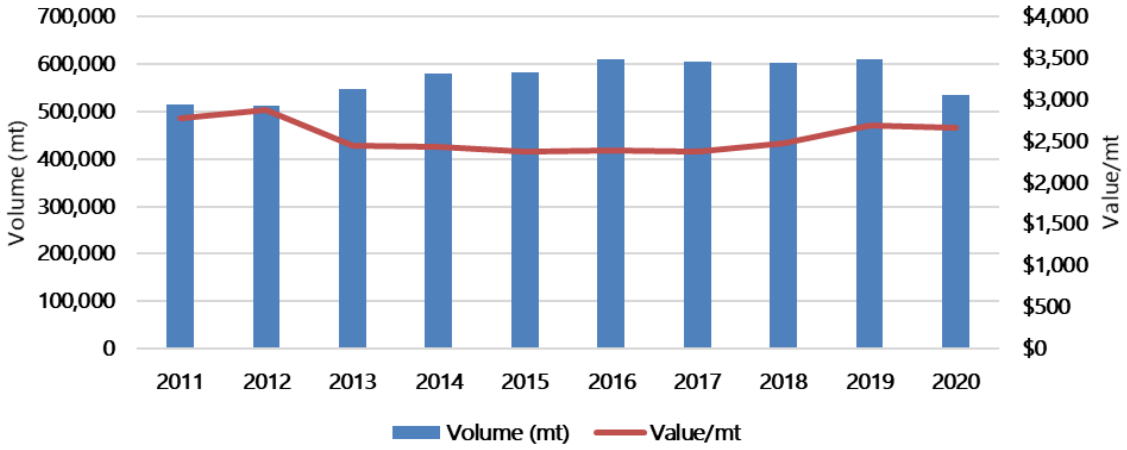

Figure 8.1: First Wholesale Volume and Value/mt for Alaska Pollock, 2011-2020

Table 8.5: First Wholesale Value for Alaska Pollock ($ millions), 2011-2020

2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
$1,424	$1,468	$1,336	$1,408	$1,381	$1,460	$1,438	$1,490	$1,638	$1,416

Source: NMFS Alaska Region At-sea and Shoreside Production Reports (Data provided by the Alaska Fisheries Information Network).

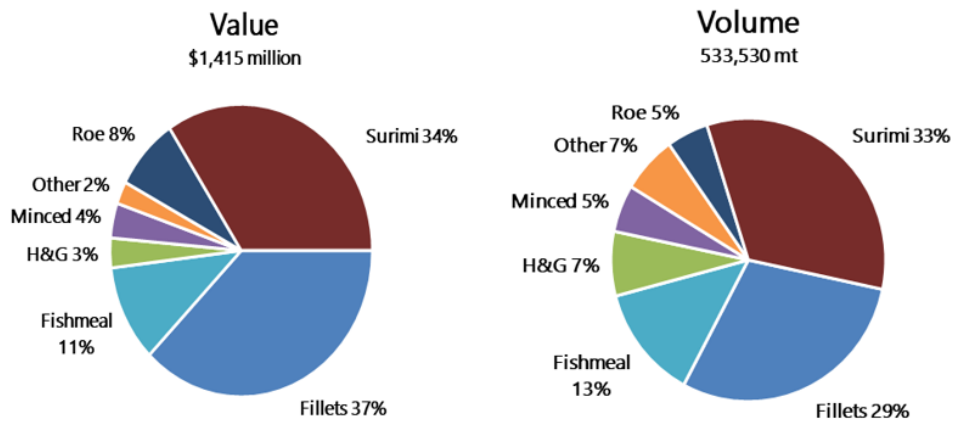

Figure 8.2: Alaska Pollock First Wholesale Production Volume and Value, by Product Type,2020

Source: NMFS Alaska Region At-sea and Shoreside Production Reports (Data provided by the Alaska Fisheries Information Network (AKFIN)). Note: Percentages may not sum to 100 percent due to rounding.

Fillets typically provide the most revenue of any product type, although surimi is a close second and can top the list some years. Together fillets and surimi accounted for 71 percent of Alaska pollock's first wholesale value in 2020. Although roe was only 5 percent of the production volume, it accounted for 8 percent of the fish's value. Roe used to be a more valuable component when roe prices were higher. Fish meal/oil, minced meat, and other ancillary products account for 17 percent of the value, while H&G production is 3 percent. The following is an abbreviated discussion of the markets for pollock fillets and surimi, a more detailed discussion and including roe and H&G can be found in the full market profiles report.

8.2.2 Alaskan Pollock Fillets

Fillets accounted for 37 percent of total Alaska pollock production value in 2020. Pollock fillets function as a whitefish commodity for production of fish sticks/fingers, breaded fillets, and other value-added frozen whitefish fillet products. With dual surimi and fillet production lines at most Alaska processors, fillet quality is consistently very high as fillets with blemishes can be diverted to surimi. The two primary markets for fillets are the U.S. and Europe. Prices have increased every year since 2017.

8.2.2.1 Supply Chain

When pollock is landed in Alaska, it enters one of the most complex supply chains of any groundfish species. Landed fish are first headed and gutted. Heads and other offal are turned into fish meal and oil or retained for other niche markets. Pollock meat is generally used to make either surimi or fillets. The majority of Alaska's once-frozen fillet production is exported to secondary processing companies in Europe, while a lesser amount goes to similar companies in the U.S. Most H&G production is exported to China for twice-frozen fillet production. European and U.S. processors import significant volumes of twice-frozen fillets from China and other countries. Brazil also imports some twice-frozen fillets from China although the volume has been decreasing

over time. Secondary processors manufacture a range of breaded, coated, salted, and other products, mostly for high-volume retail, foodservice, or distribution companies.

8.2.2.2 Fillet Production Analysis

Fillets accounted for 29 percent of all Alaska pollock production volume in 2020. Fillets were the most valuable pollock product form in 2020 in terms of total revenue, just ahead of surimi. Fillet production declined significantly in 2020, due mostly to a low pollock harvest caused by COVID-19 disruptions and a dispersed pollock biomass. Fillet production also declined due to smaller fish and an associated increase in pollock mince and fishmeal production.

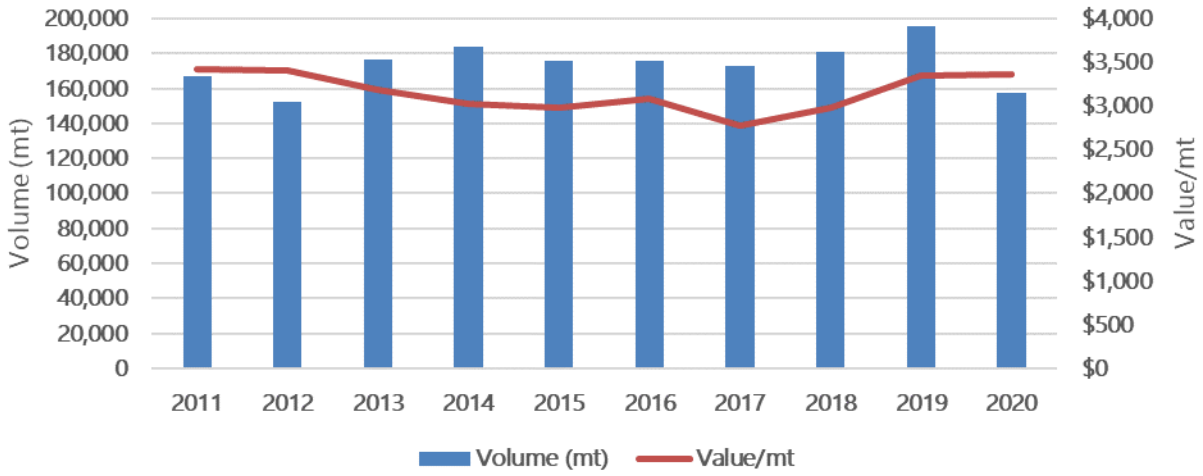

Figure 8.3: First Wholesale Volume and Value/mt for Alaska Pollock Fillets, 2011-2020

Table 8.6: First Wholesale Value, Alaska Pollock Fillets ($ millions), 2021-2020

2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
$570	$521	$564	$557	$525	$544	$480	$540	$654	$529

Source: AKFIN.

The average wholesale value per mt increased by more than 13% between 2017 and 2020. By comparison, surimi value per mt rose 5% in this period. The total value of Alaska pollock fillets decreased for the first half of the last decade, driven mostly by lower price per volume during this period. Since 2017, prices have increased, bringing up the total value of Alaska pollock fillets. Export data show that fillet prices continued to increase steadily in 2021 and into 2022. The total value of pollock fillet production in the last two years, however, has been tempered by lower volumes.

Fillet production is dictated, in part, by market demand for different types of fillets. Skinless/boneless fillets typically account for more than two-thirds of fillet production volume, followed by deep-skinned fillets and limited quantities of other fillet products. In 2020, 65 percent of pollock fillets produced in Alaska were skinless fillets boneless, while deep-skinned fillets

accounted for 32 percent of production volume.

At-sea plants typically produce the most pollock fillets in Alaska, but the shoreside sector is typically not far behind. Deep skin fillets fetch the highest prices and the at-sea sector is especially well positioned to compete on quality through rapid processing. Over the last ten years, prices for at-sea sector deep-skin fillets averaged 8 percent higher than the same products produced by the shoreside sector. In 2020, deep skin fillets made up 43 percent of at-sea fillet production but less than 22 percent of shoreside fillet production (by volume).

8.2.2.3 Fillet Market Analysis

Export markets are critically important to Alaska's pollock industry. It is estimated that export markets buy nearly three-quarters of all Alaska pollock fillet production. More than half of all Alaska pollock fillets go directly to European markets. In addition, the majority of Alaska pollock fillets exported to China are re-exported to Europe.

Table 8.7: Sales of Alaska Pollock Fillets to Key Markets (mt), 2016-2020

Market	2016	2017	2018	2019	2020	% Change 2020 vs. 2016-2019 avg.	Pct. of Total (2016-2020)
Europe	107,452	97,897	101,646	106,574	85,524	-17%	57%
China*	9,021	18,474	14,571	10,437	6,624	-50%	7%
South Korea*	5,828	1,351	2,357	4,452	3,520	1%	2%
Canada	551	6,482	12,384	560	521	-90%	2%
Japan	980	2,643	3,330	2,371	2,365	1%	1%
Australia	1,100	1,213	3,033	3,367	3,355	54%	1%
Other Countries	2,715	2,431	3,224	4,605	3,611	15%	2%
Total Exports	127,708	130,694	140,546	132,437	105,732	-20%	72%
U.S. (Estimated)	48,469	41,981	40,749	63,227	51,480	6%	28%
Total Production	176,177	172,675	181,294	195,665	157,212	-13%	100%
Percent Exported	72%	76%	78%	68%	67%		

* Denotes countries which primarily re-process and/or re-export product to other markets.

Note: Data pertains to primary exports only, does not portray product which may be re-exported to other markets.

Source: ASMI Seafood Export Database, AKFIN, and McKinley Research Group estimates.

Direct sales to the U.S. domestic market can be estimated by subtracting exports from production. These estimates indicate that a trend of decreasing domestic fillet market share for Alaska pollock during most of the last decade reversed in 2019 and 2020.

8.2.2.3.1 Europe Europe is the world's largest market for pollock fillets. European countries typically account for 70 to 80 percent of U.S. pollock fillet export value. European markets imported 85,524 mt of Alaska pollock fillets in 2020, worth $284 million. Alaskan pollock fillets are primarily exported to Europe via Germany and the Netherlands. Most secondary processing into finished products occurs in Germany, France, and Poland. Germany is the largest consumer of pollock fillets, although France and the U.K. are also major consumer markets in Europe. Europe has a long history of whitefish consumption, so the presence of pollock as an affordable

substitute to cod is common in most countries. Overall consumption of finished product is mostly a function of population, the prevalence of modern grocery stores, and median household incomes.

The total volume of exports to Europe have remained more or less steady in recent years, though 2020 saw a dip in volume, likely due to lower fillet yields and a smaller harvest. From 2017 to 2020, pollock fillet export prices grew 21 percent from $2,630 to $3,330. Despite the drop in export volume in 2020, export value rose to a five-year high.

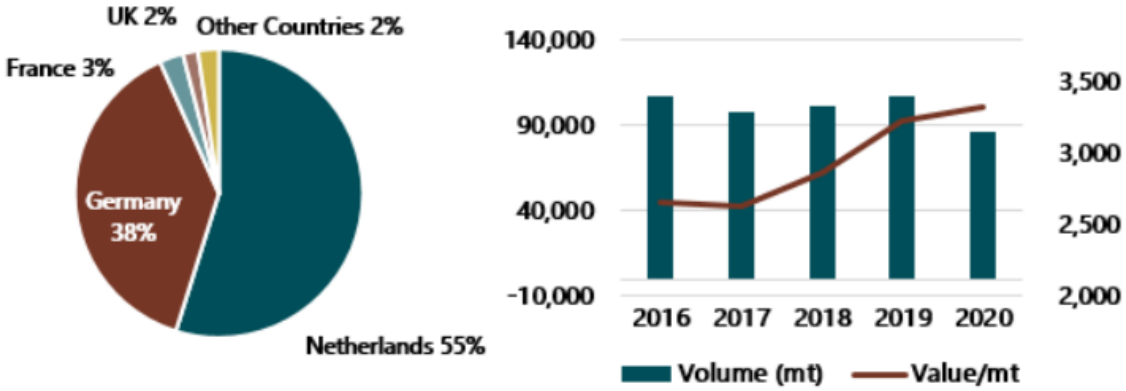

Figure 8.4: Exports of Alaska Pollock Fillets to Major European Markets, 2016-2020

Table 8.8: Exports of Alaska Pollock Fillets to Major European Markets, 2016-2020

	2016	2017	2018	2019	2020
Export Volume (mt)	$107,452	$ 97,897	$101,646	$106,574	$ 85,524
Export Value ($000s)	$285,521	$257,466	$291,812	$344,307	$284,835
Average Export Value per Metric Ton ($US)	$ 2,657	$ 2,630	$ 2,871	$ 3,231	$ 3,330

Source: ASMI Seafood Export Database, compiled by McDowell Group.

Europe imports between 250,000 and 285,000 metric tons of pollock fillets per year from China, Alaska, and Russia. Alaska once-frozen pollock fillets accounted for about a third (36 percent) of all pollock fillets imported into Europe over the past five years. The balance comes from China - mostly re-processed, twice-frozen fillet block made from Russian pollock - or directly from Russia as single-frozen fillet blocks.

In recent years, Russian single-frozen fillets have gained market share in Europe as Russia has invested in additional processing capacity and increased fillet production.

Table 8.9: European Imports of Pollock Fillets from Major Producers (mt),2017-2021

Exporter	2017	2018	2019	2020	2021	Pct. of Total (5-yr. Avg.)
China*	145,856	149,207	161,435	145,708	131,328	53%
U.S. (Alaska)	92,078	91,438	86,365	94,611	78,558	32%
Russia	28,698	42,809	35,662	41,936	50,989	15%
Total	266,632	283,454	283,462	282,255	260,875	

Note: *Consists primarily of Alaska pollock caught in Russia with some Alaska-origin pollock as well. China and Russia exports includes pollock fillet sales to all European Union countries, plus the United Kingdom, Norway and Switzerland.

Source: Trade Data Monitor.

Secondary processors are the largest buyers of pollock fillets in Europe. These companies transform frozen blocks of pollock fillets into ready-to-heat products for retail customers, package fillets into smaller quantities (typically in bags) and sell frozen fillets in smaller quantities to foodservice distributors. Discount retailers, such as Aldi and Lidl, continue to gain market share and have a considerable influence on the pollock fillet market. These retailers are known to advertise private label fish fingers (and similar products) at low prices as loss leaders to bring consumers into their stores. This behavior increases pollock fillet consumption but also keeps wholesale prices low by cutting into the prices that higher-end brands can charge.

8.2.2.3.2 United States The U.S. domestic market is the second-largest consumer of Alaska pollock fillets in the world. In contrast to Europe, Americans consume more pollock through foodservice channels than retail outlets. Pollock is the primary whitefish species used in most generic fried fish sandwiches, although it is becoming more common to see the species name identified in product messaging.

The U.S. market historically consumed approximately 100,000 mt of pollock fillets per year. In recent years, however, domestic supply has decreased, with around 81,000 mt tons consumed in 2020. The major factor behind a changing U.S. pollock supply is a steady decrease in pollock imports. Imports declined from more than 70,000 mt in 2010 to around 30,000 in recent years. As a result of declining imports, the share of domestic pollock fillet consumption originating from Alaska has more than doubled, from an estimated 30 percent in 2010 to 63 percent in 2020.

Table 8.10: Estimated U.S. Pollock Fillet Market Supply (mt), 2013-2020

Year	Alaska Pollock Fillet Production	Imports	Exports	Est. U.S. Supply	Est. Once-Frozen Alaska Product	Pct. Alaska
2013	176,717	55,115	114,852	116,980	61,865	53%
2014	183,970	49,833	131,819	101,984	52,151	51%
2015	176,109	44,532	124,153	96,488	51,956	54%
2016	176,177	32,000	127,708	80,468	48,469	60%
2017	172,675	26,378	130,694	68,359	41,981	61%
2018	181,294	25,440	140,546	66,189	40,749	62%
2019	195,665	38,956	132,437	102,183	63,227	62%
2020	157,212	30,361	105,732	81,840	51,480	63%
16-20 Avg.	176,604	30,627	127,423	79,808	49,181	62%

Source: NMFS Office of Science and Technology, Annual Commercial Fisheries Statistics Database, compiled by McKinley Research Group. Figures may not sum due to rounding.

Pollock fillets are usually put through a secondary manufacturing process before reaching American consumers. Most fillets are bought by companies unaffiliated with harvesting companies in Alaska or Russia. However, there is some integration in the U.S. market. Alaska's largest pollock producer, Trident Seafoods, owns or leases about a third of the pollock quota in Alaska. Trident sells a variety of finished products with the Trident brand to retailers, including pollock

fillets, burgers, and fish sticks.

A relatively new domestic market for Alaska pollock fillets is the U.S. Department of Agriculture, which purchases American agricultural products and seafood and distributes them through the National School Lunch Program, food banks, and foreign aid programs among other channels. Opportunities for Alaska pollock producers have increased over the past five years as the federal program has expanded the list of pollock products. USDA pollock purchases hit a record high of more than $76 million in 2019 (about 12% of first wholesale production value for Alaska pollock fillets that year) and averaged more than $30 million per year over the 2020-2021 period.

8.2.2.4 Competing Supply

Alaska pollock fillets' primary competition comes from Russian-origin twice-frozen pollock fillets. The vast majority of Russian pollock production is exported as a frozen H&G product to China, where it is thawed, filleted, then re-frozen and exported to other countries. Once-frozen fillet production in Russia is limited by processing capacity, though such production is expected to grow due to a major government-backed initiative.[1] Russian government incentives for construction of new vessels and processing plants include the awarding of fishing quota to companies after construction completion.[2]

The Russian Far East supplies 70 percent of Russia's overall seafood harvest, and over half of Russia's pollock harvests occur in the Sea of Okhotsk. MSC certification of the Sea of Okhotsk fishery in 2013 significantly increased the impact of Russian production on Alaska by opening up Russian-origin products to key European fillet markets that require MSC certification; however, those western markets are sanctioning some Russian exports in response to the Russian invasion of Ukraine. Russian pollock harvest has slightly declined in the recent years, as has the Alaska production.[3]

Other whitefish species such as cod, haddock, saithe, hake, hoki, sole, tilapia, and pangasius also impact the market for Alaska pollock fillets. For information about production of other whitefish species see the Global Whitefish Market Profile.

8.2.3 Alaska Pollock Surimi

Surimi accounted for 33 percent of Alaska's pollock wholesale production volume and 34 percent of wholesale production value in 2020. More than 177,000 mt of pollock surimi, worth $484 million, was produced in Alaska in 2020. Japan, Europe, South Korea, and the U.S. are key surimi markets.

The term surimi refers to the intermediate product used in the production of a variety of surimi seafood products. Surimi is an odorless, protein-rich, wet paste. To manufacture the paste, pollock meat is removed through heading, gutting, filleting, and mincing, after which blood and other substances are removed through rinsing, screening, and pressing processes. Surimi blocks are produced when pulverized minced meat is mixed with additives such as salt, starch, and sugar, and then frozen and packaged. The quality of surimi is determined by a few main

[1] (Gorovaya, 2022)
[2] (Vovchenko, 2020)
[3] (Stupachenko, 2019)

characteristics including its gel strength, color (the whiter, the better), and purity. Surimi technology has improved over the years, with the yield increasing from 12 percent to over 30 percent, with research ongoing in surimi technology.[4]

There are hundreds of surimi seafood product varieties produced by secondary processors. The broad categories include *kamakobo* (steamed), *chikuma* (broiled), *satsuma-age* (fried), and seafood analogs (e.g., imitation crab sticks).

8.2.3.1 Supply Chain

Alaska pollock surimi blocks are produced by catcher-processors with onboard surimi processing capacity and by shoreside processors that take deliveries of unprocessed pollock from catcher vessels. Alaska processors sell frozen surimi blocks to secondary processors (some of which may be affiliated with the primary processing company) and distribution companies in Asia, the U.S., and Europe. Secondary processors use surimi blocks from Alaska to create surimi seafood products tailored to various end markets.

8.2.3.2 Surimi Production Analysis

In 2020, surimi accounted for 33 percent of Alaska pollock production volume and 34 percent of first wholesale value. Surimi production was 177,193 mt in 2020 with a wholesale value of $484 million. Production volume has typically ranged from 150,000 to 200,000 mt annually, except for a drop in 2008-2010 driven primarily by harvest volumes. Surimi production volume is also driven by the relative demand for surimi versus fillets, though surimi production as percentage of total pollock production has been relatively steady at about one-third. Surimi production value has grown steadily between 2013 and 2018, as harvests levels and surimi prices increased, but volume dropped in 2019 even as value rose to a high point that year. 2020 saw lower production and a drop in value, due to lower harvests resulting from a dispersed biomass as well as COVID-related disruptions in fishing schedules. Smaller fish size was also an issue in 2020, leading to lower surimi/fillet yields and higher fishmeal production.

Table 8.11: First Wholesale Value, Alaska Pollock Surimi ($ millions), 2011-2020

2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
$418	$524	$378	$441	$500	$531	$595	$572	$599	$484

Source: AKFIN.

Average first wholesale value per metric ton for Alaska surimi was $2,733 in 2020, down 9% from 2019, influenced by global economic contraction that occurred during the first year of the COVID-19 pandemic. Preliminary data indicate that surimi production volume was up significantly in 2021 and that the value per metric ton was up slightly.

Alaska pollock surimi production is split almost evenly between shoreside plants and at-sea processors. Surimi produced at-sea generally commands a premium price due to quicker

[4](Park, 2014)

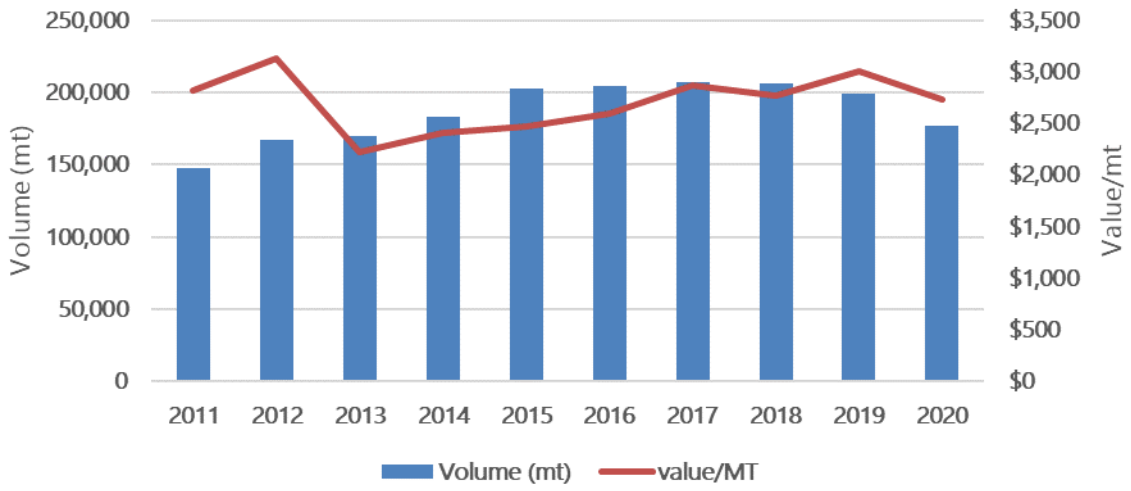

Figure 8.5: First Wholesale Volume and Value/mt for Alaska Pollock Surimi, 2011-2020

processing times leading to higher grade products. From 2008 through 2017, at-sea surimi wholesale prices averaged 21 percent higher than shoreside sector surimi. This premium grew significantly in 2017 (70% higher) though fell to 11 percent in 2020.

8.2.3.3 Key Market Analysis

Almost 90 percent of Alaska pollock surimi is sold to export markets. In 2020, Japan and South Korea imported just under 70 percent of all Alaska pollock surimi production. The remaining markets included Europe, U.S., Thailand, and China. Europe is a larger market than the export data below suggests, importing significant volumes of surimi from South Korea (containing Alaska pollock as well as surimi made from other species). The percentage of U.S.-produced pollock surimi that is exported has averaged between 86 and 90% in recent years; however, innovative product development has kept more high-grade surimi in the U.S. market.[5]

Table 8.12: U.S. Exports of Alaska Pollock Surimi (mt), by Country,2016-2020

Country	2016	2017	2018	2019	2020	% Change 2020 vs. 2016-2019 avg.	% of Total 2016-2020
Japan	69,184	74,554	74,711	71,112	48,548	-33%	34%
South Korea	71,113	71,525	67,434	64,308	59,000	-14%	34%
Europe	27,787	26,333	29,936	29,083	34,202	21%	15%
Thailand	4,831	7,746	6,858	4,070	3,909	-33%	3%
China	2,194	3,280	3,915	3,215	2,791	-11%	2%
Other Countries	2,908	1,797	2,983	2,339	3,449	38%	1%
Total Surimi Exports	178,016	185,236	185,836	174,127	151,900	-16%	88%
U.S. (Estimated)	26,214	22,105	20,458	25,062	25,293	8%	12%
Total Production	204,230	207,341	206,294	199,189	177,193	-13%	100%
Pct. Exported	87%	89%	90%	87%	86%	-3%	

Note: Reflects direct exports only. Does not reflect final market destination.

Source: NMFS OST compiled by McKinley Research Group and AKFIN.

The global production of raw surimi material totaled approximately 1 million metric tons in 2020, up from the 850,000 mt produced in 2016.[6] The increase can be attributed to Japan's increased domestic production of surimi between 2019 and 2021 and increased tropical fish surimi production. Approximately, 650,000 mt was sourced from tropical fish harvests in 2020. Alaska's pollock fishery accounts for roughly a quarter of global surimi production. Japan is the largest

8.2.3.3.1 Japan Japan is world's second largest end market for surimi products after China. Large companies and artisanal shops in Japan process more than 1,000 different surimi products. Consumption has declined since the mid-1970s but has stabilized since 2010 at a range between 500,000 – 600,000 mt of surimi seafood products per year.[7] In 2020, Japan consumed an estimated 520,000 mt of surimi seafood products.[8]

Alaska Pollock surimi represents almost half (47%) of Japan's surimi imports over the 2017-2021 time period – averaging just over 110,000 mt per year. The amount imported by Japan from the U.S. in 2020 was well below the five-year average, at 85,373 mt. Competing suppliers include Thailand, India, China, and Vietnam. Thailand's tropical surimi production has declined in recent years and India has increased market share as a lower cost producer with access to substantial resources.

Table 8.13: Japan Surimi Imports from Major Producers (mt), 2017-2021

	2017	2018	2019	2020	2021	Pct. of Total (2017-2021)
U.S. (Alaska)	132,960	117,040	107,959	85,373	93,477	47%
India	38,408	39,425	39,538	32,656	39,468	16%
Thailand	22,413	21,878	23,358	21,887	20,738	10%
China	17,416	17,588	18,948	16,853	19,642	8%
Vietnam	15,356	16,912	17,457	14,099	18,798	7%
All Others	31,289	29,813	30,522	24,776	25,892	12%
Total	257,842	242,656	237,782	195,644	218,015	
Pct. from Alaska	52%	48%	45%	44%	43%	

Source: Trade Data Monitor, compiled by McKinley Research Group.

8.2.3.3.2 South Korea The U.S. exported about 72,000 mt of Alaska pollock surimi to South Korea in 2021, the largest volume to that country on record. However, as in past years, Korean import statistics indicate much lower volumes of surimi import volumes compared to U.S. export volumes to South Korea (24,000 mt). Some of the exports to Korea are likely held in bonded, duty-free cold storage warehouses before being shipped to other markets (primarily Japan, Europe, and Russia). Despite the prevalent re-export trade, South Korea was the largest direct export market for Alaska surimi in 2020. The 2012 Korea-U.S. Free Trade Agreement has deepened the economic ties between Korea and the U.S. and increased consumption of U.S. pollock surimi.[9]

South Korea imported roughly 110,000 mt of all surimi varieties in 2020, or about one-third as much import volume as China.[10] Vietnam and China are the country's top surimi suppliers, while Alaska accounted for about one-fifth of total surimi imports.[11] South Korea has a small domestic supply of raw surimi, which has dropped off precipitously since 2016 at over 30,000 mt to less than 10,000 mt in 2020. Korea is one of the largest manufacturers of surimi seafood products after China and Japan, supplying its own domestic market and other international markets.[12]

[7](Park, 2014)
[8](Future Seafood Group, 2021)
[9](Yoo, 2013)
[10](Future Seafood Group, 2021)
[11](Seaman, Pollock surimi can't meet global demand as tropical supply continues to drop, 2018)
[12](Park, 2014)

8.2.3.3.3 Europe Europe is the third largest market for Alaska pollock surimi after Japan and South Korea. Alaska producers exported 29,500 mt of surimi worth $87 million to Europe. Direct exports of Alaska pollock surimi accounts for less than half of the market's total surimi base consumption (~50,000 mt annually). The EU market produces a limited amount of surimi base domestically (roughly 5,000 mt) and also imports other U.S. surimi (mostly hake/Pacific whiting) as well as surimi from Vietnam, India, Peru, and other countries.[13] Processors in France, Spain, Lithuania, and Poland produce surimi seafood products for the European market, with relatively little importation of foreign surimi seafood products. Spain and France are Europe's largest surimi consumers, accounting for more than 70 percent of the region's total consumption

8.2.3.3.4 United States The United States market for surimi is dominated by imitation crab products. Five surimi seafood manufacturers operate in North America, several with processing plants in Washington state, consuming roughly 40,000 mt of surimi raw material (mostly Alaska pollock but also whiting/hake and other species) to produce an estimated 120,000 mt of surimi seafood products in 2020.[14] American surimi producers have focused on product innovation in recent years. A promising market entrant is Trident Seafoods' surimi noodles, intended to be sold at select U.S. retailers starting with Costco. Trident also produces surimi products under the brands Sea Legs, Captain Jac, and Louis Kemp, as well as ready-to-eat individually portioned sushi packs (made with Alaska pollock surimi) under the brand MOJI for retailers and convenience stores. The U.S. also imports surimi seafood products from Japan and other countries, though trade data do not allow for a detailed analysis of these product flows.

8.2.3.4 Competing Supply

Pollock surimi accounted for about a quarter of the roughly one million metric tons of surimi produced globally in 2021. Most pollock surimi is produced in Alaska (200,000 mt), though significant production comes out of Japan (46,000 mt) and Russian processors plan to start producing pollock surimi in significant quantities in the coming years. Tropical surimi dominates the market, accounting more than two-thirds of global production.

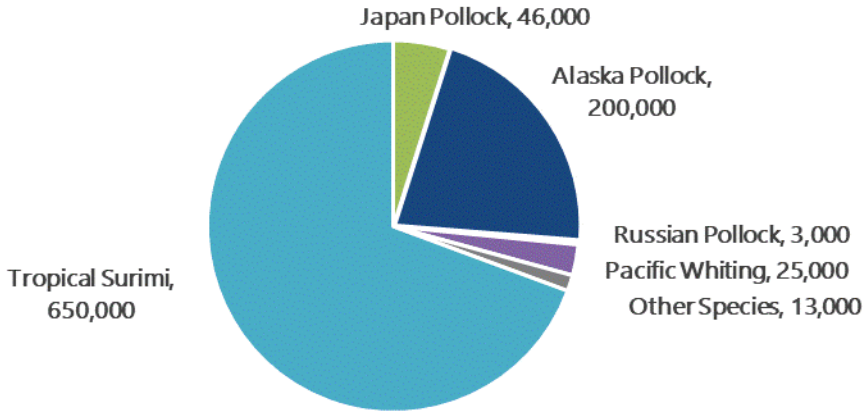

Figure 8.6: Global Surimi Production (mt), by Source Species, 2021

[13] (Future Seafood Group, 2021)
[14] (Future Seafood Group, 2021)

Source: Future Seafood Group.

Surimi can be made from a variety of fish species. Alaska pollock is the most widely used single species, but other types of surimi utilize a range of other fish.

8.3 Pacific Cod

Pacific cod (*Gadus macrocephalus*) is a whitefish found in the coastal Pacific Ocean from Alaska to California, with the largest concentrations found in the Gulf of Alaska and Bering Sea. One of the largest of the Alaska groundfish species, Pacific cod are highly valued for their mild, white flesh and are primarily processed into H&G and fillet products. Final cod products include fillets, salted products, and breaded products. A sharp decline in harvest volumes (magnified by a small decrease in prices) led to a 45 percent drop in Pacific cod wholesale value between 2017 and 2020. Pacific cod quotas in Alaska increased in 2022 so the harvest is expected to increase year-over-year in 2022 for the first time since 2017.

In 2020, Alaska's Pacific cod accounted for 12 percent of the total global (Atlantic and Pacific) cod harvest, down from 18 percent in 2017. In recent years Alaska accounts for nearly all the Pacific cod caught in the United States.

Table 8.14: Summary Profile of Alaska Pacific Cod Wholesale Production and Markets, 2020

Value and Volume		Key Products	H&G	Fillet	Other	
First Wholesale Production (mt)	80,574	Pct. of Value	64%	26%	11%	
Pct. of Global Cod Harvest (2020)	12%	Key Markets	China	Europe	U.S.	Other
First Wholesale Value ($ millions)	281	Pct. of Sales	18%	9%	53%	19%
Pct. of Alaska Groundfish Value (First Wholesale)	13%	YoY Value Change (from 2019)	-41%	-36%	-14%	-32%
Production Volume Exported	53%	Competing Species: Russian Pacific cod and Atlantic cod				

8.3.1 Alaska Production Summary

In 2020, Alaska's processors produced 80,574 mt of Pacific cod products, valued at $281 million. Production volume was the lowest since 2006, closely tracking lower TACs and harvests. Production value was also hurt by a weakening market for Pacific cod in the 2017-2020 period, resulting in lower wholesale prices. The 2020 wholesale value was the lowest since 2009. Pacific cod prices increased substantially in 2021, according to preliminary data.

Table 8.15: First Wholesale Value, Alaska Pacific Cod ($ millions), 2011-2020

2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
$497	$495	$397	$471	$467	$480	$510	$491	$382	$281

Source: NMFS Alaska Region At-sea and Shoreside Production Reports (Data provided by the Alaska Fisheries Information Network).

H&G product accounted for 70 percent of production volume in 2020, and 64 percent of first

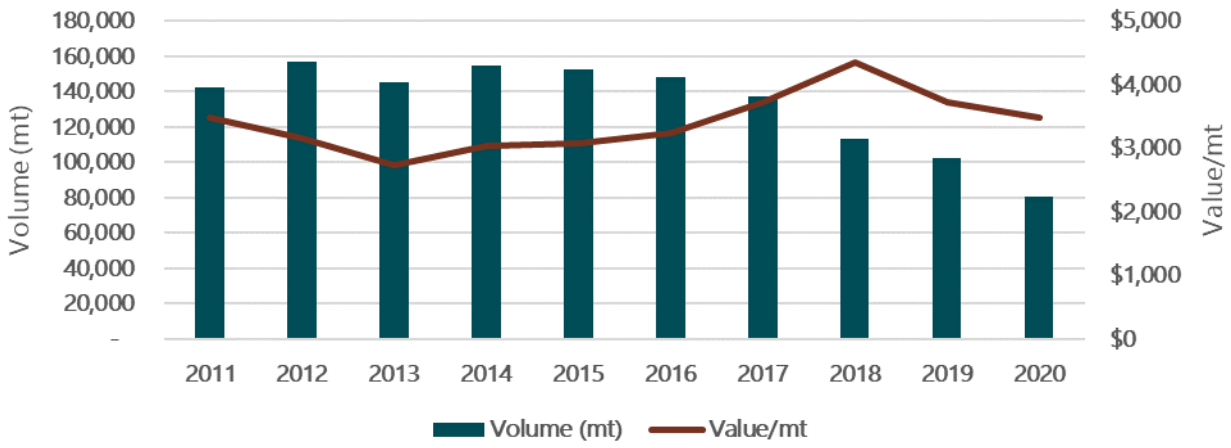

Figure 8.7: First Wholesale Volume and Value/mt for Alaska Pacific Cod, 2011-2020

wholesale value. Fillets accounted for 11 percent by volume and 26 percent of first wholesale value. Other products (e.g., roe, milt, fish meal) collectively made up 20% of the production volume and 10% of first wholesale value.

Cod production focus can vary somewhat annually, as regions (BSAI vs. GOA) and sectors (shoreside vs. at-sea) tend to have different product mixes and allocations among them change over time. The relative demand and prices for different products forms can also incentivize processors to make changes to their product portfolio.

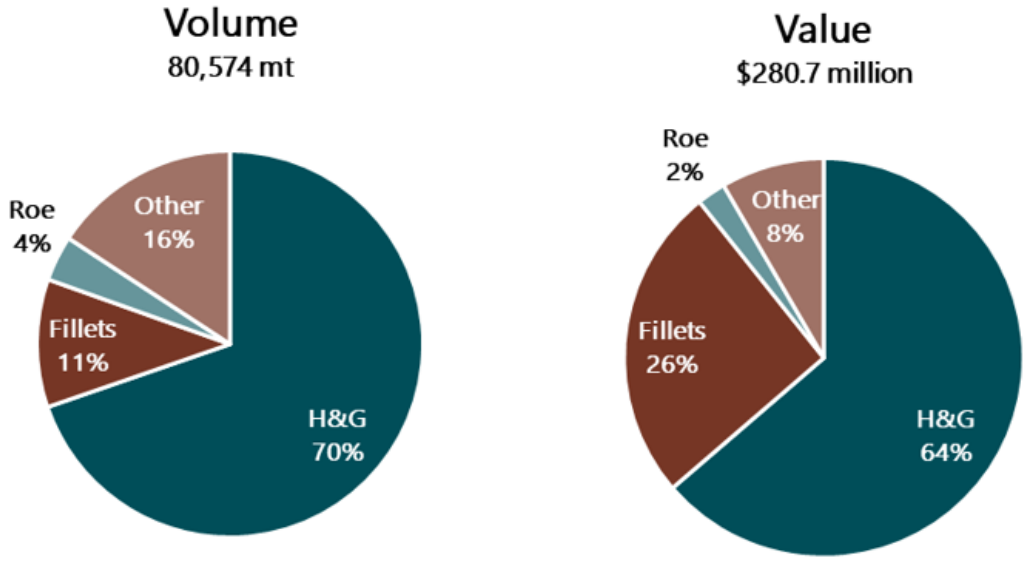

Figure 8.8: Volume and Value of Pacific Cod Wholesale Production in Alaska, by Product Type, 2020

Source: NMFS Alaska Region At-sea and Shoreside Production Reports (Data provided by the Alaska Fisheries Information Network).

8.3.2 Product Analysis and Supply Chain: Head and Gut and Fillets

The largest cod processing sector in Alaska is the at-sea processors, which focus on H&G production and accounts for more than 68 percent of Alaska's Pacific cod production volume. Within the at-sea processing sector, freezer longliners receive higher prices for H&G than at-sea processor trawl vessels, most of which are part of the Amendment 80 fleet and focused primarily on flatfish. In contrast, cod makes up roughly 90 percent of the harvest volume of Alaska's longline catcher-processors, allowing an increased focus on cod-specific harvesting, handling, and processing techniques.[15]

The shoreside sector was responsible for a third of Pacific cod production volume in 2020. These facilities are responsible for almost all of Alaska's cod fillet production (98 percent), mostly in shatterpack form. Some of the largest shoreside locations for cod processing include Dutch Harbor, Akutan, and Adak. Processors in the BSAI produced 87 percent of total cod fillet production, a percentage that has increased sharply in recent years because of the sharp Gulf of Alaska fishing quota reductions.

Most Pacific cod caught in Alaska has been processed into frozen H&G product and exported in recent years. However, an increasing share of H&G cod is sold domestically. The largest secondary processing market is China, which re-exports the bulk of its cod to the U.S. and Europe as twice-frozen fillets. Secondary processing markets are also present in Europe, the U.S., and Japan – with these markets generally focused on higher value production and in-region consumption.

8.3.2.1 Headed and Gutted (H&G)

H&G products – which make up nearly three-quarters of Alaska's cod production – follow complex supply chains spread across numerous markets. Most frozen H&G product is exported, and the largest reprocessing market is China, which re-exports the bulk of their cod imports to the U.S. and Europe. Cod sent to Japan and Europe is reprocessed and consumed in those regions. Some H&G product distributed to domestic U.S. market is thawed and filleted and sold thawed without refreezing, known as the refresh market. Other U.S. processors create fillet blocks to produce breaded or coated sticks and portions.

8.3.2.2 Fillets

Alaska processors produced 16,538 mt of cod fillets in 2017, worth $127 million. Most Alaska cod fillets are packaged as shatterpacks, consisting of frozen fillet blocks with individual fillets separated by plastic sheets, making them easier to separate without the need for the entire block to be thawed.

[15] More specifically, 90 percent of the groundfish harvest volume, excluding halibut.

8.3.3 Key Market Analysis

8.3.3.1 Head and Gut

In 2020, exports represented 72 percent of Alaska Pacific cod H&G production. These exports totaled 40,365 mt and represented nearly all (95 percent) of Alaska's cod exports.[16]

China has been the largest market for Alaska cod H&G production in recent years, although it rapidly lost market share in recent years: from more than half of Alaska H&G production in 2016 to less than 30 percent in 2020. Most of the H&G cod exported to China is reprocessed and then exported to the U.S. and Europe.

The domestic U.S. market was the second largest market for H&G Pacific cod in 2020, absorbing 28% of production. The U.S. likely overtook China as the largest direct market for H&G Pacific cod from Alaska in 2021, based on preliminary data.

Table 8.16: Sales of H&G Alaska Pacific Cod to Key Markets (mt), 2016-2020

Market	2016	2017	2018	2019	2020	Pct. of Total (2016-2020)
China*	55,428	46,483	32,413	25,500	16,396	42%
Europe	16,338	14,109	9,297	10,588	7,544	14%
Japan	13,853	13,866	9,777	6,979	5,512	12%
South Korea*	8,951	7,404	9,888	10,810	7,882	11%
Canada	1,207	1,550	1,935	1,140	1,500	2%
Other Countries	2,150	2,427	2,083	3,943	1,531	3%
Total Exports	97,928	85,839	65,394	58,961	40,365	84%
U.S. (Estimated)**	9,181	12,649	15,569	14,311	15,809	16%
Alaska Production	107,109	98,488	80,962	73,272	56,174	100%
% Exported	91%	87%	81%	80%	72%	

* Denotes countries which primarily re-process and/or re-export product to other markets.

**Estimated based on annual production less calendar year exports.

Note: Data pertains to primary exports only, does not portray product which may be re-exported to other markets.

Source: NMFS Office of Science and Technology, Annual Commercial Fisheries Statistics Database, compiled by McKinley Research Group.

8.3.3.2 Fillet

Of the 8,638 mt of Pacific cod fillet produced in Alaska in 2020, most (an estimated 79 percent) went to the U.S. domestic market. As with H&G production, the domestic U.S. market share has been increasing while the Chinese market share has been decreasing, although over a shorter period. While China has been the largest Pacific cod fillet export market in recent years, Spain became the largest export market in preliminary 2021 data.

[16] ASMI Seafood Export Database. Some cod exports are comingled with other fish and not distinguishable by species in export data, including fish meal, organs, and other ancillary products. H&G represent 96 percent of distinguishable cod exports.

Table 8.17: Sales of Alaska Pacific Cod Fillets to Key Markets (mt), 2016-2020

Market	2016	2017	2018	2019	2020	Pct. of Total (2016-2020)
China*	1,017	1,491	1,850	1,197	887	10%
Canada	731	595	454	519	423	4%
Portugal	188	586	319	431	213	3%
Spain	114	289	166	112	307	1%
Other	348	215	198	101	20	1%
Total Exports	2,397	3,176	2,987	2,360	1,851	19%
U.S. (Estimated)1	15,502	13,362	9,378	8,029	6,787	81%
Alaska Production	17,900	16,538	12,365	10,389	8,638	100%
% Exported	13%	19%	24%	23%	21%	

* Denotes countries which primarily re-process and/or re-export product to other markets.

[1] Estimated based on annual production less calendar year exports.

Note: Data pertains to primary exports only, does not portray product which may be re-exported to other markets.

Source: AKFIN, NOAA OST, ASMI Seafood Export Database, and McDowell Group estimates.

8.3.3.2.1 United States The U.S. is the largest market for single-frozen Pacific cod fillets produced in Alaska. The U.S. is also moving towards becoming the largest market for H&G Pacific cod from Alaska as of 2022, based on trends and preliminary data.

Pacific cod is a popular menu item in the United States, but at the consumer level it is often not distinguished from Atlantic cod. While the U.S. consumes large volumes of Pacific cod from Alaska, Alaska is not the largest source of cod for the domestic U.S. market. Cod imports consistently account for a larger portion of supply than sales directly from Alaska.

Table 8.18: Volume and Value of Frozen Cod Fillet Imports into the U.S. Market, by Country, 2021

	Volume (mt)	Value ($ millions)	Price per mt
China	33,241	$ 222	$ 6,665
Iceland	6,309	$ 62	$ 9,774
Russia	3,998	$ 33	$ 8,130
Norway	2,168	$ 24	$10,930
Indonesia	1,650	$ 9	$ 5,703
Vietnam	1,567	$ 11	$ 7,023
Canada	1,338	$ 12	$ 8,993
Other	471	$ 4	$ 9,401
Total	50,742	$ 376	$ 7,416

Source: NMFS Office of Science and Technology, Annual Commercial Fisheries Statistics Database.

Note: Includes Atlantic, Greenland, and Pacific cod fillets (indistinguishable in trade data).

Refreshed cod is an important product form for H&G cod from Alaska consumed in the United States. Refreshed cod is thawed H&G cod that is filleted for immediate sale without refreezing.

Refresh markets have increased in popularity in the U.S. over the last ten years due to its ability to compete with fresh Atlantic cod in terms of affordability and product quality.

8.3.3.2.2 China China imports H&G cod (both Pacific and Atlantic) as raw material for reprocessing into twice-frozen fillets, frozen portions, and value-added products such as battered or breaded portions. In 2020, Alaska exported 16,396 mt of cod to China, representing 29 percent of Alaska cod production volume and 13 percent of China's total cod imports (Atlantic and Pacific cod). The Chinese reprocessing sector in 2020 imported most of its H&G cod from Russia, Norway, South Korea, and the Netherlands.

Twice-frozen Chinese-produced cod fillets (Pacific and Atlantic cod) are reexported to the rest of the world, with the U.S., Europe, and Canada being the largest markets. Other markets for Chinese cod include countries like Japan, Brazil, and South Korea. While China was the largest market for H&G cod from Alaska during the 2017-2020 period, its market share has dropped because of the US-China trade conflict and Chinese government COVID-19 policies.

Table 8.19: Primary Export Markets for Chinese Twice-Frozen Cod Fillets (mt), 2017-2021

Market	2017	2018	2019	2020	2021	Percent Change, 2017-2021
United States	46,956	43,430	40,249	36,390	33,714	-28%
UK	20,769	18,493	20,370	16,947	16,882	-19%
Germany	15,038	15,418	16,639	10,648	10,616	-29%
Spain	10,732	8,706	9,337	6,764	7,636	-29%
France	8,353	7,159	7,560	6,280	5,275	-37%
Canada	8,001	7,110	7,135	5,350	5,042	-37%
Sweden	5,949	5,412	4,199	2,992	2,325	-61%
Japan	3,168	2,649	2,196	1,336	1,852	-42%
Netherlands	2,512	2,929	2,998	3,158	1,553	-38%
Other	11,257	9,907	11,161	10,328	9,706	-14%
Total	132,735	121,213	121,844	100,193	94,601	-29%

Note: Figures may not sum due to rounding.

Source: Trade Data Monitor.

8.3.3.2.3 Japan & South Korea Japan and South Korea are also important markets for Alaska H&G cod. In 2020, 7,882 mt of Alaska cod products were exported to South Korea and 5,512 mt were exported to Japan, mostly H&G in both cases.

Japan and South Korea are both developed East Asian nations with a tradition of catching, importing, and consuming Pacific cod. However, these markets differ because of South Korea's role as a cold storage and transportation hub as much as a final market. Data from 2020 below show that an estimated 70% of cod (Atlantic and Pacific) imported into or caught in South Korea was exported.

Table 8.20: Estimated South Korea H&G Cod Supply (mt), 2016-2020

	Imports	Est. Domestic Production*	Exports	Est. S. Korea Supply	% Exported
2016	20,380	2,239	8,994	13,625	40%

Table 8.20: Estimated South Korea H&G Cod Supply (mt), 2016-2020 *(continued)*

	Imports	Est. Domestic Production*	Exports	Est. S. Korea Supply	% Exported
2017	22,445	2,916	11,969	13,392	47%
2018	19,007	3,380	9,831	12,556	44%
2019	23,395	6,264	19,947	9,712	67%
2020	23,575	4,648	19,653	8,570	70%
16-20 AVG	21,760	3,889	14,079	11,571	55%

Note: Trade numbers include both Pacific and Atlantic cod, but in practice most of the cod imported to South Korea is Pacific cod.

*Estimated from live weight harvest, using H&G recovery rate of 45%.

Source: Trade Data Monitor, NMFS Alaska Region At-Sea and Shoreside Production Reports (Data provided by the Alaska Fisheries Information Network).

Japan is a larger cod consumer than South Korea based on import/export calculations, but it has a larger domestic harvester and lower volumes of both imports and exports. Japan imported most of its H&G cod from Alaska for the last decade. However, in 2021 Russia overtook Alaska as the main source of H&G cod imported into Japan. Almost all of the H&G cod that Japan exports goes to China.

Table 8.21: Estimated Japan H&G Cod Supply (mt), 2016-2020

	Imports	Domestic Production*	Exports	Est. Japan Supply	% Exported
2016	13,743	19,814	3,676	29,881	11%
2017	14,681	19,943	5,042	29,582	15%
2018	10,816	22,836	6,296	27,356	19%
2019	8,379	24,102	5,409	27,072	17%
2020	10,823	25,307	4,739	31,391	13%
16-20 AVG	11,688	22,401	5,032	29,057	15%

Note: Trade numbers include both Pacific and Atlantic cod, but in practice most of the cod imported to Japan is Pacific cod.

*Estimated from live weight harvest, using H&G recovery rate of 45%.

Source: Trade Data Monitor, NMFS Alaska Region At-Sea and Shoreside Production Reports (Data provided by the Alaska Fisheries Information Network).

Both Korea and Japan are important markets for cod byproducts, including roe and cod milt, which made up 20% of the Alaska Pacific cod production volume and 10% of its value in 2020.

8.3.3.2.4 Europe The European Union has imported more H&G cod (Atlantic and Pacific cod) than cod fillets in recent years, likely because the EU protects its domestic cod producers by maintaining higher duties on imported cod fillets, whereas frozen H&G cod can generally be imported into the EU with no tariff. For this reason, most of the cod Alaska imports to Europe is in H&G form. In recent years, the U.S. (Alaska) has supplied about seven percent of the H&G

cod imported by Europe, behind the other major cod-producing states of Russia, Norway, and Greenland.[17]

Alaska exports of H&G cod to Europe have dropped especially rapidly since the COVID-19 pandemic began. Increased ocean shipping costs and the strong U.S. domestic market demand for the shrinking volume of Alaska-produced cod in this period were likely drivers of this trend.

Alaska exports low volumes of frozen cod fillet to Europe directly: (less than 1% of European imports in recent years). Some additional Alaska-origin cod fillets enter Europe after reprocessing in China, which is the largest supplier of frozen cod fillet imports to European Union.

Table 8.22: Estimated Japan H&G Cod Supply (mt), 2016-2020

	2017	2018	2019	2020	2021	% Total H&G Cod Imports 2017-2021
China*	47,694	43,217	46,322	37,369	31,391	40%
Iceland	20,360	20,881	21,837	20,089	21,474	20%
Russia	28,381	22,243	23,862	19,797	19,530	22%
Norway	7,164	8,757	7,708	7,168	6,871	7%
Greenland	2,339	1,690	1,278	1,507	2,073	2%
UK**	8,251	6,751	9,222	5,993	1,753	6%
Vietnam*	1,257	1,238	1,004	1,385	1,092	1%
Ukraine*	1,048	840	1,083	693	829	1%
Faroe Islands	300	394	705	473	484	0%
United States	825	223	446	471	221	0%
Other	168	290	342	198	186	0%
Total	117,787	106,524	113,809	95,143	85,904	100%

Note: Includes both Atlantic, Greenland and Pacific cod (indistinguishable in trade data).

*Indicates countries that are key re-processors of Pacific cod from Alaska.

**The United Kingdom left the European Union in 2020.

Source: Trade Data Monitor.

8.3.3.3 Competing Supply

The two main species of cod, Pacific cod (*Gadus macrocephalus*) and Atlantic cod (*Gadus morhua*), are found in the northern hemispheres of the Atlantic and Pacific Oceans. While there are some slight differences, as *Gadus* whitefishes, they are considered almost identical substitutes for each other. In 2020, it is estimated that 404,987 mt of Pacific cod and 1,078,711 mt of Atlantic cod were harvested globally. The U.S. fishery for Atlantic cod is very small and Pacific cod from the North Pacific (almost all in Alaska waters) accounts for almost all U.S cod harvests. Alaska accounted for 54 percent of global Pacific cod harvests over the 2016 to 2020 period, with an average of 246,618 mt annually. It contributed 15 percent to the global cod (Atlantic and Pacific) harvest in this period.

[17]Greenland and the Faroe Islands are both part of the Kingdom of Denmark but are not members of the European Union like the rest of Denmark.

Beginning in 2022, European and other countries placed sanctions and increased tariffs on goods from Russia, including cod and other whitefish, which will continue to influence global whitefish trade routes and play a role in demand and price. Alaska's Pacific cod is well positioned in 2022, with the Alaska harvest quota increase coming at a time of high prices because of strong global demand for cod and limited cod supply. In general, wild whitefish supplies will be down in 2022, because of reduced quota for Alaska pollock.

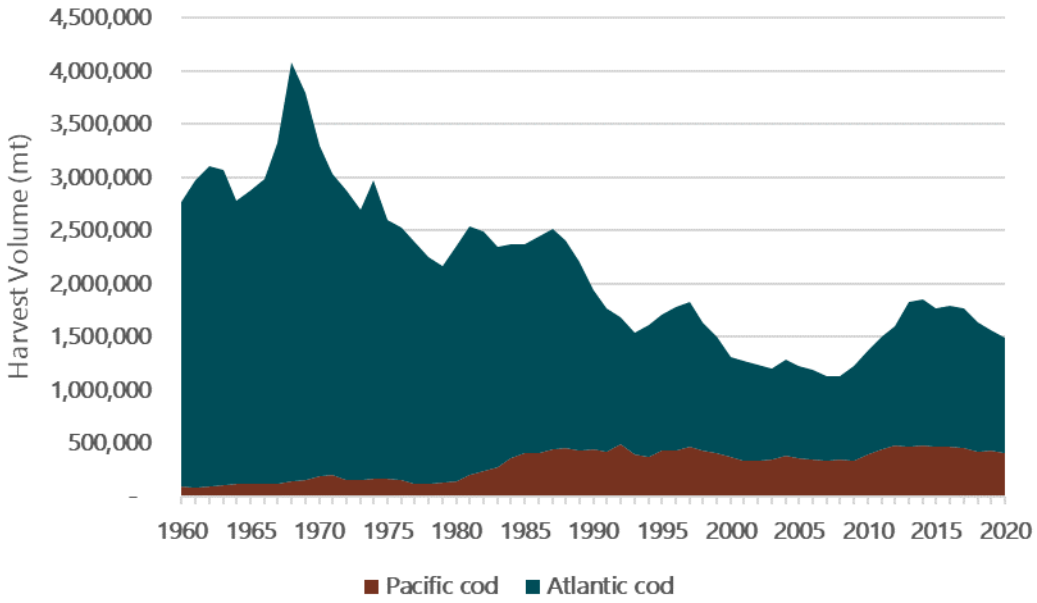

Figure 8.9: Global Supply of Pacific and Atlantic Cod (mt), 1960-2020

Source: FAO.

8.4 Sablefish

Sablefish (*Anoplopoma fimbria*), also known as black cod, is a premium whitefish harvested throughout Alaska by a variety of vessel sizes and gear types. In 2020, Alaska processors produced 7,930 mt in wholesale sablefish products (nearly all H&G), valued at $68.3 million. Sablefish are among the most valuable species on a per pounds basis harvested in Alaska and accounted for 3.2 percent of Alaska groundfish first wholesale value in 2020.

Table 8.23: Summary Profile of Alaska Sablefish Wholesale Production and Markets, 2020

Value and Volume		Key Products	H&G	Fillets	
First Wholesale Production (mt)	7,930	Pct. of Value	94%	4%	
Pct. of Global Sablefish Harvest (2016)	69%	Key Markets	Japan	Mainland China	Hong Kong
First Wholesale Value ($ millions)	68	Pct. of 1st Sales	73%	10%	9%
Pct. Change in Value from Prior 4-yr Avg.	-33%	YoY Change	12%	5%	-3%
Pct. of Alaska Groundfish Value	3.2%	Competing Species: Patagonia toothfish (Chilean Seabass)			

8.4.1 Product Description

Sablefish is a premium whitefish with a high oil content and delicate texture. Sablefish fillets are often marinated and served smoked, grilled, or sautéed. While Japan is the primary market for sablefish, it can be found in upscale restaurants and stores worldwide, including Hong Kong, United Arab Emirates, the U.S., and Europe, among others.

Shoreside processors – which accounted for 85 percent of production in 2021 – typically receive chilled sablefish either in the round (whole fish) or headed and gutted. The dominant sablefish wholesale product is IQF frozen H&G (Eastern cut) fish, often sold in 50-pound boxes. Relatively small amounts of heads, collars, fillets, and other products are also produced. Combined, non-H&G production made up just 6 percent of production volume in 2021.

Sablefish prices and markets are sensitive to the size of the fish, with larger sablefish worth much more than smaller fish. Ex-vessel prices in 2022 ranged from $1.00 per pound for fish less than two pounds to about $7.00 per pound for fish greater than seven pounds.[18] Unfortunately, smaller sablefish have become a larger portion of the harvest in recent years – a trend that is expected to continue in the near-term due to significant recruitment in recent age classes and other factors affecting fish size.

Table 8.24: First Wholesale Volume, Value, and Recovery Rates, Major Sablefish Products, 2020

	2020 Production Volume (mt)	2020 Production Value ($000s)	Recovery Rate Range	Average Price/kg
H&G (mostly Eastern cut)	7,554	$64,477	60-67%	$ 8.54
Fillets	195	$ 3,071	35-46%	$ 15.76
Pectoral Girdle (Collars)	93	$ 329	N/A	$ 3.54
Heads	54	$ 51	N/A	$ 0.95
Other	34	$ 348	N/A	$ 10.23
Total Wholesale Production	7,930	68,277	54%	$ 8.61
Total Retained Harvest	14,740			

Source: NMFS Alaska Region At-sea and Shoreside Production Reports (Data provided by the Alaska Fisheries Information Network); Alaska Sea Grant (Crapo, Paust, & Babbit, Recoveries and Yields from Pacific Fish and Shellfish, 2004).

8.4.2 Alaska Sablefish Production

In 2019 and 2020, first wholesale volume of sablefish products averaged just under 8,000 mt annually. Production is at the highest level in a decade, with the last period of a similar volume being 2011 to 2013. Unfortunately, the higher volume has flooded the market, and this is reflected in a decade-low price for sablefish in 2020. Foodservice closures in 2020 caused by the COVID-19 restrictions also likely contributed to the continued decline in prices that year. Preliminary data from 2021 indicates that prices were up, despite higher production volumes.

[18](Alaska Boats & Permits, 2022) Based on anonymous prices provided by fishermen.

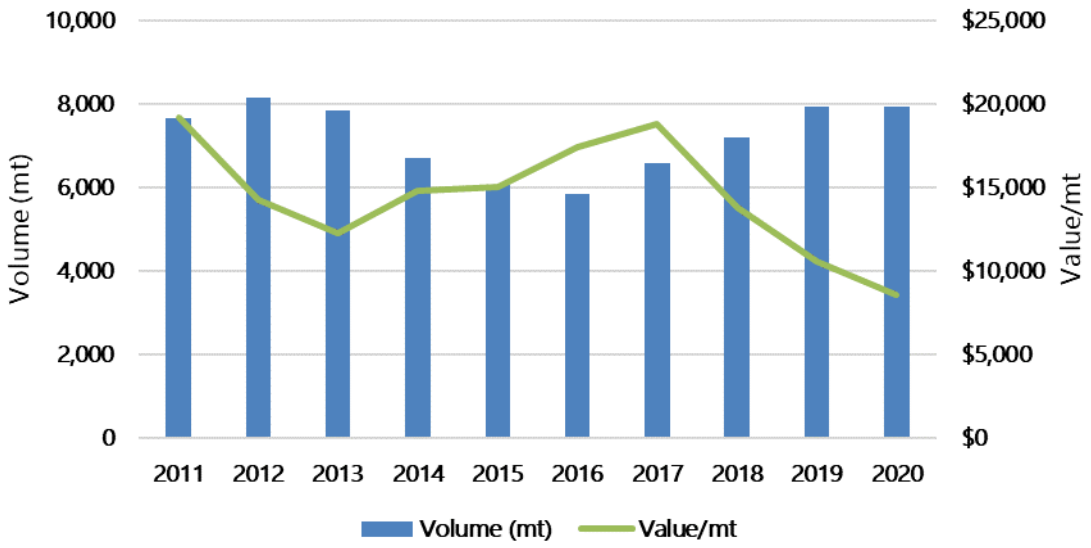

Figure 8.10: First Wholesale Volume and Value/mt for Alaska Sablefish, 2011-2020

Table 8.25: First Wholesale Value of Alaska Sablefish ($ millions), 2011-2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Value ($ millions)	$147.4	$116.7	$96.3	$99.1	$91.1	$102.0	$123.8	$99.9	$84.0	$68.3

Source: NMFS Alaska Region At-sea and Shoreside Production Reports (Data provided by the Alaska Fisheries Information Network).

8.4.3 Market Profile and Analysis

Japan is the primary market for Alaska's sablefish, generally accounting for over 70 percent of total exports by volume. China (including Hong Kong) is the second-largest international market by volume and value in 2021, but their imports remain less than a third of Japan's market. If Hong Kong is split out as a market separate from China, it would be the second most important market by value for Alaska sablefish in the past three years because Hong Kong imports a disproportionate amount of large higher-priced sablefish. These imports serve both Hong Kong foodservice and retail markets as well as re-export markets in Southern China, Singapore, and other Southeast Asia countries with Japanese expatriate communities and business travelers. As a free port, exports to Hong Kong are not subject to Chinese tariffs.[19]

Wealthy markets including Singapore and the UAE usually import a modest but consistent volume of Alaska sablefish. Exports to these markets were down in 2020, likely because of COVID-19 foodservice closures.

Table 8.26: Estimated Export Volume of Alaska Sablefish, by Country (mt), 2017-2021

	2017	2018	2019	2020	2021	AVG mt 2017-2021	Average $/mt
Japan	3,787	4,349	4,434	5,118	6,401	6,581	$11,830
China	563	438	634	650	956	4,818	$10,900
Hong Kong	333	540	316	368	322	648	$11,016
Singapore	102	166	153	83	90	376	$19,421

8.4.3.1 Japan

The primary market for sablefish is Japan, a country that pioneered the commercial harvest of the species in Alaska. The Tokyo Central Wholesale Market plays an important role in sablefish markets.[20] Between 1987 and 2013, an estimated 37 percent of Japan sablefish imports (from all countries) were sold at this market. Prices observed at the Tokyo Central Wholesale Market function as a price index, impacting sablefish values globally. The United States is the primary supplier of sablefish to the Japanese market, accounting for 90 percent of Japanese imports between 2016 and 2021. Canadian supply accounted for most of the remainder, with small amounts of Russian sablefish also going to Japan in recent years.

Currency rates influence sablefish markets, but the market share of U.S. sablefish has been steady in recent years despite fluctuations of the dollar/yen exchange rate. This may change with a particularly strong U.S. dollar and weak yen that developed in 2022, although U.S. sablefish exports to Japan have remained relatively robust as of mid-2022.

Table 8.27: Japan Frozen H&G Sablefish Imports, by Major Trade Partner, 2016-2021

		2016	2017	2018	2019	2020	2021
Import Value ($ millions)		$ 92.23	$ 96.23	$ 69.20	$ 55.82	$ 61.28	$ 87.02
	U.S.	$ 83.80	$ 86.90	$ 63.00	$ 49.10	$ 54.00	$ 75.60
	Canada	$ 8.40	$ 8.90	$ 5.90	$ 6.70	$ 7.10	$ 10.80
Import Volume (mt)		6,234	5,789	6,066	6,151	7,636	9,300
	U.S.	5,691	5,258	5,567	5,542	6,809	8,183
	Canada	544	481	462	602	789	1,030
Import Value/mt							
Avg. Total USD/mt		$14,795.00	$16,623.00	$11,407.00	$ 9,075.00	$ 8,026.00	$ 9,357.00
Avg. Yen/USD Exchange Rate		¥109	¥112	¥110	¥109	¥107	¥110

Source: Trade Data Monitor (HS 03.0389.2960) and St. Louis Federal Reserve Bank (currency rates).

8.4.3.2 United States

The estimated size of the U.S. sablefish market has averaged about 6,000 mt per year in recent years. The volume of Alaska sablefish in the market has been relatively steady in this period, but U.S. imports have fluctuated significantly, with a surge in Canadian imports in 2016 and 2017. Industry interviews indicate Canadian imports were higher in this period because most Alaska sablefish was smaller sized fish during this period. Approximately 80 percent of Alaska sablefish is exported, and the remainder goes to the U.S. domestic market.

[20](Sonu S. , 2014)

Table 8.28: Estimated U.S. Sablefish Market Size (mt), 2016-2020

Year	Est. U.S. Wholesale Production	U.S. Imports	U.S. Exports	Est. U.S. Market Size	% U.S.
2016	9,931	1,747	5,577	6,101	71%
2017	11,146	1,756	5,733	7,169	76%
2018	11,430	357	6,565	5,222	93%
2019	12,005	320	6,209	6,116	95%
2020	12,143	250	6,690	5,703	96%
Five-year Average	11,331	886	6,155	6,062	86%

Note: An average recovery rate of 65 percent is used in this analysis.

Source: McKinley Group estimates, based on data from NMFS and AKFIN.

8.4.4 Global Production and Competing Supply

The United States and Canada account for nearly all global production of sablefish.[21] Alaska is the primary supplier, contributing an annual average of 62 percent between 2016 and 2020. Harvest from other West Coast states accounted for 26 percent of global supply in this period and Canada (British Columbia) contributed 11 percent.

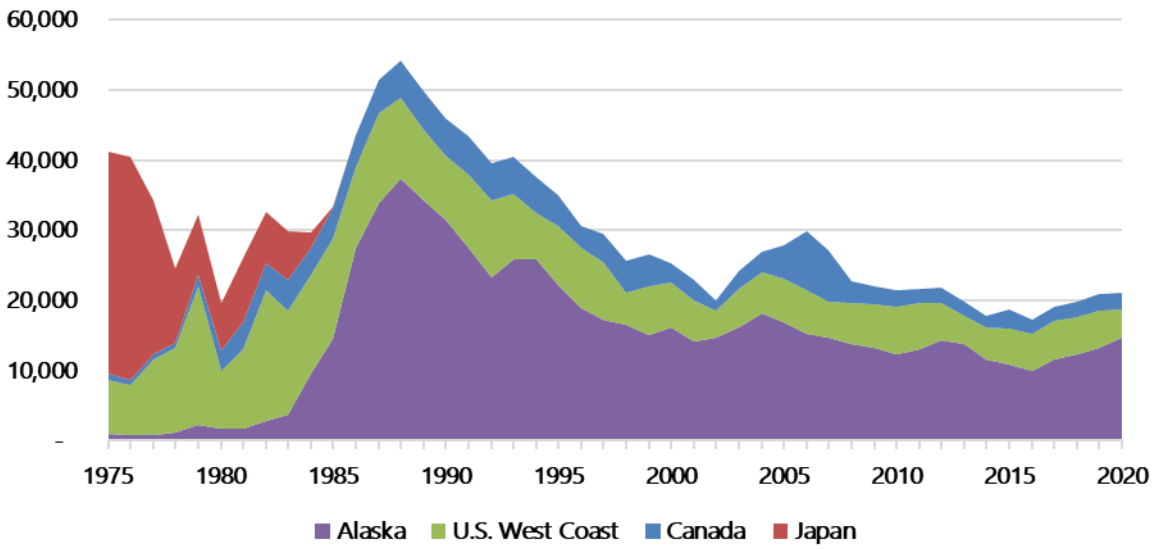

Figure 8.11: Global Supply of Sablefish (mt) from Main Global Producers, 1975-2020

Source: FAO; NMFS Alaska Region At-sea and Shoreside Production Reports (Data provided by the Alaska Fisheries Information Network).

Patagonian toothfish (*Dissostichus eleginoides)* is the primary competitor with sablefish. The toothfish has a high oil content and is also known as Chilean seabass or *mero* in Japan. Between

[21] Russia has been a small producer of sablefish in recent years, reaching a height of 431 mt in 2019.

2016 and 2020, the global supply of Patagonian and Antarctic toothfish (both marketed as sea bass) ranged from about 25,000 mt to 30,800 mt. These historical figures do not include illegal, unreported, or unregulated (IUU) harvests. In the early 2000s, up to half of Patagonia toothfish harvests were estimated to be IUU landings.[22] Actions by management, surveillance, and enforcement agencies, as well as non-governmental organizations, between 2005 and 2014 have suppressed the illegal harvest of both Patagonian and Antarctic toothfish to their lowest levels in decades.[23]

8.5 A80 Species

Alaska's flatfish fisheries for soles and plaice in the BSAI and GOA, while comprised of more than 10 different species, are dominated by three species of sole (yellowfin, rock, and flathead) and plaice; other species harvested in smaller volumes include Greenland turbot, rex sole, butter sole, Dover sole, and starry flounder. Due to the many harvest and market similarities across this group, this section will treat many species with similar market aspects collectively while including additional detail for the four key species. Alaska's flatfish harvests include considerable volumes of arrowtooth flounder; this species is covered in a separate profile and not discussed here.

Yellowfin sole (*Limanda aspera*) is the most abundant commercial flatfish in the eastern Bering Sea and the world's largest single flatfish fishery by volume, representing 12 percent of the global flatfish harvest in 2020. At $108 million, the species represented 56 percent of Alaska flatfish first wholesale value in 2020.[24] The vast majority of this production is frozen H&G product destined for export to China for reprocessing.

Table 8.29: Summary Profile of Yellowfin Sole Wholesale Production and Markets, 2020

Value and Volume		Key Products	H&G	Whole Round	Other
First Wholesale Production (mt)	81,281	Pct. of Value	93%	7%	<1%
Pct. of Global Flatfish Harvest	12%	Key Markets	China	South Korea	Other
First Wholesale Value ($ millions)	108	Pct. of Exports	82%	16%	1%
Pct. of Alaska Groundfish Production Value	5%	YoY Change	21%	-19%	-66%
Pct. of Alaska Flatfish Production Volume	60%	Competing Species: Other flatfish, tilapia, whitefish			

Rock sole (*Lepidopsetta polyxystra* and *bilineata*), the second most abundant BSAI/GOA flatfish by wholesale volume (after yellowfin sole), accounted for 12 percent of the total first wholesale volume of Alaska flatfish. Alaska is responsible for the vast majority of the global rock sole harvest, producing 15,127 mt, valued at $24 million in 2020. Like yellowfin sole, most of Alaska's rock sole production is exported to China and South Korea, though Japan is also an important export market for females with roe. Rock sole generates a higher unit value per metric ton than yellowfin sole due to export markets for rock sole with roe.

[22] (Catarci, 2004)

[23] (Coalition of Legal Toothfish Operators, 2021)

[24] "Flatfish" includes all comparable BSAI/GOA flatfish species, including arrowtooth flounder and turbot. It does not include Pacific halibut or skate.

Table 8.30: Summary Profile of Rock Sole Wholesale Production and Markets, 2020

Value and Volume		Key Products	H&G	H&G with Roe	Whole Round	
First Wholesale Production (mt)	15,127	Pct. of Value	90%	10%	<1%	
Pct. of Global Flatfish Harvest (2020)	3%	Key Markets	China	South Korea	Mexico	Japan
First Wholesale Value ($ millions)	24	Pct. of Exports	66%	17%	7%	4%
Pct. of Alaska Groundfish Production Value	1%	YoY Change	9%	111%	-29%	-26%
Pct. of Alaska Flatfish Production Volume	12%	Competing species: Other flatfish, tilapia, whitefish				

Atka mackerel production was valued at $79.1 million in 2020, accounting for 3.8% of the first wholesale value of all Alaska groundfish. Production value was down 25% from the previous four-year average because of both lower harvest volumes and prices since 2018 when Atka mackerel production value was at a peak. Alaska produced 45 percent of global Atka and Okhotsk mackerel harvests in 2020, and nearly all production was exported to Japan, China, or South Korea as a frozen H&G product. Final consumer products include split/salted and surimi products largely consumed in Japan, Korea, and China.

Table 8.31: Summary Profile of Atka Mackerel Wholesale Production and Markets, 2020

Value and Volume		Key Products	H&G	Other	
First Wholesale Production (mt)	34,191	Pct. of Value	98%	2%	
Pct. of Global Harvest (2016)	45%	Key Markets	Japan	China	Korea
First Wholesale Value ($ millions)	79	Pct. of Final Sales	68%	31%	8%
Pct. Change in Value from Prior 4-yr Avg.	-25%	YoY Change	15%	-16%	18%
Pct. of Alaska Groundfish Value	3.8%	Competing Species: Okhotsk Atka mackerel			

Atka mackerel is a key species for Alaska's Amendment 80 fleet, which also targets high volume flatfish (sole/flounder) and rockfish (including Pacific Ocean perch). Atka mackerel accounted for 24 percent of the combined wholesale production value of these target species in 2020.

Pacific Ocean perch (*Sebastes alutus* – also known by the acronym POP) is the most abundant rockfish species in Alaska, comprising about 80 percent of all Alaska rockfish production. Overall, POP represented 2.5 percent of the first wholesale value of all Alaska groundfish in 2020. More than three fourths of Alaska's POP is exported to two countries – China (for processing) and Japan (the species' largest consumer market). Alaska POP accounted for 21 percent of global rockfish harvests in 2020.

POP is a key species for the Amendment 80 fleet, which also harvests high volume flatfish (sole/flounder), Atka mackerel, and other rockfish species. POP accounted for 15 percent of the combined wholesale value of production of these Amendment 80 species in 2020.

8.5.1 Key Market Analysis

8.5.1.1 China

Alaska soles and plaice are usually processed by hand, which is labor-intensive. Due to lower labor costs, China is responsible for reprocessing most Alaska-caught flatfish, with yellowfin and rock sole providing the largest volume. While Chinese reprocessing facilities are important to the Alaska groundfish supply chain in general, this is especially true for soles and other flatfish.

About 80 percent of China's flatfish fillet exports go to Europe, Japan, and the United States. As China's economy has grown, an increasing volume of sole has remained in the domestic market, but the China-U.S. trade conflict has interfered with the ability of the industry in Alaska to take advantage of the growing domestic Chinese market. A more detailed discussion regarding the China-U.S. Trade dispute and China's COVID-19 policies can be found in the full market profiles report.

8.5.1.2 U.S. and Europe

The U.S. and Europe consume a large amount of flatfish, much of it processed in China. Both end markets consume sole, plaice, and flounder (often commingled and sold as "flounder" or "sole") in the grocery store frozen aisle or in fast food restaurants. The U.S. is China's second largest export market for frozen flatfish fillets, receiving 10,025 mt worth $49.5 million in 2021. However, volumes imported by the U.S. from China have dropped by nearly 50 percent from a peak of 18,852 mt in 2013.

While the U.S. and Europe are final markets for Alaska flatfish, industry interviews indicate there is increased processing in these regions as well. Labor costs are too high to hand process H&G flatfish in these markets, but there are existing plants with fillet machines that can process flatfish in Massachusetts and the Netherlands, among other locations.

European trade policy has encouraged increased flatfish production using imported H&G in recent years. Starting in 2020, the EU allowed up to 7,500 tons of whole and H&G frozen flatfish to be imported each year for processing at zero tariff duty (called an Autonomous Tariff Quota, ATQ).[25] The EU Fish Processors and Traders Association have requested an increase to 20,000 tons in the future ATQ 3-year cycle, although European harvesters advocated against that request. ATQs allow for profitable export from Alaska to the EU of single frozen H&G flatfish; a higher quality product than the EU receives from China. The EU also produces large volumes of competitor species of flatfish that are processed and consumed domestically and exported to the U.S.

Note: Percentages are percentages of import volumes; does not include Pacific Halibut

Source: NMFS Office of Science and Technology, Annual Commercial Fisheries Statistics Database.

[25] (The Council of the European Union, 2020)

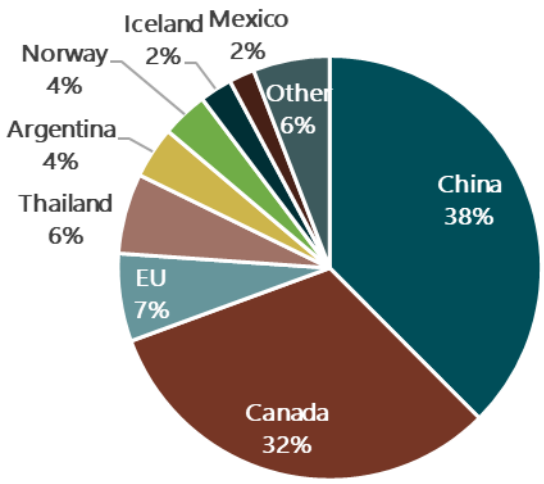

Figure 8.12: Share of U.S. Imports of Flatfish, by Region/Country, 2021

8.5.1.3 Japan and South Korea

As the largest flatfish export market for China, Japan imports a great deal of Alaska flatfish reprocessed in China. Japanese demand for rock sole with roe has decreased since its historical peak, resulting in lower export volumes and values (only 4% of Alaska rock sole exports went to Japan in 2020 compared to 13% in 2017). As with pollock roe, traditional ways of eating rock sole in Japan are declining with the aging population. However, the industry in Japan is working to market new convenient products that use roe and are more likely to appeal to younger shoppers. Also contributing to decreasing rock sole exports is the decline in Alaska's rock sole harvest, which decreased from 60,637 mt in 2013 to 27,400 mt in 2020.

South Korea consumes some yellowfin sole domestically, particularly smaller-size yellowfin sole that sell for a lower price per kilo. Koreans also highly value the whole fish appearance; marks and flaws in the gills and eyes detract from value in this market. Russia supplies South Korea with whole flatfish and caters to the Korean market more than U.S. suppliers.

8.5.2 Competing Supply

Global flatfish supply has remained fairly constant over the past two decades after declining significantly from harvest levels attained in the 1980s that exceeded 1.2 million mt annually. In contrast, Alaska's contribution to global production of flatfish has grown steadily from tiny volumes in the 1980s. Alaska flatfish continue to compete with species such as European plaice and dabs, and have remained popular for use in frozen meals and as frozen fillets/kirimis in the U.S., Japan, and Europe. Competition comes from fresh flatfish as well as from fresh/frozen whitefish like tilapia, pangasius, pollock, and cod, among others.

Alaska accounted for 42 percent of global Atka mackerel production between 2014 and 2016, the most recent three years with complete data for global harvest. Historically, Japan is the largest producer but its harvests have declined significantly since 2008 - down 90 percent through 2016.

Global rockfish (including POP and other *Sebastes* species) harvests averaged 218,372 mt from 2012 to 2016 and increased roughly 20 percent over the period. Europe is the largest redfish/rockfish producer, accounting for just over half (52 percent) of total production in 2016. Alaska POP accounted for one-fifth (21 percent) of global rockfish production in 2016, and 88 percent of all rockfish production in the United States.

Global flatfish supply has remained fairly constant over the past two decades after declining significantly from harvest levels attained in the 1980s that exceeded 1.2 million mt annually. In contrast, Alaska's contribution to global production of flatfish has grown steadily from tiny volumes in the 1980s thanks to Alaska's fishery management regime and regulatory changes like Amendment 80. Between 2011 and 2020, Alaska flatfish production averaged 21 percent of global flatfish supply. Alaska's yellowfin sole harvest alone represented 12 percent of the global flatfish harvest in this period.

Chapter 9

Amendment 80 Program - BSAI Non-Pollock Trawl Catcher-Processor Groundfish Cooperatives: Economic Status Summary

This report summarizes the economic status of the Bering Sea and Aleutian Islands (BSAI) non-pollock groundfish trawl catcher-processor fleet (referred to in the following as the Amendment 80 fleet) over the period 2008 through 2021, following implementation of the rationalization program in 2008 under [Amendment 80] to the Fishery Management Plan for Groundfish of the BSAI Management Area (FMP). This report provides additional detail to supplement information provided elsewhere in the Groundfish SAFE Economic Status Report; details regarding catch, production, and value of BSAI and Gulf of Alaska groundfish species allocated to Amendment 80 fleet are provided in Section 4 of the Annual Fishery Statistics section.

As a requirement of the Amendment 80 program designed by the North Pacific Fishery Management Council (Council), annual economic reports are submitted to NMFS by Amendment 80 vessel owners and Quota Share (QS) permit holders, providing detailed data on vessel and QS-entity earnings, employment, QS lease transfers, operating costs and expenses, and capital improvements. The Economic Data Report (EDR) program is a mandatory annual reporting requirement for Amendment 80 entities, and supplements data provided by in-season monitoring and data collection programs, including eLandings, catch accounting, and the North Pacific Groundfish Observer program. Beginning with implementation of the Amendment 80 program in 2008, the EDR data collection program has collected annual economic census data, with the most recent available data representing results from the 2021 calendar year of operations.[1]

Among the goals of Amendment 80 is improving economic incentives to increase retention and utilization, and reduce bycatch by the commercial catcher-processor (CP) fleet using trawl gear in the non-pollock groundfish fisheries. The structure of the program was developed to encourage

[1]The EDR program is managed collaboratively by Alaska Fisheries Science Center (AFSC) and Pacific States Marine Fisheries Commission (PSMFC), with guidance and oversight from the North Pacific Fishery Management Council. Further information regarding the data collection program, including protocols and results of data quality assessment and controls, is provided in database documentation available from the AFSC's Economic and Social Sciences Research Program (ESSR).

fishing practices and use of vessel capital with lower discard rates and to mitigate the costs of increased retention requirements [2] by improving the opportunity to increase the value of harvest species while improving operational efficiency and lowering costs.

The BSAI non-pollock groundfish trawl CP sector is composed of vessel-entities representing the 24 CPs with history of harvesting groundfish in the BSAI, but that did not qualify for inclusion in the rationalization of the CP pollock fishery under the American Fisheries Act. Of the original 24 CPs electing to enroll in the Amendment 80 catch share program, 22 remained operational as of implementation of the program in 2008, and 21 CPs participated in the program that year. Over the first 14 years of the program, four new vessels have entered to replace an original vessel, one each in 2009, 2016, 2017, 2019, and 2021, and of the 19 vessels participating in the program during 2021, 15 vessels remain of the original fleet.

Species allocated to the Amendment 80 fleet include: Aleutian Islands Pacific ocean perch, BSAI Atka mackerel, BSAI flathead sole, BSAI Pacific cod, BSAI rock sole, and BSAI yellowfin sole. In addition, the Amendment 80 cooperatives and vessels receive allocations of Pacific halibut and crab prohibited species catch (PSC) for use while fishing in the BSAI, and groundfish sideboard limits and halibut PSC for use in the Gulf of Alaska. Amendment 80 allocates the six target species and five prohibited species in the BSAI to the CP sector and allows qualified vessels to form cooperatives. These voluntary harvest cooperatives coordinate use of the target allocations, incidental catch allowances and prohibited species allocations among active member vessels. In the initial year of the program, 16 vessels/LLP licenses formed a single cooperative (identified as the Best Use Cooperative, renamed Alaska Seafood Cooperative in 2010), with an additional seven vessels operating in the limited-access fishery. The Alaska Groundfish Cooperative formed in 2011 from the eight vessels that operated in the limited-access fishery during 2009-2010, increasing to nine member vessels in 2013-2014, and six during 2016-2017. In 2018, the Amendment 80 cooperatives consolidated into the Alaska Seafood Cooperative, with a membership of 20 vessels/LLP licenses.

To describe the economic condition and performance of the fleet under the rationalization program and subsequent changes in fishery management, statistics reported below are intended to indicate the status and trends in a variety of economic indicators and metrics. The reported statistics provide a general overview of economic conditions and performance over time, and are not intended as a rigorous statistical analysis of specific hypotheses regarding economic efficiency or other performance metrics. These generally include changes in the physical characteristics of the participating vessel stock, including productive capacity of vessel physical plant (freezer and processing line capacity and maximum potential throughput) and fuel consumption rates, efficiency and diversification of processing output, investment in vessel capital improvements, operational costs incurred for fishing and processing in the Amendment 80 fisheries and elsewhere, and employment and compensation of vessel crews and processing employees. The reader is referred to the Council's Five-Year Review of the program for a more detailed and comprehensive analysis of economic effects of Amendment 80 (Northern Economics, 2014).

In the following tables, annual statistics are reported for Amendment 80 fleet or fishery aggregate

[2]Concurrent with passage of Amendment 80, the Council also developed a groundfish retention standard (GRS) program for Amendment 80 catcher-processors by establishing a minimum retention schedule for the sector, beginning at 65% roundweight retention for 2008, and increasing by 5% increments to 85% for 2011 and subsequent years. Due to high compliance costs for the GRS program, Amendment 80 vessels and cooperatives were granted exemptions to the standard under emergency rule beginning in 2010, and the GRS program requirements were permanently rescinded under Amendment 93 to the FMP (77 FR 59852, October 1, 2012), effective March, 2013.

total values and median vessel-level values. All monetary values in the report are presented as inflation-adjusted 2021 equivalent U.S. dollars, consistent with inflation-adjusted data presented in other sections of the Groundfish Economic Status Report. Due to the small number of reporting entities comprising the Amendment 80 sector, some statistical results are suppressed to protect the confidentiality of proprietary information, as indicated in tables by the symbol ''*'', and''-" indicates that no data are available for the tabular value. The total count of non-zero reported values are shown in the tables (under the heading ''Obs" or ''Vessels''). As a general convention, fleet- or sector-level aggregate values are calculated as the sum total over all vessel- or entity-level reported values for a given data item. Vessel-level median values (calculated over reported non-zero values) are reported to represent the "average" vessel; arithmetic means for the reported indicators can be derived as needed by users of this report by dividing the aggregate total value shown by either the associated number of non-zero observations, or alternately by the total count of vessels (where different). It should be noted, however, that most statistical values reported in the following tables are derived from fewer than 20 observations for a given statistical value, and the underlying data may be highly variable and/or irregularly distributed, such that the arithmetic mean may be a poor representation of the population average value.

9.1 Fleet Characteristics and Production Capacity

Table 9.1 shows fleet aggregate and median vessel values for physical size and capacity of the vessel stock within the active fleet from 2008-2021. With the entry of F/V America's Finest during 2019, and the F/V North Star in 2021, the fleet increased from 19 to 21 Amendment 80-qualified vessels active in EEZ fisheries in the Bering Sea/Aleutian Islands (BSAI) and Gulf of Alaska (GOA). With each of these entries, the physical size of the fleet (as shown in metrics reported in Table 9.1 exhibited the largest one-year increases to-date, with aggregate gross tonnage increasing 20%, to 21.8 thousand tons in 2019, and to 25.5 thousand tons in 2021, a 17% increase from the previous year, and with other metrics showing a similar scale of increase.

With the exception of 2018 and the three years from 2013 to 2015, overall fleet composition has been in constant flux since 2008, with entry and/or exit of one or two vessels from the active fleet each year. The initial reduction from 22 active vessels the first year of the program (2008) to 20 in 2012 was due to loss of one vessel at sea (the Alaska Ranger) and the inactivity of the Tremont, which last fished in 2008. In total, five vessels permanently exited the Amendment 80 fleet between 2008 and 2012, all of which were built between 1970 and 1980. Regulations implementing Amendment 97 to the BSAI Groundfish FMP were published and became effective in October of 2012 (77 FR 59852), lifting prohibitions on replacement of Amendment 80 vessels and establishing regulatory requirements and processes for qualifying a replacement for an Amendment 80 vessel and transfer of associated fishing privileges. The first such vessels qualified for entry to the Amendment 80 program during 2016: the Seafreeze America and the Cape Flattery, both owned by United States Seafood, replaced the company's vessels Alliance and Ocean Alaska, which last operated in 2012. The Seafreeze American began active operations during 2016, increasing the active fleet from 18 to 19 vessels, however, the Alaska Juris, owned by Fishing Company of Alaska (FCA), sank while underway on the Bering Sea in July of 2016; [3] statistics in Table 9.1 showing increased aggregate and median physical capacity reported for 2016 are inclusive of both vessels and do not reflect the loss of the Alaska Juris. FCA ceased business operations during

[3]NTSB, 2017. [https://www.ntsb.gov/investigations/AccidentReports/Reports/MAB1726.pdf]

2017 and the company's three remaining vessels and all quota share holdings were acquired by other Amendment 80 entities (vessels Alaska Victory and Alaska Warrior were acquired by Ocean Peace, Inc., and the Alaska Spirit was acquired by O'Hara, Inc.). With entry of F/V Araho (owned by O'Hara, Inc.) in 2017, maintaining the count of vessels at 19, aggregate fleet gross tonnage increased from the previous year to 18,152 tons (+4.6%)[4], while fleet aggregate length overall (LOA) decreased slightly to 3,443 feet. As noted above, entry of F/V America's Finest in 2019 increased aggregate fleet size metrics substantially. During 2021, the F/V North Star entered the active fleet, displacing F/V America's Finest as the largest vessel in the Amendment 80 fleet, at 4,350 gross tons, substantially increasing aggregate fleet capacity across metrics.

By most available metrics, physical production capacity of processing plants in the Amendment 80 fleet have shown a marked increase in each of the last 7 years. Consistent with significant capital improvement in the existing fleet over the last 9 years, including the FCA vessels under new ownership as of 2017 and entry of new and replacement vessels beginning in 2016 (see a80-capinv below), production throughput capacity and onboard frozen storage indicators reported in Tables 9.2 and 9.3 for the recent period confirm substantial expansion of aggregate production capacity of the fleet.

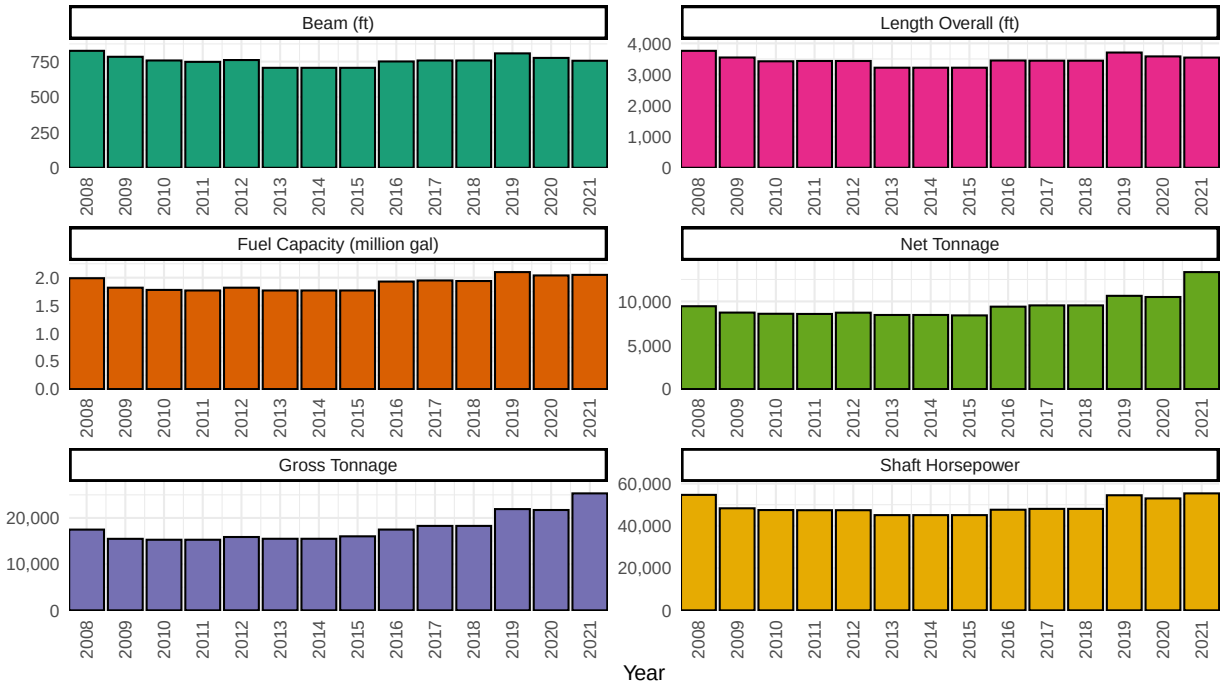

Figure 9.1: Amendment 80 Fleet - Aggregate Vessel Size Statistics.

Note Tabular data shown in Table 9.1.

[4]Note that all annual fleet-aggregate physical capacity and production throughput statistics in the following discussion (and referenced tables) represent the summed value over all reported vessel-level physical measurements and production volume-per-hour values for the year.

Table 9.1: Amendment 80 Fleet - Aggregate and Median Vessel Size Statistics

		Gross Tonnage		Net Tonnage		Length Overall (ft)		Beam (ft)		Shaft Horsepower		Fuel Capacity (million gal)	
Year	Vessels	Total	Median	Total	Median	Total	Median	Total	Median	Total	Median	Total	Median
2008	22	17,483.00	806.00	9,449.00	403.00	3,760.00	177.00	826.00	39.00	54,650.00	2,385.00	1.99	77,920.00
2009	21	15,482.00	560.00	8,723.00	380.00	3,546.00	169.00	784.00	38.00	48,300.00	2,250.00	1.82	76,840.00
2010	20	15,285.00	775.00	8,589.00	403.00	3,424.00	177.00	758.00	39.00	47,475.00	2,385.00	1.78	77,920.00
2011	20	15,285.00	775.00	8,568.00	403.00	3,434.00	177.00	748.00	39.00	47,400.00	2,385.00	1.77	77,920.00
2012	20	15,880.00	775.00	8,712.00	403.00	3,434.00	177.00	761.00	40.00	47,400.00	2,385.00	1.82	77,920.00
2013	18	15,495.00	1,008.00	8,451.00	506.00	3,218.00	185.00	706.00	40.00	45,075.00	2,560.00	1.77	89,077.00
2014	18	15,495.00	1,008.00	8,451.00	506.00	3,218.00	185.00	706.00	40.00	45,075.00	2,560.00	1.77	89,077.00
2015	18	16,028.00	1,026.00	8,403.00	506.00	3,218.00	185.00	706.00	40.00	45,075.00	2,560.00	1.77	89,077.00
2016	19	17,493.00	1,027.00	9,399.00	586.00	3,449.00	185.00	751.00	40.00	47,625.00	2,550.00	1.93	99,154.00
2017	19	18,283.00	1,027.00	9,543.00	586.00	3,443.00	185.00	758.00	40.00	48,025.00	2,550.00	1.95	99,154.00
2018	19	18,283.00	1,027.00	9,543.00	586.00	3,443.00	185.00	758.00	40.00	48,025.00	2,550.00	1.94	99,154.00
2019	20	21,923.00	1,055.00	10,636.00	630.00	3,705.00	186.00	808.00	40.00	54,475.00	2,575.00	2.10	105,017.00
2020	19	21,724.00	1,082.00	10,501.00	674.00	3,581.00	186.00	776.00	40.00	52,975.00	2,600.00	2.04	110,880.00
2021	18	25,323.00	1,167.00	13,342.00	698.00	3,543.00	193.00	756.00	40.00	55,357.00	3,000.00	2.05	120,984.00

Source Amendment 80 Economic Data Reports.

Over the active fleet of 19 vessels, total processing lines increased to 35 in 2021, an average of 1.8 per vessel, although most vessels continue to have only one processing line (Figure 9.2). Fleet aggregate processing line throughput capacity for whole-fish product increased to 125 metric tons per hour (t/hr) in 2021, compared to an annual average of 59 t/hr over the 2008-2014 period. More recently, line throughput over all head and gut product types types [5] showed a marked increase beginning in 2017, to a fleet aggregate of 104 t/hr (median 4.8 t/hr), compared to a range of 80 - 90 t/hr prior to 2017, and increasing to 46 t/hr in 2021. Notably, although not as directly indicative of physical production capacity, the number of distinct species and product types reported by active vessels have followed a similar trend, increasing in recent years, with 33 distinct species processed and 57 distinct species-product types produced across the fleet representing the highest variety of outputs reported since the program began. Cold-handling capacity is commonly cited as principal limiting factor in overall production capacity on Amendment 80 CP's, and the recent increasing trend in associated metrics is similar to that shown in processing line capacity. Product chilling (i.e. plate freezer) throughput and on-board frozen storage metrics are reported in Table 9.3. Fleet-aggregate freezer throughput capacity, which ranged between 59 and 67 t/hr on an annual basis prior to 2016, increased to 72.8 t/hr in 2017, and reached a peak of 77.2 t/hr in 2021. Fleet-aggregate cold storage capacity, which ranged between 7,100 and 7,700 t over the 2009 to 2015 period, increased to nearly 10 thousand t in 2021, and to a vessel median of 489 t, a 35% increase from 2020 (Figure 9.3).

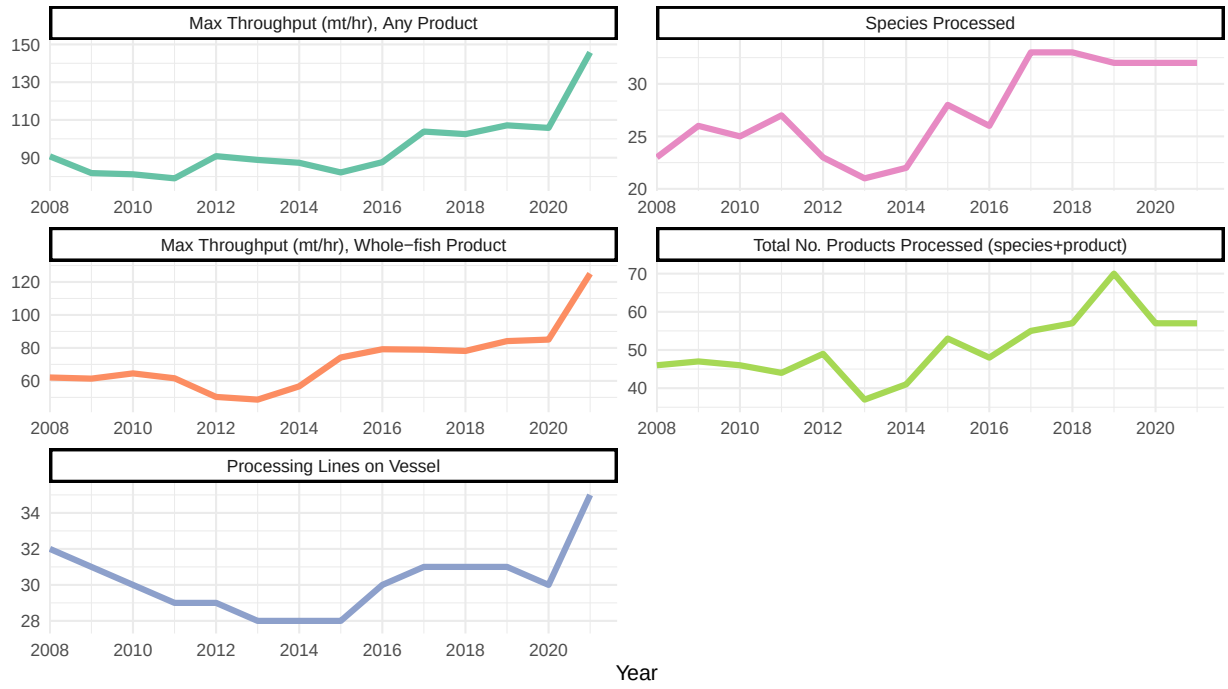

Figure 9.2: Amendment 80 Fleet - Aggregate Vessel Processing Capacity Statistics.

Note Tabular data shown in Table 9.2

[5]Head and gut (H&G) product types include the following product code and descriptions, as defined by the State of Alaska (SOA) in eLandings and Commercial Operators Annual Report (COAR) specifications: 06 - H&G with roe, 07 - H&G western cut, 08 - H&G eastern cut, and 10 - H&G tail removed. Production capacity in the EDR is reported by species and product type use according to SOA standard codes. In a addition to code 01 - Whole fish, small quantities of other product types are produced by A80 vessels, including 11 - Kirimi, and various ancillary product types, but do not appear in EDR processing capacity records.

Table 9.2: Amendment 80 Fleet - Aggregate and Median Vessel Processing Capacity Statistics

		Processing Lines on Vessel		Species Processed		Total No. Products Processed (species+product)		Max Throughput (mt/hr), Whole-fish Product		Max Throughput (mt/hr), Any Product	
Year	Vessels	Total	Median	Total	Median	Total	Median	Total	Median	Total	Median
2008	22.00	32.00	1.00	23.00	12.00	46.00	18.00	62.06	3.33	90.72	3.63
2009	21.00	31.00	1.00	26.00	12.00	47.00	17.00	61.37	3.33	81.86	3.63
2010	20.00	30.00	1.00	25.00	12.00	46.00	18.00	64.55	3.32	81.21	3.85
2011	19.00	29.00	1.00	27.00	12.00	44.00	17.00	61.59	3.31	79.07	3.92
2012	19.00	29.00	1.00	23.00	12.00	49.00	16.00	50.27	3.22	90.82	4.43
2013	18.00	28.00	1.00	21.00	12.00	37.00	16.00	48.64	3.32	88.83	4.62
2014	18.00	28.00	1.00	22.00	12.00	41.00	16.00	56.69	3.88	87.31	4.30
2015	18.00	28.00	1.00	28.00	13.00	53.00	18.00	74.21	4.04	82.20	4.18
2016	19.00	30.00	1.00	26.00	13.00	48.00	19.00	79.19	4.16	87.63	4.20
2017	19.00	31.00	1.00	33.00	13.00	55.00	18.00	78.94	4.53	103.85	4.81
2018	19.00	31.00	1.00	33.00	13.00	57.00	18.00	78.17	4.33	102.49	4.67
2019	20.00	31.00	1.00	32.00	15.00	70.00	19.00	84.14	4.67	107.14	4.90
2020	19.00	30.00	1.00	32.00	12.00	57.00	18.00	85.06	4.67	105.78	4.99
2021	19.00	35.00	2.00	32.00	12.00	57.00	18.00	125.06	4.99	145.78	4.99

Source Amendment 80 Economic Data Reports.

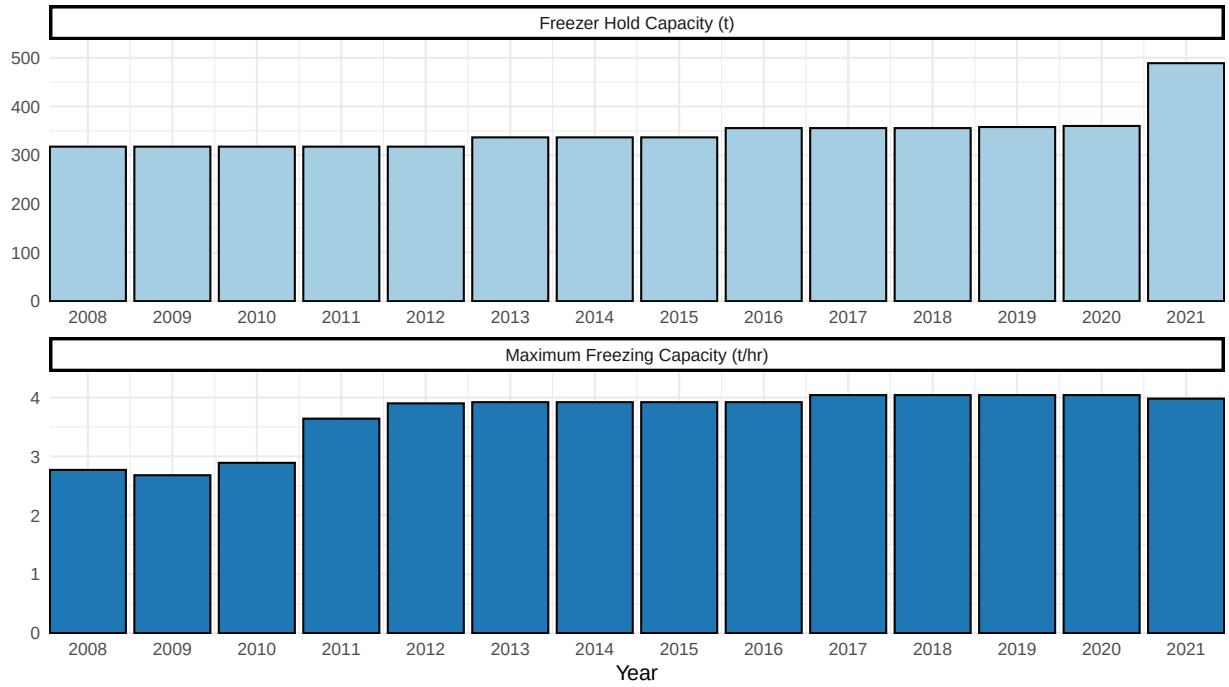

Figure 9.3: Amendment 80 Fleet - Median Vessel Freezer Capacity.

Note Tabular data shown in Table 9.3

Table 9.3: Amendment 80 Fleet - Aggregate and Median Vessel Freezer Capacity

		Freezer Hold Capacity (t)		Maximum Freezing Capacity (t/hr)	
	Vessels	Total	Median	Total	Median
2008	22	8,467.36	317.51	62.98	2.77
2009	21	7,693.25	317.51	58.83	2.68
2010	20	7,576.07	317.51	60.01	2.89
2011	20	7,525.36	317.51	64.21	3.64
2012	20	7,558.92	317.51	67.08	3.90
2013	18	7,345.19	336.57	64.28	3.92
2014	18	7,345.19	336.57	64.28	3.92
2015	18	7,345.07	336.57	64.06	3.92
2016	19	8,171.14	355.62	69.94	3.92
2017	19	8,438.92	355.62	72.81	4.04
2018	19	8,400.12	355.62	70.31	4.04
2019	20	9,466.74	357.82	77.19	4.04
2020	19	9,269.98	360.02	73.66	4.04
2021	19 18	9,996.36 -	488.97 -	- 69.46	- 3.98

Source Amendment 80 Economic Data Reports.

Fuel consumption statistics for the Amendment 80 fleet show some indications of increasing fuel efficiency associated with recent entry of replacement Amendment 80 vessels and capital

improvement in existing vessel capital stock discussed above. Figure 9.4 shows median values for reported estimates of average hourly fuel consumption rate, in gallons per hour (gph), of Amendment 80 vessels during fishing and processing, steaming loaded, and steaming empty operational modes. Median reported hourly fuel use rates vary by activity (highest during steaming loaded and lowest while steaming empty) and generally increased over the 2008 - 2016 period, reflecting the increase in median and aggregate vessel size within the active fleet. Following a period of relative stability in fleet composition, median fuel use rates, particularly while in active production and steaming loaded, have been more variable in recent years, the former reaching the highest level to date in 2021, at 112 gallons per hour. Note that this period of greater variation, coincident with replacement vessel entries in four of the last six years, may reflect some degree of transitional adjustment on the part of new vessels in both fuel management and reporting accuracy. In contrast to median fuel consumption rate, median annual fuel consumption (in gallons per year) across operational modes has remained fairly steady over most of the last six years, ranging between 575 to 585 thousand gallons annually during active fishing and processing in five of the six years. Aggregate fuel consumption across all modes and vessels peaked in 2016 and 2019, reaching approximately 14.3 million gallons, averaging 13.5 million gallons/year over the most recent five years, and 13.3 million in 2021 (Table 9.5).

9.2 Fishing Effort - Vessel Days at Sea

Table 9.5 reports fleet aggregate and median statistics for vessel activity days reported in EDR data from 2008-2021, representing counts of days during which the vessel undertook fishing and processing operations in 1) Amendment 80 program fisheries in the Bering Sea/Aleutian Islands management area (including mothership operations in the BSAI processing Amendment 80 program catch), 2) all fisheries other than Amendment 80 program fisheries (inclusive of catch and processing of Open Access (OA), CDQ allocation, and/or landings on experimental or exempted fishing permits in any management area, as well as catch and processing of Rockfish Pilot Program (RPP) catch in the GOA and/or Amendment 80 sideboard allowances in the GOA), 3) days on which the vessel was in transit (not fishing or processing) or offloading in port, and 4) inactive in shipyard. Beginning in 2015, EDR reporting broke out vessel activity in the GOA from Amendment 80 and all other fisheries, respectively; to provide consistent metrics over time, Table 9.5 reports active vessels and vessel days in all non-A80 fisheries inclusive of GOA activity for the full 2008-2021 period, with metrics for the GOA beginning in 2015 (as included in the non-A80 metrics). Note that counts of days by activity, area, and/or fishery for a given vessel are not mutually exclusive and represent days during which the vessel reported activity by fishery management program in eLandings; a given calendar day may be counted both as a day fishing and as a day processing (counts of days processing are generally inclusive of days fishing), in one or more program fisheries, as well as a day transiting/offloading. As such, the results as reported in Table 9.5 give a relative account of the distribution of fleet activity among different activities and as a upper-bound approximation of the cumulative duration of vessel use in a given activity. [6]

[6]Vessel days at sea (including days offloading) can be calculated using days inactive values shown above in Table 9.5 as follows: median days at sea = 365-days inactive, and fleet total days at sea = (Vessel count x 365) - fleet total days inactive.

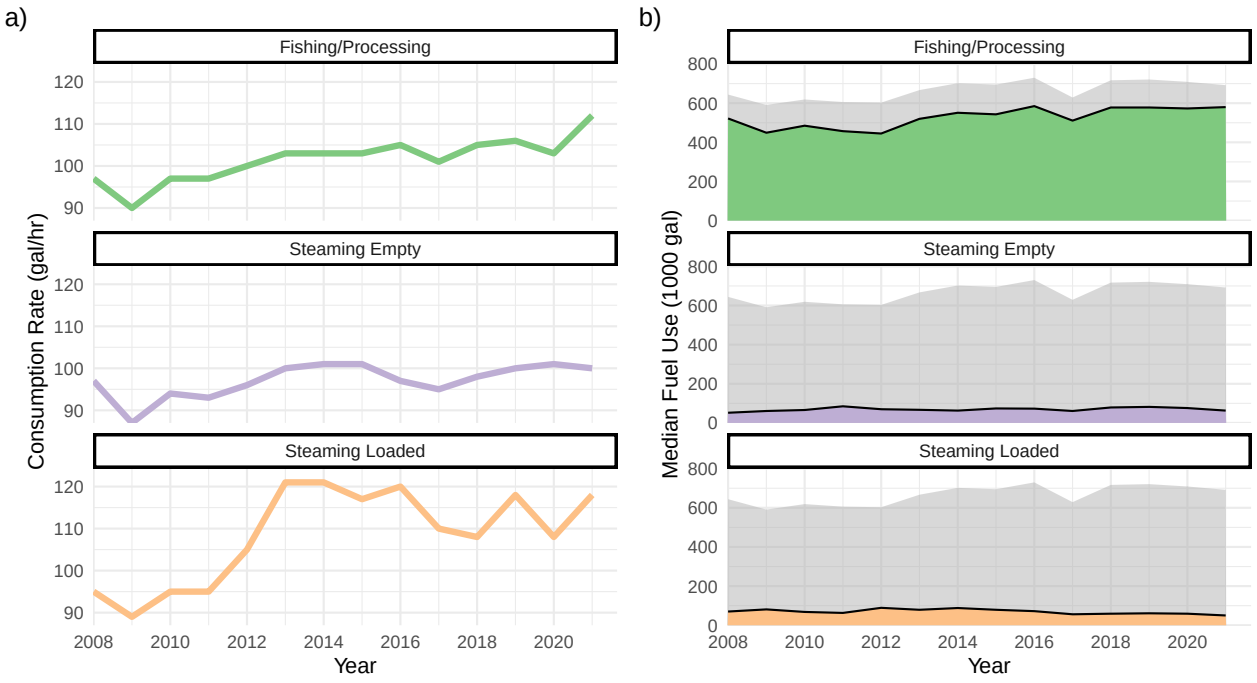

Figure 9.4: a) Amendment 80 Fleet - Median Vessel Fuel Consumption Rates by Vessel Activity, b) Median Vessel Annual Fuel Use, by Vessel Activity.

Note Tabular data shown in Table 9.4 and Table 9.5.

Table 9.4: Amendment 80 Fleet - Median Vessel Fuel Consumption Rates by Vessel Activity

Year	Vessels	Fishing/Processing			Steaming Loaded			Steaming Empty			All Fuel Use	
		Median (1000 Gal)	Total (Million Gal)	Median Rate (Gal/Hr)	Median (1000 Gal)	Total (Million Gal)	Median Rate (Gal/Hr)	Median (1000 Gal)	Total (Million Gal)	Median Rate (Gal/Hr)	Median (1000 Gal)	Total (Million Gal)
2008	22.00	522.00	10.78	97.00	70.00	1.76	95.00	52.00	1.04	97.00	644.00	13.57
2009	21.00	449.00	9.27	90.00	81.00	1.77	89.00	61.00	1.04	87.00	591.00	12.09
2010	20.00	485.00	9.73	97.00	68.00	1.46	95.00	66.00	1.45	94.00	619.00	12.65
2011	20.00	457.00	10.16	97.00	63.00	1.44	95.00	85.00	1.74	93.00	606.00	13.34
2012	20.00	445.00	9.26	100.00	89.00	1.64	105.00	70.00	1.31	96.00	603.00	12.21
2013	18.00	520.00	9.70	103.00	79.00	1.50	121.00	67.00	1.20	100.00	667.00	12.40
2014	18.00	551.00	10.09	103.00	88.00	1.52	121.00	63.00	1.19	101.00	702.00	12.79
2015	18.00	543.00	10.03	103.00	79.00	1.64	117.00	74.00	1.19	101.00	695.00	12.86
2016	19.00	585.00	11.11	105.00	72.00	1.98	120.00	73.00	1.21	97.00	730.00	14.30
2017	19.00	511.00	10.59	101.00	56.00	1.52	110.00	61.00	1.20	95.00	629.00	13.31
2018	19.00	578.00	10.84	105.00	59.00	1.49	108.00	79.00	1.33	98.00	717.00	13.65
2019	20.00	578.00	11.49	106.00	61.00	1.30	118.00	82.00	1.46	100.00	721.00	14.25
2020	19.00	573.00	10.68	103.00	59.00	1.12	108.00	76.00	1.41	101.00	709.00	13.21
2021	19.00	580.00	10.94	112.00	50.00	1.02	118.00	63.00	1.34	100.00	692.00	13.30

Source Amendment 80 Economic Data Reports.

Aggregate fleet total and median vessel activity days in the Amendment 80 program fisheries exhibited a general downward trend from 2008 until 2012, when fleet aggregate vessel-days processing declined to a low of 3,425 across 19 active vessels, with 173 days over 20 vessels during 2011 the lowest median vessel value to-date (Table 9.5). Aggregate fleet-level fishing and processing days in the Amendment 80 program increased each subsequent year until 2019, when vessel-days processing peaked at 4,056 days across 20 vessels, the most intensive year of fishing and processing activity reported in A80 fisheries to-date; a total of 3,685 vessel-days of processing occurred in 2021.

Vessel participation in fisheries other than those included in the Amendment 80 program is more variable from year to year; 17 of 20 vessels participated in non-A80 fisheries in 2011 and 2012, while most other years have seen between 10 and 12 vessels fishing and 11 to 13 vessels processing in other fisheries, and 2021 seeing the lowest level of participation outside of A80 program fisheries, at 8 vessels. Within the variable segment of the fleet active in non-A80 fisheries, the 2015 to 2018 period saw the most intensive fleet-level activity reported to date, with fleet total vessel days fishing and days processing peaking at 867 and 1,187 in 2017, declining to 520 and 607, respectively, in 2021. Prior to 2016, aggregate vessel-days fishing and days processing in non-A80 fisheries tracked closely, but in most recent years, in addition to seeing the highest historical level of fleet processing activity in these fisheries, aggregate and median vessel-days processing increased relative to days fishing. The relative increase in processing days beginning in 2016 is the result of a segment (between 4 to 6 vessels) of the fleet operating as motherships in the BSAI; statistics reported for raw fish purchasing costs reported in Tables 9.10 and 9.11 provide some metric of this trend, however, a more detailed analysis is pending development for a future edition of this report.

As noted above, all 2008 through 2021 vessel counts and activity days statistics shown for all non-A80 fisheries in Table 9.5 are inclusive of activity in GOA trawl fisheries, which is reported separately only for 2015 to 2021. In 2021, seven Amendment 80 vessels were active in the GOA, the fewest since 2015. Fleet aggregate vessel-days fishing and processing increasing from 280 in 2020 to 412 in 2021, and from 33 to 57 at the median.

Across the active fleet of 19 vessels during 2021, 1,371 vessel-days in total and 67 at the median included transiting and/or offloading, a moderate increase from 2020. However, total vessel-days inactive (in-port or inactive at sea) during 2021 increased 23%, to 1,012, not accounting for the five Amendment 80-qualified vessels that were fully inactive, remaining in-port for the duration of the year.

Table 9.5: Amendment 80 Fleet activity - Days Fishing and Processing by Fishery, and Days in Transit/Offloading and Inactive in Port, Fleet Total and Median Vessel Values

Type	Activity	Year	Active Vessels	Fleet Total	Median Vessel
Amendment 80 Fisheries	*Days Fishing*	2008	22	3,821	185
		2009	21	3,765	181
		2010	20	3,639	182
		2011	20	3,405	175
		2012	19	3,395	178
		2013	18	3,513	200
		2014	18	3,567	209
		2015	18	3,611	210
		2016	19	3,746	202
		2017	19	3,755	208
		2018	19	3,932	203
		2019	20	4,054	211
		2020	19	3,801	208
		2021	19	3,684	204
	Days Processing	2008	22	4,117	196
		2009	21	3,774	181
		2010	20	3,747	189
		2011	20	3,454	173
		2012	19	3,425	185
		2013	18	3,559	200
		2014	18	3,615	213
		2015	18	3,633	210
		2016	19	3,747	202
		2017	19	3,757	208
		2018	19	3,935	203
		2019	20	4,056	211
		2020	19	3,802	208
		2021	19	3,685	204
All Non-A80 Fisheries	*Days Fishing*	2008	11	456	25
		2009	11	261	20
		2010	14	535	30
		2011	17	812	32
		2012	17	735	30
		2013	12	648	28
		2014	12	818	27
		2015	11	826	41
		2016	11	802	58
		2017	10	867	47
		2018	12	856	65
		2019	11	590	44
		2020	10	561	40
		2021	8	520	66
	Days Processing	2008	11	455	26
		2009	11	259	20
		2010	14	534	30
		2011	17	819	32
		2012	17	730	30
		2013	12	649	28
		2014	12	818	27
		2015	11	880	41
		2016	12	1,032	78
		2017	11	1,094	115
		2018	13	1,127	70
		2019	13	830	58
		2020	12	730	49
		2021	8	607	73
		2015	7	402	41
		2016	8	339	32
		2017	9	422	31
		2018	8	291	32
		2019	9	325	23
		2020	8	281	33

	Days Fishing				
GOA Fisheries		2021	7	413	57
	Days Processing	2015	7	402	41
		2016	8	339	32
		2017	9	422	31
		2018	8	291	32
		2019	9	326	23
		2020	8	280	33
		2021	7	412	56

Type	Activity	Year	Vessels	Fleet Total	Median Vessel
Non-Fishing And Inactive	*Days Travel/Offload*	2008	22	1,318	58
		2009	21	1,398	72
		2010	20	1,681	77
		2011	20	1,956	80
		2012	20	1,682	69
		2013	18	1,560	80
		2014	18	1,401	65
		2015	18	1,327	69
		2016	19	1,332	69
		2017	19	1,465	68
		2018	19	1,431	59
		2019	20	1,314	58
		2020	19	1,338	61
		2021	19	1,371	67
	Days Inactive	2008	22	1,980	94
		2009	21	2,355	100
		2010	20	1,928	81
		2011	20	1,857	78
		2012	20	2,089	98
		2013	18	1,466	74
		2014	18	1,301	73
		2015	18	1,298	75
		2016	19	1,319	61
		2017	19	1,373	69
		2018	19	1,079	55
		2019	20	1,211	63
		2020	19	1,322	63
		2021	18	1,012	59

Note Vessel activity days as reported in Economic Data Reports are not mutually exclusive with respect to fishery or activity type, and summing number of days over activity and/or fishery categories may total to more than 365 for a given vessel. Vessel days at sea (including days offloading) can be calculated using days inactive values shown above as follows: median days at sea = 365-days inactive, and fleet total days at sea = (Vessel count x 365) - fleet total days inactive. Prior to 2015, fishing and processing activity days reported im the Economic Data Report were broken out by Amendment 80 fisheries and all other fisheries, with separate reporting of activity days in Gulf of Alaska fisheries beginning in 2015; vessel activity statistics shown above for 'All Non-A80 Fisheries' for 2008 through 2021 are inclusive of days when vessels were active fishing or processing in the GOA and all other non-Amendment 80 fisheries.
SourceCatch and discard statistics sourced from NMFS Alaska Region Catch Accounting System data, and production volume statistics are sourced from NMFS Alaska Region At-Sea Production Reporting system data, with production value estimated using average species/product per-unit prices sourced from ADFG Commercial Operators Annual Report (COAR) data; source data and compilation are provided by the Alaska Fisheries Information Network (AKFIN).

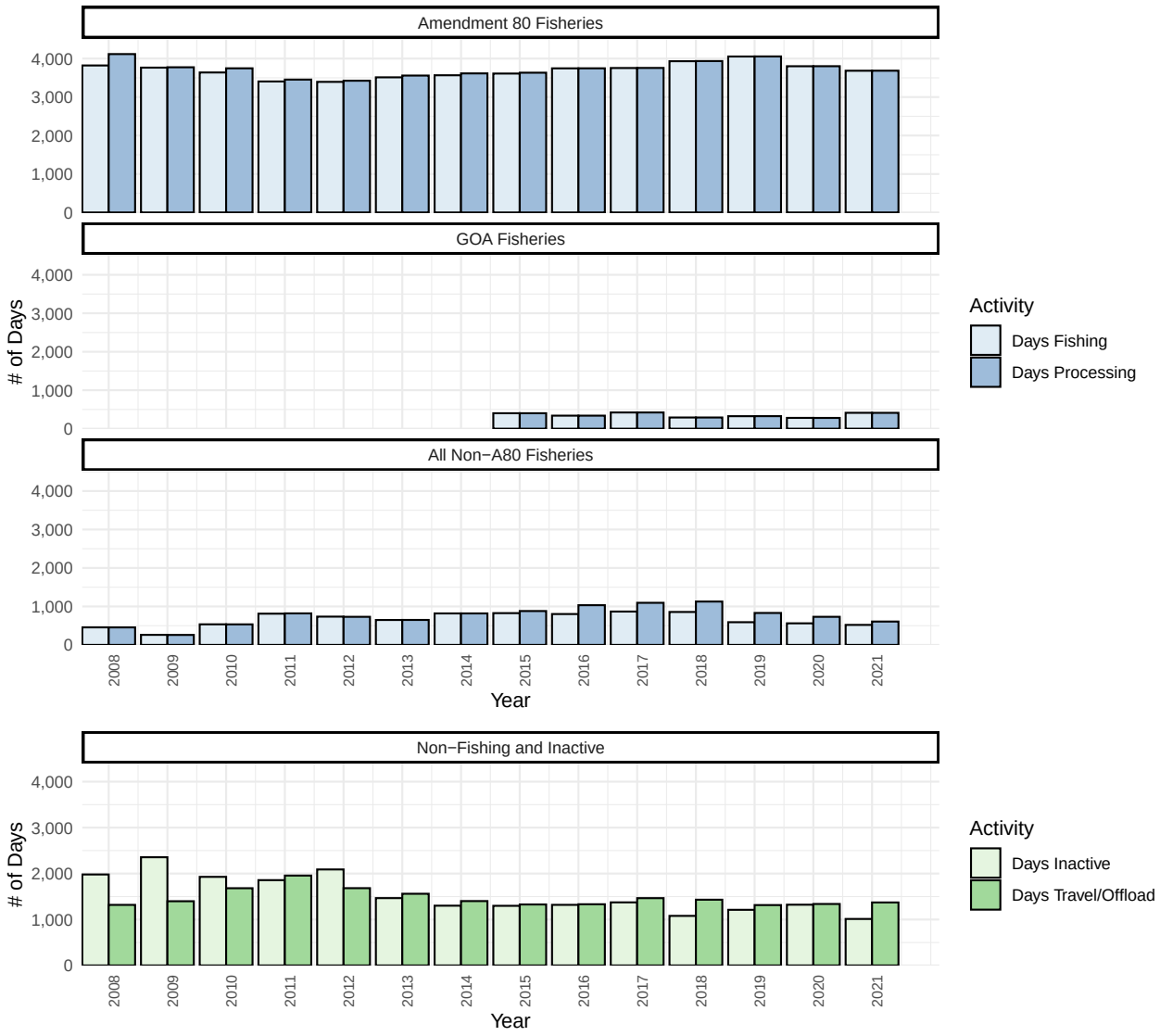

Figure 9.5: Amendment 80 Fleet activity - Days Fishing and Processing by Fishery and Days in Transit/Offloading and Inactive in Port

Note Tabular data shown in Table 9.5.

9.3 Catch, Production, and Value

Figure 9.6 and Table 9.7 report annual fleet aggregate and median vessel-level values for retained and discarded catch, volume of processed product in finished weight terms (in t), and estimated wholesale value of finished processed volume (aggregate and per-t values in $US adjusted to 2021-equivalent value using the GDP deflator). Statistics for these metrics are shown aggregated over all Alaska fisheries, and stratified by Amendment 80 target species (as a group), all other species caught in fisheries in the BSAI, and all species caught in fisheries in the Gulf of Alaska (GOA). Aggregating over all Alaska fisheries, total retained catch in the Amendment 80 fleet declined 7.5% compared to 2020, to 297 thousand t in 2021. Discard volume of 25.7 thousand t

and discard rate (discard as percentage of total catch) of 8.66%, both continued the consistent upward trend that began following the historically low bycatch levels of 2017. Total Amendment 80 fleet retained catch in GOA fisheries increased substantially in 2021, with 27.8 thousand *t* gaining by nearly 30% from the previous year, while discards of 3.25 thousand *t* increased from 7.5% to 11.7% of total catch. In the BSAI, total retained catch aggregated over the six targeted Amendment 80 species (Atka mackerel, flathead sole, rock sole, yellowfin sole, Pacific cod, and Pacific Ocean perch) declined 8% to 209 thousand *t* in 2021, while discards within Amendment 80 program fisheries moderately increased to 3.6 thousand *t*, 1.7% of total catch. Total retained catch of all other species in the BSAI in 2021 declined from 2020 by 17% collectively, to 59.9 thousand *t*, with total discards remaining essentially unchanged at 18.8 thousand *t*, but increasing substantially as a proportion of total catch, to 31%.

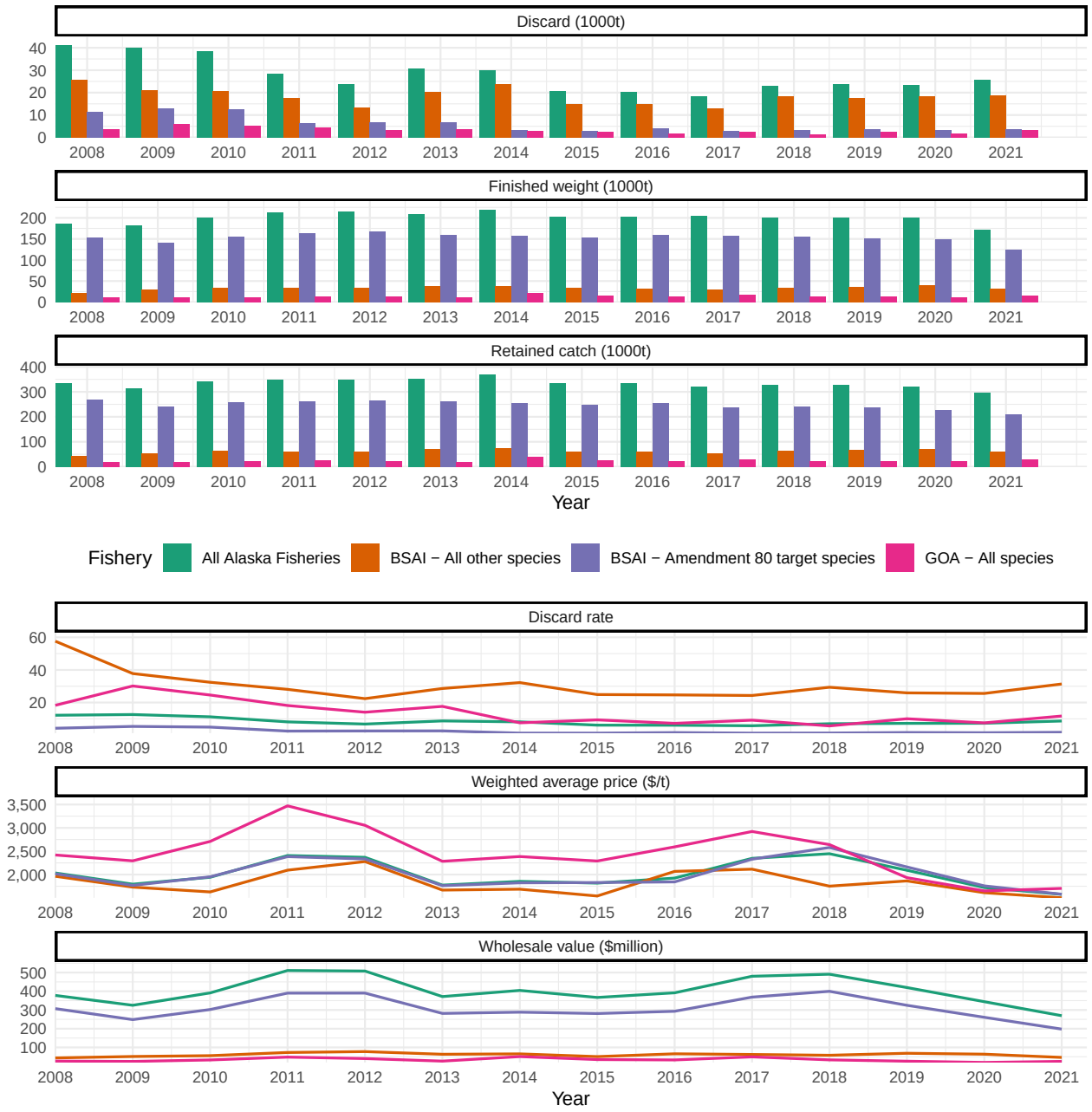

Figure 9.6: Amendment 80 Fleet - Aggregate and Median Vessel Catch, Discard, and Finished Production Volume and Value.

Note Tabular data shown in Table 9.7.

As a result of the multiyear decline of wholesale market prices for most of the Amendment 80 fleet product lines addressed in detail else where in the Economic SAFE (see especially Sections 7.16 - 7.21 in Chapter 7. Alaska Groundfish Price Projections)

Production volume and value for the Amendment 80 sector exhibited a severe decline in 2021, due to a substantial decline in the aggregate volume of finished product output, combined with adverse market conditions that exacerbated ongoing, multiyear trends toward wholesale price

erosion for most of the product lines the sector produces. [7] Production and value information displayed in Figure 9.6 and Table 9.7 indicate that, from 2008 to 2020, the total volume of finished production of the Amendment 80 fleet, aggregated over all Alaska fisheries, varied between 181 thousand t and 218 thousand t per year, with gross first wholesale value varying between $325 million and $511 million over the period. [8] Aggregate finished volume of the fleet over all Alaska fisheries during 2021 reached the lowest level and showed the largest year-on-year decline in Amendment 80 program history, dropping 14.5% from 2020 to 171 thousand t. Aggregate gross wholesale value declined by 21.7% to $269 million, substantially less than the previous low of $325 million in 2009. Weighted average price across all targeted species and product forms produced by the sector fell 8.5%, from $1.72 thousand per t in 2020 to $1.58 thousand per t in 2021.

For Amendment 80 program fisheries, aggregate finished volume and value for the fleet in 2021 were 125 thousand t (down 16% from 2020), and $198 million (down 24%). This represented 73% of production volume and 74% of gross revenue value over all Alaska production for the fleet. Weighted average price across all Amendment 80 species and product forms fell 10%, from $1.76 thousand per t in 2020 to $1.58 thousand per t in 2021. On a median basis, production volume in Amendment 80 program fisheries declined by 9% to 6.5 thousand t in 2021, while first wholesale value declined by 18% to $9.5 million. Fleet production volume from non-Amendment 80 species in the BSAI (varying between 12% and 18% of both total volume and total value of fleet production over the 14 -year period) declined by 22% to 31 thousand t for 2021, while first wholesale value declined by 27% to $46 million, with weighted average price across these fisheries declining by 6.8%, a somewhat smaller margin that in Amendment 80 target fisheries.

In contrast to declining volume and value of production from BSAI fisheries, fleet-aggregate finished volume of GOA production by the Amendment 80 sector in 2021, constituting 9% of fleet production volume over all fisheries, increased by 25% from 2020 to 14.8 thousand t, while first wholesale value increased by 29% to $25.3 million. Weighted average price across all GOA groundfish species and product forms output by the sector increased by 3.3%, from $1.65 thousand per t in 2020 to $1.70 thousand per t in 2021.

Further analysis of production, prices, and market conditions for individual species, Amendment 80 target species and others, are provided elsewhere in the Economic Status Report.

[7] Groundfish market prices are addressed in detail elsewhere in the Economic SAFE; see especially Sections 7.16 - 7.21 in Chapter 7. Alaska Groundfish Price Projections.

[8] Note that Table 9.9 below also reports aggregate first wholesale statistics for the Amendment 80 sector, which are differentiated from product sales revenue statistics reported in Table 9.5 in that the former represent volume and value of product sales completed during the calendar year as reported in Amendment 80 Economic Data Reports. In contrast, statistics shown in Table 9.5 report volume of physical production by active vessels in the Amendment 80 sector during the calendar year, with first wholesale value estimated based on ADF&G Commercial Operators Annual Reports (COAR) price data. Discrepancies between values reported in the respective tables (and comparable tables presented elsewhere in the SAFE report) are attributable to differences in timing between production output, sales, and fluctuating inventories, as well as other sources of variation.

Table 9.7: Amendment 80 Fleet - Aggregate and Median Vessel Catch, Discard, and Finished Production Volume and Value

			Fleet Aggregate						Median Vessel				
	Year	Vessels	Retained Catch (1000t)	Discard (1000t)	Discard Rate	Finished Weight (1000t)	Wholesale Value ($Million)	Weighted Average Price ($/T)	Retained Catch (1000t)	Discard (1000t)	Discard Rate	Finished Weight (1000t)	Wholesale Value ($Million)
BSAI - Amendment 80 Target Species	2008	22.00	270.64	11.42	4.22	152.31	307.18	2,017.00	13.01	0.30	3.06	6.89	13.30
	2009	21.00	239.66	12.80	5.34	140.54	248.53	1,768.00	12.22	0.51	4.95	7.52	12.28
	2010	20.00	257.57	12.68	4.92	154.95	302.39	1,952.00	13.96	0.44	3.40	8.43	14.97
	2011	20.00	262.29	6.50	2.48	163.61	390.04	2,384.00	14.34	0.17	1.91	8.56	18.44
	2012	20.00	265.04	6.82	2.57	167.18	390.18	2,334.00	14.55	0.23	2.35	8.96	18.59
	2013	18.00	260.43	6.79	2.61	159.85	281.69	1,762.00	15.03	0.31	2.27	8.32	13.97
	2014	18.00	254.97	3.17	1.24	158.16	288.28	1,823.00	13.94	0.15	1.19	8.53	12.72
	2015	18.00	248.00	3.08	1.24	153.65	281.03	1,829.00	12.84	0.18	1.19	7.57	11.66
	2016	19.00	253.93	3.98	1.57	158.99	293.01	1,843.00	13.68	0.15	1.13	8.15	13.05
	2017	19.00	238.78	2.93	1.23	158.31	368.70	2,329.00	12.25	0.13	0.87	7.29	14.62
	2018	19.00	241.76	3.12	1.29	154.99	399.69	2,579.00	12.05	0.16	1.46	7.33	18.70
	2019	20.00	236.27	3.80	1.61	150.28	324.99	2,163.00	10.76	0.18	1.54	6.34	12.99
	2020	19.00	227.27	3.36	1.48	148.41	260.88	1,758.00	9.65	0.16	1.53	7.16	11.56
	2021	20.00	209.20	3.64	1.74	125.25	197.77	1,579.00	10.01	0.17	1.83	6.54	9.52
BSAI - All Other Species	2008	22.00	44.81	25.83	57.63	22.28	43.73	1,963.00	1.82	1.27	69.47	0.92	1.73
	2009	21.00	55.43	20.94	37.78	29.67	51.37	1,731.00	2.30	1.00	49.87	1.23	1.72
	2010	20.00	63.18	20.49	32.43	34.29	55.84	1,628.00	2.38	0.96	45.38	1.27	1.88
	2011	20.00	62.11	17.45	28.09	34.77	72.80	2,094.00	3.16	0.80	26.97	1.71	3.31
	2012	20.00	60.34	13.51	22.39	34.05	77.56	2,278.00	3.17	0.63	22.70	1.82	3.52
	2013	18.00	70.85	20.27	28.61	37.90	63.20	1,668.00	3.97	1.17	29.80	2.18	3.76
	2014	18.00	73.94	23.83	32.22	38.74	65.34	1,687.00	3.94	1.22	31.23	2.12	3.50
	2015	18.00	59.78	14.88	24.90	32.96	50.80	1,541.00	3.66	0.79	25.53	1.96	2.78
	2016	19.00	60.12	14.84	24.68	31.77	65.69	2,068.00	3.33	0.77	27.29	1.64	2.30
	2017	19.00	53.02	12.89	24.32	29.36	62.09	2,115.00	3.09	0.60	23.21	1.53	2.31
	2018	19.00	63.04	18.51	29.37	33.10	57.99	1,752.00	3.41	0.87	27.65	1.88	3.01
	2019	20.00	67.32	17.45	25.92	36.79	68.59	1,864.00	3.30	0.86	26.72	1.81	2.94
	2020	19.00	72.03	18.42	25.58	39.53	63.71	1,612.00	3.96	1.01	23.12	2.11	2.88
	2021	20.00	59.94	18.80	31.37	30.87	46.40	1,503.00	2.68	0.74	23.54	1.42	1.78
GOA - All Species	2008	12.00	20.54	3.76	18.29	11.10	26.85	2,419.00	1.88	0.29	15.04	0.93	2.20
	2009	17.00	20.19	6.09	30.15	10.95	25.12	2,294.00	0.99	0.17	24.20	0.42	1.07
	2010	16.00	21.36	5.25	24.60	12.15	32.91	2,709.00	0.91	0.24	17.80	0.49	1.38
	2011	16.00	24.34	4.42	18.17	13.85	48.07	3,471.00	0.75	0.19	15.52	0.39	1.64
	2012	16.00	24.20	3.40	14.06	13.21	40.34	3,054.00	0.67	0.07	12.87	0.38	1.33
	2013	13.00	20.46	3.61	17.64	11.71	26.74	2,284.00	0.98	0.15	10.27	0.54	1.51
	2014	10.00	39.19	2.96	7.56	21.34	50.91	2,386.00	2.11	0.13	5.79	1.13	3.64
	2015	9.00	27.05	2.53	9.36	15.29	35.02	2,290.00	2.14	0.23	5.65	1.88	4.84
	2016	13.00	22.29	1.61	7.24	12.74	33.03	2,593.00	0.70	0.02	2.21	0.37	0.78
	2017	10.00	29.43	2.70	9.17	16.90	49.39	2,922.00	2.58	0.06	2.83	1.38	4.39
	2018	8.00	22.82	1.29	5.66	12.64	33.38	2,641.00	2.61	0.09	4.81	1.49	4.19
	2019	10.00	23.76	2.39	10.05	13.59	26.28	1,934.00	2.15	0.05	10.16	1.10	2.48
	2020	8.00	21.39	1.61	7.52	11.91	19.65	1,650.00	2.80	0.13	8.66	1.58	2.92
	2021	6.00	27.77	3.25	11.72	14.83	25.27	1,704.00	5.17	0.31	13.11	2.62	4.18

Table 9.7: Amendment 80 Fleet - Aggregate and Median Vessel Catch, Discard, and Finished Production Volume and Value *(continued)*

			Fleet Aggregate						Median Vessel					
	Year	Vessels	Retained Catch (1000t)	Discard (1000t)	Discard Rate	Finished Weight (1000t)	Wholesale Value ($Million)	Weighted Average Price ($/T)	Retained Catch (1000t)	Discard (1000t)	Discard Rate	Finished Weight (1000t)	Wholesale Value ($Million)
All Alaska Fisheries	2008	22.00	335.99	41.00	12.20	185.69	377.75	2,034.00	15.76	1.63	12.22	8.26	16.26
	2009	21.00	315.29	39.83	12.63	181.15	325.02	1,794.00	16.12	1.70	11.31	9.18	15.02
	2010	20.00	342.11	38.43	11.23	201.38	391.14	1,942.00	18.58	1.69	12.21	10.66	18.55
	2011	20.00	348.74	28.37	8.13	212.23	510.91	2,407.00	18.88	1.43	8.02	10.96	25.47
	2012	20.00	349.58	23.74	6.79	214.44	508.08	2,369.00	18.57	1.21	7.78	10.55	24.15
	2013	18.00	351.74	30.67	8.72	209.45	371.62	1,774.00	19.65	1.66	9.14	10.75	18.40
	2014	18.00	368.11	29.96	8.14	218.25	404.53	1,854.00	20.07	1.38	7.58	11.79	21.12
	2015	18.00	334.83	20.49	6.12	201.90	366.84	1,817.00	19.39	1.13	6.39	11.44	18.63
	2016	19.00	336.34	20.44	6.08	203.50	391.73	1,925.00	19.40	1.07	6.41	10.80	20.15
	2017	19.00	321.23	18.52	5.76	204.58	480.18	2,347.00	15.27	0.88	6.08	10.09	24.52
	2018	19.00	327.62	22.92	7.00	200.73	491.06	2,446.00	16.97	1.13	5.80	10.76	24.48
	2019	20.00	327.36	23.64	7.22	200.66	419.86	2,092.00	15.54	1.07	7.27	9.21	18.50
	2020	19.00	320.69	23.39	7.29	199.86	344.25	1,722.00	16.99	1.17	6.88	11.03	17.35
	2021	20.00	296.91	25.70	8.66	170.95	269.44	1,576.00	14.87	1.13	8.59	8.55	15.55

Note All dollar values are inflation-adjusted to 2021, -equivalent value. Fleet aggregate discard rate represents total discarded catch as a percentage of total retained catch. Amendment 80 target species are: Atka mackerel, yellowfin sole, flathead sole, rock sole, Pacific Ocean perch, and Pacific cod.
Source Catch and discard statistics sourced from NMFS Alaska Region Catch Accounting System data, and production volume statistics are sourced from NMFS Alaska Region At-Sea Production Reporting system data, with production value estimated using average species/product per-unit prices sourced from ADFG Commercial Operators Annual Report (COAR) data; source data and compilation are provided by the Alaska Fisheries Information Network (AKFIN).

9.4 Operating Income, Costs, and Capital Expenditures

The following section provides a brief summary of the economic performance of the Amendment 80 sector over the 14-year period since implementation of Amendment 80 in 2008, in terms of sector/fleet and median vessel-level statistics for annual gross revenues, annual operating expenses, net operating income calculations, and capital investment expenditures. The analysis is limited to reporting summarized results calculated from available revenue and cost data, and does not currently encompass a broader analytical assessment of trends in reported outcomes and causal factors driving economic and financial performance of the sector.

9.4.1 Revenues

Figure 9.7 and Table 9.8 present a summary of annual revenues for the Amendment 80 sector (including all Amendment 80 LLP holders and QS entities), by revenue source. Fishery product sales clearly represent the principal source of revenue for the sector, and in 2021, exhibited the worst annual performance in the 14-year period. Annual aggregate product sales for the year declined 16%, to $270 million, previously ranging from $297 million to $485 million; sales revenue for the median member of the sector was $15.9 million, the lowest level since 2008. Total reported volume of finished product sales for the sector during 2021 was 162 thousand *t*, a 15% decline from 2020.

In comparison, fee-for-services revenue earned by vessels (e.g., charters, tendering, cargo transport) and royalties received from leasing QS and other fishery allocations both represent minor sources of revenue, and revenue from fishery permit sales reported in EDR data has been negligible. [9] Royalty revenues represent a small proportion of annual operating revenue for the sector due to the relatively inactive QS lease market compared to other catch shares programs. [10] The volume of QS lease activity has consistently declined since the high point in 2016, when 20.3 thousand *t* were leased, earning lease royalties of $8.37 million; in 2021, Amendment 80 QS lease activity declined for the fifth consecutive year, however, with only four QS holders reporting QS lease income in 2020 and 2021, values are not reported for these years to protect confidentiality.[11]

[9] As of 2021, only one Amendment 80 entity has reported revenue from permanent sale of LLP license assets in an annual EDR (not shown in Table 9.8; other LLP sale transfers have occurred, but were associated with exit of the entity from the Amendment 80 sector and thus are not captured in EDR submissions that apply only to current sector entities.

[10] Fleet consolidation was not a management objective in developing Amendment 80 given the limited number of CPs comprising the fleet historically, most of which continue to be active in the fishery to-date. As a result, leasing activity of QS and other transferable allocations within the fishery has been limited compared to other catch-shares management programs in Alaska fisheries (e.g., BSAI Crab Rationalization, Halibut IFQ) where consolidation was a prominent management outcome facilitated by introduction of transferable quota. In addition, most of the companies that hold A80 QS operate multiple vessels and primarily effect QS transfers internally. The number of QS permit holders (lessors) reporting revenue from leasing QS for a given Amendment 80 target species has ranged from zero (0) to as many as 9, while the number of vessels reporting costs (lessees) for QS allocation from Amendment 80 QS permit holders ranges from 0 to 8; due to the small number of entities reporting lease activity, little useful information regarding quota lease markets for individual species can be reported. The most active lease market to-date has occurred in yellowfin sole QS beginning in 2011, however, non-confidential data can only be published for 2014, a total of 18 thousand *t* of yellowfin sole QS was transferred between QS holders and harvesting vessels, for a total of $1.3 million, or approximately $70 per *t* (nominal 2014 value).

[11] Annual revenue and quantities are aggregated over all species QS allocation and PSC lease data reported, and composition of the aggregate varies from year-to-year; as such, the aggregate value of royalty revenue shown for different years may not track closely with aggregate lease volume. The decline of quota lease volume and revenue

9.4.2 Operating expenses

Figures 9.8 and 9.9, respectively, summarize sector-level aggregate annual expenses incurred by Amendment 80 CPs from 2008 to 2021 as operating costs for all fishing and processing activity, by expense item, and pro-rata indices by category of expense item in terms of 1) cost per day of vessel operation, 2) cost per thousand t of finished product output, 3) item cost as a proportion of total vessel expenses, and 4) as a proportion of total vessel gross revenue. The figures summarize statistics reported in Table 9.9 representing aggregated results for the fleet as a whole, while Table 9.10 provides results on a median per-vessel basis. Operating expenses are grouped into the following categories: *labor costs* (including crew share, wages, and payroll taxes for deck crews, processing employees, and for officers and all other on-board personnel, and all benefits, travel, recruitment, and other labor-related expenses); *vessel costs* (repair and maintenance, fishing gear, equipment leases, and associated freight costs); *materials* (fuel, lubrication and fluids, food and provisions, production and packaging materials, and raw fish purchases); *fees* (fishery landing taxes, cooperative costs (which includes cost-recovery fees assessed by NMFS on A80 cooperatives), observer fees, and QS and other permit lease costs); and *overhead* (general administrative costs, insurance, and product and other freight services). It should be noted that the categorized expenses constitute the majority of operating costs incurred, but are not inclusive of all annual expenses, notably excluding financial expenses (e.g., interest and principal payments, asset depreciation), which accrue to annual overhead expenses, do not tend to vary directly relative to annual operation and production cost, and primarily reflect annualized payments on prior years' capitalized purchases. As such, statistics reporting aggregate annual operating expenses herein represent a close lower-bound approximation of annual operating costs of production within the fleet, and a less-inclusive lower bound index of total (variable and fixed) annual expenses. The cost per day and cost per thousand t pro-rata indices shown in Figure 9.8 and Tables 9.10 and 9.11 provide relative indices of cost per unit of vessel effort and production output, respectively, and are most relevant for those input costs that vary most directly with production level, particularly fishing crew and processing labor costs, material expenses, and (somewhat less directly) vessel costs.

over recent years is largely the result of sale transfers of QS assets associated with the exit of Fishing Company of Alaska from the Amendment 80 sector and consolidation of QS allocation.

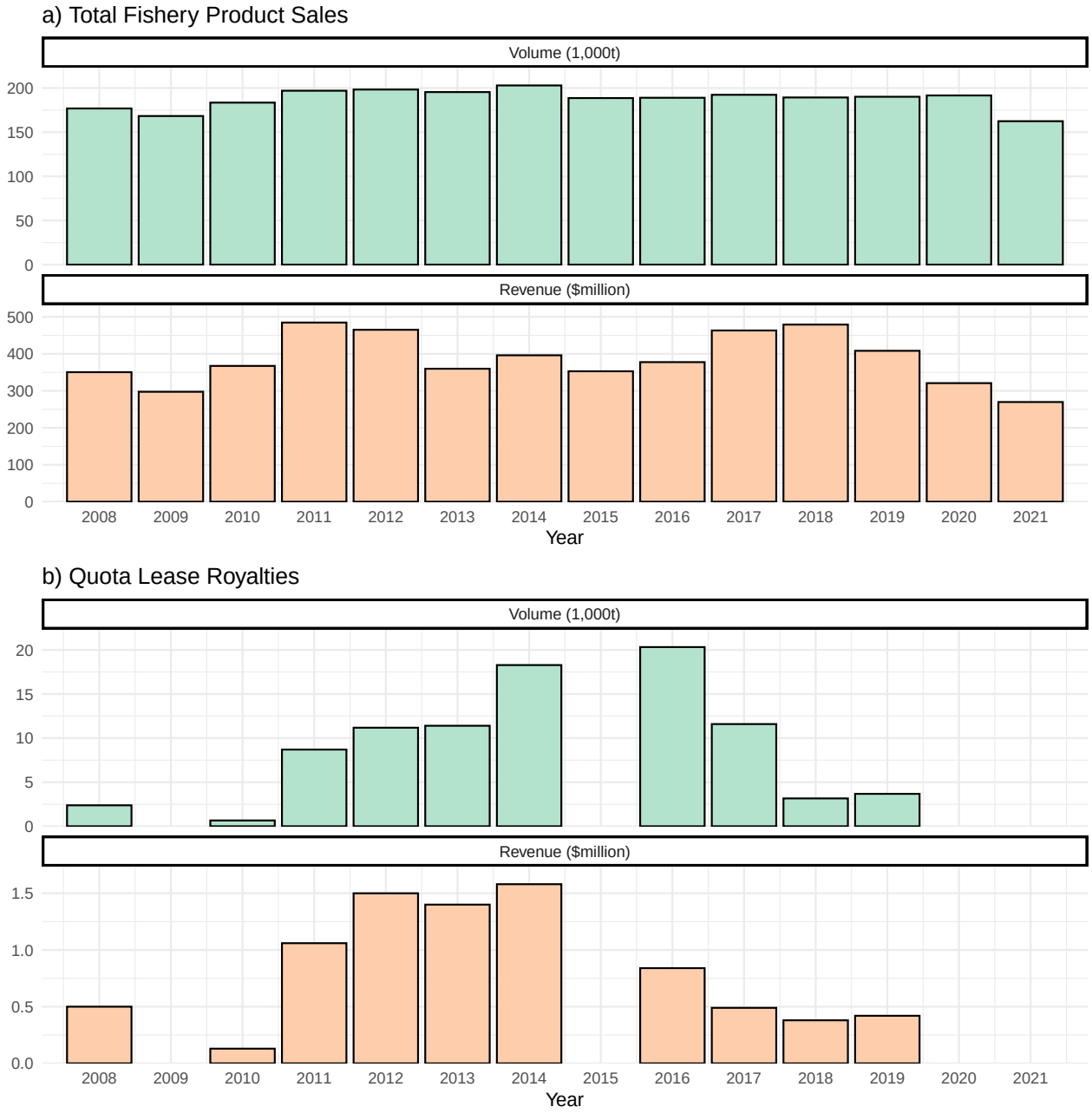

Figure 9.7: Amendment 80 Sector Annual Revenue from All Sources, including Volume and Value of Total Fishery Product Sales Quota Royalties.

NoteTabular data shown in Table 9.8.

Table 9.8: Amendment 80 Sector Annual Revenue from All Sources, including Volume and Value of Total Fishery Product Sales, Other Vessel Income, and Quota Royalties

			Total		Median	
		LLPs	Revenue ($Million)	Volume (1,000t)	Revenue ($Million)	Volume (1,000t)
Total Fishery Product Sales	2008	22	$ 350.45	176.85	$ 15.64	7.47
	2009	21	$ 297.46	168.31	$ 13.29	8.45
	2010	20	$ 367.37	183.48	$ 16.87	9.76
	2011	20	$ 484.64	196.97	$ 23.70	10.17
	2012	20	$ 465.15	198.31	$ 22.32	9.39
	2013	18	$ 359.75	195.42	$ 18.18	10.38
	2014	18	$ 396.13	202.93	$ 20.51	10.65
	2015	18	$ 352.86	188.63	$ 17.95	10.58
	2016	19	$ 377.65	188.98	$ 18.51	9.96
	2017	19	$ 463.22	192.33	$ 21.90	9.50
	2018	19	$ 479.16	189.32	$ 25.80	10.29
	2019	20	$ 408.24	190.11	$ 18.23	8.55
	2020	19	$ 320.82	191.59	$ 18.80	10.60
	2021	19	$ 269.70	162.43	$ 15.86	8.17
Quota Lease Royalties	2008	6	$ 0.50	2.38	$ 0.02	0.17
	2009	3	*	*	*	*
	2010	6	$ 0.13	0.66	$ 0.02	0.10
	2011	10	$ 1.06	8.70	$ 0.05	0.32
	2012	10	$ 1.50	11.18	$ 0.09	0.65
	2013	7	$ 1.40	11.40	$ 0.24	2.00
	2014	8	$ 1.58	18.28	$ 0.23	2.85
	2015	4	*	*	*	*
	2016	5	$ 0.84	20.32	$ 0.21	5.07
	2017	5	$ 0.49	11.59	$ 0.11	1.56
	2018	6	$ 0.38	3.16	$ 0.01	0.60
	2019	5	$ 0.42	3.68	$ 0.09	0.36
	2020	4	*	*	*	*
	2021	4	*	*	*	*
Other Income From Vessel Operations	2008	0	$ 0.00	-	-	-
	2009	0	$ 0.00	-	-	-
	2010	1	*	-	*	-
	2011	0	$ 0.00	-	-	-
	2012	1	*	-	*	-
	2013	1	*	-	*	-
	2014	0	$ 0.00	-	-	-
	2015	0	$ 0.00	-	-	-
	2016	0	$ 0.00	-	-	-
	2017	0	$ 0.00	-	-	-
	2018	0	$ 0.00	-	-	-
	2019	0	$ 0.00	-	-	-
	2020	0	$ 0.00	-	-	-
	2021	0	$ 0.00	-	-	-

Note All dollar values are inflation-adjusted to 2021, -equivalent value. Fleet aggregate catch and production volumes are shown in 1000s of metric tons(t), and fleet aggregate and median revenue values are shown in $million. ''*'' indicates value is suppressed for confidentiality. Revenue statistics include all Amendment 80 entities that reported revenue from the respective sources, including Amendment 80 LLP holders that did not actively fish or process on the associated vessel during the reporting year but received revenue from QS lease royalties, vessel services, and/or sales of inventory produced during a prior year. Revenue from sale of LLP licenses is not shown due to confidential data restrictions.
Source Amendment 80 Economic Data Reports.

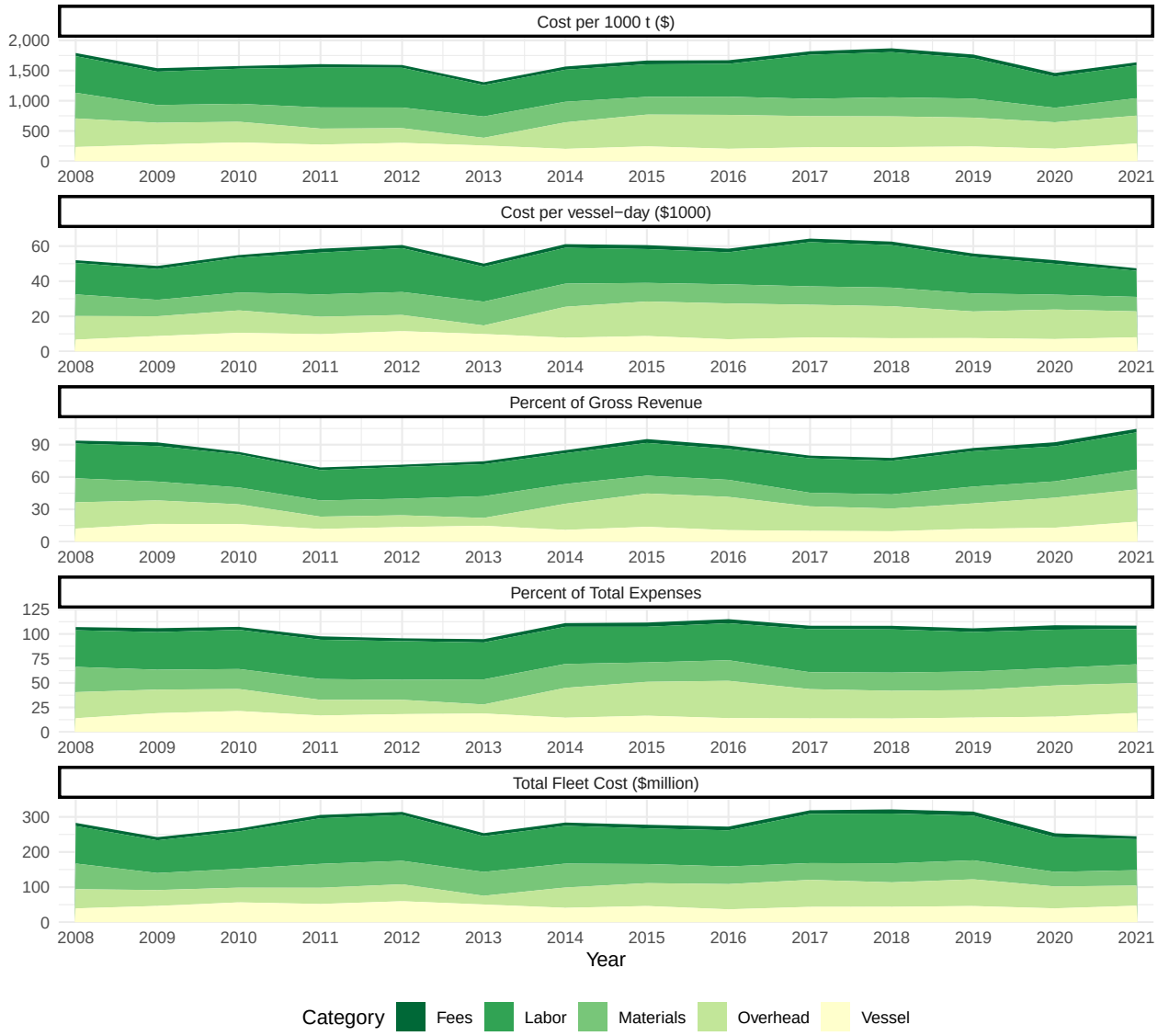

Figure 9.8: Amendment 80 sector operating cost indices, by category and year.

Note Tabular data shown in Table 9.9.

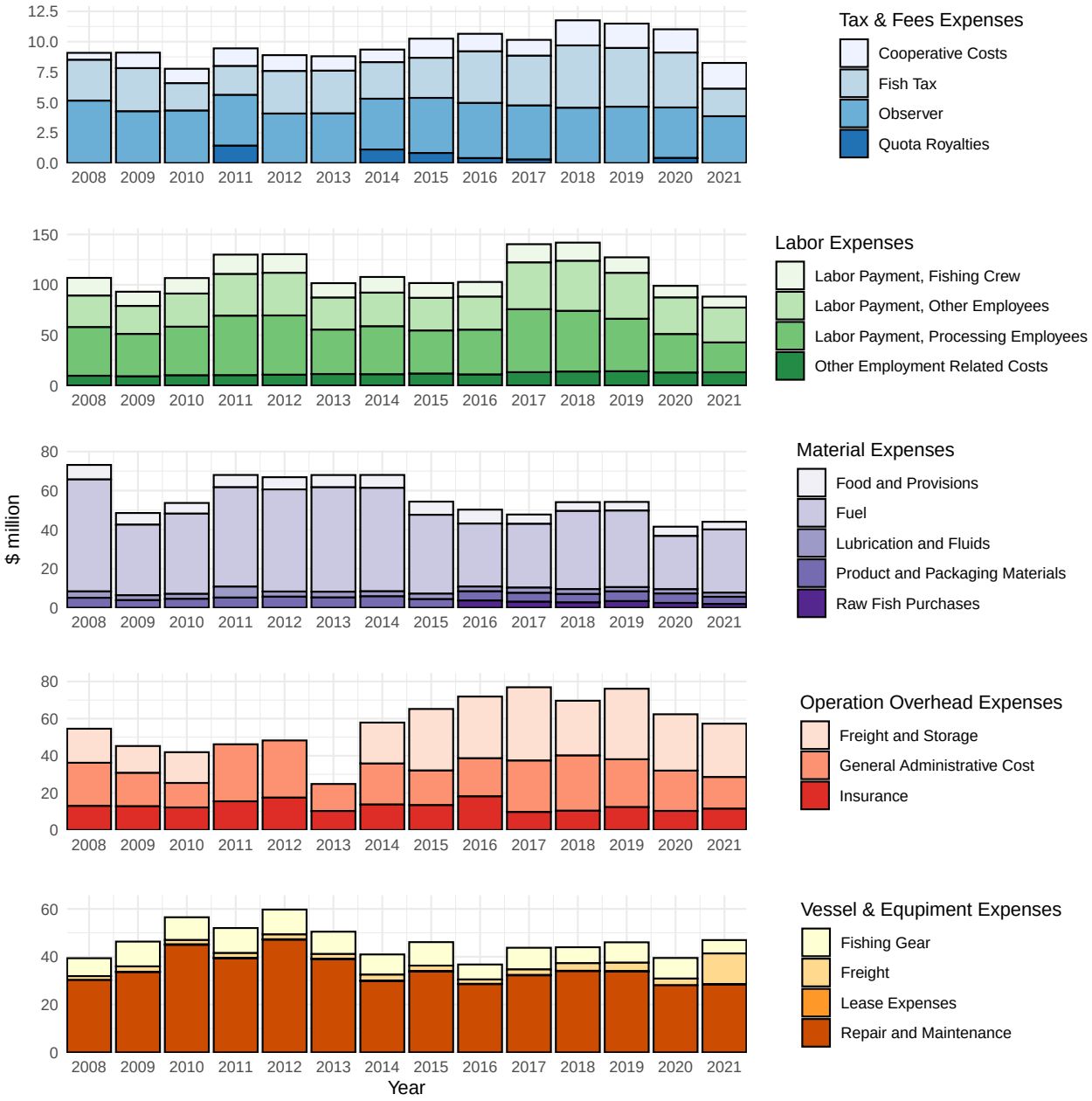

Figure 9.9: Amendment 80 sector aggregate operating costs, by item, category, and year.

Note Tabular data shown in Table 9.9.

Aggregate operating and overhead expenses for the active fleet during 2021 totaled $258 million, a slight decline from 2020, and approaching the lowest level of the period. As depicted in Figure 9.9, combined labor costs (including direct wages and bonuses, payroll taxes, benefits, and travel and recruitment expenses incurred for all members of the vessel's paid fishing and processing crew and other on-vessel labor) consistently represent the largest component of annual expenses in total direct value and pro-rata terms, with taxes and fees, as a category, representing the smallest component. As categories of expenses, vessel-, materials-, and overhead expenses have alternated in relative ordering over the 2008 to 2021 period. Between 2013 and 2019, however, overhead costs as measured across all calculated indices generally trended upward, while vessel and

materials expenses generally trended downward over the same period.

Combined labor costs increased substantially during 2017-2018, to approximately $149 million, representing 44% of total fleet operating costs for both years, before subsequently declining over subsequent years, to $93 million in 2021 (36% of total operating expenses), the lowest level of the period. The largest year-on-year decline in 2021 fleet-level labor costs were in direct wage costs for processing labor, which declined 22% to $21 million, while direct wage costs for senior vessel crew (including captains, other vessel officers, and engineers (labeled "Other employees' ' in Figure 9.9 and Tables 9.9 and 9.10) declined by a relatively modest 4.7%, to $37 million, displacing processing labor as the largest component of labor costs for the first time, and at 14.2% of total 2021 aggregate operating expenses, representing the second largest single expense item, slightly greater than fuel costs. Notably, other non-wage employment-related expenses showed a small (1.6%) year-on-year proportional increase in 2021, after having declined substantially in 2020, the first year when covid-19 pandemic measures might have been expected to increase employment-related operating costs.

As shown in Figure~9.9 and Tables 9.9 and 9.10, processing labor costs proportionally represent the single largest expense item in most years, ranging from 15% to 20% of total operating cost. However, since 2019, Freight and Storage costs (under the Overhead category) have been the largest single category of operating costs, with $28 million in aggregate representing 18% of total annual operating expenses. [12] As noted above, senior vessel crew labor costs surpassed processing labor costs for the first time in 2021, to become the second largest operating expense proportionally. This was followed by fuel costs, which historically range more variably, from 10% to 20% of aggregate fleet-level expenses; after a period of declining fuel costs between 2014 to 2017, fuel costs for the fleet increased to $40 million in 2018 and $39 million in 2019. After a substantial decline in 2020 to $27 million, the lowest annual total for fuel cost to-date, fuel cost partially rebounded in 2021, to $32 million; at 13% of total 2021 operating cost, this ranked as the third largest individual expense item for the year.

Repair and maintenance expenses of $28 million in 2021, aggregated across the fleet, represented approximately 11% of overall costs, on par with direct processing labor costs. With successive annual growth in product freight/storage and general administrative costs as a proportion of total annual expenses beginning in 2014, concurrent with proportionately declining fuel costs, at 20% of total annual expenses in 2021, overhead expenses as a category have displaced material expenses as the second largest category at both the fleet and median vessel levels, behind labor costs.

Ownership restructuring among vessels and firms within the Amendment 80 sector during the most recent three years, as noted above, are likely to have generated substantial transitional costs, as reflected in annual expense statistics reported for the year at both the fleet- and vessel-level. As a result of adjustment to recent structural changes within the Amendment 80 sector, notwithstanding any further changes in ownership and/or fleet composition, these elevated transitional costs appear to have tapered off somewhat in 2021 and may continue to over the next few years. It should be noted, however, that some of the transitional variation in annual expenses shown in Figures 9.9 and~9.8, and Tables 9.9 and 9.10, reflects redistribution of costs between expense categories as reported in EDR data, and likely result in part from changing business structures and/or accounting practices associated with shifting ownership.

[12]Note that EDR data on product freight and storage costs are somewhat irregular, with fewer than one-half of the active vessels in the fleet reporting a value for this expense item during years 2008 to 2014 (as indicated in Table 9.9), and reported values in successive years for a given vessel ranging from $0 to more than $1 million.

Table 9.9: Fleet Aggregate Operating Expenses, by Category and Year

Category		Year	Vessels	Total Fleet Cost ($Million)	Percent Of Total Expenses	Percent Of Gross Revenue	Cost Per Vessel-Day ($1000)	Cost Per 1000 T ($)
Labor	Labor Payment, Fishing Crew	2008	22	$ 17.67	6.15 %	5.31 %	$ 2.92	$ 99.92
		2009	21	$ 14.20	5.86 %	5.03 %	$ 2.67	$ 84.37
		2010	20	$ 15.44	5.79 %	4.43 %	$ 2.87	$ 84.15
		2011	20	$ 19.35	5.97 %	4.20 %	$ 3.56	$ 98.25
		2012	20	$ 18.51	5.60 %	4.19 %	$ 3.55	$ 93.31
		2013	18	$ 14.41	5.35 %	4.21 %	$ 2.82	$ 73.75
		2014	18	$ 15.60	5.49 %	4.14 %	$ 2.96	$ 76.88
		2015	18	$ 14.73	5.27 %	4.40 %	$ 2.79	$ 78.10
		2016	19	$ 14.69	5.40 %	4.10 %	$ 2.62	$ 77.75
		2017	19	$ 18.19	5.70 %	4.14 %	$ 3.27	$ 94.57
		2018	19	$ 18.18	5.65 %	4.00 %	$ 3.10	$ 96.00
		2019	20	$ 15.54	4.93 %	4.01 %	$ 2.55	$ 81.72
		2020	19	$ 11.62	4.59 %	3.82 %	$ 2.07	$ 60.67
		2021	19	$ 10.92	4.46 %	4.27 %	$ 1.84	$ 67.25
	Labor Payment, Other Employees	2008	21	$ 31.33	11.13 %	9.53 %	$ 5.49	$ 179.45
		2009	21	$ 27.82	11.48 %	9.86 %	$ 5.24	$ 165.31
		2010	20	$ 32.95	12.35 %	9.46 %	$ 6.13	$ 179.57
		2011	20	$ 41.44	12.79 %	9.00 %	$ 7.61	$ 210.40
		2012	20	$ 42.36	12.82 %	9.59 %	$ 8.13	$ 213.61
		2013	18	$ 31.84	11.81 %	9.30 %	$ 6.24	$ 162.93
		2014	18	$ 33.50	11.80 %	8.89 %	$ 6.36	$ 165.10
		2015	18	$ 32.48	11.62 %	9.70 %	$ 6.16	$ 172.17
		2016	19	$ 32.87	12.07 %	9.16 %	$ 5.85	$ 173.94
		2017	19	$ 46.49	14.58 %	10.58 %	$ 8.36	$ 241.74
		2018	19	$ 49.70	15.45 %	10.93 %	$ 8.49	$ 262.53
		2019	20	$ 45.61	14.47 %	11.77 %	$ 7.49	$ 239.90
		2020	19	$ 36.37	14.35 %	11.95 %	$ 6.48	$ 189.83
		2021	19	$ 34.65	14.15 %	13.53 %	$ 5.85	$ 213.32
	Labor Payment, Processing Employees	2008	22	$ 48.24	16.80 %	14.50 %	$ 7.97	$ 272.78
		2009	21	$ 41.98	17.32 %	14.88 %	$ 7.91	$ 249.43
		2010	20	$ 48.13	18.05 %	13.82 %	$ 8.96	$ 262.33
		2011	20	$ 58.95	18.20 %	12.80 %	$ 10.83	$ 299.26
		2012	20	$ 58.82	17.80 %	13.31 %	$ 11.29	$ 296.59
		2013	18	$ 44.04	16.34 %	12.86 %	$ 8.63	$ 225.36
		2014	18	$ 47.49	16.73 %	12.60 %	$ 9.01	$ 234.04
		2015	18	$ 42.65	15.26 %	12.74 %	$ 8.09	$ 226.08
		2016	19	$ 44.28	16.26 %	12.34 %	$ 7.88	$ 234.30
		2017	19	$ 62.49	19.60 %	14.22 %	$ 11.23	$ 324.90
		2018	19	$ 60.15	18.70 %	13.23 %	$ 10.27	$ 317.74
		2019	20	$ 52.04	16.50 %	13.43 %	$ 8.55	$ 273.71
		2020	19	$ 38.05	15.02 %	12.50 %	$ 6.78	$ 198.58
		2021	19	$ 29.57	12.07 %	11.55 %	$ 4.99	$ 182.07
	Other Employment Related Costs	2008	22	$ 9.63	3.35 %	2.89 %	$ 1.59	$ 54.43
		2009	21	$ 9.12	3.76 %	3.23 %	$ 1.72	$ 54.17
		2010	20	$ 10.16	3.81 %	2.92 %	$ 1.89	$ 55.37
		2011	20	$ 10.23	3.16 %	2.22 %	$ 1.88	$ 51.91
		2012	20	$ 10.67	3.23 %	2.41 %	$ 2.05	$ 53.81
		2013	18	$ 11.33	4.20 %	3.31 %	$ 2.22	$ 57.97
		2014	18	$ 11.16	3.93 %	2.96 %	$ 2.12	$ 55.00
		2015	18	$ 11.84	4.23 %	3.54 %	$ 2.24	$ 62.74
		2016	19	$ 10.96	4.02 %	3.05 %	$ 1.95	$ 57.98
		2017	19	$ 13.16	4.13 %	2.99 %	$ 2.37	$ 68.43
		2018	19	$ 13.85	4.30 %	3.05 %	$ 2.37	$ 73.15
		2019	20	$ 14.09	4.47 %	3.64 %	$ 2.31	$ 74.11
		2020	19	$ 12.88	5.08 %	4.23 %	$ 2.29	$ 67.20
		2021	19	$ 13.09	5.34 %	5.11 %	$ 2.21	$ 80.56
	Fishing Gear	2008	19	$ 7.48	2.87 %	2.52 %	$ 1.44	$ 53.49
		2009	21	$ 10.38	4.28 %	3.68 %	$ 1.95	$ 61.66
		2010	20	$ 9.54	3.58 %	2.74 %	$ 1.78	$ 52.00
		2011	20	$ 10.47	3.23 %	2.27 %	$ 1.92	$ 53.15
		2012	19	$ 10.42	3.17 %	2.36 %	$ 2.01	$ 52.55
		2013	18	$ 9.35	3.47 %	2.73 %	$ 1.83	$ 47.84
		2014	18	$ 8.45	2.98 %	2.24 %	$ 1.60	$ 41.66
		2015	18	$ 9.83	3.52 %	2.94 %	$ 1.87	$ 52.13
		2016	14	$ 6.27	2.84 %	2.14 %	$ 1.47	$ 42.48
		2017	19	$ 9.08	2.85 %	2.07 %	$ 1.63	$ 47.21
		2018	19	$ 6.68	2.08 %	1.47 %	$ 1.14	$ 35.29
		2019	20	$ 8.54	2.71 %	2.20 %	$ 1.40	$ 44.91
		2020	19	$ 8.63	3.41 %	2.84 %	$ 1.54	$ 45.06
		2021	18	$ 5.60	2.34 %	2.23 %	$ 1.00	$ 35.28

Table 9.9: Fleet Aggregate Operating Expenses, by Category and Year *(continued)*

Category		Year	Vessels	Total Fleet Cost ($Million)	Percent Of Total Expenses	Percent Of Gross Revenue	Cost Per Vessel-Day ($1000)	Cost Per 1000 T ($)
Vessel	Freight	2008	22	$ 1.65	0.58 %	0.50 %	$ 0.27	$ 9.35
		2009	21	$ 2.25	0.93 %	0.80 %	$ 0.42	$ 13.37
		2010	20	$ 1.82	0.68 %	0.52 %	$ 0.34	$ 9.92
		2011	20	$ 2.02	0.62 %	0.44 %	$ 0.37	$ 10.26
		2012	20	$ 2.02	0.61 %	0.46 %	$ 0.39	$ 10.18
		2013	18	$ 2.00	0.74 %	0.58 %	$ 0.39	$ 10.23
		2014	18	$ 2.52	0.89 %	0.67 %	$ 0.48	$ 12.42
		2015	18	$ 2.39	0.85 %	0.71 %	$ 0.45	$ 12.66
		2016	19	$ 1.84	0.67 %	0.51 %	$ 0.33	$ 9.72
		2017	17	$ 2.33	0.81 %	0.58 %	$ 0.47	$ 13.36
		2018	19	$ 3.18	0.99 %	0.70 %	$ 0.54	$ 16.79
		2019	20	$ 3.56	1.13 %	0.92 %	$ 0.58	$ 18.72
		2020	19	$ 2.80	1.11 %	0.92 %	$ 0.50	$ 14.63
		2021	19	$ 12.79	5.22 %	5.00 %	$ 2.16	$ 78.76
	Lease Expenses	2008	1	*	*	*	*	*
		2009	5	$ 0.06	0.08 %	0.06 %	$ 0.04	$ 1.06
		2010	6	$ 0.16	0.19 %	0.13 %	$ 0.09	$ 2.49
		2011	7	$ 0.10	0.13 %	0.08 %	$ 0.05	$ 1.93
		2012	8	$ 0.12	0.13 %	0.08 %	$ 0.06	$ 1.90
		2013	6	$ 0.08	0.11 %	0.07 %	$ 0.05	$ 1.34
		2014	5	$ 0.11	0.14 %	0.10 %	$ 0.07	$ 1.99
		2015	5	$ 0.03	0.05 %	0.04 %	$ 0.02	$ 0.67
		2016	7	$ 0.08	0.11 %	0.08 %	$ 0.04	$ 1.38
		2017	9	$ 0.10	0.07 %	0.05 %	$ 0.04	$ 1.17
		2018	9	$ 0.09	0.07 %	0.04 %	$ 0.03	$ 1.11
		2019	7	$ 0.13	0.11 %	0.08 %	$ 0.06	$ 1.79
		2020	4	*	*	*	*	*
		2021	5	$ 0.14	0.23 %	0.19 %	$ 0.10	$ 3.55
	Repair And Maintenance	2008	22	$ 30.24	10.53 %	9.09 %	$ 5.00	$ 171.02
		2009	21	$ 33.64	13.88 %	11.93 %	$ 6.34	$ 199.87
		2010	20	$ 44.99	16.87 %	12.92 %	$ 8.37	$ 245.21
		2011	19	$ 39.40	12.80 %	8.99 %	$ 7.52	$ 209.14
		2012	20	$ 47.16	14.27 %	10.67 %	$ 9.05	$ 237.79
		2013	18	$ 39.04	14.49 %	11.40 %	$ 7.65	$ 199.78
		2014	18	$ 29.87	10.52 %	7.92 %	$ 5.67	$ 147.18
		2015	18	$ 33.86	12.11 %	10.11 %	$ 6.42	$ 179.47
		2016	19	$ 28.56	10.49 %	7.96 %	$ 5.09	$ 151.12
		2017	19	$ 32.24	10.11 %	7.33 %	$ 5.80	$ 167.60
		2018	19	$ 34.02	10.58 %	7.49 %	$ 5.81	$ 179.72
		2019	20	$ 33.80	10.72 %	8.73 %	$ 5.55	$ 177.79
		2020	19	$ 28.05	11.07 %	9.21 %	$ 5.00	$ 146.42
		2021	19	$ 28.43	11.61 %	11.10 %	$ 4.80	$ 175.01
	Food And Provisions	2008	19	$ 7.45	2.86 %	2.52 %	$ 1.43	$ 53.33
		2009	18	$ 5.99	2.78 %	2.38 %	$ 1.34	$ 40.71
		2010	17	$ 5.47	2.34 %	1.79 %	$ 1.21	$ 34.70
		2011	17	$ 6.30	2.18 %	1.57 %	$ 1.38	$ 37.42
		2012	17	$ 6.25	2.13 %	1.63 %	$ 1.44	$ 36.74
		2013	15	$ 6.29	2.69 %	2.15 %	$ 1.49	$ 37.78
		2014	15	$ 6.62	2.77 %	2.03 %	$ 1.53	$ 38.11
		2015	15	$ 6.75	2.81 %	2.30 %	$ 1.56	$ 41.69
		2016	16	$ 7.15	3.05 %	2.23 %	$ 1.51	$ 43.61
		2017	14	$ 4.80	2.02 %	1.43 %	$ 1.16	$ 32.35
		2018	14	$ 4.53	1.96 %	1.33 %	$ 1.04	$ 31.86
		2019	17	$ 4.45	1.68 %	1.39 %	$ 0.86	$ 27.69
		2020	16	$ 4.76	2.27 %	1.92 %	$ 1.02	$ 30.63
		2021	16	$ 3.93	1.92 %	1.86 %	$ 0.78	$ 28.55
	Fuel	2008	22	$ 57.34	19.97 %	17.24 %	$ 9.48	$ 324.26
		2009	21	$ 36.17	14.92 %	12.82 %	$ 6.81	$ 214.92
		2010	20	$ 41.11	15.41 %	11.80 %	$ 7.65	$ 224.08
		2011	20	$ 50.91	15.72 %	11.06 %	$ 9.35	$ 258.45
		2012	20	$ 52.32	15.83 %	11.84 %	$ 10.04	$ 263.82
		2013	18	$ 53.50	19.85 %	15.63 %	$ 10.48	$ 273.75
		2014	18	$ 52.99	18.66 %	14.05 %	$ 10.06	$ 261.10
		2015	18	$ 40.41	14.46 %	12.07 %	$ 7.66	$ 214.21
		2016	19	$ 32.27	11.85 %	8.99 %	$ 5.75	$ 170.75
		2017	19	$ 32.66	10.24 %	7.43 %	$ 5.87	$ 169.83
		2018	19	$ 40.04	12.45 %	8.81 %	$ 6.84	$ 211.49
		2019	20	$ 39.20	12.43 %	10.12 %	$ 6.44	$ 206.22
		2020	19	$ 27.28	10.77 %	8.96 %	$ 4.86	$ 142.40
		2021	19	$ 32.38	13.22 %	12.65 %	$ 5.47	$ 199.36

Table 9.9: Fleet Aggregate Operating Expenses, by Category and Year *(continued)*

Category		Year	Vessels	Total Fleet Cost ($Million)	Percent Of Total Expenses	Percent Of Gross Revenue	Cost Per Vessel-Day ($1000)	Cost Per 1000 T ($)
Materials	Lubrication And Fluids	2008	22	$ 3.27	1.14 %	0.98 %	$ 0.54	$ 18.48
		2009	21	$ 2.50	1.03 %	0.89 %	$ 0.47	$ 14.84
		2010	20	$ 2.56	0.96 %	0.73 %	$ 0.48	$ 13.93
		2011	20	$ 5.60	1.73 %	1.22 %	$ 1.03	$ 28.43
		2012	19	$ 2.64	0.80 %	0.60 %	$ 0.51	$ 13.29
		2013	18	$ 2.93	1.09 %	0.86 %	$ 0.57	$ 15.00
		2014	18	$ 2.58	0.91 %	0.69 %	$ 0.49	$ 12.73
		2015	18	$ 2.81	1.00 %	0.84 %	$ 0.53	$ 14.87
		2016	19	$ 2.44	0.90 %	0.68 %	$ 0.43	$ 12.91
		2017	19	$ 2.70	0.85 %	0.61 %	$ 0.49	$ 14.04
		2018	19	$ 2.50	0.78 %	0.55 %	$ 0.43	$ 13.23
		2019	20	$ 2.20	0.70 %	0.57 %	$ 0.36	$ 11.58
		2020	19	$ 2.21	0.87 %	0.73 %	$ 0.39	$ 11.53
		2021	19	$ 2.11	0.86 %	0.82 %	$ 0.36	$ 12.99
	Product And Packaging Materials	2008	22	$ 5.08	1.77 %	1.53 %	$ 0.84	$ 28.70
		2009	21	$ 3.87	1.60 %	1.37 %	$ 0.73	$ 23.00
		2010	20	$ 4.52	1.70 %	1.30 %	$ 0.84	$ 24.66
		2011	20	$ 5.19	1.60 %	1.13 %	$ 0.95	$ 26.36
		2012	20	$ 5.65	1.71 %	1.28 %	$ 1.08	$ 28.50
		2013	18	$ 5.25	1.95 %	1.53 %	$ 1.03	$ 26.85
		2014	18	$ 5.82	2.05 %	1.54 %	$ 1.11	$ 28.69
		2015	18	$ 4.38	1.57 %	1.31 %	$ 0.83	$ 23.20
		2016	19	$ 4.71	1.73 %	1.31 %	$ 0.84	$ 24.93
		2017	19	$ 4.54	1.42 %	1.03 %	$ 0.82	$ 23.59
		2018	19	$ 4.33	1.34 %	0.95 %	$ 0.74	$ 22.85
		2019	20	$ 4.97	1.58 %	1.28 %	$ 0.82	$ 26.14
		2020	19	$ 4.81	1.90 %	1.58 %	$ 0.86	$ 25.08
		2021	19	$ 3.71	1.51 %	1.45 %	$ 0.63	$ 22.83
	Raw Fish Purchases	2008	2	*	*	*	*	*
		2010	1	*	*	*	*	*
		2011	1	*	*	*	*	*
		2012	1	*	*	*	*	*
		2013	1	*	*	*	*	*
		2015	4	*	*	*	*	*
		2016	5	$ 3.68	3.50 %	2.62 %	$ 2.35	$ 49.20
		2017	5	$ 3.05	2.74 %	2.10 %	$ 2.14	$ 47.61
		2018	6	$ 2.68	2.03 %	1.48 %	$ 1.55	$ 36.00
		2019	7	$ 3.38	2.53 %	2.25 %	$ 1.76	$ 43.56
		2020	7	$ 2.45	2.08 %	1.96 %	$ 1.33	$ 30.81
		2021	6	$ 1.89	1.69 %	1.75 %	$ 1.02	$ 24.99
	Cooperative Costs	2008	16	$ 0.58	0.26 %	0.23 %	$ 0.13	$ 3.97
		2009	15	$ 1.28	0.69 %	0.61 %	$ 0.31	$ 10.06
		2010	14	$ 1.19	0.57 %	0.44 %	$ 0.29	$ 8.34
		2011	16	$ 1.46	0.57 %	0.41 %	$ 0.32	$ 9.27
		2012	16	$ 1.31	0.53 %	0.38 %	$ 0.31	$ 8.25
		2013	14	$ 1.19	0.55 %	0.44 %	$ 0.29	$ 7.58
		2014	14	$ 1.04	0.48 %	0.35 %	$ 0.25	$ 6.60
		2015	14	$ 1.58	0.73 %	0.62 %	$ 0.37	$ 10.60
		2016	15	$ 1.45	0.69 %	0.55 %	$ 0.32	$ 9.52
		2017	18	$ 1.31	0.45 %	0.33 %	$ 0.25	$ 7.44
		2018	19	$ 2.07	0.64 %	0.45 %	$ 0.35	$ 10.92
		2019	20	$ 2.01	0.64 %	0.52 %	$ 0.33	$ 10.56
		2020	19	$ 1.92	0.76 %	0.63 %	$ 0.34	$ 10.03
		2021	19	$ 2.13	0.87 %	0.83 %	$ 0.36	$ 13.09
	Fish Tax	2008	22	$ 3.36	1.17 %	1.01 %	$ 0.56	$ 18.99
		2009	21	$ 3.56	1.47 %	1.26 %	$ 0.67	$ 21.18
		2010	20	$ 2.26	0.85 %	0.65 %	$ 0.42	$ 12.32
		2011	20	$ 2.38	0.74 %	0.52 %	$ 0.44	$ 12.10
		2012	20	$ 3.50	1.06 %	0.79 %	$ 0.67	$ 17.64
		2013	18	$ 3.52	1.31 %	1.03 %	$ 0.69	$ 18.04
		2014	18	$ 3.01	1.06 %	0.80 %	$ 0.57	$ 14.82
		2015	18	$ 3.30	1.18 %	0.98 %	$ 0.63	$ 17.48
		2016	19	$ 4.25	1.56 %	1.18 %	$ 0.76	$ 22.49
		2017	19	$ 4.10	1.28 %	0.93 %	$ 0.74	$ 21.30
		2018	19	$ 5.14	1.60 %	1.13 %	$ 0.88	$ 27.14
		2019	20	$ 4.84	1.54 %	1.25 %	$ 0.80	$ 25.48
		2020	19	$ 4.52	1.79 %	1.49 %	$ 0.81	$ 23.62
		2021	18	$ 2.26	0.95 %	0.90 %	$ 0.40	$ 14.27

Table 9.9: Fleet Aggregate Operating Expenses, by Category and Year *(continued)*

Category		Year	Vessels	Total Fleet Cost ($Million)	Percent Of Total Expenses	Percent Of Gross Revenue	Cost Per Vessel-Day ($1000)	Cost Per 1000 T ($)
Fees	Observer	2008	22	$ 5.14	1.79 %	1.54 %	$ 0.85	$ 29.04
		2009	21	$ 4.26	1.76 %	1.51 %	$ 0.80	$ 25.31
		2010	20	$ 4.32	1.62 %	1.24 %	$ 0.80	$ 23.53
		2011	20	$ 4.18	1.29 %	0.91 %	$ 0.77	$ 21.20
		2012	19	$ 4.08	1.24 %	0.92 %	$ 0.79	$ 20.56
		2013	18	$ 4.09	1.52 %	1.19 %	$ 0.80	$ 20.92
		2014	18	$ 4.18	1.47 %	1.11 %	$ 0.79	$ 20.61
		2015	18	$ 4.54	1.63 %	1.36 %	$ 0.86	$ 24.08
		2016	19	$ 4.54	1.67 %	1.26 %	$ 0.81	$ 24.01
		2017	19	$ 4.45	1.40 %	1.01 %	$ 0.80	$ 23.16
		2018	19	$ 4.55	1.41 %	1.00 %	$ 0.78	$ 24.03
		2019	20	$ 4.64	1.47 %	1.20 %	$ 0.76	$ 24.38
		2020	19	$ 4.16	1.64 %	1.37 %	$ 0.74	$ 21.73
		2021	19	$ 3.86	1.58 %	1.51 %	$ 0.65	$ 23.77
	Quota Royalties	2008	2	*	*	*	*	*
		2009	4	*	*	*	*	*
		2010	2	*	*	*	*	*
		2011	8	$ 1.43	0.86 %	0.61 %	$ 0.61	$ 14.58
		2012	4	*	*	*	*	*
		2013	3	*	*	*	*	*
		2014	8	$ 1.12	0.74 %	0.56 %	$ 0.45	$ 10.45
		2015	7	$ 0.83	0.73 %	0.61 %	$ 0.39	$ 10.55
		2016	9	$ 0.41	0.26 %	0.21 %	$ 0.15	$ 3.73
		2017	5	$ 0.29	0.30 %	0.25 %	$ 0.21	$ 5.68
		2018	4	*	*	*	*	*
		2019	2	*	*	*	*	*
		2020	9	$ 0.42	0.32 %	0.29 %	$ 0.14	$ 4.47
		2021	3	*	*	*	*	*
Overhead	Freight And Storage	2008	9	$ 18.33	14.02 %	13.49 %	$ 7.48	$ 268.79
		2009	10	$ 14.39	11.28 %	10.86 %	$ 5.48	$ 176.28
		2010	8	$ 16.56	12.04 %	10.14 %	$ 7.39	$ 189.38
		2011	4	*	*	*	*	*
		2012	4	*	*	*	*	*
		2013	4	*	*	*	*	*
		2014	7	$ 22.00	17.05 %	14.13 %	$ 10.11	$ 251.51
		2015	10	$ 33.08	19.91 %	18.20 %	$ 11.19	$ 299.76
		2016	10	$ 33.17	20.46 %	17.19 %	$ 10.86	$ 294.60
		2017	13	$ 39.40	16.43 %	12.57 %	$ 10.48	$ 284.42
		2018	10	$ 29.40	14.00 %	10.51 %	$ 10.01	$ 258.48
		2019	14	$ 37.97	16.02 %	13.72 %	$ 8.89	$ 276.61
		2020	10	$ 30.32	18.83 %	16.79 %	$ 10.93	$ 262.32
		2021	10	$ 28.71	17.96 %	17.66 %	$ 9.45	$ 271.55
	General Administrative Cost	2008	22	$ 23.28	8.11 %	7.00 %	$ 3.85	$ 131.62
		2009	21	$ 18.08	7.46 %	6.41 %	$ 3.40	$ 107.40
		2010	16	$ 13.19	5.87 %	4.71 %	$ 3.13	$ 86.49
		2011	16	$ 30.73	11.19 %	8.09 %	$ 7.07	$ 185.77
		2012	20	$ 30.81	9.32 %	6.97 %	$ 5.91	$ 155.35
		2013	18	$ 14.55	5.40 %	4.25 %	$ 2.85	$ 74.48
		2014	16	$ 22.16	8.30 %	6.27 %	$ 4.74	$ 116.35
		2015	11	$ 18.74	9.89 %	8.72 %	$ 5.97	$ 155.05
		2016	11	$ 20.61	10.93 %	8.61 %	$ 6.33	$ 170.94
		2017	15	$ 27.81	10.35 %	7.97 %	$ 6.42	$ 180.92
		2018	15	$ 29.86	11.04 %	8.26 %	$ 6.45	$ 195.29
		2019	20	$ 25.80	8.18 %	6.66 %	$ 4.24	$ 135.73
		2020	18	$ 21.73	8.93 %	7.67 %	$ 4.06	$ 121.49
		2021	16	$ 17.13	7.80 %	7.77 %	$ 3.36	$ 119.09
	Insurance	2008	22	$ 12.96	4.51 %	3.90 %	$ 2.14	$ 73.27
		2009	21	$ 12.79	5.28 %	4.54 %	$ 2.41	$ 76.02
		2010	20	$ 12.18	4.57 %	3.50 %	$ 2.27	$ 66.40
		2011	20	$ 15.47	4.78 %	3.36 %	$ 2.84	$ 78.53
		2012	20	$ 17.44	5.28 %	3.95 %	$ 3.35	$ 87.97
		2013	18	$ 10.26	3.81 %	3.00 %	$ 2.01	$ 52.52
		2014	17	$ 13.73	5.10 %	3.84 %	$ 2.75	$ 71.19
		2015	18	$ 13.39	4.79 %	4.00 %	$ 2.54	$ 70.99
		2016	19	$ 18.11	6.65 %	5.05 %	$ 3.22	$ 95.84
		2017	19	$ 9.69	3.04 %	2.20 %	$ 1.74	$ 50.38
		2018	19	$ 10.38	3.23 %	2.28 %	$ 1.77	$ 54.81
		2019	20	$ 12.33	3.91 %	3.18 %	$ 2.03	$ 64.87
		2020	19	$ 10.30	4.07 %	3.38 %	$ 1.84	$ 53.78
		2021	19	$ 11.47	4.68 %	4.48 %	$ 1.94	$ 70.59

Table 9.9: Fleet Aggregate Operating Expenses, by Category and Year *(continued)*

Category	Year	Vessels	Total Fleet Cost ($Million)	Percent Of Total Expenses	Percent Of Gross Revenue	Cost Per Vessel-Day ($1000)	Cost Per 1000 T ($)
All Annual Expenses	2008	22	$ 287.16	100.00 %	86.32 %	$ 47.46	$ 1,623.76
	2009	21	$ 242.45	100.00 %	85.96 %	$ 45.66	$ 1,440.51
	2010	20	$ 266.72	100.00 %	76.57 %	$ 49.65	$ 1,453.71
	2011	20	$ 323.93	100.00 %	70.36 %	$ 59.51	$ 1,644.57
	2012	20	$ 330.50	100.00 %	74.79 %	$ 63.42	$ 1,666.58
	2013	18	$ 269.51	100.00 %	78.73 %	$ 52.80	$ 1,379.16
	2014	18	$ 283.96	100.00 %	75.32 %	$ 53.89	$ 1,399.28
	2015	18	$ 279.52	100.00 %	83.51 %	$ 53.02	$ 1,481.83
	2016	19	$ 272.32	100.00 %	75.91 %	$ 48.49	$ 1,441.04
	2017	19	$ 318.90	100.00 %	72.55 %	$ 57.33	$ 1,658.05
	2018	19	$ 321.71	100.00 %	70.77 %	$ 54.94	$ 1,699.30
	2019	20	$ 315.28	100.00 %	81.39 %	$ 51.78	$ 1,658.41
	2020	19	$ 253.37	100.00 %	83.22 %	$ 45.14	$ 1,322.50
	2021	19	$ 244.94	100.00 %	95.68 %	$ 41.35	$ 1,507.98

Note All dollar values are inflation-adjusted to **r**current_yr‘, -equivalent value; aggregate fleet cost per expense item are shown in $million; cost per vessel day and cost per thousand t are prorated by fleet total number of days and t produced, representing average pro-rata values for the fleet, and are shown in $1000 per pro-rata unit. ’’*’’ indicates value is suppressed for confidentiality. Gross revenue values are inclusive of all reported fishery product sales, tendering and other for-hire vessel services, quota royalties and other permit/license leasing and sales realized during the year. Fleet-level pro-rata values by expense item are calculated using fleet aggregated cost values and pro-rata factors, respectively, and represent the weighted average (mean) for vessels within the fleet; cost per vessel-day is pro-rated over the number of days that each vessel was active (365 - days inactive), aggregated over all vessels; cost per thousand metric ton is pro-rated over aggregate fleet production output.
Source Amendment 80 Economic Data Reports.

Table 9.10: Vessel Operating Expenses, Median, by Category and Year

Category		Year	Vessels	Cost Per Vessel, Median ($1,000)	Percent Of Total Expenses	Percent Of Gross Revenue	Cost Per Vessel-Day ($1000)	Cost Per 1000 T ($)
Labor	Labor Payment, Fishing Crew	2008	22	$ 791.34	6.01 %	5.07 %	$ 3.26	$ 104.81
		2009	21	$ 713.07	5.33 %	4.78 %	$ 3.13	$ 80.60
		2010	20	$ 721.04	5.65 %	4.10 %	$ 3.02	$ 83.23
		2011	20	$ 994.64	5.35 %	3.52 %	$ 3.43	$ 87.19
		2012	20	$ 864.66	5.62 %	3.64 %	$ 3.18	$ 85.93
		2013	18	$ 724.25	5.15 %	4.18 %	$ 2.64	$ 69.76
		2014	18	$ 857.63	5.05 %	4.00 %	$ 2.80	$ 71.07
		2015	18	$ 777.00	4.90 %	4.57 %	$ 2.67	$ 80.92
		2016	19	$ 749.10	5.37 %	4.21 %	$ 2.72	$ 79.31
		2017	19	$ 908.57	5.22 %	4.30 %	$ 3.12	$ 97.08
		2018	19	$ 1,050.17	5.38 %	4.00 %	$ 3.55	$ 99.05
		2019	20	$ 787.77	4.73 %	4.07 %	$ 2.93	$ 81.58
		2020	19	$ 685.30	4.21 %	3.89 %	$ 2.41	$ 65.86
		2021	19	$ 699.17	4.25 %	3.98 %	$ 1.95	$ 68.13
	Labor Payment, Other Employees	2008	21	$ 1,310.51	10.57 %	10.06 %	$ 4.64	$ 175.22
		2009	21	$ 1,180.64	12.28 %	11.64 %	$ 5.06	$ 175.36
		2010	20	$ 1,626.34	13.36 %	11.68 %	$ 5.96	$ 196.83
		2011	20	$ 2,178.25	14.04 %	10.64 %	$ 7.28	$ 219.15
		2012	20	$ 2,298.68	13.68 %	10.72 %	$ 7.88	$ 221.42
		2013	18	$ 1,804.57	11.84 %	10.28 %	$ 6.22	$ 173.83
		2014	18	$ 1,801.84	12.49 %	9.70 %	$ 6.12	$ 168.10
		2015	18	$ 1,616.34	11.77 %	10.50 %	$ 5.20	$ 175.08
		2016	19	$ 1,557.72	13.27 %	11.16 %	$ 5.50	$ 198.53
		2017	19	$ 2,053.06	13.92 %	10.81 %	$ 7.07	$ 234.33
		2018	19	$ 2,345.48	15.65 %	11.38 %	$ 9.42	$ 257.44
		2019	20	$ 2,280.53	14.97 %	11.75 %	$ 7.37	$ 242.91
		2020	19	$ 1,719.65	14.17 %	12.58 %	$ 6.52	$ 193.28
		2021	19	$ 1,853.15	14.97 %	14.25 %	$ 5.79	$ 233.30
	Labor Payment, Processing Employees	2008	22	$ 2,194.66	16.78 %	14.73 %	$ 9.08	$ 276.33
		2009	21	$ 2,016.64	16.16 %	15.08 %	$ 8.69	$ 244.54
		2010	20	$ 2,156.72	17.42 %	13.77 %	$ 9.10	$ 267.24
		2011	20	$ 2,932.38	18.09 %	13.06 %	$ 10.09	$ 310.57
		2012	20	$ 2,899.18	18.50 %	14.23 %	$ 10.14	$ 310.87
		2013	18	$ 2,162.70	15.46 %	13.12 %	$ 7.80	$ 226.66
		2014	18	$ 2,452.15	16.42 %	12.59 %	$ 8.09	$ 239.03
		2015	18	$ 2,159.82	14.74 %	12.86 %	$ 7.37	$ 217.92
		2016	19	$ 2,175.74	16.89 %	12.77 %	$ 7.87	$ 229.12
		2017	19	$ 3,345.73	18.86 %	14.74 %	$ 11.05	$ 324.09
		2018	19	$ 3,268.48	18.67 %	13.52 %	$ 10.05	$ 317.07
		2019	20	$ 2,665.05	16.12 %	12.78 %	$ 8.97	$ 262.65
		2020	19	$ 2,014.08	14.87 %	12.56 %	$ 6.68	$ 204.60
		2021	19	$ 1,394.50	11.51 %	12.02 %	$ 4.34	$ 182.10
	Other Employment Related Costs	2008	22	$ 301.81	3.46 %	2.64 %	$ 1.09	$ 57.08
		2009	21	$ 392.76	3.89 %	3.11 %	$ 1.34	$ 55.07
		2010	20	$ 466.21	3.72 %	2.89 %	$ 1.86	$ 52.74
		2011	20	$ 543.77	3.52 %	2.32 %	$ 1.84	$ 53.88
		2012	20	$ 564.11	3.24 %	2.22 %	$ 2.01	$ 49.27
		2013	18	$ 657.03	4.14 %	3.15 %	$ 2.24	$ 52.89
		2014	18	$ 603.15	4.07 %	2.94 %	$ 2.22	$ 53.76
		2015	18	$ 645.07	4.40 %	3.59 %	$ 2.26	$ 58.38
		2016	19	$ 599.93	4.43 %	3.15 %	$ 2.12	$ 56.85
		2017	19	$ 686.92	4.52 %	3.15 %	$ 2.34	$ 72.81
		2018	19	$ 703.44	4.60 %	3.19 %	$ 2.34	$ 74.61
		2019	20	$ 734.50	4.62 %	3.42 %	$ 2.31	$ 70.79
		2020	19	$ 752.54	4.82 %	4.24 %	$ 2.40	$ 69.14
		2021	19	$ 712.73	5.23 %	5.22 %	$ 2.40	$ 86.43
	Fishing Gear	2008	19	$ 312.42	3.11 %	2.82 %	$ 1.16	$ 53.96
		2009	21	$ 448.42	3.89 %	3.30 %	$ 1.77	$ 60.79
		2010	20	$ 470.12	3.80 %	2.76 %	$ 1.77	$ 57.67
		2011	20	$ 397.81	2.42 %	1.64 %	$ 1.37	$ 36.68
		2012	19	$ 429.95	2.00 %	1.41 %	$ 1.62	$ 32.64
		2013	18	$ 519.73	3.51 %	2.61 %	$ 1.73	$ 44.49
		2014	18	$ 428.42	2.31 %	2.02 %	$ 1.41	$ 34.18
		2015	18	$ 431.38	2.95 %	2.86 %	$ 1.41	$ 41.48
		2016	14	$ 376.08	2.13 %	1.83 %	$ 1.27	$ 32.06
		2017	19	$ 425.20	2.03 %	1.48 %	$ 1.44	$ 33.06
		2018	19	$ 317.21	1.86 %	1.32 %	$ 1.11	$ 30.82
		2019	20	$ 481.70	2.92 %	2.29 %	$ 1.38	$ 48.47
		2020	19	$ 493.85	3.77 %	3.19 %	$ 1.41	$ 55.34
		2021	18	$ 330.98	2.27 %	2.14 %	$ 1.00	$ 36.52

Table 9.10: Vessel Operating Expenses, Median, by Category and Year *(continued)*

Category		Year	Vessels	Cost Per Vessel, Median ($1,000)	Percent Of Total Expenses	Percent Of Gross Revenue	Cost Per Vessel-Day ($1000)	Cost Per 1000 T ($)
Vessel	Freight	2008	22	$ 53.26	0.49 %	0.44 %	$ 0.20	$ 10.73
		2009	21	$ 61.91	0.67 %	0.69 %	$ 0.30	$ 11.08
		2010	20	$ 80.97	0.66 %	0.52 %	$ 0.32	$ 10.27
		2011	20	$ 70.31	0.64 %	0.44 %	$ 0.26	$ 10.44
		2012	20	$ 72.79	0.57 %	0.45 %	$ 0.28	$ 9.94
		2013	18	$ 94.11	0.69 %	0.54 %	$ 0.40	$ 9.76
		2014	18	$ 117.58	0.78 %	0.61 %	$ 0.38	$ 10.98
		2015	18	$ 119.12	0.82 %	0.56 %	$ 0.45	$ 10.87
		2016	19	$ 63.64	0.80 %	0.56 %	$ 0.25	$ 11.06
		2017	17	$ 116.55	0.65 %	0.40 %	$ 0.37	$ 10.68
		2018	19	$ 136.72	0.78 %	0.48 %	$ 0.44	$ 10.94
		2019	20	$ 139.18	1.02 %	0.78 %	$ 0.46	$ 15.82
		2020	19	$ 84.62	0.81 %	0.86 %	$ 0.36	$ 11.39
		2021	19	$ 363.77	2.14 %	2.25 %	$ 1.17	$ 34.69
	Lease Expenses	2008	1	*	*	*	*	*
		2009	5	$ 4.71	0.05 %	0.05 %	$ 0.02	$ 0.60
		2010	6	$ 5.78	0.05 %	0.04 %	$ 0.02	$ 0.64
		2011	7	$ 7.21	0.13 %	0.09 %	$ 0.03	$ 2.06
		2012	8	$ 10.95	0.13 %	0.09 %	$ 0.05	$ 2.13
		2013	6	$ 8.29	0.08 %	0.05 %	$ 0.03	$ 1.00
		2014	5	$ 18.96	0.13 %	0.11 %	$ 0.06	$ 2.18
		2015	5	$ 3.00	0.03 %	0.02 %	$ 0.01	$ 0.36
		2016	7	$ 6.68	0.08 %	0.07 %	$ 0.03	$ 1.18
		2017	9	$ 9.37	0.08 %	0.04 %	$ 0.03	$ 0.95
		2018	9	$ 7.33	0.04 %	0.03 %	$ 0.03	$ 0.68
		2019	7	$ 12.30	0.08 %	0.06 %	$ 0.04	$ 1.50
		2020	4	*	*	*	*	*
		2021	5	$ 14.81	0.11 %	0.09 %	$ 0.06	$ 1.66
	Repair And Maintenance	2008	22	$ 1,070.70	10.46 %	9.54 %	$ 4.61	$ 173.82
		2009	21	$ 1,352.06	13.41 %	11.11 %	$ 4.69	$ 200.72
		2010	20	$ 1,957.66	14.50 %	10.37 %	$ 7.00	$ 185.18
		2011	19	$ 1,661.43	11.53 %	9.03 %	$ 6.23	$ 191.85
		2012	20	$ 1,932.80	16.63 %	10.91 %	$ 7.03	$ 252.82
		2013	18	$ 2,071.03	15.02 %	11.46 %	$ 7.62	$ 203.38
		2014	18	$ 1,636.67	10.91 %	8.17 %	$ 5.74	$ 157.77
		2015	18	$ 1,708.48	9.19 %	8.09 %	$ 5.71	$ 141.68
		2016	19	$ 1,082.25	8.64 %	6.66 %	$ 3.32	$ 132.38
		2017	19	$ 1,555.22	8.16 %	6.03 %	$ 5.17	$ 146.19
		2018	19	$ 1,693.55	9.86 %	6.94 %	$ 6.09	$ 174.54
		2019	20	$ 1,715.40	9.67 %	8.54 %	$ 6.38	$ 171.71
		2020	19	$ 1,412.08	9.38 %	8.40 %	$ 4.53	$ 125.76
		2021	19	$ 1,293.98	11.71 %	10.75 %	$ 4.75	$ 172.44
	Food And Provisions	2008	19	$ 313.61	2.69 %	2.63 %	$ 1.27	$ 57.80
		2009	18	$ 313.38	2.80 %	2.66 %	$ 1.21	$ 40.78
		2010	17	$ 323.18	2.59 %	2.00 %	$ 1.21	$ 35.53
		2011	17	$ 390.37	2.32 %	1.60 %	$ 1.33	$ 35.89
		2012	17	$ 378.02	1.99 %	1.63 %	$ 1.34	$ 31.92
		2013	15	$ 374.00	2.40 %	2.01 %	$ 1.35	$ 32.32
		2014	15	$ 315.22	2.51 %	1.79 %	$ 1.06	$ 34.04
		2015	15	$ 363.11	2.77 %	2.34 %	$ 1.26	$ 36.60
		2016	16	$ 356.41	3.03 %	2.10 %	$ 1.21	$ 38.02
		2017	14	$ 343.08	1.98 %	1.53 %	$ 1.18	$ 34.21
		2018	14	$ 307.67	2.15 %	1.48 %	$ 1.05	$ 34.99
		2019	17	$ 288.40	1.98 %	1.76 %	$ 0.84	$ 33.13
		2020	16	$ 297.29	2.33 %	2.17 %	$ 0.99	$ 34.82
		2021	16	$ 285.20	1.82 %	2.01 %	$ 0.84	$ 28.36
	Fuel	2008	22	$ 2,686.69	21.68 %	18.47 %	$ 9.54	$ 339.61
		2009	21	$ 1,734.80	15.90 %	14.23 %	$ 6.67	$ 227.15
		2010	20	$ 2,142.22	16.82 %	13.09 %	$ 7.92	$ 228.23
		2011	20	$ 2,426.97	17.45 %	11.47 %	$ 8.61	$ 243.81
		2012	20	$ 2,707.92	15.97 %	11.81 %	$ 9.11	$ 261.37
		2013	18	$ 3,015.72	19.36 %	17.10 %	$ 10.21	$ 278.24
		2014	18	$ 2,836.92	19.05 %	14.09 %	$ 9.99	$ 253.57
		2015	18	$ 1,990.47	13.78 %	12.14 %	$ 7.47	$ 198.14
		2016	19	$ 1,543.93	11.48 %	9.16 %	$ 4.89	$ 155.22
		2017	19	$ 1,602.05	10.07 %	7.63 %	$ 6.01	$ 163.39
		2018	19	$ 2,224.44	12.49 %	8.74 %	$ 6.40	$ 205.33
		2019	20	$ 1,889.65	12.24 %	10.59 %	$ 6.36	$ 210.73
		2020	19	$ 1,524.18	11.31 %	9.09 %	$ 5.33	$ 145.17
		2021	19	$ 1,780.92	14.15 %	13.21 %	$ 5.97	$ 204.77

Table 9.10: Vessel Operating Expenses, Median, by Category and Year *(continued)*

Category		Year	Vessels	Cost Per Vessel, Median ($1,000)	Percent Of Total Expenses	Percent Of Gross Revenue	Cost Per Vessel-Day ($1000)	Cost Per 1000 T ($)
Materials	Lubrication And Fluids	2008	22	$ 99.79	0.91 %	0.84 %	$ 0.34	$ 16.61
		2009	21	$ 121.78	1.05 %	0.80 %	$ 0.44	$ 14.46
		2010	20	$ 102.72	0.90 %	0.69 %	$ 0.40	$ 11.39
		2011	20	$ 138.07	1.02 %	0.70 %	$ 0.50	$ 14.86
		2012	19	$ 126.52	0.67 %	0.60 %	$ 0.52	$ 13.68
		2013	18	$ 147.33	0.96 %	0.85 %	$ 0.52	$ 14.49
		2014	18	$ 117.78	0.85 %	0.58 %	$ 0.42	$ 11.00
		2015	18	$ 127.75	1.05 %	0.83 %	$ 0.47	$ 14.40
		2016	19	$ 120.33	0.87 %	0.67 %	$ 0.37	$ 12.74
		2017	19	$ 142.57	0.89 %	0.55 %	$ 0.49	$ 14.61
		2018	19	$ 125.01	0.65 %	0.47 %	$ 0.43	$ 11.00
		2019	20	$ 82.35	0.55 %	0.43 %	$ 0.26	$ 9.03
		2020	19	$ 101.03	0.89 %	0.77 %	$ 0.31	$ 12.51
		2021	19	$ 97.16	0.70 %	0.64 %	$ 0.27	$ 10.60
	Product And Packaging Materials	2008	22	$ 238.26	1.74 %	1.53 %	$ 0.91	$ 29.77
		2009	21	$ 172.60	1.43 %	1.32 %	$ 0.66	$ 22.29
		2010	20	$ 198.00	1.54 %	1.16 %	$ 0.83	$ 23.52
		2011	20	$ 285.25	1.51 %	1.12 %	$ 0.93	$ 23.47
		2012	20	$ 275.18	1.64 %	1.23 %	$ 0.92	$ 24.67
		2013	18	$ 242.74	1.68 %	1.36 %	$ 0.98	$ 23.09
		2014	18	$ 307.12	1.80 %	1.56 %	$ 0.96	$ 25.85
		2015	18	$ 212.88	1.50 %	1.30 %	$ 0.72	$ 20.42
		2016	19	$ 228.63	1.74 %	1.31 %	$ 0.78	$ 25.09
		2017	19	$ 234.69	1.39 %	1.08 %	$ 0.74	$ 23.03
		2018	19	$ 216.43	1.31 %	0.92 %	$ 0.72	$ 23.18
		2019	20	$ 256.90	1.60 %	1.28 %	$ 0.75	$ 24.92
		2020	19	$ 208.57	1.73 %	1.58 %	$ 0.67	$ 25.63
		2021	19	$ 166.66	1.59 %	1.76 %	$ 0.46	$ 25.43
	Raw Fish Purchases	2008	2	*	*	*	*	*
		2010	1	*	*	*	*	*
		2011	1	*	*	*	*	*
		2012	1	*	*	*	*	*
		2013	1	*	*	*	*	*
		2015	4	*	*	*	*	*
		2016	5	$ 457.12	2.02 %	1.74 %	$ 1.51	$ 30.19
		2017	5	$ 651.75	2.71 %	1.92 %	$ 2.20	$ 47.32
		2018	6	$ 489.66	2.13 %	1.54 %	$ 1.71	$ 38.61
		2019	7	$ 420.00	2.08 %	1.71 %	$ 1.40	$ 34.88
		2020	7	$ 354.39	2.00 %	1.90 %	$ 1.31	$ 31.38
		2021	6	$ 326.91	1.62 %	1.74 %	$ 1.07	$ 23.84
	Cooperative Costs	2008	16	$ 30.76	0.34 %	0.25 %	$ 0.12	$ 4.39
		2009	15	$ 81.00	0.79 %	0.64 %	$ 0.28	$ 10.40
		2010	14	$ 84.08	0.66 %	0.51 %	$ 0.34	$ 9.32
		2011	16	$ 90.94	0.58 %	0.40 %	$ 0.30	$ 8.79
		2012	16	$ 90.41	0.58 %	0.44 %	$ 0.36	$ 9.20
		2013	14	$ 99.88	0.59 %	0.46 %	$ 0.32	$ 8.15
		2014	14	$ 72.79	0.59 %	0.43 %	$ 0.25	$ 8.19
		2015	14	$ 74.46	0.59 %	0.46 %	$ 0.24	$ 8.27
		2016	15	$ 79.55	0.71 %	0.53 %	$ 0.27	$ 9.56
		2017	18	$ 73.89	0.43 %	0.28 %	$ 0.27	$ 7.59
		2018	19	$ 115.65	0.66 %	0.45 %	$ 0.36	$ 11.31
		2019	20	$ 98.30	0.66 %	0.52 %	$ 0.29	$ 10.42
		2020	19	$ 117.83	0.82 %	0.70 %	$ 0.32	$ 11.71
		2021	19	$ 112.17	0.94 %	0.96 %	$ 0.38	$ 14.73
	Fish Tax	2008	22	$ 156.80	1.13 %	1.05 %	$ 0.61	$ 21.39
		2009	21	$ 163.16	1.42 %	1.28 %	$ 0.72	$ 18.60
		2010	20	$ 95.02	0.79 %	0.66 %	$ 0.34	$ 12.06
		2011	20	$ 113.53	0.79 %	0.55 %	$ 0.36	$ 11.55
		2012	20	$ 155.39	1.10 %	0.83 %	$ 0.66	$ 17.93
		2013	18	$ 175.34	1.36 %	1.04 %	$ 0.61	$ 18.01
		2014	18	$ 165.11	1.10 %	0.86 %	$ 0.58	$ 15.22
		2015	18	$ 165.70	1.20 %	1.02 %	$ 0.53	$ 18.64
		2016	19	$ 233.33	1.84 %	1.20 %	$ 0.82	$ 23.90
		2017	19	$ 166.08	1.31 %	1.04 %	$ 0.58	$ 22.33
		2018	19	$ 210.27	1.66 %	1.17 %	$ 0.70	$ 27.56
		2019	20	$ 216.15	1.49 %	1.28 %	$ 0.82	$ 25.44
		2020	19	$ 210.75	1.77 %	1.55 %	$ 0.95	$ 25.09
		2021	18	$ 130.81	0.98 %	0.90 %	$ 0.43	$ 14.44

Table 9.10: Vessel Operating Expenses, Median, by Category and Year *(continued)*

Category		Year	Vessels	Cost Per Vessel, Median ($1,000)	Percent Of Total Expenses	Percent Of Gross Revenue	Cost Per Vessel-Day ($1000)	Cost Per 1000 T ($)
Fees	Observer	2008	22	$ 218.88	1.56 %	1.40 %	$ 0.82	$ 26.42
		2009	21	$ 202.82	1.90 %	1.60 %	$ 0.81	$ 25.75
		2010	20	$ 221.43	1.75 %	1.31 %	$ 0.81	$ 21.88
		2011	20	$ 221.90	1.33 %	0.90 %	$ 0.75	$ 21.92
		2012	19	$ 212.95	1.19 %	0.94 %	$ 0.78	$ 20.49
		2013	18	$ 227.27	1.46 %	1.23 %	$ 0.78	$ 21.64
		2014	18	$ 230.35	1.53 %	1.23 %	$ 0.80	$ 20.78
		2015	18	$ 242.84	1.57 %	1.40 %	$ 0.83	$ 22.41
		2016	19	$ 238.25	1.58 %	1.27 %	$ 0.79	$ 24.05
		2017	19	$ 236.43	1.51 %	1.05 %	$ 0.76	$ 22.76
		2018	19	$ 227.01	1.58 %	1.07 %	$ 0.77	$ 24.69
		2019	20	$ 224.00	1.47 %	1.22 %	$ 0.77	$ 25.41
		2020	19	$ 219.63	1.77 %	1.38 %	$ 0.74	$ 21.98
		2021	19	$ 210.43	1.63 %	1.46 %	$ 0.72	$ 25.75
	Quota Royalties	2008	2	*	*	*	*	*
		2009	4	*	*	*	*	*
		2010	2	*	*	*	*	*
		2011	8	$ 80.87	0.39 %	0.29 %	$ 0.26	$ 6.20
		2012	4	*	*	*	*	*
		2013	3	*	*	*	*	*
		2014	8	$ 180.09	0.75 %	0.51 %	$ 0.58	$ 10.78
		2015	7	$ 12.65	0.10 %	0.09 %	$ 0.04	$ 1.37
		2016	9	$ 46.67	0.18 %	0.14 %	$ 0.15	$ 2.79
		2017	5	$ 33.74	0.17 %	0.14 %	$ 0.11	$ 2.79
		2018	4	*	*	*	*	*
		2019	2	*	*	*	*	*
		2020	9	$ 13.93	0.14 %	0.12 %	$ 0.04	$ 1.73
		2021	3	*	*	*	*	*
Overhead	Freight And Storage	2008	9	$ 2,345.39	14.38 %	14.24 %	$ 8.35	$ 276.18
		2009	10	$ 291.32	4.34 %	4.66 %	$ 1.10	$ 76.10
		2010	8	$ 1,657.12	8.60 %	7.19 %	$ 5.23	$ 146.16
		2011	4	*	*	*	*	*
		2012	4	*	*	*	*	*
		2013	4	*	*	*	*	*
		2014	7	$ 3,208.08	18.28 %	16.53 %	$ 9.93	$ 300.36
		2015	10	$ 3,225.94	20.04 %	18.35 %	$ 10.96	$ 302.01
		2016	10	$ 3,034.30	20.60 %	17.02 %	$ 10.32	$ 297.46
		2017	13	$ 2,995.45	16.13 %	12.54 %	$ 9.66	$ 289.19
		2018	10	$ 3,255.83	14.95 %	11.56 %	$ 11.61	$ 275.46
		2019	14	$ 2,459.92	16.40 %	13.83 %	$ 9.52	$ 281.26
		2020	10	$ 3,475.59	19.43 %	16.52 %	$ 11.84	$ 275.47
		2021	10	$ 3,463.78	19.11 %	18.05 %	$ 11.34	$ 294.80
	General Administrative Cost	2008	22	$ 522.96	5.20 %	4.75 %	$ 2.08	$ 89.65
		2009	21	$ 821.90	8.78 %	7.72 %	$ 2.86	$ 128.97
		2010	16	$ 838.93	6.27 %	4.42 %	$ 3.51	$ 81.93
		2011	16	$ 1,315.23	5.90 %	4.46 %	$ 4.27	$ 96.05
		2012	20	$ 808.51	4.69 %	3.91 %	$ 3.26	$ 77.02
		2013	18	$ 602.09	4.68 %	4.15 %	$ 2.49	$ 66.28
		2014	16	$ 1,377.69	8.27 %	7.18 %	$ 4.52	$ 116.31
		2015	11	$ 1,467.27	9.62 %	8.08 %	$ 6.28	$ 136.07
		2016	11	$ 1,907.49	11.65 %	8.42 %	$ 6.89	$ 174.39
		2017	15	$ 1,847.74	10.34 %	8.10 %	$ 6.19	$ 173.39
		2018	15	$ 1,870.07	9.24 %	7.12 %	$ 6.70	$ 178.39
		2019	20	$ 1,214.85	6.35 %	5.27 %	$ 3.97	$ 103.75
		2020	18	$ 828.99	6.31 %	6.23 %	$ 3.68	$ 85.11
		2021	16	$ 519.43	3.56 %	4.30 %	$ 1.74	$ 55.69
	Insurance	2008	22	$ 540.00	3.95 %	3.87 %	$ 1.90	$ 73.08
		2009	21	$ 529.79	5.41 %	4.65 %	$ 1.80	$ 73.82
		2010	20	$ 569.12	4.55 %	3.34 %	$ 2.09	$ 59.98
		2011	20	$ 569.30	3.59 %	2.50 %	$ 1.85	$ 53.73
		2012	20	$ 647.68	4.12 %	3.05 %	$ 2.44	$ 63.21
		2013	18	$ 606.76	3.87 %	3.00 %	$ 1.95	$ 54.73
		2014	17	$ 761.29	5.67 %	3.62 %	$ 2.65	$ 74.78
		2015	18	$ 499.25	3.82 %	3.43 %	$ 1.64	$ 54.02
		2016	19	$ 465.08	4.17 %	3.31 %	$ 1.59	$ 58.41
		2017	19	$ 449.55	2.98 %	2.55 %	$ 1.45	$ 48.49
		2018	19	$ 458.55	3.44 %	2.71 %	$ 1.38	$ 58.18
		2019	20	$ 503.44	4.04 %	3.30 %	$ 1.64	$ 68.62
		2020	19	$ 501.12	4.42 %	3.97 %	$ 1.65	$ 57.86
		2021	19	$ 602.87	4.77 %	4.78 %	$ 1.90	$ 75.26

Table 9.10: Vessel Operating Expenses, Median, by Category and Year *(continued)*

Category	Year	Vessels	Cost Per Vessel, Median ($1,000)	Percent Of Total Expenses	Percent Of Gross Revenue	Cost Per Vessel-Day ($1000)	Cost Per 1000 T ($)
All Annual Expenses	2008	22	$ 12,962.08	100.00 %	87.28 %	$ 53.96	$ 1,736.77
	2009	21	$ 10,658.58	100.00 %	82.96 %	$ 42.98	$ 1,453.14
	2010	20	$ 12,130.27	100.00 %	76.09 %	$ 50.14	$ 1,403.03
	2011	20	$ 16,420.76	100.00 %	70.98 %	$ 63.71	$ 1,652.81
	2012	20	$ 18,552.34	100.00 %	79.82 %	$ 69.66	$ 1,642.62
	2013	18	$ 13,901.41	100.00 %	76.92 %	$ 54.51	$ 1,394.42
	2014	18	$ 15,475.13	100.00 %	75.93 %	$ 54.91	$ 1,393.30
	2015	18	$ 15,280.32	100.00 %	86.87 %	$ 53.87	$ 1,418.09
	2016	19	$ 13,473.99	100.00 %	77.01 %	$ 44.41	$ 1,468.00
	2017	19	$ 16,089.50	100.00 %	79.18 %	$ 59.88	$ 1,650.98
	2018	19	$ 19,260.41	100.00 %	73.38 %	$ 60.41	$ 1,702.31
	2019	20	$ 15,431.95	100.00 %	81.25 %	$ 49.83	$ 1,675.76
	2020	19	$ 12,151.31	100.00 %	89.09 %	$ 47.95	$ 1,397.16
	2021	19	$ 12,310.32	100.00 %	102.27 %	$ 38.47	$ 1,542.48

Note All dollar values are inflation-adjusted to 2021-equivalent value; median cost per expense item, cost per vessel day, and cost per thousand t are shown in $1000. "*'' indicates value is suppressed for confidentiality. Gross revenue values are inclusive of all reported fishery product sales, tendering and other for-hire vessel services, quota royalties and other permit/license leasing and sales realized during the year. Median cost values and pro-rata indices are calculated over non-zero observations in individual vessel data for each expense item. Note that the set of vessels reporting non-zero values typically differs across expense items during a given year, and median values reported for respective expense items in a given year are calculated over distict sets of vessels. As such, the statistics reported in the above table should not be interpreted as directly comparable across respective expense items and/or years in terms of characterizing a consistent representative ''median vessel".
Source Amendment 80 Economic Data Reports.

9.4.3 Operating returns

Figures 9.10 and 9.11 provide an overview of economic and financial performance of the Amendment 80 sector at the fleet and median vessel level over the 14-year period, in terms of a high-level income analysis. This synthesis underlines the severity of the adverse economic conditions the Amendment 80 sector faced in 2021: with gross revenues across the sector in sharp decline in 2021, and aggregate expenses only marginally less than in 2020, the Amendment 80 sector saw the worst financial performance of the 14-year period since the management program went into effect. From a fleet aggregate gross revenue of $256 million during 2021, operating income (after deducting aggregate labor and non-labor operating costs and overhead expenses) declined 78% to $11.07 million in aggregate. This represented a minimal operating margin of 4.3/% of 2021 gross revenue, substantially lower than the 13.7% operating margin in 2008, previously the worst sector-level economic performance in the history of the management program. While the sector in aggregate saw a marginally positive return as measured in these terms, which do not fully account for all categories of annual expenses (debt servicing costs are not included, most notably), the median vessel is estimated to have operated at a loss in 2021; with a median of $15 million in gross revenue, after deducting operating and overhead expenses, the median operating income in 2021 was -$368 thousand.

Figures 9.10 and 9.11 summarize and synthesize operating revenue and operating cost information presented in the previous two subsections (tabular data depicted in these figures is displayed in Table 9.11; *Gross revenue* values in the figures and table summarize itemized gross operating revenues reported in Table 9.8, while expense values summarize the itemized expenses detailed in Tables 9.9 and 9.10. *Gross income* is calculated as gross revenue, less total operating costs (i.e., expenses incurred most directly in the operation of the vessel and the process of production, including on-board labor, vessel and equipment, materials, and ad-valorem fees and taxes). *Operating income* is calculated as gross income less overhead expenses; as reported based on available data, this approximates the sector aggregate and median vessel-level annual operating

return to vessel owners from the primary production activities of vessels and associated assets in the Amendment 80 fleet. These results provide a measure of profitability of vessel operations on an annual cash-flow basis, with residual percentage values (gross- and operating income as percentages of gross revenue) shown as well. [13] However, the results shown do not provide a complete accounting of all relevant variable operating costs, exclude non-payroll income and other taxes, depreciation and debt payments (principle and interest) on capital assets, and other financial and cash-flow accounting items relevant to some or all vessels. As such, the operating income results presented in Figures 9.10 and 9.11 and Table 9.11 do not measure aggregate or average *net profit* within the sector, and should be regarded as representing an upper bound on pre-tax annual returns to capital over time.

Figure 9.10: Amendment 80 sector gross revenue and operating costs.

Note Tabular data shown in Table 9.11.

[13] Monetary cost, revenue and income values presented in this section are adjusted for inflation, as described above, to provide comparability of value over time; note, however, that the specific adjustment method may result in a different relative ranking of high/low values over time than an alternative method, e.g., using a Producer Price Index. Residual percentages provide normalized measures of financial performance that are directly comparable over time without requiring inflation adjustment.

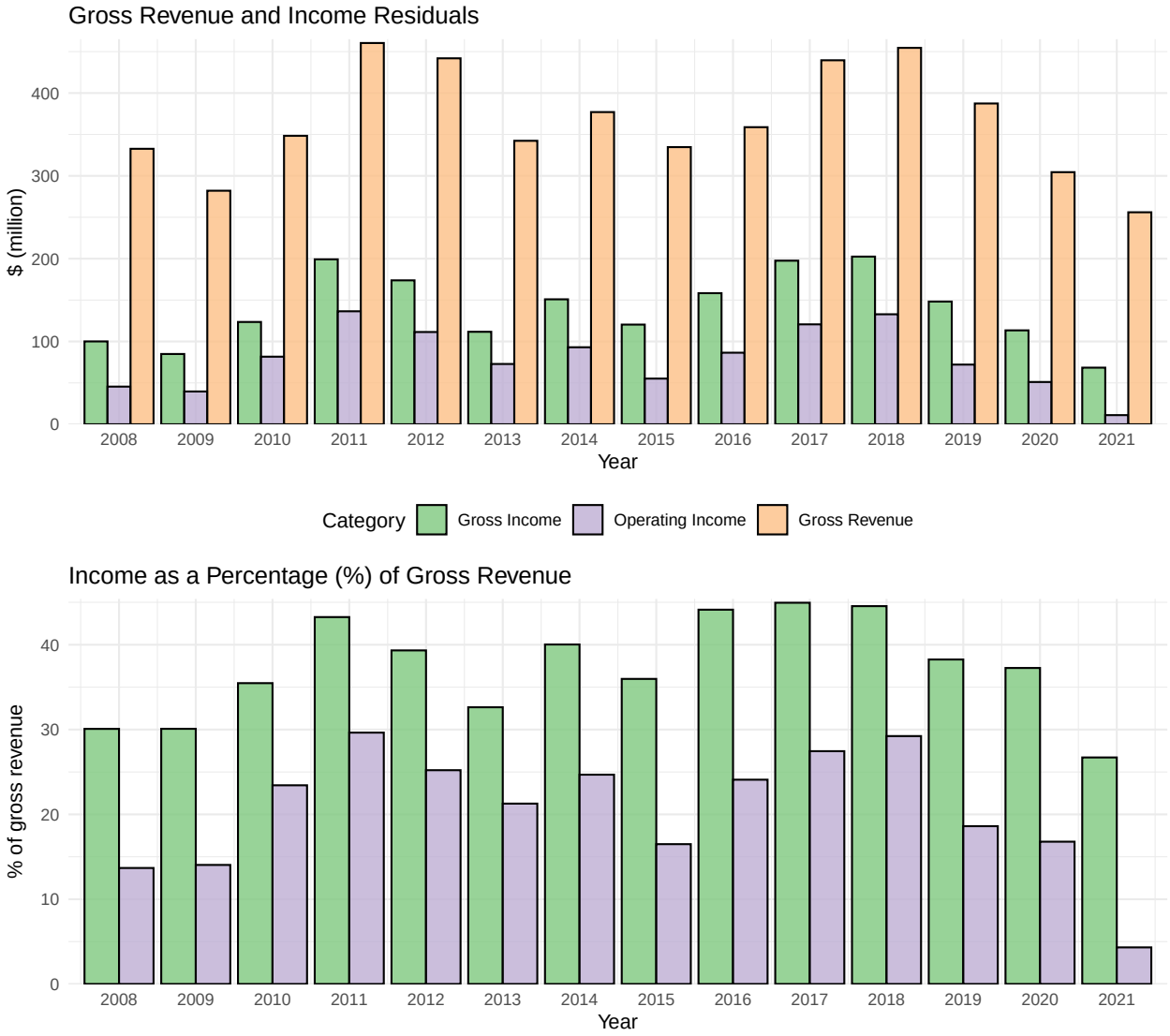

Figure 9.11: Amendment 80 sector gross revenue and net operating income residuals.

Note Tabular data shown in Table 9.11.

9.4.4 Capital investment

Table 9.12 reports aggregate sector-level and median vessel-level annual expenditures for new investment and improvements in fishing gear (e.g., net electronics and hydraulic equipment), processing plant and equipment, vessel and other on-board equipment (e.g., hull improvements, propulsion), and other capital expenditures associated with operations of the vessel. Combined capital expenditures in total for the fleet have varied between $9 million and $20 million prior to 2017. Investment has increased substantially over the the last three years, however, largely driven by large expenditures across capital categories, associated with entry of four new vessels to the sector between 2017 and 2021, and reached $449 million in aggregate during 2021, and $23.8 million at the median vessel level.

As a result of the relative irregularity of capital investment, the incidence of one reporting entity

representing a large fraction of the population total over relatively few reported values for a given capital category in a given year, the data series reported in Table 9.12 is subject to a high degree of data suppression for confidentiality protection.

Data reported exclude any expenditures for onshore equipment or facilities, and reflect the full initial purchase cost (including sales tax) for capitalized assets and improvements purchased during the year. Expensed payments for principal and debt servicing on financed assets previously purchased are not included. Also, the EDR only captures capital investment costs for vessels once they have entered the sector and become subject to EDR reporting requirements, such that investment in new vessels occurring over a period of years prior to entering the sector is not captured in EDR data. Capital purchase costs reported by vessel owners typically reflect moderate expenditures associated with routine capital maintenance and improvement (e.g., during 3-year overhauls), but in many cases includes expenditures of a larger scale associated with major vessel refitting, new vessel construction, or ownership restructuring (i.e., investments associated with substantially longer amortization and depreciation schedules than more routine expenditures). EDR data collection does not explicitly distinguish between routine versus ‘’major” capital expenditures, such that the distributions of values within a given capital asset category reported in EDRs, and in many cases in summarized values shown in Table 9.12, tend to be highly asymmetric (i.e., ‘’lumpy”). As a result, fleet aggregate and vessel-median statistics reflect high variability over differences in scale and direction of year-on-year variation between metrics and/or asset categories, and statistics are suppressed in Table 9.12 to avoid potential disclosure of confidential information where the annual value reported for an individual vessel represents a disproportionately large fraction of the associated summary value. [14]

9.4.5 Employment

Figure 9.12 displays fleet-level aggregate total values for employment and labor earnings, by labor category, in terms of the number of positions on-board vessels at a given time (positions on-board), total number of individuals employed during all or part of the year (number of employees), aggregate labor income, and average gross wages per employee (Table 9.13 reports median vessel-level values as well as fleet-level totals). There was a marginal decline from 2020 to 98 total fishing crew positions across the fleet during 2021, with a marginal increase to 190 individuals participating as crew. Median crew positions per vessel has remained constant at 6, while the median number of distinct crew members increased to 11 in 2021. Average annual gross wages per deck crew member employed during 2021 declined by 15% to $60.6 thousand for 2021. Processing employment in 2021 declined to the second-lowest level to date, with number of processing positions in aggregate across the fleet at 442, and the number of distinct persons employed declining to 1,288. Median number of processing positions per vessel and distinct persons employed both declined during 2021, to 24 and 70, respectively. Total gross wages paid to processing employees declined to $31.2 million in 2021, and $24 thousand per processing employee, both setting record lows for the period. For other vessel crew, including officers,

[14] Note that median statistics for individual expenditure categories are calculated over vessels reporting non-zero values in the respective category, and for combined (total annual) capital expenditures, are calculated over all vessels reporting non-zero values for one or more capital expenditure category in a given year; i.e., the distribution of combined cost observations is more asymmetric (right-skewed) than for individual capital categories. In contrast to fleet-level statistics, which represent the active fleet in a given year as a whole, median statistics reported for individual expenditure categories in a given year represent distinct sets of reporting vessels rather than a consistent, representative “median vessel’ ’. See table footnotes for Table 9.12 for additional detail.

engineers, and others involved in onboard management and record-keeping, the number of distinct persons employed in such positions increased from 409 to 419 during 2021, while the number of positions in total across the fleet increased from 173 to 190, the highest level to-date, likely reflecting the more complex staffing requirements for the larger class of vessels recently entering the sector. Fleet-aggregate gross wages for this crew category declined by 5% to $36.6 million, and by 7% per-individual employed, to $87 thousand.

Figure 9.13 displays the spatial distribution of Amendment 80 crew employment and wages by community of crew residence for the years 2015 to 2021 (tabular data are reported in Table 9.14. [15] Over the 2015 to 2021 period, the Seattle Metropolitan Statistical Area (MSA) has consistently been the predominant location of residence for Amendment 80 vessel crew members. [16]. During 2021, 378 of the total 533 licensed crew members (71%) identified in EDR reporting were residents of the Seattle MSA, which is the highest proportion of annual crew employment associated with this location in the 7 years of data available. The estimated income contribution to the Seattle MSA area from direct gross wages paid to vessel crew members during 2021 is $32.3 million, and $35.1 million to the state of Washington overall, which accounted for 411 (77%) of all crew members for the year. Alaska residents have accounted for between 3% and 8% of Amendment 80 crew employment over the period prior to 2021, but declined to 2% in 2021, with just 12 of 533 total crew members in 2021, and accounting for an estimated $1.03 million in direct crew income paid to residents of Alaska for the year. The community of Unalaska/Dutch Harbor is the only Alaska locality that has accounted for a minimum of 1% of total crew employment in any year for which data are available, with a maximum of 27 residents reported in 2015 representing 5% of the total 571 crew members identified that year, and accounting for $2.2 million in estimated wage income paid to residents of the community during 2015; 4 residents of that community were employed in the fleet during 2021, with estimated combined gross wage earnings of $34 thousand flowing to the Unalaska/Dutch Harbor community (noting that this income estimate is highly derived and does not approach a confidential disclosure of individual income).

[15]Crew member community of residence is derived from reporting of commercial crew license and CFEC gear operator permit numbers reported for all non-processing crew members by each vessel in the Amendment 80 EDR beginning in 2015, using residence information captured in ADF&G's crew license registry database. While a small number of processing employees are secondarily employed as deck crew, and are thus included in the counts of licensed crew members, Amendment 80 fleet processing employee residence is not systematically captured in available data sources.

[16]The Seattle-Tacoma-Bellevue MSA is defined by Office of Management and Budget as the geographic area comprised of King, Pierce, and Snohomish counties of Washington state; [https://www.whitehouse.gov/wp-content/uploads/2018/09/Bulletin-18-04.pdf]

Table 9.11: Amendment 80 Fleet Operating Costs and Income, Fleet Total and Vessel Median

Category	Year	Vessels	Fleet Total		Vessel Median	
			$ Million	Percent Of Fleet Gross Revenue	$1,000	Percent Of Vessel Gross Revenue
Gross Revenue	2008	22	$ 332.67	100.00 %	$ 14,823.60	100.00 %
	2009	21	$ 282.06	100.00 %	$ 12,597.41	100.00 %
	2010	20	$ 348.35	100.00 %	$ 15,987.06	100.00 %
	2011	20	$ 460.40	100.00 %	$ 22,468.13	100.00 %
	2012	20	$ 441.93	100.00 %	$ 21,180.86	100.00 %
	2013	18	$ 342.33	100.00 %	$ 17,350.27	100.00 %
	2014	18	$ 376.99	100.00 %	$ 19,476.49	100.00 %
	2015	18	$ 334.70	100.00 %	$ 17,012.62	100.00 %
	2016	19	$ 358.77	100.00 %	$ 17,547.31	100.00 %
	2017	19	$ 439.55	100.00 %	$ 20,762.65	100.00 %
	2018	19	$ 454.56	100.00 %	$ 24,464.60	100.00 %
	2019	20	$ 387.37	100.00 %	$ 17,370.33	100.00 %
	2020	19	$ 304.45	100.00 %	$ 17,816.33	100.00 %
	2021	19	$ 256.01	100.00 %	$ 15,033.36	100.00 %
Labor - Total Costs	2008	22	$ 106.86	32.12 %	$ 4,540.29	32.20 %
	2009	21	$ 93.12	33.01 %	$ 4,117.93	36.62 %
	2010	20	$ 106.68	30.62 %	$ 4,830.59	34.56 %
	2011	20	$ 129.97	28.23 %	$ 6,647.32	33.31 %
	2012	20	$ 130.35	29.50 %	$ 6,543.73	33.08 %
	2013	18	$ 101.62	29.68 %	$ 5,074.83	30.72 %
	2014	18	$ 107.76	28.58 %	$ 5,378.87	29.87 %
	2015	18	$ 101.69	30.38 %	$ 5,067.70	33.02 %
	2016	19	$ 102.80	28.65 %	$ 4,924.41	34.61 %
	2017	19	$ 140.33	31.93 %	$ 7,686.73	35.67 %
	2018	19	$ 141.88	31.21 %	$ 7,702.11	33.61 %
	2019	20	$ 127.27	32.85 %	$ 6,222.28	33.65 %
	2020	19	$ 98.91	32.49 %	$ 5,332.89	31.86 %
	2021	19	$ 88.23	34.46 %	$ 4,904.30	33.36 %
Operating (Non-Labor) - Total Costs	2008	22	$ 125.73	37.79 %	$ 5,559.56	37.02 %
	2009	21	$ 104.07	36.90 %	$ 4,992.05	38.44 %
	2010	20	$ 118.12	33.91 %	$ 5,626.69	34.15 %
	2011	20	$ 131.25	28.51 %	$ 6,703.27	29.21 %
	2012	20	$ 137.76	31.17 %	$ 6,778.22	29.66 %
	2013	18	$ 129.02	37.69 %	$ 6,771.22	38.26 %
	2014	18	$ 118.31	31.38 %	$ 5,894.43	30.75 %
	2015	18	$ 112.62	33.65 %	$ 5,489.77	31.72 %
	2016	19	$ 97.63	27.21 %	$ 3,962.09	27.40 %
	2017	19	$ 101.66	23.13 %	$ 5,203.88	22.27 %
	2018	19	$ 110.19	24.24 %	$ 5,806.77	24.21 %
	2019	20	$ 111.91	28.89 %	$ 5,283.27	29.51 %
	2020	19	$ 92.10	30.25 %	$ 4,530.96	32.27 %
	2021	19	$ 99.40	38.83 %	$ 5,221.45	41.40 %

Table 9.11: Amendment 80 Fleet Operating Costs and Income, Fleet Total and Vessel Median *(continued)*

Category	Year	Vessels	Fleet Total		Vessel Median	
			$ Million	Percent Of Fleet Gross Revenue	$1,000	Percent Of Vessel Gross Revenue
Gross Income	2008	22	$ 100.07	30.08 %	$ 4,505.06	31.48 %
	2009	21	$ 84.87	30.09 %	$ 3,207.01	24.48 %
	2010	20	$ 123.55	35.47 %	$ 5,376.09	31.99 %
	2011	20	$ 199.19	43.26 %	$ 9,051.73	39.67 %
	2012	20	$ 173.81	39.33 %	$ 8,893.97	38.92 %
	2013	18	$ 111.69	32.63 %	$ 5,220.43	31.34 %
	2014	18	$ 150.92	40.03 %	$ 7,374.04	37.67 %
	2015	18	$ 120.39	35.97 %	$ 5,410.30	34.17 %
	2016	19	$ 158.34	44.13 %	$ 6,826.45	43.57 %
	2017	19	$ 197.56	44.95 %	$ 8,914.14	42.15 %
	2018	19	$ 202.49	44.55 %	$ 10,131.19	41.99 %
	2019	20	$ 148.19	38.26 %	$ 6,768.70	38.04 %
	2020	19	$ 113.43	37.26 %	$ 5,507.02	34.20 %
	2021	19	$ 68.38	26.71 %	$ 4,045.65	24.74 %
Overhead - Total Costs	2008	22	$ 54.56	16.40 %	$ 2,094.89	14.00 %
	2009	21	$ 45.26	16.05 %	$ 1,193.65	15.22 %
	2010	20	$ 41.93	12.04 %	$ 1,061.73	8.70 %
	2011	20	$ 62.72	13.62 %	$ 1,294.64	5.91 %
	2012	20	$ 62.39	14.12 %	$ 1,582.61	7.80 %
	2013	18	$ 38.87	11.36 %	$ 1,346.12	8.52 %
	2014	18	$ 57.89	15.36 %	$ 2,399.32	11.35 %
	2015	18	$ 65.21	19.48 %	$ 3,183.58	21.34 %
	2016	19	$ 71.89	20.04 %	$ 3,572.03	20.36 %
	2017	19	$ 76.91	17.50 %	$ 4,295.72	20.22 %
	2018	19	$ 69.64	15.32 %	$ 4,125.56	17.42 %
	2019	20	$ 76.11	19.65 %	$ 3,996.54	21.85 %
	2020	19	$ 62.36	20.48 %	$ 3,558.82	26.56 %
	2021	19	$ 57.31	22.39 %	$ 3,423.82	22.40 %
Operating Income	2008	22	$ 45.51	13.68 %	$ 1,508.07	12.72 %
	2009	21	$ 39.61	14.04 %	$ 1,619.55	17.04 %
	2010	20	$ 81.63	23.43 %	$ 3,980.69	23.91 %
	2011	20	$ 136.47	29.64 %	$ 6,439.05	29.02 %
	2012	20	$ 111.43	25.21 %	$ 4,170.67	20.18 %
	2013	18	$ 72.82	21.27 %	$ 3,306.12	23.08 %
	2014	18	$ 93.03	24.68 %	$ 3,762.46	24.07 %
	2015	18	$ 55.18	16.49 %	$ 2,130.02	13.13 %
	2016	19	$ 86.44	24.09 %	$ 3,307.72	22.99 %
	2017	19	$ 120.66	27.45 %	$ 3,614.02	20.82 %
	2018	19	$ 132.85	29.23 %	$ 5,134.31	26.62 %
	2019	20	$ 72.09	18.61 %	$ 3,560.83	18.75 %
	2020	19	$ 51.08	16.78 %	$ 1,551.59	10.91 %
	2021	19	$ 11.07	4.32 %	$ -367.77	-2.27 %

Note All dollar values are inflation-adjusted to 2021-equivalent value; ''*'' indicates value is suppressed for confidentiality. Median and fleet aggregate operating expenses and income values shown above are approximations based on available data; annual expense reporting in Amendment 80 Economic Data Reports is relatively comprehensive, but does not include depreciation and debt payments (princicle or interest) on capital assets, and other financial and cash-flow accounting items relevant to some or all vessels. Gross revenue values are inclusive of all reported fishery product sales, tendering and other for-hire vessel services, quota royalties and other permit/license leasing and sales realized during the year. Gross Income is calculated as Gross Revenue less expenses for labor, vessel and equipment, materials, and fees; Operating Income is calculated as Gross Income less Overhead Expenses. Note that royalties paid and received for Amendment 80 QS and PSC allocations represent transfer payments between fishery participants and have net-zero value at the fleet-level in Gross Income, but may be of non-zero net value at the median vessel-level. Fleet-level residual percentages are calculated using fleet aggregate values and represent the weighted average (mean) for vessels within the fleet. Median values for income residuals and percentages are calculated over non-zero observations in individual vessel data for each item; users should use caution in interpreting median statistics as characterizing a consistent representative ''median vessel" across accounting categories and/or years.
Source Amendment 80 Economic Data Reports.

Table 9.12: Amendment 80 Fleet Capital Expenditures by Category and Year, Fleet Total and Median Vessel Values

		Vessels	Expenditure Per Vessel, Median ($1,000)	Percent Of Vessel Total Capital Expenditures, Median	Total Fleet Expenditure ($Million)	Percent Of Fleet Total Capital Expenditures
Fishing Gear	2008	12	$ 111	40 %	$ 1.85	20 %
	2009	8	*	*	*	*
	2010	8	*	*	*	*
	2011	9	*	*	*	*
	2012	10	$ 305	41 %	$ 3.22	16 %
	2013	9	*	*	*	*
	2014	9	*	*	*	*
	2015	11	$ 230	24 %	$ 2.30	18 %
	2016	13	$ 158	35 %	$ 3.13	24 %
	2017	13	*	*	*	*
	2018	18	$ 159	21 %	$ 4.36	12 %
	2019	18	$ 139	19 %	$ 4.41	14 %
	2020	15	$ 103	24 %	$ 2.88	9 %
	2021	15	$ 167	36 %	$ 2.78	10 %
Processing Plant And Equipment	2008	11	*	*	*	*
	2009	9	*	*	*	*
	2010	13	$ 177	28 %	$ 3.34	28 %
	2011	10	*	*	*	*
	2012	14	*	*	*	*
	2013	9	*	*	*	*
	2014	8	*	*	*	*
	2015	10	$ 144	18 %	$ 1.85	14 %
	2016	8	*	*	*	*
	2017	11	*	*	*	*
	2018	15	*	*	*	*
	2019	19	*	*	*	*
	2020	14	*	*	*	*
	2021	10	*	*	*	*
Vessel And Other Onboard Equipment	2008	11	$ 60	33 %	$ 2.12	22 %
	2009	13	$ 466	75 %	$ 7.31	74 %
	2010	15	$ 125	57 %	$ 6.15	52 %
	2011	11	$ 142	32 %	$ 3.44	36 %
	2012	18	*	*	*	*
	2013	11	*	*	*	*
	2014	13	$ 428	73 %	$ 7.22	47 %
	2015	12	*	*	*	*
	2016	10	*	*	*	*
	2017	11	*	*	*	*
	2018	17	*	*	*	*
	2019	20	$ 225	33 %	$ 10.00	31 %
	2020	13	*	*	*	*
	2021	14	*	*	*	*

Table 9.12: Amendment 80 Fleet Capital Expenditures by Category and Year, Fleet Total and Median Vessel Values *(continued)*

		Vessels	Expenditure Per Vessel, Median ($1,000)	Percent Of Vessel Total Capital Expenditures, Median	Total Fleet Expenditure ($Million)	Percent Of Fleet Total Capital Expenditures
Other Capital Expenditures	2008	9	*	*	*	*
	2009	5	*	*	*	*
	2010	4	*	*	*	*
	2011	8	*	*	*	*
	2012	7	*	*	*	*
	2013	8	$ 122	44 %	$ 0.93	5 %
	2014	10	*	*	*	*
	2015	10	*	*	*	*
	2016	6	*	*	*	*
	2017	9	*	*	*	*
	2018	11	*	*	*	*
	2019	14	*	*	*	*
	2020	14	*	*	*	*
	2021	10	*	*	*	*
Total Annual Capital Expenditures	2008	17	$ 426	100 %	$ 9.45	100 %
	2009	16	$ 379	100 %	$ 9.84	100 %
	2010	18	$ 403	100 %	$ 11.84	100 %
	2011	15	$ 345	100 %	$ 9.68	100 %
	2012	19	$ 321	100 %	$ 20.01	100 %
	2013	16	*	*	*	*
	2014	18	$ 444	100 %	$ 15.36	100 %
	2015	16	$ 483	100 %	$ 13.01	100 %
	2016	18	$ 327	100 %	$ 13.14	100 %
	2017	19	*	*	*	*
	2018	19	*	*	*	*
	2019	20	*	*	*	*
	2020	18	*	*	*	*
	2021	18	$ 449	100 %	$ 28.35	100 %

Note All dollar values are inflation-adjusted to 2021-equivalent value. Fleet average dollar values are shown in $1,000 and total aggregate values are shown in $millions. ''*'' indicates value is suppressed for confidentiality. 'Percentage of Fleet-Total Capital Expenditures' index values represent the weighted average (mean) for vessels within the fleet. Median statistics reported in the above table should not be interpreted as directly comparable across respective expenditure categories and/or years in terms of characterizing a consistent representative ''median vessel". Median values are calculated over non-zero observations in individual vessel data for each capital expense category, noting that the set of vessels reporting non-zero values typically differs across expenditure categories during a given year, and therefore a) median values reported for respective categories are representative of distinct sets of vessels, and b) median percent of total capital expenditure is not additive across categories in a given year.
Source Amendment 80 Economic Data Reports.

Table 9.13: Amendment 80 Fleet Employment and Average Gross Wages, by Labor Category, Fleet Total and Median Vessel Values

			Positions on board		Number of employees during the year		Labor Income	
	Year	Vessels	Median	Total	Median	Total	Fleet Total	Average Per Employee
Fishing (Deck) Crew	2008	22	6.00	134.00	10.50	340.00	$ 18,641,466.73	$ 54,827.84
	2009	21	6.00	120.00	12.00	273.00	$ 14,980,436.79	$ 54,873.39
	2010	20	6.00	114.00	12.50	294.00	$ 16,288,435.81	$ 55,402.84
	2011	20	6.00	111.00	9.00	234.00	$ 20,416,468.96	$ 87,249.87
	2012	19	6.00	106.00	10.00	240.00	$ 19,513,984.21	$ 81,308.27
	2013	18	6.00	105.00	8.00	214.00	$ 15,203,890.27	$ 71,046.22
	2014	18	6.00	106.00	11.00	239.00	$ 16,459,033.79	$ 68,866.25
	2015	18	6.00	107.00	10.50	231.00	$ 15,542,327.10	$ 67,282.80
	2016	19	6.00	108.00	13.00	262.00	$ 15,500,373.10	$ 59,161.73
	2017	19	6.00	103.00	11.00	202.00	$ 19,189,133.93	$ 94,995.71
	2018	19	6.00	99.00	8.00	178.00	$ 19,174,321.40	$ 107,720.91
	2019	20	6.00	104.00	10.50	211.00	$ 16,389,756.82	$ 77,676.57
	2020	19	6.00	104.00	10.00	172.00	$ 12,262,593.43	$ 71,294.15
	2021	19	6.00	98.00	11.00	190.00	$ 11,523,437.00	$ 60,649.67
Other Vessel Crew	2008	22	6.50	156.00	17.50	418.00	$ 33,051,567.05	$ 79,070.73
	2009	21	6.00	136.00	16.00	371.00	$ 29,351,726.30	$ 79,115.17
	2010	20	7.00	145.00	18.50	549.00	$ 34,757,924.75	$ 63,311.34
	2011	20	7.00	150.00	17.50	356.00	$ 43,720,168.14	$ 122,809.46
	2012	19	7.00	164.00	20.00	424.00	$ 44,617,230.58	$ 105,229.32
	2013	18	7.00	160.00	19.00	383.00	$ 33,589,378.36	$ 87,700.73
	2014	18	7.00	140.00	17.50	347.00	$ 35,346,264.94	$ 101,862.43
	2015	18	7.00	141.00	18.00	338.00	$ 34,261,577.10	$ 101,365.61
	2016	19	7.00	157.00	18.00	417.00	$ 34,676,948.84	$ 83,158.15
	2017	19	7.00	160.00	20.00	446.00	$ 49,049,507.56	$ 109,976.47
	2018	19	7.00	165.00	19.00	372.00	$ 52,434,409.06	$ 140,952.71
	2019	20	7.50	174.00	21.00	426.00	$ 48,114,972.47	$ 112,945.94
	2020	19	8.00	173.00	20.00	409.00	$ 38,367,233.65	$ 93,807.42
	2021	19	8.00	190.00	18.00	419.00	$ 36,554,031.00	$ 87,241.12
Processing Employees	2008	22	21.50	529.00	56.00	1,465.00	$ 50,890,808.58	$ 34,737.75
	2009	21	23.00	516.00	56.00	1,341.00	$ 44,288,725.44	$ 33,026.64
	2010	20	23.00	476.00	66.50	1,567.00	$ 50,777,132.89	$ 32,404.04
	2011	20	23.00	473.00	60.50	1,234.00	$ 62,186,130.21	$ 50,393.95
	2012	19	23.00	444.00	52.00	1,286.00	$ 62,018,929.10	$ 48,226.23
	2013	18	23.00	437.00	59.00	1,183.00	$ 46,459,825.09	$ 39,272.89
	2014	18	24.00	449.00	75.00	1,300.00	$ 50,103,381.80	$ 38,541.06
	2015	18	24.00	449.00	62.00	1,160.00	$ 44,990,698.44	$ 38,785.08
	2016	19	25.00	477.00	65.00	1,357.00	$ 46,710,643.68	$ 34,421.99
	2017	19	24.00	504.00	76.00	1,533.00	$ 65,922,066.17	$ 43,002.00
	2018	19	25.00	526.00	74.00	1,595.00	$ 63,459,350.17	$ 39,786.43
	2019	20	26.50	557.00	75.00	1,590.00	$ 54,895,672.09	$ 34,525.58
	2020	19	28.00	497.00	76.00	1,578.00	$ 40,137,221.24	$ 25,435.50
	2021	19	24.00	442.00	70.00	1,288.00	$ 31,199,875.00	$ 24,223.51

Note Average positions on-board reflects the number of individuals employed on-board at one time (i.e., the complement of crew employed to operate the vessel), by employment category; number of employees during the year counts each unique person employed over the course of the year. The higher numbers reported for the latter reflects turnover in employment when compared to the average number of positions on-board. Average annual gross wages per employee reflects the aggregate annual labor costs reported for active vessels by labor category, divided by the number of employees during the year, including any payroll taxes paid, and not accounting for the value of any non-wage benefits received.
Source Amendment 80 Economic Data Reports.

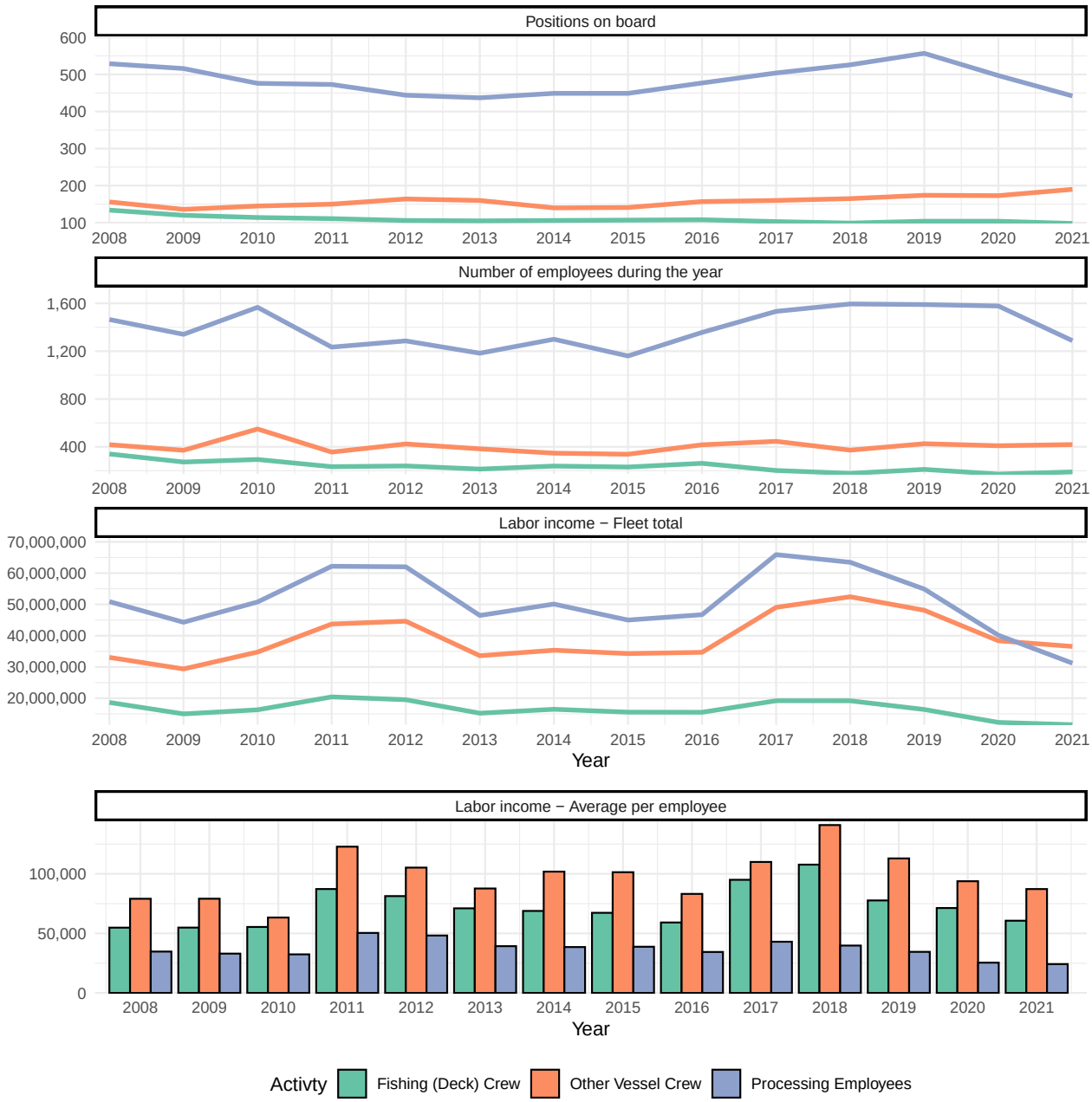

Figure 9.12: Amendment 80 Fleet Employment and Average Gross Wages, by Labor Category, Fleet Total and Median Vessel Values.

Note Tabular data shown in Table 9.13.

Table 9.14: Amendment 80 Catcher/Processor Fleet - Estimated Crew Employment and Income, by Community of Residence

	Community	Year	Employee Count	Employee Share	Income $Million
Alaska	Unalaska/Dutch Harbor	2015	27	5 %	$ 2.23
		2016	23	4 %	$ 1.78
		2017	11	2 %	$ 1.07
		2018	6	1 %	$ 0.76
		2019	11	2 %	$ 1.12
		2020	4	1 %	$ 0.35
		2021	4	1 %	$ 0.34
	Other Alaska	2015	14	2 %	$ 1.16
		2016	24	4 %	$ 1.85
		2017	26	4 %	$ 2.53
		2018	10	2 %	$ 1.26
		2019	17	3 %	$ 1.73
		2020	16	3 %	$ 1.39
		2021	8	2 %	$ 0.68
	Alaska Total	2015	41	7 %	$ 3.39
		2016	47	8 %	$ 3.63
		2017	37	6 %	$ 3.60
		2018	16	3 %	$ 2.02
		2019	28	5 %	$ 2.84
		2020	20	4 %	$ 1.74
		2021	12	2 %	$ 1.03
Oregon	Oregon Total	2015	21	4 %	$ 1.74
		2016	14	2 %	$ 1.08
		2017	11	2 %	$ 1.07
		2018	7	1 %	$ 0.88
		2019	10	2 %	$ 1.02
		2020	9	2 %	$ 0.78
		2021	6	1 %	$ 0.51
Washington	Seattle MSA	2015	297	52 %	$ 24.56
		2016	351	57 %	$ 27.10
		2017	425	64 %	$ 41.40
		2018	369	69 %	$ 46.56
		2019	396	66 %	$ 40.22
		2020	347	63 %	$ 30.17
		2021	378	71 %	$ 32.32
	Other Wash.	2015	81	14 %	$ 6.70
		2016	67	11 %	$ 5.17
		2017	61	9 %	$ 5.94
		2018	49	9 %	$ 6.18
		2019	54	9 %	$ 5.49
		2020	63	11 %	$ 5.48
		2021	32	6 %	$ 2.74
	Wash. Total	2015	379	66 %	$ 31.34
		2016	418	68 %	$ 32.27
		2017	487	73 %	$ 47.44
		2018	418	78 %	$ 52.74
		2019	450	75 %	$ 45.71
		2020	410	74 %	$ 35.64
		2021	411	77 %	$ 35.14

Table 9.14: Amendment 80 Catcher/Processor Fleet - Estimated Crew Employment and Income, by Community of Residence *(continued)*

	Community	Year	Employee Count	Employee Share	Income $Million
Other		2015	121	21 %	$ 10.00
		2016	121	20 %	$ 9.34
		2017	98	15 %	$ 9.55
		2018	84	16 %	$ 10.60
		2019	100	17 %	$ 10.16
		2020	96	17 %	$ 8.35
		2021	80	15 %	$ 6.84
Unknown		2015	9	2 %	$ 0.74
		2016	16	3 %	$ 1.24
		2017	31	5 %	$ 3.02
		2018	13	2 %	$ 1.64
		2019	14	2 %	$ 1.42
		2020	17	3 %	$ 1.48
		2021	24	5 %	$ 2.05
All Locations		2015	571	100 %	$ 47.21
		2016	616	100 %	$ 47.56
		2017	664	100 %	$ 64.68
		2018	538	100 %	$ 67.88
		2019	602	100 %	$ 61.15
		2020	552	100 %	$ 47.99
		2021	533	100 %	$ 45.57

Note 'Employ count' reports the number of individual vessel crew members identified as resident of the listed community or location. 'Employ share' reports the proportion of the total vessel employment pool associated by residence with the listed community or location. Statistics are reported for individual communities or community groupings within states (incorporated cities, counties or boroughs, or metropolitan statistical areas (MSAs)) only for communities that represented 3% or greater of the total employment pool in at least one year of reporting; employment and income statistics for residence locations below that threshold are aggregated together as 'Other (state)'. Note that no Alaska city or borough other than Unalaska/Dutch Harbor (Aleutians West Census Area) represented at least 3% of total vessel employment in any year of reporting. 'Other' references residence locations other than the states of Alaska, Oregon and Washington, and 'Unknown' references crew identifier entries where a valid crew license permit number could not be identified from information reported in the EDR. 'Income' (reported in $million, inflation-adjusted to 2021-equivalent value) is the estimated amount of vessel labor income, by community/location of residence, that is distributed to vessel crew members in aggregate; the estimate is derived by multiplying aggregate direct labor payments to non-processing vessel crew (reported by year in Amendment 80 EDR data; includes total fleet cost values reported for 'Labor Payment, Fishing Crew' and 'Labor Payment - Other Employees' in Table 9.9 by the 'Employ share' percentage value for the respective community/location. This does not control for differentials in proportional residence associations among different crew labor types (i.e., deck crew, captain, fish master, etc.) and respective pay rates.
Source Amendment 80 Economic Data Reports, ADFG commercial crew license database, and CFEC gear operator permit database; source data and compilation are provided by the Alaska Fisheries Information Network (AKFIN).

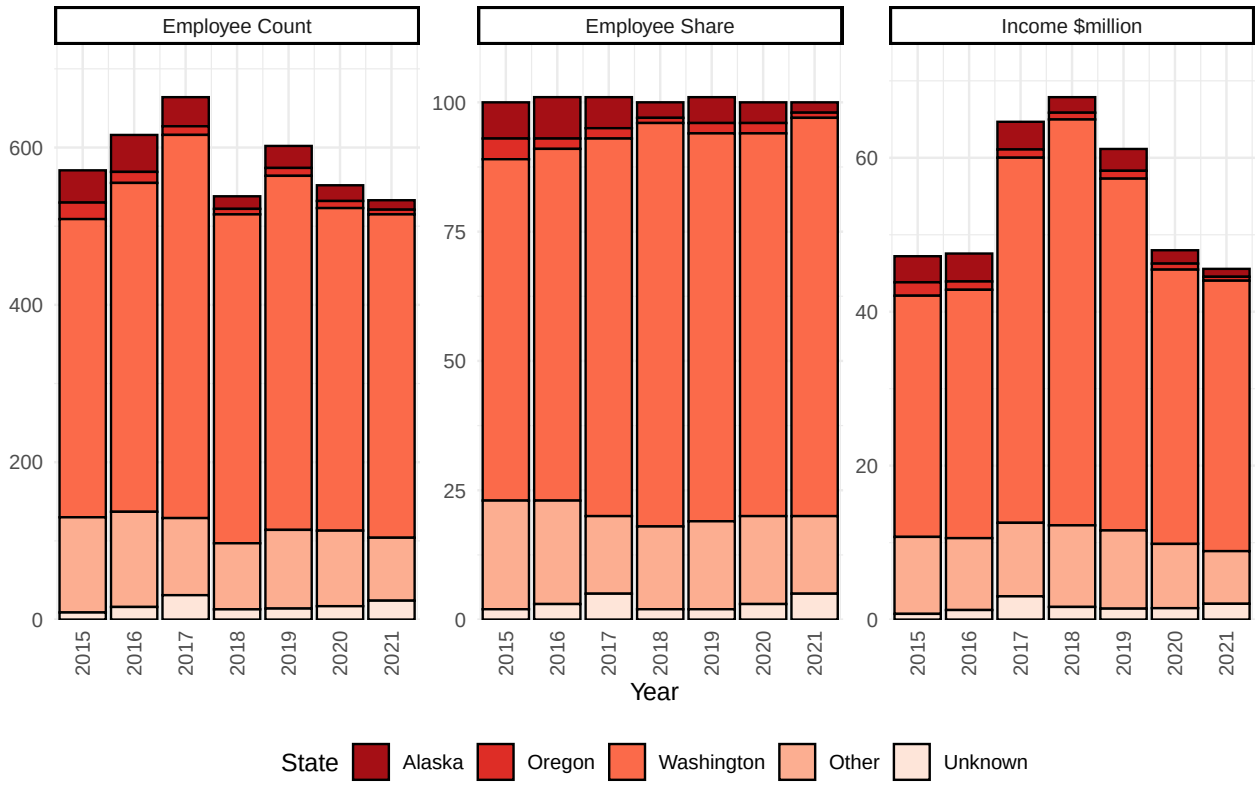

Figure 9.13: Amendment 80 Catcher/Processor Fleet - Estimated Crew Employment and Income, by Community of Residence.

Note Tabular data shown in Table 9.14.

9.5 Citations

Northern Economics, Inc., 2014. Five-Year Review of the Effects of Amendment 80. Prepared for the North Pacific Fishery Management Council. September, 2014.

National Transportation Safety Board (NTSB), 2017. Marine Accident Brief: Flooding and Sinking of Fishing Vessel Alaska Juris. National Transportation Safety Board, Washington DC, MAB-17/26, July 24, 2017. 14pp.
[https://www.ntsb.gov/investigations/AccidentReports/Reports/MAB1726.pdf]

Chapter 10

Gulf of Alaska Groundfish Trawl Economic Data Report - Summary of Results

This section of the Groundfish Economic Status Report provides a brief summary of cost, employment, and earnings information associated with commercial fishing and processing industry operations in the groundfish trawl fisheries of the central and western Gulf of Alaska (GOA) for the period 2015 to 2021. Beginning in 2015, the GOA Groundfish Trawl Economic Data Report (EDR) data collection program collected annual census data from trawl catcher vessels, catcher-processors, and share-based processors active in GOA groundfish fisheries. The EDR program was developed by the Council to collect baseline cost and employment data from vessels and processors in advance of FMP amendments intended to rationalize the GOA groundfish trawl fisheries and improve bycatch avoidance (79 FR 71313); although Council action on GOA rationalization was suspended in December 2016, the GOA Trawl EDR represents an effort to improve the quality of information describing baseline economic conditions that was not available in the implementation of earlier catch share programs. Following a comprehensive review of the EDR program (including the GOA Trawl EDR, the Amendment 80/Trawl CP EDR (see the previous chapter in this report), and two other EDR collections), and extensive public input, the Council took final action at its February, 2022 meeting on several amendments to the EDR program, which included discontinuing the GOA Trawl EDR. The final rule was published on February 6th (88 FR 7586[1]) and takes effect on March 8th of 2023. As such, the final cycle of GOA Trawl EDR submission was completed in 2022, reporting data for calendar year 2021, which represents the final year of the EDR data series summarized in this edition of the Economic SAFE report. This is the last edition of the Economic SAFE in which this chapter will appear.

The GOA Trawl EDR is comprised of data collections targeting the three respective sectors of the fishery. The Annual Trawl Catcher Vessel EDR and Annual Shoreside Processor EDR were designed by the Council to collect selected data elements from the respective populations that would capture key operating cost and employment conditions that were expected to be particularly susceptible to institutional changes associated with rationalization. As such, the GOA Trawl EDR does not collect comprehensive financial and employment data sufficient to

[1] [https://www.federalregister.gov/documents/2023/02/06/2023-02117/fisheries-of-the-exclusive-economic-zone-off-alaska-revisions-to-the-economic-data-reports]

support monitoring and assessment of general economic conditions in the respective industry sectors. In particular, the scope of data captured in the EDR is as follows:

The Trawl CV EDR form is required for all trawl catcher vessels that harvested groundfish in the GOA during the previous year, and collects the following data elements:

- Estimated market value and replacement value of vessel;
- Fishing gear costs - total direct capitalized expenditures and fully expensed costs for purchase, lease, installation and repair of a) salmon and halibut excluder gear, and b) trawl gear (including excluder gear other than salmon and halibut);
- Annual total fuel and lubrication cost and gallons;
- Total labor payments to a) crew and b) captain (total of final settlement payments), and number of crew, for GOA groundfish only;
- ADF&G commercial crew license number or CFEC gear operator permit number, by individual crew member that worked on vessel during GOA groundfish trawl fishing.

The Annual Shoreside Processor EDR form is required from all shore-based processors that receive and process groundfish from GOA trawl fisheries. The form collects the following data elements:

- Estimated market value; borough assessed value or replacement value;
- Municipal water utility consumption, gallons and cost, by month, for Kodiak plants only;
- Municipal electrical utility consumption, kilowatt-hours and cost, by month, for Kodiak plants only;
- Processing labor gross wages and hours, by month and housing-status (housed, non-housed), for groundfish processing only;
- Number of processing employees, by month, for groundfish only;
- Non-processing employment, number employed, total wages and salaries, annual total.

In addition, trawl CPs active in GOA groundfish fisheries are required to submit the Annual Trawl CP EDR, which collects more comprehensive financial and other data; with the exception of one CP that operates exclusively in the GOA, all other trawl CPs active in the GOA are part of the Amendment 80 CP fleet that also operate in the Bering Sea. The requirements for submission of the Trawl CP EDR form under GOA Trawl EDR regulations continue to apply under terms of the Amendment 80 management program rules, and are only discontinued for non-Amendment 80 Trawl CPs operating in the GOA. Chapter 9 of the Economic SAFE Report provides a more complete presentation of EDR data representing the trawl CP fleet, and this chapter is limited to reporting summaries of EDR data for the GOA groundfish trawl catcher vessel and shore-based processing sectors.

NOTE: As of the completion of this report, **EDR forms reporting for the 2021 calendar year remain outstanding and have yet to be submitted for five (5) catcher vessels**. Pacific State Marine Fisheries Commission has made consistent efforts to communicate with EDR submitters regarding the need for timely completion of EDR submissions, and entities with outstanding GOA Trawl EDR submissions have been contacted by NMFS Alaska Region. However, noncompliance with GOA Trawl EDR requirements during 2019 has not been resolved to-date. **As such, statistics reported for 2021 for the GOA catcher vessel sector in the**

following sections represent preliminary results based on incomplete data collection for the 2021 calendar year. Results as reported for the shoreside processing sector are complete for all years.

10.1 Harvest Sector Employment

Trawl catcher vessel crew employment and revenue share earnings for 2015 to 2021 are depicted in Figure 10.1, with tabular results reported in Table 10.2, noting that statistics reported for the 52 vessels for which 2021 EDR data are available reflect substantial outstanding EDR submissions for the year, and are incomplete pending completion of 2021 EDR forms for as many as five additional catcher vessels.

The number of catcher vessels operating in GOA groundfish fisheries over the period prior to 2019 ranged from 63 to 66, and subsequently declined to 52 vessels in 2021. Note that, for a given vessel, 'crew positions' is the typical number of crew members onboard the vessel at one time, i.e., the 'size' of the vessel's crew, whereas 'crew employed' is the (likely larger) number of distinct individuals employed by the vessel over the course of a year. Fleet aggregate crew positions declined from 256 in 2016 to 205 in 2020, while the number of crew employed in the fleet during each year declined after 2018, from 404 individuals in 2018 to 299 in 2021.[2]

[2]For each vessel, the number of 'crew employed' is derived from the number of non-captain crew members receiving crew share payments, as reported in Trawl CV EDRs. Also for each vessel, the number of 'crew positions' is estimated as the average over all 'crew size' entries on the vessel's fish ticket records for the year, adjusted (less one) to exclude the captain position. At both the vessel and fleet level, 'crew employed' is likely to be larger that 'crew positions' due to employment turnover during the year. However, if crew turnover includes individual crew members rotating between vessels in the fleet, there will be some double-counting in fleet aggregate 'crew employed' values reported in Tables 10.2 and 10.1. Also note that the aggregate crew employment counts reported in Table 10.1 are derived from counts of distinct crew members (uniquely identified by crew license number) and aren't subject to double-counting, but are inclusive of vessel captains and are thus greater than the counts shown in Table10.2.

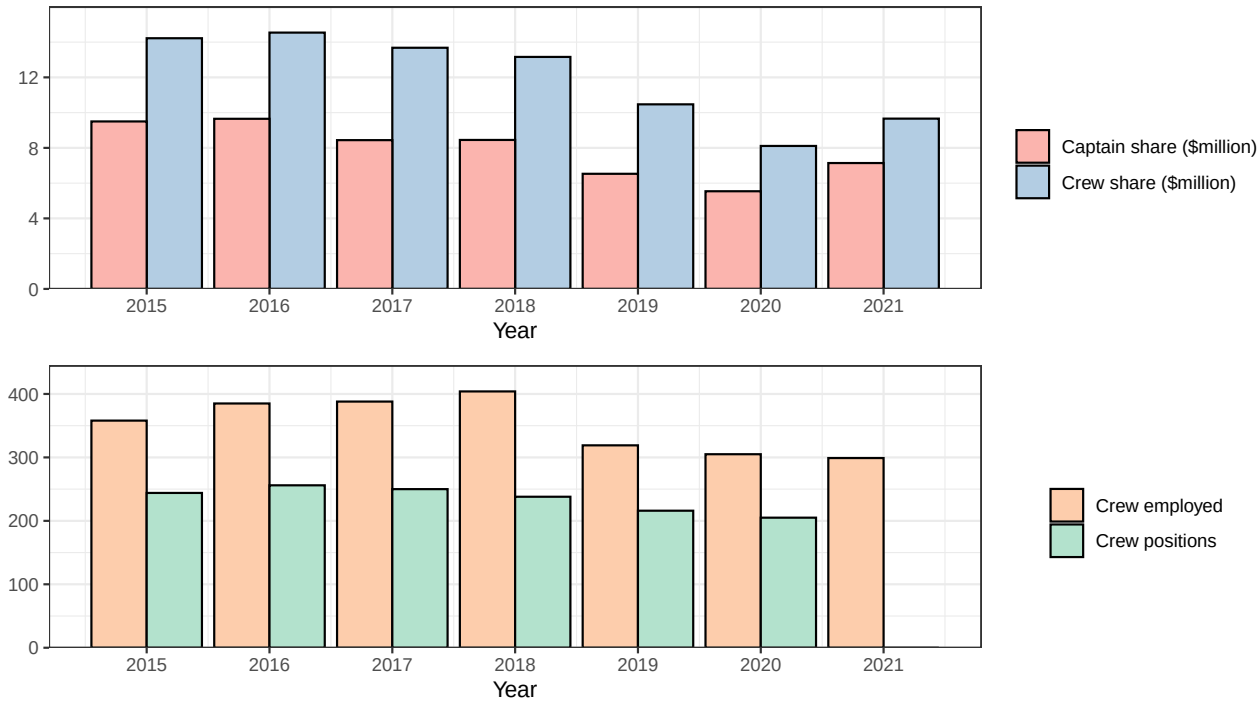

Figure 10.1: GOA Trawl Fleet - Vessel Crew and Captain Employment and Share Earnings

The total value of annual share payments to crew and captains aggregated over the fleet declined consistently between 2016 to 2020, from a high of $14.5 million declining to $8.11 million in payments to crew members, and from $9.65 million declining to $5.5 million in payments to vessel captains in 2020; among the 52 vessels reporting for 2021 (pending completion of outstanding EDR submissions), aggregate crew share payments increased by 19% to $9.7 million, and captain share payments increased 29%, totaling $7.1 million. Noting that median values for 2021, though incomplete, are likely indicative of changes across the fleet as a whole, the median number of crew positions has remained stable at 4, with the number of crew employed declined to 4 per-vessel in 2021, from 5 during all but one of the previous years. Total non-captain share payment for the median vessel consistently declined from 2015 to 2020, from $210 thousand in 2015 to $110 thousand in 2020, but reversed trend in 2021, increasing 43% to %159 thousand at the vessel level, nearly $40 thousand per crew position. Median captain share payment has generally followed the same trend, declining from $144 thousand in 2015 to $84 thousand in 2020, but increasing into 2021, up 16% to $98 thousand.

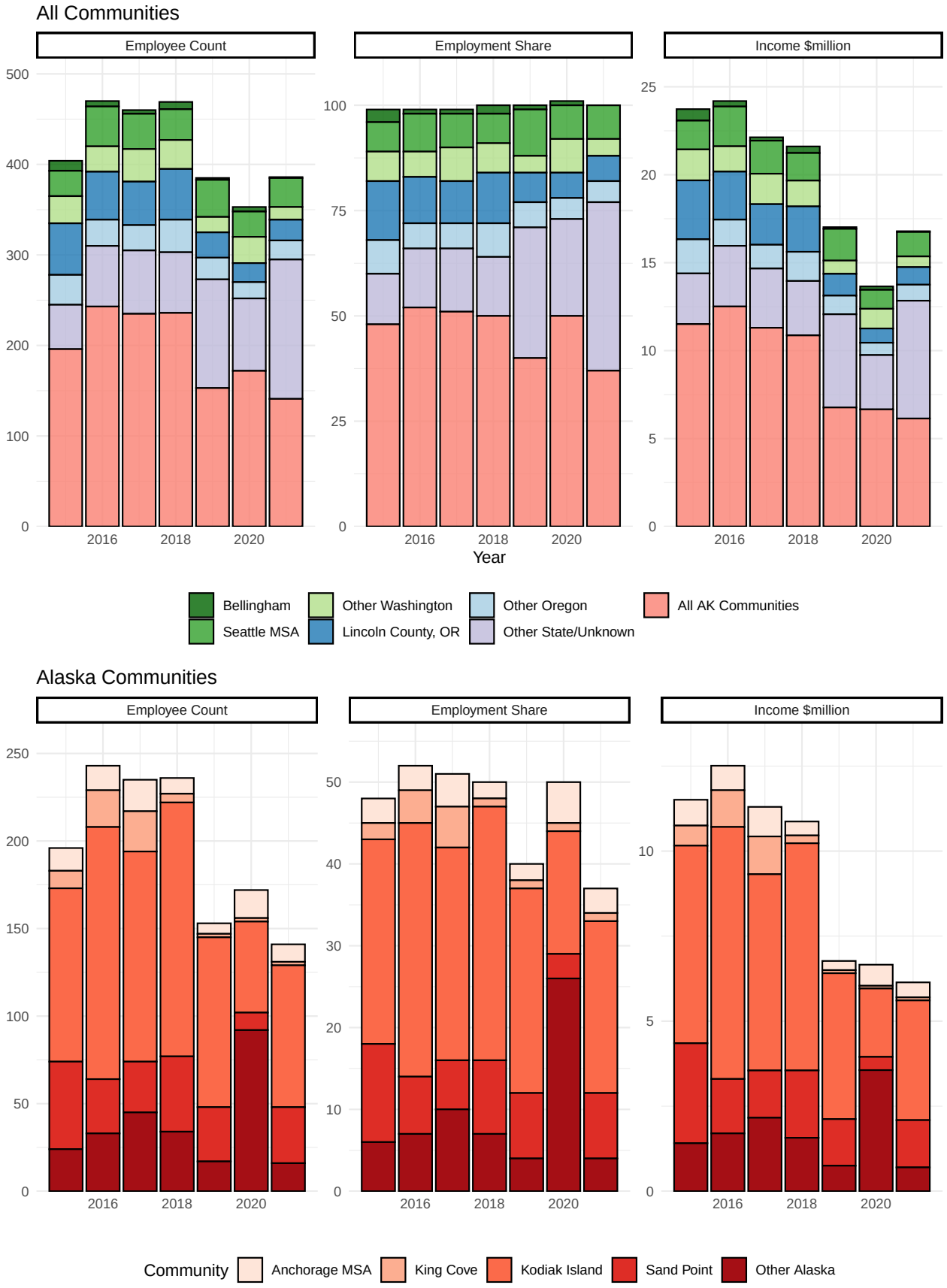

Figure 10.2: GOA Trawl Fleet - Crew Employment and Income by Community of Residence

The spatial distribution of GOA trawl catcher vessel crew employment and wages is summarized in Figure 10.2, with tabular values reported in Table 10.1, showing the estimated number of individual crew members (including captains) employed by location of residence (as identified from ADF&G commercial crew licenses and CFEC gear permit numbers reported in the CV EDR form), and the relative share of total crew employment and estimated share of total crew and captain share income accruing to residents at the community and regional level. Only four Alaska communities (Anchorage, King Cove, Kodiak, and Sand Point) have accounted for at least 3% of total crew employment in the trawl catcher vessel fleet in one or more year of 2015 to 2021 period. Kodiak represents the largest concentration of crew employment in the fleet, accounting over the period for between 15% and 31% of total employment, and between 52 and 145 individual crew members employed in the fleet. Estimated revenue share earnings paid to Kodiak-resident crew members in the fleet have ranged annually between a low of $2 million in 2020 and a high of $7.4 million in 2016.[3] The state of Alaska as a whole averaged approximately 50% of total crew employment in the GOA groundfish trawl catcher vessel fleet from 2015 to 2018, but subsequently declined, with 139 crew members in 2021 representing 36% of the crew population, drawing an estimated $6 million in crew wages to the state. Note, however, that 34% of individual crew members employed by the 52 reporting vessels could not be identified by community of residence (shown as 'Unknown in Figure 10.2 and Table 10.1), reflecting incomplete reporting and preliminary results pending error correction.

10.2 Vessel fuel and trawl gear expenditures

Vessel fuel consumption and cost, and expenditures on trawl gear and salmon and halibut excluder gear are summarized in Figure 10.3 and tabular results reported in Table 10.3. Fuel consumption in the fleet over the 2015 to 2021 period peaked in 2018 at 5.1 million gallons in aggregate, and 87 thousand gallons on a median basis, and with fuel costs peaking the same year at $14.8 million in aggregate and $258 thousand on a median basis. Aggregate fule gallons and cost declined from 2020 to 2021, by 32% to 2.5 million gallons, and by 16% to $6.95 million. The majority of vessels reported some expenditure on trawl gear each year, with fleet aggregate expenditure consistently declining over the period, from $5.6 million in 2015 to a low in 2021 of $3.2 million. In each year of EDR reporting, fewer than half of the fleet has reported expenditures on salmon and halibut excluder gear, and in 2021, only 6 of 52 vessels reported excluder costs; in aggregate over the fleet, expenditures have ranged annually from a high of $276 thousand in 2016 to a low of $58 thousand in 2021. As noted above, trawl gear expenditures as reported in the GOA Trawl CV EDR include the total over all direct capitalized expenditures during the year, as well as fully expensed costs for purchase, lease, installation and repair.

[3] See the table notes for Table 10.2 for qualifications regarding the estimation of crew income by location.

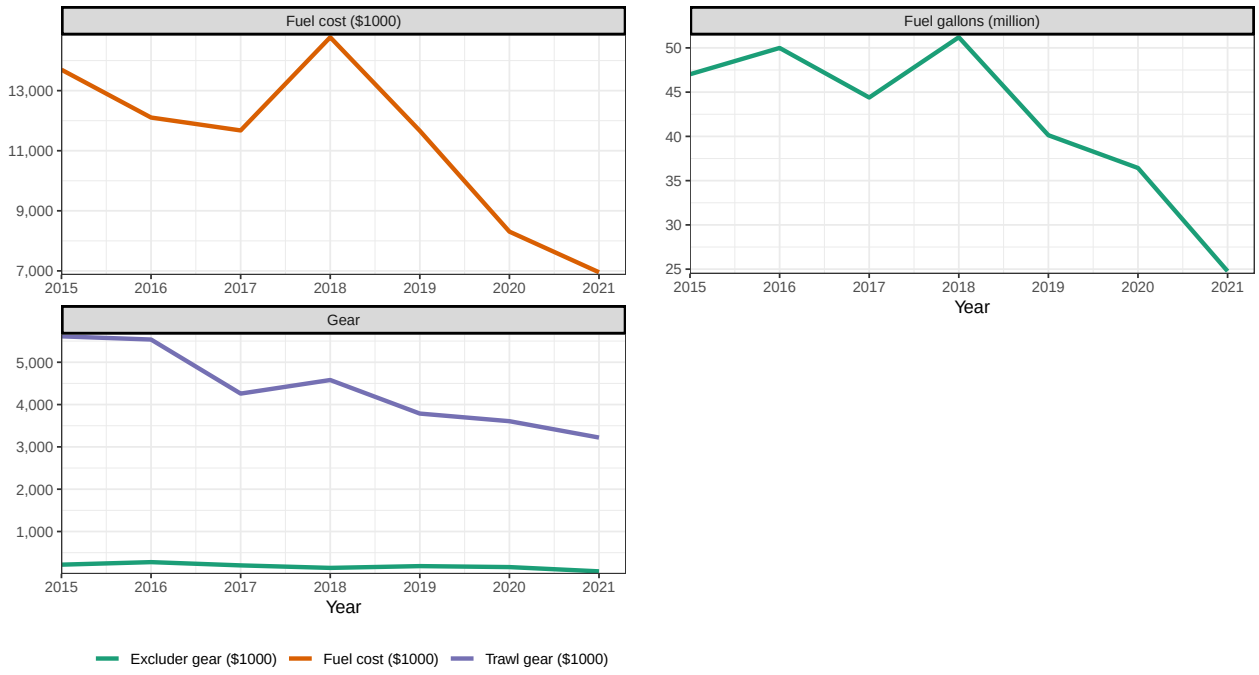

Figure 10.3: Gulf of Alaska4

10.3 Gulf of Alaska Groundfish Processing Sector - Processing Labor Employment and Wages

Figure 10.4 presents a time series of annual summary of data reported by shore-based processors of GOA groundfish landings on employment and wages paid to processing line workers on a monthly basis, and Figure 10.5 provides additional detail, showing seasonal variation in monthly data, with results averaged over the 2015 to 2021 period and 2021 results plotted for comparison. Tabular results are reported in Table 10.4

The number of active plants processing GOA groundfish landings has declined consistently over the six-year period, from a high of 13 in 2015, to a low of 6 in 2021. While the number of individual processing workers employed in a given year has seen a somewhat less consistent trend, an overall downward trend has occurred, with 1,748 processing employees reported in 2021 a low for the period. There has also been a modest trend toward a greater proportion of processing labor input and cost (as measured by labor hours and wage payments) attributable to employees in housed status (i.e., living in employer-provided housing) compared to independently housed employees, particularly in contrast to 2015. In 2015, a total of 2.36 million hours of processing labor were expended by housed employees, accounting for $29.5 million in wages, compared to 2.1 million hours and $26.8 million in wages attributable to independently housed employees, with approximately 53% of both hours and wages attributable to housed employees. In 2021, the relative share of both hours and wages has trended toward housed processing employees, with 1.2 million hours and $17.6 million in wages attributable to housed employees, both increasing to approximately 68% of the respective annual totals, compared to 540 thousand hours and $8.6 million in wages attributable to non-housed employees.

Figure 10.5 displays the seasonal variation in processing activity. C consistently, groundfish processing activity is concentrated into two primary seasons, with a spring season spanning February to June, and a briefer, but somewhat more concentrated fall season spanning September to November. Processing activity typically declines substantially during December to January, and more sharply during July and August, with a contingent of processors reporting no groundfish processing labor during those months.

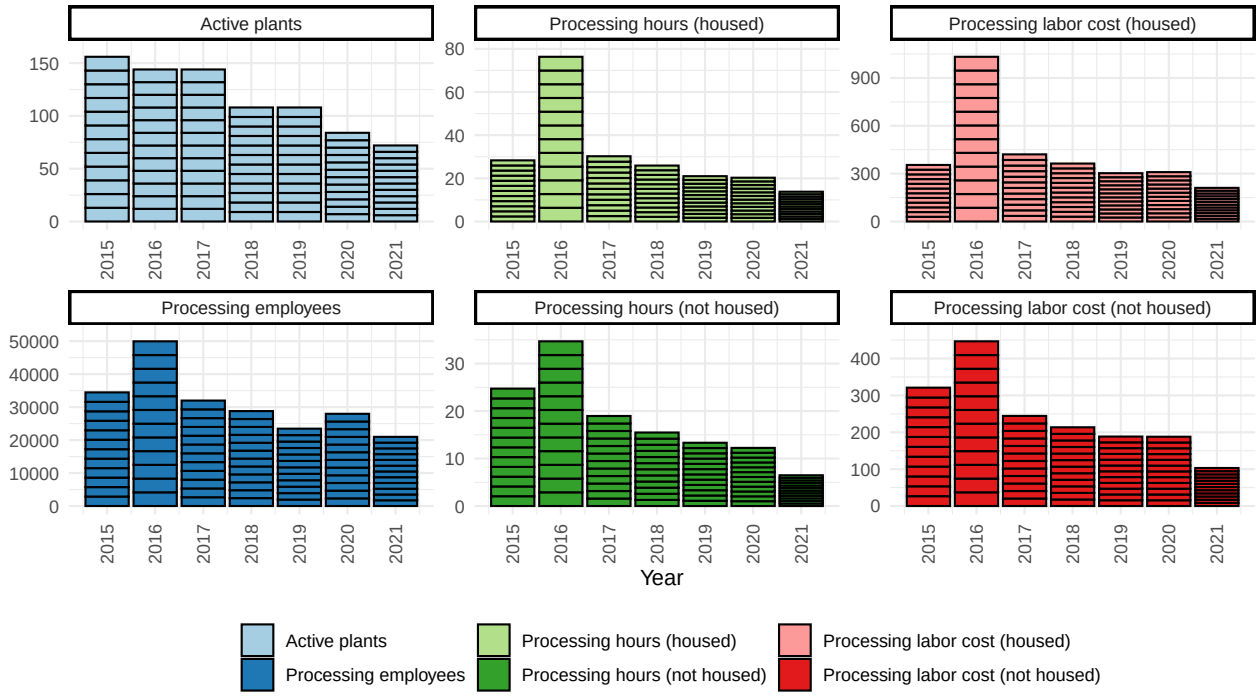

Figure 10.4: Gulf of Alaska Groundfish Processing Sector, Annual Processing Labor Employment and Wages

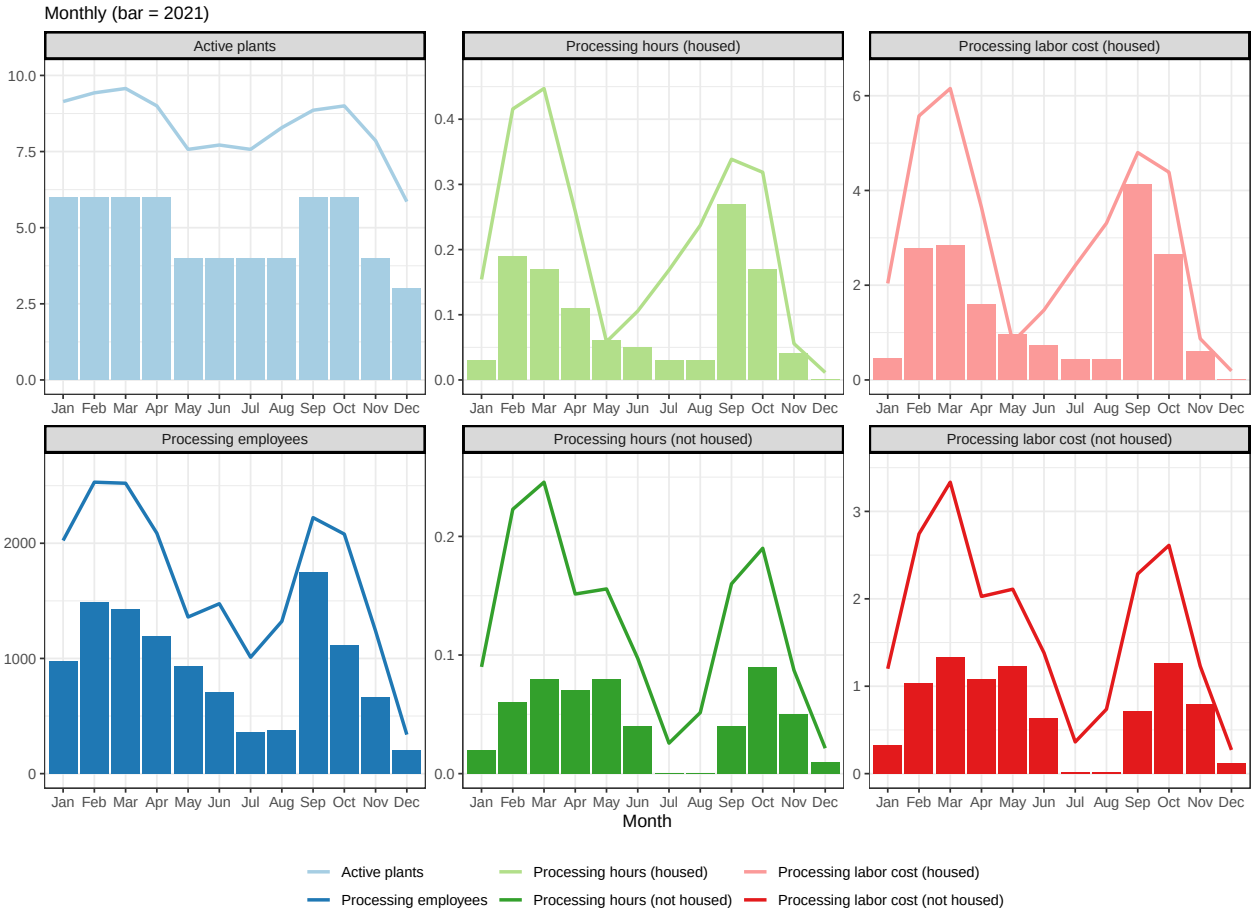

Figure 10.5: Gulf of Alaska Groundfish Processing Sector, Monthly Processing Labor Employment and Wages, 2015-2021 Average

Table 10.1: Gulf of Alaska Catcher Vessel Fleet - Estimated Vessel Crew Employment and Income, by Community of Residence

	Community	Year	Employee Count	Employment Share	Income $Million
Alaska	Anchorage	2015	13.00	3.00 %	$ 0.76
		2016	14.00	3.00 %	$ 0.72
		2017	18.00	4.00 %	$ 0.87
		2018	9.00	2.00 %	$ 0.41
		2019	6.00	2.00 %	$ 0.27
		2020	16.00	5.00 %	$ 0.62
		2021	10.00	3.00 %	$ 0.44
	King Cove	2015	10.00	2.00 %	$ 0.59
		2016	21.00	4.00 %	$ 1.08
		2017	23.00	5.00 %	$ 1.11
		2018	5.00	1.00 %	$ 0.23
		2019	2.00	1.00 %	$ 0.09
		2020	2.00	1.00 %	$ 0.08
		2021	2.00	1.00 %	$ 0.09
	Kodiak	2015	99.00	25.00 %	$ 5.81
		2016	144.00	31.00 %	$ 7.41
		2017	120.00	26.00 %	$ 5.77
		2018	145.00	31.00 %	$ 6.68
		2019	97.00	25.00 %	$ 4.29
		2020	52.00	15.00 %	$ 2.01
		2021	81.00	21.00 %	$ 3.52
	Sand Point	2015	50.00	12.00 %	$ 2.94
		2016	31.00	7.00 %	$ 1.60
		2017	29.00	6.00 %	$ 1.39
		2018	43.00	9.00 %	$ 1.98
		2019	31.00	8.00 %	$ 1.37
		2020	10.00	3.00 %	$ 0.39
		2021	32.00	8.00 %	$ 1.39
	Other Alaska	2015	24.00	6.00 %	$ 1.41
		2016	33.00	7.00 %	$ 1.70
		2017	45.00	10.00 %	$ 2.16
		2018	34.00	7.00 %	$ 1.57
		2019	17.00	4.00 %	$ 0.75
		2020	92.00	26.00 %	$ 3.56
		2021	16.00	4.00 %	$ 0.70
	Alaska Total	2015	196.00	49.00 %	$ 11.51
		2016	243.00	52.00 %	$ 12.51
		2017	235.00	51.00 %	$ 11.30
		2018	236.00	50.00 %	$ 10.88
		2019	153.00	40.00 %	$ 6.76
		2020	172.00	49.00 %	$ 6.65
		2021	141.00	37.00 %	$ 6.14
	Lincoln County	2015	57.00	14.00 %	$ 3.35
		2016	53.00	11.00 %	$ 2.73
		2017	48.00	10.00 %	$ 2.31
		2018	56.00	12.00 %	$ 2.58
		2019	28.00	7.00 %	$ 1.24
		2020	21.00	6.00 %	$ 0.81
		2021	23.00	6.00 %	$ 1.00

Table 10.1: Gulf of Alaska Catcher Vessel Fleet - Estimated Vessel Crew Employment and Income, by Community of Residence *(continued)*

	Community	Year	Employee Count	Employment Share	Income $Million
Oregon	Other Oregon	2015	33.00	8.00 %	$ 1.94
		2016	29.00	6.00 %	$ 1.49
		2017	28.00	6.00 %	$ 1.35
		2018	36.00	8.00 %	$ 1.66
		2019	24.00	6.00 %	$ 1.06
		2020	18.00	5.00 %	$ 0.70
		2021	21.00	5.00 %	$ 0.91
	Oregon Total	2015	90.00	22.00 %	$ 5.29
		2016	82.00	17.00 %	$ 4.22
		2017	76.00	17.00 %	$ 3.66
		2018	92.00	20.00 %	$ 4.24
		2019	52.00	14.00 %	$ 2.30
		2020	39.00	11.00 %	$ 1.51
		2021	44.00	11.00 %	$ 1.91
Washington	Bellingham	2015	11.00	3.00 %	$ 0.65
		2016	6.00	1.00 %	$ 0.31
		2017	4.00	1.00 %	$ 0.19
		2018	8.00	2.00 %	$ 0.37
		2019	2.00	1.00 %	$ 0.09
		2020	5.00	1.00 %	$ 0.19
		2021	1.00	0.00 %	$ 0.04
	Seattle MSA	2015	28.00	7.00 %	$ 1.64
		2016	44.00	9.00 %	$ 2.26
		2017	39.00	8.00 %	$ 1.88
		2018	34.00	7.00 %	$ 1.57
		2019	41.00	11.00 %	$ 1.81
		2020	28.00	8.00 %	$ 1.08
		2021	32.00	8.00 %	$ 1.39
	Other Wash.	2015	30.00	7.00 %	$ 1.76
		2016	28.00	6.00 %	$ 1.44
		2017	36.00	8.00 %	$ 1.73
		2018	32.00	7.00 %	$ 1.47
		2019	17.00	4.00 %	$ 0.75
		2020	29.00	8.00 %	$ 1.12
		2021	14.00	4.00 %	$ 0.61
	Wash. Total	2015	69.00	17.00 %	$ 4.05
		2016	78.00	17.00 %	$ 4.01
		2017	79.00	17.00 %	$ 3.80
		2018	74.00	16.00 %	$ 3.41
		2019	60.00	16.00 %	$ 2.65
		2020	62.00	18.00 %	$ 2.40
		2021	47.00	12.00 %	$ 2.05
Other		2015	34.00	8.00 %	$ 2.00
		2016	48.00	10.00 %	$ 2.47
		2017	50.00	11.00 %	$ 2.41
		2018	42.00	9.00 %	$ 1.94
		2019	36.00	9.00 %	$ 1.59
		2020	53.00	15.00 %	$ 2.05
		2021	22.00	6.00 %	$ 0.96

Table 10.1: Gulf of Alaska Catcher Vessel Fleet - Estimated Vessel Crew Employment and Income, by Community of Residence *(continued)*

	Community	Year	Employee Count	Employment Share	Income $Million
Unknown	-	2015	15.00	4.00 %	$ 0.88
		2016	19.00	4.00 %	$ 0.98
		2017	20.00	4.00 %	$ 0.96
		2018	25.00	5.00 %	$ 1.15
		2019	84.00	22.00 %	$ 3.71
		2020	27.00	8.00 %	$ 1.04
		2021	132.00	34.00 %	$ 5.74
All Locations		2015	404.00	100.00 %	$ 23.73
		2016	470.00	100.00 %	$ 24.19
		2017	460.00	100.00 %	$ 22.13
		2018	469.00	100.00 %	$ 21.61
		2019	385.00	100.00 %	$ 17.01
		2020	353.00	100.00 %	$ 13.65
		2021	386.00	100.00 %	$ 16.80

Note Statistics reported for 2019 represent preliminary results pending completion of mandatory EDR submission for all catcher vessels active in GOA Trawl fisheries during the 2019 calendar year.'Employ count' reports the number of individual vessel crew members identified as resident of the listed community or location. 'Employ share' reports the proportion of the total vessel employment pool associated by residence with the listed community or location. Statistics are reported for individual communities or community groupings within states (incorporated cities, counties or boroughs, or metropolitan statistical areas (MSAs)) only for communities that represented 3% or greater of the total employment pool in at least one year of reporting; employment and income statistics for residence locations below that threshold are aggregated together as 'Other (state)'. 'Other' references residence locations other than the states of Alaska, Oregon and Washington, and 'Unknown' references crew identifier entries where a valid crew license permit number could not be identified from information reported in the EDR.'Income' (reported in $million, inflation-adjusted using the GDP deflator to 2021-equivalent value) is the estimated amount of vessel labor income, by community/location of residence, that is distributed to vessel crew members in aggregate; the estimate is derived by multiplying aggregate crew and captain labor payments (reported by year in GOA Trawl CV EDR data) by 'Employ share' percentage by community/location. This does not control for differentials in proportional residence associations among different crew labor types (i.e., deck crew, captain) and respective pay rates.
Source GOA Trawl Economic Data Reports, ADFG commercial crew license database, and CFEC gear operator permit database; source data and compilation are provided by the Alaska Fisheries Information Network (AKFIN).

Table 10.2: Gulf of Alaska Catcher Vessel Fleet - Aggregate and Median Vessel Crew and Captain Employment and Share Earnings

		Fleet Aggregate				Median Vessel				
	Vessels	Crew Employed	Crew Positions	Crew Share ($Million)	Captain Share ($Million)	Crew Employed	Crew Positions	Crew Share ($1000)	Share Per Position ($1000)	Captain Share ($1000)
2015	63.00	358.00	244.00	$ 14.22	$ 9.50	5.00	4.00	$ 210.78	$ 52.70	$ 144.10
2016	66.00	385.00	256.00	$ 14.54	$ 9.65	5.00	4.00	$ 191.27	$ 47.82	$ 124.55
2017	64.00	388.00	250.00	$ 13.68	$ 8.44	5.00	4.00	$ 170.01	$ 42.50	$ 111.49
2018	63.00	404.00	238.00	$ 13.16	$ 8.45	6.00	4.00	$ 168.29	$ 42.07	$ 122.66
2019	55.00	319.00	216.00	$ 10.47	$ 6.53	5.00	4.00	$ 141.42	$ 35.35	$ 89.63
2020	54.00	305.00	205.00	$ 8.11	$ 5.54	5.00	4.00	$ 110.72	$ 27.68	$ 83.55
2021	52.00	299.00	0.00	$ 9.66	$ 7.14	4.00	Na	$ 159.26	$ Na	$ 97.59

Note *Statistics reported for 2019 represent preliminary results pending completion of mandatory EDR submission for all catcher vessels active in GOA Trawl fisheries during the 2019 calendar year.* 'Fleet aggregate' statistics reported in the table represent the annual aggregate value of reported variables summed over all vessel-level observations in EDR data reported for trawl catcher vessels active in Gulf of Alaska groundfish fisheries for the year; 'Vessels' reports the number of vessel-level observations. 'Median vessel' statistics represent the average vessel-level value of reported variables; if preferred, arithmetic mean average values can be derived by dividing fleet aggregate values by the number of vessels. 'Crew employed' reports the number of individual vessel crew members receiving crew share payments; 'Crew positions' reports the average number of fishing crew members aboard the vessel (calculated from crew size data captured in eLandings records) and is smaller than the total number of crew employed due to turnover of crew members on a given vessel during the fishing year. 'Crew share' represents the aggregate share settlement payment to all non-Captain crew members of a given vessel, and 'Share per position' reports the average amount of share payment paid per crew position. Share payment values are inflation-adjusted using the GDP deflator to 2021 -equivalent value, and reported in $million for fleet aggregate and $1000 at the median vessel level.
Source GOA Trawl Economic Data Reports and eLandings; source data and compilation are provided by the Alaska Fisheries Information Network (AKFIN).

Table 10.3: Gulf of Alaska Catcher Vessel Fleet - Fuel and Gear Costs

	Vessels	Fuel Gallons (1000)		Fuel Cost ($1000)		Excluder Gear ($1000)			Trawl Gear ($1000)		
		Total	Median	Total	Median	Non-Zero N	Total	Median	Non-Zero N	Total	Median
2015	63.00	4,702.00	72.69	$ 13,697.00	$ 189.94	25.00	$ 216.00	$ 6.87	61.00	$ 5,612.00	$ 61.84
2016	67.00	4,999.00	62.47	$ 12,105.00	$ 180.89	27.00	$ 276.00	$ 7.42	63.00	$ 5,537.00	$ 46.15
2017	65.00	4,439.00	52.77	$ 11,675.00	$ 165.56	19.00	$ 199.00	$ 6.52	62.00	$ 4,259.00	$ 44.06
2018	63.00	5,120.00	87.45	$ 14,777.00	$ 258.46	14.00	$ 140.00	$ 8.81	60.00	$ 4,580.00	$ 49.04
2019	56.00	4,013.00	75.45	$ 11,663.00	$ 226.35	16.00	$ 182.00	$ 4.83	51.00	$ 3,787.00	$ 44.00
2020	54.00	3,643.00	60.72	$ 8,307.00	$ 143.47	17.00	$ 159.00	$ 5.92	47.00	$ 3,607.00	$ 42.13
2021	52.00	2,477.00	35.17	$ 6,954.00	$ 107.00	6.00	$ 58.00	$ 6.87	46.00	$ 3,220.00	$ 44.30

Note *Statistics reported for 2019 represent preliminary results pending completion of mandatory EDR submission for all catcher vessels active in GOA Trawl fisheries during the 2019 calendar year.* 'Total' statistics reported in the table represent the annual aggregate value of reported variables summed over all vessel-level observations in EDR data reported for trawl catcher vessels active in Gulf of Alaska groundfish fisheries for the year; 'Vessels' reports the number of vessel-level observations. 'Median' statistics represent the average vessel-level value of reported variables; if preferred, arithmetic mean average values can be derived by dividing fleet aggregate values by the number of vessels or Non-zero observations for the variable. Fuel and gear cost values are inflation-adjusted using the GDP deflator to 2021-equivalent value, and reported in $1000 for both fleet aggregate total and vessel-median levels.
Source GOA Trawl Economic Data Reports; source data and compilation are provided by the Alaska Fisheries Information Network (AKFIN).

Table 10.4: Gulf of Alaska

	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Active Plants	2015	12.00	13.00	13.00	11.00	10.00	10.00	8.00	9.00	10.00	10.00	10.00	7.00
	2016	12.00	12.00	12.00	12.00	9.00	10.00	10.00	11.00	11.00	11.00	11.00	8.00
	2017	10.00	11.00	12.00	11.00	10.00	9.00	9.00	9.00	10.00	11.00	9.00	7.00
	2018	9.00	9.00	9.00	9.00	7.00	7.00	7.00	9.00	9.00	9.00	8.00	6.00
	2019	8.00	8.00	8.00	8.00	7.00	8.00	8.00	9.00	9.00	9.00	7.00	5.00
	2020	7.00	7.00	7.00	6.00	6.00	6.00	7.00	7.00	7.00	7.00	6.00	5.00
	2021	6.00	6.00	6.00	6.00	4.00	4.00	4.00	4.00	6.00	6.00	4.00	3.00
Processing Employees	2015	2,312.00	2,846.00	2,872.00	2,584.00	1,312.00	1,623.00	1,007.00	1,020.00	2,143.00	2,169.00	1,344.00	407.00
	2016	3,247.00	4,157.00	4,162.00	3,330.00	1,550.00	2,436.00	2,096.00	2,906.00	3,280.00	2,847.00	1,612.00	835.00
	2017	2,274.00	2,562.00	2,665.00	2,265.00	1,407.00	1,508.00	963.00	911.00	2,326.00	2,304.00	1,502.00	438.00
	2018	1,962.00	2,399.00	2,320.00	1,799.00	1,293.00	1,511.00	818.00	1,931.00	2,130.00	2,302.00	1,161.00	176.00
	2019	1,758.00	1,929.00	1,955.00	1,601.00	1,241.00	1,219.00	851.00	1,093.00	1,898.00	1,947.00	1,029.00	123.00
	2020	1,638.00	2,330.00	2,241.00	1,838.00	1,780.00	1,324.00	974.00	1,017.00	2,032.00	1,872.00	1,361.00	189.00
	2021	979.00	1,488.00	1,432.00	1,193.00	935.00	704.00	364.00	377.00	1,748.00	1,115.00	661.00	205.00
Processing Hours (Housed)	2015	0.16	0.37	0.48	0.35	0.06	0.05	0.13	0.10	0.34	0.29	0.03	0.00
	2016	0.43	1.02	1.08	0.63	0.09	0.38	0.60	0.74	0.70	0.48	0.14	0.07
	2017	0.15	0.43	0.49	0.23	0.05	0.08	0.10	0.14	0.40	0.37	0.08	0.00
	2018	0.11	0.34	0.38	0.16	0.03	0.07	0.10	0.29	0.26	0.41	0.01	0.00
	2019	0.14	0.27	0.24	0.14	0.04	0.04	0.13	0.21	0.25	0.27	0.02	0.00
	2020	0.06	0.29	0.29	0.19	0.08	0.07	0.09	0.15	0.15	0.24	0.07	0.01
	2021	0.03	0.19	0.17	0.11	0.06	0.05	0.03	0.03	0.27	0.17	0.04	0.00
Processing Hours (Not Housed)	2015	0.18	0.26	0.32	0.21	0.16	0.12	0.08	0.08	0.26	0.24	0.10	0.05
	2016	0.14	0.43	0.50	0.30	0.27	0.19	0.06	0.20	0.28	0.37	0.11	0.04
	2017	0.13	0.29	0.27	0.15	0.14	0.09	0.01	0.01	0.17	0.17	0.12	0.03
	2018	0.05	0.19	0.22	0.10	0.12	0.10	0.00	0.05	0.17	0.18	0.10	0.01
	2019	0.08	0.18	0.17	0.12	0.17	0.07	0.01	0.00	0.10	0.15	0.06	0.00
	2020	0.03	0.15	0.16	0.11	0.15	0.07	0.02	0.02	0.10	0.13	0.07	0.01
	2021	0.02	0.06	0.08	0.07	0.08	0.04	0.00	0.00	0.04	0.09	0.05	0.01
Processing Labor Cost (Housed)	2015	1.63	4.35	6.10	4.27	0.64	0.64	1.74	1.43	4.38	3.75	0.54	0.07
	2016	5.70	13.55	14.40	8.73	1.08	5.04	8.52	10.13	9.77	6.23	1.87	1.05
	2017	2.15	5.67	6.90	3.36	0.61	1.01	1.46	2.13	5.61	4.92	1.21	0.04
	2018	1.55	4.62	5.21	2.29	0.46	1.03	1.44	3.82	3.90	5.62	0.33	0.01
	2019	1.85	3.78	3.37	2.18	0.61	0.66	1.96	3.03	3.46	3.93	0.37	0.04
	2020	0.94	4.27	4.25	3.04	1.25	1.22	1.35	2.20	2.36	3.61	1.17	0.13
	2021	0.45	2.78	2.84	1.60	0.96	0.72	0.43	0.43	4.12	2.64	0.61	0.00

Table 10.4: Gulf of Alaska *(continued)*

	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	2015	2.28	2.81	4.16	2.94	1.97	1.56	1.07	1.00	3.64	3.36	1.35	0.61
Processing	2016	1.84	4.48	6.65	3.83	3.64	2.55	0.75	2.65	3.72	4.98	1.55	0.58
Labor	2017	1.61	3.75	3.37	1.93	1.78	1.26	0.12	0.21	2.37	2.20	1.41	0.35
Cost	2018	0.76	2.48	3.00	1.25	1.59	1.35	0.09	0.87	2.52	2.45	1.32	0.11
(Not	2019	1.09	2.37	2.43	1.52	2.33	1.17	0.12	0.08	1.57	2.00	1.00	0.02
Housed)	2020	0.49	2.27	2.40	1.64	2.23	1.15	0.37	0.33	1.46	2.03	1.18	0.11
	2021	0.33	1.04	1.33	1.08	1.23	0.64	0.02	0.02	0.72	1.26	0.80	0.12

Source GOA Trawl Economic Data Reports; source data and compilation are provided by the Alaska Fisheries Information Network (AKFIN).