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, 2023

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Dear Reader,
This preliminary report of the "Economic Status of the Groundfish Fisheries Off Alaska" is compiled for the express purpose of the September, 2024 meeting of the Groundfish Plan Teams. A final version of this report will be subsequently prepared for the February, 2025 meeting of the North Pacific Fishery Management Council. The data contained within this report are the most recent data available. At the time this report was compiled, data continue to be finalized and validated. In some cases, numbers in the final draft of this report may change from those presented in this preliminary draft. As we finalize and validate the data in this report, the Economic and Social Sciences Research Program welcomes any feedback from readers regarding the data.

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

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, 2023. 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.

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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, 2024 product price and ex-vessel price projections, year-to-date information on volume and value, and an Amendment 80 fishery economic data report (EDR) summary. 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 2019-2023, 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 is available online at: https://reports.psmfc.org/akfin/f?p=501:2001.

The commercial FMP groundfish fisheries off Alaska had a total catch of 2.03 million metric tons (mt) in 2023 (including catch in federal and state waters) (Figure 3.1 and Table 4.1), a increase of 9% from 2022. Groundfish accounted for 83 % of Alaska's 2023 total catch (Table 4.6). Total catches of Alaska's FMP groundfish fisheries increased in 2023 for pollock, Atka mackerel, and rockfish species complexes and decreased for sablefish, Pacific cod, and flatfish species complexes (Table 4.1). The contributions of the major groundfish species or species groups to the total catch are depicted in Figure 3.1.

The aggregate ex-vessel value of the FMP groundfish fisheries off Alaska was $858.65 million, which was 55% of the ex-vessel value of all commercial fisheries off Alaska in 2023 (Table 4.3). [1] After adjustment for inflation, the real ex-vessel value of FMP groundfish decreased $136.73 million in 2023 and the aggregate real ex-vessel price decreased 21% to $0.2 per pound (Table 4.6). Nominal

[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.

pollock ex-vessel prices decreased 16% to $0.15 per pound in the Bering Sea and Aleutian Islands (BSAI) and 25% to $0.13 per pound in the Gulf of Alaska (GOA) (Tables 4.13 and 4.31). Pacific cod nominal ex-vessel prices decreased 4% to $0.44 per pound in the BSAI and 10% to $0.42 per pound in the GOA. Among the other species that are the focus of the shoreside ex-vessel fisheries: GOA flatfish ex-vessel price decreased 19%, GOA rockfish prices decreased 3%, and GOA sablefish prices decreased 29% (in nominal terms). For BSAI and GOA FMP groundfish, the change in price was larger than the change in catch (Figures 5.6, 5.10). For other fisheries in Alaska, halibut and salmon ex-vessel revenues decreased and herring and shellfish ex-vessel revenues increased (Table 4.6).

The gross value of the 2023 groundfish catch after primary processing (first-wholesale) was $2.56 billion (Table 4.7), a decrease of 5% in real terms from 2023. This change was the combined effect of a 13% decrease in the real aggregate 2023 first-wholesale price to $1.42 per pound which was offset by aggregate production volumes increasing 8% to 820.1 thousand mt (Table 4.7). In the BSAI, aggregate first-wholesale value increased 6% and value was increasing for nearly all species including, pollock, sablefish, rockfish, and flatfish (Table 4.17). The average first-wholesale price for all products, however, was decreasing for most species except for arrowtooth, Atka mackerel, and some rockfish and flatfish species (Table4.18). In the GOA, aggregate first-wholesale value decreased (22%) with decreases in value for all species except some flatfish species (Table 4.35). Prices were decreasing for most species with the exception of arrowtooth, Atka mackerel, and some flatfish species (Tables 4.34 and 4.36)

The first-wholesale value of Alaska's FMP groundfish fisheries accounted for 57% 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 $1.93 billion, most of which ($1.62 billion) came from Pacific salmon. Pacific salmon value decreased 25% as a result of a decline in price which offset a increase in volume. Pacific halibut fisheries, which are concentrated in the Gulf of Alaska, saw a decrease of 36.2% in value in 2023 to $109.4 million due to a decrease in price and volume.

The groundfish fisheries off Alaska are an important segment of the U.S. fishing industry. In 2022, it accounted for 48% of the weight of total U.S. domestic landings and 17% of the ex-vessel value of total U.S. domestic landings (Fisheries of the United States, 2022). Alaska fisheries as a whole (including salmon, halibut, herring, and shellfish) accounted for 57% of the weight of total U.S. domestic landings and 36% of the ex-vessel value of total U.S. domestic landings.

With the exception of the annual economic census Economic Data Report program in BSAI Crab and Amendment 80 catch share programs, NOAA Fisheries collects only limited data on employment in the fisheries off Alaska. The most direct measure available based on data collected across all at-sea processing vessels and catcher vessels in FMP groundfish fisheries is aggregate labor input as represented by the aggregate number of 'crew weeks' accrued. These data indicate that in 2023 crew weeks for both sectors increased in 2023 by 6 %, totaling 111,962, with the majority of them (98,100) occurring in the BSAI groundfish fisheries (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 March-May and September-October driven largely by hook-and-line catcher vessels targeting sablefish and Pacific cod fisheries.

1.1 Report Card Metrics for the Alaska Commercial Groundfish Fisheries off Alaska 1993-2023

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 1993-2023 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.

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.

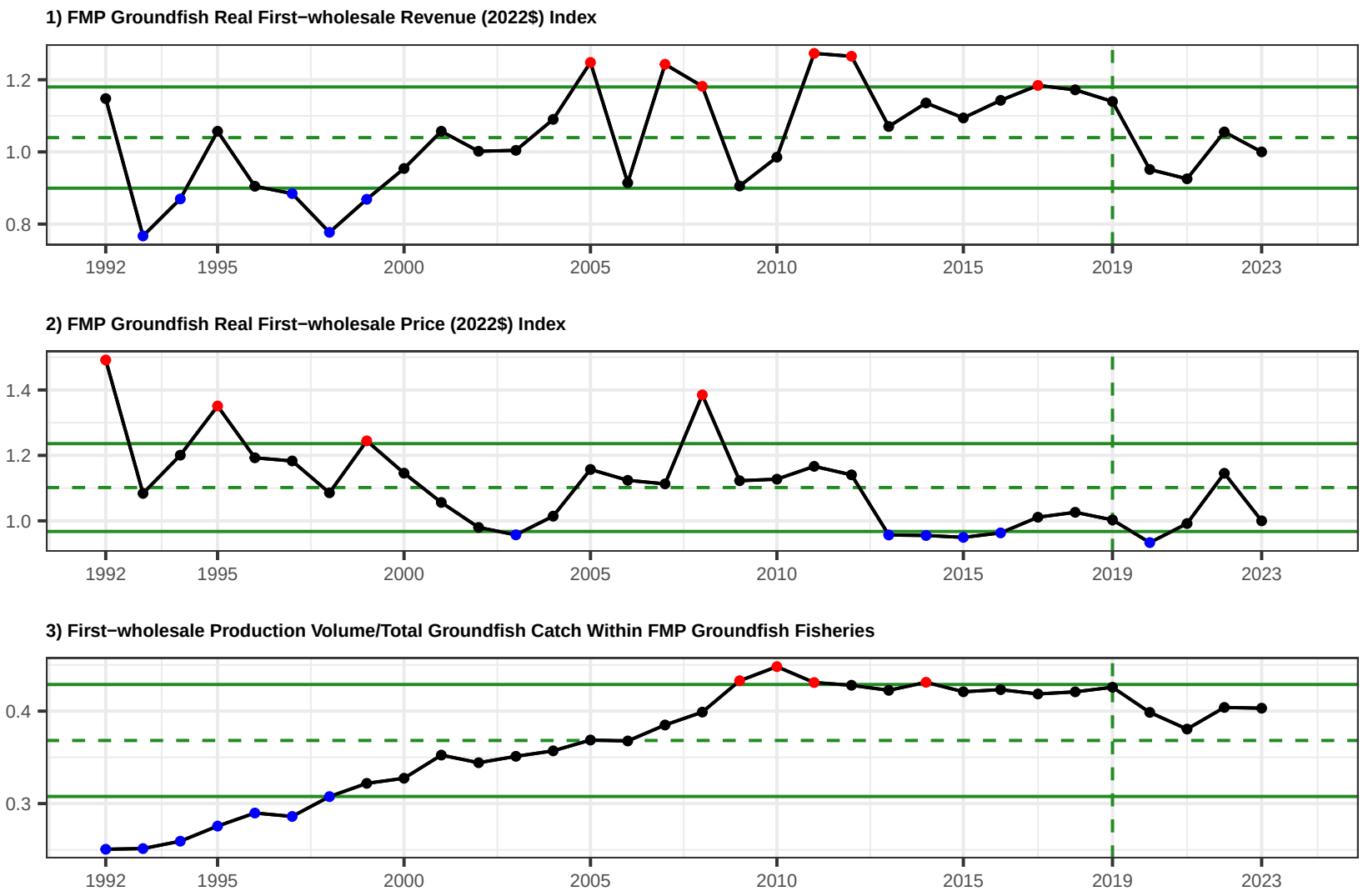
[2]Metrics 1, 2, and 7 are adjusted for inflation using the GDP chain-type price index. For Metric 6 ex-vessel revenues are deflated using the Personal Consumption Expenditures chain-type price index. See the the Overview Section 2.2.6 for references.

[3]The revenue from the sale of fish products after primary processing.

[4]Increases in this index indicate that exports are more expensive for foreign buyers which puts downward pressure on prices received by Alaska producers.

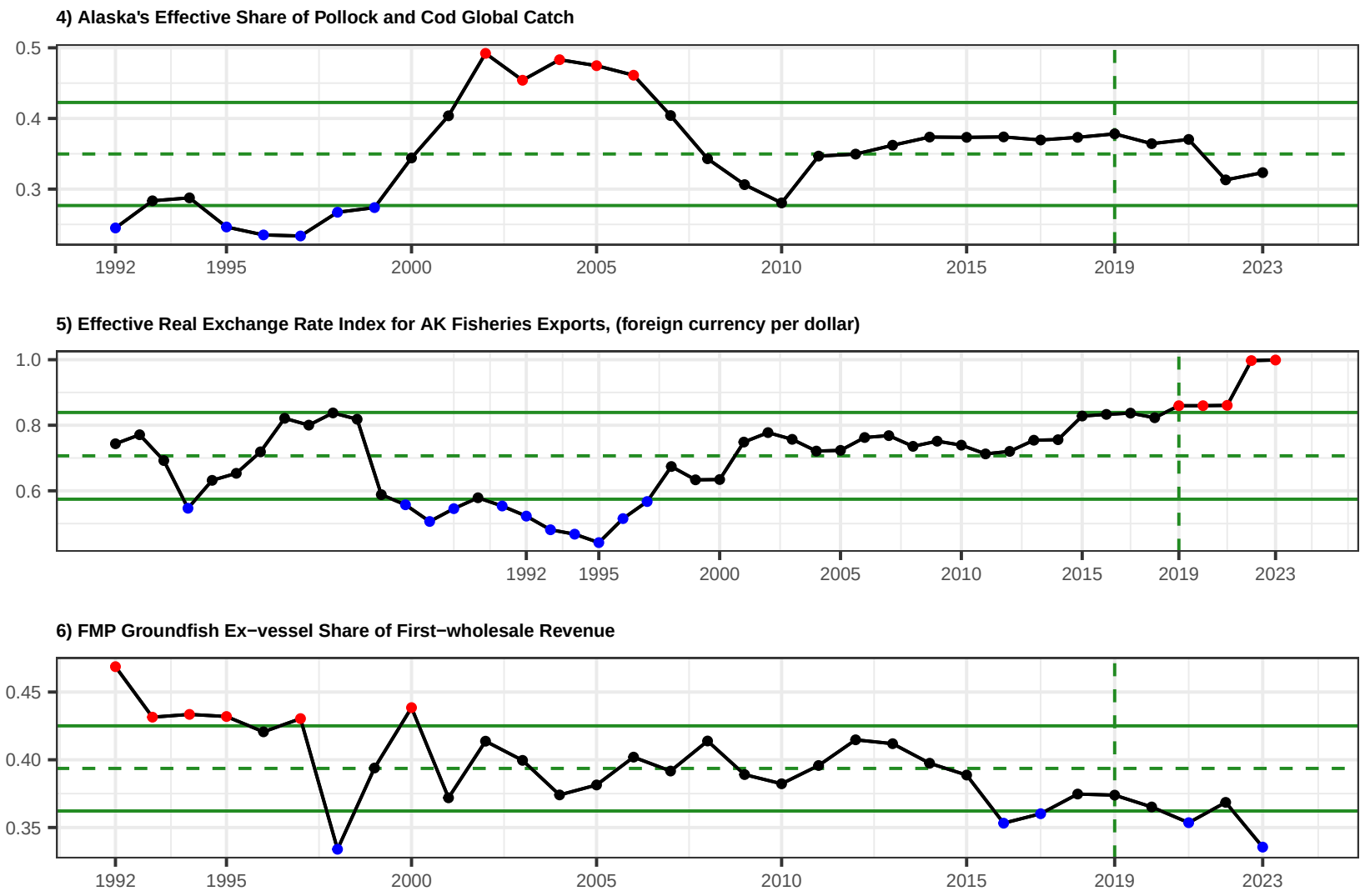
9) Share of shoreside all Alaska fisheries ex-vessel value for the top 5 ports, which is not limited to just FMP groundfish to provide a more comprehensive account of community revenues. This metric measures the degree of concentration of landings across Alaska communities.

The real first wholesale value index (panel 1) and real first wholesale price index (panel 2) both decreased from their respective long-term averages in 2023. Declines in real first wholesale prices substantially drove the decrease in the first wholesale revenue index. The declines in first wholesale price index was potentially driven down by reductions in the export price of many groundfish species. This is primarily due to increases in global supply and volatility in the U.S. exchange rate. Production per-unit-catch remained relatively unchanged from 2022, up from a downward trend observed in 2020 and 2021 but under the 2010 to 2019 average (panel 3). Globally, Alaska has a significant effective share of pollock and cod at approximately 32%, a slight increase from 2022 (panel 4). The effective real exchange rate index increased slightly during 2023, reaching a new historical high and remaining above the upper standard-deviation bound for a fifth consecutive year, signaling ongoing exchange rate pressure on Alaska fish product export prices (panel 5). The ratio of ex-vessel to wholesale revenues dropped significantly in 2023 reaching the lowest ex-vessel share since 1998. This is primarily a result of the 21% decline in aggregate real ex-vessel price in 2023, with the largest decline coming from pollock (panel 6). Revenue per-unit-effort (measured by fishing weeks) declined slightly in 2023 from a historic high in 2022, but remains above one standard deviation of the historical range (panel 7). The share of shoreside revenue to AK residents decreased in 2023 below the one-standard deviation bound (panel 8). Roughly 68% of the shoreside revenues were concentrated in the top 5 key ports in 2023, maintaining a general trend of relatively greater geographic concentration of revenues compared to the long-term history of this indicator (panel 9).



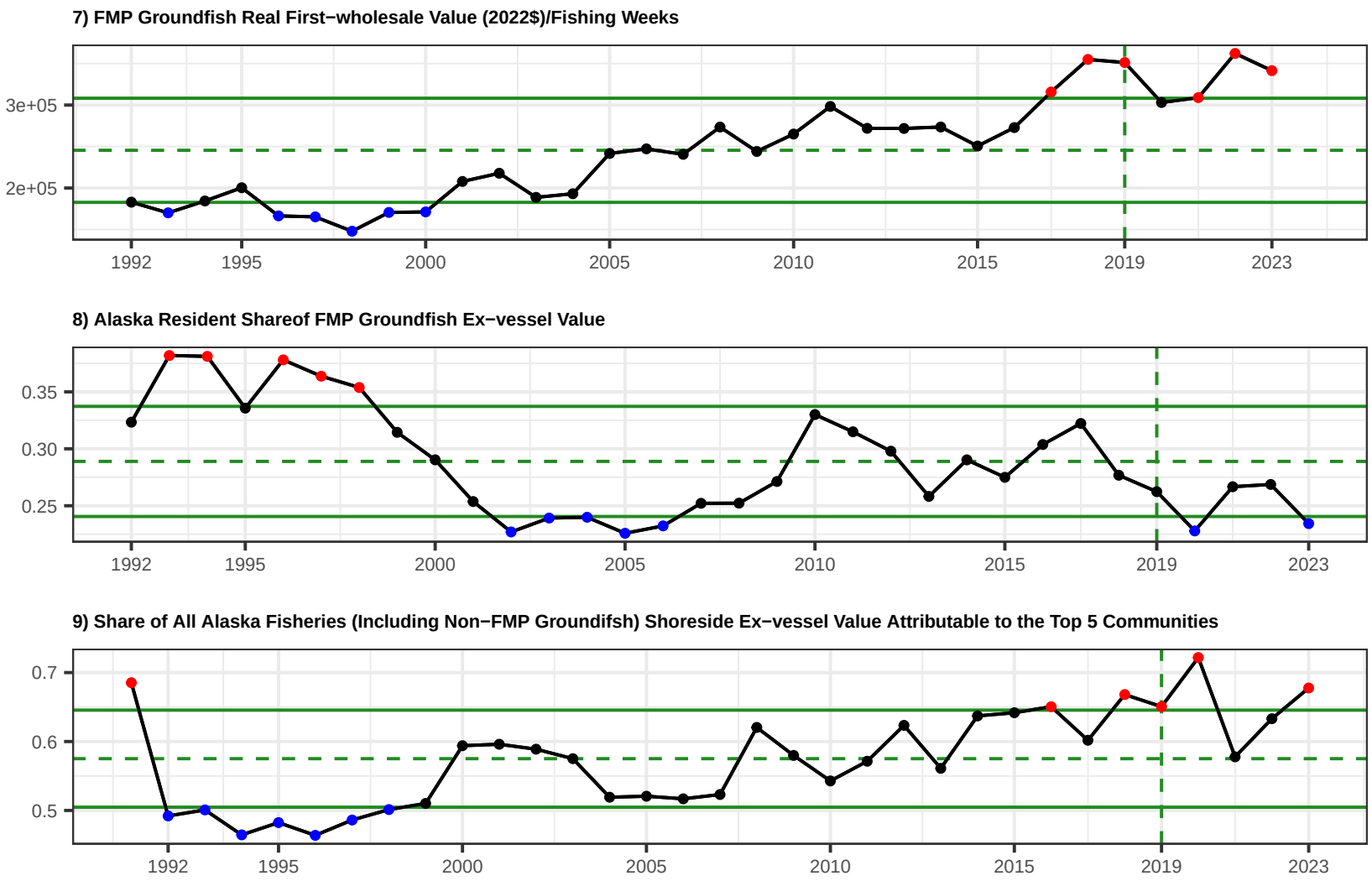
Note: See Figure 1.3 for footnotes.

Figure 1.1: Economic report card metrics



Note: See Figure 1.3 for footnotes.

Figure 1.2: Economic report card metrics continued.



Note: Green horizontal lines show the mean (dashed) and 1 standard deviation (solid) for the 1992−present reference period. Green vertical line indicates the past five years. Color of plotted values indicates values within (black), above (red), and below (blue) one standard deviation of the mean.

Figure 1.3: Economic report card metrics continued.

Chapter 2

Overview of Economic Status Report, 2024

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 footnotes. Additionally, unless explicitly indicated, phrases such as ''groundfish fisheries off Alaska" or ''Alaska

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

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.

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 2019-2023.

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 2019-2023 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).

2.2.2 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 2023 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

[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

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, 76% of the 2023 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 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.

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

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 Marysia Szymkowiak at [russel.a.dame@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.

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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

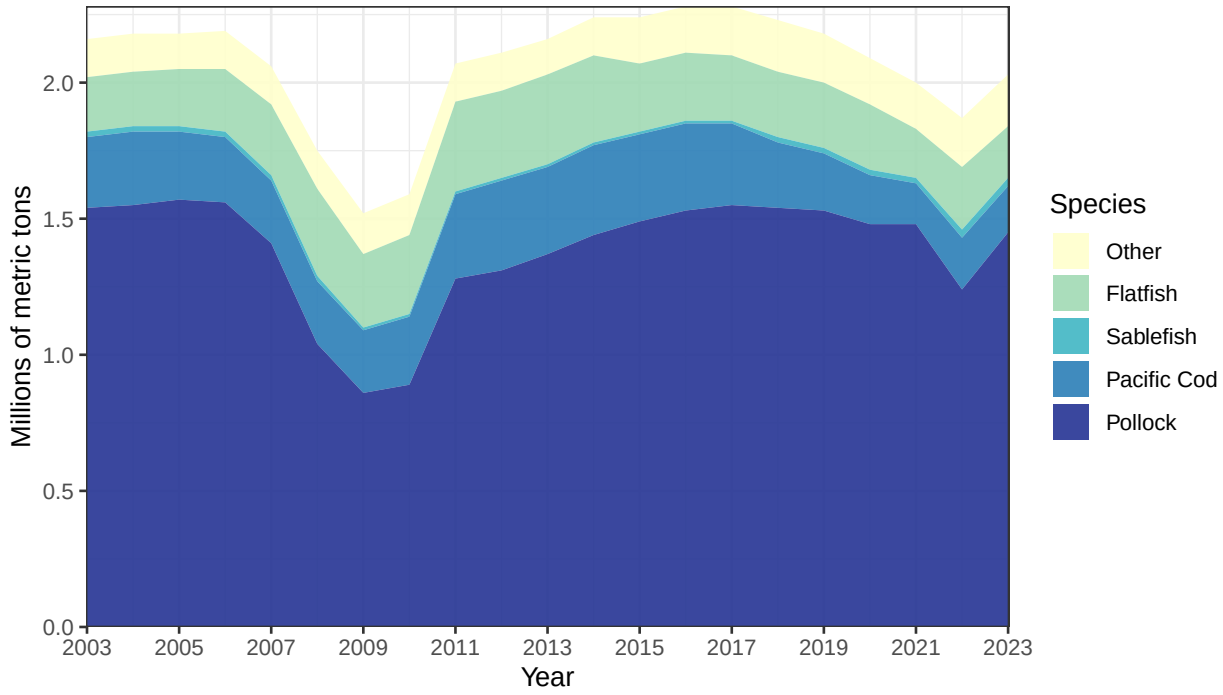

Figure 3.1: Groundfish catch in the commercial fisheries off Alaska by species

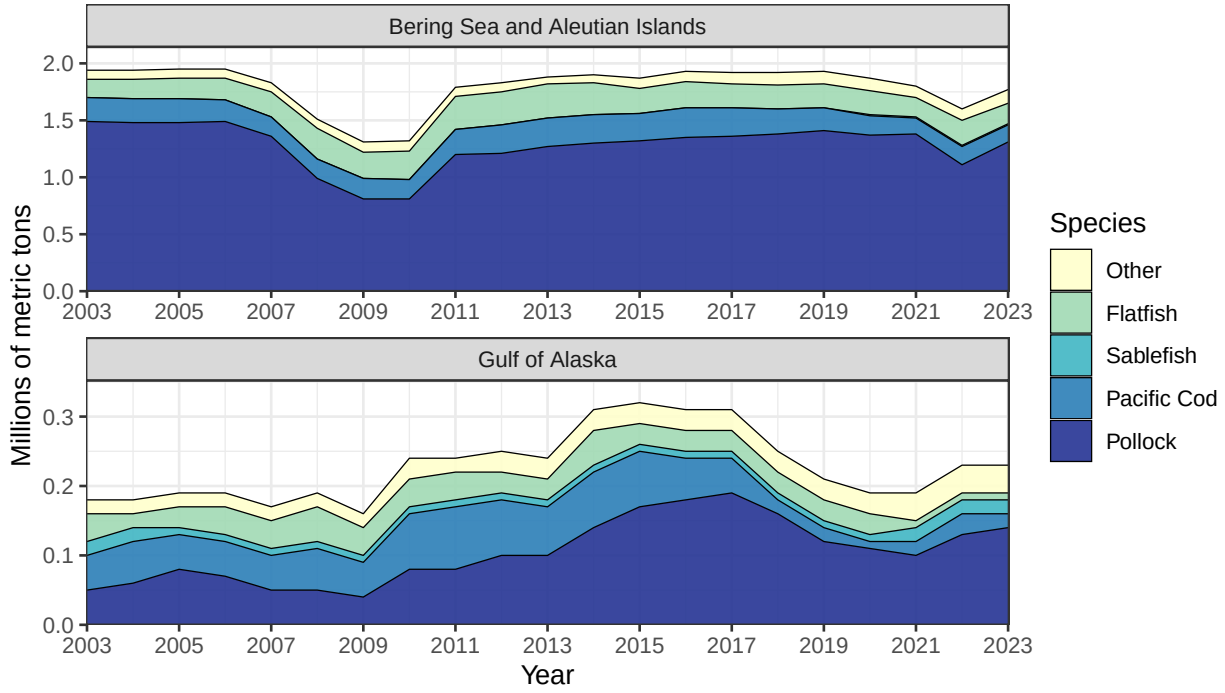

Figure 3.2: Groundfish catch in the commercial fisheries off Alaska by species

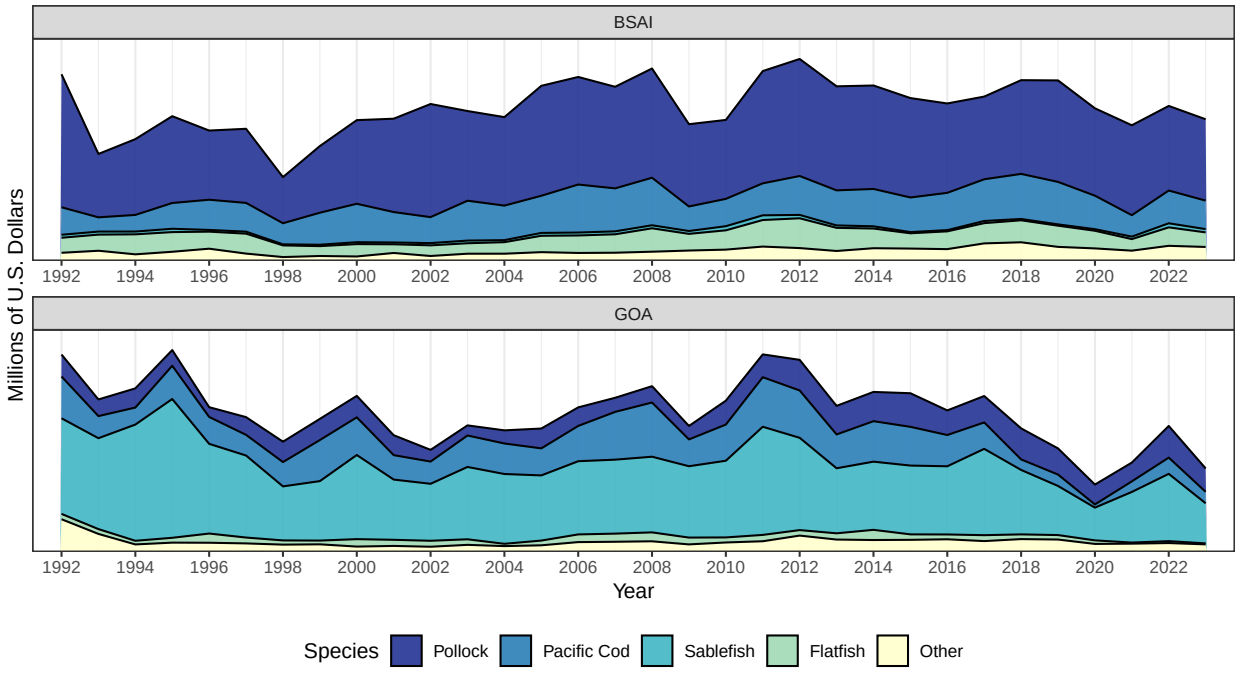

Figure 3.3: Real ex-vessel value of the groundfish catch in the commercial fisheries off Alaska by species, 1992-2023 (base year = 2023).

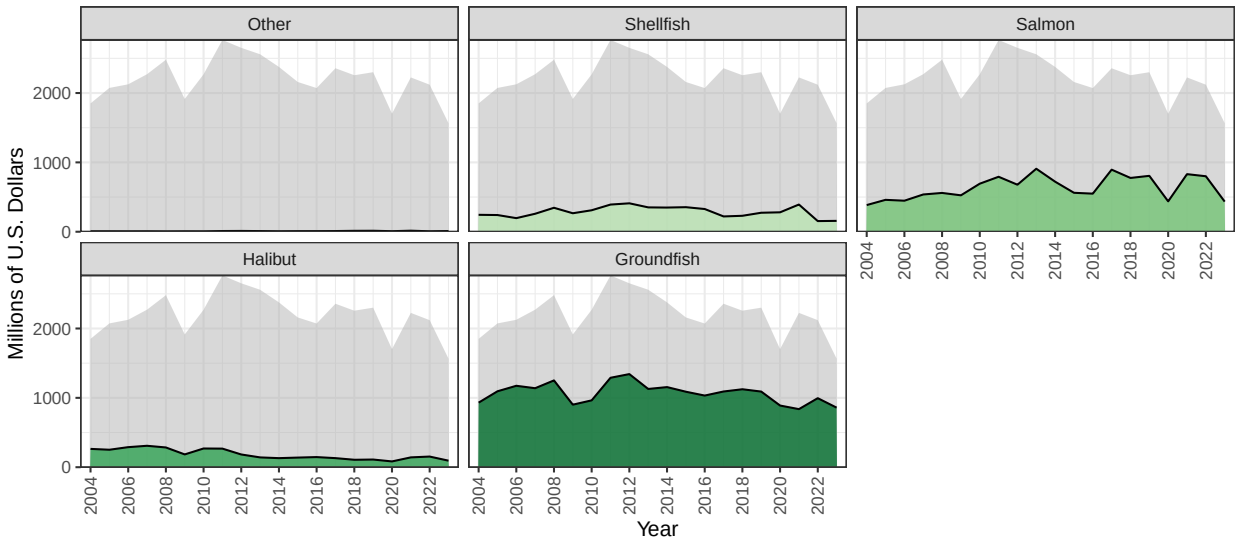

Figure 3.4: Real ex-vessel value of the domestic fish and shellfish catch off Alaska by species group, 2003- 2023 (base year = 2023)

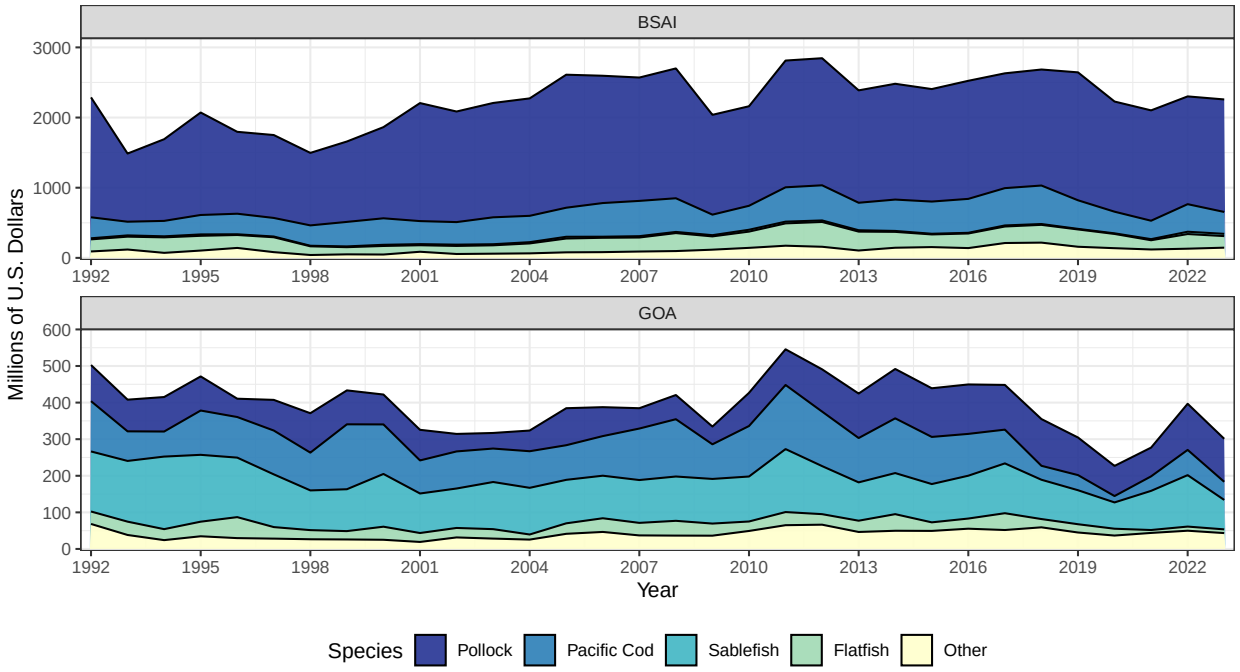

Figure 3.5: Real gross product value of the groundfish catch off Alaska by species, 1992- 2023 (base year = 2023)

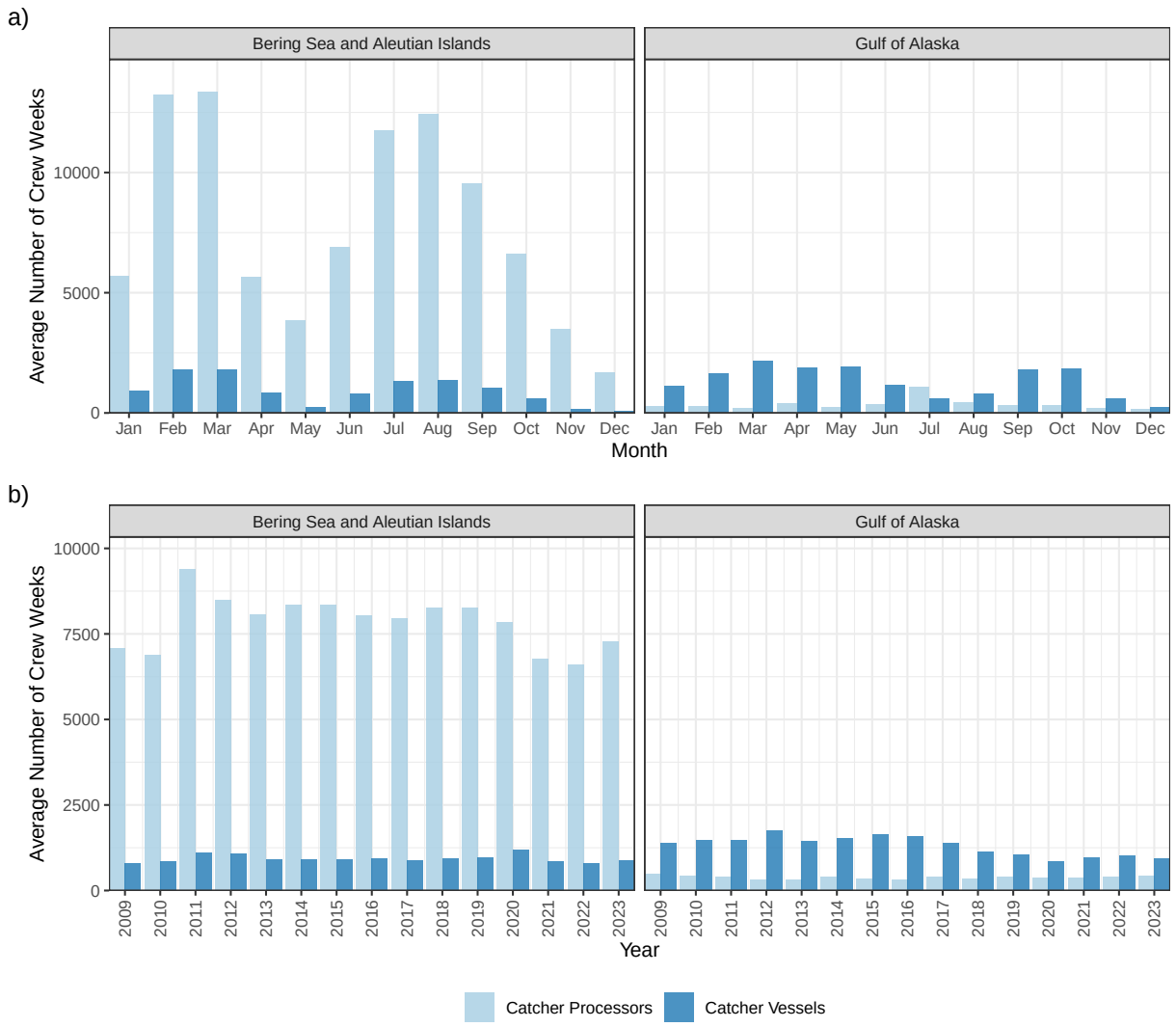

Figure 3.6: a) Average number of crew weeks in both BSAI and GOA by month for Catcher Processors and Catcher Vessels, 2009- 2023 , b) by year, 2009- 2023

Figure 3.7: Decomposition of the change in first-wholesale revenues from 2021-2023 by species.

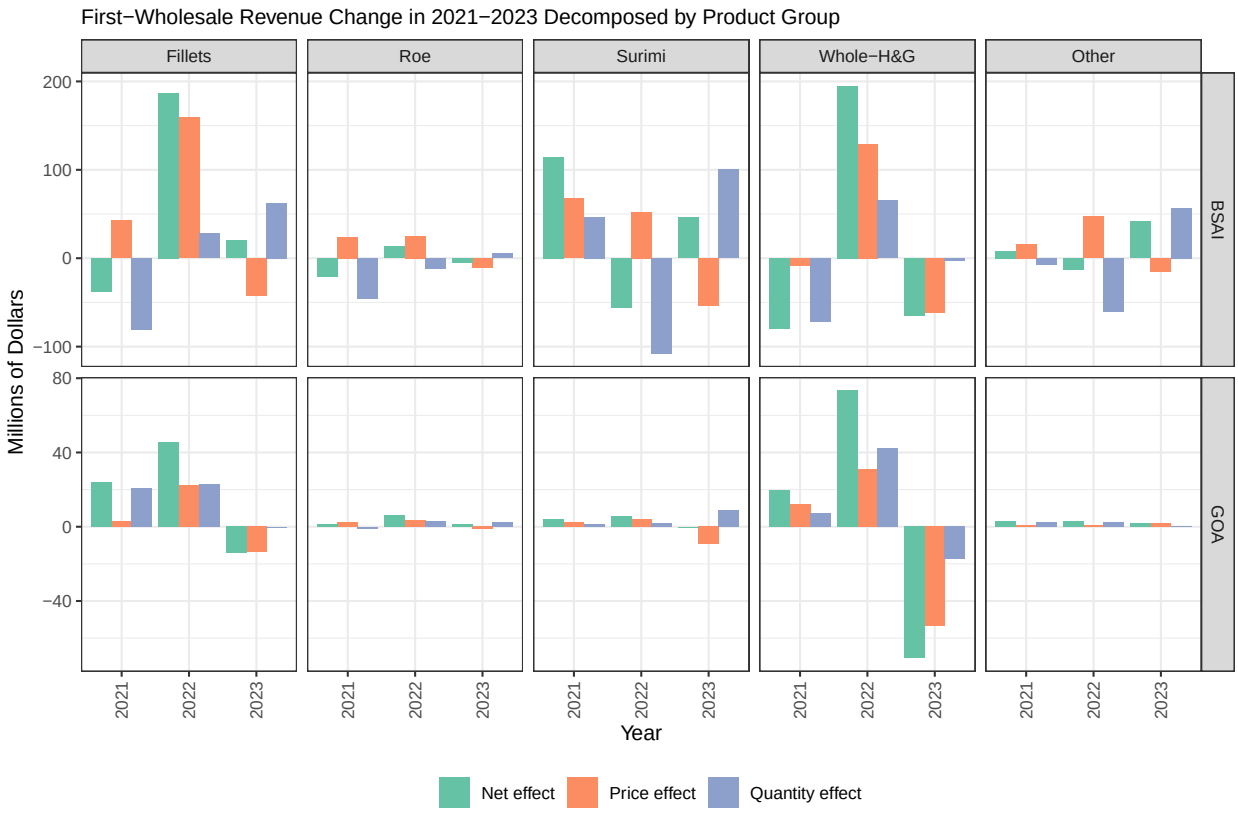

Figure 3.8: Decomposition of the change in first-wholesale revenues from 2021-2023 by product

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, 2014-2023 (1,000 metric tons, round weight).

		Pollock	Sablefish	Pacific Cod	Flatfish	Rockfish	Atka Mackerel	Total
	2014	1,300.20	1.10	249.30	276.60	36.10	31	1,929
	2015	1,323.20	0.60	242	219.70	39.70	53.30	1,914.70
	2016	1,354.90	0.90	260.90	225.50	36.80	54.50	1,969.40
	2017	1,360.90	1.70	253	211.40	38.10	64.40	1,968.90
	2018	1,381.20	2.20	220.30	212.20	41.70	70.40	1,966.20
	2019	1,411	3.80	198	208.60	54.30	57.50	1,959.50
Bering	2020	1,370.40	6.60	169.90	214.10	50.80	58.90	1,896
Sea and	2021	1,378.10	5.70	135.80	169.20	43.70	61.40	1,814.30
Aleutian	2022	1,108.70	7.70	160.70	218.90	44.70	58.10	1,628.40
Islands	2023	1,314.50	8.60	151.50	182.90	48.50	66.60	1,798.80
	2014	142.60	11.10	84.90	48	29	1	326.80
	2015	167.50	11	79.50	27.10	29.10	1.20	324.90
	2016	177.10	10	64.10	28.30	34.10	1.10	324.40
	2017	186.20	11.30	48.70	33.60	31.90	1.10	321.50
	2018	158.10	13	15.20	25.90	34.30	1.40	255.70
	2019	120.20	13.70	15.70	32	34.30	1.30	224.20
	2020	107.50	13.40	6.80	28.90	32.30	0.60	194.40
	2021	101.20	16.50	19.20	13	36.90	0.90	192.80
Gulf of	2022	132.70	20.40	25.90	14.40	36.90	0.90	237.50
Alaska	2023	135.10	17.60	21.80	11.30	37.20	0.50	229.70
	2014	1,442.90	12.20	334.30	324.60	65.10	32	2,255.80
	2015	1,490.80	11.70	321.50	246.80	68.80	54.50	2,239.60
	2016	1,532.10	10.90	324.90	253.90	70.90	55.60	2,293.80
	2017	1,547	13	301.80	245	70	65.50	2,290.50
	2018	1,539.20	15.20	235.40	238.20	76	71.80	2,221.90
	2019	1,531.30	17.50	213.80	240.70	88.70	58.70	2,183.70
	2020	1,477.90	20	176.80	243	83.10	59.50	2,090.40
	2021	1,479.30	22.20	154.90	182.20	80.60	62.30	2,007.10
All	2022	1,241.40	28.10	186.60	233.30	81.60	59	1,866
Alaska	2023	1,449.60	26.20	173.30	194.20	85.60	67.10	2,028.50

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, 2019-2023 (1,000 metric tons, round weight).

		Bering Sea and Aleutian Islands			Gulf of Alaska			All Alaska		
		Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total
	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	645.70	1,363.88	98.47	1.03	99.50	816.65	646.73	1,463.38
	2022	570.03	524.89	1,094.93	130.49	0.96	131.46	700.53	525.86	1,226.38
Pollock	2023	678.24	620.99	1,299.23	132.43	1.26	133.69	810.67	622.25	1,432.92
	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
	2022	3.10	3.03	6.12	17.17	1.78	18.95	20.27	4.81	25.07
Sablefish	2023	3.17	4.74	7.91	14.89	1.60	16.49	18.06	6.34	24.40
	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	52.69	79.40	132.08	15.97	0.17	16.14	68.65	79.57	148.23
Pacific	2022	64.85	93.60	158.45	21.50	2.68	24.18	86.35	96.28	182.63
Cod	2023	61.27	88.31	149.59	17.59	2.13	19.72	78.87	90.44	169.31
	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
	2022	12.75	197.37	210.12	1.15	9.52	10.66	13.89	206.88	220.78
Flatfish	2023	10.95	164.59	175.54	1.74	6.63	8.37	12.69	171.22	183.91
	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
	2022	2.04	40.14	42.17	15.70	19.12	34.82	17.74	59.26	77.00
Rockfish	2023	2.67	43.38	46.05	16.49	18.82	35.31	19.16	62.19	81.36
	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	-	0.59	0.59	3.74	57.44	61.18
Atka	2022	2.36	55.00	57.36	0.02	0.81	0.82	2.38	55.81	58.19
Mackerel	2023	3.69	61.77	65.45	-	0.44	0.44	3.69	62.21	65.90

Table 4.2: Groundfish retained catch off Alaska by area, sector, and species, 2019-2023 (1,000 metric tons, round weight). *(continued)*

		Bering Sea and Aleutian Islands			Gulf of Alaska			All Alaska		
		Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total
	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	178.78	987.33	1,036.66	2,023.98
	2021	790.01	980.50	1,770.50	147.40	28.22	175.62	937.41	1,008.72	1,946.12
All	2022	655.55	926.22	1,581.76	186.28	35.02	221.31	841.83	961.24	1,803.07
Groundfish	2023	760.35	996.11	1,756.46	183.40	31.00	214.41	943.75	1,027.11	1,970.87

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,2019-2023 ($ millions).

		Bering Sea and Aleutian Islands			Gulf of Alaska			All Alaska		
		Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total
	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
	2022	242.45	176.44	418.89	48.63	0.33	48.96	291.08	176.76	467.85
Pollock	2023	244.47	173.39	417.86	37.15	0.35	37.50	281.62	173.74	455.36
	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	43.24	2.36	45.60	45.90	4.77	50.67
	2021	7.51	3.91	11.42	68.51	5.09	73.60	76.02	9.00	85.02
	2022	12.49	7.72	20.20	97.28	6.78	104.06	109.77	14.49	124.26
Sablefish	2023	8.29	8.36	16.65	60.18	4.14	64.32	68.47	12.50	80.97
	2019	69.87	117.71	187.58	14.10	1.57	15.67	83.97	119.29	203.25
	2020	58.34	91.16	149.51	4.17	0.06	4.22	62.51	91.22	153.73
	2021	42.46	57.16	99.62	13.74	0.14	13.88	56.19	57.31	113.50
Pacific	2022	66.09	96.03	162.13	22.24	2.81	25.05	88.34	98.84	187.18
Cod	2023	60.44	85.92	146.36	16.28	2.05	18.32	76.72	87.96	164.68
	2019	10.77	82.73	93.50	4.26	1.49	5.75	15.02	84.22	99.25
	2020	8.95	69.48	78.43	3.45	1.01	4.45	12.40	70.49	82.89
	2021	3.37	50.29	53.66	0.14	1.14	1.28	3.51	51.43	54.94
	2022	5.31	85.99	91.30	0.27	2.26	2.54	5.59	88.26	93.84
Flatfish	2023	4.49	70.22	74.71	0.31	1.09	1.40	4.80	71.31	76.11
	2019	1.73	16.04	17.77	7.61	6.88	14.49	9.34	22.92	32.25
	2020	1.69	13.04	14.73	5.28	4.19	9.47	6.97	17.24	24.21
	2021	0.76	12.54	13.29	5.65	4.99	10.63	6.40	17.52	23.93
	2022	0.87	17.06	17.94	6.02	6.26	12.28	6.90	23.33	30.22
Rockfish	2023	1.06	16.77	17.83	5.58	5.25	10.83	6.64	22.02	28.66
	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
Atka	2022	1.28	29.73	31.01	0.01	0.45	0.46	1.28	30.18	31.46
Mackerel	2023	2.12	35.46	37.58	0.00	0.26	0.26	2.12	35.72	37.83

Table 4.3: Groundfish ex-vessel value off Alaska by area, sector, and species,2019-2023 ($ millions). *(continued)*

		Bering Sea and Aleutian Islands			Gulf of Alaska			All Alaska		
		Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total
	2019	349.50	445.66	795.15	125.04	16.06	141.10	474.54	461.72	936.26
	2020	309.46	367.41	676.87	84.57	8.01	92.58	394.03	375.41	769.44
	2021	299.21	329.37	628.58	115.18	12.03	127.21	414.39	341.40	755.79
All	2022	328.68	436.24	764.92	174.64	19.03	193.67	503.32	455.27	958.60
Groundfish	2023	320.98	403.85	724.83	119.66	13.27	132.94	440.64	417.12	857.76

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, 2019-2023 (1,000 metric tons, round weight).

		Fixed		Trawl		All Gear	
		Total Discards	Discard Rate	Total Discards	Discard Rate	Total Discards	Discard Rate
	2019	0.70	11	9.70	1	10.40	1
	2020	0.50	11	12.10	1	12.60	1
	2021	0.50	15	14.90	1	15.40	1
	2022	0.70	15	14.20	1	14.90	1
Pollock	2023	0.70	13	15.80	1	16.50	1
	2019	1.70	14	2.70	52	4.40	25
	2020	1.10	9	4.10	56	5.20	26
	2021	1.10	6	2.30	48	3.40	15
	2022	1.20	5	1.70	33	2.90	10
Sablefish	2023	0.90	4	0.80	14	1.70	6
	2019	2.00	1	1.20	2	3.30	2
	2020	1.90	2	2.30	4	4.20	2
	2021	2.00	2	2.80	6	4.80	3
Pacific	2022	2.40	2	1.20	2	3.70	2
Cod	2023	2.70	2	1.00	2	3.80	2
	2019	2.70	76	9.60	4	12.30	5
	2020	2.00	80	9.70	4	11.80	5
	2021	1.90	97	8.10	5	10.00	6
	2022	2.60	98	7.60	3	10.20	4
Flatfish	2023	1.80	96	6.60	3	8.40	4
	2019	1.10	51	6.50	8	7.60	9
	2020	0.70	47	5.70	7	6.50	8
	2021	0.60	46	3.90	5	4.50	6
	2022	0.50	43	3.80	5	4.40	5
Rockfish	2023	0.30	27	3.90	5	4.20	5
	2019	-	68	0.70	1	0.70	1
	2020	-	49	0.80	1	0.80	1
	2021	0.10	98	0.80	1	0.80	1
Atka	2022	0.10	100	0.70	1	0.70	1
Mackerel	2023	-	94	1.00	2	1.00	2
	2019	21.80	10	38.70	2	60.60	3
	2020	19.80	11	41.50	2	61.30	3
	2021	18.30	11	37.00	2	55.30	3
All	2022	26.00	12	33.60	2	59.70	3
Groundfish	2023	22.00	11	33.10	2	55.00	3

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, 2019-2023 (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)
		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
		2022	186.00	0.00	0.01	0.11	150.80	18.38	118.96	71.43
	Fixed	2023	147.00	0.00	0.01	0.07	94.24	27.12	80.07	58.22
		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	598.12	780.62
		2021	1,427.00	1,880.00	15.88	550.65	40.73	17.09	588.47	247.22
		2022	2,057.00	1,751.00	8.34	245.16	8.60	13.40	436.14	204.38
	Trawl	2023	1,718.00	3,312.00	14.61	116.65	13.30	17.84	572.78	777.09
		2019	2,354.00	1,182.00	31.47	358.81	117.39	46.11	472.39	1,039.35
Bering Sea		2020	1,671.00	3,934.00	34.98	346.38	87.86	24.42	688.77	944.28
and		2021	1,536.00	1,880.00	15.90	550.70	337.57	72.22	631.39	335.71
Aleutian	All	2022	2,243.00	1,751.00	8.34	245.27	159.41	31.78	555.10	275.81
Islands	Gear	2023	1,866.00	3,312.00	14.62	116.71	107.54	44.97	652.85	835.31
		2019	1.00	-	-	0.26	-	0.20	29.95	-
		2020	*	-	-	0.11	-	0.10	0.11	0.01
		2021	12.00	-	-	0.15	0.01	0.11	30.41	-
		2022	29.00	-	-	0.01	-	0.23	25.19	-
	Fixed	2023	17.00	-	-	*	-	1.56	26.20	-
		2019	1,099.00	81.00	23.90	6.41	-	0.36	245.17	-
		2020	775.00	68.00	11.73	3.32	*	0.06	651.65	-
		2021	365.00	19.00	17.09	3.53	*	0.12	15.41	-
		2022	354.00	85.00	14.48	5.24	-	0.14	7.73	-
	Trawl	2023	283.00	69.00	21.14	5.62	-	0.61	14.51	-
		2019	1,101.00	81.00	23.90	6.67	-	0.55	275.12	-
		2020	775.00	68.00	11.73	3.43	*	0.17	651.76	0.01
		2021	377.00	19.00	17.09	3.68	0.01	0.22	45.83	-
Gulf of	All	2022	382.00	85.00	14.48	5.25	-	0.37	32.92	-
Alaska	Gear	2023	300.00	69.00	21.14	5.62	-	2.17	40.71	-

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, 2019-2023; calculations based on COAR (1,000 metric tons and $ millions, base year = 2023).

		Bering Sea and Aleutian Islands		Gulf of Alaska		All Alaska	
		Quantity	Value	Quantity	Value	Quantity	Value
	Groundfish	1,914.84	$ 924.85	207.70	$ 165.57	2,122.54	$ 1,090.42
	Salmon	116.70	$ 436.14	256.69	$ 369.82	373.38	$ 805.96
	Halibut	1.72	$ 17.80	6.97	$ 92.55	8.68	$ 110.36
	Herring	22.31	$ 2.67	0.94	$ 3.32	23.25	$ 5.99
	Shellfish	17.69	$ 225.20	5.84	$ 48.50	23.54	$ 273.70
	Other	-	-	1.48	$ 13.86	1.48	$ 13.86
2019	All Species	2,073.26	$ 1,606.66	479.62	$ 693.62	2,552.88	$ 2,300.28
	Groundfish	1,846.55	$ 781.54	182.21	$ 107.55	2,028.77	$ 889.09
	Salmon	98.93	$ 266.52	122.88	$ 171.35	221.81	$ 437.87
	Halibut	1.53	$ 14.98	6.26	$ 68.13	7.79	$ 83.11
	Herring	3.01	$ 0.56	1.79	$ 3.79	4.80	$ 4.35
	Shellfish	19.50	$ 237.81	6.92	$ 42.25	26.42	$ 280.06
	Other	-	-	1.25	$ 7.84	1.25	$ 7.84
2020	All Species	1,969.52	$ 1,301.42	321.30	$ 400.90	2,290.83	$ 1,702.32
	Groundfish	1,771.03	$ 694.52	179.89	$ 142.80	1,950.92	$ 837.32
	Salmon	99.89	$ 413.94	265.79	$ 416.47	365.69	$ 830.41
	Halibut	1.36	$ 19.53	7.67	$ 122.05	9.02	$ 141.58
	Herring	10.58	$ 1.61	17.70	$ 7.34	28.28	$ 8.96
	Shellfish	23.59	$ 332.78	5.04	$ 59.48	28.62	$ 392.26
	Other	-	-	1.39	$ 14.73	1.39	$ 14.73
2021	All Species	1,906.45	$ 1,462.38	477.48	$ 762.87	2,383.93	$ 2,225.25
	Groundfish	1,581.99	$ 793.79	223.38	$ 201.59	1,805.37	$ 995.38
	Salmon	149.56	$ 466.98	163.20	$ 333.01	312.76	$ 799.99
	Halibut	1.32	$ 21.61	7.86	$ 131.72	9.18	$ 153.33
	Herring	10.66	$ 1.89	25.59	$ 9.39	36.25	$ 11.29
	Shellfish	6.44	$ 104.79	4.63	$ 48.71	11.07	$ 153.50
	Other	-	-	1.18	$ 6.80	1.18	$ 6.80
2022	All Species	1,749.97	$ 1,389.06	425.83	$ 731.22	2,175.80	$ 2,120.28
	Groundfish	1,757.09	$ 725.26	216.28	$ 133.39	1,973.37	$ 858.65
	Salmon	107.58	$ 183.01	275.45	$ 250.93	383.02	$ 433.94
	Halibut	1.03	$ 11.32	6.80	$ 82.58	7.83	$ 93.89
	Herring	1.58	$ 0.69	10.28	$ 11.01	11.86	$ 11.70
	Shellfish	5.77	$ 103.90	7.38	$ 52.87	13.15	$ 156.77
	Other	-	-	1.14	$ 10.00	1.14	$ 10.00
2023	All Species	1,873.05	$ 1,024.17	517.32	$ 540.78	2,390.37	$ 1,564.95

Note: These estimates include the value of catch from both federal and state of Alaska fisheries. The data have been adjusted to 2023 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,2019-2023(1,000 metric tons product weight and $ millions, base year = 2023).

		Bering Sea and Aleutian Islands		Gulf of Alaska		All Alaska	
		Quantity	Value	Quantity	Value	Quantity	Value
	Groundfish	831.40	$ 2,643.90	100.50	$ 304.60	931.90	$ 2,948.50
	Salmon	83.50	$ 860.60	205.20	$ 1,177.80	288.70	$ 2,038.30
	Halibut	1.10	$ 16.50	6.00	$ 111.30	7.10	$ 127.80
	Herring	19.20	$ 19.10	0.90	$ 5.40	20.20	$ 24.50
	Crab	12.80	$ 274.60	3.20	$ 73.50	16.00	$ 348.20
	Other	-	$ 0.20	1.60	$ 28.30	1.60	$ 28.40
2019	All Species	948.10	$ 3,814.80	317.40	$ 1,700.90	1,265.50	$ 5,515.80
	Groundfish	753.00	$ 2,228.20	82.90	$ 227.00	835.80	$ 2,455.20
	Salmon	60.50	$ 606.30	104.00	$ 791.90	164.50	$ 1,398.20
	Halibut	1.20	$ 14.90	4.40	$ 82.10	5.60	$ 97.00
	Herring	0.50	$ 0.60	4.10	$ 9.00	4.60	$ 9.60
	Crab	14.00	$ 261.50	4.00	$ 79.00	18.00	$ 340.50
	Other	-	-	1.10	$ 15.90	1.10	$ 15.90
2020	All Species	829.10	$ 3,111.50	200.40	$ 1,204.90	1,029.50	$ 4,316.40
	Groundfish	692.00	$ 2,102.30	73.40	$ 277.00	765.30	$ 2,379.30
	Salmon	64.80	$ 727.80	204.80	$ 1,400.40	269.60	$ 2,128.20
	Halibut	1.10	$ 20.30	6.50	$ 149.50	7.50	$ 169.80
	Herring	8.20	$ 11.50	22.60	$ 29.80	30.90	$ 41.30
	Crab	16.30	$ 402.90	3.70	$ 115.40	20.00	$ 518.30
	Other	-	-	1.00	$ 23.50	1.00	$ 23.50
2021	All Species	782.40	$ 3,264.70	311.90	$ 1,995.60	1,094.30	$ 5,260.30
	Groundfish	665.80	$ 2,301.30	89.80	$ 396.80	755.60	$ 2,698.10
	Salmon	83.60	$ 812.70	185.00	$ 1,340.40	268.60	$ 2,153.10
	Halibut	0.90	$ 16.40	6.40	$ 155.00	7.20	$ 171.50
	Herring	10.40	$ 14.10	27.40	$ 173.90	37.80	$ 188.00
	Crab	3.50	$ 117.60	2.70	$ 75.80	6.30	$ 193.40
	Other	-	-	1.40	$ 23.20	1.40	$ 23.20
2022	All Species	764.30	$ 3,262.10	312.70	$ 2,165.20	1,076.90	$ 5,427.40
	Groundfish	727.00	$ 2,258.10	93.10	$ 301.10	820.10	$ 2,559.20
	Salmon	71.70	$ 576.20	226.80	$ 1,038.90	298.50	$ 1,615.20
	Halibut	0.90	$ 11.10	5.30	$ 98.30	6.10	$ 109.40
	Herring	*	$ *	12.80	$ 19.80	12.80	$ 19.80
	Crab	2.90	$ 90.40	4.30	$ 72.50	7.10	$ 162.80
	Other	-	-	0.90	$ 25.40	0.90	$ 25.40
2023	All Species	802.40	$ 2,935.80	343.10	$ 1,556.00	1,145.50	$ 4,491.80

Note: These estimates include the value of catch from both federal and state of Alaska fisheries. The data have been adjusted to 2023 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, 2019-2023; calculations based on COAR.

		Bering Sea and Aleutian Islands		Gulf of Alaska		All Alaska	
		Alaska	Other	Alaska	Other	Alaska	Other
	2019	8 %	92 %	50 %	50 %	12 %	88 %
	2020	6 %	94 %	53 %	47 %	9 %	91 %
	2021	6 %	94 %	51 %	49 %	9 %	91 %
	2022	10 %	90 %	46 %	54 %	14 %	86 %
Pollock	2023	10 %	90 %	54 %	46 %	14 %	86 %
	2019	36 %	64 %	62 %	38 %	60 %	40 %
	2020	29 %	71 %	66 %	34 %	62 %	38 %
	2021	60 %	40 %	62 %	38 %	62 %	38 %
	2022	54 %	46 %	62 %	38 %	61 %	39 %
Sablefish	2023	50 %	50 %	65 %	35 %	62 %	38 %
	2019	27 %	73 %	72 %	28 %	31 %	69 %
	2020	28 %	72 %	85 %	15 %	29 %	71 %
	2021	26 %	74 %	74 %	26 %	32 %	68 %
Pacific	2022	25 %	75 %	70 %	30 %	31 %	69 %
Cod	2023	27 %	73 %	75 %	25 %	32 %	68 %
	2019	27 %	73 %	63 %	37 %	29 %	71 %
	2020	27 %	73 %	60 %	40 %	29 %	71 %
	2021	27 %	73 %	27 %	73 %	27 %	73 %
	2022	24 %	76 %	22 %	78 %	24 %	76 %
Flatfish	2023	22 %	78 %	21 %	79 %	22 %	78 %
	2019	32 %	68 %	39 %	61 %	35 %	65 %
	2020	31 %	69 %	45 %	55 %	37 %	63 %
	2021	33 %	67 %	45 %	55 %	38 %	62 %
	2022	36 %	64 %	42 %	58 %	39 %	61 %
Rockfish	2023	37 %	63 %	42 %	58 %	39 %	61 %
	2019	42 %	58 %	15 %	85 %	41 %	59 %
	2020	39 %	61 %	14 %	86 %	39 %	61 %
	2021	38 %	62 %	6 %	94 %	38 %	62 %
Atka	2022	44 %	56 %	22 %	78 %	43 %	57 %
Mackerel	2023	42 %	58 %	24 %	76 %	42 %	58 %
	2019	17 %	83 %	58 %	42 %	23 %	77 %
	2020	16 %	84 %	60 %	40 %	21 %	79 %
	2021	14 %	86 %	59 %	41 %	22 %	78 %
All	2022	18 %	82 %	57 %	43 %	26 %	74 %
Groundfish	2023	18 %	82 %	61 %	39 %	24 %	76 %

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,2019-2023.

		Bering Sea and Aleutian Islands			Gulf of Alaska			All Alaska		
		Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total
	2019	84	30	114	62	-	62	125	30	155
	2020	88	29	117	60	1	61	131	29	160
	2021	84	32	116	56	2	58	124	33	157
	2022	84	30	114	54	1	55	122	30	152
Pollock	2023	77	28	105	52	-	52	115	28	143
	2019	13	5	18	252	6	258	258	10	268
	2020	13	7	20	249	5	254	254	10	264
	2021	20	4	24	245	5	250	258	8	266
	2022	25	11	36	249	7	256	263	13	276
Sablefish	2023	30	13	43	237	5	242	251	15	266
	2019	150	46	196	179	4	183	308	47	355
	2020	151	38	189	103	-	103	249	38	287
	2021	115	31	146	184	2	186	277	31	308
Pacific	2022	120	30	150	200	6	206	285	30	315
Cod	2023	109	31	140	214	5	219	301	31	332
	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
	2022	6	20	26	4	6	10	10	21	31
Flatfish	2023	6	19	25	10	3	13	15	19	34
	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
	2022	3	15	18	60	7	67	63	18	81
Rockfish	2023	5	15	20	77	8	85	81	16	97
	2019	4	14	18	-	-	-	4	14	18
	2020	3	13	16	-	-	-	3	13	16
	2021	4	14	18	-	-	-	4	14	18
Atka	2022	3	14	17	-	-	-	3	14	17
Mackerel	2023	5	13	18	-	-	-	5	13	18

Table 4.9: Number of vessels that caught groundfish of Alaska by area, vessel category, gear, and target,2019-2023. *(continued)*

		Bering Sea and Aleutian Islands			Gulf of Alaska			All Alaska		
		Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total	Catcher Vessels	Catcher Processors	Total
	2019	196	65	260	476	19	495	603	67	669
	2020	206	59	265	417	14	431	559	61	620
	2021	171	55	226	431	14	445	543	57	600
All	2022	182	55	237	437	21	458	551	57	608
Targets	2023	164	52	216	475	18	493	576	53	629

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, 2022-2023 (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
	2019	-	-	735.60	735.60	-	-	660.60	666.20	-	-	1,396.20	1,401.80
	2020	-	-	725.00	725.00	-	-	629.00	633.30	-	-	1,354.00	1,358.40
	2021	-	-	718.20	718.20	-	-	642.60	645.70	-	-	1,360.80	1,363.90
	2022	-	-	570.00	570.00	-	-	520.80	524.90	-	-	1,090.80	1,094.90
Pollock	2023	-	-	678.20	678.20	-	-	616.00	621.00	-	-	1,294.20	1,299.20
	2019	1.20	43.10	33.30	77.50	88.60	4.20	25.60	118.30	89.80	47.30	58.80	195.80
	2020	1.00	35.80	31.60	68.30	73.60	3.40	22.10	99.00	74.50	39.20	53.60	167.40
	2021	0.20	30.50	22.00	52.70	58.90	2.30	18.10	79.40	59.10	32.80	40.10	132.10
	2022	0.20	39.70	25.00	64.80	70.40	2.70	20.50	93.60	70.50	42.40	45.40	158.40
Pacific Cod	2023	-	36.60	24.60	61.20	65.50	2.40	20.40	88.20	65.50	39.00	45.00	149.50
	2019	0.20	0.50	0.80	1.60	-	*	0.40	0.40	0.20	0.50	1.20	2.00
	2020	0.10	-	1.60	1.70	-	*	0.70	0.70	0.10	-	2.20	2.30
	2021	0.10	1.40	0.40	1.90	-	*	0.80	0.90	0.20	1.40	1.30	2.80
	2022	0.20	2.70	0.20	3.10	*	1.10	2.00	3.00	0.20	3.80	2.10	6.10
Sablefish	2023	-	2.60	0.30	3.00	-	1.50	3.20	4.70	-	4.10	3.60	7.80
	2019	-	-	3.30	3.30	-	-	53.60	53.60	-	-	56.80	56.80
	2020	-	-	5.60	5.60	-	-	52.50	52.50	-	-	58.10	58.10
	2021	-	-	3.70	3.70	-	-	56.90	56.90	-	-	60.60	60.60
Atka	2022	-	-	2.40	2.40	-	-	55.00	55.00	-	-	57.40	57.40
Mackerel	2023	-	-	3.70	3.70	-	-	61.80	61.80	-	-	65.50	65.50
	2019	-	-	17.30	17.30	-	-	108.80	108.80	-	-	126.10	126.10
	2020	-	-	16.10	16.10	*	-	115.60	115.60	*	-	131.60	131.60
	2021	-	-	8.00	8.00	*	-	98.70	98.70	*	-	106.70	106.70
	2022	-	-	10.30	10.30	*	-	141.20	141.20	*	-	151.50	151.50
Yellowfin	2023	-	-	7.40	7.40	-	-	103.70	103.70	-	-	111.10	111.10

Table 4.10: Bering Sea and Aleutian Islands groundfish retained catch by vessel type, gear and species, 2022-2023 (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
	2019	*	-	2.40	2.40	-	-	22.00	22.00	-	-	24.40	24.40
	2020	-	-	2.60	2.60	*	-	22.00	22.00	*	-	24.70	24.70
	2021	-	-	0.60	0.60	*	-	12.80	12.80	*	-	13.40	13.40
	2022	-	-	0.70	0.70	*	-	16.70	16.70	*	-	17.40	17.40
Rock Sole	2023	-	-	1.50	1.50	*	-	24.60	24.60	*	-	26.20	26.20
	2019	*	-	0.80	0.80	-	-	14.10	14.10	-	-	14.90	14.90
	2020	-	-	1.00	1.10	-	-	7.20	7.20	-	-	8.30	8.30
	2021	-	-	0.70	0.70	-	-	8.70	8.80	-	-	9.50	9.50
Flathead	2022	-	-	0.70	0.70	*	-	12.90	12.90	*	-	13.60	13.70
Sole	2023	-	-	0.50	0.50	*	-	7.60	7.60	*	-	8.20	8.20
	2019	-	-	0.60	0.60	0.20	-	8.30	8.50	0.20	-	8.90	9.10
	2020	*	-	0.30	0.30	0.10	-	9.40	9.50	0.10	-	9.70	9.80
	2021	*	-	0.20	0.20	-	-	7.70	7.80	-	-	8.00	8.00
	2022	-	-	0.10	0.10	*	-	6.60	6.60	-	-	6.70	6.70
Arrowtooth	2023	*	-	0.20	0.20	0.10	-	6.00	6.00	0.10	-	6.20	6.30
	2019	-	-	0.10	0.10	-	-	4.10	4.10	-	-	4.20	4.20
	2020	*	-	0.20	0.20	-	-	6.90	7.00	-	-	7.20	7.20
	2021	-	-	-	-	-	-	6.40	6.40	-	-	6.40	6.40
Kamchatka	2022	-	-	-	-	*	-	8.00	8.00	*	-	8.00	8.00
Flounder	2023	*	-	0.10	0.10	-	-	6.70	6.70	-	-	6.80	6.80
	2019	*	-	-	-	0.50	-	2.20	2.80	0.50	-	2.30	2.80
	2020	*	-	-	-	0.30	-	1.90	2.10	0.30	-	1.90	2.10
	2021	*	-	-	-	-	-	1.50	1.50	-	-	1.50	1.50
	2022	*	-	-	-	-	-	1.40	1.40	-	-	1.40	1.40
Turbot	2023	*	-	-	-	-	-	1.10	1.10	-	-	1.10	1.20

Table 4.10: Bering Sea and Aleutian Islands groundfish retained catch by vessel type, gear and species, 2022-2023 (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
	2019	-	-	2.40	2.40	-	-	14.30	14.30	-	-	16.70	16.70
	2020	*	-	3.50	3.50	-	-	16.20	16.20	-	-	19.70	19.70
	2021	-	-	1.10	1.10	*	-	14.40	14.40	*	-	15.40	15.40
Other	2022	-	-	0.80	0.80	-	-	10.60	10.60	-	-	11.40	11.40
Flatfish	2023	-	-	1.20	1.20	-	-	14.80	14.80	-	-	16.00	16.00
	2019	*	-	4.40	4.40	-	-	35.40	35.40	-	-	39.80	39.80
	2020	*	-	4.40	4.40	*	-	33.10	33.10	*	-	37.50	37.50
Pacific	2021	-	-	2.10	2.10	*	-	31.60	31.60	*	-	33.70	33.70
Ocean	2022	*	-	1.80	1.80	-	-	31.80	31.80	*	-	33.60	33.60
Perch	2023	*	-	2.40	2.40	*	-	32.50	32.50	*	-	34.90	34.90
	2019	-	-	0.40	0.40	*	-	8.20	8.20	*	-	8.60	8.60
	2020	-	-	0.80	0.80	-	-	6.50	6.50	-	-	7.30	7.30
	2021	*	-	0.20	0.20	*	-	5.50	5.50	*	-	5.60	5.60
Northern	2022	-	-	0.10	0.10	-	-	7.10	7.10	-	-	7.30	7.30
Rockfish	2023	*	-	0.20	0.20	-	-	9.70	9.70	-	-	9.90	9.90
	2019	-	-	0.10	0.10	-	-	1.30	1.30	-	-	1.30	1.40
	2020	-	-	0.10	0.10	-	-	1.10	1.10	-	-	1.10	1.20
	2021	-	-	-	-	-	-	1.20	1.20	-	-	1.20	1.30
Other	2022	-	-	-	-	*	-	1.20	1.20	-	-	1.30	1.30
Rockfish	2023	-	-	-	0.10	-	-	1.20	1.20	-	-	1.20	1.20
	2019	-	-	0.50	0.70	6.30	-	2.70	9.10	6.40	-	3.20	9.70
	2020	-	-	0.50	0.60	6.60	-	1.90	8.40	6.60	-	2.30	9.10
	2021	-	-	0.40	0.40	6.20	-	2.20	8.50	6.20	-	2.60	8.90
Other	2022	-	-	0.30	0.40	10.90	-	1.30	12.20	10.90	-	1.70	12.60
Groundfish	2023	-	-	0.30	0.40	11.20	-	1.10	12.20	11.20	-	1.40	12.60

	2019	1.40	-	801.90	847.10	101.40	-	961.50	1,067.10	102.80	-	1,763.50	1,914.20
	2020	1.10	-	793.40	830.40	85.00	-	925.90	1,014.30	86.10	-	1,719.30	1,844.70
	2021	0.30	-	757.70	789.90	68.30	-	909.20	979.90	68.70	-	1,666.90	1,769.80
All	2022	0.40	-	612.60	655.50	85.40	-	837.00	926.20	85.80	-	1,449.60	1,581.70
Groundfish	2023	0.10	-	720.80	760.20	81.70	-	910.30	995.90	81.80	-	1,631.10	1,756.10

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 target, vessel type, gear and species, Catcher Vessels 2022-2023 (1,000 metric tons, round weight).

Gear	Year	Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Kamchatka Flounder	Flathead Sole	Rock Sole	Turbot	Yellowfin	Flat Other	Rockfish	Atka Mackerel	Other	All Species
		Sablefish	-	0.10	*	-	-	-	-	-	-	-	*	-	-	0.10
		Pacific Cod	-	-	0.10	-	-	-	-	-	-	-	-	-	-	0.10
	2022	All Targets	*	0.20	0.20	-	-	-	-	*	-	-	-	-	-	0.40
		Sablefish	-	*	*	*	-	-	-	-	-	-	*	-	-	*
Hook and		Pacific Cod	-	*	*	*	*	-	-	*	-	-	*	-	-	*
Line	2023	All Targets	-	-	-	*	*	-	-	*	-	-	-	-	-	0.10
		Sablefish	*	2.70	*	*	-	-	-	*	-	-	-	-	*	2.70
		Pacific Cod	-	-	39.70	*	-	-	-	-	*	-	-	-	0.10	39.80
	2022	All Targets	-	2.70	39.70	*	-	-	-	*	*	-	-	-	0.10	42.50
		Sablefish	-	2.60	*	*	-	-	-	-	-	-	-	-	-	2.60
		Pacific Cod	-	*	36.60	*	-	-	*	-	*	*	-	-	0.10	36.70
Pot	2023	All Targets	-	2.60	36.60	*	-	-	*	-	*	*	-	-	0.10	39.30
		Pollock, Bottom	3.80	*	0.10	-	-	-	-	*	0.10	-	0.10	*	-	4.00
		Pollock, Pelagic	564.60	0.20	1.40	0.10	*	0.20	-	-	-	-	0.20	-	0.10	566.80
		Pacific Cod	0.50	*	22.40	-	-	-	-	-	-	-	-	*	-	23.00
		Flathead Sole	0.20	-	0.10	-	*	0.20	0.10	-	0.40	-	-	-	-	1.10
		Rock Sole	-	-	-	*	-	*	-	-	-	-	-	-	*	-
		Yellowfin	0.80	-	0.70	0.10	-	0.30	0.50	-	9.80	0.70	-	-	0.20	13.10
		Rockfish	0.10	-	-	-	-	-	-	-	-	-	1.40	0.10	-	1.70
		Atka Mackerel	0.10	*	0.30	*	*	*	-	-	-	-	0.30	2.30	-	3.00
	2022	All Targets	570.00	0.20	25.00	0.10	-	0.70	0.70	-	10.30	0.80	2.00	2.40	0.30	612.60

Table 4.11: Bering Sea & Aleutian Islands groundfish retained catch by target, vessel type, gear and species, Catcher Vessels 2022-2023 (1,000 metric tons, round weight). *(continued)*

Gear	Year	Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Kamchatka Flounder	Flathead Sole	Rock Sole	Turbot	Yellowfin	Flat Other	Rockfish	Atka Mackerel	Other	All Species
		Pollock, Bottom	2.60	*	-	-	-	-	*	*	*	-	0.20	-	-	2.80
		Pollock, Pelagic	673.90	0.30	1.80	0.10	*	0.30	0.10	-	-	0.20	0.60	-	0.10	677.30
		Pacific Cod	0.60	*	21.90	0.10	*	0.10	0.30	*	-	-	-	*	0.10	23.00
		Flathead Sole	*	-	*	*	-	*	*	-	*	*	-	-	*	*
		Rock Sole	0.10	-	0.10	-	-	-	0.30	-	0.40	0.10	-	-	-	1.10
		Yellowfin	0.90	-	0.50	-	-	0.20	0.80	*	7.00	0.90	-	-	0.10	10.20
		Rockfish	0.20	0.10	-	-	0.10	*	-	*	-	-	1.70	0.40	-	2.50
		Atka Mackerel	-	-	0.30	-	-	*	-	*	-	*	0.20	3.30	-	3.90
Trawl	2023	All Targets	678.20	0.30	24.60	0.20	0.10	0.50	1.50	-	7.40	1.20	2.70	3.70	0.30	720.80
All Gear	2022	All Targets	570.00	3.10	64.80	0.10	-	0.70	0.70	-	10.30	0.80	2.00	2.40	0.40	655.50
	2023	All Targets	678.20	3.00	61.20	0.20	0.10	0.50	1.50	-	7.40	1.20	2.70	3.70	0.40	760.20

Note: Estimates are of retained catch (i.e., excluding discarded catch) by species/species category, gear, and fishery target, where fishery target is as assigned by the Groundfish Catch Accounting System according to the predominant species within a trip or haul. For details on target assignment in retained catch estimation procedures, 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.' Values may not sum to the totals shown in the "All Species" column due to suppression of values for selected species-gear combinations. These estimates include only catch counted against federal TACs. Estimates also include retained catch of FMP groundfish in the halibut fishery. "*" 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 target, vessel type, gear and species, Catcher Processors 2022-2023 (1,000 metric tons, round weight).

Gear	Year	Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Kamchatka Flounder	Flathead Sole	Rock Sole	Turbot	Yellowfin	Flat Other	Rockfish	Atka Mackerel	Other	All Species
		Sablefish	-	*	-	-	-	-	-	-	-	-	*	-	-	*
		Pacific Cod	4.10	*	70.40	*	*	*	*	-	*	-	*	-	10.90	85.40
		Halibut	-	-	*	-	-	-	-	-	-	-	-	-	-	*
	2022	All Targets	4.10	*	70.40	*	*	*	*	-	*	-	*	-	10.90	85.40
Hook and Line		Pacific Cod	5.00	-	65.50	0.10	-	*	*	-	-	-	-	-	11.20	81.70
	2023	All Targets	5.00	-	65.50	0.10	-	*	*	-	-	-	-	-	11.20	81.70
		Sablefish	-	1.10	-	-	-	-	-	-	-	-	*	-	-	1.10
		Pacific Cod	*	-	2.70	-	-	*	*	-	*	-	-	-	*	2.70
	2022	All Targets	*	1.10	2.70	-	-	*	*	-	*	-	*	-	*	3.80
		Sablefish	*	1.50	*	-	-	-	-	*	-	-	*	-	-	1.50
		Pacific Cod	*	-	2.40	*	-	-	-	-	-	-	-	-	*	2.40
Pot	2023	All Targets	*	1.50	2.40	*	-	-	-	*	-	-	*	-	*	3.90

Table 4.12: Bering Sea & Aleutian Islands groundfish retained catch by target, vessel type, gear and species, Catcher Processors 2022-2023 (1,000 metric tons, round weight). *(continued)*

Gear	Year	Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Kamchatka Flounder	Flathead Sole	Rock Sole	Turbot	Yellowfin	Flat Other	Rockfish	Atka Mackerel	Other	All Species
		Pollock, Bottom	4.50	-	0.40	0.20	0.20	0.10	0.10	-	0.50	0.20	0.30	0.10	-	6.50
		Pollock, Pelagic	487.90	-	1.80	-	-	0.50	0.30	-	0.20	-	0.60	-	0.20	491.50
		Sablefish	-	0.30	*	-	0.10	-	*	0.10	*	-	0.10	*	-	0.60
		Pacific Cod	0.20	-	2.50	-	*	-	0.40	*	-	-	*	*	-	3.20
		Arrowtooth	0.20	0.10	0.10	1.10	0.20	0.30	-	0.10	*	0.10	0.20	*	*	2.30
		Kamchatka Flounder	1.20	0.50	-	1.70	6.50	*	*	0.50	-	-	0.80	0.10	-	11.40
		Rock Sole	1.90	-	2.10	0.10	*	0.60	6.60	-	4.10	0.90	-	-	-	16.30
		Turbot	0.10	0.10	*	0.10	0.20	0.10	*	0.30	-	0.10	0.10	-	*	0.90
		Yellowfin	19.30	*	9.10	1.10	0.10	5.50	8.00	-	132.90	8.30	-	*	0.80	185.10
		Other Flatfish	-	-	-	0.10	0.10	-	*	-	*	0.10	-	-	*	0.40
		Rockfish	1.80	0.50	0.70	0.60	0.30	0.10	-	0.10	-	0.20	25.20	6.00	-	35.50
		Atka Mackerel	1.10	0.20	2.20	0.20	0.20	-	0.10	-	*	-	12.40	48.70	0.10	65.10
	2022	All Targets	520.80	2.00	20.50	6.60	8.00	12.90	16.70	1.40	141.20	10.60	40.10	55.00	1.30	837.00
		Pollock, Bottom	3.40	-	0.40	0.10	-	0.20	0.30	*	0.70	0.10	0.20	-	-	5.50
		Pollock, Pelagic	581.60	-	1.60	0.10	-	0.30	0.10	-	-	-	0.30	-	0.10	584.00
		Sablefish	0.10	0.60	-	0.20	0.20	0.10	*	0.10	*	0.10	0.20	*	-	1.70
		Pacific Cod	0.50	-	2.90	-	-	-	0.70	-	-	0.10	*	*	*	4.10
		Arrowtooth	0.30	0.30	0.10	1.30	0.30	0.20	-	0.10	*	0.10	0.10	*	0.10	3.00
		Kamchatka Flounder	1.20	1.00	-	1.80	5.10	-	*	0.50	-	-	0.90	0.50	-	11.10
		Rock Sole	6.80	*	4.70	0.10	-	0.60	13.70	*	12.30	2.50	*	-	0.10	40.60
		Turbot	*	*	*	-	-	-	-	-	-	-	-	-	*	0.10
		Yellowfin	15.90	-	6.90	0.80	0.10	2.40	9.00	-	88.20	10.20	*	-	0.50	133.90
		Other Flatfish	0.30	0.40	0.20	0.30	0.20	0.20	0.20	0.10	0.10	1.10	0.20	*	-	3.20
		Rockfish	2.50	0.60	0.80	0.60	0.50	0.20	-	0.10	*	0.20	28.90	8.30	0.10	42.90
		Atka Mackerel	1.50	0.20	2.00	0.20	0.10	-	-	-	*	-	12.30	53.00	0.10	69.40
Trawl	2023	All Targets	616.00	3.20	20.40	6.00	6.70	7.60	24.60	1.10	103.70	14.80	43.40	61.80	1.10	910.30

Table 4.12: Bering Sea & Aleutian Islands groundfish retained catch by target, vessel type, gear and species, Catcher Processors 2022-2023 (1,000 metric tons, round weight). *(continued)*

Gear	Year	Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Kamchatka Flounder	Flathead Sole	Rock Sole	Turbot	Yellowfin	Flat Other	Rockfish	Atka Mackerel	Other	All Species
All Gear	2022	All Targets	524.90	3.00	93.60	6.60	8.00	12.90	16.70	1.40	141.20	10.60	40.10	55.00	12.20	926.20
	2023	All Targets	621.00	4.70	88.20	6.00	6.70	7.60	24.60	1.10	103.70	14.80	43.40	61.80	12.20	995.90

Note: Estimates are of retained catch (i.e., excluding discarded catch) by species/species category, gear, and fishery target, where fishery target is as assigned by the Groundfish Catch Accounting System according to the predominant species within a trip or haul. For details on target assignment in retained catch estimation procedures, 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.' Values may not sum to the totals shown in the "All Species" column due to suppression of values for selected species-gear combinations. These estimates include only catch counted against federal TACs. Estimates also include retained catch of FMP groundfish in the halibut fishery. "*" 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, 2019-2023; calculations based on COAR ($/lb, round weight).

		Shoreside			At Sea			All Sectors		
		Fixed	Trawl	All Gear	Fixed	Trawl	All Gear	Fixed	Trawl	All Gear
	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
	2022	0.12	0.20	0.20	0.12	0.15	0.15	0.12	0.17	0.17
Pollock	2023	0.06	0.17	0.17	0.06	0.13	0.13	0.06	0.15	0.15
	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	0.36	0.41	0.43	0.36	0.40
	2021	0.39	0.34	0.37	0.34	0.29	0.32	0.35	0.32	0.34
Pacific	2022	0.47	0.45	0.46	0.47	0.43	0.46	0.47	0.44	0.46
Cod	2023	0.44	0.46	0.45	0.44	0.45	0.44	0.44	0.46	0.44
	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
	2022	1.89	0.76	1.83	1.89	0.76	1.15	1.89	0.76	1.49
Sablefish	2023	1.26	0.58	1.21	1.26	0.58	0.79	1.26	0.58	0.95
	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
Atka	2022	0.01	0.24	0.24	-	0.24	0.24	0.01	0.24	0.24
Mackerel	2023	0.02	0.26	0.26	-	0.26	0.26	0.02	0.26	0.26
	2019	0.01	0.21	0.09	0.01	0.21	0.21	0.01	0.21	0.21
	2020	0.01	0.16	0.11	*	0.16	0.16	0.01	0.16	0.16
	2021	0.01	0.14	0.13	*	0.14	0.14	0.01	0.14	0.14
	2022	*	0.19	0.19	*	0.19	0.19	*	0.19	0.19
Yellowfin	2023	*	0.18	0.18	-	0.18	0.18	*	0.18	0.18
	2019	0.01	0.22	0.22	0.01	0.22	0.22	0.01	0.22	0.22
	2020	*	0.20	0.20	*	0.20	0.20	*	0.20	0.20
	2021	*	0.14	0.14	*	0.14	0.14	*	0.14	0.14
	2022	0.01	0.20	0.20	*	0.20	0.20	0.01	0.20	0.20
Rock Sole	2023	*	0.20	0.20	*	0.20	0.20	*	0.20	0.20

Table 4.13: Bering Sea & Aleutian Islands ex-vessel prices in the groundfish fisheries by gear, and species, 2019-2023; calculations based on COAR ($/lb, round weight). *(continued)*

		Shoreside			At Sea			All Sectors		
		Fixed	Trawl	All Gear	Fixed	Trawl	All Gear	Fixed	Trawl	All Gear
	2019	0.01	0.22	0.22	0.01	0.22	0.22	0.01	0.22	0.22
	2020	0.01	0.16	0.16	0.01	0.16	0.16	0.01	0.16	0.16
	2021	0.01	0.15	0.14	0.01	0.15	0.15	0.01	0.15	0.15
Flathead	2022	0.02	0.19	0.17	0.01	0.19	0.19	0.02	0.19	0.19
Sole	2023	0.02	0.19	0.18	*	0.19	0.19	0.02	0.19	0.19
	2019	*	0.70	0.70	0.01	0.70	0.57	0.01	0.70	0.57
	2020	*	0.65	0.65	0.01	0.65	0.57	0.01	0.65	0.57
	2021	*	0.64	0.64	0.01	0.64	0.63	0.01	0.64	0.63
	2022	*	0.76	0.76	0.01	0.76	0.76	0.01	0.76	0.76
Turbot	2023	*	0.77	0.77	0.02	0.77	0.77	0.02	0.77	0.77
	2019	*	0.22	0.22	0.01	0.22	0.21	0.01	0.22	0.21
	2020	0.02	0.18	0.18	0.01	0.18	0.17	0.01	0.18	0.17
	2021	0.01	0.18	0.18	0.01	0.18	0.18	0.01	0.18	0.18
	2022	0.01	0.22	0.22	*	0.22	0.22	0.01	0.22	0.22
Arrowtooth	2023	*	0.24	0.24	0.02	0.24	0.24	0.02	0.24	0.24
	2019	-	*	*	0.01	0.25	0.24	0.01	0.25	0.24
	2020	*	*	*	0.01	0.22	0.22	0.01	0.22	0.22
	2022	-	*	*	*	0.26	0.26	*	0.26	0.26
Kamchatka	2023	*	-	*	0.02	0.27	0.27	0.02	0.27	0.27
Flounder	2021	-	-	-	0.01	0.23	0.23	0.01	0.23	0.23
	2019	0.01	0.58	0.55	0.01	0.19	0.19	0.01	0.19	0.19
	2020	0.01	0.40	0.40	0.01	0.17	0.17	0.01	0.17	0.17
	2021	*	0.27	0.27	*	0.12	0.12	*	0.12	0.12
Other	2022	-	0.28	0.28	0.01	0.18	0.18	0.01	0.18	0.18
Flatfish	2023	*	0.32	0.32	0.02	0.21	0.21	0.02	0.21	0.21
	2019	0.02	0.16	0.16	0.74	0.16	0.16	0.22	0.16	0.16
	2020	*	0.15	0.15	*	0.15	0.15	*	0.15	0.15
Pacific	2021	*	0.15	0.15	*	0.15	0.15	*	0.15	0.15
Ocean	2022	0.44	0.20	0.20	-	0.20	0.20	0.44	0.20	0.20
Perch	2023	*	0.18	0.18	*	0.18	0.18	*	0.18	0.18

Table 4.13: Bering Sea & Aleutian Islands ex-vessel prices in the groundfish fisheries by gear, and species, 2019-2023; calculations based on COAR ($/lb, round weight). *(continued)*

		Shoreside			At Sea			All Sectors		
		Fixed	Trawl	All Gear	Fixed	Trawl	All Gear	Fixed	Trawl	All Gear
	2019	*	0.14	0.14	*	0.14	0.14	*	0.14	0.14
	2020	-	0.10	0.10	0.36	0.10	0.10	0.36	0.10	0.10
	2021	*	0.08	0.08	*	0.08	0.08	*	0.08	0.08
Northern	2022	-	0.14	0.14	-	0.14	0.14	-	0.14	0.14
Rockfish	2023	*	0.13	0.13	0.42	0.13	0.13	0.42	0.13	0.13
	2019	0.76	0.27	0.48	0.74	0.35	0.36	0.75	0.35	0.36
	2020	0.45	0.21	0.30	0.36	0.29	0.29	0.41	0.29	0.29
	2021	0.45	0.14	0.36	0.38	0.32	0.32	0.40	0.32	0.32
Other	2022	0.42	0.17	0.36	0.44	0.41	0.41	0.42	0.41	0.41
Rockfish	2023	0.39	0.19	0.33	0.42	0.33	0.33	0.39	0.33	0.33
	2019	0.45	0.09	0.25	0.45	0.03	0.31	0.45	0.03	0.31
	2020	0.41	0.02	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
Other	2022	0.97	0.11	0.45	0.97	0.01	0.85	0.97	0.02	0.84
Groundfish	2023	0.55	0.10	0.24	0.55	0.01	0.50	0.55	0.02	0.49

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, 2019-2023; calculations based on COAR ($ millions).

		Catcher Vessels				Catcher Processor				All Sectors			
		Hook and Line	Pot	Trawl	All Gear	Hook and Line	Pot	Trawl	All Gear	Hook and Line	Pot	Trawl	All Gear
	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
	2022	-	-	241.98	241.98	-	-	175.80	176.91	-	-	417.78	418.89
Pollock	2023	-	-	244.03	244.03	-	-	173.13	173.85	-	-	417.16	417.88
	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	33.12	19.60	53.61	70.20	3.26	22.47	95.93	71.08	36.39	42.07	149.54
	2021	0.17	26.17	13.02	39.35	43.68	1.71	14.92	60.31	43.85	27.88	27.94	99.66
Pacific	2022	0.16	41.48	19.24	60.88	73.57	2.86	24.86	101.28	73.73	44.34	44.10	162.17
Cod	2023	0.06	35.39	18.84	54.29	63.35	2.30	26.44	92.09	63.41	37.69	45.28	146.38
	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
	2022	0.82	11.38	0.38	12.58	*	4.39	3.34	7.73	0.82	15.77	3.72	20.31
Sablefish	2023	0.52	7.32	0.44	8.28	-	4.24	4.23	8.47	0.52	11.56	4.68	16.76
	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
Atka	2022	-	-	0.05	0.05	-	-	30.99	30.99	-	-	31.04	31.04
Mackerel	2023	-	-	0.02	0.02	-	-	37.64	37.64	-	-	37.65	37.65
	2019	-	-	0.01	0.01	-	-	57.24	57.24	-	-	57.25	57.25
	2020	-	-	0.01	0.01	*	-	47.16	47.16	*	-	47.17	47.17
	2021	-	-	-	-	*	-	33.75	33.75	*	-	33.75	33.75
	2022	-	-	0.03	0.03	*	-	62.91	62.91	*	-	62.94	62.94
Yellowfin	2023	-	-	-	-	-	-	43.07	43.07	-	-	43.07	43.07

Table 4.14: Bering Sea & Aleutian Islands ex-vessel value of the groundfish catch by vessel category, gear, and species, 2019-2023; calculations based on COAR ($ millions). *(continued)*

		Catcher Vessels				Catcher Processor				All Sectors			
		Hook and Line	Pot	Trawl	All Gear	Hook and Line	Pot	Trawl	All Gear	Hook and Line	Pot	Trawl	All Gear
	2019	*	-	0.09	0.09	-	-	11.78	11.78	-	-	11.87	11.87
	2020	-	-	0.08	0.08	*	-	10.86	10.86	*	-	10.94	10.94
	2021	-	-	0.02	0.02	*	-	4.01	4.01	*	-	4.03	4.03
Rock	2022	-	-	0.02	0.02	*	-	7.76	7.76	*	-	7.78	7.78
Sole	2023	-	-	0.04	0.04	*	-	11.55	11.55	*	-	11.59	11.59
	2019	*	-	0.15	0.15	-	-	7.15	7.15	-	-	7.31	7.31
	2020	-	-	0.24	0.24	-	-	2.78	2.78	-	-	3.02	3.02
	2021	-	-	0.13	0.13	-	-	2.95	2.95	-	-	3.08	3.08
Flathead	2022	-	-	0.08	0.08	*	-	5.77	5.77	*	-	5.84	5.84
Sole	2023	-	-	0.13	0.13	*	-	3.29	3.29	*	-	3.42	3.42
	2019	-	-	0.06	0.06	0.01	-	4.18	4.19	0.01	-	4.24	4.25
	2020	*	-	0.07	0.07	0.01	-	3.77	3.78	0.01	-	3.84	3.85
	2021	*	-	0.03	0.03	-	-	3.18	3.18	-	-	3.22	3.22
	2022	-	-	0.03	0.03	*	-	3.26	3.26	-	-	3.29	3.29
Arrowtooth	2023	*	-	0.04	0.04	-	-	3.24	3.24	-	-	3.28	3.28
	2019	-	-	-	-	-	-	2.28	2.28	-	-	2.28	2.28
	2020	*	-	-	-	-	-	3.47	3.47	-	-	3.47	3.47
	2021	-	-	*	*	-	-	3.26	3.26	-	-	3.26	3.26
Kamchatka	2022	-	-	*	*	*	-	4.57	4.57	*	-	4.57	4.57
Flounder	2023	*	-	*	*	-	-	4.07	4.07	-	-	4.07	4.07
	2019	*	-	-	-	0.02	-	3.51	3.52	0.02	-	3.51	3.53
	2020	*	-	0.01	0.01	0.01	-	2.81	2.82	0.01	-	2.81	2.82
	2021	*	-	-	-	-	-	2.16	2.16	-	-	2.17	2.17
	2022	*	-	-	-	-	-	2.34	2.34	-	-	2.34	2.34
Turbot	2023	*	-	0.01	0.01	-	-	2.05	2.05	-	-	2.06	2.06

Table 4.14: Bering Sea & Aleutian Islands ex-vessel value of the groundfish catch by vessel category, gear, and species, 2019-2023; calculations based on COAR ($ millions). *(continued)*

		Catcher Vessels				Catcher Processor				All Sectors			
		Hook and Line	Pot	Trawl	All Gear	Hook and Line	Pot	Trawl	All Gear	Hook and Line	Pot	Trawl	All Gear
	2019	-	-	0.20	0.20	-	-	6.87	6.87	-	-	7.07	7.07
	2020	*	-	0.30	0.30	-	-	7.16	7.16	-	-	7.46	7.46
	2021	-	-	0.07	0.07	*	-	4.18	4.18	*	-	4.25	4.25
Other	2022	-	-	0.04	0.04	-	-	4.51	4.51	-	-	4.56	4.56
Flatfish	2023	-	-	0.12	0.12	-	-	7.31	7.31	-	-	7.43	7.43
	2019	*	-	0.68	0.68	-	-	13.35	13.35	-	-	14.03	14.03
	2020	*	-	0.62	0.62	*	-	11.86	11.86	*	-	12.47	12.47
Pacific	2021	-	-	0.20	0.20	*	-	11.12	11.12	*	-	11.31	11.31
Ocean	2022	*	-	0.11	0.11	-	-	14.48	14.48	*	-	14.59	14.59
Perch	2023	*	-	0.30	0.30	*	-	13.80	13.80	*	-	14.09	14.09
	2019	-	-	0.01	0.01	*	-	2.60	2.60	*	-	2.61	2.61
	2020	-	-	0.01	0.01	0.01	-	1.51	1.52	0.01	-	1.53	1.54
	2021	*	-	-	-	*	-	1.06	1.06	*	-	1.06	1.06
Northern	2022	-	-	-	-	-	-	2.20	2.20	-	-	2.20	2.20
Rockfish	2023	*	-	-	-	-	-	2.83	2.84	-	-	2.84	2.84
	2019	0.02	-	0.01	0.04	0.04	-	1.04	1.09	0.07	-	1.06	1.13
	2020	0.02	-	0.01	0.03	0.02	-	0.73	0.74	0.03	-	0.74	0.78
	2021	0.01	-	-	0.01	0.02	-	0.89	0.91	0.03	-	0.89	0.92
Other	2022	0.01	-	-	0.01	*	-	1.14	1.14	0.01	-	1.14	1.15
Rockfish	2023	0.01	-	-	0.01	-	-	0.88	0.88	0.01	-	0.89	0.90
	2019	0.02	-	0.03	0.17	6.38	-	0.19	6.57	6.40	-	0.22	6.74
	2020	-	-	0.02	0.15	5.90	-	0.10	5.99	5.90	-	0.11	6.14
	2021	-	-	0.05	0.06	2.64	-	0.09	2.73	2.64	-	0.14	2.78
Other	2022	-	-	0.03	0.18	23.28	-	0.05	23.34	23.29	-	0.08	23.52
Groundfish	2023	-	-	0.03	0.11	13.70	-	0.03	13.73	13.70	-	0.06	13.84

	2019	2.06	-	281.61	328.02	102.22	-	360.26	466.91	104.28	-	641.87	794.93
	2020	1.32	-	257.09	293.55	76.49	-	304.75	384.51	77.81	-	561.85	678.07
	2021	0.98	-	257.25	290.35	47.04	-	287.60	336.36	48.02	-	544.85	626.71
All	2022	0.99	-	261.99	315.99	97.96	-	343.97	449.18	98.94	-	605.96	765.17
Species	2023	0.59	-	264.01	307.39	77.78	-	333.55	417.87	78.37	-	597.56	725.25

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 processor permit counts, ex-vessel value, value per vessel, and percent value of BSAI FMP groundfish and all BSAI fisheries by fleet, 2019-2023; calculations based on COAR ($ millions).

	Year	Vessels	Processors	Ex-vessel Value per Vessel $1,000	Ex-vessel Value $million	Percent Value, BSAI FMP Groundfish	Percent Value, All BSAI Fisheries
	2019	82	22	3,444.55	282.45	35.54	20.49
	2020	86	20	2,979.53	256.24	37.74	22.66
	2021	82	17	3,133.22	256.92	40.89	19.47
AFA	2022	80	13	3,242.12	259.37	33.91	19.43
CV	2023	75	11	3,501.81	262.64	36.22	25.70
	2019	16	16	11,924.54	190.79	24.01	13.84
	2020	13	13	11,639.55	151.31	22.29	13.38
	2021	15	15	11,824.05	177.36	28.23	13.44
	2022	14	14	11,989.39	167.85	21.95	12.58
AFA CP	2023	13	13	12,724.10	165.41	22.81	16.18
	2019	20	20	7,397.80	147.96	18.62	10.73
	2020	19	19	6,627.88	125.93	18.55	11.14
	2021	19	19	5,326.49	101.20	16.11	7.67
	2022	18	18	8,405.58	151.30	19.78	11.34
A80	2023	17	17	8,254.19	140.32	19.35	13.73
	2019	18	18	1,148.40	20.67	2.60	1.50
	2020	15	16	1,891.05	28.37	4.18	2.51
	2021	14	13	668.73	9.36	1.49	0.71
BSAI	2022	21	13	1,306.58	27.44	3.59	2.06
Trawl	2023	18	13	1,621.72	29.19	4.03	2.86
	2019	8	7	*	*	*	*
CV	2020	12	5	*	*	*	*
Hook	2021	2	4	*	*	*	*
and	2022	5	3	*	*	*	*
Line	2023	2	2	*	*	*	*
	2019	23	23	4,439.33	102.10	12.85	7.41
CP	2020	20	20	3,819.16	76.38	11.25	6.76
Hook	2021	17	17	2,761.82	46.95	7.47	3.56
and	2022	19	19	5,156.34	97.97	12.81	7.34
Line	2023	18	18	4,321.02	77.78	10.73	7.61
	2019	14	8	218.05	3.05	0.38	0.22
	2020	16	5	207.92	3.33	0.49	0.29
	2021	22	7	383.51	8.44	1.34	0.64
Sablefish	2022	28	11	578.88	16.21	2.12	1.21
IFQ	2023	29	10	390.03	11.31	1.56	1.11
	2019	83	18	561.37	46.59	5.86	3.38
	2020	94	17	388.57	36.53	5.38	3.23
	2021	65	17	429.05	27.89	4.44	2.11
	2022	66	11	675.04	44.55	5.83	3.34
Pot	2023	57	9	673.11	38.37	5.29	3.75

Table 4.15: Bering Sea & Aleutian Islands vessel and processor permit counts, ex-vessel value, value per vessel, and percent value of BSAI FMP groundfish and all BSAI fisheries by fleet, 2019-2023; calculations based on COAR ($ millions). *(continued)*

	Year	Vessels	Processors	Ex-vessel Value per Vessel $1,000	Ex-vessel Value $million	Percent Value, BSAI FMP Groundfish	Percent Value, All BSAI Fisheries
	2019	3	3	*	*	*	*
	2020	3	2	*	*	*	*
	2021	1	1	*	*	*	*
	2022	1	1	*	*	*	*
Jig	2023	1	1	*	*	*	*

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, 2019-2023, (1,000 metric tons product weight).

		2019			2020			2021			2022			2023		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
	Whole Fish	0.15	0.22	0.37	0.01	0.36	0.37	*	0.17	0.17	0.04	0.24	0.29	0.05	0.38	0.42
	Head And Gut	17.68	*	17.68	16.22	*	16.22	11.81	*	11.81	14.71	*	14.71	15.78	*	15.78
	Roe	16.18	11.77	27.95	15.73	8.96	24.68	11.51	4.44	15.95	9.28	4.55	13.83	9.10	5.56	14.66
	Deep-Skin Fillets	39.34	18.81	58.15	34.16	15.98	50.14	34.64	*	34.64	32.93	*	32.93	40.62	18.27	58.89
	Other Fillets	66.04	62.60	128.63	48.87	50.37	99.24	40.49	42.99	83.48	35.19	42.88	78.08	43.10	40.93	84.03
	Surimi	104.67	87.57	192.24	91.22	80.54	171.77	98.58	89.17	187.75	78.71	76.13	154.84	94.40	91.12	185.52
	Minced Fish	12.25	7.35	19.59	15.73	11.38	27.11	14.07	13.18	27.25	9.16	6.43	15.58	13.43	7.45	20.88
	Fishmeal	30.51	39.33	69.84	29.37	40.03	69.40	29.49	37.72	67.20	22.26	23.70	45.96	28.07	33.59	61.66
	Other Products	16.34	27.13	43.47	10.41	23.40	33.81	13.06	22.80	35.86	10.91	20.37	31.28	12.22	26.81	39.02
Pollock	All Products	303.17	254.76	557.93	261.72	231.02	492.74	253.65	210.47	464.12	213.19	174.30	387.49	256.76	224.10	480.86
	Whole Fish	0.01	0.28	0.29	0.01	0.11	0.11	*	0.06	0.06	0.18	0.05	0.23	0.23	0.13	0.36
	Head And Gut	58.78	11.47	70.25	47.30	7.74	55.04	37.47	8.49	45.96	45.13	2.22	47.35	44.91	2.10	47.01
	Roe	1.31	1.69	3.01	0.85	2.02	2.87	0.88	1.41	2.29	0.88	1.96	2.85	1.02	1.74	2.76
	Fillets	0.23	7.80	8.02	0.18	7.33	7.51	0.25	5.36	5.61	0.13	10.00	10.13	0.13	8.88	9.01
	Other Products	7.39	6.01	13.40	6.21	5.87	12.08	5.21	3.73	8.94	6.07	9.60	15.67	6.35	4.93	11.28
Pacific Cod	All Products	67.72	27.25	94.97	54.55	23.07	77.62	43.81	19.06	62.86	52.38	23.84	76.22	52.65	17.78	70.43
	Head And Gut	0.34	0.58	0.92	0.56	0.55	1.12	0.77	0.92	1.69	1.51	1.64	3.15	2.69	2.01	4.70
	Other Products	0.04	0.02	0.05	0.01	0.02	0.03	0.01	0.06	0.06	0.04	0.43	0.48	0.22	0.02	0.24
Sablefish	All Products	0.38	0.59	0.97	0.57	0.57	1.15	0.78	0.98	1.76	1.56	2.07	3.63	2.92	2.03	4.95

Table 4.16: Bering Sea & Aleutian Islands production of groundfish products by species, 2019-2023, (1,000 metric tons product weight). *(continued)*

		2019			2020			2021			2022			2023		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
Atka Mackerel	Whole Fish	0.47	*	0.47	0.49	0.06	0.54	*	0.02	0.02	*	-	*	1.00	-	1.00
	Head And Gut	32.82	*	32.82	33.35	*	33.35	34.93	-	34.93	33.43	-	33.43	37.47	-	37.47
	Other Products	0.00	0.01	0.02	0.00	0.04	0.04	0.00	0.21	0.21	0.00	0.06	0.06	0.00	0.00	0.00
	All Products	33.29	0.01	33.30	33.84	0.10	33.94	34.93	0.23	35.16	33.43	0.06	33.48	38.48	0.00	38.48
Yellowfin	Whole Fish	4.88	-	4.88	8.00	-	8.00	0.69	-	0.69	*	-	*	6.20	-	6.20
	Head And Gut	70.31	-	70.31	73.20	-	73.20	61.68	-	61.68	84.29	-	84.29	60.86	-	60.86
	Other Products	0.04	0.00	0.04	0.08	0.01	0.09	0.14	0.00	0.14	1.14	0.05	1.19	1.03	0.03	1.06
	All Products	75.22	0.00	75.23	81.27	0.01	81.28	62.51	0.00	62.51	85.43	0.05	85.49	68.09	0.03	68.12
Rock Sole	Whole Fish	0.49	*	0.49	0.92	*	0.92	0.30	-	0.30	0.17	-	0.17	0.28	-	0.28
	Head And Gut	12.57	-	12.57	12.17	-	12.17	6.17	-	6.17	8.36	-	8.36	13.61	-	13.61
	Fillets	-	*	*	*	-	*	-	-	-	-	-	-	-	-	-
	Other Products	0.15	0.05	0.20	0.07	0.06	0.13	0.20	0.03	0.23	0.22	0.03	0.25	0.21	0.04	0.25
	All Products	13.22	0.05	13.27	13.16	0.06	13.22	6.67	0.03	6.70	8.76	0.03	8.79	14.10	0.04	14.14
Flathead Sole	Whole Fish	0.05	-	0.05	0.31	*	0.31	0.24	-	0.24	*	-	*	0.16	-	0.16
	Head And Gut	7.88	-	7.88	3.54	-	3.54	4.22	*	4.22	7.05	-	7.05	3.95	-	3.95
	Fillets	-	-	-	*	-	*	-	-	-	-	-	-	-	-	-
	Other Products	0.12	0.10	0.21	0.13	0.23	0.36	0.10	0.10	0.20	0.26	0.07	0.32	0.14	0.10	0.24
	All Products	8.04	0.10	8.14	3.99	0.23	4.21	4.56	0.10	4.66	7.30	0.07	7.37	4.25	0.10	4.35

Table 4.16: Bering Sea & Aleutian Islands production of groundfish products by species, 2019-2023, (1,000 metric tons product weight). *(continued)*

		2019			2020			2021			2022			2023		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
	Whole Fish	*	-	*	-	-	-	-	-	-	-	-	-	-	-	-
	Head And Gut	1.92	-	1.92	1.45	-	1.45	1.05	-	1.05	0.98	-	0.98	0.79	-	0.79
	Other Products	0.74	0.00	0.74	0.57	0.00	0.57	0.34	*	0.34	0.37	*	0.37	0.31	*	0.31
Turbot	All Products	2.66	0.00	2.67	2.02	0.00	2.02	1.39	*	1.39	1.35	*	1.35	1.10	*	1.10
	Whole Fish	-	-	-	*	-	*	-	-	-	-	-	-	-	-	-
	Head And Gut	2.13	-	2.13	3.97	-	3.97	3.62	-	3.62	4.69	-	4.69	3.74	-	3.74
	Fishmeal	0.00	*	0.00	0.01	-	0.01	0.00	-	0.00	0.00	-	0.00	0.01	-	0.01
	Other Products	-	-	-	*	-	*	-	-	-	-	-	-	*	-	*
Kamchatka Flounder	All Products	2.13	*	2.13	3.97	-	3.97	3.62	-	3.62	4.69	-	4.69	3.75	-	3.75
	Whole Fish	-	-	-	*	-	*	*	-	*	-	-	-	-	-	-
	Head And Gut	4.86	-	4.86	5.43	-	5.43	4.26	-	4.26	3.42	-	3.42	3.41	-	3.41
	Fillets	*	-	*	-	-	-	-	-	-	-	-	-	-	-	-
	Other Products	0.02	0.05	0.07	0.02	0.10	0.12	0.01	0.03	0.04	0.03	0.02	0.05	0.05	0.03	0.08
Arrowtooth	All Products	4.88	0.05	4.93	5.45	0.10	5.55	4.27	0.03	4.30	3.45	0.02	3.47	3.46	0.03	3.49
	Whole Fish	0.61	0.06	0.67	0.58	0.10	0.68	0.56	*	0.56	0.63	-	0.63	1.24	-	1.24
	Head And Gut	8.75	*	8.75	10.29	-	10.29	7.89	*	7.89	5.52	-	5.52	7.82	-	7.82
	Fillets	-	-	-	-	*	*	-	-	-	-	-	-	-	-	-
	Other Products	0.38	0.02	0.40	0.02	0.08	0.10	0.01	0.05	0.06	0.12	0.02	0.14	0.17	0.06	0.23
Other Flatfish	All Products	9.74	0.07	9.82	10.89	0.17	11.06	8.46	0.05	8.51	6.27	0.02	6.29	9.23	0.06	9.29

Table 4.16: Bering Sea & Aleutian Islands production of groundfish products by species, 2019-2023, (1,000 metric tons product weight). *(continued)*

		2019			2020			2021			2022			2023		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
Pacific Ocean Perch	Whole Fish	0.67	0.39	1.06	0.49	0.28	0.77	0.03	*	0.03	*	0.02	0.02	1.68	*	1.68
	Head And Gut	17.31	*	17.31	16.59	-	16.59	15.97	-	15.97	16.24	0.02	16.26	15.95	*	15.95
	Other Products	0.66	0.20	0.86	0.28	0.40	0.67	0.16	0.21	0.37	0.19	0.13	0.32	0.27	0.27	0.55
	All Products	18.63	0.59	19.22	17.36	0.67	18.03	16.17	0.21	16.37	16.44	0.16	16.60	17.90	0.27	18.18
Northern Rockfish	Whole Fish	-	*	*	-	*	*	-	-	-	-	-	-	*	-	*
	Head And Gut	3.89	*	3.89	3.05	-	3.05	2.38	-	2.38	3.05	*	3.05	4.31	-	4.31
	Other Products	0.01	0.00	0.01	0.01	0.03	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.01	0.02
	All Products	3.90	0.00	3.90	3.05	0.03	3.08	2.38	0.00	2.39	3.05	0.00	3.05	4.33	0.01	4.34
Other Rockfish	Whole Fish	0.42	*	0.42	0.21	*	0.21	0.29	*	0.29	0.38	*	0.38	0.32	-	0.32
	Head And Gut	0.27	0.01	0.28	0.30	0.01	0.31	0.33	*	0.33	0.29	0.00	0.29	0.30	0.00	0.30
	Other Products	0.16	0.00	0.17	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	All Products	0.86	0.01	0.87	0.52	0.01	0.53	0.62	0.00	0.62	0.67	0.00	0.67	0.62	0.00	0.62
Other Groundfish	Whole Fish	0.00	0.34	0.35	*	0.04	0.04	0.00	0.50	0.50	0.00	0.50	0.50	-	0.29	0.29
	Head And Gut	0.02	0.06	0.08	0.01	0.09	0.09	0.02	*	0.02	0.01	*	0.01	*	*	*
	Fishmeal	0.17	0.60	0.77	0.10	1.59	1.69	0.33	0.48	0.81	0.08	0.98	1.06	0.20	1.07	1.28
	Other Products	2.65	*	2.65	2.17	*	2.17	2.17	0.00	2.17	2.73	0.02	2.74	3.26	*	3.26
	All Products	2.84	1.00	3.84	2.28	1.72	3.99	2.52	0.98	3.50	2.82	1.50	4.32	3.46	1.37	4.83

Table 4.16: Bering Sea & Aleutian Islands production of groundfish products by species, 2019-2023, (1,000 metric tons product weight). *(continued)*

		2019			2020			2021			2022			2023		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
	Whole Fish	7.76	1.29	9.05	11.01	0.94	11.95	2.11	0.75	2.86	1.40	0.81	2.22	11.16	0.80	11.96
	Head And Gut	239.53	12.12	251.64	227.43	8.39	235.82	192.56	9.42	201.98	228.67	3.88	232.55	215.58	4.11	219.70
	Roe	17.50	13.46	30.96	16.58	10.97	27.55	12.38	5.86	18.24	10.17	6.51	16.68	10.13	7.30	17.42
	Fillets	0.23	7.80	8.02	0.18	7.33	7.51	0.25	5.36	5.61	0.13	10.00	10.13	0.13	8.88	9.01
	Deep-Skin Fillets	39.34	18.81	58.15	34.16	15.98	50.14	34.64	*	34.64	32.93	*	32.93	40.62	18.27	58.89
	Other Fillets	66.04	62.60	128.63	48.87	50.37	99.24	40.49	42.99	83.48	35.19	42.88	78.08	43.10	40.93	84.03
	Surimi	104.67	87.57	192.24	91.22	80.54	171.77	98.58	89.17	187.75	78.71	76.13	154.84	94.40	91.12	185.52
	Minced Fish	12.25	7.35	19.59	15.73	11.38	27.11	14.07	13.18	27.25	9.16	6.43	15.58	13.43	7.45	20.88
	Fishmeal	30.68	39.93	70.62	29.48	41.62	71.09	29.82	38.20	68.02	22.34	24.69	47.02	28.28	34.66	62.94
	Other Products	28.70	33.60	62.30	19.98	30.24	50.22	21.43	27.21	48.64	22.08	30.80	52.88	24.27	32.29	56.57
All Species	All Products	546.69	284.51	831.20	494.64	257.76	752.40	446.33	232.14	678.47	440.77	202.13	642.90	481.09	245.82	726.91

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, 2019-2023, ($ million).

		2019			2020			2021			2022			2023		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
	Whole Fish	0.2	0.5	0.6	0.0	0.4	0.4	*	0.2	0.2	0.1	0.3	0.5	0.1	0.9	1.0
	Head And Gut	24.5	*	24.5	20.2	*	20.2	13.5	*	13.5	20.3	*	20.3	19.2	*	19.2
	Roe	89.9	42.3	132.2	81.8	29.1	110.9	75.5	14.2	89.7	75.6	24.1	99.7	72.4	24.0	96.4
	Deep-Skin Fillets	137.9	67.2	205.1	133.5	54.8	188.4	145.4	*	145.4	201.8	*	201.8	213.2	99.5	312.6
	Other Fillets	218.7	203.2	421.9	161.7	155.4	317.1	141.8	140.5	282.3	151.0	179.7	330.7	162.5	169.6	332.2
	Surimi	341.5	240.6	582.2	267.9	208.1	476.0	321.8	263.9	585.8	290.1	240.1	530.2	294.4	282.2	576.5
	Minced Fish	21.8	12.0	33.8	31.7	19.5	51.2	37.6	24.7	62.3	26.0	25.8	51.8	35.8	23.7	59.5
	Fishmeal	67.3	42.9	110.2	106.5	47.9	154.3	92.5	59.9	152.4	75.2	38.9	114.1	55.8	62.0	117.8
	Other Products	18.5	21.4	39.9	13.7	20.7	34.4	18.1	20.6	38.7	22.7	29.2	51.9	38.2	50.1	88.3
Pollock	All Products	920.3	630.2	1,550.5	817.1	535.8	1,352.9	846.1	524.0	1,370.1	862.9	538.0	1,400.9	891.5	712.0	1,603.5
	Whole Fish	0.0	0.3	0.3	0.0	0.1	0.2	*	0.1	0.1	0.8	0.1	0.8	0.4	0.3	0.7
	Head And Gut	216.8	31.1	247.9	157.0	18.4	175.4	143.3	18.9	162.2	231.4	7.1	238.5	184.1	8.6	192.7
	Roe	2.3	3.4	5.7	1.5	4.6	6.1	1.7	3.6	5.3	2.7	5.8	8.5	2.9	3.8	6.7
	Fillets	1.6	67.6	69.2	1.3	60.5	61.8	2.3	50.8	53.1	1.3	101.1	102.4	1.5	88.7	90.1
	Other Products	11.3	12.1	23.4	9.9	12.5	22.4	7.7	8.3	16.0	10.6	18.2	28.8	11.5	10.3	21.8
Pacific Cod	All Products	232.0	114.5	346.5	169.7	96.2	265.9	155.0	81.7	236.7	246.7	132.3	379.0	200.3	111.7	312.0
	Head And Gut	2.3	4.7	7.0	3.3	4.1	7.4	5.3	8.3	13.7	10.4	15.2	25.6	14.7	16.7	31.4
	Other Products	0.1	0.1	0.1	0.0	0.2	0.2	0.0	0.5	0.5	0.3	5.9	6.2	0.5	0.1	0.6
Sablefish	All Products	2.4	4.8	7.1	3.3	4.3	7.6	5.4	8.9	14.2	10.8	21.1	31.9	15.2	16.7	31.9
	Whole Fish	1.0	*	1.0	0.8	0.1	0.8	*	0.0	0.0	*	-	*	1.6	-	1.6
	Head And Gut	84.0	*	84.0	77.6	*	77.6	70.0	-	70.0	74.2	-	74.2	88.1	-	88.1
	Other Products	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.3	0.0	0.1	0.1	0.0	0.0	0.0
Atka Mackerel	All Products	85.0	0.0	85.0	78.4	0.1	78.5	70.0	0.3	70.2	74.2	0.1	74.3	89.7	0.0	89.7

Table 4.17: Bering Sea & Aleutian Islands gross value of groundfish products by species, 2019-2023, ($ million). *(continued)*

		2019			2020			2021			2022			2023		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
	Whole Fish	6.9	-	6.9	7.2	-	7.2	0.7	-	0.7	*	-	*	6.5	-	6.5
	Head And Gut	121.9	-	121.9	100.4	-	100.4	74.5	-	74.5	130.4	-	130.4	88.1	-	88.1
	Other Products	0.1	0.0	0.1	0.1	0.0	0.1	0.3	0.0	0.3	1.2	0.1	1.2	2.2	0.1	2.3
Yellowfin	All Products	128.8	0.0	128.8	107.8	0.0	107.8	75.5	0.0	75.5	131.5	0.1	131.6	96.8	0.1	96.8
	Whole Fish	1.0	*	1.0	1.0	*	1.0	0.4	-	0.4	0.2	-	0.2	0.4	-	0.4
	Head And Gut	23.2	-	23.2	19.8	-	19.8	7.3	-	7.3	14.2	-	14.2	22.7	-	22.7
	Fillets	-	*	*	*	-	*	-	-	-	-	-	-	-	-	-
	Other Products	0.2	0.1	0.3	0.1	0.1	0.2	0.4	0.0	0.4	0.3	0.0	0.3	0.4	0.1	0.5
Rock Sole	All Products	24.3	0.1	24.4	20.9	0.1	21.0	8.1	0.0	8.1	14.7	0.0	14.7	23.5	0.1	23.6
	Whole Fish	*	-	*	-	-	-	-	-	-	-	-	-	-	-	-
	Head And Gut	10.7	-	10.7	7.2	-	7.2	5.0	-	5.0	5.4	-	5.4	4.3	-	4.3
	Other Products	1.7	0.0	1.7	1.5	0.0	1.5	0.9	*	0.9	1.2	*	1.2	1.1	*	1.1
Turbot	All Products	12.3	0.0	12.3	8.7	0.0	8.7	5.9	*	5.9	6.6	*	6.6	5.4	*	5.4
	Whole Fish	0.1	-	0.1	0.4	*	0.4	0.2	-	0.2	*	-	*	0.2	-	0.2
	Head And Gut	14.9	-	14.9	5.0	-	5.0	5.4	*	5.4	12.2	-	12.2	6.4	-	6.4
	Fillets	-	-	-	*	-	*	-	-	-	-	-	-	-	-	-
	Other Products	0.1	0.1	0.3	0.2	0.3	0.5	0.2	0.1	0.3	0.4	0.1	0.5	0.3	0.2	0.5
Flathead Sole	All Products	15.2	0.1	15.3	5.6	0.3	5.9	5.9	0.1	6.0	12.6	0.1	12.7	6.8	0.2	7.1

Table 4.17: Bering Sea & Aleutian Islands gross value of groundfish products by species, 2019-2023, ($ million). *(continued)*

		2019			2020			2021			2022			2023		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
	Whole Fish	-	-	-	*	-	*	-	-	-	-	-	-	-	-	-
	Head And Gut	4.7	-	4.7	7.7	-	7.7	7.4	-	7.4	10.7	-	10.7	9.1	-	9.1
	Fishmeal	0.0	*	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-	0.0
	Other Products	-	-	-	*	-	*	-	-	-	-	-	-	*	-	*
Kamchatka Flounder	All Products	4.7	*	4.7	7.7	-	7.7	7.4	-	7.4	10.7	-	10.7	9.1	-	9.1
	Whole Fish	-	-	-	*	-	*	*	-	*	-	-	-	-	-	-
	Head And Gut	9.4	-	9.4	8.6	-	8.6	6.8	-	6.8	6.8	-	6.8	7.3	-	7.3
	Fillets	*	-	*	-	-	-	-	-	-	-	-	-	-	-	-
	Other Products	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.2
Arrowtooth	All Products	9.4	0.1	9.5	8.6	0.1	8.8	6.9	0.0	6.9	6.8	0.0	6.8	7.4	0.1	7.5
	Whole Fish	1.7	0.2	1.9	1.3	0.1	1.4	0.9	*	0.9	1.3	-	1.3	2.4	-	2.4
	Head And Gut	12.5	*	12.5	13.6	-	13.6	7.7	*	7.7	7.8	-	7.8	12.8	-	12.8
	Fillets	-	-	-	-	*	*	-	-	-	-	-	-	-	-	-
	Other Products	0.5	0.0	0.5	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.2	0.4	0.1	0.5
Other Flatfish	All Products	14.6	0.2	14.8	14.9	0.2	15.1	8.6	0.1	8.7	9.2	0.0	9.3	15.6	0.1	15.7
	Whole Fish	1.1	0.4	1.4	0.8	0.3	1.1	0.0	*	0.0	*	0.0	0.0	2.0	*	2.0
	Head And Gut	31.2	*	31.2	27.5	-	27.5	27.1	-	27.1	35.6	0.0	35.7	32.2	*	32.2
	Other Products	0.8	0.6	1.4	0.5	0.5	1.0	0.3	0.3	0.6	0.3	0.2	0.5	0.6	0.6	1.2
Pacific Ocean Perch	All Products	33.0	1.0	34.0	28.8	0.7	29.5	27.5	0.3	27.7	35.9	0.3	36.2	34.8	0.6	35.4

Table 4.17: Bering Sea & Aleutian Islands gross value of groundfish products by species, 2019-2023, ($ million). *(continued)*

		2019			2020			2021			2022			2023		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
	Whole Fish	-	*	*	-	*	*	-	-	-	-	-	-	*	-	*
	Head And Gut	5.9	*	5.9	3.2	-	3.2	2.2	-	2.2	4.6	*	4.6	6.2	-	6.2
	Other	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	0.0	0.1
Northern Rockfish	Products All Products	5.9	0.0	5.9	3.2	0.0	3.2	2.2	0.0	2.2	4.6	0.0	4.6	6.2	0.0	6.2
	Whole Fish	1.6	*	1.6	0.7	*	0.7	1.1	*	1.1	1.7	*	1.7	1.2	-	1.2
	Head And Gut	0.8	0.0	0.8	0.6	0.0	0.7	0.7	*	0.7	0.6	0.0	0.6	0.6	0.0	0.6
	Other	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Rockfish	Products All Products	2.6	0.1	2.6	1.4	0.0	1.4	1.8	0.0	1.8	2.3	0.0	2.3	1.8	0.0	1.8
	Whole Fish	0.0	0.5	0.5	*	0.1	0.1	0.0	0.5	0.5	0.0	1.2	1.2	-	0.6	0.6
	Head And Gut	0.1	0.1	0.2	0.0	0.2	0.2	0.1	*	0.1	0.0	*	0.0	*	*	*
	Fishmeal	0.2	0.8	1.0	0.2	1.8	2.0	0.6	0.6	1.2	0.1	1.3	1.4	0.4	2.2	2.7
	Other	5.2	*	5.2	4.0	*	4.0	3.5	0.0	3.5	5.8	0.0	5.8	8.8	*	8.8
Other Groundfish	Products All Products	5.5	1.4	6.9	4.2	2.1	6.3	4.3	1.1	5.4	5.9	2.6	8.5	9.2	2.9	12.1

Table 4.17: Bering Sea & Aleutian Islands gross value of groundfish products by species, 2019-2023, ($ million). *(continued)*

		2019			2020			2021			2022			2023		
	Product	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All	At Sea	Shoreside	All
	Whole Fish	13.5	1.8	15.3	12.2	1.0	13.2	3.4	0.8	4.2	4.1	1.7	5.7	14.8	1.8	16.6
	Head And Gut	562.7	36.0	598.6	451.6	22.8	474.4	376.3	27.2	403.5	564.6	22.4	587.0	495.8	25.3	521.1
	Roe	92.2	45.7	137.9	83.3	33.7	117.0	77.2	17.9	95.0	78.3	29.9	108.2	75.3	27.8	103.2
	Fillets	1.6	67.6	69.2	1.3	60.5	61.8	2.3	50.8	53.1	1.3	101.1	102.4	1.5	88.7	90.1
	Deep-Skin Fillets	137.9	67.2	205.1	133.5	54.8	188.4	145.4	*	145.4	201.8	*	201.8	213.2	99.5	312.6
	Other Fillets	218.7	203.2	421.9	161.7	155.4	317.1	141.8	140.5	282.3	151.0	179.7	330.7	162.5	169.6	332.2
	Surimi	341.5	240.6	582.2	267.9	208.1	476.0	321.8	263.9	585.8	290.1	240.1	530.2	294.4	282.2	576.5
	Minced Fish	21.8	12.0	33.8	31.7	19.5	51.2	37.6	24.7	62.3	26.0	25.8	51.8	35.8	23.7	59.5
	Fishmeal	67.5	43.6	111.1	106.6	49.7	156.4	93.1	60.5	153.6	75.3	40.1	115.5	56.2	64.3	120.5
	Other Products	38.7	34.4	73.1	30.2	34.4	64.6	31.4	30.2	61.6	42.9	53.9	96.8	64.1	61.6	125.7
All Species	All Products	1,496.1	752.3	2,248.4	1,280.2	639.9	1,920.1	1,230.3	616.4	1,846.8	1,435.6	694.6	2,130.2	1,413.4	844.5	2,257.9

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, 2019-2023, ($/lb).

		2019		2020		2021		2022		2023	
	Product	At-sea	Shoreside	At-sea	Shoreside	At-sea	Shoreside	At-sea	Shoreside	At-sea	Shoreside
	Whole Fish	0.47	0.95	0.71	0.45	*	0.47	1.29	0.62	0.89	1.09
	Head And Gut	0.63	*	0.56	*	0.52	*	0.63	*	0.55	*
	Roe	2.52	1.63	2.36	1.47	2.98	1.45	3.70	2.40	3.61	1.96
	Deep-Skin Fillets	1.59	1.62	1.77	1.56	1.90	*	2.78	*	2.38	2.47
	Other Fillets	1.50	1.47	1.50	1.40	1.59	1.48	1.95	1.90	1.71	1.88
	Surimi	1.48	1.25	1.33	1.17	1.48	1.34	1.67	1.43	1.41	1.40
	Minced Fish	0.81	0.74	0.91	0.78	1.21	0.85	1.29	1.82	1.21	1.44
	Fishmeal	1.00	0.49	1.64	0.54	1.42	0.72	1.53	0.74	0.90	0.84
	Other Products	0.51	0.36	0.60	0.40	0.63	0.41	0.94	0.65	1.42	0.85
Pollock	All Products	1.38	1.12	1.42	1.05	1.51	1.13	1.84	1.40	1.57	1.44
	Whole Fish	0.28	0.54	0.97	0.58	*	0.56	2.00	0.65	0.86	0.87
	Head And Gut	1.67	1.23	1.51	1.08	1.73	1.01	2.33	1.46	1.86	1.87
	Roe	0.81	0.90	0.81	1.03	0.88	1.17	1.37	1.35	1.28	1.00
	Fillets	3.18	3.93	3.22	3.74	4.20	4.30	4.56	4.59	5.10	4.53
	Other Products	0.69	0.91	0.72	0.97	0.67	1.01	0.79	0.86	0.82	0.94
Pacific Cod	All Products	1.55	1.91	1.41	1.89	1.60	1.94	2.14	2.52	1.73	2.85
	Head And Gut	3.07	3.70	2.64	3.40	3.15	4.09	3.13	4.21	2.48	3.76
	Other Products	0.90	1.67	1.12	3.22	0.89	4.38	3.55	6.17	0.97	2.10
Sablefish	All Products	2.85	3.64	2.62	3.39	3.12	4.10	3.14	4.62	2.36	3.74
	Whole Fish	0.94	*	0.73	0.51	*	0.50	*	-	0.71	-
	Head And Gut	1.16	*	1.06	*	0.91	-	1.01	-	1.07	-
	Other Products	0.58	0.56	0.79	0.52	0.88	0.55	0.94	0.60	0.95	0.95
Atka Mackerel	All Products	1.16	0.56	1.05	0.52	0.91	0.55	1.01	0.60	1.06	0.95

Table 4.18: Bering Sea & Aleutian Islands price per pound of groundfish products by species and processing mode, 2019-2023, ($/lb). *(continued)*

		2019		2020		2021		2022		2023	
	Product	At-sea	Shoreside	At-sea	Shoreside	At-sea	Shoreside	At-sea	Shoreside	At-sea	Shoreside
	Whole Fish	0.64	-	0.41	-	0.46	-	*	-	0.47	-
	Head And Gut	0.79	-	0.62	-	0.55	-	0.70	-	0.66	-
	Other Products	0.63	0.56	0.80	0.52	0.85	0.55	0.46	0.60	0.97	0.97
Yellowfin	All Products	0.78	0.56	0.60	0.52	0.55	0.55	0.70	0.60	0.64	0.97
	Whole Fish	0.90	*	0.47	*	0.57	-	0.50	-	0.67	-
	Head And Gut	0.79	-	0.64	-	0.52	-	0.76	-	0.74	-
	Head And Gut With Roe	1.32	-	1.28	-	0.90	-	0.83	-	0.91	-
	Fillets	-	*	*	-	-	-	-	-	-	-
	Other Products	0.58	0.56	0.79	0.52	0.86	0.55	0.54	0.60	0.97	0.96
Rock Sole	All Products	0.83	0.56	0.72	0.52	0.55	0.55	0.76	0.60	0.76	0.96
	Whole Fish	0.80	-	0.58	*	0.42	-	*	-	0.45	-
	Head And Gut	0.86	-	0.64	-	0.59	*	0.78	-	0.73	-
	Fillets	-	-	*	-	-	-	-	-	-	-
	Other Products	0.57	0.56	0.80	0.52	0.85	0.55	0.75	0.60	0.99	0.97
Flathead Sole	All Products	0.86	0.56	0.64	0.52	0.58	0.55	0.78	0.60	0.73	0.97
	Whole Fish	*	-	-	-	-	-	-	-	-	-
	Head And Gut	2.51	-	2.24	-	2.17	-	2.49	-	2.51	-
	Other Products	1.03	0.56	1.19	0.52	1.14	*	1.49	*	1.54	*
Turbot	All Products	2.10	0.56	1.95	0.52	1.92	*	2.21	*	2.23	*

Table 4.18: Bering Sea & Aleutian Islands price per pound of groundfish products by species and processing mode, 2019-2023, ($/lb). *(continued)*

		2019		2020		2021		2022		2023	
	Product	At-sea	Shoreside	At-sea	Shoreside	At-sea	Shoreside	At-sea	Shoreside	At-sea	Shoreside
	Whole Fish	-	-	*	-	*	-	-	-	-	-
	Head And Gut	0.88	-	0.72	-	0.73	-	0.90	-	0.98	-
	Fillets	*	-	-	-	-	-	-	-	-	-
	Other Products	0.58	0.56	0.81	0.52	0.84	0.55	0.50	0.60	1.01	0.97
Arrowtooth	All Products	0.87	0.56	0.72	0.52	0.73	0.55	0.89	0.60	0.98	0.97
	Whole Fish	-	-	*	-	-	-	-	-	-	-
	Head And Gut	0.99	-	0.88	-	0.92	-	1.04	-	1.10	-
	Fishmeal	0.57	*	0.78	-	0.86	-	0.68	-	0.95	-
	Other Products	-	-	*	-	-	-	-	-	*	-
Kamchatka Flounder	All Products	0.99	*	0.88	-	0.92	-	1.04	-	1.10	-
	Whole Fish	1.26	1.37	1.03	0.30	0.76	*	0.94	-	0.88	-
	Head And Gut	0.65	*	0.60	-	0.44	*	0.64	-	0.75	-
	Fillets	-	-	-	*	-	-	-	-	-	-
	Other Products	0.57	0.57	0.80	0.54	0.83	0.57	0.47	0.60	0.96	0.97
Other Flatfish	All Products	0.68	1.19	0.62	0.41	0.46	0.57	0.67	0.60	0.77	0.97
	Whole Fish	0.72	0.44	0.75	0.41	0.48	*	*	0.59	0.55	*
	Head And Gut	0.82	*	0.75	-	0.77	-	1.00	1.25	0.92	*
	Other Products	0.57	1.33	0.82	0.52	0.87	0.55	0.67	0.86	0.95	0.97
Pacific Ocean Perch	All Products	0.80	0.74	0.75	0.48	0.77	0.55	0.99	0.87	0.88	0.97

Table 4.18: Bering Sea & Aleutian Islands price per pound of groundfish products by species and processing mode, 2019-2023, ($/lb). *(continued)*

		2019		2020		2021		2022		2023	
	Product	At-sea	Shoreside	At-sea	Shoreside	At-sea	Shoreside	At-sea	Shoreside	At-sea	Shoreside
	Whole Fish	-	*	-	*	-	-	-	-	*	-
	Head And Gut	0.69	*	0.47	-	0.43	-	0.69	*	0.65	-
	Other Products	0.57	0.69	0.81	0.52	0.87	0.55	0.94	0.60	0.97	0.97
Northern Rockfish	All Products	0.69	0.69	0.47	0.52	0.43	0.55	0.69	0.60	0.65	0.97
	Whole Fish	1.71	*	1.58	*	1.79	*	2.01	*	1.72	-
	Head And Gut	1.26	2.00	0.95	1.60	0.91	*	0.93	1.79	0.87	1.38
	Other Products	0.57	0.78	0.79	0.84	1.21	0.94	0.70	4.26	0.90	1.03
Other Rockfish	All Products	1.35	1.71	1.21	1.41	1.32	0.94	1.55	2.24	1.31	1.25
	Whole Fish	1.54	0.64	*	1.11	0.59	0.47	1.09	1.11	-	0.97
	Head And Gut	1.19	1.10	0.71	1.09	2.09	*	0.72	*	*	*
	Fishmeal	0.57	0.57	0.84	0.52	0.88	0.55	0.73	0.60	0.95	0.95
	Other Products	0.89	*	0.83	*	0.74	1.24	0.96	1.14	1.22	*
Other Groundfish	All Products	0.88	0.62	0.83	0.56	0.77	0.51	0.96	0.77	1.21	0.95

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, 2019-2023, ($/mt).

	Species	2019	2020	2021	2022	2023
Motherships	Pollock	1,007	918	1,011	1,258	1,015
	Pacific Cod	331	297	*	*	*
Catcher/processors	Pollock	1,192	1,108	1,120	1,413	1,248
	Sablefish	3,671	2,748	3,517	3,451	3,129
	Pacific Cod	1,808	1,615	1,837	2,490	2,118
	Flatfish	1,060	860	735	959	940
	Rockfish	864	753	787	1,028	937
	Atka Mackerel	1,501	1,357	1,171	1,295	1,368
	Other	575	484	421	477	738
Shoreside processors	Pollock	1,032	893	958	1,307	1,262
	Sablefish	3,089	1,983	4,511	6,822	5,492
	Pacific Cod	1,706	1,558	1,728	2,234	2,038
	Flatfish	625	502	404	600	1,009
	Rockfish	733	459	619	1,302	1,056
	Other	4,647	5,191	5,255	14,501	14,396

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 permits, gross product value, value per processor, and percent value of BSAI FMP groundfish of processed groundfish by processor group, 2019-2023 ($ millions).

		Processors	Wholesale Value ($million)	Wholesale Value per Processor ($1,000)	Percent Value, BSAI FMP Groundfish
	2019	15	808.70	53,913.09	36.67
	2020	13	688.03	52,925.11	36.48
	2021	15	727.83	48,521.69	39.79
	2022	13	723.08	55,621.83	34.59
AFA CP	2023	13	758.43	58,340.56	35.00
	2019	20	373.07	18,653.72	16.92
	2020	19	311.26	16,382.01	16.50
	2021	19	244.16	12,850.41	13.35
	2022	18	355.10	19,727.84	16.98
A80	2023	17	329.50	19,382.19	15.21
	2019	24	183.18	7,632.61	8.31
	2020	21	139.73	6,653.95	7.41
	2021	17	130.30	7,664.92	7.12
CP Hook and	2022	19	198.07	10,424.99	9.47
Line	2023	18	163.11	9,061.61	7.53
	2019	5	0.70	139.83	0.03
	2020	4	1.61	402.35	0.09
	2021	4	2.48	619.37	0.14
	2022	6	4.86	810.43	0.23
Sablefish IFQ	2023	7	6.28	896.49	0.29
	2019	4	123.52	30,879.46	5.60
Motherships	2020	3	111.94	37,312.65	5.94
& Inshore	2021	3	122.18	40,727.51	6.68
Floating	2022	3	119.78	39,927.24	5.73
Procs.	2023	3	114.80	38,266.44	5.30
	2019	8	709.36	88,670.29	32.16
	2020	7	605.58	86,511.87	32.11
BSAI	2021	8	598.19	74,773.50	32.70
Shoreside	2022	5	645.81	129,162.85	30.89
Processors	2023	4	753.58	188,394.71	34.77

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, 2019-2023.

		Vessels	Average Length (feet)	Median Length (feet)	Average Capacity (tons)	Median Capacity (tons)
	2019	82	127	123	160	133
	2020	86	128	124	163	135
	2021	82	128	124	163	135
	2022	80	128	124	162	134
AFA CV	2023	75	128	124	162	135
	2019	16	290	275	1,852	1,747
	2020	13	307	300	2,129	2,262
	2021	15	291	286	1,898	1,747
	2022	14	305	300	2,122	2,262
AFA CP	2023	13	308	304	2,190	2,488
	2019	20	185	185	471	473
	2020	19	189	186	501	586
	2021	19	191	186	508	586
	2022	18	200	194	550	624
A80	2023	17	205	215	572	674
	2019	18	127	130	188	132
	2020	15	148	144	296	276
	2021	14	116	102	156	128
	2022	21	146	138	278	156
BSAI Trawl	2023	18	151	138	301	156
	2019	8	44	38	27	29
	2020	9	44	39	26	21
	2021	2	35	35	20	20
CV Hook	2022	5	44	48	27	21
and Line	2023	2	59	58.50	30	30
	2019	23	152	150	374	308
	2020	20	151	140	381	308
	2021	17	151	140	394	308
CP Hook and	2022	19	151	141	397	308
Line	2023	18	149	140	367	308
	2019	21	92	72	144	105
	2020	18	85	58	127	105
	2021	24	85	58	126	98
	2022	31	86	58	102	85
Sablefish IFQ	2023	33	82	57	120	51
	2019	83	76	58	103	105
	2020	94	74	58	100	102
	2021	66	73	58	107	105
	2022	66	76	58	109	105
Pot	2023	58	72	58	109	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, 2019-2023. *(continued)*

		Vessels	Average Length (feet)	Median Length (feet)	Average Capacity (tons)	Median Capacity (tons)
	2019	3	46	42	29	26
	2020	3	41	42	28	26
	2021	1	42	42	26	26
	2022	1	42	42	26	26
Jig	2023	1	42	42	26	26
No Fleet/	2020	1	34	34	17	17
Other	2021	1	51	51	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, 2019-2023.

			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
		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
	Hook	2021	1	1	1	2	2	1	2	1	2	3	3	-	9
	and	2022	1	-	1	2	3	4	6	4	2	-	1	-	15
	Line	2023	-	-	-	4	3	1	5	5	1	2	1	-	13
		2019	73	42	43	5	3	2	1	1	28	12	13	10	81
		2020	77	47	48	7	3	5	4	2	30	7	2	2	96
		2021	46	36	37	10	4	7	7	6	24	10	6	1	70
		2022	45	28	36	42	11	9	12	11	26	26	6	3	80
	Pot	2023	44	27	39	42	15	9	11	8	22	18	2	-	68
		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
		2022	38	89	83	55	3	53	62	62	30	4	2	-	99
	Trawl	2023	58	81	76	60	5	53	60	63	58	21	9	1	91
		2019	155	138	139	77	14	62	70	79	91	42	23	11	196
		2020	159	137	141	76	23	67	77	79	104	71	9	2	206
		2021	76	117	125	100	48	67	72	76	75	37	11	1	171
Catcher	All	2022	84	117	120	98	16	66	78	76	58	30	8	3	182
Vessels	Gear	2023	102	108	115	103	23	62	76	75	81	39	11	1	164
		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
	Hook	2021	12	12	12	11	8	12	13	16	15	10	6	4	17
	and	2022	11	15	14	14	11	16	18	18	16	16	9	9	19
	Line	2023	16	17	17	11	8	15	16	16	17	14	8	8	18
		2019	4	1	1	-	-	-	-	-	5	1	2	2	5
		2020	5	1	2	2	1	-	-	1	5	2	-	-	5
		2021	3	1	1	2	1	-	-	-	3	3	2	1	5
		2022	2	2	3	3	1	2	-	3	4	4	3	-	7
	Pot	2023	1	2	2	2	1	-	-	3	4	4	2	2	7
		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
		2022	30	33	33	20	19	24	28	30	22	19	18	5	33
	Trawl	2023	27	31	31	24	18	28	26	29	26	18	13	4	32
		2019	48	53	56	39	28	40	46	53	56	49	33	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
Catcher	All	2022	43	50	50	37	31	40	46	49	42	37	29	14	55
Processors	Gear	2023	44	50	50	37	27	43	42	47	45	34	23	14	52

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, 2019-2023.

		Hook & Line		Pot			Trawl			All Gear		
	Year	<60ft	60-124ft	<60ft	60-124ft	>= 125ft	<60ft	60-124ft	>= 125ft	<60ft	60-124ft	>= 125ft
	2019	-	-	-	-	-	0	945	534	0	945	534
	2020	-	-	-	-	-	-	1,206	697	-	1,206	697
	2021	-	-	-	-	-	-	1,019	578	-	1,019	578
	2022	-	-	-	-	-	-	701	390	-	701	390
Pollock	2023	-	-	-	-	-	-	852	505	-	852	505
	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
	2022	9	5	107	34	22	-	1	-	116	39	22
Sablefish	2023	14	8	176	45	11	-	-	0	190	53	11
	2019	82	-	471	153	24	6	143	40	559	296	64
	2020	86	1	484	148	22	7	108	23	577	257	45
	2021	18	-	401	137	7	23	97	21	442	234	28
Pacific	2022	14	3	438	172	28	18	114	23	470	289	51
Cod	2023	3	3	354	103	17	18	114	33	375	220	50
	2019	1	-	-	-	-	-	59	72	1	59	72
	2020	-	-	-	-	-	-	48	51	-	48	51
	2021	-	-	-	-	-	-	28	31	-	28	31
	2022	-	-	-	-	-	-	21	36	-	21	36
Flatfish	2023	-	-	-	-	-	-	12	32	-	12	32
	2019	1	-	-	-	-	-	4	11	1	4	11
	2020	-	-	-	-	-	-	5	13	1	5	13
	2021	-	-	-	-	-	-	2	5	-	2	5
	2022	-	-	-	-	-	-	3	3	-	3	3
Rockfish	2023	-	-	-	-	-	-	3	8	-	3	8
	2019	-	-	-	-	-	-	4	8	-	4	8
	2020	-	-	-	-	-	-	7	18	-	7	18
	2021	-	-	-	-	-	-	5	13	-	5	13
Atka	2022	-	-	-	-	-	-	4	12	-	4	12
Mackerel	2023	-	-	-	-	-	-	4	18	-	4	18

Table 4.23: Bering Sea & Aleutian Islands catcher vessel (excluding catcher/processors) weeks of fishing groundfish by vessel-length class (feet), gear, and target, 2019-2023. *(continued)*

		Hook & Line		Pot			Trawl			All Gear		
	Year	<60ft	60-124ft	<60ft	60-124ft	>= 125ft	<60ft	60-124ft	>= 125ft	<60ft	60-124ft	>= 125ft
	2019	90	14	489	166	31	6	1,154	664	585	1,334	695
	2020	88	3	517	157	27	7	1,374	802	612	1,534	829
	2021	24	3	462	160	17	23	1,151	648	509	1,313	665
All	2022	22	8	546	206	50	18	844	464	586	1,058	514
Groundfish	2023	17	11	530	148	28	18	986	595	565	1,145	623

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, 2019-2023.

		Hook & Line			Pot		Trawl			All Gear			
	Year	<60ft	60-124ft	125-230ft	60-124ft	125-230ft	60-124ft	125-230ft	>230ft	<60ft	60-124ft	125-230ft	>230ft
	2019	-	-	-	-	-	2	7	312	-	2	7	312
	2020	-	-	-	-	-	0	10	332	-	0	11	332
	2021	-	-	-	-	-	2	8	296	-	2	8	296
	2022	-	-	-	-	-	5	8	227	-	5	8	227
Pollock	2023	-	-	-	-	-	1	7	276	-	1	7	276
	2019	7	-	1	-	7	-	0	-	7	-	9	-
	2020	-	-	2	-	9	0	1	-	-	0	13	-
	2021	-	0	2	-	17	-	1	-	-	0	20	-
	2022	-	-	0	-	27	1	1	-	-	1	29	-
Sablefish	2023	-	-	-	-	39	3	3	0	-	3	42	0
	2019	7	57	599	21	21	1	11	8	7	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
Pacific	2022	-	91	508	25	14	1	1	9	-	117	523	9
Cod	2023	-	95	491	15	12	0	3	12	-	110	505	12
	2019	-	-	16	-	-	95	435	76	-	95	451	76
	2020	-	-	10	-	-	57	425	70	-	57	435	70
	2021	-	-	-	-	-	64	364	66	-	64	364	66
	2022	-	-	-	-	-	59	335	113	-	59	335	113
Flatfish	2023	-	-	-	-	-	50	267	108	-	50	267	108
	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
	2022	-	-	-	-	-	8	59	7	-	8	59	7
Rockfish	2023	-	-	-	-	-	15	56	16	-	15	56	16
	2019	-	-	-	-	-	5	88	12	-	5	88	12
	2020	-	-	-	-	-	5	96	6	-	5	96	6
	2021	-	-	-	-	-	6	113	14	-	6	113	14
Atka	2022	-	-	-	-	-	5	117	14	-	5	117	14
Mackerel	2023	-	-	-	-	-	11	118	13	-	11	118	13

Table 4.24: Bering Sea & Aleutian Islands catcher/processor vessel weeks of fishing groundfish by vessel-length class (feet), gear, and target, 2019-2023. *(continued)*

		Hook & Line			Pot		Trawl			All Gear			
	Year	<60ft	60-124ft	125-230ft	60-124ft	125-230ft	60-124ft	125-230ft	>230ft	<60ft	60-124ft	125-230ft	>230ft
	2019	14	57	618	21	28	108	601	416	14	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
All	2022	-	91	509	25	41	78	522	370	-	194	1,073	370
Groundfish	2023	-	95	491	15	51	79	453	425	-	189	996	425

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, 2019-2023.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2019	1,082	2,014	2,116	649	225	729	1,050	1,475	1,254	462	346	94	11,495
2020	1,124	2,644	1,842	783	308	601	1,026	1,702	1,676	1,274	53	-	13,034
2021	578	1,442	1,698	1,348	307	640	1,358	1,238	925	550	150	7	10,240
2022	900	1,789	1,814	1,150	145	559	1,238	910	684	382	188	6	9,764
2023	849	1,766	1,936	1,050	236	544	1,261	1,199	1,194	460	84	20	10,600

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, 2019-2023.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
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
2022	4,072	12,318	10,261	5,657	3,552	5,183	13,537	9,907	5,826	5,482	2,755	824	79,374
2023	5,460	13,023	12,402	6,247	3,601	6,896	12,286	10,552	9,097	4,572	2,469	895	87,500

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, 2019-2023 (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
	2019	-	-	87.80	87.80	-	-	21.70	21.70	-	-	118.70	118.70
	2020	-	-	80.50	80.50	-	-	19	19	-	-	106.80	106.80
	2021	-	-	74.80	74.80	-	-	15.70	15.70	-	-	97.60	97.60
	2022	-	-	99	99	-	-	23.30	23.30	-	-	131.40	131.50
Pollock	2023	-	-	97.60	97.70	-	-	24	24	-	-	131.70	131.70
	2019	1.50	3.20	2.10	6.80	1.30	4.30	1.60	7.20	3.30	7.50	3.70	14.40
	2020	0.40	1	2.20	3.60	0.20	0.70	0.10	1.10	1	1.70	2.30	5.10
	2021	3.40	4.40	3.30	11	1.40	3.20	1.60	6.20	5.10	7.60	4.90	17.60
	2022	4	6.80	5.30	16.10	1.80	3.70	2.20	7.70	6.20	10.50	7.50	24.20
Pacific Cod	2023	3.80	4.80	4.20	12.90	1.90	2.80	1.50	6.30	6.20	7.60	5.80	19.70
	2019	2.50	1.10	0.70	4.30	0.70	0.40	0.30	1.30	7.80	1.90	1.10	10.80
	2020	1.20	2.50	0.80	4.60	0.20	1	0.20	1.40	5.60	4.70	1	11.30
	2021	0.60	5.20	0.90	6.60	0.10	1.60	0.20	1.90	4.30	9.80	1	15.20
	2022	0.60	5.90	1	7.50	0.10	2.60	0.20	2.80	3.70	13.90	1.20	18.80
Sablefish	2023	0.50	4.60	0.90	6	0.10	2.40	0.20	2.70	3.10	12.20	1.10	16.40
	2019	-	-	0.50	0.50	-	-	0.60	0.60	-	-	1.10	1.10
	2020	-	-	-	-	-	-	0.50	0.50	-	-	0.50	0.50
	2021	-	-	0.20	0.20	-	-	0.30	0.30	-	-	0.60	0.60
Atka	2022	-	-	0.30	0.30	-	-	0.50	0.50	-	-	0.80	0.80
Mackerel	2023	-	-	-	-	-	-	0.40	0.40	-	-	0.40	0.40
	2019	*	-	22.40	22.40	*	-	0.20	0.20	-	-	22.60	22.60
	2020	*	-	19.50	19.50	-	-	0.20	0.20	-	-	19.80	19.80
	2021	-	-	7.60	7.60	*	-	0.10	0.10	-	-	7.70	7.70
	2022	-	-	9.70	9.70	-	-	0.30	0.30	-	-	10	10
Arrowtooth	2023	-	-	7.90	7.90	*	-	0.20	0.20	-	-	8.10	8.10
	2019	-	-	2.10	2.10	*	-	-	-	*	-	2.20	2.20
	2020	-	-	1.80	1.80	-	-	0.10	0.10	-	-	1.80	1.80
	2021	-	-	0.30	0.30	-	-	0.10	0.10	-	-	0.30	0.30
Flathead	2022	-	-	0.30	0.30	-	-	-	-	-	-	0.30	0.30
Sole	2023	-	-	0.40	0.40	-	-	-	-	-	-	0.40	0.40

Table 4.27: Gulf of Alaska groundfish retained catch by vessel type, gear, and species, 2019-2023 (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
	2019	-	-	1.10	1.10	-	-	-	-	-	-	1.10	1.10
	2020	-	-	1	1	-	-	-	-	-	-	1	1
	2021	-	-	0.20	0.20	*	-	-	-	*	-	0.20	0.20
	2022	-	-	0.30	0.30	-	-	-	-	-	-	0.40	0.40
Rex Sole	2023	-	-	0.40	0.40	-	-	-	-	-	-	0.40	0.40
	2019	-	-	2.50	2.50	-	-	-	-	-	-	2.50	2.50
	2020	*	-	4.10	4.10	-	-	-	-	*	-	4.10	4.10
	2021	*	-	0.10	0.10	-	-	-	-	*	-	0.20	0.20
Shallow-Water	2022	-	-	0.20	0.20	*	-	-	-	*	-	0.30	0.30
Flatfish	2023	-	-	0.80	0.80	-	-	-	-	*	-	0.90	0.90
	2019	-	-	-	-	*	-	*	*	*	-	-	-
	2020	-	-	0.10	0.10	-	-	*	*	*	-	0.10	0.10
	2021	-	-	-	-	-	-	*	*	*	-	-	-
Deep-Water	2022	-	-	-	-	*	-	*	*	*	-	-	-
Flatfish	2023	-	-	-	-	-	-	*	*	*	-	-	-
	2019	*	-	17.30	17.30	*	-	3.10	3.10	*	-	20.50	20.50
	2020	-	-	21.30	21.30	-	-	1.30	1.30	*	-	22.60	22.60
Pacific	2021	*	-	25.10	25.10	*	-	1.60	1.60	*	-	26.80	26.80
Ocean	2022	-	-	24.60	24.60	*	-	2.40	2.40	*	-	27.10	27.10
Perch	2023	*	-	24.90	24.90	-	-	2.40	2.40	*	-	27.40	27.40
	2019	-	-	1.80	1.80	*	-	0.80	0.80	*	-	2.60	2.60
	2020	*	-	1.60	1.60	-	-	0.80	0.80	*	-	2.40	2.40
	2021	-	-	1.60	1.60	-	-	0.70	0.70	-	-	2.30	2.30
Northern	2022	*	-	1.40	1.40	*	-	0.50	0.50	*	-	1.90	1.90
Rockfish	2023	*	-	0.90	0.90	*	-	0.40	0.40	*	-	1.30	1.30

Table 4.27: Gulf of Alaska groundfish retained catch by vessel type, gear, and species, 2019-2023 (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
	2019	-	-	2	2	-	-	0.20	0.20	-	-	2.20	2.20
	2020	-	-	1.80	1.80	*	-	0.20	0.20	-	-	2.10	2.10
	2021	-	-	2.60	2.60	*	-	0.10	0.10	-	-	2.80	2.80
Dusky	2022	-	-	2.40	2.40	-	-	0.10	0.10	-	-	2.50	2.50
Rockfish	2023	-	-	3.40	3.40	*	-	0.10	0.10	-	-	3.40	3.40
	2019	0.20	-	1	1.20	0.10	-	0.20	0.20	0.90	-	1.40	2.30
	2020	0.10	-	0.80	0.90	-	-	0.10	0.10	0.70	-	0.90	1.70
	2021	0.10	-	0.90	1	-	-	0.10	0.10	0.60	-	1.10	1.70
Other	2022	0.10	-	0.90	1.10	-	-	0.20	0.30	0.60	-	1.20	1.90
Rockfish	2023	0.10	-	0.90	1	-	-	0.10	0.20	0.70	-	1.10	1.80
	2019	0.10	-	0.90	1.10	-	-	-	0.10	0.10	-	0.90	1.30
	2020	-	-	0.80	0.80	-	-	-	-	-	-	0.80	0.80
	2021	0.10	-	0.10	0.20	-	-	-	-	0.10	-	0.10	0.20
Other	2022	0.10	-	0.10	0.30	0.10	-	-	0.10	0.20	-	0.10	0.40
Groundfish	2023	0.10	-	0.20	0.30	0.10	-	-	0.10	0.20	-	0.20	0.40

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, 2022-2023, (1,000 metric tons, round weight).

Gear	Year	Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Flathead Sole	Rex Sole	Flat Deep	Flat Shallow	Rockfish	Atka Mackerel	Other	All Species
Hook and Line	2022	Sablefish	*	3.20	-	*	-	-	-	-	0.20	-	*	3.40
		Pacific Cod	-	*	5.30	-	-	-	-	-	-	-	0.20	5.50
		Halibut	*	0.30	0.20	-	-	-	*	*	0.40	-	-	0.90
		Rockfish	-	*	*	-	-	-	-	-	-	-	-	-
		All Targets	-	3.50	5.50	-	-	-	*	*	0.60	-	0.20	9.90
	2023	Sablefish	-	2.50	-	-	-	-	*	-	0.20	-	*	2.70
		Pacific Cod	-	*	5.50	*	-	-	-	-	-	-	0.10	5.70
		Halibut	-	0.30	0.20	-	-	-	-	*	0.40	-	-	0.90
		Rockfish	-	*	-	-	-	-	-	-	-	-	-	-
		All Targets	-	2.80	5.70	-	-	-	*	*	0.70	-	0.20	9.30
Pot	2022	Sablefish	-	13.70	-	-	-	-	-	*	0.10	-	-	13.80
		Pacific Cod	-	-	10.50	*	*	-	-	*	-	-	0.10	10.60
		Halibut	-	0.10	*	-	-	-	-	-	-	-	-	0.10
		All Targets	-	13.80	10.50	-	*	-	-	*	0.10	-	0.10	24.50
	2023	Sablefish	-	12.00	-	-	-	-	-	-	0.10	-	-	12.10
		Pacific Cod	-	-	7.60	-	*	-	-	-	*	-	-	7.70
		Halibut	-	0.10	*	-	-	-	-	-	-	-	-	0.10
		All Targets	-	12.10	7.60	-	*	-	-	-	0.10	-	-	19.90

Table 4.28: All Gulf of Alaska groundfish retained catch by species, gear, and target fishery, 2022-2023, (1,000 metric tons, round weight). *(continued)*

Gear	Year	Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Flathead Sole	Rex Sole	Flat Deep	Flat Shallow	Rockfish	Atka Mackerel	Other	All Species
Trawl	2022	Pollock, Bottom	33.60	-	3.30	0.30	-	-	-	0.10	1.50	*	0.10	38.90
		Pollock, Pelagic	95.40	-	0.10	0.30	-	-	-	-	0.50	-	-	96.40
		Sablefish	-	0.30	-	-	-	-	*	-	-	*	-	0.40
		Pacific Cod	-	-	3.40	-	*	*	*	0.10	-	-	-	3.60
		Arrowtooth	-	0.10	0.30	6.40	0.20	0.20	-	-	0.50	*	-	7.70
		Rex Sole	*	*	*	*	*	*	*	*	*	-	*	*
		Flatfish, Shallow	*	*	*	*	*	*	*	*	*	-	*	*
		Rockfish	1.20	0.80	0.40	2.60	-	0.10	-	-	30.20	0.80	-	36.20
		All Targets	130.30	1.20	7.50	9.70	0.30	0.40	-	0.20	32.70	0.80	0.10	183.20
	2023	Pollock, Bottom	32.40	-	3.60	0.30	0.10	-	*	0.20	1.30	*	0.10	38.10
		Pollock, Pelagic	97.60	-	0.20	0.20	-	-	*	-	0.50	-	-	98.50
		Sablefish	-	0.30	*	-	*	-	*	*	-	*	*	0.30
		Pacific Cod	-	*	1.30	*	*	-	-	*	*	-	*	1.30
		Arrowtooth	0.10	0.10	0.10	5.60	0.10	0.20	*	*	1.00	*	*	7.20
		Flatfish, Shallow	*	*	0.10	0.10	0.10	-	*	0.50	-	-	-	0.70
		Rockfish	1.50	0.70	0.20	0.70	-	0.10	*	-	30.40	0.40	-	34.10
		All Targets	131.60	1.00	5.60	7.00	0.30	0.30	*	0.70	33.20	0.40	0.10	180.30
All Gear	2022	All Targets	130.30	18.50	23.50	9.70	0.30	0.40	-	0.20	33.40	0.80	0.40	217.60
	2023	All Targets	131.60	15.90	18.90	7.00	0.30	0.30	*	0.70	33.90	0.40	0.30	209.50

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, 2022-2023, (1,000 metric tons, round weight).

Gear	Year	Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Flathead Sole	Rex Sole	Flat Deep	Flat Shallow	Rockfish	Atka Mackerel	Other	All Species
Hook and Line	2022	Sablefish	-	0.10	-	*	-	-	-	-	-	-	*	0.10
		Pacific Cod	-	-	1.70	-	-	-	-	-	*	-	0.10	1.90
		Halibut	*	-	-	-	-	-	*	*	-	-	-	0.10
		All Targets	-	0.10	1.80	-	-	-	*	*	-	-	0.10	2.00
	2023	Sablefish	-	0.10	*	-	-	-	-	-	-	-	-	0.10
		Pacific Cod	-	-	1.30	-	-	-	-	-	*	-	0.10	1.40
		Halibut	-	-	-	*	-	-	-	-	-	-	-	-
		All Targets	-	0.10	1.30	*	-	-	-	-	-	-	0.10	1.50
Pot	2022	Sablefish	-	2.60	*	*	-	-	-	-	-	-	-	2.60
		Pacific Cod	*	-	3.70	-	*	-	-	*	-	-	*	3.70
		Halibut	-	*	*	-	-	-	-	-	*	-	-	*
		All Targets	*	2.60	3.70	*	*	-	-	*	-	-	*	6.30
	2023	Sablefish	-	2.40	-	-	-	-	-	-	-	-	-	2.40
		Pacific Cod	*	-	2.80	-	*	-	-	-	-	-	*	2.80
		Halibut	-	*	*	-	-	-	-	-	-	-	-	*
		All Targets	*	2.40	2.80	-	*	-	-	-	-	-	*	5.20

Table 4.29: Western Gulf of Alaska groundfish retained catch by species, gear, and target fishery, 2022-2023, (1,000 metric tons, round weight). *(continued)*

Gear	Year	Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Flathead Sole	Rex Sole	Flat Deep	Flat Shallow	Rockfish	Atka Mackerel	Other	All Species
Trawl	2022	Pollock, Bottom	*	*	*	*	*	*	-	*	*	-	*	*
		Pollock, Pelagic	21.90	-	-	0.20	-	-	-	-	-	*	-	22.20
		Pacific Cod	-	-	2.10	*	*	-	-	*	-	-	*	2.10
		Rockfish	0.20	0.20	0.10	-	-	-	*	-	3.20	0.50	-	4.30
		All Targets	22.20	0.20	2.20	0.30	-	-	*	-	3.20	0.50	-	28.70
	2023	Pollock, Bottom	*	*	*	*	*	*	-	*	*	*	*	*
		Pollock, Pelagic	23.70	-	0.20	0.20	-	-	*	-	-	-	-	24.10
		Pacific Cod	-	-	1.30	*	*	-	-	*	-	-	*	1.30
		Rockfish	0.20	0.20	0.10	-	-	-	*	-	2.90	0.40	-	3.90
		All Targets	23.90	0.20	1.50	0.20	-	-	*	-	3.00	0.40	-	29.30
All Gear	2022	All Targets	22.20	2.80	7.70	0.30	-	-	*	-	3.20	0.50	0.10	37.00
	2023	All Targets	24.00	2.70	5.70	0.20	-	-	*	-	3.00	0.40	0.10	36.10

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, 2022-2023, (1,000 metric tons, round weight).

Gear	Year	Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Flathead Sole	Rex Sole	Flat Deep	Flat Shallow	Rockfish	Atka Mackerel	Other	All Species
		Sablefish	-	0.50	-	-	-	-	-	-	-	-	*	0.50
		Pacific Cod	-	*	3.20	-	-	-	-	-	-	-	0.10	3.30
		Halibut	-	0.10	0.10	-	-	-	-	-	0.10	-	-	0.30
		Rockfish	-	-	*	-	-	-	-	-	-	-	-	-
	2022	All Targets	-	0.60	3.30	-	-	-	-	-	0.10	-	0.10	4.10
		Sablefish	-	0.30	-	-	-	-	-	-	-	-	*	0.30
		Pacific Cod	-	*	3.70	*	-	-	-	-	-	-	0.10	3.70
		Halibut	-	0.10	0.10	-	-	-	-	-	0.10	-	-	0.30
Hook and		Rockfish	-	-	-	-	-	-	-	-	-	-	-	-
Line	2023	All Targets	-	0.40	3.80	-	-	-	-	-	0.10	-	0.10	4.40
		Sablefish	-	5.90	-	-	-	-	-	-	-	-	-	5.90
		Pacific Cod	-	-	6.80	*	-	-	-	*	-	-	0.10	6.80
		Halibut	-	-	*	-	-	-	-	-	*	-	-	-
	2022	All Targets	-	5.90	6.80	-	-	-	-	*	-	-	0.10	12.70
		Sablefish	-	4.50	-	*	-	-	-	-	-	-	-	4.50
		Pacific Cod	-	-	4.80	-	-	-	-	-	*	-	-	4.90
		Halibut	-	*	*	-	-	-	-	-	*	-	-	*
Pot	2023	All Targets	-	4.50	4.80	*	-	-	-	-	-	-	-	9.40

Table 4.30: Central Gulf of Alaska groundfish retained catch by species, gear, and target fishery, 2022-2023, (1,000 metric tons, round weight). *(continued)*

Gear	Year	Target	Pollock	Sablefish	Pacific Cod	Arrowtooth	Flathead Sole	Rex Sole	Flat Deep	Flat Shallow	Rockfish	Atka Mackerel	Other	All Species
		Pollock, Bottom	29.60	-	3.30	0.30	-	-	-	0.10	1.40	*	0.10	34.70
		Pollock, Pelagic	68.40	-	0.10	0.10	-	-	-	-	0.50	-	-	69.00
		Sablefish	-	0.30	-	-	-	-	*	-	-	*	-	0.40
		Pacific Cod	-	-	1.30	-	*	*	*	0.10	-	-	-	1.50
		Arrowtooth	-	0.10	0.30	6.40	0.20	0.20	-	-	0.50	*	-	7.70
		Rex Sole	*	*	*	*	*	*	*	*	*	-	*	*
		Flatfish, Shallow	*	*	*	*	*	*	*	*	*	-	*	*
		Rockfish	1.00	0.60	0.30	2.60	-	0.10	-	-	27.00	0.30	-	31.90
	2022	All Targets	99.00	1.00	5.30	9.40	0.30	0.30	-	0.20	29.40	0.30	0.10	145.30
		Pollock, Bottom	28.50	-	3.60	0.30	0.10	-	*	0.20	1.10	*	0.10	34.00
		Pollock, Pelagic	67.70	-	0.10	0.10	-	-	*	-	0.40	-	-	68.20
		Sablefish	-	0.30	*	-	*	-	*	*	-	*	*	0.30
		Pacific Cod	-	*	*	*	-	-	-	*	*	-	*	*
		Arrowtooth	0.10	0.10	0.10	5.60	0.10	0.20	*	*	1.00	*	*	7.20
		Flatfish, Shallow	*	*	0.10	0.10	0.10	-	*	0.50	-	-	-	0.70
		Rockfish	1.30	0.50	0.20	0.70	-	0.10	*	-	27.50	*	-	30.20
Trawl	2023	All Targets	97.60	0.90	4.10	6.80	0.30	0.30	*	0.70	30.00	*	0.10	140.80
All Gear	2022	All Targets	99.00	7.50	15.40	9.40	0.30	0.30	-	0.20	29.50	0.30	0.20	162.10
	2023	All Targets	97.60	5.80	12.70	6.80	0.30	0.30	*	0.70	30.10	*	0.20	154.60

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, 2019-2023; calculations based on COAR ($/lb, round weight).

	Year	Fixed	Trawl	All Gear
	2019	0.12	0.14	0.14
	2020	0.03	0.12	0.12
	2021	0.08	0.12	0.12
	2022	0.56	0.17	0.17
Pollock	2023	0.12	0.13	0.13
	2019	0.50	0.46	0.49
	2020	0.42	0.36	0.39
	2021	0.41	0.35	0.39
	2022	0.48	0.44	0.47
Pacific Cod	2023	0.45	0.36	0.42
	2019	2.99	1.31	2.81
	2020	1.95	0.60	1.82
	2021	2.26	1.26	2.18
	2022	2.57	1.47	2.49
Sablefish	2023	1.85	0.77	1.77
	2019	-	0.29	0.29
	2020	-	0.27	0.27
	2021	-	0.30	0.30
Atka	2022	-	0.25	0.25
Mackerel	2023	-	0.26	0.26
	2019	0.06	0.07	0.07
	2020	0.02	0.07	0.07
	2021	0.25	0.07	0.07
	2022	0.07	0.11	0.11
Arrowtooth	2023	0.40	0.07	0.07
	2019	*	0.14	0.14
	2020	-	0.11	0.11
	2021	*	0.06	0.06
Flathead	2022	*	0.10	0.10
Sole	2023	*	0.06	0.06
	2019	-	0.22	0.22
	2020	-	0.21	0.21
	2021	*	0.07	0.07
	2022	-	0.11	0.11
Rex Sole	2023	-	0.12	0.12
	2019	-	0.15	0.15
	2020	*	0.12	0.12
	2021	*	0.08	0.08
Shallow-Water	2022	0.07	0.11	0.11
Flatfish	2023	*	0.10	0.10
	2019	*	0.13	0.13
	2020	*	0.14	0.14
	2021	*	0.07	0.07
Deep-Water	2022	*	0.11	0.11
Flatfish	2023	*	0.07	0.07

Table 4.31: Gulf of Alaska ex-vessel prices in the groundfish fisheries by gear, and species, 2019-2023; calculations based on COAR ($/lb, round weight). *(continued)*

	Year	Fixed	Trawl	All Gear
	2019	0.42	0.20	0.20
	2020	*	0.13	0.13
Pacific	2021	0.14	0.13	0.13
Ocean	2022	0.05	0.15	0.15
Perch	2023	0.30	0.13	0.13
	2019	*	0.19	0.19
	2020	*	0.13	0.13
	2021	-	0.13	0.13
Northern	2022	0.72	0.14	0.14
Rockfish	2023	0.68	0.13	0.13
	2019	0.58	0.19	0.19
	2020	0.77	0.13	0.13
	2021	0.63	0.13	0.13
Dusky	2022	0.58	0.14	0.14
Rockfish	2023	0.59	0.13	0.13
	2019	0.82	0.19	0.44
	2020	0.66	0.14	0.36
	2021	0.56	0.13	0.28
Other	2022	0.74	0.15	0.35
Rockfish	2023	0.74	0.12	0.36

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, 2019-2023; 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
	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
	2022	-	-	36.87	36.88	-	-	8.65	8.68	-	-	48.95	48.99
Pollock	2023	-	-	27.40	27.40	-	-	7.29	7.29	-	-	37.52	37.52
	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
Pacific	2022	4.26	7.20	5.20	16.66	1.87	3.98	2.16	8.01	6.56	11.19	7.37	25.11
Cod	2023	3.75	4.77	3.43	11.95	1.92	2.76	1.26	5.95	6.18	7.56	4.69	18.43
	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	1.14	17.32	0.76	4.51	0.22	5.49	23.98	20.24	1.35	45.58
	2021	2.83	25.79	2.45	31.08	0.62	7.99	0.42	9.03	21.32	49.10	3.18	73.60
	2022	3.21	33.58	3.44	40.24	0.48	13.98	0.59	15.05	21.07	78.70	4.04	103.81
Sablefish	2023	2.13	18.91	1.51	22.55	0.35	9.51	0.33	10.19	12.43	49.91	1.99	64.33
	2019	-	-	0.31	0.31	-	-	0.42	0.42	-	-	0.73	0.73
	2020	-	-	-	-	-	-	0.30	0.30	-	-	0.30	0.30
	2021	-	-	0.33	0.33	-	-	0.23	0.23	-	-	0.56	0.56
Atka	2022	-	-	0.17	0.17	-	-	0.30	0.30	-	-	0.46	0.46
Mackerel	2023	-	-	-	-	-	-	0.26	0.26	-	-	0.26	0.26
	2019	-	-	3.67	3.67	-	-	0.07	0.07	-	-	3.75	3.76
	2020	*	-	2.89	2.89	-	-	0.03	0.03	-	-	2.92	2.92
	2021	-	-	1.17	1.17	*	-	0.03	0.03	-	-	1.20	1.20
	2022	-	-	2.38	2.38	-	-	0.08	0.08	-	-	2.46	2.46
Arrowtooth	2023	-	-	1.22	1.22	*	-	0.03	0.03	-	-	1.25	1.25

Table 4.32: Gulf of Alaska ex-vessel value of the groundfish catch by vessel category, gear, and species, 2019-2023; 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
	2019	-	-	0.74	0.74	*	-	0.04	0.04	*	-	0.77	0.77
	2020	-	-	0.42	0.42	-	-	0.02	0.02	-	-	0.44	0.44
	2021	-	-	0.06	0.06	-	-	0.01	0.01	-	-	0.07	0.07
Flathead	2022	-	-	0.10	0.10	-	-	-	-	-	-	0.10	0.10
Sole	2023	-	-	0.06	0.06	-	-	-	-	-	-	0.06	0.06
	2019	-	-	0.74	0.74	-	-	0.01	0.01	-	-	0.75	0.75
	2020	-	-	0.53	0.53	-	-	0.01	0.01	-	-	0.54	0.54
	2021	-	-	0.04	0.04	*	-	-	-	*	-	0.04	0.04
Rex	2022	-	-	0.14	0.14	-	-	0.01	0.01	-	-	0.15	0.15
Sole	2023	-	-	0.10	0.10	-	-	-	-	-	-	0.10	0.10
	2019	-	-	0.86	0.86	-	-	0.01	0.01	-	-	0.87	0.87
	2020	*	-	1.06	1.06	-	-	-	-	*	-	1.06	1.06
	2021	*	-	0.25	0.25	-	-	-	-	*	-	0.25	0.25
Shallow-Water	2022	-	-	0.24	0.24	*	-	-	-	*	-	0.24	0.24
Flatfish	2023	-	-	0.19	0.19	-	-	-	-	*	-	0.19	0.19
	2019	-	-	0.01	0.01	*	-	-	-	*	-	0.01	0.01
	2020	-	-	0.02	0.02	-	-	*	*	*	-	0.02	0.02
	2021	-	-	-	-	-	-	*	*	*	-	-	-
Deep-Water	2022	-	-	-	-	*	-	*	*	*	-	-	-
Flatfish	2023	-	-	-	-	-	-	-	-	*	-	0.01	0.01
	2019	*	-	7.53	7.53	*	-	1.32	1.32	*	-	10.18	10.18
	2020	-	-	5.99	5.99	-	-	0.37	0.37	*	-	6.76	6.76
Pacific	2021	*	-	7.11	7.11	*	-	0.45	0.45	*	-	8.04	8.04
Ocean	2022	-	-	8.09	8.09	*	-	0.79	0.79	-	-	9.33	9.33
Perch	2023	*	-	6.95	6.95	-	-	0.68	0.68	*	-	8.01	8.01

Table 4.32: Gulf of Alaska ex-vessel value of the groundfish catch by vessel category, gear, and species, 2019-2023; 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
	2019	-	-	0.73	0.73	*	-	0.34	0.34	*	-	1.07	1.07
	2020	*	-	0.45	0.45	-	-	0.21	0.21	*	-	0.67	0.67
	2021	-	-	0.46	0.46	-	-	0.20	0.20	-	-	0.66	0.66
Northern	2022	*	-	0.45	0.45	*	-	0.15	0.15	*	-	0.60	0.60
Rockfish	2023	*	-	0.26	0.26	*	-	0.11	0.11	*	-	0.36	0.36
	2019	0.02	-	0.83	0.85	0.01	-	0.08	0.09	0.03	-	0.91	0.94
	2020	0.01	-	0.51	0.53	*	-	0.06	0.06	0.01	-	0.58	0.59
	2021	0.01	-	0.75	0.75	*	-	0.04	0.04	0.01	-	0.79	0.80
Dusky	2022	-	-	0.75	0.75	-	-	0.03	0.03	0.01	-	0.78	0.79
Rockfish	2023	-	-	0.94	0.94	-	-	0.02	0.02	0.01	-	0.96	0.97
	2019	0.40	-	0.42	0.82	0.12	-	0.07	0.19	1.70	-	0.60	2.30
	2020	0.19	-	0.25	0.45	0.03	-	0.03	0.06	1.08	-	0.33	1.44
	2021	0.13	-	0.27	0.40	0.02	-	0.03	0.05	0.77	-	0.35	1.16
Other	2022	0.19	-	0.32	0.52	0.06	-	0.08	0.14	1.09	-	0.45	1.60
Rockfish	2023	0.23	-	0.23	0.47	0.06	-	0.04	0.11	1.18	-	0.32	1.57
	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	-	-	0.01	0.01	0.02	-	0.78	0.81
	2021	0.09	-	0.08	0.18	0.03	-	-	0.03	0.13	-	0.08	0.23
Other	2022	0.08	-	0.03	0.18	0.14	-	-	0.14	0.24	-	0.04	0.33
Groundfish	2023	0.11	-	0.05	0.20	0.11	-	-	0.11	0.24	-	0.06	0.33

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, 2019-2023; calculations based on COAR ($ millions).

	Year	Vessels	Processors	Ex-vessel Value per Vessel $1,000	Ex-vessel Value $million	Percent Value, GOA FMP Groundfish	Percent Value, All GOA Fisheries
	2019	35	10	323.28	11.31	8.23	1.92
	2020	33	10	190.84	6.30	6.92	1.82
Western	2021	33	11	230.68	7.61	6.00	1.11
Gulf	2022	33	8	389.57	12.86	6.73	1.85
Trawl	2023	32	12	313.00	10.02	7.65	1.87
	2019	62	16	771.39	47.83	34.77	8.11
	2020	62	15	591.89	36.70	40.33	10.61
Central	2021	52	13	692.72	36.02	28.41	5.24
Gulf	2022	50	16	1,163.69	58.18	30.44	8.37
Trawl	2023	45	11	941.01	42.35	32.34	7.91
	2019	72	31	32.35	2.33	1.69	0.40
	2020	29	19	19.37	0.56	0.62	0.16
	2021	59	21	42.22	2.49	1.96	0.36
CV Hook	2022	54	22	60.27	3.25	1.70	0.47
and Line	2023	55	24	48.28	2.66	2.03	0.50
	2019	3	3	554.43	1.66	1.21	0.28
	2021	2	2	*	*	*	*
CP Hook	2022	6	6	416.20	2.50	1.31	0.36
and Line	2023	5	5	413.03	2.07	1.58	0.39
	2019	250	42	241.74	60.44	43.93	10.25
	2020	242	45	175.69	42.52	46.73	12.30
	2021	238	42	286.29	68.14	53.75	9.91
Sablefish	2022	245	45	395.70	96.95	50.72	13.94
IFQ	2023	233	40	259.33	60.42	46.15	11.29
	2019	59	17	146.60	8.65	6.29	1.47
	2020	38	17	49.20	1.87	2.05	0.54
	2021	70	24	103.52	7.25	5.72	1.05
	2022	79	23	152.44	12.04	6.30	1.73
Pot	2023	77	29	106.69	8.22	6.28	1.53
	2019	110	40	5.80	0.64	0.46	0.11
	2020	97	46	5.26	0.51	0.56	0.15
	2021	100	39	10.41	1.04	0.82	0.15
	2022	77	28	14.01	1.08	0.56	0.16
Jig	2023	125	41	14.26	1.78	1.36	0.33

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, 2019-2023 (1,000 metric tons, round weight).

	Product	2019	2020	2021	2022	2023
	Whole Fish	3.12	0.42	0.33	0.22	0.19
	Head And Gut	28.41	22.62	14.02	20.10	20.29
	Roe	1.89	1.55	1.03	1.34	1.96
	Deep-Skin Fillets	*	0.23	*	*	*
	Other Fillets	8.80	7.60	8.65	11.77	13.19
	Surimi	6.95	5.43	5.93	6.48	9.59
	Minced Fish	0.84	1.80	0.76	0.66	0.95
	Fishmeal	*	*	0.50	*	1.33
	Other Products	1.07	0.30	0.42	0.89	0.74
Pollock	All Products	51.09	39.95	31.64	41.47	48.24
	Whole Fish	0.26	0.03	0.05	0.07	0.02
	Head And Gut	3.02	1.15	1.69	2.92	2.65
	Salted/Split	-	*	-	-	*
	Roe	0.38	0.19	0.53	0.89	0.55
	Fillets	2.37	1.12	2.70	3.85	3.03
	Other Products	1.44	0.47	1.56	1.99	1.33
Pacific Cod	All Products	7.47	2.97	6.54	9.72	7.58
	Head And Gut	6.54	6.44	8.90	11.97	9.88
	Other Products	0.43	0.35	0.60	0.41	0.54
Sablefish	All Products	6.97	6.78	9.50	12.38	10.43
	Head And Gut	0.63	0.25	0.47	0.43	0.26
	Other Products	*	*	*	*	*
Atka Mackerel	All Products	0.63	0.25	0.47	0.43	0.26
	Whole Fish	2.04	1.97	-	-	*
	Head And Gut	8.97	7.31	4.28	5.14	4.32
	Kirimi	-	*	-	-	-
	Fillets	*	-	-	-	*
	Other Products	*	*	*	*	0.20
Arrowtooth	All Products	11.01	9.28	4.28	5.14	4.52
	Whole Fish	1.09	1.09	-	*	*
	Head And Gut	0.27	0.20	0.20	0.15	0.10
	Kirimi	*	*	-	-	*
	Fillets	*	*	-	-	-
	Other Products	*	*	*	*	*
Flathead Sole	All Products	1.35	1.29	0.20	0.15	0.10
	Whole Fish	1.44	1.04	0.21	0.45	0.28
	Head And Gut	0.01	*	0.00	*	*
	Fillets	*	*	*	-	*
	Other Products	*	*	*	*	0.00
Rex Sole	All Products	1.46	1.04	0.21	0.45	0.28

Table 4.34: Gulf of Alaska production of groundfish products by species, 2019-2023 (1,000 metric tons, round weight). *(continued)*

	Product	2019	2020	2021	2022	2023
	Whole Fish	0.91	1.52	-	0.04	0.28
	Head And Gut	0.43	1.00	0.69	0.31	0.19
	Kirimi	*	*	*	-	*
	Fillets	*	*	-	*	*
	Other	*	*	*	*	*
Shallow-Water	Products					
Flatfish	All Products	1.33	2.51	0.69	0.35	0.47
	Whole Fish	*	*	-	-	-
	Head And Gut	*	*	-	*	*
	Fillets	*	*	-	-	-
	Other	-	-	-	*	*
Deep-Water	Products					
Flatfish	All Products	*	*	-	*	*
	Whole Fish	2.75	4.87	2.88	1.12	4.64
	Head And Gut	10.00	9.26	12.07	12.50	10.98
	Other	0.25	0.16	0.35	1.18	0.80
Pacific Ocean	Products					
Perch	All Products	13.01	14.29	15.31	14.80	16.43
	Whole Fish	*	*	*	*	*
	Head And Gut	1.39	1.26	1.21	0.99	0.70
	Other	0.00	0.00	*	0.05	0.00
Northern	Products					
Rockfish	All Products	1.39	1.26	1.21	1.04	0.70
	Whole Fish	0.14	0.32	0.25	0.04	0.16
	Head And Gut	1.17	0.88	1.32	1.29	1.71
	Other	0.01	0.02	0.02	0.01	0.00
Dusky	Products					
Rockfish	All Products	1.32	1.22	1.59	1.34	1.88
	Whole Fish	0.45	0.31	0.27	0.30	0.21
	Head And Gut	0.59	0.44	0.46	0.43	0.37
	Other	0.10	0.10	0.07	0.12	0.10
	Products					
Other Rockfish	All Products	1.14	0.84	0.80	0.85	0.69
	Whole Fish	0.23	0.04	0.15	0.36	0.49
	Head And Gut	0.05	0.01	0.00	*	0.00
	Fishmeal	*	*	*	*	0.03
	Other	0.40	0.31	0.13	0.48	0.25
Other	Products					
Groundfish	All Products	0.68	0.36	0.29	0.84	0.77

Table 4.34: Gulf of Alaska production of groundfish products by species, 2019-2023 (1,000 metric tons, round weight). *(continued)*

	Product	2019	2020	2021	2022	2023
	Whole Fish	12.43	11.60	4.14	2.60	6.28
	Head And Gut	61.48	50.81	45.33	56.25	51.46
	Salted/Split	-	*	-	-	*
	Kirimi	*	*	*	-	*
	Roe	2.27	1.74	1.56	2.23	2.51
	Fillets	2.37	1.12	2.70	3.85	3.03
	Deep-Skin Fillets	*	0.23	*	*	*
	Other Fillets	8.80	7.60	8.65	11.77	13.19
	Surimi	6.95	5.43	5.93	6.48	9.59
	Minced Fish	0.84	1.80	0.76	0.66	0.95
	Fishmeal	*	*	0.50	*	1.36
	Other Products	3.70	1.71	3.16	5.13	3.97
All Species	All Products	98.84	82.05	72.74	88.97	92.34

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, 2019-2023, ($ million).

	Product	2019	2020	2021	2022	2023
	Whole Fish	1.90	0.30	0.40	0.30	0.30
	Head And Gut	32.60	25.90	14.40	30.10	23.40
	Roe	5.90	3.80	4.20	8.70	11.20
	Deep-Skin Fillets	*	0.80	*	*	*
	Other Fillets	26.90	23.20	29.50	54.60	52.10
	Surimi	16.60	12.80	16.70	22.30	21.90
	Minced Fish	1.40	3.40	1.40	2.60	1.70
	Fishmeal	*	*	0.90	*	2.90
	Other Products	0.70	0.20	1.00	1.10	1.40
Pollock	All Products	85.90	70.50	68.60	119.80	114.90
	Whole Fish	0.80	0.00	0.10	0.10	0.00
	Head And Gut	8.50	3.50	5.80	11.30	10.20
	Salted/Split	-	*	-	-	*
	Roe	0.90	0.40	1.30	3.00	1.80
	Fillets	21.50	10.10	25.50	46.80	33.20
	Other Products	3.50	0.90	3.10	5.30	4.50
Pacific Cod	All Products	35.20	15.00	35.80	66.50	49.60
	Head And Gut	73.80	58.20	89.50	131.70	74.00
	Other Products	5.30	3.70	6.90	3.90	6.50
Sablefish	All Products	79.00	61.90	96.40	135.70	80.50
	Head And Gut	1.60	0.60	1.30	1.00	0.60
	Other Products	*	*	*	*	*
Atka Mackerel	All Products	1.60	0.60	1.30	1.00	0.60
	Whole Fish	0.80	1.60	-	-	*
	Head And Gut	11.00	7.60	5.20	9.50	8.10
	Kirimi	-	*	-	-	-
	Fillets	*	-	-	-	*
	Other Products	*	*	*	*	0.40
Arrowtooth	All Products	11.70	9.20	5.20	9.50	8.50
	Whole Fish	0.90	0.90	-	*	*
	Head And Gut	0.50	0.30	0.30	0.20	0.10
	Kirimi	*	*	-	-	*
	Fillets	*	*	-	-	-
	Other Products	*	*	*	*	*
Flathead Sole	All Products	1.40	1.20	0.30	0.20	0.10
	Whole Fish	3.10	1.90	0.20	0.60	0.40
	Head And Gut	0.00	*	0.00	*	*
	Fillets	*	*	*	-	*
	Other Products	*	*	*	*	0.00
Rex Sole	All Products	3.20	1.90	0.20	0.60	0.50

Table 4.35: Gulf of Alaska gross value of groundfish products by species, 2019-2023, ($ million). *(continued)*

	Product	2019	2020	2021	2022	2023
	Whole Fish	0.90	1.50	-	0.00	0.40
	Head And Gut	0.90	1.70	1.40	0.40	0.30
	Kirimi	*	*	*	-	*
	Fillets	*	*	-	*	*
	Other	*	*	*	*	*
Shallow-Water	Products					
Flatfish	All Products	1.80	3.20	1.40	0.50	0.70
	Whole Fish	*	*	-	-	-
	Head And Gut	*	*	-	*	*
	Fillets	*	*	-	-	-
	Other	-	-	-	*	*
Deep-Water	Products					
Flatfish	All Products	*	*	-	*	*
	Whole Fish	2.80	4.70	2.60	1.70	6.80
	Head And Gut	19.10	15.90	24.40	30.90	23.80
	Other	1.90	1.60	2.30	3.40	3.30
Pacific Ocean	Products					
Perch	All Products	23.80	22.20	29.40	35.90	34.00
	Whole Fish	*	*	*	*	*
	Head And Gut	2.50	1.70	1.80	1.90	1.20
	Other	0.00	0.00	*	0.00	0.00
Northern	Products					
Rockfish	All Products	2.50	1.70	1.80	1.90	1.20
	Whole Fish	0.20	0.50	0.30	0.10	0.20
	Head And Gut	2.30	1.50	2.50	2.80	2.60
	Other	0.10	0.20	0.20	0.10	0.00
Dusky	Products					
Rockfish	All Products	2.60	2.20	3.00	3.00	2.90
	Whole Fish	1.80	1.10	0.90	1.10	0.80
	Head And Gut	2.00	1.40	1.10	1.20	0.90
	Other	1.20	0.90	0.90	1.60	1.10
	Products					
Other Rockfish	All Products	5.00	3.40	2.90	3.90	2.80
	Whole Fish	0.80	0.10	0.50	0.90	1.00
	Head And Gut	0.20	0.00	0.00	*	0.00
	Fishmeal	*	*	*	*	0.10
	Other	1.70	1.30	0.50	1.40	0.80
Other	Products					
Groundfish	All Products	2.70	1.40	1.00	2.30	1.90

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, 2019-2023, ($/lb).

	Product	2019	2020	2021	2022	2023
	Whole Fish	0.27	0.32	0.52	0.62	0.76
	Head And Gut	0.52	0.52	0.47	0.68	0.52
	Roe	1.42	1.10	1.88	2.94	2.60
	Deep-Skin Fillets	*	1.46	*	*	*
	Other Fillets	1.39	1.39	1.54	2.10	1.79
	Surimi	1.08	1.07	1.28	1.56	1.04
	Minced Fish	0.75	0.87	0.86	1.81	0.81
	Fishmeal	*	*	0.82	*	0.98
	Other Products	0.28	0.37	1.12	0.56	0.86
Pollock	All Products	0.76	0.80	0.98	1.31	1.08
	Whole Fish	1.42	0.59	0.79	0.59	0.66
	Head And Gut	1.28	1.39	1.55	1.76	1.74
	Roe	1.04	0.99	1.11	1.53	1.46
	Fillets	4.12	4.09	4.28	5.52	4.96
	Other Products	1.09	0.88	0.89	1.20	1.52
Pacific Cod	All Products	2.14	2.30	2.48	3.11	2.97
	Head And Gut	5.12	4.11	4.56	4.99	3.39
	Other Products	5.58	4.84	5.25	4.36	5.44
Sablefish	All Products	5.15	4.14	4.60	4.97	3.50
	Head And Gut	1.17	1.10	1.25	1.03	1.08
	Other Products	*	*	*	*	*
Atka Mackerel	All Products	1.17	1.10	1.25	1.03	1.08
	Whole Fish	0.17	0.37	-	-	*
	Head And Gut	0.55	0.47	0.55	0.83	0.85
	Fillets	*	-	-	-	*
	Other Products	*	*	*	*	0.97
Arrowtooth	All Products	0.48	0.45	0.55	0.83	0.85
	Whole Fish	0.39	0.38	-	*	*
	Head And Gut	0.87	0.66	0.76	0.72	0.64
	Fillets	*	*	-	-	-
	Other Products	*	*	*	*	*
Flathead Sole	All Products	0.49	0.42	0.76	0.72	0.64
	Whole Fish	0.98	0.83	0.51	0.65	0.72
	Head And Gut	1.44	*	0.58	*	*
	Fillets	*	*	*	-	*
	Other Products	*	*	*	*	0.97
Rex Sole	All Products	0.98	0.83	0.51	0.65	0.72

Table 4.36: Gulf of Alaska price per pound of groundfish products by species, 2019-2023, ($/lb). *(continued)*

	Product	2019	2020	2021	2022	2023
	Whole Fish	0.44	0.43	-	0.45	0.59
	Head And Gut	0.93	0.79	0.91	0.60	0.72
	Fillets	*	*	-	*	*
	Other	*	*	*	*	*
Shallow-Water	Products					
Flatfish	All Products	0.60	0.58	0.91	0.58	0.64
	Whole Fish	*	*	-	-	-
	Head And Gut	*	*	-	*	*
	Fillets	*	*	-	-	-
	Other	-	-	-	*	*
Deep-Water	Products					
Flatfish	All Products	*	*	-	*	*
	Whole Fish	0.46	0.44	0.42	0.67	0.67
	Head And Gut	0.87	0.78	0.92	1.12	0.98
	Other	3.36	4.29	2.98	1.29	1.88
Pacific Ocean	Products					
Perch	All Products	0.83	0.70	0.87	1.10	0.94
	Whole Fish	*	*	*	*	*
	Head And Gut	0.83	0.63	0.69	0.86	0.78
	Other	2.81	2.44	*	0.25	1.65
Northern	Products					
Rockfish	All Products	0.83	0.63	0.69	0.83	0.79
	Whole Fish	0.77	0.71	0.57	0.74	0.64
	Head And Gut	0.88	0.77	0.86	0.99	0.70
	Other	3.04	4.87	3.79	5.50	2.31
Dusky	Products					
Rockfish	All Products	0.88	0.82	0.86	1.01	0.69
	Whole Fish	1.81	1.62	1.55	1.74	1.68
	Head And Gut	1.55	1.44	1.07	1.29	1.11
	Other	5.34	4.52	5.62	6.02	5.03
	Products					
Other Rockfish	All Products	1.99	1.86	1.65	2.10	1.87
	Whole Fish	1.66	0.92	1.66	1.15	0.90
	Head And Gut	1.79	0.79	2.11	*	0.78
	Fishmeal	*	*	*	0.60	0.95
	Other	1.89	1.89	1.60	1.34	1.55
Other	Products					
Groundfish	All Products	1.81	1.76	1.64	1.24	1.11

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, 2019-2023, ($/mt).

	2019	2020	2021	2022	2023
Pollock	735	664	710	925	879
Sablefish	7,229	5,444	6,305	7,148	4,880
Pacific Cod	2,422	2,952	2,012	2,744	2,497
Flatfish	641	593	689	875	1,023
Rockfish	1,098	974	1,048	1,282	1,156
Atka Mackerel	1,443	1,165	1,552	1,181	1,394
Other	2,085	1,670	3,482	5,591	4,075

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, 2019-2023 ($ millions).

		Processors	Wholesale Value ($million)	Wholesale Value per Processor ($1,000)	Percent Value, GOA FMP Groundfish
Central	2019	11	28.78	2,616.46	9.52
and	2020	9	21.89	2,431.82	9.50
Western	2021	7	27.58	3,939.59	8.74
Gulf	2022	8	38.38	4,797.01	7.49
Trawl	2023	8	30.10	3,762.48	7.68
	2019	7	2.46	351.83	0.81
	2020	4	0.08	20.63	0.04
	2021	5	3.28	655.13	1.04
CP Hook	2022	9	6.13	680.92	1.20
and Line	2023	7	5.05	721.06	1.29
	2019	7	3.89	555.68	1.29
	2020	5	2.08	416.94	0.90
	2021	5	5.26	1,051.81	1.67
Sablefish	2022	7	7.75	1,106.61	1.51
IFQ	2023	5	4.71	941.62	1.20
	2019	2	*	*	*
Motherships	2020	2	*	*	*
& Inshore	2021	2	*	*	*
Floating	2022	3	98.89	32,964.50	19.30
Procs.	2023	2	*	*	*
	2019	6	111.06	18,509.63	36.72
	2020	7	98.76	14,108.99	42.86
Kodiak	2021	6	113.64	18,940.64	36.02
Shoreside	2022	5	176.33	35,266.76	34.41
Procs.	2023	5	141.52	28,303.62	36.11
	2019	10	24.43	2,442.82	8.08
Southcentral	2020	10	15.55	1,554.54	6.75
Gulf	2021	8	28.24	3,529.56	8.95
Shoreside	2022	11	48.66	4,423.78	9.50
Procs.	2023	10	34.90	3,489.97	8.91
	2019	17	33.28	1,957.36	11.00
Southeastern	2020	15	25.78	1,718.70	11.19
Gulf	2021	17	37.43	2,201.87	11.87
Shoreside	2022	16	48.86	3,053.51	9.53
Procs.	2023	12	32.02	2,668.53	8.17
	2019	3	63.45	21,149.68	20.98
Western	2020	4	38.55	9,638.21	16.73
Gulf	2021	3	50.09	16,695.63	15.88
Shoreside	2022	2	*	*	*
Procs.	2023	3	57.05	19,015.50	14.56

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, 2019-2023.

		Vessels	Average Length (feet)	Median Length (feet)	Average Capacity (tons)	Median Capacity (tons)
	2019	76	90	88	124	103
Central	2020	70	91	88	130	103
and	2021	67	93	90	135	103
Western	2022	68	94	90	129	106
Gulf Trawl	2023	65	93	90	128	103
	2019	32	44	42	26	24
	2020	2	47	47	20	19.50
	2021	36	44	42	27	24
CV Hook	2022	34	42	41	27	24
and Line	2023	30	40	41	24	24
	2019	3	127	119	251	133
	2021	2	158	157.50	418	417.50
CP Hook	2022	6	147	150	399	315
and Line	2023	5	132	121.50	246	133
	2019	259	57	57	48	36
	2020	243	57	57	49	39
	2021	245	58	58	52	42
Sablefish	2022	247	59	58	53	43
IFQ	2023	253	59	58	53	41
	2019	60	66	58	67	51
	2020	39	52	55	43	41
	2021	64	61	58	64	52
	2022	77	61	58	63	52
Pot	2023	72	60	58	57	52
	2019	108	40	41	16	15
	2020	94	39	38	15	15
	2021	96	38	38	21	15
	2022	78	40	38	16	16
Jig	2023	123	39	38	16	16
	2019	11	43	44	14	12
	2020	5	38	38	13	14
	2021	3	62	68	45	24
No Fleet/	2022	2	57	68	15	18
Other	2023	1	34	34	8	8

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, 2019-2023.

	Gear	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
		2019	30	62	142	173	152	123	60	94	114	111	69	10	359
		2020	7	21	89	101	143	88	55	72	100	115	39	6	292
	Hook	2021	31	44	93	116	134	60	50	40	58	85	50	29	280
	and	2022	8	33	87	107	102	44	27	37	66	57	47	25	257
	Line	2023	17	34	100	127	92	63	47	50	59	45	21	7	292
		2019	24	24	39	15	18	13	4	7	22	25	18	3	88
		2020	1	8	37	22	35	28	20	33	56	65	38	3	140
		2021	30	23	52	63	87	57	39	33	60	80	55	27	206
		2022	20	35	94	97	103	71	37	42	80	83	57	29	236
	Pot	2023	20	26	96	112	108	70	37	51	81	56	25	4	241
		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	51	45	19	16	12	5	-	48	35	13	-	60
		2022	17	53	43	34	17	14	3	3	48	45	8	-	60
	Trawl	2023	22	45	42	30	19	17	2	1	44	39	16	-	57
		2019	86	133	223	209	193	156	65	120	181	182	106	13	476
		2020	36	66	164	137	190	125	73	127	176	199	77	9	417
		2021	77	116	169	169	204	111	77	61	152	168	101	49	431
Catcher	All	2022	45	120	203	199	187	117	58	68	169	159	92	46	437
Vessels	Gear	2023	59	104	218	234	192	136	76	86	160	124	56	10	475
		2019	-	1	1	1	3	2	2	1	4	2	2	-	8
		2020	-	-	1	1	2	1	-	1	1	-	-	-	4
	Hook	2021	-	3	2	1	-	-	2	1	1	2	3	-	5
	and	2022	1	1	2	1	1	1	1	1	1	2	3	1	9
	Line	2023	1	2	2	1	1	1	-	1	1	-	4	2	7
		2020	-	-	-	-	-	-	-	-	-	1	1	-	1
		2021	-	-	-	-	2	2	-	-	-	1	1	-	3
		2022	-	-	1	1	-	2	1	1	1	2	-	-	6
	Pot	2023	-	-	1	1	-	1	1	3	1	-	-	-	4
		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
		2022	-	-	-	2	2	6	7	6	3	1	-	-	8
	Trawl	2023	-	-	-	1	1	4	7	5	1	-	-	-	8
		2019	-	1	2	2	4	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
Catcher	All	2022	1	1	3	4	3	8	9	7	4	5	3	1	21
Processors	Gear	2023	1	2	3	3	2	6	8	8	2	-	4	2	18

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 ,2019-2023.

		Hook & Line		Pot		Trawl		All Gear	
	Year	<60ft	60-124ft	<60ft	60-124ft	<60ft	60-124ft	<60ft	60-124ft
	2019	-	-	-	-	142	389	142	389
	2020	-	-	-	-	144	422	144	422
	2021	-	-	-	-	82	463	82	463
	2022	-	-	-	-	107	516	107	516
Pollock	2023	-	-	-	-	126	485	126	485
	2019	1,329	299	200	62	-	12	1,529	372
	2020	1,016	167	476	201	1	10	1,493	378
	2021	727	47	785	316	-	10	1,513	373
	2022	466	35	1,041	357	-	14	1,506	406
Sablefish	2023	394	33	956	334	-	11	1,350	378
	2019	414	1	171	80	41	7	626	88
	2020	275	-	80	5	-	2	356	7
	2021	528	8	223	37	58	8	809	53
Pacific	2022	443	2	251	59	39	35	733	96
Cod	2023	612	4	187	47	30	11	829	62
	2019	-	-	-	-	17	165	17	165
	2020	-	-	-	-	2	150	3	150
	2021	-	-	-	-	-	1	-	1
	2022	-	-	-	-	-	3	-	3
Flatfish	2023	1	-	-	-	-	15	1	15
	2019	238	1	-	-	6	113	245	114
	2020	186	-	-	-	6	112	192	112
	2021	109	-	-	-	3	116	113	116
	2022	79	-	-	-	5	80	84	80
Rockfish	2023	106	-	-	-	4	93	110	93
	2019	1,986	301	370	142	207	686	2,563	1,128
	2020	1,484	167	557	206	152	696	2,193	1,069
	2021	1,366	55	1,010	353	142	599	2,518	1,007
All	2022	993	37	1,291	416	152	648	2,436	1,101
Groundfish	2023	1,114	37	1,143	381	160	616	2,417	1,034

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, 2019-2023.

		Hook & Line			Pot		Trawl			All Gear			
	Year	<60ft	60-124ft	125-230ft	<60ft	125-230ft	60-124ft	125-230ft	>230ft	<60ft	60-124ft	125-230ft	>230ft
	2020	-	-	-	-	-	-	0	-	-	-	0	-
	2021	-	-	-	-	-	1	0	-	-	1	0	-
Pollock	2022	-	-	-	-	-	-	0	-	-	-	0	-
	2019	8	-	23	-	-	0	-	-	8	0	23	-
	2020	9	-	11	-	7	-	-	-	9	-	18	-
	2021	9	-	7	-	17	-	-	-	9	-	24	-
	2022	7	-	7	4	15	-	-	-	11	-	22	-
Sablefish	2023	13	-	2	1	16	-	-	-	14	-	18	-
	2019	2	6	3	-	-	-	-	-	2	6	3	-
	2021	-	-	11	-	-	-	-	-	-	-	11	-
Pacific	2022	-	4	10	-	-	-	-	-	-	4	10	-
Cod	2023	-	10	6	-	-	-	-	-	-	10	6	-
	2019	-	-	-	-	-	45	10	-	-	45	10	-
	2020	-	-	-	-	-	28	10	3	-	28	10	3
	2021	-	-	-	-	-	22	11	3	-	22	11	3
	2022	-	-	-	-	-	20	11	5	-	20	11	5
Flatfish	2023	-	-	-	-	-	-	11	2	-	-	11	2
	2019	-	-	-	-	-	5	34	1	-	5	34	1
	2020	-	-	-	-	-	1	33	4	-	1	33	4
	2021	-	-	-	-	-	2	40	7	-	2	40	7
	2022	-	-	-	-	-	-	35	8	-	-	35	8
Rockfish	2023	-	-	-	-	-	-	30	8	-	-	30	8
	2019	10	6	25	-	-	50	44	1	10	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
All	2022	7	4	17	4	15	20	46	13	11	24	77	13
Groundfish	2023	13	10	10	1	16	-	42	10	14	10	67	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, 2019-2023.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
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	467	966	1,390	1,118	1,740	793	584	503	1,208	1,882	774	223	11,646
2022	264	1,003	1,540	1,779	1,374	957	522	608	1,746	1,730	679	264	12,466
2023	308	764	1,634	1,786	1,522	951	528	562	1,608	1,148	372	41	11,224

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, 2019-2023.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
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
2022	*	*	128	209	217	666	1,129	574	226	237	172	*	3,558
2023	*	*	107	56	*	645	1,211	510	*	*	109	*	2,638

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, 2019-2023, (hundreds of metric tons).

	Gulf of Alaska	Bering Sea and Aleutian Islands	All Alaska
2019	69.67	17.16	86.83
2020	62.57	15.33	77.90
2021	76.66	13.58	90.24
2022	78.58	13.22	91.80
2023	68.00	10.30	78.31

Note: 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 4.46: Catch (net landed weight) and percent of regional catch in the commercial Pacific halibut fisheries off Alaska by vessel length (feet) and region, 2019-2023, (hundreds of metric tons).

		Gulf of Alaska		Bering Sea and Aleutian Islands		All Alaska	
	Length	Net tons	Percent	Net tons	Percent	Net tons	Percent
2019	<20	0.09	-	*	*	0.09	-
	20-29	1.73	0.02	0.92	0.05	2.65	0.03
	30-39	12.53	0.18	3.09	0.18	15.62	0.18
	40-49	26.12	0.38	2.93	0.17	29.05	0.34
	50-59	20.21	0.29	5.95	0.35	26.16	0.30
	>=60	8.86	0.13	3.93	0.23	12.79	0.15
2020	<20	*	*	*	*	-	-
	20-29	1.75	0.03	*	*	1.75	0.02
	30-39	11.45	0.18	1.26	0.08	12.71	0.16
	40-49	23.60	0.38	2.67	0.18	26.26	0.34
	50-59	17.75	0.28	7.10	0.47	24.85	0.32
	>=60	7.85	0.13	3.93	0.26	11.78	0.15
2021	<20	0.07	-	*	*	0.07	-
	20-29	2.19	0.03	*	*	2.19	0.03
	30-39	13.77	0.18	0.60	0.08	14.37	0.17
	40-49	28.33	0.37	2.53	0.35	30.86	0.37
	50-59	23.04	0.30	*	*	23.04	0.28
	>=60	9.13	0.12	4.08	0.57	13.21	0.16
2022	<20	0.05	-	*	*	0.05	-
	20-29	1.78	0.02	*	*	1.78	0.02
	30-39	13.01	0.17	0.22	0.02	13.23	0.14
	40-49	29.68	0.38	2.13	0.16	31.80	0.35
	50-59	23.96	0.31	6.40	0.49	30.36	0.33
	>=60	9.94	0.13	4.37	0.33	14.31	0.16
2023	<20	0.02	-	*	*	0.02	-
	20-29	1.42	0.02	*	*	1.42	0.02
	30-39	11.21	0.17	0.06	0.01	11.27	0.14
	40-49	27.08	0.40	1.57	0.16	28.65	0.37
	50-59	19.53	0.29	5.09	0.50	24.62	0.32
	>=60	8.55	0.13	3.39	0.34	11.94	0.15

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, 2019-2023.

	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)
	2019	17	93	-	57	-	2	28
	2020	-	-	-	1	-	-	199
	2021	-	21	-	76	-	*	572
Gulf of	2022	-	66	-	89	-	-	2
Alaska	2023	-	159	-	32	-	-	140
	2019	*	*	*	22	47	3	551
Bering Sea	2020	*	-	-	28	75	-	558
and	2021	-	-	-	32	147	20	22
Aleutian	2022	-	-	*	28	34	12	88
Islands	2023	*	*	*	7	33	23	424

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, 2019-2023, ($ millions and $/lb net weight, respectively).

	Gulf of Alaska		Bering Sea and Aleutian Islands		All Alaska	
	Value	Price	Value	Price	Value	Price
2019	79.59	$ 5.18	15.31	$ 4.05	94.89	$ 4.96
2020	59.22	$ 4.29	13.02	$ 3.85	72.24	$ 4.21
2021	110.51	$ 6.54	17.68	$ 5.91	128.20	$ 6.44
2022	126.98	$ 7.33	20.83	$ 7.14	147.81	$ 7.30
2023	82.58	$ 5.51	11.32	$ 4.98	93.89	$ 5.44

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, 2019-2023, ($ millions and $/lb net weight, respectively).

Area		2019	2020	2021	2022	2023
2C	Value	19.79	15.17	27.28	30.12	21.68
	Price	5.26	4.28	6.34	7.33	5.83
3A	Value	45.25	31.41	65.57	73.80	46.11
	Price	5.28	4.32	6.66	7.37	5.48
3B	Value	12.24	10.35	12.13	17.26	11.86
	Price	5.03	4.33	6.66	7.23	5.24
4A	Value	5.79	4.70	9.28	10.09	5.08
	Price	3.86	3.82	5.89	7.10	4.96
4B	Value	4.50	3.77	4.93	-	2.22
	Price	4.16	3.80	5.88	-	4.98
4CDE	Value	7.32	6.85	9.01	12.25	6.94
	Price	4.07	3.91	5.95	7.18	4.98

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), 2019-2023, ($ millions and $ thousands, respectively).

		Gulf of Alaska		Bering Sea and Aleutian Islands		All Alaska	
	Length	Value	Avg. Value/Vessel	Value	Avg. Value/Vessel	Value	Avg. Value/Vessel
	<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	2.71	77.32	16.82	60.06
	40-49	30.08	121.78	2.66	177.23	32.74	129.40
	50-59	22.91	180.42	5.24	227.72	28.15	219.93
2019	>=60	10.25	256.24	3.48	193.39	13.73	319.31
	<20	*	*	*	*	0.29	17.09
	20-29	1.66	21.04	*	*	1.72	19.94
	30-39	10.77	47.03	1.09	49.71	11.86	49.63
	40-49	22.45	90.89	2.29	143.05	24.74	97.78
	50-59	16.76	138.51	5.98	314.61	22.74	184.86
2020	>=60	7.42	200.43	3.34	196.76	10.76	269.02
	<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	0.79	43.62	20.38	84.57
	40-49	40.90	174.04	3.23	268.82	44.13	184.63
	50-59	33.10	266.92	*	*	41.09	326.08
2021	>=60	13.50	385.85	5.47	341.99	18.98	499.38
	<20	0.07	6.14	*	*	0.27	13.29
	20-29	2.91	37.36	*	*	2.92	36.49
	30-39	21.26	93.25	0.34	24.56	21.60	92.72
	40-49	48.16	200.65	3.31	184.16	51.47	212.69
	50-59	38.31	301.64	10.09	560.74	48.40	378.14
2022	>=60	16.01	421.34	6.88	430.03	22.89	558.33
	<20	0.03	2.86	*	*	0.25	14.10
	20-29	1.78	29.73	*	*	1.82	29.83
	30-39	13.72	62.93	0.08	7.33	13.80	61.33
	40-49	33.02	143.57	1.71	100.84	34.74	149.08
	50-59	23.47	190.84	5.53	325.51	29.01	230.22
2023	>=60	10.32	294.85	3.73	248.61	14.05	369.71

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, 2019-2023, ($ millions and $/lb net weight).

Port		2019	2020	2021	2022	2023
	Homer	15.07	13.86	25.62	21.39	19.94
	Kodiak	10.35	7.20	13.11	20.98	10.23
	Seward	11.82	5.81	15.44	16.59	8.11
	Dutch Harbor	*	*	*	*	*
	Juneau	*	6.17	9.79	9.41	6.86
	Sitka	7.35	5.08	8.74	10.47	*
	Yakutat	*	*	*	*	*
Ex-vessel	Petersburg	6.43	4.15	7.77	8.65	5.46
Value	Akutan	*	*	*	*	*
	Homer	5.43	4.50	7.11	7.78	5.56
	Kodiak	4.80	4.03	6.32	6.94	4.73
	Seward	5.40	4.37	6.93	7.44	5.70
	Dutch Harbor	*	*	*	*	*
	Juneau	*	4.51	6.48	7.63	6.13
	Sitka	5.54	4.21	6.24	6.70	*
	Yakutat	*	*	*	*	*
	Petersburg	4.98	4.17	6.28	7.48	5.84
Price	Akutan	*	*	*	*	*
	Homer	16 %	19 %	20 %	14 %	21 %
	Kodiak	11 %	10 %	10 %	14 %	11 %
	Seward	12 %	8 %	12 %	11 %	9 %
	Dutch Harbor	*	*	*	*	*
	Juneau	*	9 %	8 %	6 %	7 %
	Sitka	8 %	7 %	7 %	7 %	*
Percent	Yakutat	*	*	*	*	*
State	Petersburg	7 %	6 %	6 %	6 %	6 %
Value	Akutan	*	*	*	*	*
	Homer	1	1	1	1	1
	Kodiak	3	3	3	2	2
	Seward	2	5	2	3	3
	Dutch Harbor	8	2	9	7	4
	Juneau	5	4	5	6	5
	Sitka	4	6	6	5	6
	Yakutat	7	9	7	10	7
	Petersburg	6	8	8	9	8
Rank	Akutan	15	7	4	8	10

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, 2019-2023, (1000s of metric tons, $ millions and $/lb net weight, respectively).

Product		Price	Quantity	Value
	2019	$ 6.37	5.07	71.12
	2020	$ 5.75	3.42	43.34
	2021	$ 8.35	5.27	97.07
Head and	2022	$ 9.19	5.10	103.25
Gut	2023	$ 7.14	4.40	69.28
	2019	$ 11.44	1.38	34.76
	2020	$ 10.26	1.70	38.47
	2021	$ 14.45	1.66	52.81
	2022	$ 16.14	1.68	59.90
Fillet	2023	$ 13.29	1.31	38.27
	2019	$ 1.92	0.66	2.80
	2020	$ 1.64	0.50	1.81
	2021	$ 2.32	0.61	3.12
Other	2022	$ 2.31	0.45	2.32
Products	2023	$ 2.10	0.40	1.86
	2019	$ 6.94	7.11	108.69
	2020	$ 6.75	5.62	83.62
	2021	$ 9.21	7.54	153.01
All	2022	$ 10.38	7.23	165.46
Products	2023	$ 8.12	6.11	109.41

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, 2019-2023.

Class	Year	Gulf of Alaska		Bering Sea and Aleutian Islands		All Alaska	
		Vessels	Median Length	Vessels	Median Length	Vessels	Median Length
	2019	16	18	11	18	27	18
	2020	7	18	10	18	17	18
	2021	14	18	7	18	21	18
	2022	12	18	8	18	20	18
<20	2023	10	17	8	18	18	18
	2019	88	26	26	28	113	27
	2020	79	26	7	28	86	26
	2021	71	26	8	28	79	26
	2022	78	26	2	27	80	26
20-29	2023	60	26	2	27	61	26
	2019	257	34	35	32	280	33
	2020	229	34	22	32	239	34
	2021	233	34	18	32	241	34
	2022	228	33	14	32	233	33
30-39	2023	218	33	11	32	225	33
	2019	247	45	15	48	253	45
	2020	247	45	16	48	253	45
	2021	235	45	12	48	239	45
	2022	240	45	18	48	242	45
40-49	2023	230	45	17	48	233	45
	2019	127	58	23	58	128	58
	2020	121	58	19	58	123	58
	2021	124	58	21	58	126	58
	2022	127	58	18	58	128	58
50-59	2023	123	58	17	58	126	58
	2019	40	72	18	76	43	74
	2020	37	73	17	76	40	74
	2021	35	74	16	75	38	74
	2022	38	73	16	75	41	74
>=60	2023	35	75	15	76	38	76

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, 2019-2023.

	Gulf of Alaska	Bering Sea and Aleutian Islands	All Alaska
2019	12,960	3,220	15,745
2020	12,020	2,380	14,003
2021	13,578	2,060	15,227
2022	15,219	2,007	16,783
2023	15,037	1,834	16,493

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, 2019-2023.

Area	Year	Mar-Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	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
Gulf of	2022	8,620	8,193	5,029	4,769	7,725	8,001	5,723	3,521
Alaska	2023	9,176	8,245	5,461	5,355	6,966	8,264	5,954	1,899
	2019	864	1,566	1,927	2,376	2,577	1,986	950	260
Bering Sea	2020	722	1,047	1,284	1,350	2,541	1,876	735	45
and	2021	294	873	1,119	1,271	1,986	1,864	1,086	423
Aleutian	2022	262	725	893	1,757	2,131	1,895	881	152
Islands	2023	357	458	591	1,599	2,110	1,461	1,012	365
	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
	2022	8,797	8,751	5,709	6,281	9,499	9,461	6,469	3,634
All Alaska	2023	9,485	8,598	5,904	6,465	8,801	9,416	6,792	2,201

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, are 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.

Understanding the indices and their construction facilitates accurate interpretation. To properly

[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.

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

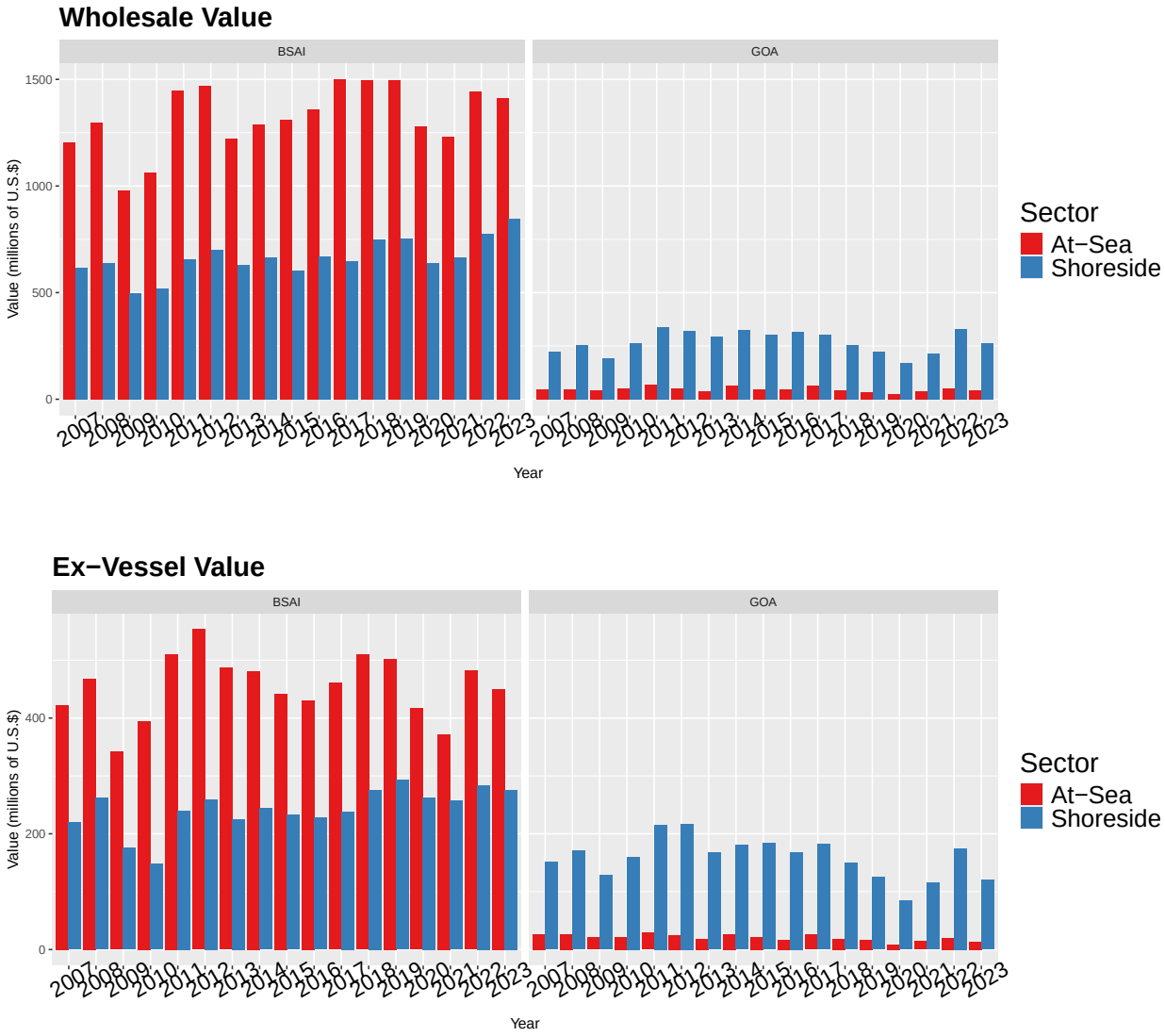

Figure 5.1: Wholesale and ex-vessel value by region and sector2007-2023.

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.

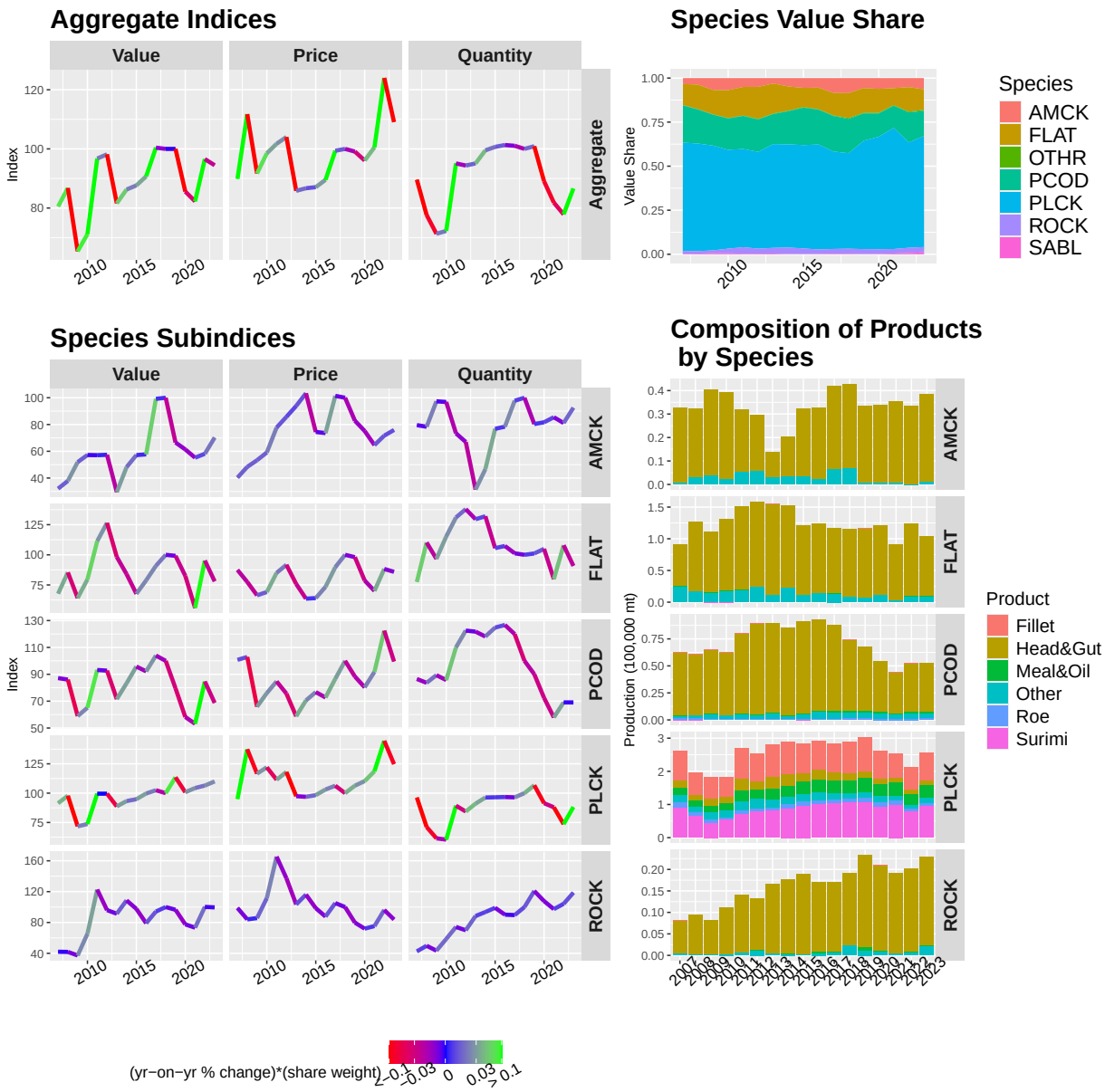

Figure 5.2: BSAI at-sea wholesale market: species decomposition 2007 - 2023 (Index 2018 = 100).

Notes Index values for 2018- 2023, 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.

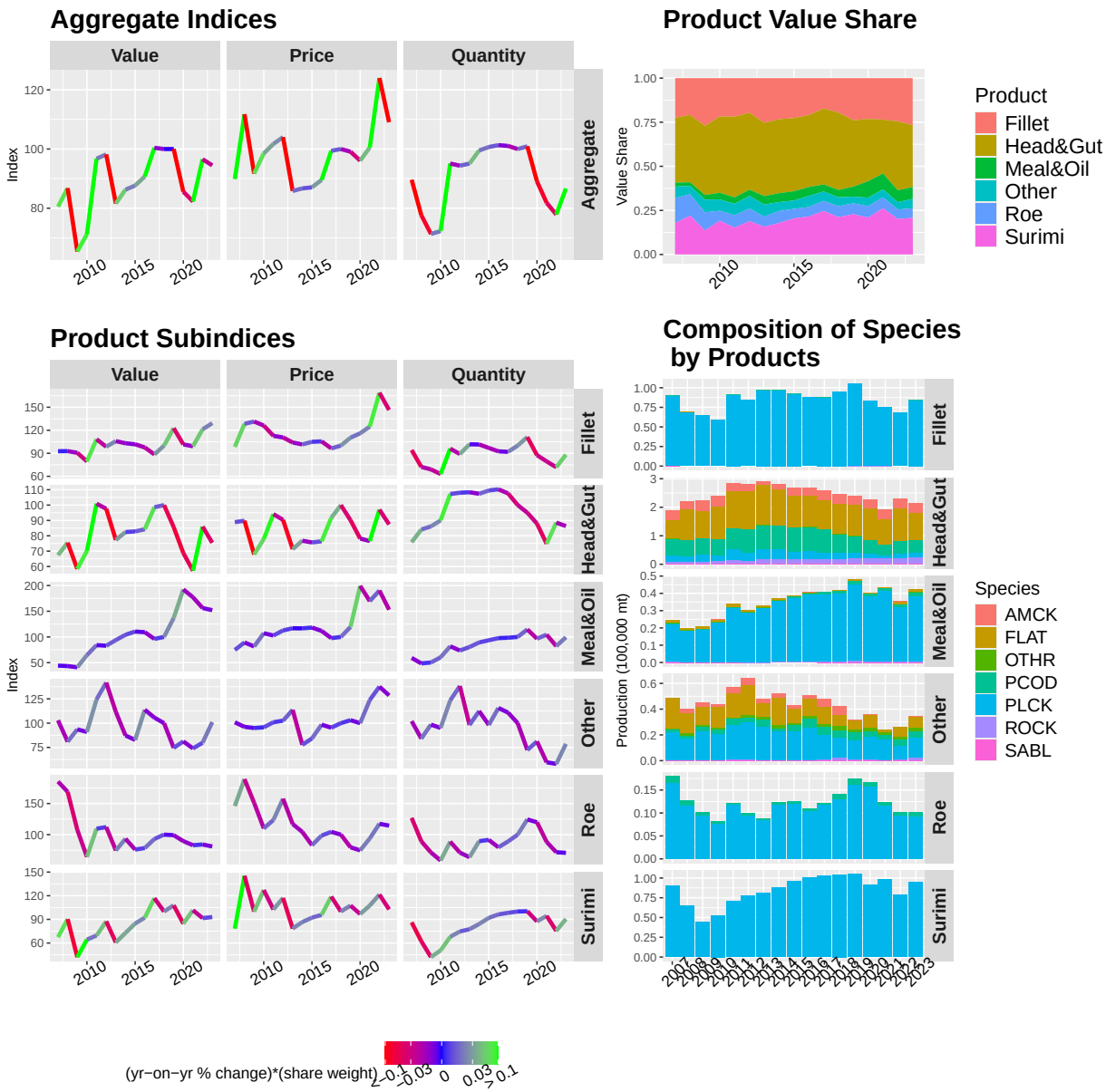

Figure 5.3: BSAI at-sea wholesale market: species decomposition 2007 - 2023 (Index 2018 = 100).

Notes Index values for 2018-2023, 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.

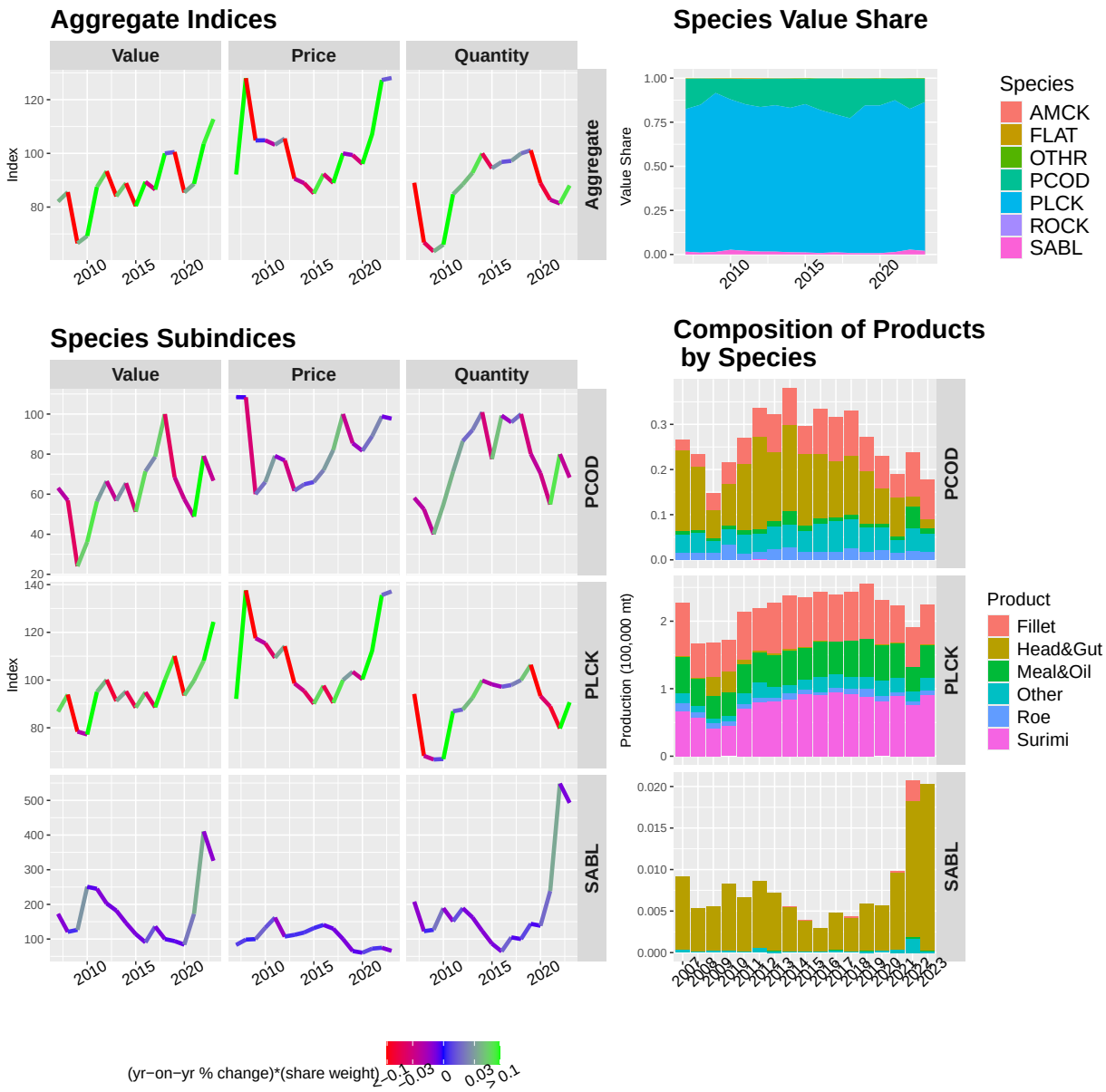

Figure 5.4: BSAI shoreside wholesale market: species decomposition 2007 - 2023 (Index 2018 = 100).

Notes Index values for 2018-2023, 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.

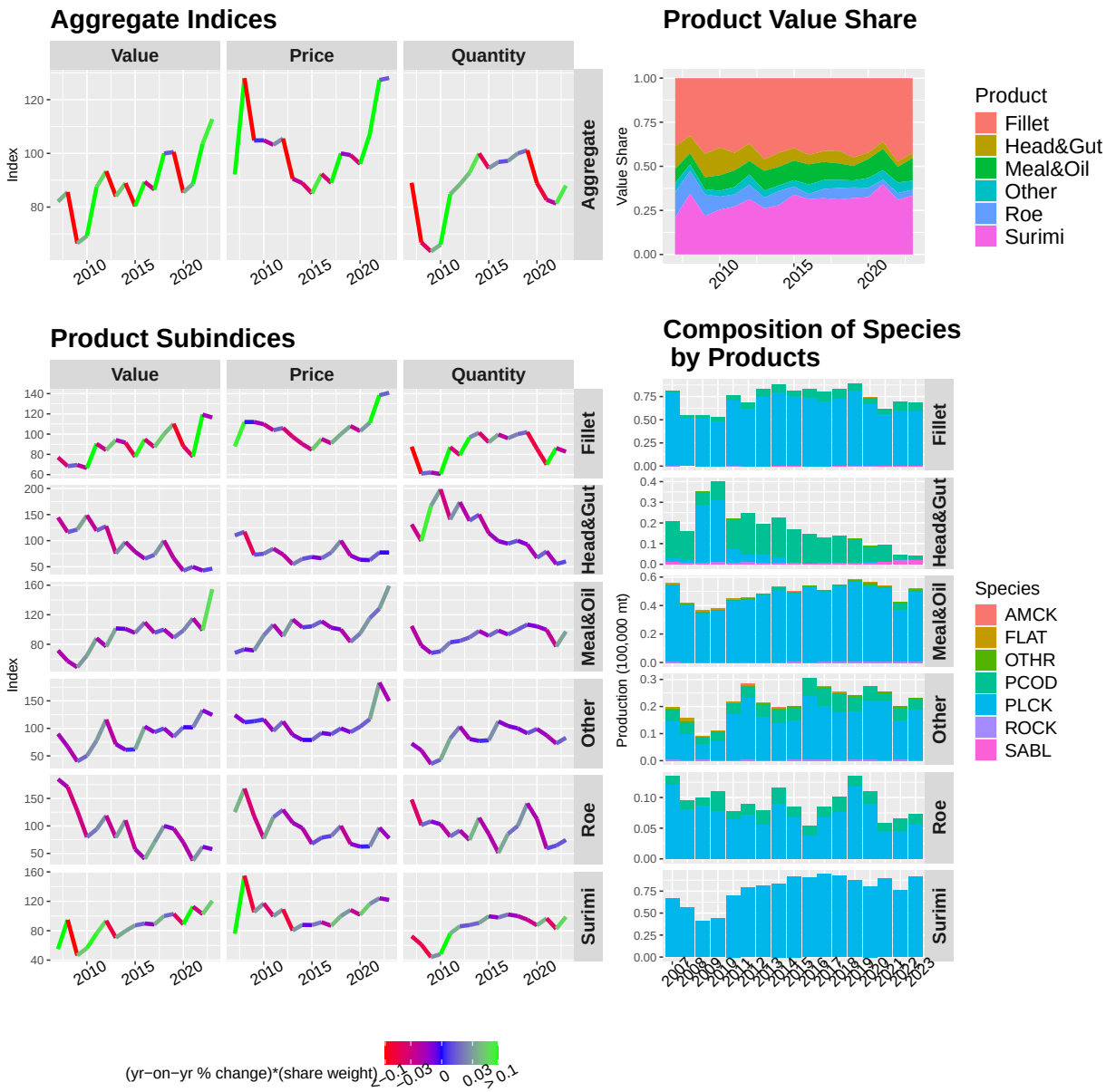

Figure 5.5: BSAI shoreside wholesale market: product decomposition 2007 - 2023 (Index 2018 = 100).

Notes Index values for 2018-2023, 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 - 2023 (Index 2018 = 100).

Notes Index values for 2018-2023, 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.

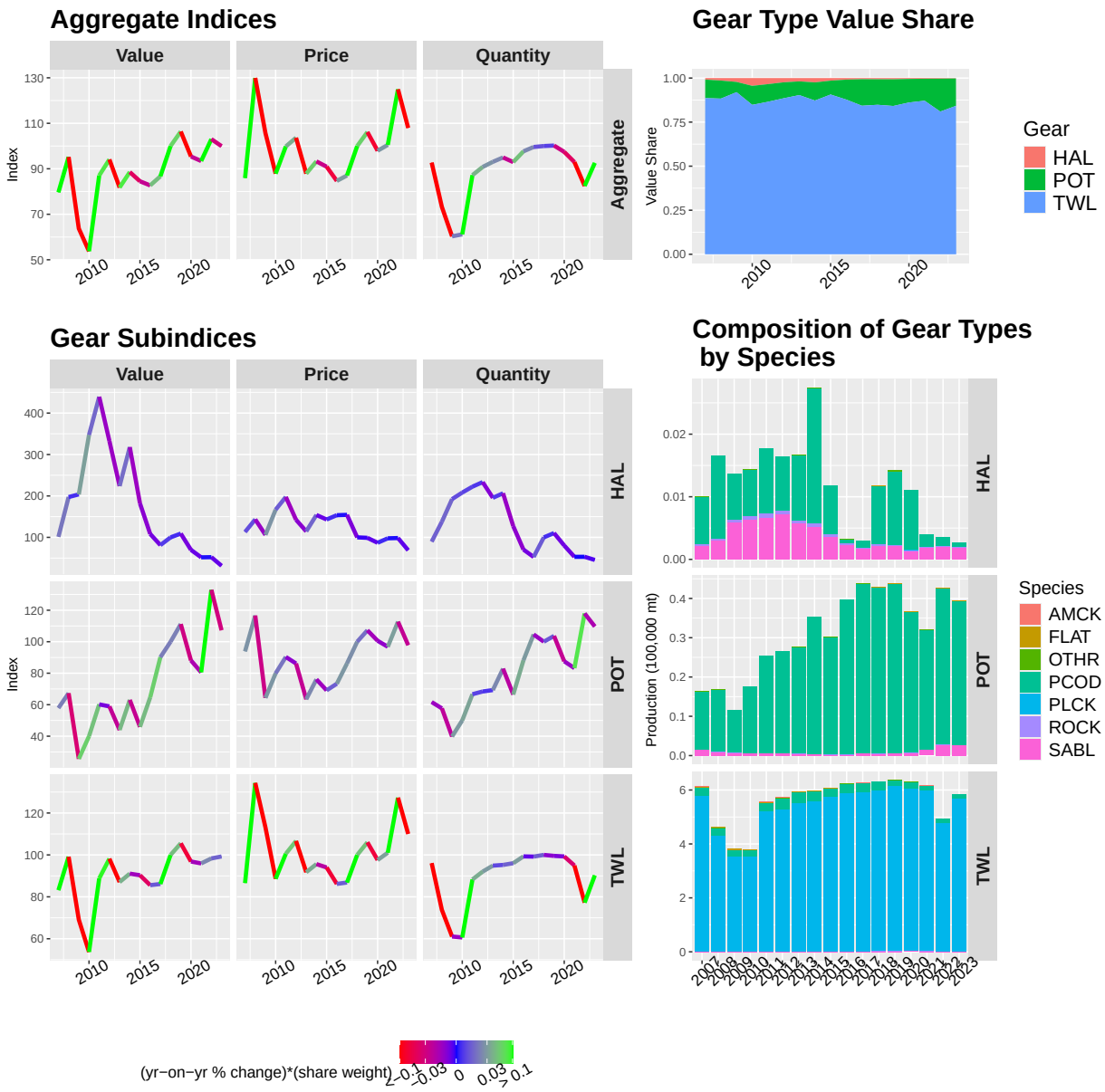

Figure 5.7: BSAI shoreside ex-vessel market: gear decomposition 2007 - 2023 (Index 2018 = 100).

Notes Index values for 2018-2023, 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.

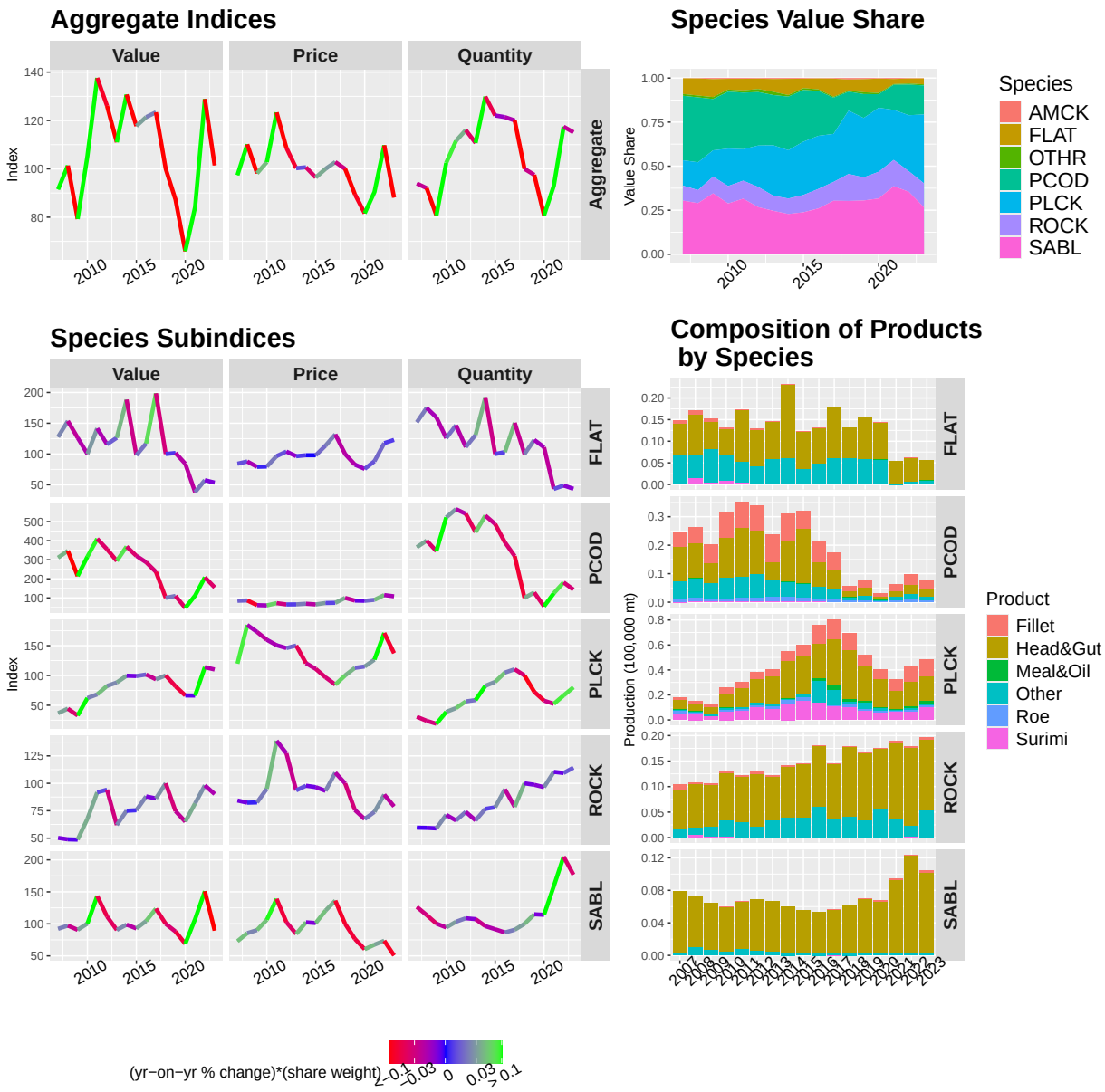

Figure 5.8: GOA wholesale market: species decomposition 2007 - 2023 (Index 2018 = 100).

Notes Index values for 2018- 2023, 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.

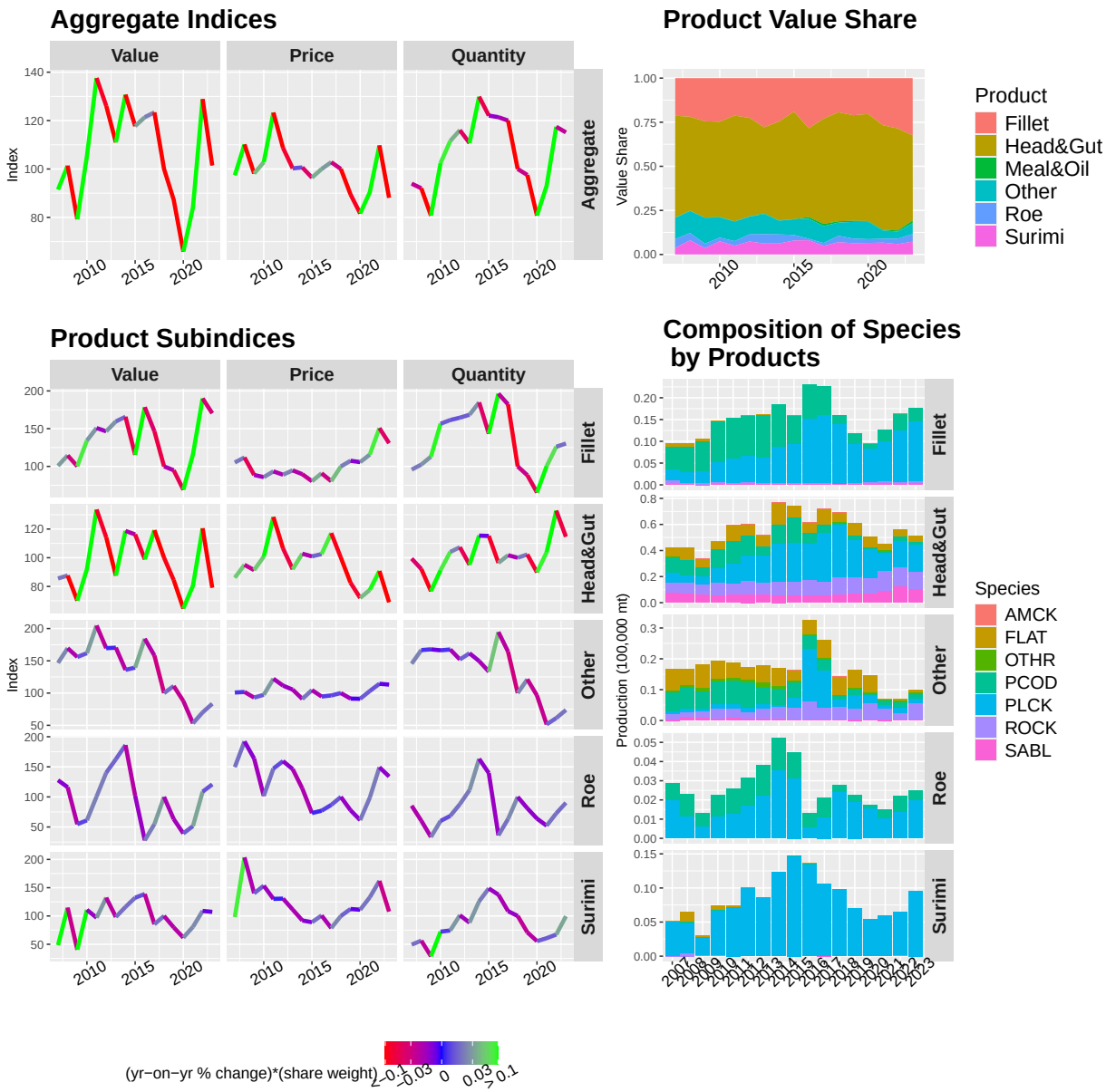

Figure 5.9: GOA wholesale market: product decomposition 2007 - 2023 (Index 2018 = 100).

Notes Index values for 2018- 2023, 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 - 2023 (Index 2018 = 100).

Notes Index values for 2018- 2023, 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 - 2023 (Index 2018 = 100).

Notes Index values for 2018- 2023, 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 2018-2023

Species	Index Type	2018	2019	2020	2021	2022	2023
	Value	100.00	100.00	85.57	82.27	96.55	94.47
	Price	100.00	99.10	96.08	100.53	124.00	109.06
Aggregate	Quantity	100.00	100.91	89.06	81.84	77.86	86.62
	Value	100.00	66.57	61.38	55.21	58.14	70.26
	Price	100.00	82.85	75.15	64.61	71.68	75.92
	Quantity	100.00	80.35	81.67	85.44	81.12	92.55
AMCK	Value Share	0.09	0.06	0.06	0.06	0.05	0.06
	Value	100.00	99.13	82.54	55.93	95.25	77.97
	Price	100.00	98.06	78.65	70.06	88.26	85.88
	Quantity	100.00	101.09	104.94	79.84	107.92	90.79
FLAT	Value Share	0.14	0.14	0.14	0.10	0.14	0.12
	Value	100.00	79.58	58.21	53.17	84.62	68.72
	Price	100.00	88.34	80.31	91.85	122.49	99.52
	Quantity	100.00	90.08	72.49	57.89	69.08	69.05
PCOD	Value Share	0.19	0.16	0.13	0.13	0.17	0.14
	Value	100.00	113.55	100.80	104.39	106.46	109.99
	Price	100.00	106.38	110.26	118.67	144.62	124.73
	Quantity	100.00	106.73	91.42	87.97	73.61	88.18
PLCK	Value Share	0.54	0.62	0.64	0.69	0.60	0.63
	Value	100.00	96.49	77.56	73.29	100.20	99.56
	Price	100.00	79.84	71.99	75.32	96.19	83.88
	Quantity	100.00	120.86	107.74	97.29	104.17	118.70
ROCK	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 russel.a.dame@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 2018-2023

Product	Index Type	2018	2019	2020	2021	2022	2023
	Value	100.00	100.00	85.57	82.27	96.55	94.47
	Price	100.00	99.10	96.08	100.53	124.00	109.06
Aggregate	Quantity	100.00	100.91	89.06	81.84	77.86	86.62
	Value	100.00	122.70	101.58	99.18	121.29	129.19
	Price	100.00	110.40	115.99	124.84	168.90	146.50
	Quantity	100.00	111.14	87.57	79.44	71.81	88.18
Fillet	Value Share	0.20	0.24	0.23	0.24	0.25	0.27
	Value	100.00	85.67	68.76	57.29	85.97	75.48
	Price	100.00	90.14	78.20	76.60	97.04	87.44
	Quantity	100.00	95.04	87.93	74.80	88.59	86.32
Head&Gut	Value Share	0.44	0.38	0.35	0.31	0.39	0.35
	Value	100.00	136.97	192.33	177.17	156.16	152.05
	Price	100.00	119.54	199.14	169.64	190.21	153.08
	Quantity	100.00	114.57	96.58	104.44	82.10	99.33
Meal&Oil	Value Share	0.04	0.06	0.09	0.09	0.07	0.07
	Value	100.00	74.55	81.19	73.98	79.86	101.06
	Price	100.00	103.05	100.01	123.87	137.56	128.56
	Quantity	100.00	72.35	81.18	59.73	58.05	78.61
Other	Value Share	0.05	0.04	0.05	0.05	0.04	0.05
	Value	100.00	99.13	89.58	82.94	84.17	80.97
	Price	100.00	79.64	74.71	93.90	117.41	114.47
	Quantity	100.00	124.46	119.89	88.32	71.69	70.74
Roe	Value Share	0.06	0.06	0.07	0.06	0.05	0.05
	Value	100.00	107.84	84.60	101.63	91.62	92.95
	Price	100.00	107.52	96.79	107.59	121.48	102.76
	Quantity	100.00	100.30	87.41	94.46	75.42	90.45
Surimi	Value Share	0.21	0.23	0.21	0.26	0.20	0.21

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 russel.a.dame@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 2018-2023

Species	Index Type	2018	2019	2020	2021	2022	2023
	Value	100.00	100.51	85.46	88.65	103.56	112.76
	Price	100.00	99.37	96.11	107.15	127.34	128.09
Aggregate	Quantity	100.00	101.15	88.93	82.73	81.33	88.03
	Value	100.00	68.44	57.48	48.82	79.07	66.76
	Price	100.00	85.42	81.66	88.95	98.85	97.71
	Quantity	100.00	80.12	70.39	54.88	80.00	68.32
PCOD	Value Share	0.22	0.15	0.15	0.12	0.17	0.13
	Value	100.00	110.06	93.60	99.81	108.12	124.36
	Price	100.00	103.47	100.33	112.26	135.60	137.14
	Quantity	100.00	106.38	93.30	88.91	79.74	90.68
PLCK	Value Share	0.76	0.84	0.84	0.86	0.80	0.84
	Value	100.00	94.09	83.72	172.59	410.51	325.90
	Price	100.00	65.40	60.51	72.36	74.84	66.10
	Quantity	100.00	143.88	138.36	238.53	548.49	493.07
SABL	Value Share	0.01	0.01	0.01	0.01	0.03	0.02

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 russel.a.dame@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 2018-2023

Product	Index Type	2018	2019	2020	2021	2022	2023
	Value	100.00	100.51	85.46	88.65	103.56	112.76
	Price	100.00	99.37	96.11	107.15	127.34	128.09
Aggregate	Quantity	100.00	101.15	88.93	82.73	81.33	88.03
	Value	100.00	110.17	88.08	77.82	119.29	116.42
	Price	100.00	108.03	103.00	111.25	138.37	140.90
	Quantity	100.00	101.98	85.51	69.95	86.21	82.63
Fillet	Value Share	0.41	0.45	0.42	0.36	0.47	0.42
	Value	100.00	66.27	42.50	49.80	42.73	46.43
	Price	100.00	71.51	63.35	62.70	77.39	77.24
	Quantity	100.00	92.67	67.09	79.42	55.22	60.11
Head&Gut	Value Share	0.07	0.05	0.04	0.04	0.03	0.03
	Value	100.00	88.86	98.71	114.96	99.19	154.70
	Price	100.00	83.26	94.66	115.50	128.33	158.96
	Quantity	100.00	106.73	104.28	99.53	77.29	97.32
Meal&Oil	Value Share	0.09	0.08	0.11	0.12	0.09	0.13
	Value	100.00	84.81	102.12	101.88	132.87	124.41
	Price	100.00	93.14	103.08	116.68	183.19	149.94
	Quantity	100.00	91.05	99.06	87.32	72.53	82.97
Other	Value Share	0.05	0.04	0.06	0.05	0.06	0.05
	Value	100.00	95.02	70.03	37.13	62.12	57.82
	Price	100.00	67.42	62.37	62.89	96.69	77.65
	Quantity	100.00	140.93	112.29	59.04	64.25	74.47
Roe	Value Share	0.06	0.06	0.05	0.03	0.04	0.03
	Value	100.00	102.78	88.81	112.72	102.55	120.52
	Price	100.00	108.18	101.69	116.50	124.15	121.90
	Quantity	100.00	95.01	87.34	96.76	82.60	98.87
Surimi	Value Share	0.31	0.32	0.32	0.40	0.31	0.33

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 russel.a.dame@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 2018-2023

Species	Index Type	2018	2019	2020	2021	2022	2023
	Value	100.00	106.38	95.41	93.41	103.02	99.95
	Price	100.00	106.16	97.93	100.50	124.93	107.96
Aggregate	Quantity	100.00	100.21	97.42	92.95	82.47	92.59
	Value	100.00	95.36	81.81	60.07	93.65	83.34
	Price	100.00	103.87	98.03	93.22	115.72	111.30
	Quantity	100.00	91.81	83.46	64.43	80.93	74.87
PCOD	Value Share	0.24	0.21	0.20	0.15	0.21	0.20
	Value	100.00	109.75	99.17	102.36	102.27	103.47
	Price	100.00	107.30	98.65	102.45	128.93	109.54
	Quantity	100.00	102.29	100.52	99.91	79.32	94.46
PLCK	Value Share	0.75	0.77	0.78	0.82	0.74	0.77
	Value	100.00	143.06	145.84	241.28	405.00	264.01
	Price	100.00	90.83	75.24	94.35	91.38	61.18
	Quantity	100.00	157.50	193.82	255.72	443.19	431.51
SABL	Value Share	0.01	0.02	0.02	0.03	0.04	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 russel.a.dame@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 2018-2023

Gear	Index Type	2018	2019	2020	2021	2022	2023
	Value	100.00	106.38	95.41	93.41	103.02	99.95
	Price	100.00	106.16	97.93	100.50	124.93	107.96
Aggregate	Quantity	100.00	100.21	97.42	92.95	82.47	92.59
	Value	100.00	109.10	69.80	51.77	52.19	31.36
	Price	100.00	98.85	86.92	97.74	98.35	68.89
	Quantity	100.00	110.37	80.31	52.97	53.07	45.52
HAL	Value Share	0.01	0.01	0.01	0.00	0.00	0.00
	Value	100.00	111.20	88.11	80.56	132.93	107.28
	Price	100.00	107.25	100.60	96.79	112.70	97.82
	Quantity	100.00	103.68	87.58	83.23	117.95	109.67
POT	Value Share	0.14	0.15	0.13	0.12	0.19	0.16
	Value	100.00	105.54	96.86	95.95	98.33	99.26
	Price	100.00	106.03	97.57	101.05	127.32	110.01
	Quantity	100.00	99.54	99.27	94.95	77.23	90.23
TWL	Value Share	0.85	0.84	0.86	0.87	0.81	0.84

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 russel.a.dame@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 2018-2023

Species	Index Type	2018	2019	2020	2021	2022	2023
	Value	100.00	87.29	65.92	84.12	128.89	101.46
	Price	100.00	89.51	81.62	90.42	109.75	88.12
Aggregate	Quantity	100.00	97.53	80.77	93.04	117.44	115.13
	Value	100.00	101.66	84.18	38.13	57.43	53.46
	Price	100.00	82.72	75.83	88.25	117.66	122.95
	Quantity	100.00	122.90	111.00	43.20	48.81	43.48
FLAT	Value Share	0.06	0.07	0.08	0.03	0.03	0.03
	Value	100.00	110.15	47.37	111.80	207.75	154.99
	Price	100.00	85.92	84.89	89.87	114.80	108.07
	Quantity	100.00	128.20	55.81	124.40	180.96	143.41
PCOD	Value Share	0.11	0.14	0.08	0.14	0.17	0.16
	Value	100.00	81.82	66.47	66.32	113.89	110.00
	Price	100.00	112.78	115.03	126.62	171.27	137.42
	Quantity	100.00	72.55	57.78	52.38	66.50	80.05
PLCK	Value Share	0.36	0.34	0.36	0.28	0.32	0.39
	Value	100.00	74.67	65.07	81.67	98.13	90.23
	Price	100.00	75.68	67.44	73.96	89.69	78.98
	Quantity	100.00	98.66	96.48	110.43	109.41	114.24
ROCK	Value Share	0.15	0.13	0.15	0.15	0.12	0.14
	Value	100.00	87.97	68.92	107.32	150.97	89.57
	Price	100.00	76.52	60.37	67.47	73.64	50.65
	Quantity	100.00	114.97	114.16	159.06	205.01	176.84
SABL	Value Share	0.30	0.31	0.32	0.39	0.35	0.27

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 russel.a.dame@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 2018-2023

Product	Index Type	2018	2019	2020	2021	2022	2023
	Value	100.00	87.29	65.92	84.12	128.89	101.46
	Price	100.00	89.51	81.62	90.42	109.75	88.12
Aggregate	Quantity	100.00	97.53	80.77	93.04	117.44	115.13
	Value	100.00	94.94	69.19	115.96	190.01	170.39
	Price	100.00	107.49	105.69	115.67	150.72	130.77
	Quantity	100.00	88.32	65.47	100.25	126.07	130.30
Fillet	Value Share	0.19	0.21	0.20	0.27	0.29	0.33
	Value	100.00	84.44	64.67	80.52	120.53	79.12
	Price	100.00	82.58	71.99	77.58	90.76	69.01
	Quantity	100.00	102.25	89.84	103.79	132.80	114.66
Head&Gut	Value Share	0.62	0.60	0.61	0.59	0.58	0.48
	Value	100.00	110.89	87.74	53.14	70.08	83.39
	Price	100.00	91.40	91.13	103.21	114.40	113.10
	Quantity	100.00	121.33	96.28	51.48	61.26	73.73
Other	Value Share	0.07	0.09	0.10	0.05	0.04	0.06
	Value	100.00	63.15	39.33	51.51	108.63	120.83
	Price	100.00	77.84	61.50	98.80	149.29	133.96
	Quantity	100.00	81.12	63.94	52.13	72.77	90.20
Roe	Value Share	0.04	0.03	0.02	0.02	0.03	0.04
	Value	100.00	79.87	61.71	80.78	108.90	107.25
	Price	100.00	112.30	111.10	133.02	162.02	107.82
	Quantity	100.00	71.12	55.55	60.73	67.22	99.47
Surimi	Value Share	0.07	0.06	0.07	0.07	0.06	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 russel.a.dame@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 2018-2023

Species	Index Type	2018	2019	2020	2021	2022	2023
	Value	100.00	84.95	55.59	76.90	115.57	79.33
	Price	100.00	88.90	64.87	71.02	85.26	64.48
Aggregate	Quantity	100.00	95.55	85.70	108.28	135.55	123.03
	Value	100.00	96.14	77.64	24.58	46.20	25.08
	Price	100.00	76.18	67.90	53.19	84.10	57.60
	Quantity	100.00	126.20	114.35	46.22	54.94	43.54
FLAT	Value Share	0.04	0.04	0.05	0.01	0.02	0.01
	Value	100.00	110.18	30.95	107.44	175.75	128.99
	Price	100.00	110.42	90.68	87.67	105.39	94.29
	Quantity	100.00	99.78	34.14	122.55	166.76	136.81
PCOD	Value Share	0.09	0.11	0.05	0.12	0.13	0.14
	Value	100.00	85.50	65.80	64.67	115.95	88.82
	Price	100.00	112.14	96.03	101.14	137.53	103.61
	Quantity	100.00	76.24	68.52	63.95	84.31	85.72
PLCK	Value Share	0.25	0.25	0.30	0.21	0.25	0.28
	Value	100.00	98.24	64.17	72.02	83.26	73.71
	Price	100.00	100.46	68.06	67.14	78.27	68.07
	Quantity	100.00	97.79	94.28	107.27	106.38	108.27
ROCK	Value Share	0.09	0.10	0.10	0.08	0.06	0.08
	Value	100.00	77.26	51.71	83.34	117.93	72.84
	Price	100.00	74.82	48.26	57.24	65.22	46.36
	Quantity	100.00	103.27	107.15	145.59	180.82	157.14
SABL	Value Share	0.52	0.48	0.49	0.57	0.54	0.48

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 russel.a.dame@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 2018-2023

Gear	Index Type	2018	2019	2020	2021	2022	2023
	Value	100.00	84.95	55.59	76.90	115.57	79.33
	Price	100.00	88.90	64.87	71.02	85.26	64.48
Aggregate	Quantity	100.00	95.55	85.70	108.28	135.55	123.03
	Value	100.00	73.22	33.30	34.33	37.13	25.65
	Price	100.00	78.09	52.03	58.41	67.19	52.73
	Quantity	100.00	93.76	64.00	58.77	55.26	48.64
HAL	Value Share	0.47	0.40	0.28	0.21	0.15	0.15
	Value	100.00	119.21	120.93	308.73	496.01	317.31
	Price	100.00	88.54	61.87	70.55	80.71	59.96
	Quantity	100.00	134.64	195.46	437.58	614.52	529.18
POT	Value Share	0.11	0.15	0.23	0.43	0.46	0.43
	Value	100.00	89.18	63.59	64.90	105.20	77.91
	Price	100.00	101.15	80.54	84.28	109.46	83.29
	Quantity	100.00	88.17	78.95	77.00	96.11	93.54
TWL	Value Share	0.43	0.45	0.49	0.36	0.39	0.42

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 russel.a.dame@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 Ex-Vessel Price Nowcast Estimates for 2024

6.0.1 Executive Summary

This section represents an ongoing effort to provide the NPFMC, industry, and the public with economic information that is up to date through October 2024 for use in setting Total Allowable Catches (TACs) for 2025 during the groundfish harvest specifications process. Other sections of the Groundfish Economic SAFE (hereafter GFEconSAFE) are currently reporting final 2023 prices and revenues. The data presented in this section are estimates, "nowcasts", of current 2024 annual ex-vessel prices for Alaska groundfish fisheries (methods are summarized below). These ex-vessel price estimates are the best estimates of 2024 North Pacific fisheries prices currently available, but are likely to be different than the values that will be presented in the 2025 GFEconSAFE. Ex-vessel prices were estimated for 11 species/groups of groundfish: arrowtooth flounder, Atka mackerel, halibut, Pacific cod, pollock, rockfish, rock sole, sablefish, yellowfin sole, other groundfish, and other flatfish.

Table 6.1 presents a summary of the 2024 nowcasts and compares them with 2023 as well as the mean over the prior five years (2019-2023). Six of the 11 species experienced a decline in prices from 2023-2024 while 10 of the 11 species experienced a decline in estimated prices in 2024 compared with their average from 2019-2023. These price declines come on top of large price declines in 2023 across many important species in Alaska and substantial increases in costs since 2022 (NMFS Snapshot report 2024).

Table 6.1: Groundfish Ex-Vessel Price Nowcast Estimates for 2024.

	2023 Mean	2024 Nowcast Mean	% Change 2023-2024	% Change (2019-2023)-2024	2024 Nowcast Lower Bound	2024 Nowcast Upper Bound
Arrowtooth flounder	$0.05	$0.07	40%	7%	$0.05	$0.09
Atka mackerel	$0.08	$0.07	-17%	-17%	$0.06	$0.07
Other groundfish	$0.14	$0.14	5%	-27%	$0.13	$0.16
Other flatfish	$0.06	$0.06	-8%	-37%	$0.05	$0.06
Halibut	$5.42	$5.48	1%	-12%	$5.22	$5.75
Pacific cod	$0.44	$0.35	-20%	-23%	$0.33	$0.37
Pollock	$0.16	$0.15	-3%	-13%	$0.14	$0.16
Rockfish	$0.14	$0.13	-7%	-23%	$0.12	$0.15
Rock sole	$0.08	$0.08	1%	-27%	$0.06	$0.09
Sablefish	$2.35	$1.84	-22%	-45%	$1.76	$1.92
Yellowfin sole	$0.07	$0.07	10%	-13%	$0.07	$0.08

While limited ex-vessel markets exist for Atka mackerel, yellowfin sole, and some other flatfish species these models were estimated to assist with first wholesale price projections presented in the following chapter of the GFEconSAFE. These models all have very good statistical fits to the data, and in some cases may be overfitting which results in smaller standard errors than seem reasonable from a retrospective analysis of the number of years in which the reported COAR Buying price is outside the 95% confidence bounds. All three sources of ex-vessel price data are reported in the figures to allow the reader to make their own assessment of the quality of fit and prediction given the underlying data, whether or not included in the final regression model for each species or group.

6.0.2 Introduction

The method of "nowcasting" current year ex-vessel prices has changed this year as a result of additional scrutiny and use of these data by researchers. Prior efforts focused on estimating monthly ex-vessel prices sourced from the Commercial Fisheries Entry Commission (CFEC) Gross Earnings file, accessed via the Alaska Fisheries Information Network's (AKFIN) COUNCIL.COMPREHENSIVE_FT database (CFEC fish tickets). The current effort attempts to estimate the 2024 Alaska Department of Fish and Game's (ADF&G) Commercial Operators Annual Report (COAR) ex-vessel prices (COAR_Buying) that are presented elsewhere in the GFEconSAFE. Reported ex-vessel price information for 2024 is only available through e-landings reports sourced from the Alaska Department of Fish and Game's (ADF&G) in-season table ADF&G.GF_FT_ALL accessed from AKFIN (ADF&G fish tickets). These in-season ADF&G fish ticket prices are preliminary and do not include year-end adjustments (e.g., bonuses). However, along with import and export prices, they are the only source of current year (2024) prices available. We use econometric techniques described in each section below to estimate annual current year COAR Buying prices using prior year COAR Buying prices, prior year CFEC prices, as well as current and prior year ADF&G prices for each of the 11 species groups.

These statistical relationships are highly significant with a R2 of 0.98 or higher for all models. AIC and BIC guided model design but author opinion was the ultimate determinant of which variables

to include in the model as the most reasonable predictor of 2024 prices[1]. Described in more detail in the sections below, each model is somewhat unique and includes a variety of other exogenous variables such as time dummies and interaction terms as well as a different period of time over which the model is estimated. The different models and sample periods are a result of changes in data reporting as well as changes in the quality of the data over time. These 2024 nowcast price 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 2024 values will be relative to 2023 as well as the five year average from 2019-2023. All revenues were adjusted for inflation using the GDP deflator with 2023 as the base year[2].

These nowcast prices are only as good as the input data that goes into creating them. The current year ADF&G prices for several species are not close to current COAR Buying year prices, but do still provide statistically significant predictions of the current COAR Buying prices and are therefore included in the regressions. Similarly, CFEC prices are not always consistent with COAR Buying prices but can frequently be used to estimate a statistical relationship between prior year prices and current year (2024) COAR Buying prices which will be available in next year's (2025) GFEconSAFE. These relationships (or lack of relationships) are described in more detail for each species group below and shown in Figures 6.1-6.11. While near time reporting of prices and landings may be appropriate and beneficial in some fisheries (particularly those for fresh markets), the majority of fisheries landings in Alaska are frozen for future sale and those sales may occur many months after harvest or processing. Due to the large volume of harvest in Alaska and short fishing seasons for some species (salmon), many seafood products in Alaska are individually quick frozen at sea or shoreside to retain quality but are sold over the course of several months or a year after harvest. This not only requires short term financing for processors to pay fishers before selling their processed products but also leads to a reasonable delay in reporting final year selling prices for the products produced in the current year. It may be useful to include current market "spot prices" in some cases for some species and product forms, but these markets don't exist for most frozen products and are therefore not used in this analysis. Import and export prices of specific Harmonized Trade System (HTS) products of these species were also calculated and included in several regressions but did not materially improve the fits of the ex-vessel price models (they are more closely related to first-wholesale prices and products) and were therefore excluded from all groundfish ex-vessel price models.

[1]Contact Stephen.kasperski@noaa.gov for further information about alternative regression models and why these were not chosen for the final model specifications. Results are available from the author upon request.

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

6.0.3 Nowcast Ex-Vessel Price Estimates for 2024

6.0.3.1 Arrowtooth Flounder

The model estimated for arrowtooth flounder is shown in equation (1), where $COAR^{exv}_{i,t}$ represents the annual COAR Buying (ex-vessel) price for species i in year t, $ADFG^{exv}_{i,t}$ is the ADF&G fish ticket (ex-vessel) price for species i in year t, $COAR^{wls}_{i,t-1}$ is the first wholesale price (reported in COAR Production) for species i in year *t-1*, and *I(Year*=2022) is an indicator or dummy variable equal to one in 2022 and is zero in all other years. Equation (1) is estimated by ordinary least squares regression for the years 2003-2023 using COAR Buying weight purchased as analytic weights and robust (White-corrected) standard errors. Estimated coefficients are shown in Table 6.2.

$$COAR^{exv}_{ATF,t} = \beta_1 COAR^{exv}_{ATF,t-1} + \beta_2 COAR^{exv}_{ATF,t} + \beta_3 COAR^{wls}_{ATF,t-1} + \beta_4 I(Year = 2022) \quad (1)$$

Lagged COAR Buying prices were not significant but improved the fit of the model as determined by AIC and BIC and therefore was retained in the final regression. ADF&G fish ticket prices and first wholesale prices were highly significant as was the 2022 dummy variable at the 1% level.

Table 6.2: Arrowtooth flounder ex-vessel price model

Coefficient	Arrowtooth Flounder $COAR^{exv}_{ATF,t}$
$COAR^{exv}_{ATF,t-1}$	0.256
	(1.57)
$COAR^{exv}_{ATF,t}$	0.979**
	(3.43)
$COAR^{wls}_{ATF,t-1}$	0.0562**
	(3.26)
$I(Year = 2022)$	0.0278***
	(4.79)
R^2	0.983
AIC	-123.1
N	21

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The 2024 arrowtooth nowcast is a decrease from its 2023 overly optimistic prediction but an increase from the actual 2023 COAR Buying price by approximately 40% but only 7% above the 2019-2023 mean value. With reported ADF&G prices increasing in 2024, the nowcast model estimates an ex-vessel price of $0.07/lb for arrowtooth flounder with a 95% confidence interval of $0.05-$0.09/lb. Table 6.3 presents the 2023 COAR Buying mean price as well as the 2024 nowcast mean price, % changes from 2023 and the average from 2019-2023, as well as the 95% confidence intervals of the 2024 nowcast estimates.

Table 6.3: Arrowtooth Flounder Ex-Vessel Price Nowcast Estimates for 2024.

	2023 Mean	2024 Nowcast Mean	% Change 2023-2024	% Change (2019-2023)-2024	2024 Nowcast Lower Bound	2024 Nowcast Upper Bound
Arrowtooth flounder	$0.05	$0.07	40%	7%	$0.05	$0.09

Model fits and input data are presented in Figure 6.1.

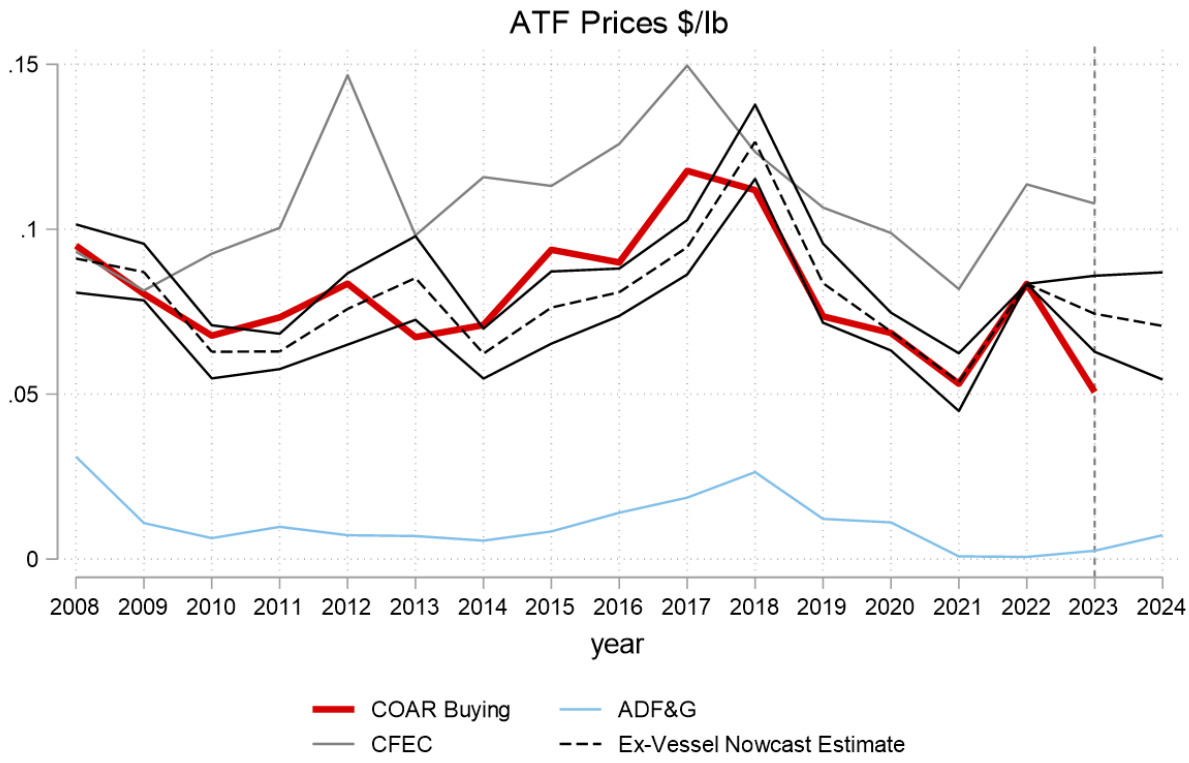

Figure 6.1: Arrowtooth flounder ex-vessel prices and nowcast estimates

6.0.3.2 Atka Mackerel

The model estimated for Atka mackerel is shown in equation (2), where $COAR^{exv}_{i,t}$ represents the annual COAR Buying (ex-vessel) price for species i in year t, $ADFG^{exv}_{i,t}$ is the ADF&G fish ticket (ex-vessel) price for species i in year t, $COAR^{wls}_{i,t-1}$ is the first wholesale price (reported in COAR Production) for species i in year *t-1*, $CFEC^{exv}_{i,t}$ is the CFEC ex-vessel price for species i in year t, and *I(Year*=1996,1997) is an indicator or dummy variable equal to one in 1996 and 1997 and is zero in all other years. Equation (2) is estimated by ordinary least squares regression for the years 1992-2023 using COAR Buying weight purchased as analytic weights and robust (White-corrected) standard errors. Estimated coefficients are shown in Table 6.4.

$$COAR^{exv}_{ATKA,t} = \beta_1 ADFG^{exv}_{ATKA,t} + \beta_2 COAR^{wls}_{ATKA,t-1} + \beta_3 I(Year = 1996, 1997) CFEC^{exv}_{ATKA,t-1} + \beta_4 I(Year = 2015, 2016) CFEC^{exv}_{ATKA,t} + \beta_5 CFEC^{exv}_{ATKA,t-1} + \beta_6 I(Year = 1996, 1997) + \beta_7 I(Year = 2012) + \beta_8 I(Year = 2013) + \beta_9 I(Year = 2015, 2016) \quad (2)$$

Table 6.4: Atka mackerel ex-vessel price model

Coefficient	Atka mackerel $COAR^{exv}_{ATKA,t}$
$ADFG^{exv}_{ATKA,t}$	5.687***
	(10.55)
$COAR^{wls}_{ATKA,t-1}$	0.110***
	(3.88)
$I(Year = 1996, 1997)$	-0.0442*
	(-2.46)
$I(Year = 2012)$	0.0548***
	(15.27)
$I(Year = 2013)$	-0.0571***
	(-11.95)
$I(Year = 2015, 2016)$	-2.381***
	(-9.49)
$I(Year = 1996, 1997) CFEC^{exv}_{ATKA,t}$	-2.042***
	(-4.96)
$I(Year = 2015, 2016) CFEC^{exv}_{ATKA,t}$	7.868***
	(9.82)
$CFEC^{exv}_{ATKA,t-1}$	-0.226
	(-1.86)
R^2	0.986
AIC	-165.4
N	28

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

Lagged COAR Buying prices were not significant and were not retained in the final regression. This is not surprising as most Atka mackerel is harvested by catcher/processors as part of the

Amendment 80 Program. ADF&G fish ticket prices and lagged first wholesale prices were highly significant as were several year dummies and the CFEC-year interaction terms when CFEC prices and COAR prices had a different relationship from other years.

The 2024 Atka mackerel nowcast is an increase from its 2023 overly negative prediction but a decrease by approximately 16% from the actual 2023 COAR Buying price and the 2019-2023 mean price. With reported ADF&G prices increasing very slightly in 2024, the nowcast model estimates an ex-vessel price of $0.07/lb for Atka mackerel with a 95% confidence interval of $0.06-$0.07/lb. Table 6.5 presents the 2023 COAR Buying mean price as well as the 2024 nowcast mean price, % changes from 2023 and the average from 2019-2023, as well as the 95% confidence intervals of the 2024 nowcast estimates.

Table 6.5: Atka mackerel Ex-Vessel Price Nowcast Estimates for 2024.

	2023 Mean	2024 Nowcast Mean	% Change 2023-2024	% Change (2019-2023)-2024	2024 Nowcast Lower Bound	2024 Nowcast Upper Bound
Atka mackerel	$0.08	$0.07	-17%	-17%	$0.06	$0.07

Model fits and input data are presented in Figure 6.2.

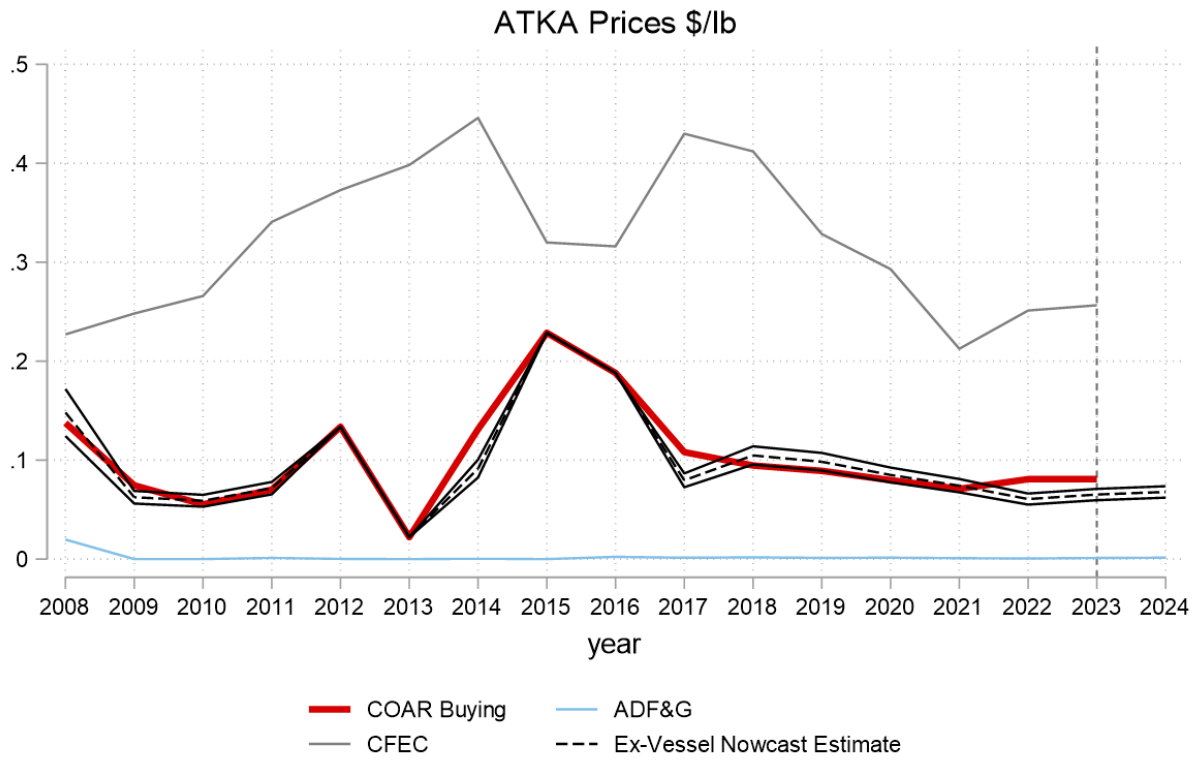

Figure 6.2: Atka mackerel ex-vessel prices and nowcast estimates

6.0.3.3 Pacific Halibut

The model estimated for halibut is shown in equation (3), where $COAR^{exv}_{i,t}$ represents the annual COAR Buying (ex-vessel) price for species i in year t, $ADFG^{exv}_{i,t}$ is the ADF&G fish ticket (ex-vessel) price for species i in year t, $COAR^{wls}_{i,t-1}$ is the first wholesale price (reported in COAR Production) for species i in year *t-1*, and $CFEC^{exv}_{i,t}$ is the CFEC ex-vessel price for species i in year t. Equation (3) is estimated by ordinary least squares regression for the years 2007-2023 using COAR Buying weight purchased as analytic weights and robust (White-corrected) standard errors. Estimated coefficients are shown in Table 6.6.

$$COAR^{exv}_{HLBT,t} = \beta_1 COAR^{exv}_{HLBT,t-1} + \beta_2 ADFG^{exv}_{HLBT,t} + \beta_3 ADFG^{exv}_{HLBT,t-1} + \beta_4 CFEC^{exv}_{HLBT,t-1} \quad (3)$$

In addition to current year ADF&G prices, lagged ADF&G prices, lagged CFEC prices, and lagged COAR Buying prices were all statistically significant predictors of the final COAR Buying ex-vessel price for halibut. Table 6.7 presents the 2023 COAR Buying mean price as well as the 2024 nowcast mean price, % changes from 2023 and the average from 2019-2023, as well as the 95% confidence intervals of the 2024 nowcast estimates.

Table 6.6: Halibut ex-vessel price model

Coefficient	Halibut $COAR^{exv}_{HLBT,t}$
$COAR^{exv}_{HLBT,t-1}$	0.675***
	(6.97)
$CFEC^{exv}_{HLBT,t-1}$	-0.375**
	(-3.32)
$ADFG^{exv}_{HLBT,t}$	1.766***
	(20.48)
$ADFG^{exv}_{HLBT,t-1}$	-0.677***
	(-8.06)
R^2	0.999
AIC	5.390
N	17

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The 2024 halibut nowcast is approximately equal to its 2023 (1% increase) COAR Buying price but was 12% below the 2019-2023 mean value. Despite ADF&G prices decreasing in 2024, the nowcast model estimates a slight increase in the ex-vessel price to $5.48/lb for halibut with a 95% confidence interval of $5.22-$5.75/lb.

Table 6.7: Halibut Ex-Vessel Price Nowcast Estimates for 2024.

	2023 Mean	2024 Nowcast Mean	% Change 2023-2024	% Change (2019-2023)-2024	2024 Nowcast Lower Bound	2024 Nowcast Upper Bound
Halibut	$5.42	$5.48	1%	-12%	$5.22	$5.75

Model fits and input data are presented in Figure 6.3.

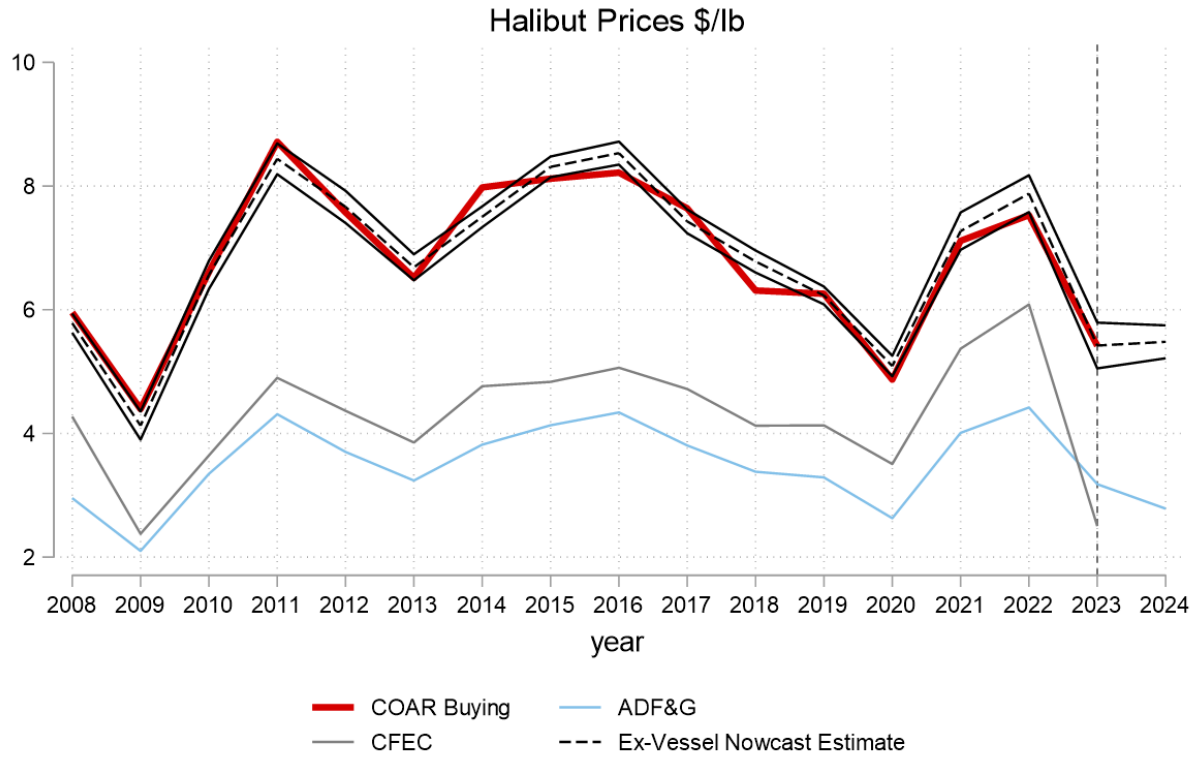

Figure 6.3: Halibut ex-vessel prices and nowcast estimates

6.0.3.4 Pacific Cod

The model estimated for Pacific cod is shown in equation (4), where $COAR^{exv}_{i,t}$ represents the annual COAR Buying (ex-vessel) price for species i in year t, $ADFG^{exv}_{i,t}$ is the ADF&G fish ticket (ex-vessel) price for species i in year t, $COAR^{wls}_{i,t-1}$ is the first wholesale price (reported in COAR Production) for species i in year *t-1*, and *I(Year*=2020) is an indicator or dummy variable equal to one in 2020 and is zero in all other years. Equation (4) is estimated by ordinary least squares regression for the years 1992-2023 using COAR Buying weight purchased as analytic weights and robust (White-corrected) standard errors. Estimated coefficients are shown in Table 6.8.

$$COAR^{exv}_{PCOD,t} = \beta_1 COAR^{exv}_{PCOD,t-1} + \beta_2 ADFG^{exv}_{PCOD,t} + \beta_3 ADFG^{wls}_{PCOD,t-1} + \beta_4 COAR^{wls}_{PCOD,t-1} + \beta_5 I(Year = 2020) \quad (4)$$

Lagged CFEC prices were not significant and were removed from the final regression specification. ADF&G prices, lagged ADF&G prices, and first wholesale prices were highly significant as was the 2020 dummy variable at the 1% level. Table 6.9 presents the 2023 COAR Buying mean price as well as the 2024 nowcast mean price, % changes from 2023 and the average from 2019-2023, as well as the 95% confidence intervals of the 2024 nowcast estimates.

Table 6.8: Pacific cod ex-vessel price model

Coefficient	Pacific cod $COAR^{exv}_{PCOD}$
$COAR^{exv}_{PCOD,t-1}$	0.369*
	(2.49)
$ADFG^{exv}_{PCOD,t}$	1.678***
	(25.21)
$ADFG^{exv}_{PCOD,t-1}$	-0.916***
	(-4.43)
$COAR^{wls}_{PCOD,t-1}$	0.0756**
	(3.42)
$I(Year = 2020)$	0.0449***
	(4.37)
R^2	0.997
AIC	-137.6
N	32

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The 2024 Pacific cod price nowcast is a decrease from its 2023 COAR Buying price by approximately 20% which is 23% below the 2019-2023 mean value. With reported ADF&G prices declining in 2024, the nowcast model estimates an ex-vessel price of $0.35/lb for Pacific cod with a 95% confidence interval of $0.33-$0.37/lb.

Table 6.9: Pacific Cod Ex-Vessel Price Nowcast Estimates for 2024.

	2023 Mean	2024 Nowcast Mean	% Change 2023-2024	% Change (2019-2023)-2024	2024 Nowcast Lower Bound	2024 Nowcast Upper Bound
Pacific cod	$0.44	$0.35	-20%	-23%	$0.33	$0.37

Model fits and input data are presented in Figure 6.4.

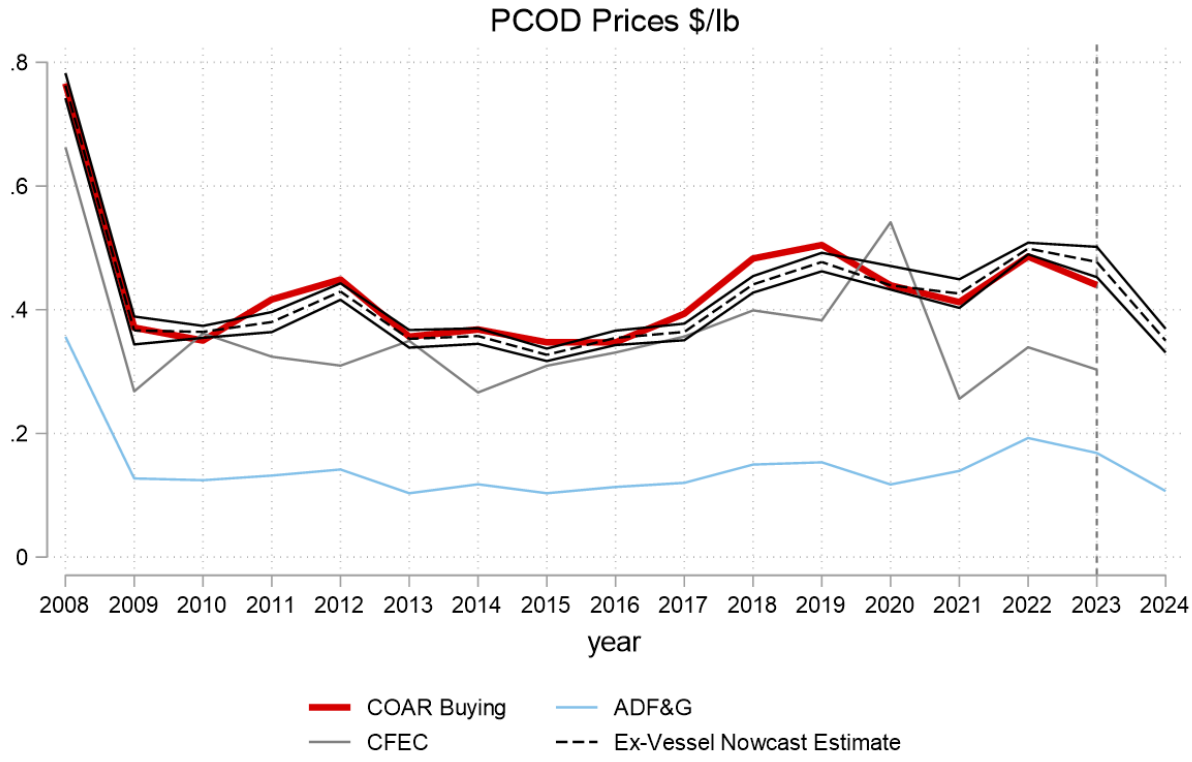

Figure 6.4: Pacific cod ex-vessel prices and nowcast estimates

6.0.3.5 Pollock

The model estimated for pollock is shown in equation (5), where $COAR^{exv}_{i,t}$ represents the annual COAR Buying (ex-vessel) price for species i in year t, $ADFG^{exv}_{i,t}$ is the ADF&G fish ticket (ex-vessel) price for species i in year t, $COAR^{wls}_{i,t-1}$ is the first wholesale price (reported in COAR Production) for species i in year *t-1*, and *I(Year*=2018,2019) is an indicator or dummy variable equal to one in 2018 and 2019 and is zero in all other years. Equation (5) is estimated by ordinary least squares regression for the years 1992-2023 using COAR Buying weight purchased as analytic weights and robust (White-corrected) standard errors. Estimated coefficients are shown in Table 6.10.

$$COAR^{exv}_{PLCK,t} = \beta_1 COAR^{exv}_{PLCK,t-1} + \beta_2 ADFG^{exv}_{PLCK,t} + \beta_3 COAR^{wls}_{PLCK,t-1} + \beta_4 COAR^{wls}_{PLCK,t-2} + \beta_5 I(Year = 2018, 2019) \quad (5)$$

Lagged CFEC prices were not significant and were excluded from the final regression. ADF&G fish ticket prices, lagged COAR Buying prices, lagged first wholesale prices, and the dummy for 2018-2019 were highly significant at the 1% level while two year lagged first wholesale prices were statistically significant at the 5% level. Table 6.11 presents the 2023 COAR Buying mean price as well as the 2024 nowcast mean price, % changes from 2023 and the average from 2019-2023, as well as the 95% confidence intervals of the 2024 nowcast estimates.

Table 6.10: Pollock ex-vessel price model

Coefficient	Pollock $COAR^{exv}_{PLCK}$
$COAR^{exv}_{PLCK,t-1}$	0.429***
	(4.87)
$ADFG^{exv}_{PLCK,t}$	2.447***
	(10.39)
$COAR^{wls}_{PLCK,t-1}$	-0.0479**
	(-2.94)
$COAR^{wls}_{PLCK,t-2}$	0.0232*
	(2.14)
$I(Year = 2018, 2019)$	0.0173***
	(6.05)
R^2	0.993
AIC	-162.6
N	31

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The 2024 pollock price nowcast is a slight decrease from its 2023 COAR Buying price by approximately 3%, which is 13% below the 2019-2023 mean value. With reported ADF&G prices declining in 2024, the nowcast model estimates an ex-vessel price of $0.15/lb for pollock with a 95% confidence interval of $0.14-$0.16/lb.

Table 6.11: Pollock Ex-Vessel Price Nowcast Estimates for 2024.

	2023 Mean	2024 Nowcast Mean	% Change 2023-2024	% Change (2019-2023)-2024	2024 Nowcast Lower Bound	2024 Nowcast Upper Bound
Pollock	$0.16	$0.15	-3%	-13%	$0.14	$0.16

Model fits and input data are presented in Figure 6.5.

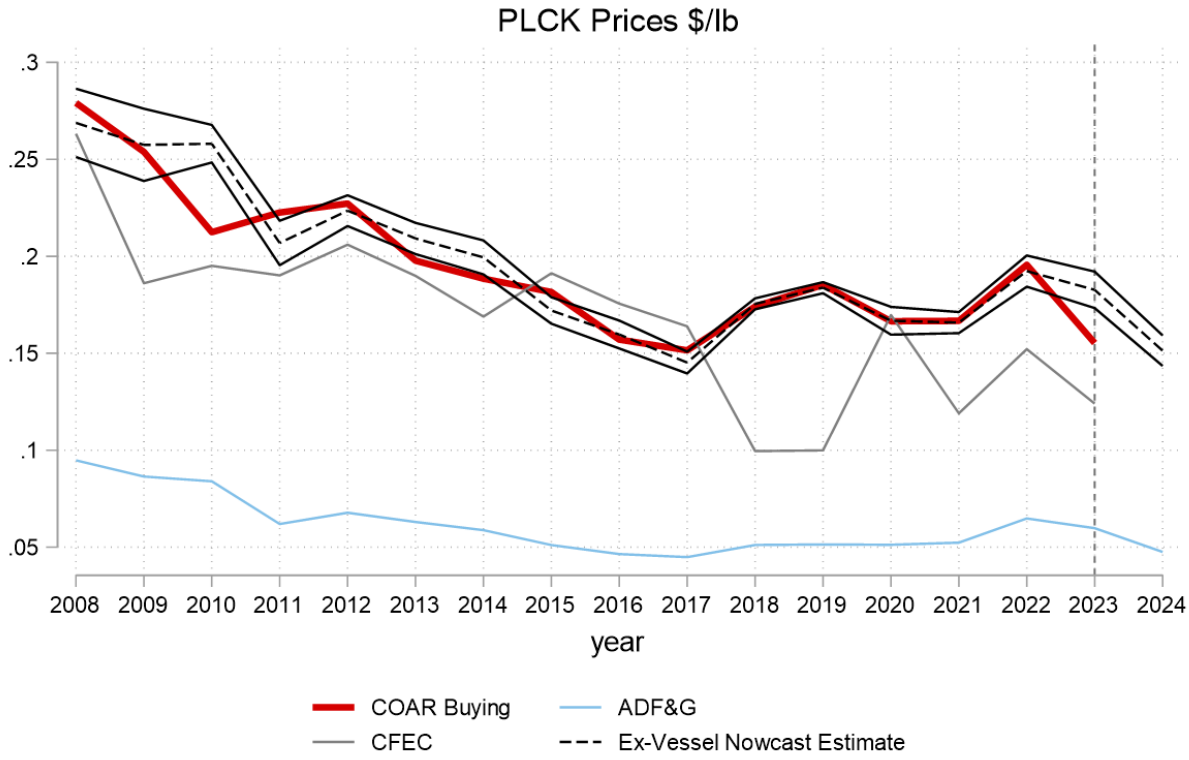

Figure 6.5: Pollock ex-vessel prices and nowcast estimates

6.0.3.6 Rockfish

The model estimated for rockfish is shown in equation (6), where $COAR^{exv}_{i,t}$ represents the annual COAR Buying (ex-vessel) price for species i in year t, $ADFG^{exv}_{i,t}$ is the ADF&G fish ticket (ex-vessel) price for species i in year t, $COAR^{wls}_{i,t-1}$ is the first wholesale price (reported in COAR Production) for species i in year *t-1*, and *I(Year*=2022) is an indicator or dummy variable equal to one in 2022 and is zero in all other years. Equation (6) is estimated by ordinary least squares regression for the years 1997-2023 using COAR Buying weight purchased as analytic weights and robust (White-corrected) standard errors. Estimated coefficients are shown in Table 6.12.

$$COAR^{exv}_{ROCK,t} = \beta_1 COAR^{exv}_{ROCK,t-1} + \beta_2 ADFG^{exv}_{ROCK,t} + \beta_3 ADFG^{exv}_{ROCK,t-1} + \beta_4 ADFG^{exv}_{ROCK,t-3} + \beta_5 ADFG^{exv}_{ROCK,t-4} + \beta_6 COAR^{wls}_{ROCK,t-1} + \quad (6)$$

Lagged CFEC prices were not significant and were not retained in the final regression. Lagged COAR Buying prices and lagged first wholesale prices were highly statistically significant as were current year ADF&G prices and lags of one, three, and four years. Table 6.13 presents the 2023 COAR Buying mean price as well as the 2024 nowcast mean price, % changes from 2023 and the average from 2019-2023, as well as the 95% confidence intervals of the 2024 nowcast estimates

Table 6.12: Rockfish ex-vessel price model

Coefficient	Rockfish $COAR^{exv}_{ROCK}$
$COAR^{exv}_{ROCK,t-1}$	0.492***
	(4.41)
$ADFG^{exv}_{ROCK,t}$	0.832***
	(7.03)
$ADFG^{exv}_{ROCK,t-1}$	-0.758***
	(-6.22)
$ADFG^{exv}_{ROCK,t-3}$	-0.697**
	(-3.54)
$ADFG^{exv}_{ROCK,t-4}$	0.769**
	(3.75)
$COAR^{wls}_{ROCK,t-1}$	0.0806**
	(3.59)
R^2	0.994
AIC	-117.0
N	26

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The 2024 rockfish nowcast is a decrease from its 2023 COAR Buying price by approximately 7% which is 23% below the 2019-2023 mean value. With reported ADF&G prices decreasing in 2024, the nowcast model estimates an ex-vessel price of $0.13/lb for rockfish with a 95% confidence interval of $0.12-$0.15/lb.

Table 6.13: Rockfish Ex-Vessel Price Nowcast Estimates for 2024.

	2023 Mean	2024 Nowcast Mean	% Change 2023-2024	% Change (2019-2023)-2024	2024 Nowcast Lower Bound	2024 Nowcast Upper Bound
Rockfish	$0.14	$0.13	-7%	-23%	$0.12	$0.15

Model fits and input data are presented in Figure 6.6.

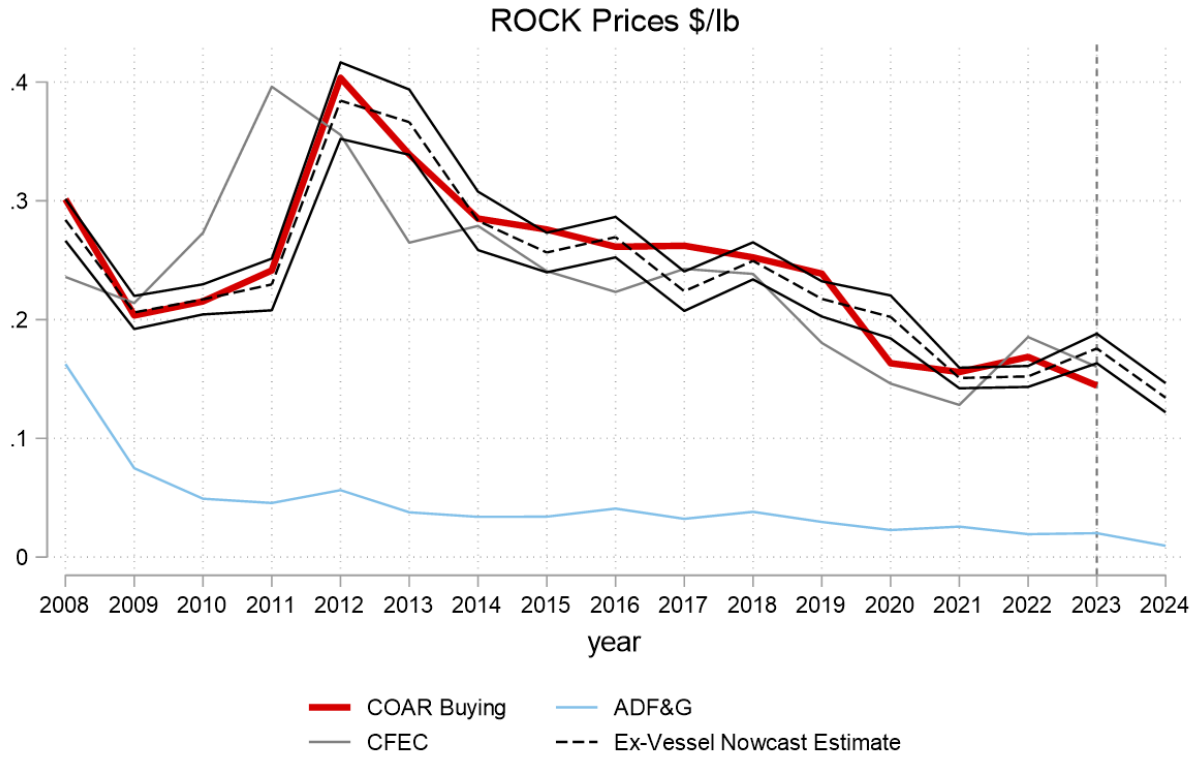

Figure 6.6: Rockfish ex-vessel prices and nowcast estimates

6.0.3.7 Rock Sole

The model estimated for rock sole is shown in equation (7), where $COAR^{exv}_{i,t}$ represents the annual COAR Buying (ex-vessel) price for species i in year t, $ADFG^{exv}_{i,t}$ is the ADF&G fish ticket (ex-vessel) price for species i in year t, $COAR^{wls}_{i,t-1}$ is the first wholesale price (reported in COAR Production) for species i in year *t-1*, and *I(Year*<2011) is an indicator or dummy variable equal to one for years 1992-2010 and is zero in all other years. Equation (7) is estimated by ordinary least squares regression for the years 1992-2023 using COAR Buying weight purchased as analytic weights and robust (White-corrected) standard errors. Estimated coefficients are shown in Table 6.14.

$$COAR^{exv}_{RSOL,t} = \beta_1 COAR^{exv}_{RSOL,t-1} + \beta_2 I(Year < 2011) ADFG^{exv}_{RSOL,t} + \beta_3 I(Year \geq 2011) ADFG^{exv}_{RSOL,t} + \beta_4 I(Year \geq 2011) ADFG^{exv}_{RSOL,t-1} + \beta_5 COAR^{wls}_{RSOL,t-1} + \beta_6 I(Year = 2010) \quad (7)$$

Lagged CFEC prices were not statistically significant and were not retained in the final regression. ADF&G fish ticket prices are bifurcated before and after 2011 as reported prices were very different during these two periods. The lagged ADF&G price with the 2011-2023 indicator variable was not statistically significant but was included in the model to improve fit as measured by AIC and BIC. Lagged first wholesale prices were highly significant as was the 2010 dummy variable at the 1% level. Table 6.15 presents the 2023 COAR Buying mean price as well as the 2024 nowcast mean price, % changes from 2023 and the average from 2019-2023, as well as the 95% confidence intervals of the 2024 nowcast estimates.

Table 6.14: Rock sole ex-vessel price model

Coefficient	Rock sole $COAR^{exv}_{RSOL}$
$COAR^{exv}_{RSOL,t-1}$	0.364**
	(2.96)
$I(Year < 2011) ADFG^{exv}_{RSOL,t}$	1.053***
	(5.23)
$I(Year \geq 2011) ADFG^{exv}_{RSOL,t}$	17.26***
	(7.54)
$I(Year \geq 2011) ADFG^{exv}_{RSOL,t-1}$	-3.398
	(-1.81)
$COAR^{wls}_{RSOL,t-1}$	0.0449**
	(3.45)
$I(Year = 2010)$	0.0998***
	(5.92)
R^2	0.991
AIC	-125.8
N	31

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The 2024 rock sole price nowcast is a slight increase from its 2023 COAR Buying price by

approximately 1% but this represents a 27% decline from the 2019-2023 mean value. With reported ADF&G prices roughly flat in 2024, the nowcast model estimates an ex-vessel price of $0.08/lb for rock sole with a 95% confidence interval of $0.06-$0.09/lb.

Table 6.15: Rock Sole Ex-Vessel Price Nowcast Estimates for 2024.

	2023 Mean	2024 Nowcast Mean	% Change 2023-2024	% Change (2019-2023)-2024	2024 Nowcast Lower Bound	2024 Nowcast Upper Bound
Rock sole	$0.08	$0.08	1%	-27%	$0.06	$0.09

Model fits and input data are presented in Figure 6.7.

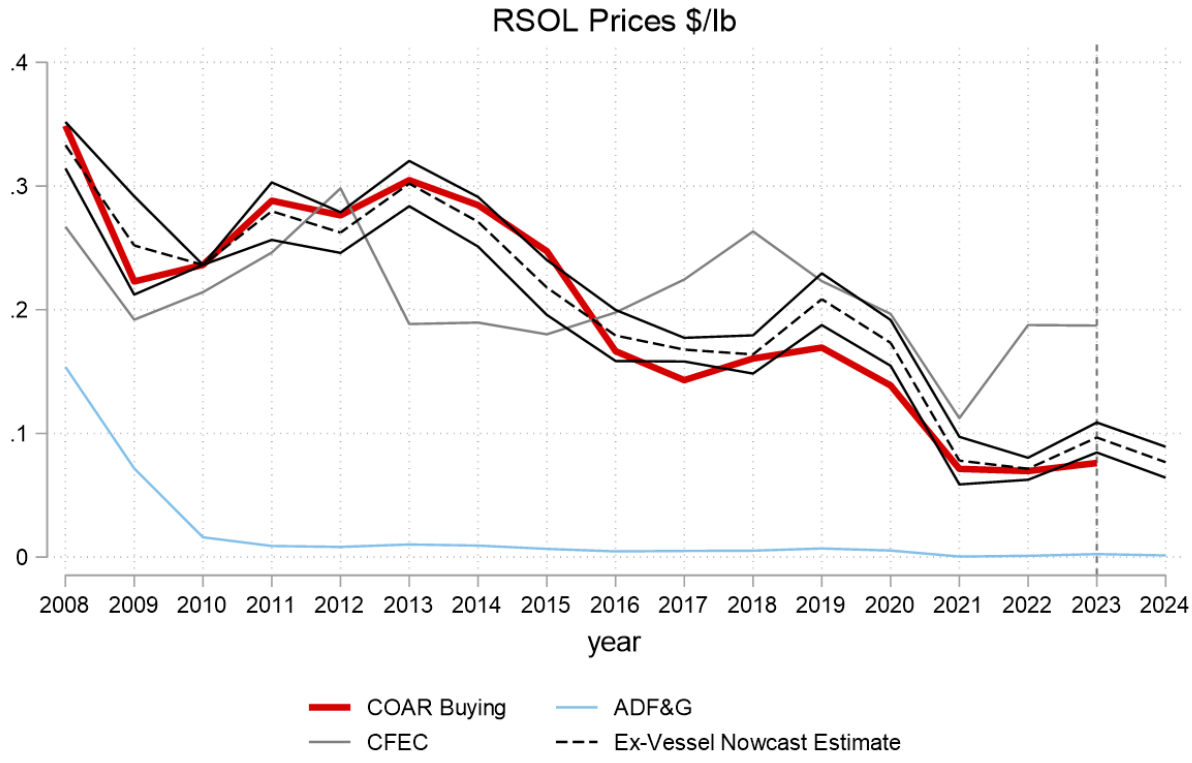

Figure 6.7: Rockfish ex-vessel prices and nowcast estimates

6.0.3.8 Sablefish

The model estimated for sablefish is shown in equation (8), where $COAR^{exv}_{i,t}$ represents the annual COAR Buying (ex-vessel) price for species i in year t and $ADFG^{exv}_{i,t}$ is the ADF&G fish ticket (ex-vessel) price for species i in year t. Equation (8) is estimated by ordinary least squares regression for the years 1992-2023 using COAR Buying weight purchased as analytic weights and robust (White-corrected) standard errors. Estimated coefficients are shown in Table 6.16.

$$COAR^{exv}_{SABL,t} = \beta_1 COAR^{exv}_{SABL,t-1} + \beta_2 ADFG^{exv}_{SABL,t} + \beta_3 ADFG^{exv}_{SABL,t-1} \tag{8}$$

Lagged COAR Buying prices , ADF&G fish ticket prices and lagged ADF&G prices were highly significant at the 1% level and produce very tight, perhaps overly so, confidence intervals for the nowcasted prices. Table 6.17 presents the 2023 COAR Buying mean price as well as the 2024 nowcast mean price, % changes from 2023 and the average from 2019-2023, as well as the 95% confidence intervals of the 2024 nowcast estimates.

Table 6.16: Sablefish ex-vessel price model

Coefficient	Sablefish $COAR^{exv}_{SABL}$
$COAR^{exv}_{SABL,t-1}$	0.879***
	(9.43)
$ADFG^{exv}_{SABL,t}$	2.268***
	(19.44)
$ADFG^{exv}_{SABL,t-1}$	-1.958***
	(-8.27)
R^2	0.997
AIC	20.39
N	32

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The 2024 sablefish price nowcast is a decline from its 2023 COAR Buying price by approximately 22% which is 45% below the 2019-2023 mean value. With reported ADF&G prices declining in 2024, the nowcast model estimates an ex-vessel price of $1.84/lb for sablefish with a 95% confidence interval of $1.76-$1.92/lb.

Table 6.17: Sablefish Ex-Vessel Price Nowcast Estimates for 2024.

	2023 Mean	2024 Nowcast Mean	% Change 2023-2024	% Change (2019-2023)-2024	2024 Nowcast Lower Bound	2024 Nowcast Upper Bound
Sablefish	$2.35	$1.84	-22%	-45%	$1.76	$1.92

Model fits and input data are presented in Figure 6.8.

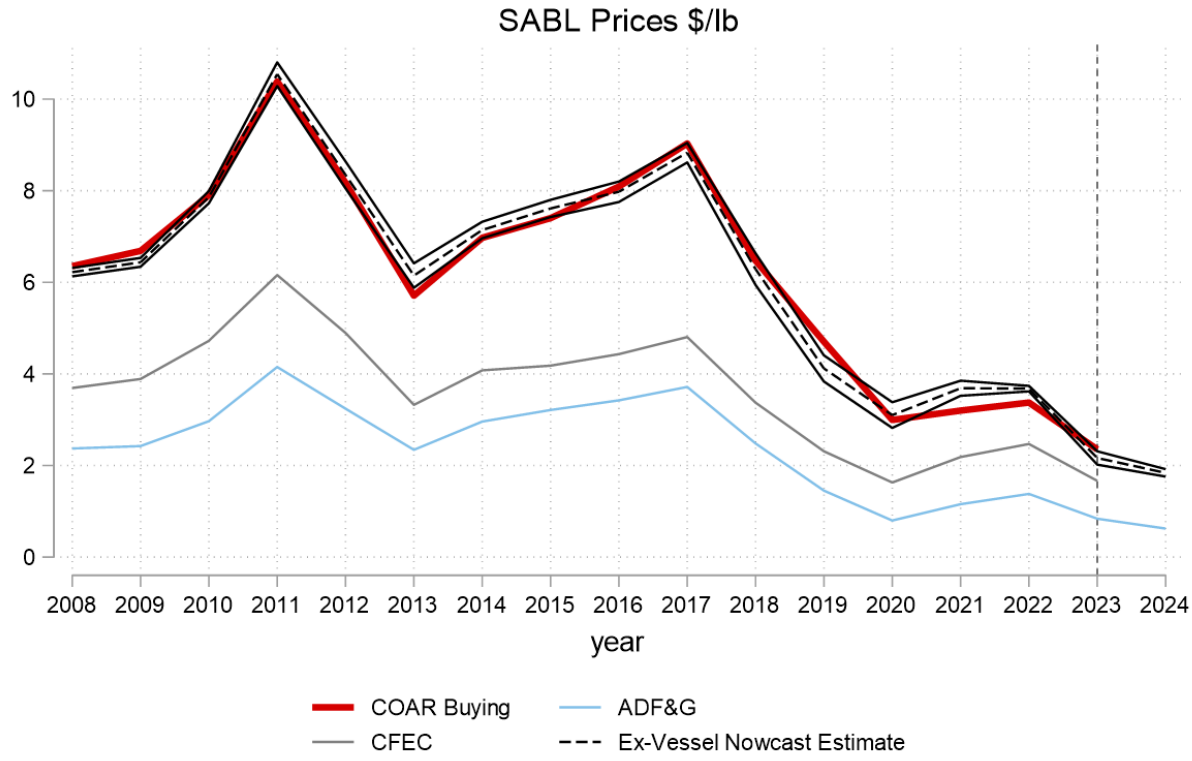

Figure 6.8: Sablefish ex-vessel prices and nowcast estimates

6.0.3.9 Yellowfin Sole

The model estimated for yellowfin sole is shown in equation (9), where $COAR^{exv}_{i,t}$ represents the annual COAR Buying (ex-vessel) price for species i in year t, $ADFG^{exv}_{i,t}$ is the ADF&G fish ticket (ex-vessel) price for species i in year t,$CFEC^{exv}_{i,t-1}$ is the CFEC ex-vessel price for species i in year *t-1*, *I(Year=*1996,1997) is an indicator or dummy variable equal to one in 1996 and 1997 and is zero in all other years, and $I(COAR^{exv}_{i,t} < 0.05)$ is an indicator for the years in which the COAR ex-vessel price is below \$0.05/lb. Equation (9) is estimated by ordinary least squares regression for the years 1992-2023 using COAR Buying weight purchased as analytic weights and robust (White-corrected) standard errors. Estimated coefficients are shown in Table 6.18.

$$COAR^{exv}_{SABL,t} = \beta_1 ADFG^{exv}_{YSOL,t} + \beta_2 CFEC^{exv}_{YSOL,t-1} + \beta_3 I(Year = 1996, 1997) + \beta_3 I(COAR^{exv}_{i,t} < 0.05) + \beta_5 I(Year = 1998) \quad (9)$$

Lagged CFEC prices and current year ADF&G prices were both highly significant at the 1% level as were the two year indicator variables and the indicator for a low yellowfin sole price year. Table 6.19 presents the 2023 COAR Buying mean price as well as the 2024 nowcast mean price, % changes from 2023 and the average from 2019-2023, as well as the 95% confidence intervals of the 2024 nowcast estimates.

Table 6.18: Yellowfin Sole ex-vessel price model

Coefficient	Yellowfin Sole $COAR^{exv}_{YSOL}$
$ADFG^{exv}_{YSOL,t}$	1.949***
	(9.25)
$CFEC^{exv}_{YSOL,t-1}$	0.437***
	(19.68)
$I(Year = 1996, 1997)$	-0.0838***
	(-5.23)
$I(COAR^{exv}_{i,t} < 0.05)$	-0.0697***
	(-10.52)
$I(Year = 1998)$	0.0593***
	(10.87)
R^2	0.973
AIC	-152.0
N	29

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The 2024 yellowfin sole ex-vessel price nowcast is a decrease from its 2023 overly optimistic prediction but an increase from the actual 2023 COAR Buying price by approximately 15% but given the ongoing weakness in the flatfish market is still 13% below the 2019-2023 mean value. With reported ADF&G prices decreasing in 2024, the nowcast model estimates an ex-vessel price of \$0.08/lb for yellowfin sole with a 95% confidence interval of \$0.07-\$0.09/lb

Table 6.19: Yellowfin Sole Ex-Vessel Price Nowcast Estimates for 2024.

	2023 Mean	2024 Nowcast Mean	% Change 2023-2024	% Change (2019-2023)-2024	2024 Nowcast Lower Bound	2024 Nowcast Upper Bound
Yellowfin sole	$0.07	$0.07	10%	-13%	$0.07	$0.08

Model fits and input data are presented in Figure 6.9.

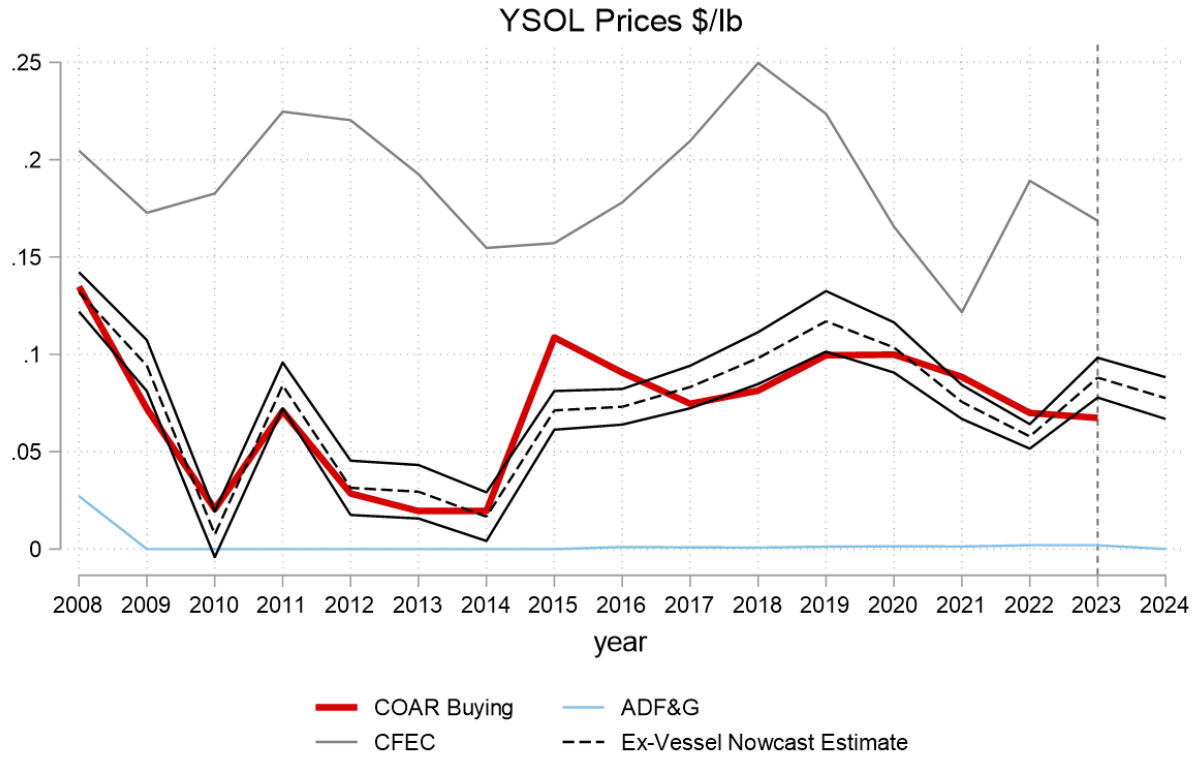

Figure 6.9: Yellowfin sole ex-vessel prices and nowcast estimates

6.0.3.10 Other Groundfish

The model estimated for other groundfish is shown in equation (10), where $COAR^{exv}_{i,t}$ represents the annual COAR Buying (ex-vessel) price for species i in year t, $ADFG^{exv}_{i,t}$ is the ADF&G fish ticket (ex-vessel) price for species i in year t, $CFEC^{exv}_{i,t-1}$ is the CFEC ex-vessel price for species i in year *t-1*. Equation (10) is estimated by ordinary least squares regression for the years 1998-2023 using COAR Buying weight purchased as analytic weights and robust (White-corrected) standard errors. Estimated coefficients are shown in Table 6.20.

$$COAR^{exv}_{OGF,t} = \beta_1 COAR^{exv}_{OGF,t-1} + \beta_2 ADFG^{exv}_{OGF,t} + \beta_3 ADFG^{exv}_{OGF,t-1} + \beta_4 ADFG^{exv}_{OGF,t-2} + \beta_5 ADFG^{exv}_{OGF,t-3} + \beta_6 ADFG^{exv}_{OGF,t-4} + \beta_7 CFEC^{exv}_{OGF,t-1} \quad (10)$$

Lagged CFEC prices were not significant but improved the fit of the model as determined by AIC and BIC and therefore was retained in the final regression. Lagged COAR Buying prices and current year ADF&G fish ticket prices as well as lags of one, two, three, and four years were statistically significant at the 5% level. Table 6.21 presents the 2023 COAR Buying mean price as well as the 2024 nowcast mean price, % changes from 2023 and the average from 2019-2023, as well as the 95% confidence intervals of the 2024 nowcast estimates.

Table 6.20: Yellowfin Sole ex-vessel price model

Coefficient	Yellowfin Sole $COAR^{exv}_{YSOL}$
$COAR^{exv}_{OGF,t-1}$	0.580**
	(3.96)
$ADFG^{exv}_{OGF,t}$	2.992***
	(14.94)
$ADFG^{exv}_{OGF,t-1}$	-2.238***
	(-6.70)
$ADFG^{exv}_{OGF,t-2}$	-0.770*
	(-2.24)
$ADFG^{exv}_{OGF,t-3}$	1.191**
	(3.51)
$ADFG^{exv}_{OGF,t-4}$	1.442**
	(2.96)
$CFEC^{exv}_{OGF,t-1}$	1.112
	(1.71)
R^2	0.987
AIC	-71.77
N	24

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The 2024 other groundfish price nowcast is an increase from its 2023 COAR Buying price by 5% which is 27% below the 2019-2023 mean value. Reported ADF&G prices are fairly flat in 2024,

and therefore the nowcast model estimates an ex-vessel price of $0.14/lb for other groundfish with a 95% confidence interval of $0.13-$0.16/lb.

Table 6.21: Other Groundfish Ex-Vessel Price Nowcast Estimates for 2024.

	2023 Mean	2024 Nowcast Mean	% Change 2023-2024	% Change (2019-2023)-2024	2024 Nowcast Lower Bound	2024 Nowcast Upper Bound
Other groundfish	$0.14	$0.14	5%	-27%	$0.13	$0.16

Model fits and input data are presented in Figure 6.10.

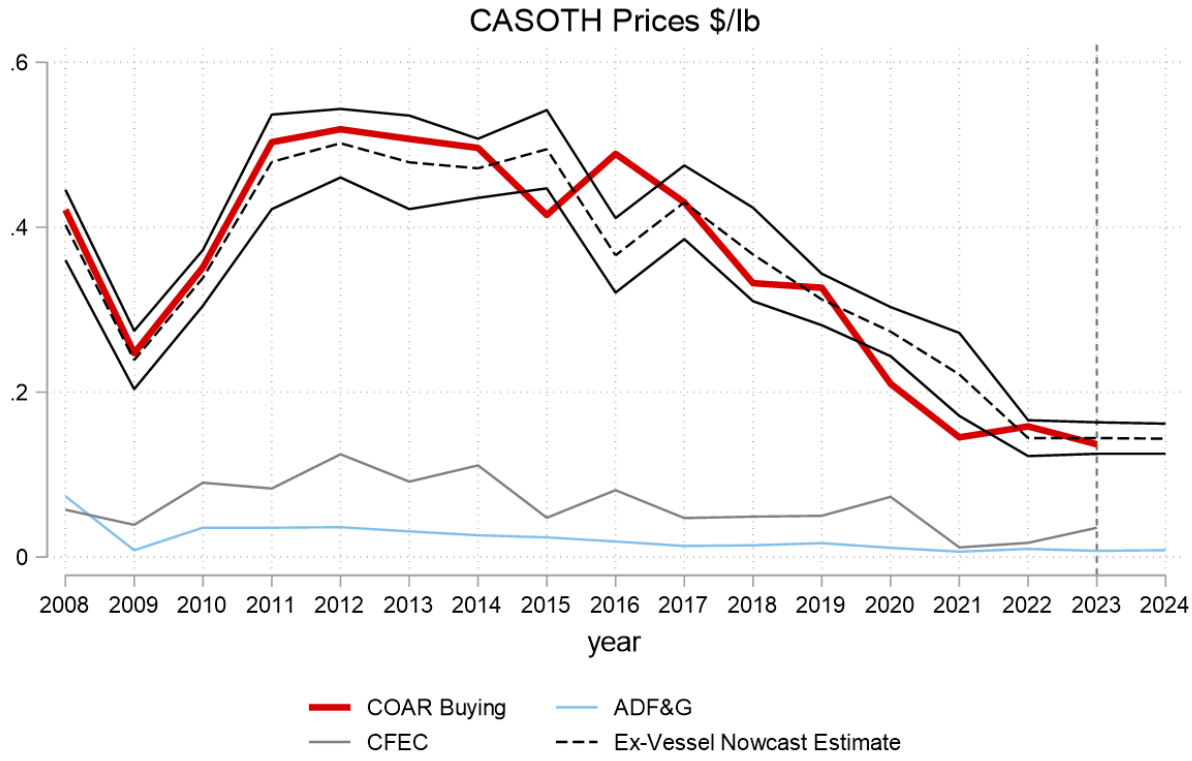

Figure 6.10: Other Groundfish ex-vessel prices and nowcast estimates

6.0.3.11 Other Flatfish

The model estimated for other flatfish is shown in equation (11), where $COAR^{exv}_{i,t}$ represents the annual COAR Buying (ex-vessel) price for species i in year t, $ADFG^{exv}_{i,t}$ is the ADF&G fish ticket (ex-vessel) price for species i in year t, $COAR^{wls}_{i,t-1}$ is the first wholesale price (reported in COAR Production) for species i in year *t-1*. Equation (11) is estimated by ordinary least squares regression for the years 1997-2023 using COAR Buying weight purchased as analytic weights and robust (White-corrected) standard errors. Estimated coefficients are shown in Table 6.22.

$$COAR^{exv}_{OFLT,t} = \beta_1 COAR^{exv}_{OFLT,t-1} + \beta_2 I(Year < 2011) ADFG^{exv}_{OFLT,t} + \beta_3 I(Year \geq 2011) ADFG^{exv}_{OFLT,t} \quad (11)$$

Similar to the rock sole model, ADF&G prices were bifurcated before and after 2011 to represent different statistical relationships between the variables during those periods. Lagged COAR Buying prices and current year ADF&G fish ticket prices were highly significant at the 1% level. Table 6.23 presents the 2023 COAR Buying mean price as well as the 2024 nowcast mean price, % changes from 2023 and the average from 2019-2023, as well as the 95% confidence intervals of the 2024 nowcast estimates.

Table 6.22: Other flatfish ex-vessel price model

Coefficient	Other Flatfish $COAR^{exv}_{OFLT}$
$COAR^{exv}_{OFLT,t-1}$	0.691***
	(6.66)
$I(Year < 2011) ADFG^{exv}_{OFLT,t}$	1.481**
	(3.03)
$I(Year \geq 2011) ADFG^{exv}_{OFLT,t}$	-6.962**
	(3.31)
R^2	0.985
AIC	-116.4
N	26

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

The 2024 other flatfish nowcast is a decrease from its 2023 COAR Buying price by approximately 8% which is a further 37% below the 2019-2023 mean value. Reported ADF&G prices in 2024 are nearly equal to those in 2023 and therefore the nowcast model estimates an ex-vessel price of $0.05/lb for other flatfish with a 95% confidence interval of $0.04-$0.06/lb.

Table 6.23: Other Flatfish Ex-Vessel Price Nowcast Estimates for 2024.

	2023 Mean	2024 Nowcast Mean	% Change 2023-2024	% Change (2019-2023)-2024	2024 Nowcast Lower Bound	2024 Nowcast Upper Bound
Other flatfish	$0.06	$0.06	-8%	-37%	$0.05	$0.06

Model fits and input data are presented in Figure 6.11.

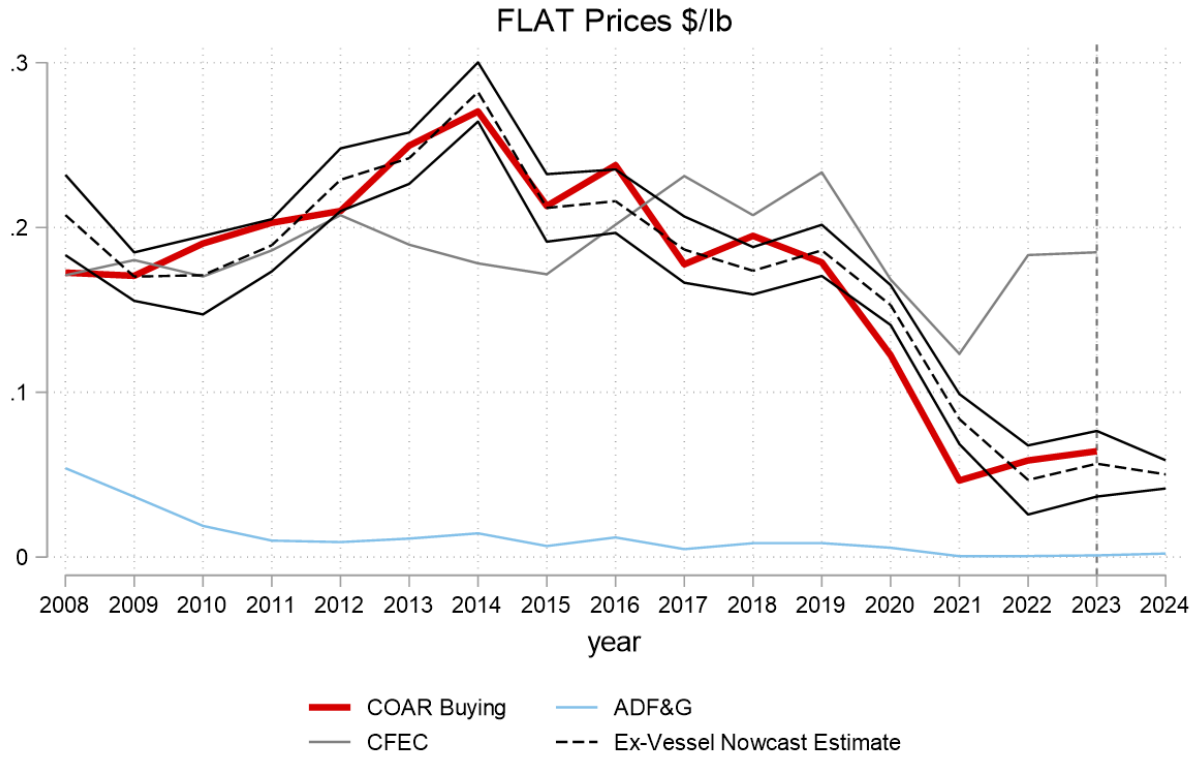

Figure 6.11: Other Flatfish ex-vessel prices and nowcast estimates

Chapter 7

2024 Groundfish First-Wholesale Price Nowcast Estimates

7.0.1 Exectuive Summary

The most recent year for which first-wholesale prices (the first sale of processed products) are available is 2023. These prices are derived from the Alaska Department of Fish and Game's (ADF&G) Commercial Operators Annual Report (COAR). Due to the report's submission deadline and data processing and validation, data from COAR are not available until July of the following year. Thus, at the time of this report's writing (October 2024), the most recent COAR data available was for the previous year, 2023. To provide recent information, current (i.e., 2024) 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 in 2024. First-wholesale price nowcasts are based on observed and predicted COAR ex-vessel prices (referred to as COAR Buying prices in the previous section), ADF&G fish ticket prices (referred to as "in-season ex-vessel prices" thereafter) through the month of Sept., export prices through the month of Sept. 2024, and reported North Pacific catches through the month of Sept. 2024[1].

The species and products for which price projections are made approximately correspond with the prices in Tables 4.18 and 4.36 of this document. With the notable exception that first-wholesale price 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. Select species have unique HTS codes by product type, such as roe and surimi, which allow for more detailed tracking of export prices. Where possible, we match product codes with the international trade data to get representative prices that we use in price projections.

Table 7.1 summarizes the nowcast projections for each species and product type estimated below. The 2023 price are realized (actual) first-wholesale prices. The summary data provided for the current year, 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

[1] ADF&G in-season ex-vessel prices are unadjusted prices and do not account for year-end bonuses.

uncertainty in the projections. In general, price projections (nowcasts) for the current year, 2024, display a modest degree of volatility.

Methods to estimate the first wholesale price model and predict the current year nowcast price are briefly outlined in Section 7.0.2. For each nowcast a more detailed characterization of the forecast distribution is given by the mean and the 80%, 90%, and 95% confidence bounds. Figures plot the first-wholesale nowcast results as well as historical realized wholesale prices.

Table 7.1: Groundfish First-Wholesale Price Nowcast Estimates for 2024.

Species	2023 Mean	2024 Nowcast Mean	% Change 2023-2024	% Change (2019-2023) -2024	2024 Nowcast Lower Bound	2024 Nowcast Upper Bound
Arrow	$0.90	$0.84	-7%	8%	$0.74	$0.96
Atka Mackerel	$1.07	$1.31	22%	15%	$1.04	$1.63
Halibut	$7.77	$7.77	0%	-4%	$7.44	$8.12
Pacific Cod - Fillets	$4.84	$4.32	-11%	-7%	$4.03	$4.62
Pacific Cod - H&G	$1.86	$1.52	-18%	-19%	$1.34	$1.72
Pollock - Fillets	$1.99	$1.77	-11%	-7%	$1.68	$1.86
Pollock - H&G	$0.54	$0.47	-13%	-22%	$0.4	$0.54
Pollock - Roe	$3.07	$3.33	8%	21%	$2.74	$4.01
Pollock - Surimi	$1.40	$1.06	-24%	-30%	$0.86	$1.29
Rocksole - with Roe	$0.85	$0.88	4%	1%	$0.61	$0.94
Rocksole - without Roe	$0.91	$0.76	-16%	-32%	$0.51	$0.72
Rockfish	$0.74	$0.61	-18%	-18%	$0.63	$1.2
Sablefish	$3.53	$3.14	-11%	-34%	$2.89	$3.39
Yellowfin sole	$0.66	$0.70	6%	-3%	$0.62	$0.78

7.0.2 Data and Methodology

First-wholesale prices of major species and product forms are estimated using a two-step procedure. The same basic procedure is used for both ex-vessel and first wholesale nowcasts. The first step uses historical information to estimate a linear relationship of first-wholesale prices that can be used for prediction. The second step predicts first-wholesale prices for 2024 using current year's (as of Oct. 2024) information and predicted nowcast ex-vessel prices (described in greater detail in Section 6).

First-wholesale and ex-vessel prices are collected from COAR Production and Buying reports. For more information on COAR Buying reports, see Section 6. COAR Production reports collect key economic information, such as the species, product, and disposition codes, the net weight, and wholesale value from processors. Due to the submission deadline, and to apply post-season adjustments, COAR Production data is not available until July of the following year. The one-year lag associated with COAR Production data is the primary motivator to nowcast first-wholesale prices for the current year, 2024. We use export price, in-season ex-vessel prices, and landings information, that is available near real-time (equation 7.1) to predict the first-wholesale price. Export prices were obtained from the NMFS Science and Technology FOSS trade database[2]. This database provides export value and volume by Harmonized Trade System (HTS) products

[2]https://www.fisheries.noaa.gov/foss/

to individual countries by month or year. Occasionally, HTS product codes aggregate several fishery species and products into a single code that can be tracked between countries. For most groundfish species below, a unique HTS code can be identified. Additionally, select species have unique HTS codes by product type, such as roe and surimi, which allow for more detailed tracking of export prices. We use the most granular level of product description in our modeling where possible. Export prices through September 2024 were available for the current nowcasts. In-season ex-vessel price data is obtained from ADF&G and is available with a minimal lag (up to one month for minor corrections). In-season ex-vessel price data, however, do not consider post-season adjustments and, for this reason, may be different from COAR ex-vessel prices. The trends between COAR and in-season ex-vessel prices are largely the same for many species. We estimate models with in-season ex-vessel prices for each species and product to determine if considering this variable statistically improves model fit and first-wholesale nowcasts. All monetary values are deflated to 2023 USD using the annual GDP deflator to account for inflation[3].

Current year first-wholesale prices (2024) $COAR^{wls}_{i,t,p}$ for species i and product form p during time period t is estimated using ex-vessel COAR prices, $COAR^{exv}_{i,t}$, in-season ex-vessel prices, $ADFG^{exv}_{i,t}$, export prices, $Export_{i,t,p}$, the total landings (whole weight) measured in pounds between January and September, $WWeight_{i,t}$, and a quadratic time trend, T, shown below:

$$log(COAR^{wls}_{i,t}) = \beta_1 log(COAR^{exv}_{i,t,p}) + \beta_2 log(COAR^{exv}_{i,t-1,p}) + \beta_3 log(ADFG^{exv}_{i,t}) + \beta_4 log(ADFG^{exv}_{i,t-1}) + \beta_5 log(Export_{i,t,p}) + \beta_6 log(Export_{i,t-1,p}) + \beta_7 log(WWeight_{i,t}) + T + T^2 \quad (7.1)$$

Select species and product codes also utilize a year dummy to account for significant increases (or decreases) in market price that are outside of the typical trend. We use an AIC guided model design to determine the final model specification. The AIC guided model design helps determine which variables statistically provide the best fit of the model. Therefore, not all variables in equation 7.1 will be shown for each species and product model as they were not found to statistically improve the overall fit of the model. For many species and product models, the statistical relationships between first-wholesale and ex-vessel COAR prices and first-wholesale and export prices were strong. The relationship tends to be stronger for products where a large share of the production volume is exported and multiple product types were available.

The statistical relationship is highly significant for select species and product codes. For species with many unique product codes or species that fit into a single species code, such as sablefish, the statistical relationship is strong with a R^2 greater than 0.95. Species groups that consider many species codes, such as rockfish, or with unique product forms, such as Arrowtooth flounder, the statistical relationship is weaker with a R^2 as ranging from 0.74 and 0.92. We use the final model based on the AIC selection criterion to predict the 2024 first-wholesale prices.

[3]U.S. Bureau of Economic Analysis, Gross domestic product (implicit price deflator) [A191RD3A086NBEA], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/A191RD3A086NBEA, October 30, 2024.

7.0.3 Nowcast First-Wholesale Produce Estimates for 2024

7.0.3.1 Atka Marcherel H&G

Historically, over 90% of the Alaska caught Atka mackerel is processed as head-and-gut (H&G) products, while the remainder is sold as whole fish. For this reason, we estimate the first wholesale price of Atka mackerel using only H&G product. The estimated coefficients for Atka mackerel are shown in Table 7.2. The statistical fit was extremely strong, with an R^2 of 0.99. The first-wholesale prices of Atka mackerel is jointly determined by the ex-vessel and in-season ex-vessel prices, the Japanese exchange rate, and the time trend. As a majority of Atka mackerel is exported to Japan, the Japanese exchange rate having a significant impact on the first-wholesale price nowcast matchers prior expectations. The inverse relationship between the ex-vessel price and the first-wholesale price, however, was unexpected. Various model specifications were tested with the inverse result remaining consistent. The other terms were not statistically significant but improved the model fit, based on the AIC selection criterion.

Table 7.2: Atka mackerel first-wholesale price model

Description	Estimate
Logged Ex-Vessel Price	-0.21**
	(-5.58)
Logged Lagged Ex-Vessel Price	-0.07
	(-1.47)
Logged ADF&G Fish Ticket Price	0.13**
	(5.15)
Logged Lagged ADF&G Fish Ticket Price	0.13**
	(5.15)
Dummy Term (2014)	0.34*
	(2.99)
Dummy Term (2017)	-0.11
	(-1.21)
Japanese Exchange Rate	0.02**
	(5.29)
I(year - 2014)	-0.11**
	(-4.33)
I((year - 2014)^2)	0.01*
	(-2.67)
R-squared	0.99
AIC	-35.50
N	14

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

Atka mackerel first-wholesale H&G production and price increased 11% in 2023 to $1.07/lb. Current projections for the 2024 Atka mackerel H&G price has a mean of $1.31/lb with 90% confidence bounds of $1.04/lb to $1.63/lb (Table 7.3). These estimates imply that the end-of-year 2024 Atka mackerel first-wholesale price will likely increase. The increase in the nowcast estimate is primarily

driven by the increase in the Japanese exchange rate, suggesting that the U.S. dollar is becoming stronger making U.S. seafood products more expensive, and increases in the in-season ex-vessel price. This does not suggest that total revenues will increase, as changes in the Japanese exchange rate will also affect the demand for Alaskan seafood products, including Atka mackerel.

Table 7.3: Predicted mean and confidence interval for 2024 first wholesale price of Atka mackerel H&G

Year	2.5%	5%	10%	Mean	90%	95%	97.5%
2024	$0.98	$1.04	$1.11	$1.31	$1.54	$1.63	$1.74

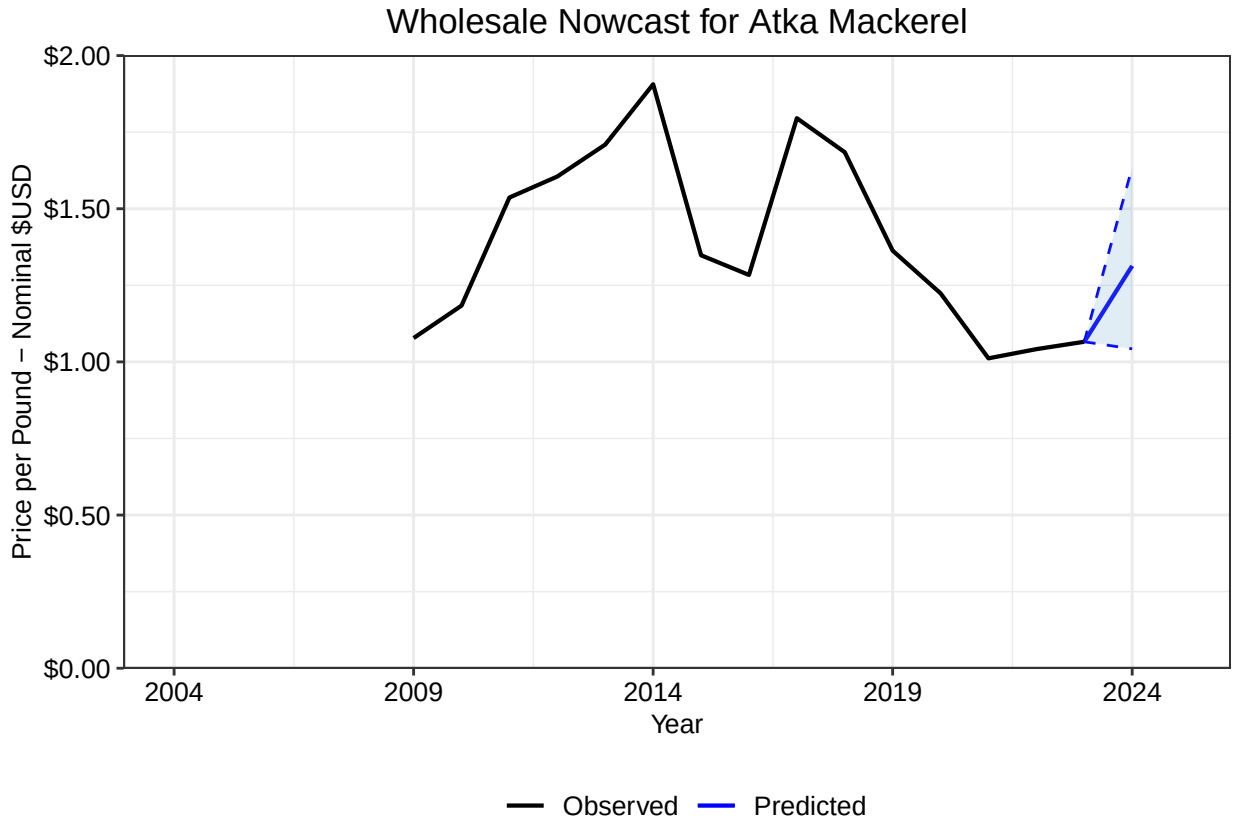

Figure 7.1: Atka mackerel first-wholesale prices and 2024 nowcast estimates. Note: the solid blue line is the mean nowcast value. The blue shaded region indicates the 90% confidence interval.

7.0.3.2 Pacific Cod H&G

Pacific cod is primarily processed in two distinct product types: H&G and fillets. Fillets typically demand a higher first wholesale price than H&G product forms. Fillets and H&G have a unique market structure that constitutes estimating the first-wholesale price for each product type. The estimated coefficients for Pacific cod H&G are shown in Table 7.4. The model fit was extremely strong, similar to other Pacific cod product forms, with an R^2 of 0.99. The first-wholesale price of Pacific cod H&G is jointly determined by the COAR ex-vessel, in-season ex-vessel, and export prices and the total landings. The other terms were not statistically significant but improved the model fit, based on the AIC selection criterion.

Table 7.4: Pacific cod H&G first-wholesale price model

Description	Estimate
Logged Ex-Vessel Price	0.16
	(0.65)
Logged Lagged Ex-Vessel Price	-0.94**
	(-3.66)
Logged ADF&G Fish Ticket Price	0.30
	(1.57)
Logged Lagged ADF&G Fish Ticket Price	0.63*
	(3.04)
Logged Export Price	0.92*
	(2.81)
Logged Whole Weight (in lbs.)	0.06**
	(4.16)
Dummy Term (2022)	0.13
	(1.79)
I(year - 2014)	0.04***
	(7.42)
I((year - 2014)^2)	0.01
	(-1.58)
R-squared	0.99
AIC	-50.70
N	19

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The first-wholesale production of Pacific cod H&G remained stable in 2023 and the average price per-pound decreased by 14% to $1.86/lb. The current projections for 2024 first-wholesale cod H&G have a mean of $1.52/lb with 90% confidence bounds of $1.34/lb to $1.72/lb (Table 7.5). These estimates indicate that a decrease in the 2024 cod H&G price is likely. The estimate of a first-wholesale price decrease is consistent with the trend in the 2024 Pacific cod H&G export prices and the predicted COAR ex-vessel price.

Table 7.5: Predicted mean and confidence interval for 2024 first wholesale price of Pacific cod H&G

Year	2.5%	5%	10%	Mean	90%	95%	97.5%
2024	$1.30	$1.34	$1.38	$1.52	$1.67	$1.72	$1.77

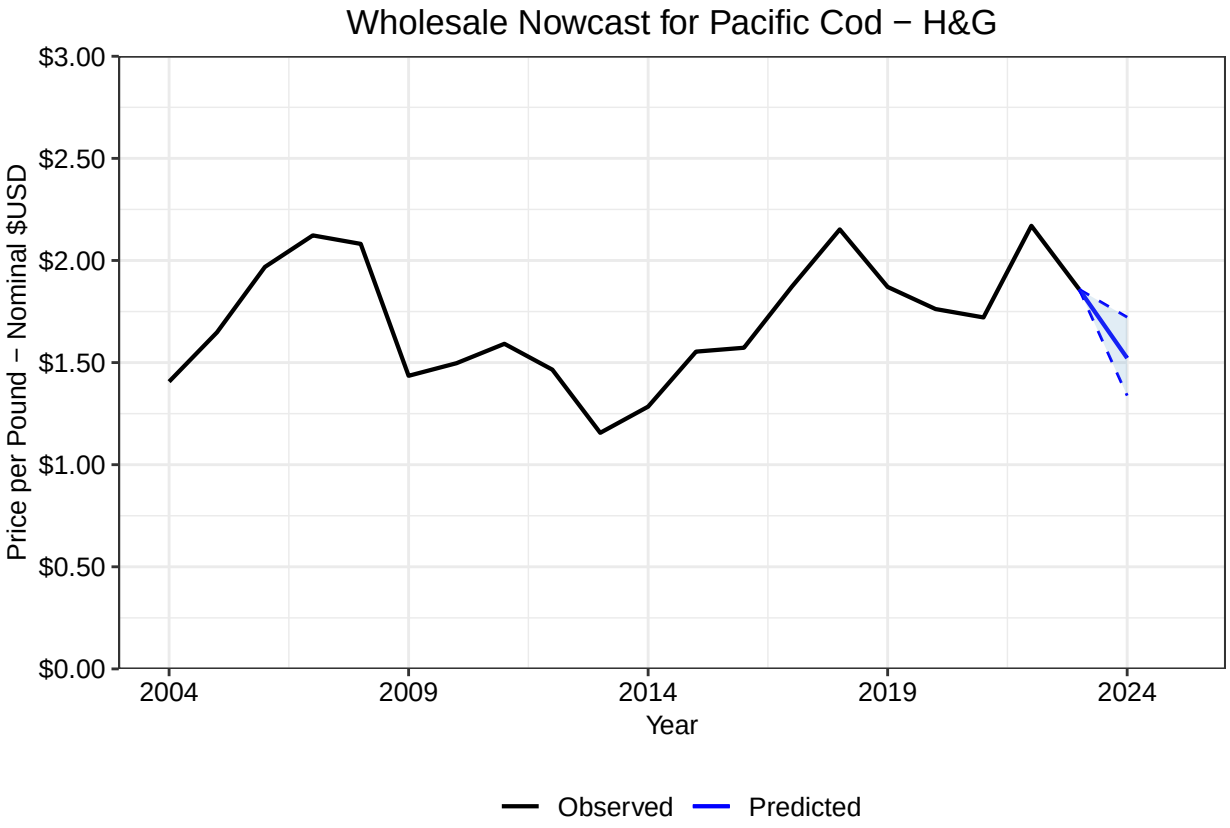

Figure 7.2: Pacific cod H&G first-wholesale prices and 2024 nowcast estimates. Note: the solid blue line is the mean nowcast value. The blue shaded region indicates the 90% confidence interval.

7.0.3.3 Pacific Cod Fillets

Pacific cod is mainly processed into the H&G product form, though fillets constitute a significant portion of the output, particularly for shoreside processors. The estimated coefficients for Pacific cod fillets are shown in Table 7.6. The model fit was extremely strong, with an R^2 of 0.99. The first-wholesale price of Pacific cod fillets is primarily determined by the in-season ex-vessel price, quantity of landings, and the time trend. The COAR ex-vessel and export price terms did improve the fit based on the AIC selection criterion, but were not statistically significant.

Table 7.6: Pacific cod fillets first-wholesale price model

Description	Estimate
Logged Ex-Vessel Price	-0.04
	(-0.19)
Logged ADF&G Fish Ticket Price	0.39*
	(2.32)
Logged Export Price	0.57
	(1.83)
Logged Lagged Export Price	0.42
	(1.39)
Logged Whole Weight (in lbs.)	0.08***
	(6.32)
I(year - 2014)	0.04***
	(9.04)
R-squared	0.99
AIC	-45.90
N	19

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

Production of Pacific cod fillets decreased 16% in 2023 as prices increased by 4% to $4.84/lb. The current projections for 2024 first-wholesale cod fillets have mean of $4.32/lb with 90% confidence bounds of $4.03/lb to $4.62/lb (Table 7.7). These estimates indicate that a decrease in the 2024 cod fillet price is likely. The estimate of a first-wholesale price decrease is consistent with the decrease price in the 2024 Pacific cod H&G export prices and the in-season ex-vessel price.

Table 7.7: Predicted mean and confidence interval for 2024 first wholesale price of Pacific cod fillets

Year	2.5%	5%	10%	Mean	90%	95%	97.5%
2024	$3.97	$4.03	$4.10	$4.32	$4.55	$4.62	$4.69

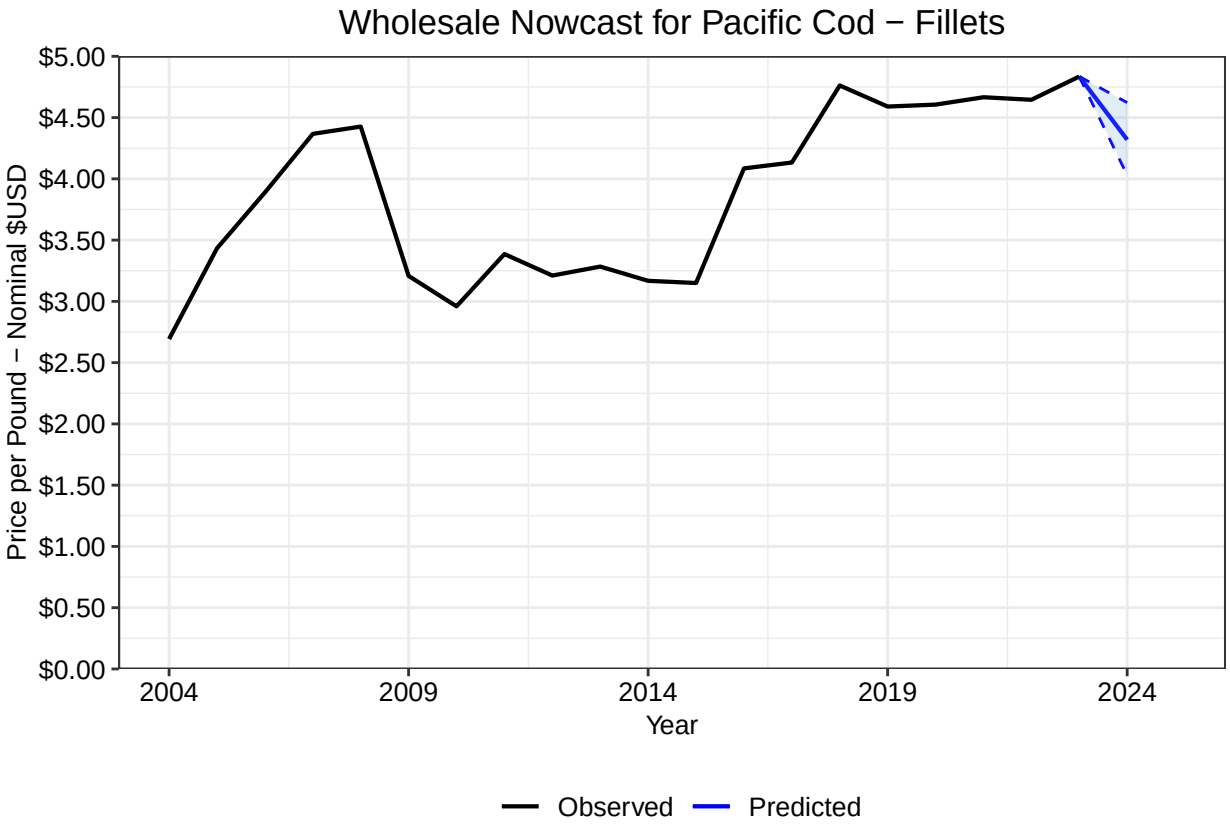

Figure 7.3: Pacific cod fillets first-wholesale prices and 2024 nowcast estimates. Note: the solid blue line is the mean nowcast value. The blue shaded region indicates the 90% confidence interval.

7.0.3.4 Alaskan Pollock H&G

In the North Pacific FMP groundfish fisheries 67% of the wholesale value came from Alaska pollock in 2024. The primary products produced from pollock are fillets, H&G, roe, and surimi. We begin with the lower price H&G to be consistent with other species, then proceed with fillets, roe, and surimi. The estimated coefficients for Alaskan pollock H&G are shown in Table 7.8. The model fit was strong, with an R^2 of 0.95. The first-wholesale price of Alaskan pollock H&G is primarily determined by the ex-vessel price and the time trend.

Table 7.8: Pollock H&G first-wholesale price model

Description	Estimate
Logged Ex-Vessel Price	0.33***
	(8.67)
Logged Export Price	0.45**
	(3.81)
I((year - 2014)^2)	0.00**
	(-3.21)
R-squared	0.95
AIC	-28.10
N	19

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

Pollock H&G production increased 13% in 2023 and prices decreased 15% to $0.54/lb. The projected first-wholesale pollock H&G price in 2024 has a mean of $0.47/lb with 90% confidence bounds of $0.40/lb to $0.54/lb (Table 7.9). These estimates imply that prices in 2024 will likely decrease. This is primarily driven by a decline in the ex-vessel price nowcast.

Table 7.9: Predicted mean and confidence interval for 2024 first wholesale price of Pollock H&G

Year	2.5%	5%	10%	Mean	90%	95%	97.5%
2024	$0.39	$0.40	$0.42	$0.47	$0.52	$0.54	$0.56

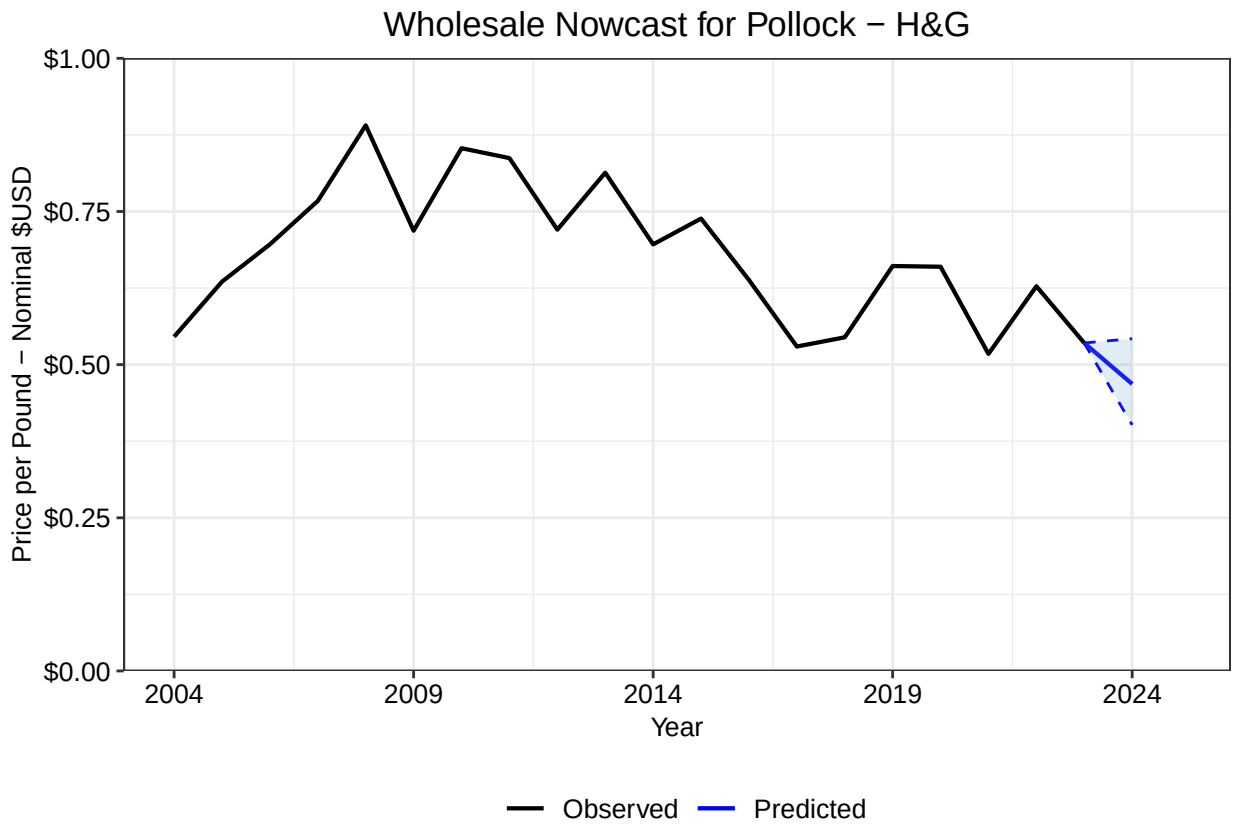

Figure 7.4: Pollock H&G first-wholesale prices and 2024 nowcast estimates. Note: the solid blue line is the mean nowcast value. The blue shaded region indicates the 90% confidence interval.

7.0.3.5 Alaskan Pollock Fillets

The estimated coefficients for Alaskan pollock fillets are shown in Table 7.10. The model fit was very strong, with an R^2 of 0.99. The first-wholesale price of Alaskan pollock fillets is primarily determined by the export price. The in-season ex-vessel price and time trend did improve the fit based on the AIC selection criterion, but were not statistically significant.

Table 7.10: Alaskan pollock fillets first-wholesale price model

Description	Estimate
Logged Ex-Vessel Price	-0.04
	(-1.05)
Logged Export Price	1.09***
	(8.09)
Dummy Term (2009)	0.49***
	(7.29)
I(year - 2014)	0.01
	(1.37)
R-squared	0.99
AIC	-48.40
N	19

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

Pollock fillet production increased 4% in 2023 and prices decreased 7% to $1.99/lb. The projected first-wholesale pollock fillets price in 2024 has a mean of $1.77/lb with 90% confidence bounds of $1.68/lb to $1.86/lb (Table 7.11). These estimates imply that prices in 2024 will likely decline. This is primarily driven by a decline in the 2024 export price of pollock fillets despite a relatively stable ex-vessel price nowcast.

Table 7.11: Predicted mean and confidence interval for 2024 first wholesale price of Pollock Fillets

Year	2.5%	5%	10%	Mean	90%	95%	97.5%
2024	$1.66	$1.68	$1.70	$1.77	$1.84	$1.86	$1.88

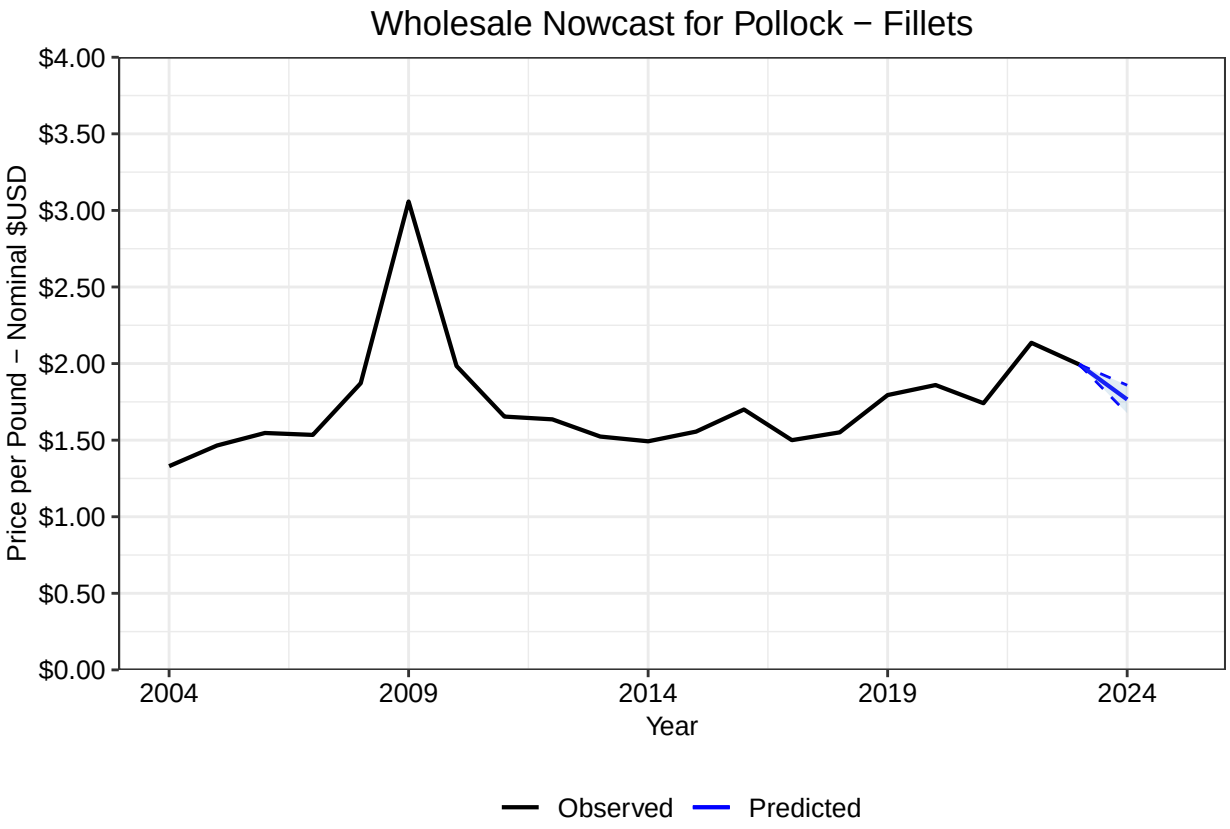

Figure 7.5: Alaskan pollock fillets first-wholesale prices and 2024 nowcast estimates. Note: the solid blue line is the mean nowcast value. The blue shaded region indicates the 90% confidence interval.

7.0.3.6 Alaskan Pollock Roe

The estimated coefficients for the first-wholesale Alaskan pollock roe model are shown in Table 7.12. The model fit was extremely strong, with an R^2 of 0.99. The first-wholesale price of Alaskan pollock roe is primarily determined by the ex-vessel, in-season ex-vessel, and export prices and a time trend.

Table 7.12: Alaskan pollock roe first-wholesale price model

Description	Estimate
Logged Ex-Vessel Price	0.73*
	(2.63)
Logged Lagged ADF&G Fish Ticket Price	-0.45*
	(-2.53)
Logged Export Price	0.86***
	(8.91)
I((year - 2014)^2)	0.01**
	(3.78)
R-squared	0.99
AIC	-14.00
N	19

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

Pollock roe production increased 4% in 2023 but prices decreased 1% to $3.07/lb. The projected first-wholesale price of pollock roe for 2024 has a mean of $3.33/lb with 90% confidence bounds of $2.74/lb to $4.01/lb (Table 7.13). These estimates imply that roe prices for 2024 may increase but with an almost equal likelihood of decreasing as increasing. The average export price of roe has increased by 6% through Sept. 2024 which may indicate an increase in the first wholesale price in 2024.

Table 7.13: Predicted mean and confidence interval for 2024 first wholesale price of Alaskan pollock roe

Year	2.5%	5%	10%	Mean	90%	95%	97.5%
2024	$2.63	$2.74	$2.87	$3.33	$3.83	$4.01	$4.18

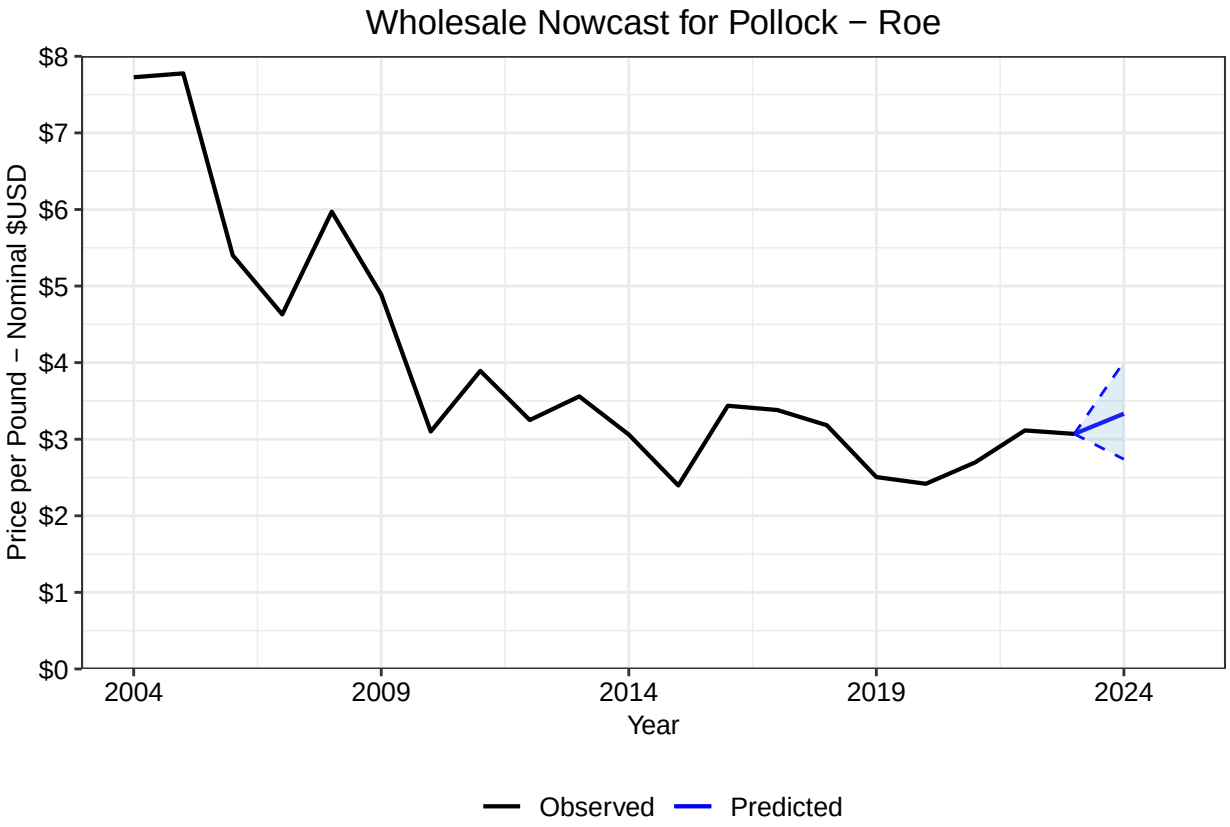

Figure 7.6: Alaskan pollock roe first-wholesale prices and 2024 nowcast estimates. Note: the solid blue line is the mean nowcast value. The blue shaded region indicates the 90% confidence interval.

7.0.3.7 Alaskan Pollock Surimi

The estimated coefficients for the first-wholesale Alaskan pollock surimi model is shown in Table 7.14. The model fit was strong, although less than other Alaskan pollock product forms, with an R^2 of 0.96. The ex-vessel and in-season ex-vessel prices and time trend of surimi are the primary drivers of the first wholesale price. The export price did improve the model fit, but was not statistically significant.

Table 7.14: Alaskan pollock Surimi first-wholesale price model

Description	Estimate
Logged Ex-Vessel Price	0.11
	(0.33)
Logged Lagged Ex-Vessel Price	-0.71**
	(-3.14)
Logged ADF&G Fish Ticket Price	1.19**
	(3.15)
Logged Lagged Export Price	0.48
	(1.49)
Logged Whole Weight (in lbs.)	0.11**
	(3.33)
I(year - 2014)	0.04**
	(3.82)
I((year - 2014)^2)	0.01*
	(-2.56)
R-squared	0.96
AIC	-25.70
N	19

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The production of pollock surimi increased 5% in 2023 and the first-wholesale price decreased by 6% to $1.40/lb. The first-wholesale price prediction of surimi in 2024 has a mean of $1.06/lb with 90% confidence bounds of $0.86/lb to $1.29/lb (Table 7.15) These estimates imply a significant decline in prices in 2024 is likely. Surimi export prices tend to provide a reasonably good prediction of the state of surimi prices. Preliminary 2024 export prices (-7%) coupled with a reduction in ex-vessel price nowcast and in-season ex-vessel prices, may explain the significant predicted decrease by the end of the current year.

Table 7.15: Predicted mean and confidence interval for 2024 first wholesale price of Alaskan pollock surimi

Year	2.5%	5%	10%	Mean	90%	95%	97.5%
2024	$0.82	$0.86	$0.90	$1.06	$1.23	$1.29	$1.35

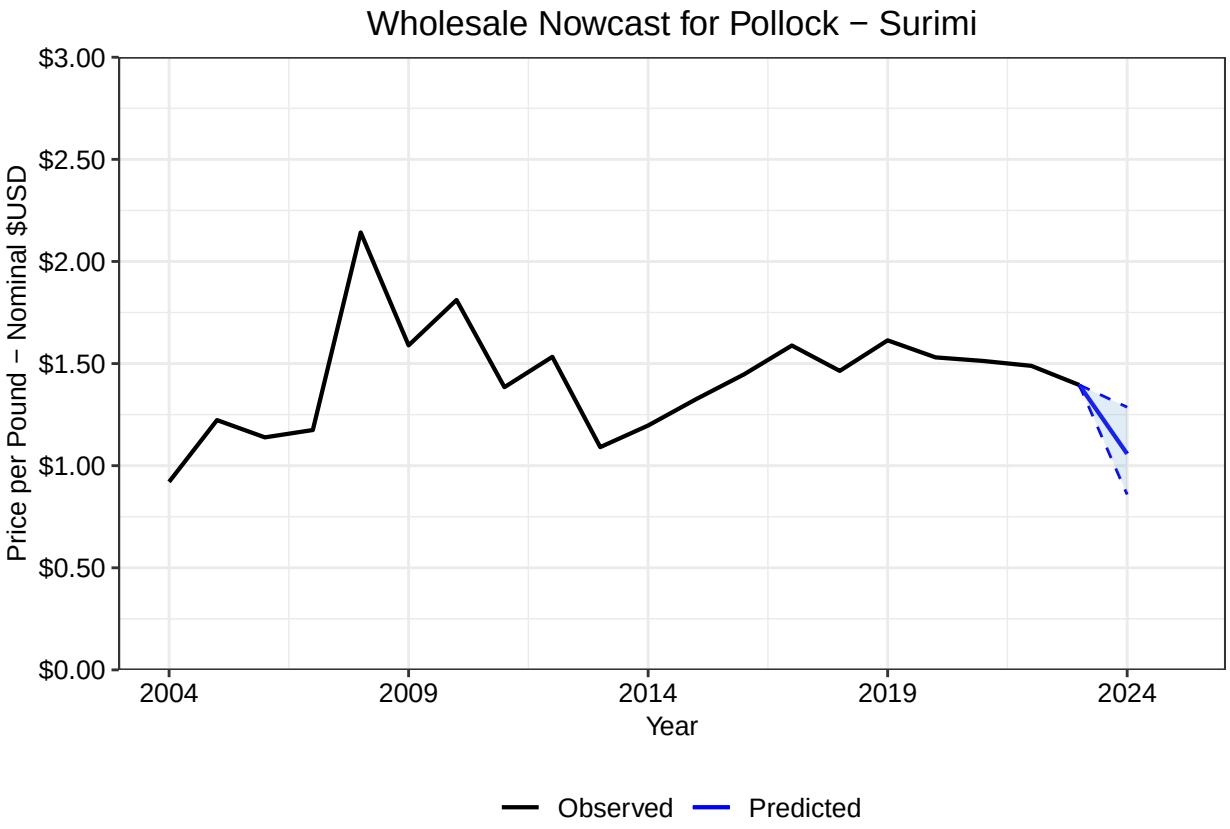

Figure 7.7: Alaskan pollock surimi first-wholesale prices and 2024 nowcast estimates. Note: the solid blue line is the mean nowcast value. The blue shaded region indicates the 90% confidence interval.

7.0.3.8 Sablefish H&G

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. The estimated coefficients for sablefish H&G are shown in Table 7.16. The model fit was extremely strong, with an R^2 of 0.99. The ex-vessel price had a significant impact in predicting the first wholesale price. The other terms were not statistically significant but improved the model fit based on the AIC selection criterion.

Table 7.16: Sablefish H&G first-wholesale price model

Description	Estimate
Logged Ex-Vessel Price	0.83***
	(12.70)
Logged Lagged ADF&G Fish Ticket Price	-0.11
	(-1.96)
Logged Export Price	0.16
	(1.81)
Logged Lagged Export Price	0.15
	(1.52)
I(year - 2014)	0.01
	(1.77)
I((year - 2014)^2)	0.01
	(1.53)
R-squared	0.99
AIC	-51.90
N	19

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

Sablefish H&G production in 2023 decreased 13% and the realized price decreased 25% to $3.53/lb. This year's first-wholesale price nowcast for 2024 has a mean of $3.14/lb with 90% confidence bounds of $2.89/lb to $3.39/lb (Table 7.17). These estimates imply that a price decrease in 2024 is likely as supported by the downward trend in in-season and nowcast ex-vessel prices through September.

Table 7.17: Predicted mean and confidence interval for 2024 first wholesale price of sablefish H&G

Year	2.5%	5%	10%	Mean	90%	95%	97.5%
2024	$2.84	$2.89	$2.95	$3.14	$3.33	$3.39	$3.45

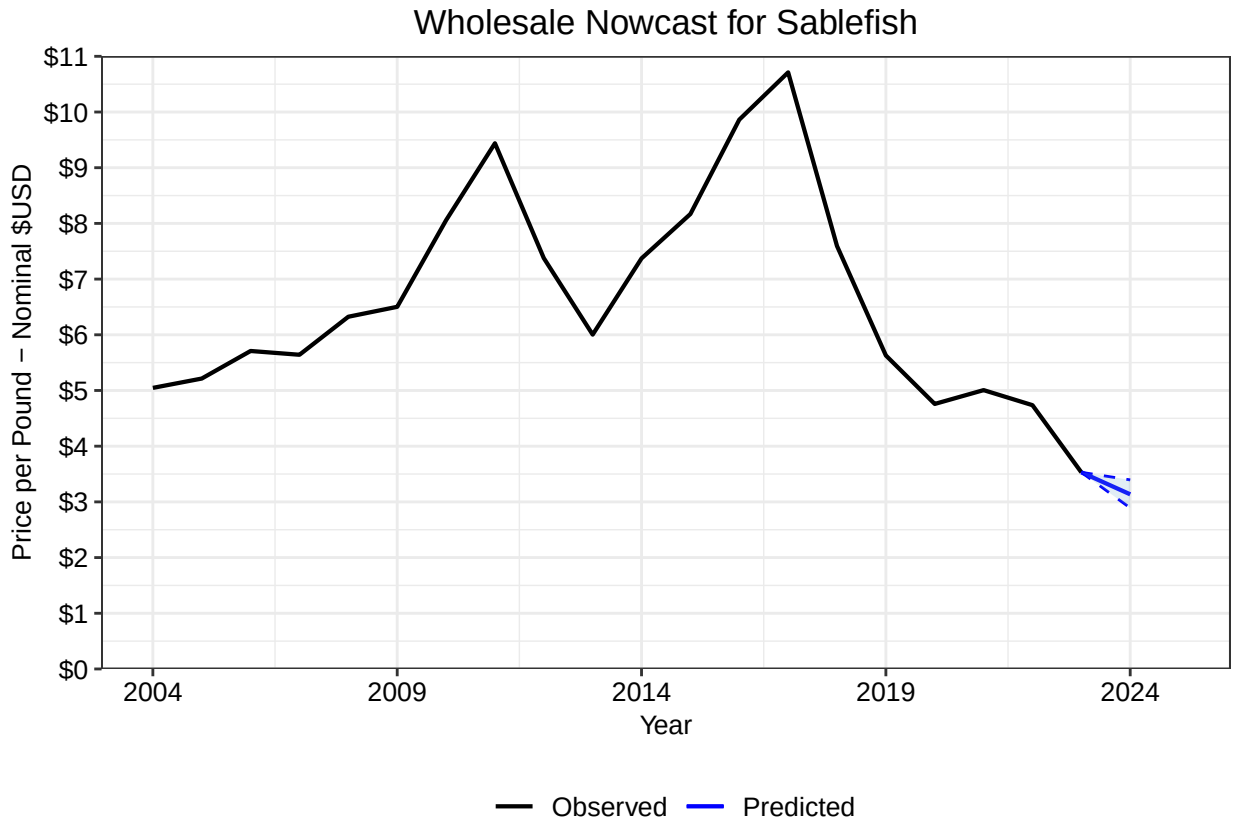

Figure 7.8: Sablefish H&G first-wholesale prices and 2024 nowcast estimates. Note: the solid blue line is the mean nowcast value. The blue shaded region indicates the 90% confidence interval.

7.0.3.9 Flatfish

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. The majority of rock sole, however, is processed into two product forms; H&G with roe, a higher priced product with slightly different price dynamics, and H&G without roe.

7.0.3.10 Yellowfin sole H&G

Yellowfin sole is mostly produced into the head-and-gut product form at the first-wholesale level. The estimated coefficients for yellowfin sole H&G are shown in Table 7.17. The model fit was strong, with an R^2 of 0.89. The ex-vessel price and time trend had a significant impact in predicting the first wholesale price.

Table 7.18: Yellowfin sole H&G first-wholesale price model

Description	Estimate
Logged Ex-Vessel Price	0.14***
	(11.62)
I(year - 2014)	0.00
	(-0.03)
R-squared	0.89
AIC	-16.10
N	19

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

Yellowfin sole first-wholesale H&G production decreased 28% in 2023 and the first-wholesale price decreased 3% to $0.66/lb. This year's projection for 2024 yellowfin sole H&G prices estimate a mean of $0.70/lb with 90% confidence bounds of $0.62/lb to $0.78/lb (Table 7.18). These estimates imply that a price increase in 2024 is likely with less than an 15% probability of first-wholesale price declining. This is primarily due to an increase in the nowcast ex-vessel prices in 2024.

Table 7.19: Predicted mean and confidence interval for 2024 first wholesale price of yellowfin sole H&G

Year	2.5%	5%	10%	Mean	90%	95%	97.5%
2024	$0.60	$0.62	$0.64	$0.70	$0.76	$0.78	$0.80

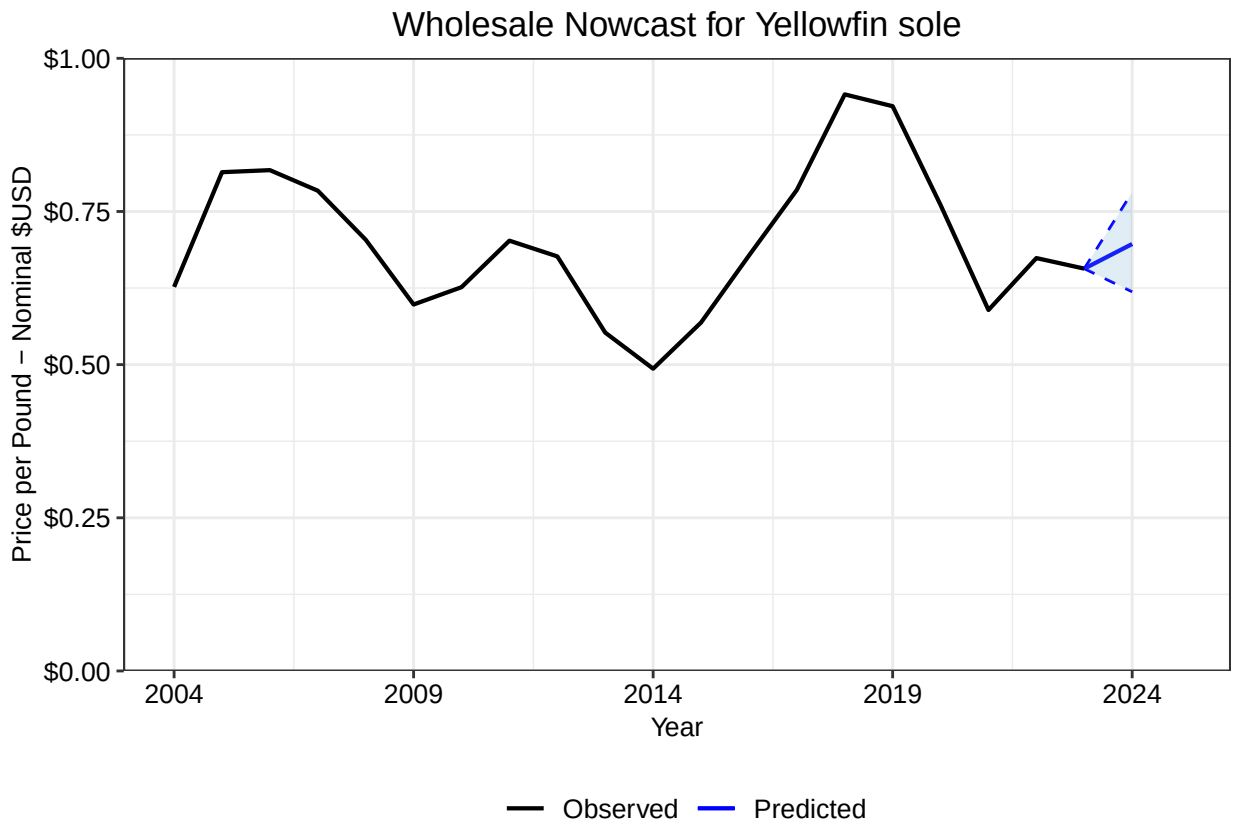

Figure 7.9: Yellowfin sole H&G first-wholesale prices and 2024 nowcast estimates. Note: the solid blue line is the mean nowcast value. The blue shaded region indicates the 90% confidence interval.

7.0.3.11 Rock sole H&G with Roe

The estimated coefficients for rock sole H&G with roe are shown in Table 7.18. The model fit was not very strong with an R^2 of 0.74. Ex-vessel and export prices and total landings had a significant impact in predicting the first-wholesale price of rock sole H&G with roe. The other terms were not statistically significant but improved the model fit based on the AIC selection criterion.

Table 7.20: Rock sole H&G with roe first-wholesale price model

Description	Estimate
Logged Lagged Ex-Vessel Price	-0.33*
	(-2.13)
Logged Lagged ADF&G Fish Ticket Price	0.08
	(1.86)
Logged Export Price	2.21**
	(3.89)
Logged Whole Weight (in lbs.)	0.03**
	(3.21)
R-squared	0.74
AIC	-5.40
N	19

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The first-wholesale production of rock sole H&G with roe decreased 56% in 2023 and the price increased 33% to $0.91/lb. This year's projection for the 2024 rock sole H&G with roe price has a mean of $0.76/lb with 90% confidence bounds of $0.61/lb to $0.94/lb (Table 7.19) indicating that prices are likely to decrease in 2024. This is primarily associated with declines in the 2024 export price and total landings. The wide confidence interval is due to the low model fit and high levels of noise in the predictions.

Table 7.21: Predicted mean and confidence interval for 2024 first wholesale price of rock sole H&G with roe

Year	2.5%	5%	10%	Mean	90%	95%	97.5%
2024	$0.59	$0.61	$0.65	$0.76	$0.89	$0.94	$0.98

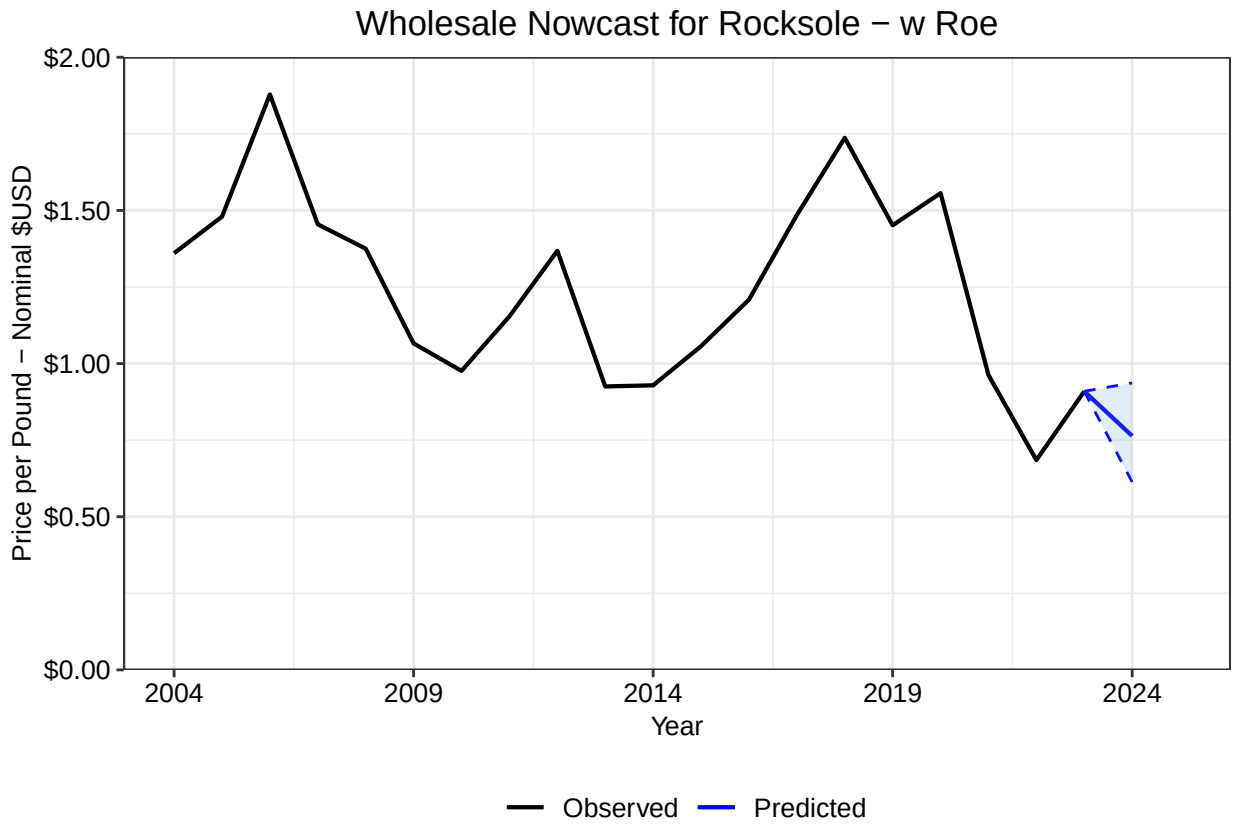

Figure 7.10: Rock sole H&G with roe first-wholesale prices and 2024 nowcast estimates. Note: the solid blue line is the mean nowcast value. The blue shaded region indicates the 90% confidence interval.

7.0.3.12 Rock sole H&G without Roe

The estimated coefficients for rock sole H&G without roe are shown in Table 7.20. The model fit was stronger than rock sole H&G with roe, with an R^2 of 0.87. The ex-vessel and export prices and whole weight had a significant impact in predicting the first wholesale price.

Table 7.22: Rock sole H&G without roe first-wholesale price model

Description	Estimate
Logged Ex-Vessel Price	0.26
	(1.90)
Logged Lagged Ex-Vessel Price	-0.46**
	(-3.04)
Logged Export Price	1.13*
	(2.44)
Logged Whole Weight (in lbs.)	-0.02**
	(-3.22)
R-squared	0.87
AIC	-13.40
N	19

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The first-wholesale production of rock sole H&G (without roe) more than doubled in 2023, increasing by 132% and the price increased by 12% to \$0.74/lb. This year's projections estimate the 2024 rock sole H&G (without roe) price will likely decrease with a mean of \$0.61/lb with 90% confidence bounds of \$0.51/lb to \$0.72/lb (Table 7.21). This is supported by a decrease in the 2024 export price.

Table 7.23: Predicted mean and confidence interval for 2024 first wholesale price of rock sole H&G without roe

Year	2.5%	5%	10%	Mean	90%	95%	97.5%
2024	\$0.49	\$0.51	\$0.53	\$0.61	\$0.69	\$0.72	\$0.75

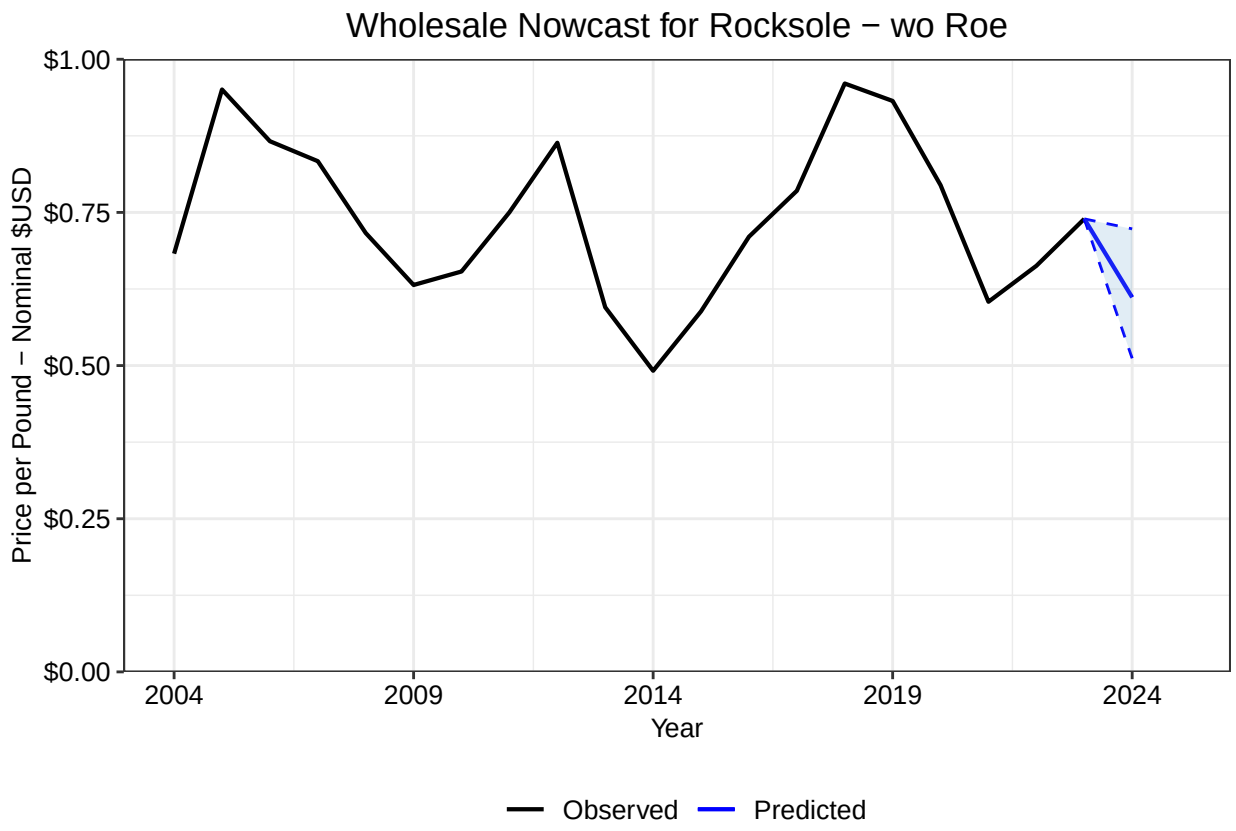

Figure 7.11: Rock sole H&G without roe first-wholesale prices and 2024 nowcast estimates. Note: the solid blue line is the mean nowcast value. The blue shaded region indicates the 90% confidence interval.

7.0.3.13 Arrowtooth Flounder H&G

The estimated coefficients for Arrowtooth flounder H&G are shown in Table 7.22. The model fit of the first-wholesale prices was moderate, with an R^2 of 0.84. The primary driver of first wholesale prices of Arrowtooth flounder H&G is the ex-vessel price, being highly significant, and the time trend.

Table 7.24: Arrowtooth flounder H&G first-wholesale price model

Description	Estimate
Logged Ex-Vessel Price	0.13***
	(8.79)
Dummy Term (2017)	0.51**
	(3.17)
I(year - 2014)	0.02*
	(2.43)
R-squared	0.84
AIC	-11.90
N	19

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The first-wholesale production of Arrowtooth H&G decreased 5% in 2023 and the price increased 10% to $0.90/lb. This year's nowcast for the 2024 Arrowtooth H&G first-wholesale price has a mean of $0.84/lb with 90% confidence bounds of $0.74/lb to $0.96/lb (Table 7.23). These estimates indicate that prices will decrease with a small (~15%) potential for a marginal price increase falling within the projected range.

Table 7.25: Predicted mean and confidence interval for 2024 first wholesale price of Arrowtooth flounder H&G

Year	2.5%	5%	10%	Mean	90%	95%	97.5%
2024	$0.72	$0.74	$0.76	$0.84	$0.93	$0.96	$0.99

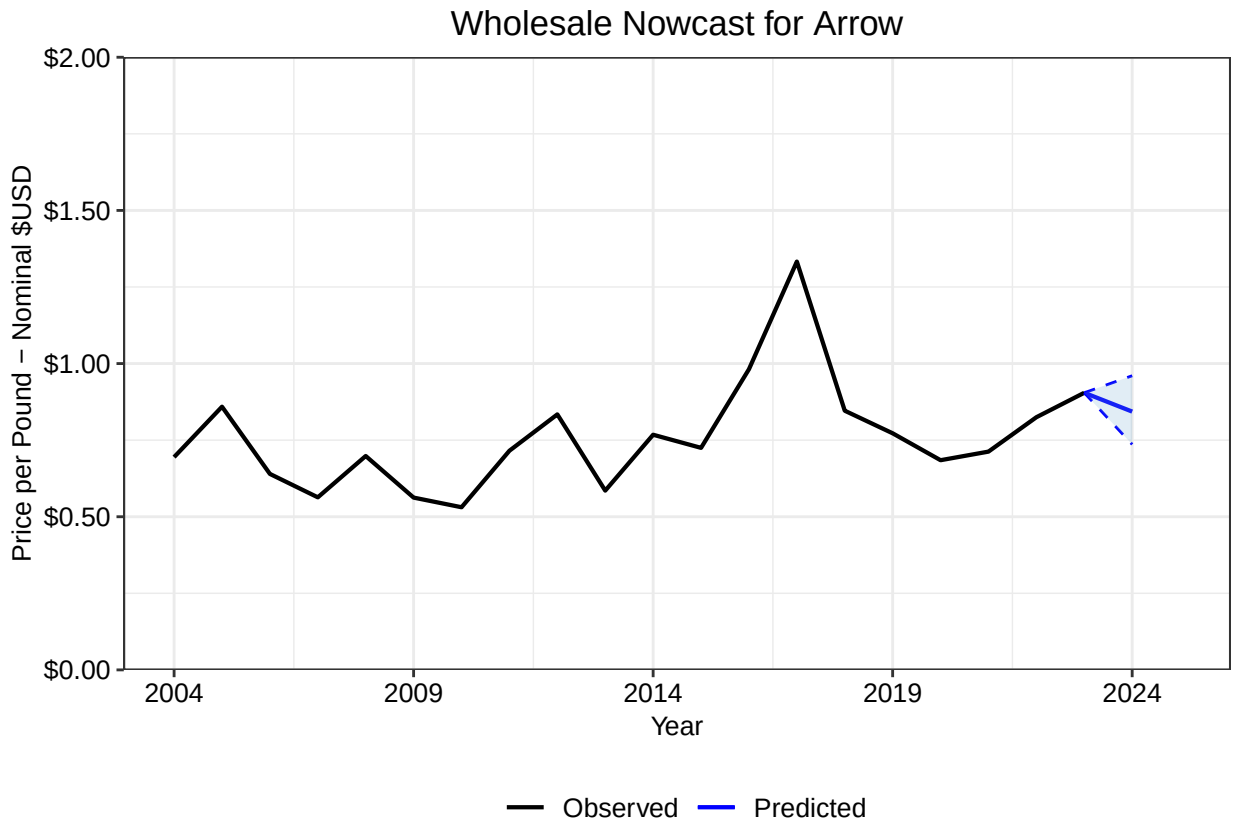

Figure 7.12: Arrowtooth flounder H&G first-wholesale prices and 2024 nowcast estimates. Note: the solid blue line is the mean nowcast value. The blue shaded region indicates the 90% confidence interval.

7.0.3.14 Pacific Halibut H&G

The estimated coefficients for Pacific halibut are shown in Table 7.24. The model fit of the first wholesale prices was extremely strong, with an R^2 of 0.99. The primary driver of first wholesale prices of Pacific halibut is the ex-vessel price, being highly significant, total landings, and the time trend.

Table 7.26: Pacific halibut H&G first-wholesale price model

Description	Estimate
Logged Ex-Vessel Price	0.75***
	(12.76)
Logged Whole Weight (in lbs.)	0.03***
	(5.37)
I(year - 2014)	0.02***
	(10.10)
R-squared	0.99
AIC	-53.90
N	18

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The first-wholesale production of Pacific halibut H&G decreased 31% in 2023 and the price decreased 16% to $7.77/lb. This year's nowcast for the 2024 Pacific halibut H&G first wholesale price has a mean of $7.77/lb with 90% confidence bounds of $7.44/lb to $8.12/lb (Table 7.25). These estimates indicate that prices will likely remain stable with almost equal probability of increasing as decreasing. This is supported by a stable ex-vessel nowcast.

Table 7.27: Predicted mean and confidence interval for 2024 first wholesale price of Pacific halibut H&G

Year	2.5%	5%	10%	Mean	90%	95%	97.5%
2024	$7.37	$7.44	$7.51	$7.77	$8.03	$8.12	$8.19

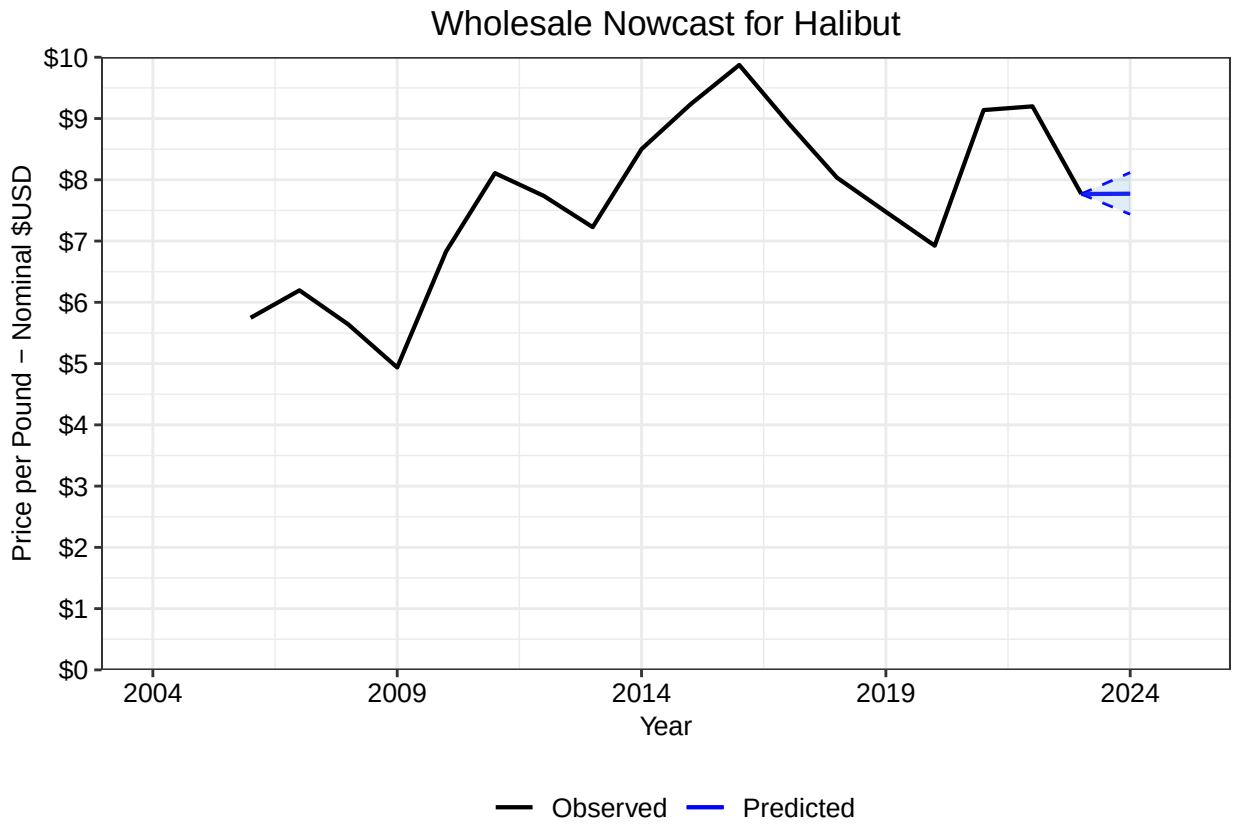

Figure 7.13: Pacific halibut H&G first-wholesale prices and 2024 nowcast estimates. Note: the solid blue line is the mean nowcast value. The blue shaded region indicates the 90% confidence interval.

7.0.3.15 Rockfish H&G

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. The estimated coefficients for the rockfish fisheries are shown in Table 7.26. The model fit of the first wholesale prices was moderate, with an R^2 of 0.84. The relatively weaker fit compared to other groundfish species is primarily due to the aggregation of many rockfish species and export prices that only consider a single species of this aggregation. The primary driver of first wholesale prices of rockfish is the ex-vessel price and the time trend. All other terms improve the model fit, but are not statistically significant. The lack of significance in other terms may be associated with the aggregation of all rockfish species.

Table 7.28: Rockfish H&G first-wholesale price model

Description	Estimate
Logged Ex-Vessel Price	0.30
	(1.18)
Logged Lagged Ex-Vessel Price	-0.67*
	(-2.96)
Logged ADF&G Fish Ticket Price	-0.21
	(-1.37)
Logged Export Price	0.34
	(1.40)
Logged Whole Weight (in lbs.)	-0.05
	(-1.51)
I(year - 2014)	-0.06*
	(-2.68)
I((year - 2014)^2)	0.01
	(-1.49)
R-squared	0.84
AIC	-15.40
N	18

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

The first-wholesale production of rockfish H&G remained stable, increasing by 1% in 2023, and the price decreased 7% to $0.85/lb. This year's nowcast for the 2024 rockfish H&G first wholesale price has a mean of $0.88/lb with 90% confidence bounds of $0.63/lb to $1.20/lb (Table 7.27). These estimates indicate that there is an approximate equal chance of the first-wholesale price increasing as decreasing.

Table 7.29: Predicted mean and confidence interval for 2024 first wholesale price of Rockfish H&G

Year	2.5%	5%	10%	Mean	90%	95%	97.5%
2024	$0.59	$0.63	$0.68	$0.88	$1.11	$1.20	$1.28

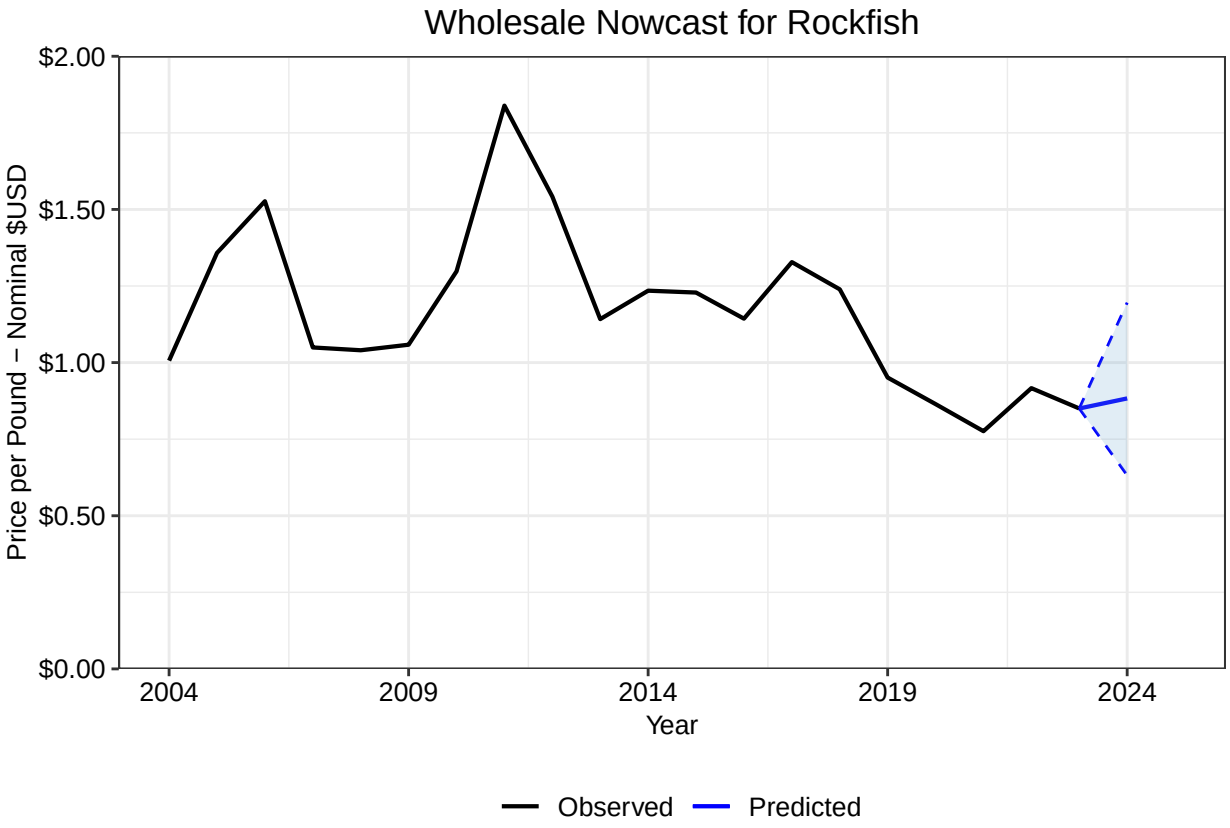

Figure 7.14: Rockfish H&G first-wholesale prices and 2024 nowcast estimates. Note: the solid blue line is the mean nowcast value. The blue shaded region indicates the 90% confidence interval.

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.

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8.1.1 Executive Summary

This section of the **Economic Status Report of the Groundfish Fisheries off Alaska, 2024** 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
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.

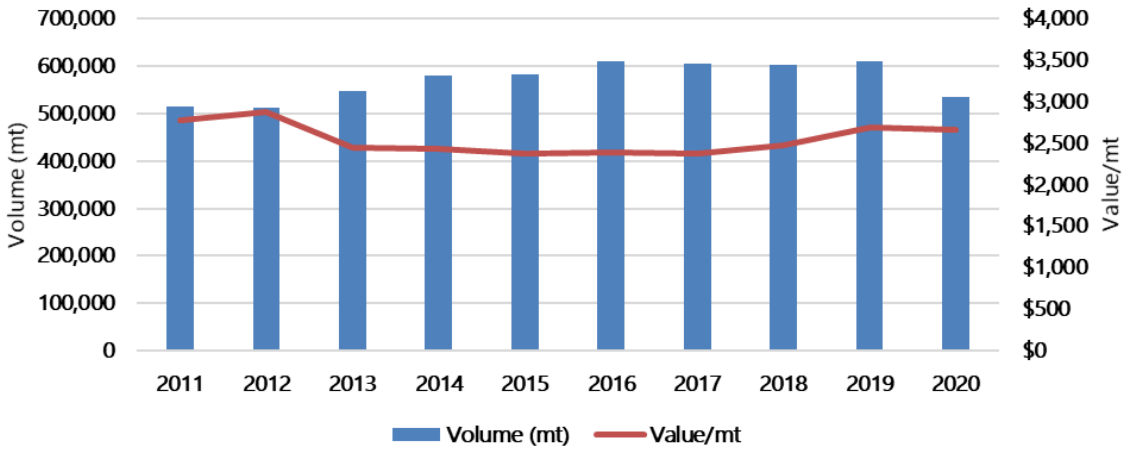

Figure 8.1: First Wholesale Volume and Value/mt for Alaska Pollock, 2011-2020

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).

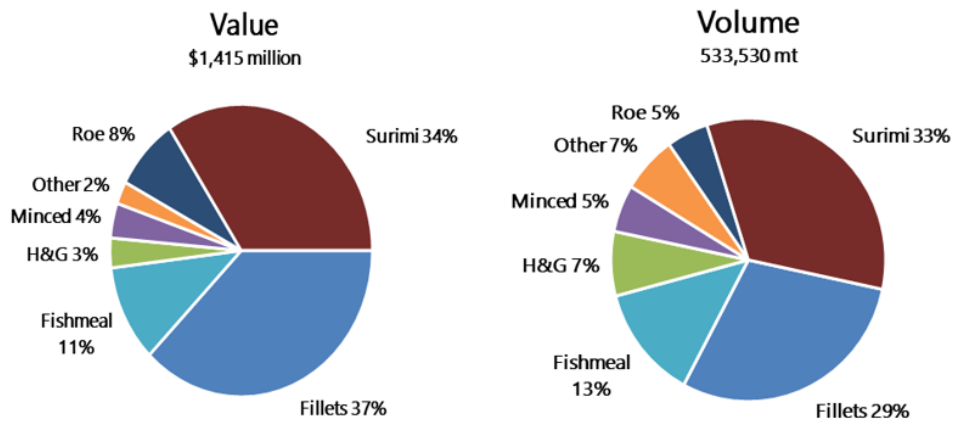

Figure 8.2: Alaska Pollock First Wholesale Production Volume and Value, by Product Type,2020

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.

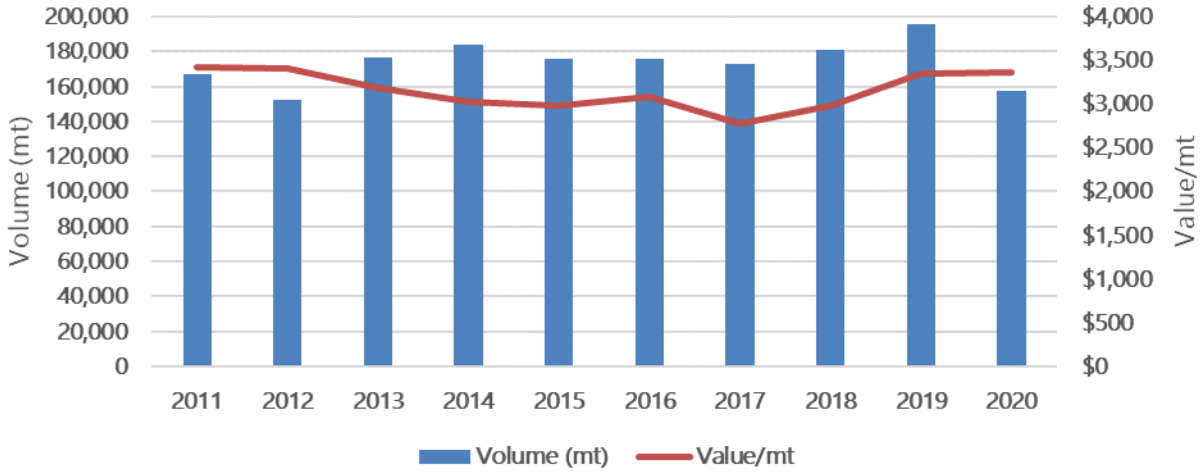

Figure 8.3: First Wholesale Volume and Value/mt for Alaska Pollock Fillets, 2011-2020

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.

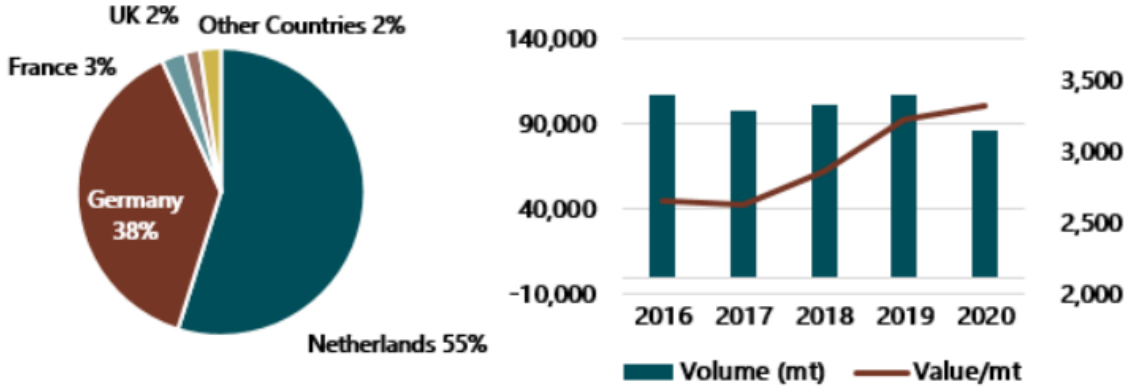

Figure 8.4: Exports of Alaska Pollock Fillets to Major European Markets, 2016-2020

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 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]

[1] (Gorovaya, 2022)
[2] (Vovchenko, 2020)
[3] (Stupachenko, 2019)
[4] (Park, 2014)

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.

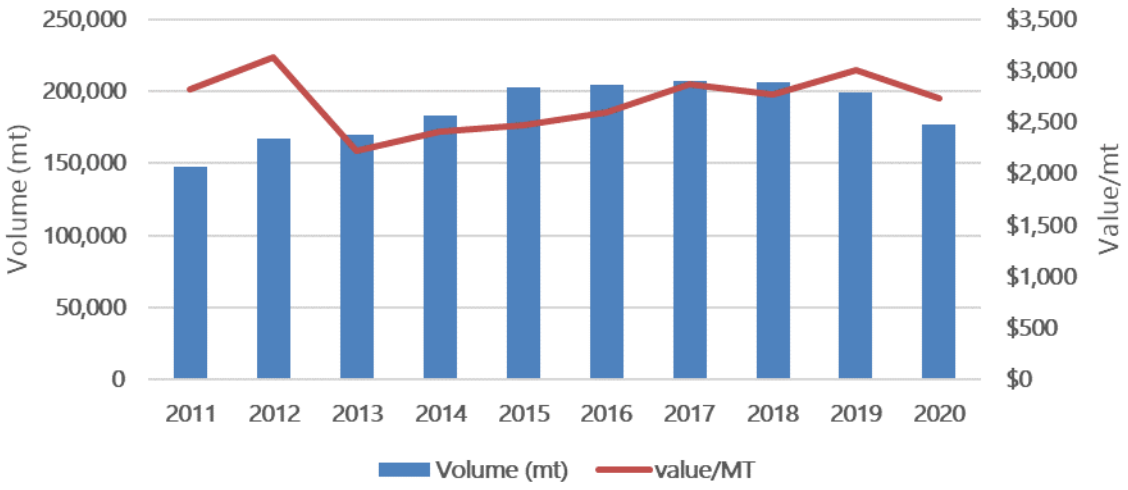

Figure 8.5: First Wholesale Volume and Value/mt for Alaska Pollock Surimi, 2011-2020

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 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.

[5] (Sapin, 2021)

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 market for raw surimi product, though other Asian countries such as China and Korea are important and growing raw surimi processing areas.

The 1 million mt of raw surimi produced in 2020 was converted into an estimated 3 million metric tons of surimi seafood products. China was the largest producer of end products – despite importing less surimi raw material than Japan – due to a lower average percentage of seafood in their surimi seafood products.

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,

[6] Future Seafood Group (via Undercurrent News).
[7] (Park, 2014)
[8] (Future Seafood Group, 2021)

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]

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.

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

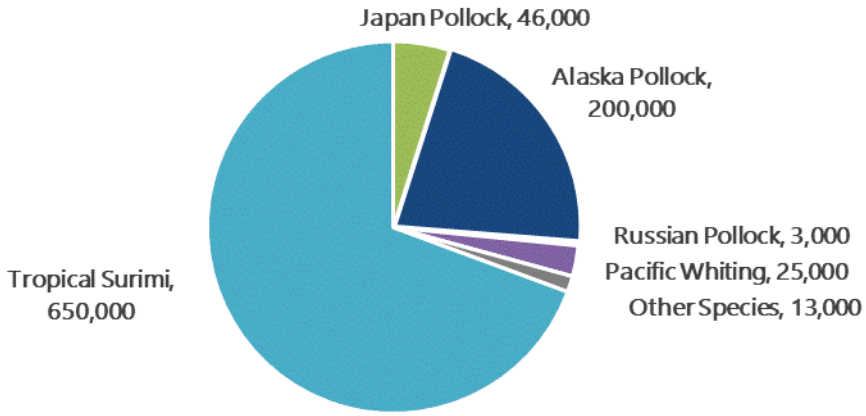

Figure 8.6: Global Surimi Production (mt), by Source Species, 2021

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.

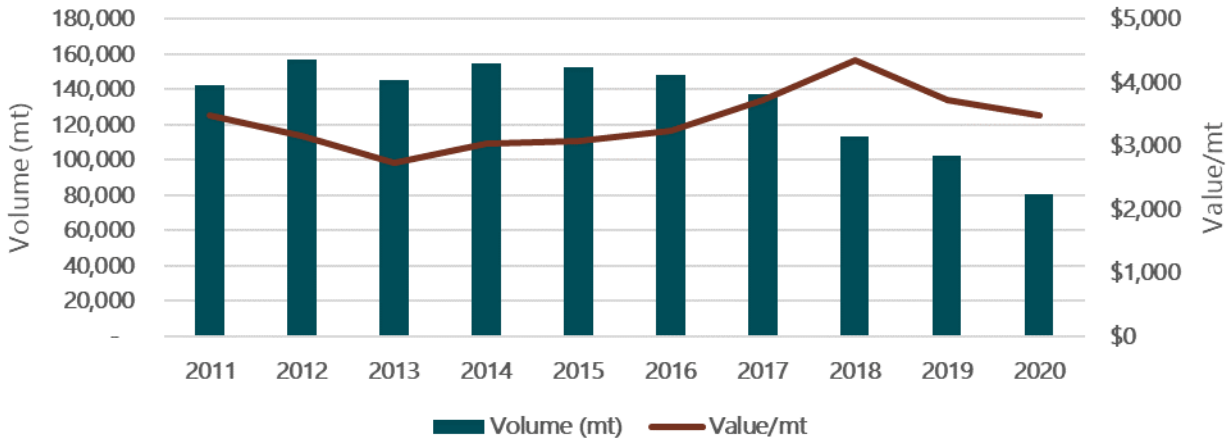

Figure 8.7: First Wholesale Volume and Value/mt for Alaska Pacific Cod, 2011-2020

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 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.

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.

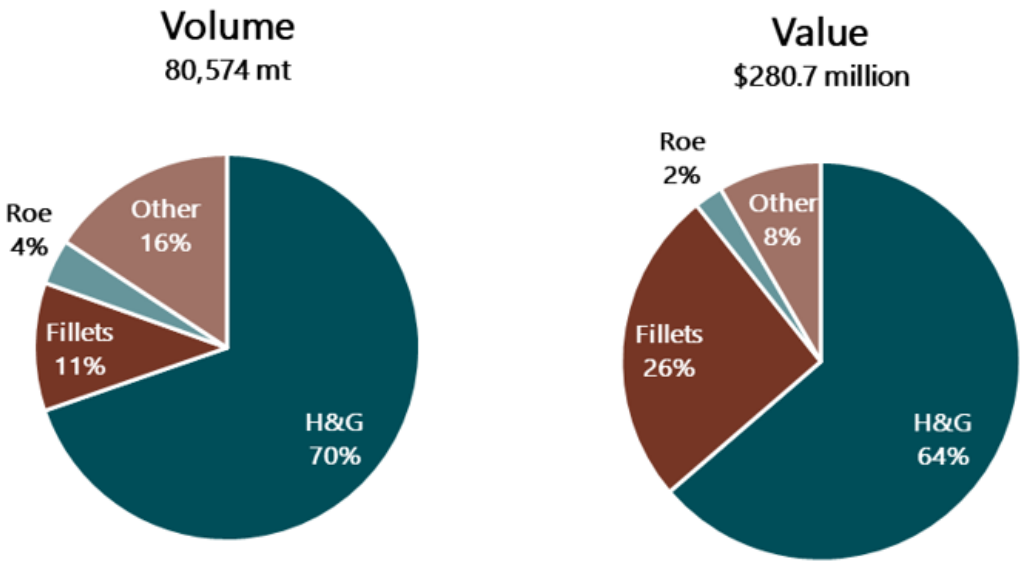

Figure 8.8: Volume and Value of Pacific Cod Wholesale Production in Alaska, by Product Type, 2020

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

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

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.

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.

[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.

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.

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%
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.

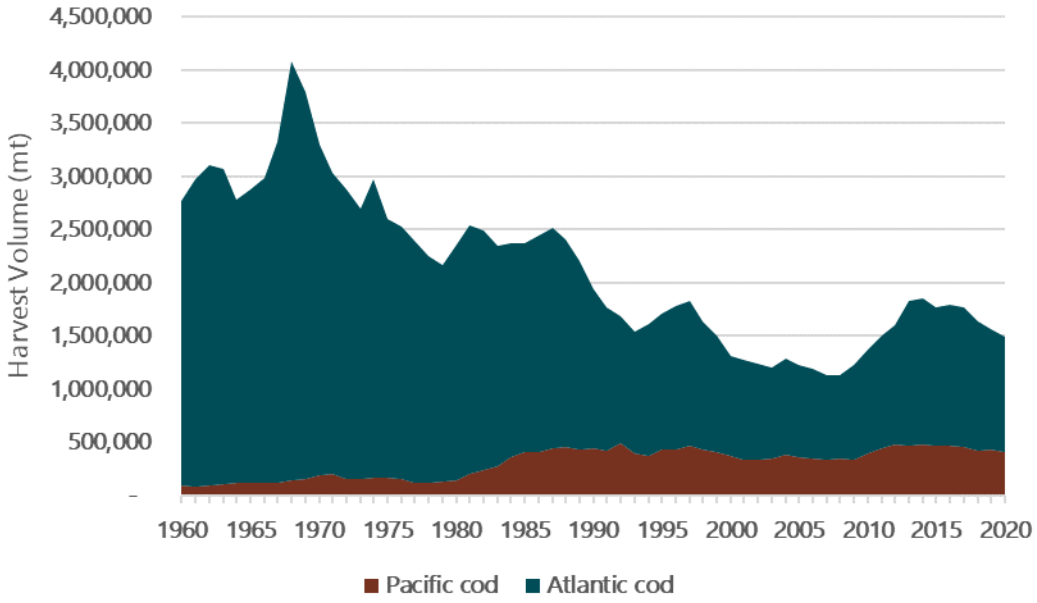

Figure 8.9: Global Supply of Pacific and Atlantic Cod (mt), 1960-2020

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.

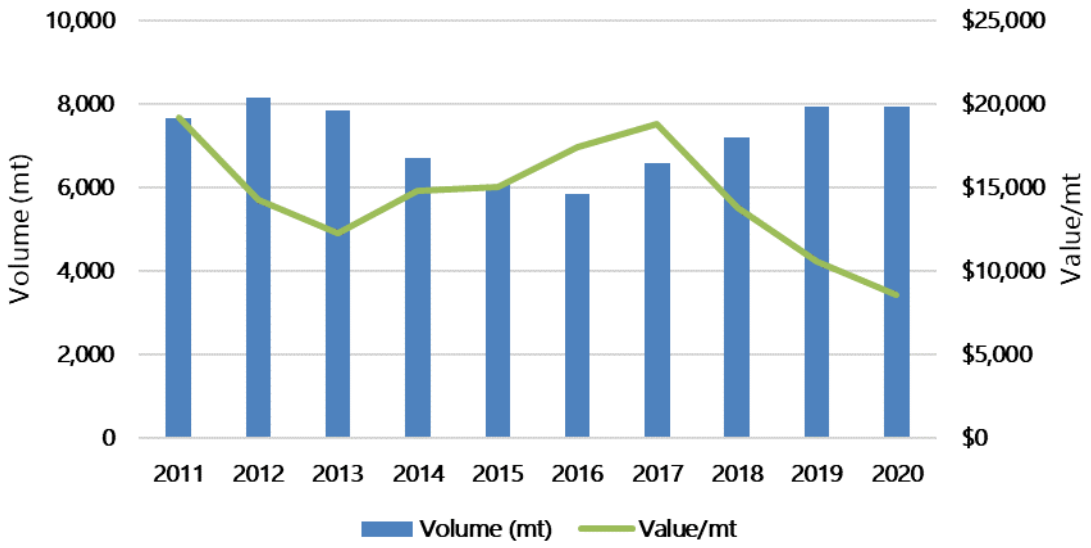

Figure 8.10: First Wholesale Volume and Value/mt for Alaska Sablefish, 2011-2020

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.

[19](International Trade Administration, 2022)

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	6,531	$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
United Arab Emirates	112	82	95	30	52	119	$16,949
Other	536	676	493	390	390	74	$18,162
All Exports	5,432	6,250	6,124	6,640	8,212	497	$13,997

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

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

[20](Sonu S. , 2014)

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.

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.

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 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

[21] Russia has been a small producer of sablefish in recent years, reaching a height of 431 mt in 2019.
[22] (Catarci, 2004)

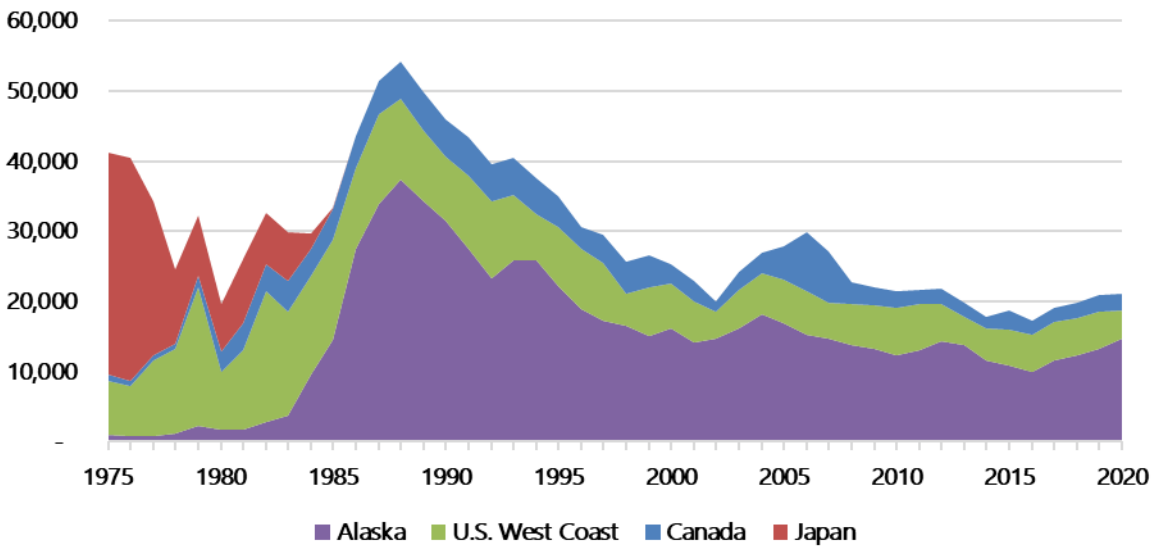

Figure 8.11: Global Supply of Sablefish (mt) from Main Global Producers, 1975-2020

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.

[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 8.29: 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.

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]

[25](The Council of the European Union, 2020)

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.

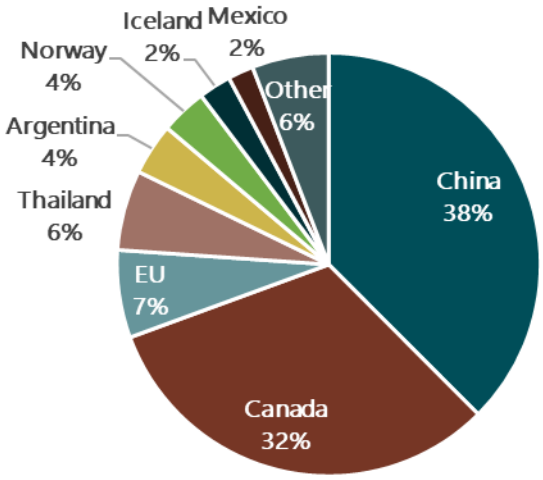

Figure 8.12: Share of U.S. Imports of Flatfish, by Region/Country, 2021

Note: Percentages are percentages of import volumes; does not include Pacific Halibut

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

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 2023, 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 2023 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 16 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 17 vessels participating in the program during 2023, 13 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 total values and median vessel-level values. All monetary values in the report are presented as

[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.

inflation-adjusted 2023 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

Figure 9.1 and Table 9.1 show the number and mean age of active A80 C/P vessels by year, and fleet aggregate and median vessel values for physical size and capacity of the vessel stock within the active fleet from 2008-2023. 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 gross- and net tonnage metrics) 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.

As of implementation of the Amendment 80 program in 2008, 22 qualifying catcher processor (CP) vessels actively participated in program fisheries. In subsequent years, overall fleet composition has been in constant flux since 2008, with entry and/or exit of one or two vessels from the active fleet in most years. Since 2008, 10 vessels that participated in the program that year exited the fishery without subsequently returning; as of 2023, 13 vessels in the original fleet remain as active participants, and 4 replacement vessels have entered the fleet. The initial reduction from 22 active vessels the first year of the program 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

[3]NTSB, 2017. [https://www.ntsb.gov/investigations/AccidentReports/Reports/MAB1726.pdf]

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 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. Aggregate gross tonnage displayed the greatest increase of physical metrics over the last decade; despite one fewer vessels in the active fleet from 2014 to 2023, aggregate gross tonnage increased by 59%, to 24.6 thousand tons, and median gross tonnage of 1,215 increased by 21%. Mean vessel age as of 2008 was 46 years old, and has consistently declined over the subsequent period, to 38 with the latest new vessel entering the fleet as of 2021 (and remaining at 38 through 2023 as a result of declining number of active vessels over the 3-year span), while median age has remained fairly constant, varying between between 41 and 45.

[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.

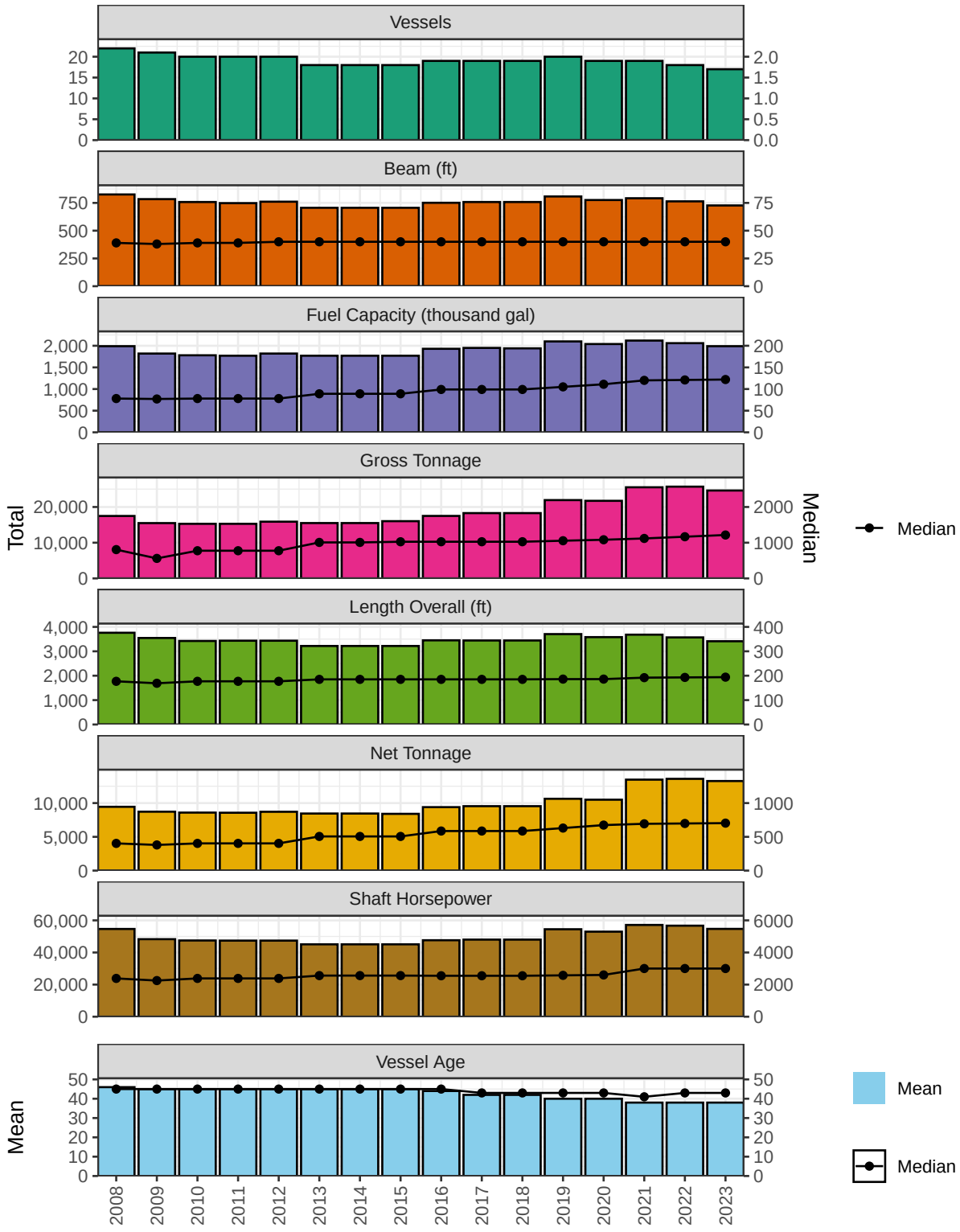

Figure 9.1: Amendment 80 Fleet - Aggregate Vessel Size Statistics.

Note Tabular data shown in Table 9.1.

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 (thousand gal)		Vessel Age	
	Vessels	Total	Median	Total	Median	Total	Median	Total	Median	Total	Median	Total	Median	Median	Mean
2008	22	17,483	806	9,449	403	3,760	177	826	39	54,650	2,385	1,990	78	45	46
2009	21	15,482	560	8,723	380	3,546	169	784	38	48,300	2,250	1,820	77	45	45
2010	20	15,285	775	8,589	403	3,424	177	758	39	47,475	2,385	1,780	78	45	45
2011	20	15,285	775	8,568	403	3,434	177	748	39	47,400	2,385	1,770	78	45	45
2012	20	15,880	775	8,712	403	3,434	177	761	40	47,400	2,385	1,820	78	45	45
2013	18	15,495	1,008	8,451	506	3,218	185	706	40	45,075	2,560	1,770	89	45	45
2014	18	15,495	1,008	8,451	506	3,218	185	706	40	45,075	2,560	1,770	89	45	45
2015	18	16,028	1,026	8,403	506	3,218	185	706	40	45,075	2,560	1,770	89	45	45
2016	19	17,493	1,027	9,399	586	3,449	185	751	40	47,625	2,550	1,930	99	45	44
2017	19	18,283	1,027	9,543	586	3,443	185	758	40	48,025	2,550	1,950	99	43	42
2018	19	18,283	1,027	9,543	586	3,443	185	758	40	48,025	2,550	1,940	99	43	42
2019	20	21,923	1,055	10,636	630	3,705	186	808	40	54,475	2,575	2,100	105	43	40
2020	19	21,724	1,082	10,501	674	3,581	186	776	40	52,975	2,600	2,040	111	43	40
2021	19	25,514	1,119	13,472	693	3,682	192	792	40	57,152	3,000	2,120	120	41	38
2022	18	25,689	1,167	13,590	698	3,570	193	764	40	56,697	3,000	2,060	121	43	38
2023	17	24,607	1,215	13,266	703	3,412	194	727	40	54,697	3,000	1,990	122	43	38

Source Amendment 80 Economic Data Reports.

Consistent with significant capital improvement in the existing fleet over the last 11 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 Figure 9.2 and Tables 9.2 and 9.3 for the recent period confirm substantial expansion of aggregate production capacity of the fleet. Over the active fleet of 19 vessels in 2021, total processing lines increased to 35, an average of 1.8 per vessel, although most vessels continue to have only one processing line, and with an active fleet of 17 in 2023, total processing lines declined to 32. Fleet aggregate processing line throughput capacity over all product types declined to a low of 1,862 mt per day in 2021, while the number of distinct products processed across the fleet as a whole increased to 84 in 2021, and reached a time-series high of 90 in 2023, while the median value of 24 distinct products per vessel was at a low for the period of 24 in 2022 and 2023. 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 Figure 9.3 and Table 9.3. Fleet-aggregate freezer throughput capacity, which ranged between 59 and 67 mt/hr on an annual basis prior to 2016, increased to 72.8 mt/hr in 2017, and reached a peak of 77.2 mt/hr in 2021, declining to 69 mt/hr in 2023. Fleet-aggregate cold storage capacity, which ranged between 7,100 and 7,700 mt over the 2009 to 2015 period, increased to nearly 10 thousand mt in 2021, and to a vessel median of 489 mt, a 35% increase from 2020; with two fewer vessels active in l2023, aggregate cold storage declined somewhat, to 9,787 mt, while at median, increasing to a time series high of 540 mt.

Figure 9.2: Amendment 80 Fleet - Aggregate Vessel Processing Capacity Statistics.

Note Tabular data shown in Table 9.2

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 Daily Throughput, Any Product (mt)	
	Vessels	Total	Median	Total	Median	Total	Median	Total	Median
2008	22	39	1	30	18	77	28	2,498	107
2009	21	38	1	34	19	79	30	2,179	101
2010	20	37	1	36	19	82	29	2,134	95
2011	20	37	1	36	20	82	27	2,391	123
2012	20	36	1	36	20	85	30	2,046	106
2013	18	34	1	33	20	70	30	1,963	102
2014	18	34	1	32	20	72	30	1,924	107
2015	18	28	1	30	19	77	28	1,891	94
2016	19	30	1	34	20	83	32	1,897	93
2017	19	31	1	34	20	70	32	2,204	107
2018	19	31	1	37	20	83	31	2,225	117
2019	20	31	1	35	20	76	30	2,119	107
2020	19	30	1	35	20	69	28	2,189	116
2021	19	35	2	36	20	84	28	1,862	99
2022	18	33	2	34	19	87	24	2,041	122
2023	17	32	2	35	20	90	24	1,940	111

Source Amendment 80 Economic Data Reports.

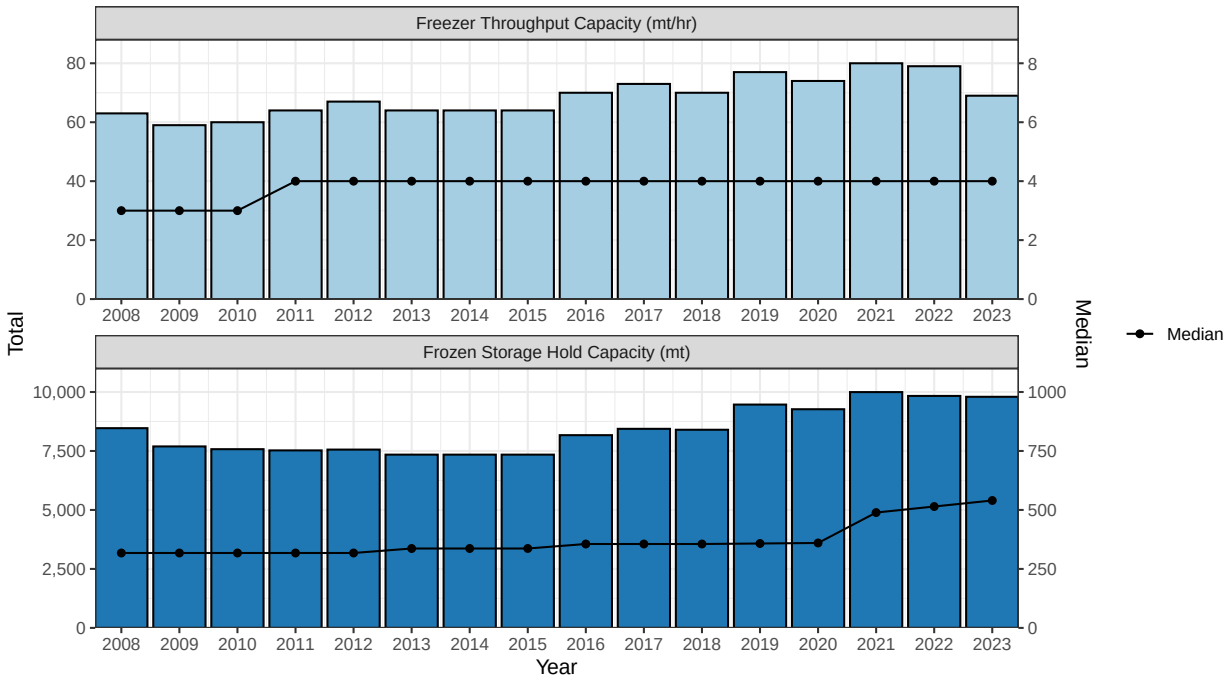

Figure 9.3: Amendment 80 Fleet - Median Vessel Freezer Capacity.

Note Tabular data shown in Table 9.3

Table 9.3: Amendment 80 Fleet - Aggregate and Median Vessel Freezer Capacity

		Frozen Storage Hold Capacity (mt)		Freezer Throughput Capacity (mt/hr)	
	Vessels	Total	Median	Total	Median
2008	22	8,467	317.51	63	3
2009	21	7,693	317.51	59	3
2010	20	7,576	317.51	60	3
2011	20	7,525	317.51	64	4
2012	20	7,559	317.51	67	4
2013	18	7,345	336.57	64	4
2014	18	7,345	336.57	64	4
2015	18	7,345	336.57	64	4
2016	19	8,171	355.62	70	4
2017	19	8,439	355.62	73	4
2018	19	8,400	355.62	70	4
2019	20	9,467	357.82	77	4
2020	19	9,270	360.02	74	4
2021	19	9,996	488.97	80	4
2022	18	9,834	514.53	79	4
2023	17	9,797	540.09	69	4

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, and median values for annual fuel consumption, and prorata indicies annual gallons per metric ton of retained catch and gallons per vessel day at sea. 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 on the increase in recent years, reaching the highest levels to date in 2023; compared to a period average from 2008 to 2020 of 101 gallons per hour, the burn rate increased to 115 gallons per hour while fishing and processing 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 seven years, ranging between 685 to 776 thousand gallons annually, with the time series high of 776 thousand gallons in 2022. Median values of pro-rata indices of fuel gallons per metric ton of retained catch and gallon per vessel day at sea both reached time-series highs in 2021, at 46 gallons/mt and 3,175 gallons/day, respectively, and both declining over the two most recent years.

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 2008-2023, representing counts of days during which the vessel undertook fishing and processing operations in 1) the Bering Sea/Aleutian Islands management area, inclusive of Amendment 80 target species fisheries and all BSAI 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), and including mothership operations in the BSAI processing Amendment 80 program catch, 2) all GOA fishery activity, including 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 [5] 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]

[5] Beginning in 2022, the Amendment 80 EDR was modified to eliminate reporting of vessel fishing and processing activity days, which was duplicative of information that is now derived from Trawl C/P Daily Production Logbook data submitted to NMFS AKRO; the EDR still collects vessel-level data on days in transit (not fishing or processing) or offloading in port, and days inactive in shipyard.

[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.

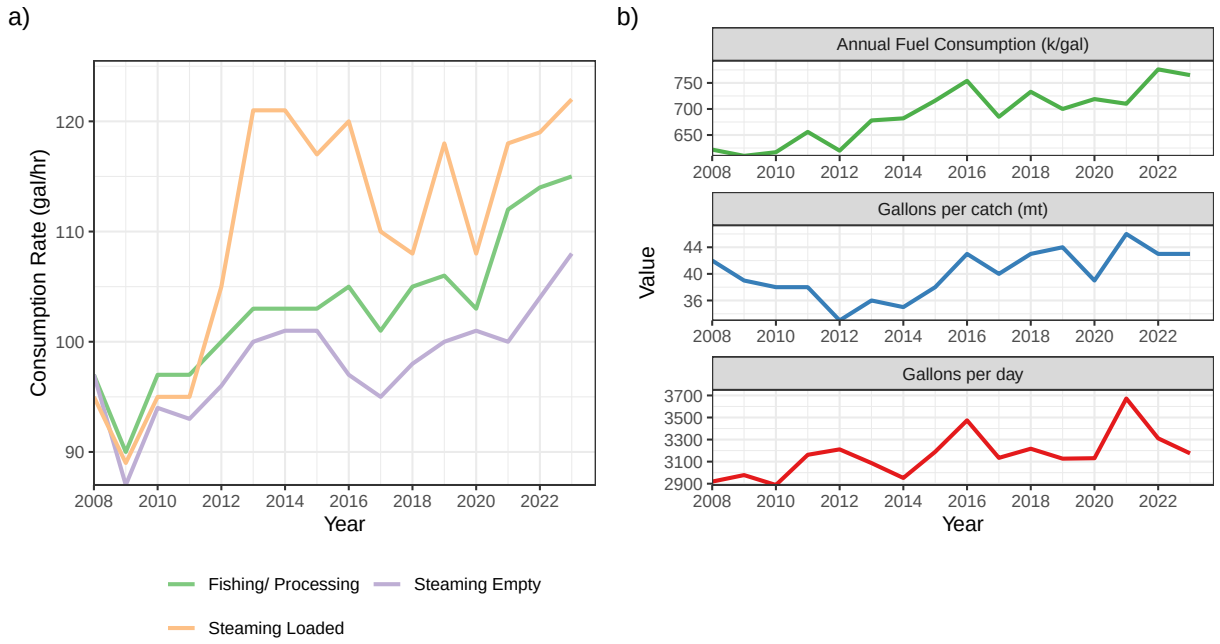

Figure 9.4: a) Amendment 80 Fleet - Median Vessel Fuel Consumption Rates by Vessel Activity, b) Median Annual Fuel Consumption (k/gal), Gallons per Catch (mt), and Gallons per Day, by year.

Note Tabular data shown in Table 9.4. EDR reporting of annual gallons per year by activity discontinued after 2021; see 2021 SAFE for statistics.

Table 9.4: Amendment 80 Fleet - Median Vessel Fuel Consumption Rates by Vessel Activity

		Avg. Fuel Use Median (gal/hr)			Annual Fuel Consumption		Gallons per catch (mt)	Gallons per day
	Vessels	Fishing/ Processing	Steaming Loaded	Steaming Empty	Median (k/gal)	Total (m/gal)	Median	Median
2008	22	97	95	97	622	14	42	2,919
2009	21	90	89	87	610	12	39	2,978
2010	20	97	95	94	617	13	38	2,888
2011	20	97	95	93	656	13	38	3,162
2012	20	100	105	96	620	12	33	3,211
2013	18	103	121	100	678	12	36	3,087
2014	18	103	121	101	682	13	35	2,952
2015	23	103	117	101	716	13	38	3,189
2016	24	105	120	97	754	14	43	3,474
2017	19	101	110	95	685	13	40	3,134
2018	19	105	108	98	733	14	43	3,217
2019	20	106	118	100	700	14	44	3,127
2020	20	103	108	101	719	13	39	3,131
2021	20	112	118	100	710	13	46	3,672
2022	24	114	119	104	776	14	43	3,311
2023	20	115	122	108	765	13	43	3,175

Source Amendment 80 Economic Data Reports. EDR reporting of annual gallons per year by activity discontinued after 2021; see 2021 SAFE for statistics.

Metrics of operational activity have remained relatively constant over the life of the Amendment 80 program. At the fleet level prior to 2023, total annual vessel-days of processing activity varied between 3,550 and 4,180 in the BSAI, and between 280 and 510 days in the GOA (noting that vessel-days fishing tracks closely and slightly lower than days processing). With the reduction to 17 active vessels during 2023, total processing days in the BSAI fell to 3,340, its lowest level to-date. However, on the basis of median days per vessel, at 219 days processing in the BSAI, 2023 was the highest value since 2019 and moderately above the time series average of 204 days at vessel-level median.

While eight vessels were active in the GOA during 2023, increasing from 6 in 2021 and 7 in 2022, aggregate days processing declined by 9% from 2022, to 299 days, and declined 32% at median, to 32 days. Over the longer term, a notable trend is the greater contraction of the segment of the A80 fleet active in GOA fisheries relative to the fleet as a whole. As noted above, between 2009 and 2022, the fleet as a whole varied between 18 and 21 vessels, without a consistent directional trend. In contrast, participation in GOA fisheries declined from 17 vessels in 2009 to 6 in 2022; prior to 2018, the GOA segment made up between 50% and 80% of the active A80 fleet as a whole in those years, but has been a minority of the fleet from 2020 to 2023, and only one-third of the fleet during 2021. Across the active fleet during respective years, 2023 saw the lowest total fleet days transiting and offloading to-date, at 1,271 days; with vessel-level median of 68 days in 2023 equivalent to the average annual median over the time-series. Days inactive (in port and/or at-sea) during 2023 increased to 1,339 in aggregate and 79 at median, both the highest values since 2017. The comparative trends in aggregate and median values, and in active operations and days in port suggest that contraction the 2023 contraction to the smallest active fleet in the last 16 years was the principal factor in the 2023 decline in aggregate operating days, while the increased physical capacity of the active fleet, due the recent entry of larger vessels, contributed to an increase in median active days processing and a decline in median days steaming and offloading during 2023.

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

		Year	Vessels	Fleet Total	Median Vessel
BSAI	Days Fishing	2008	22	4,148	190
		2009	21	3,660	172
		2010	20	3,766	201
		2011	20	3,593	185
		2012	20	3,521	188
		2013	18	3,554	201
		2014	18	3,477	202
		2015	18	3,575	210
		2016	19	3,821	206
		2017	19	3,700	212
		2018	19	3,926	206
		2019	20	4,176	216
		2020	19	3,806	210
		2021	19	3,658	200
		2022	18	3,698	208
		2023	17	3,398	213
	Days Processing	2008	22	4,189	198
		2009	21	3,688	180
		2010	20	3,814	206
		2011	20	3,716	186
		2012	20	3,635	191
		2013	18	3,647	203
		2014	18	3,573	207
		2015	18	3,672	214
		2016	19	3,879	210
		2017	19	3,766	218
		2018	19	3,980	210
		2019	20	4,257	224
		2020	19	3,888	210
		2021	19	3,680	197
		2022	18	3,744	213
		2023	17	3,442	219
BSAI	Days Fishing	2008	12	369	18
		2009	17	375	13
		2010	16	323	8
		2011	16	327	12
		2012	16	327	6
		2013	13	286	14
		2014	10	511	22
		2015	8	397	34
		2016	13	354	8
		2017	10	435	26
		2018	8	294	32
		2019	10	340	28
		2020	8	280	34
		2021	6	327	50
		2022	7	326	47
		2023	8	303	34

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 *(continued)*

		Year	Vessels	Fleet Total	Median Vessel
		2008	12	353	19
		2009	17	376	14
		2010	16	323	8
		2011	16	329	12
		2012	16	328	6
		2013	13	287	15
		2014	10	510	22
		2015	8	407	36
		2016	13	355	8
		2017	10	436	26
		2018	8	294	32
		2019	10	341	28
		2020	8	281	34
		2021	6	325	50
	Days	2022	7	327	47
GOA	Processing	2023	8	299	32
		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	2022	18	1,468	71
	Travel/Offload	2023	17	1,271	68
		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
Non-Fishing		2022	18	1,215	58
and Inactive	Days Inactive	2023	17	1,339	68

Note Vessel activity days as reported in this table are not mutually exclusive with respect to activity type, and summing number of days over activity 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 vessel days at sea = 365-days inactive, and fleet total days at sea = (Vessel count x 365) - fleet total days inactive.
Source Days fishing by area are sourced from NMFS Alaska Region Groundfish Catch Accounting System (CAS) data, and days processing by area are sourced from NMFS Alaska Region Daily Groundfish At-Sea Production Reports. Days processing and days travel/offloading are sourced from the A80 Economic Data Report. Source data and compilation are provided by the Alaska Fisheries Information Network (AKFIN).

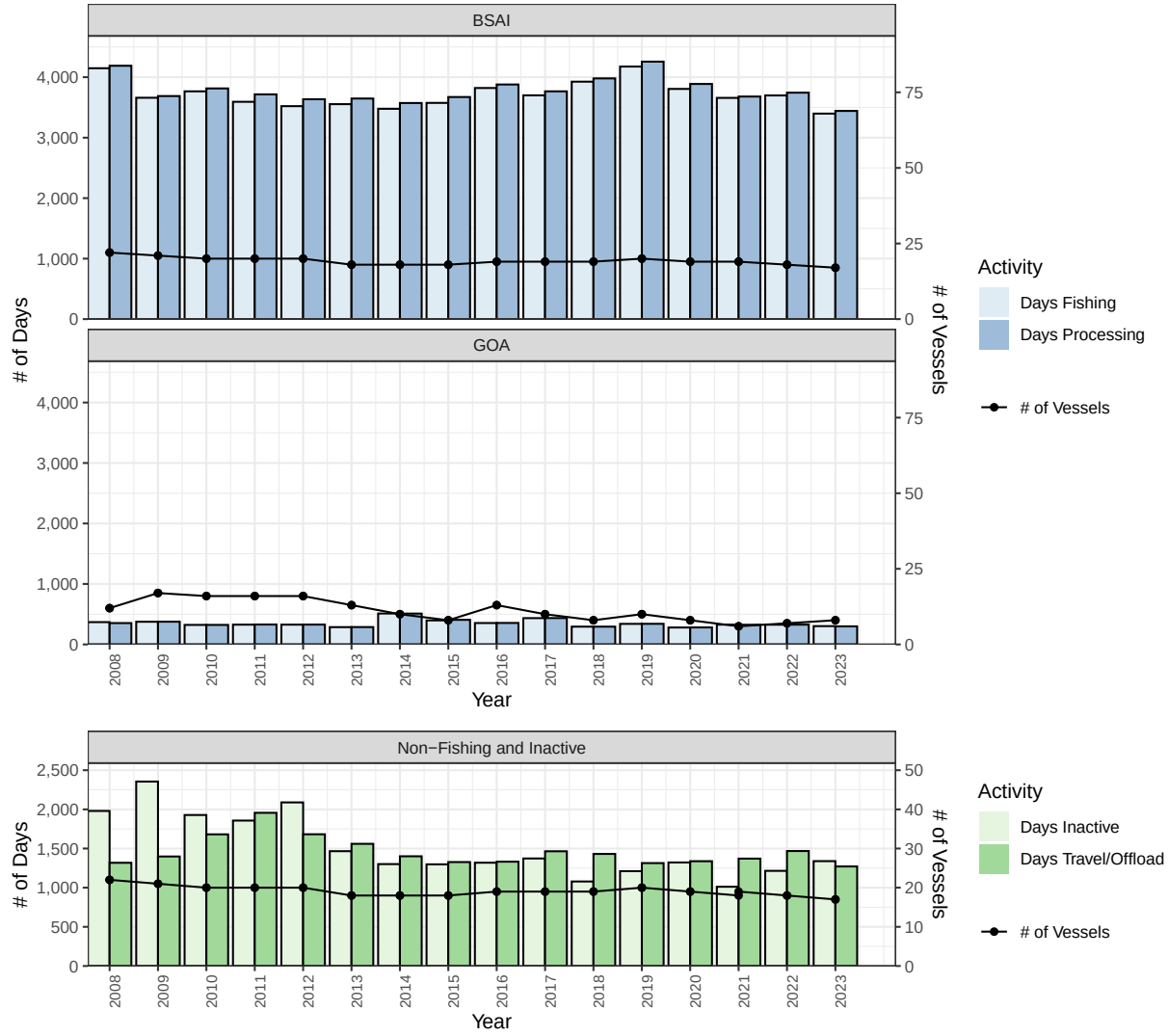

Figure 9.5: Amendment 80 Fleet activity - Days Fishing and Processing by Fishery and Days in Transit/Offloading and Inactive in Port

Note Tabular data shown in Table 9.5.

9.3 Catch, Production, and Value

Figure 9.6 and Table 9.6 report annual fleet aggregate and median vessel-level values for retained and discarded catch, volume of processed product in finished weight terms (in metric tons), and estimated wholesale value of finished processed volume (aggregate and per-mt values in $US adjusted to 2023-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, all species caught in fisheries in the Gulf of Alaska (GOA). Note that finished production volume statistics summarized in Figure 9.6 and Table 9.6 are sourced from NMFS Alaska Region At-Sea Production Reporting system data, with wholesale value of production estimated using average species/product per-unit prices sourced

from ADFG Commercial Operators Annual Report (COAR) data; estimated wholesale value is distinct from realized wholesale revenue from sales as reported in the Amendment 80 EDR and addressed in the Operating Income and Costs discussion below (see Figure 9.7 and Table 9.8).

Retained catch of Amendment 80 species in the BSAI has varied within a relatively narrow range over most of the management program's history, between 207 thousand and 271 thousand metric tons (mt) in aggregate, averaging 246 thousand mt per year over the period. In contrast with generally modest year-on-year variation in percentage terms (typically less than 3%), aggregate retained catch of A80 program species exhibited greater variation in recent years, with the time series low of 207 mt occurring in 2021, increasing by 22% to 252 mt in 2022, and declining by 11% in 2023 to 223 mt (Figure 2). Collectively, Amendment 80 target species comprise the largest share of total annual retained catch within the Amendment 80 fleet, varying between 69% and 81%, and averaging 74% over the period. As a long-term trend, however, Amendment 80 species have modestly declined as a proportion of total retained catch in the fleet, comprising a minimum of 74% in 10 of 11 years prior to 2019, and not exceeding 72% in the most recent 5 years, declining to a time series low of 69% in 2023. Retained catch of non-A80 species in the BSAI, and of all species in the GOA, have averaged 19% and 8%, respectively, of fleet-level total retained catch over the 16 year period; BSAI non-A80 species retained catch in 2023 reached 72 thousand mt, the second-highest value of the period, and at 22%, the highest share of annual aggregate catch to-date.

Amendment 80 fleet discard rates and volume across fisheries generally declined over the first several years of the management program, and have largely stabilized since 2014. Total annual A80 fleet discard weight is comprised primarily of discard in non-A80 target fisheries in the BSAI, in which discard rate declined from 58% in 2008 to 32% in 2014, subsequently varying between 24% and 32% from 2015 to 2023. Annual average discard rates in A80 target fisheries and in the GOA consistently declined from highs of 5% and 30% in 2009, stabilizing by 2014 at less than 2% in A80 fisheries and between 6% and 12% in GOA fisheries through 2023.

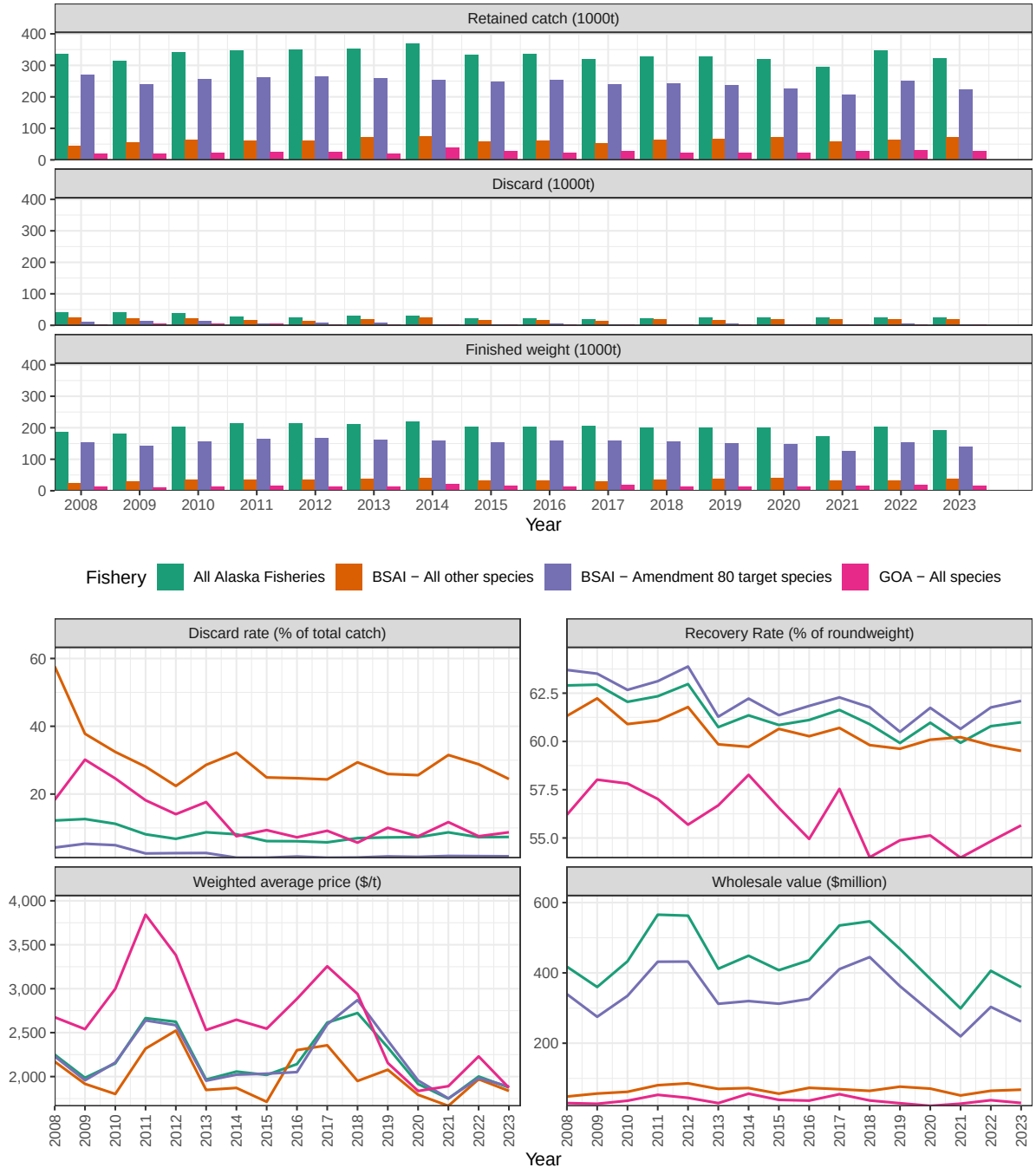

Figure 9.6: Amendment 80 Fleet - Aggregate Retained Catch, Discard Volume and Rate, Finished Production Volume and Wholesale Value, Average Price, and Product Recovery Rate, by Fishery and Area.

Note Tabular results for fleet aggregate statistics are reported in Table 9.5; median values are reported Table 9.6.

Finished production volume in the Amendment 80 sector across all fisheries generally increased over the first six years of the management program, from a low of 181 thousand mt in 2009, to a historical high of 218 thousand mt in 2014, and subsequently remained quite stable near an average of 202 thousand mt per year through 2020. Production in the most recent three years has

been more variable, dropping sharply in 2021 to a historic low of 171 thousand mt, recovering to 203 thousand mt in 2022 and falling to 192 thousand mt in 2023, the third lowest production year in the program's history. The 2021 decline in total finished production was driven largely by a 23 thousand mt (16%) decline in Amendment 80 target fisheries production (which historically represents approximately 75% of total fleet production), compounded by a 22% decline in other BSAI species finished production. Amendment 80 target fisheries production recovered substantially in 2022, increasing 22% to 153 thousand mt (on par with the time-series average), coupled with smaller proportional increases in other BSAI and GOA fisheries, bringing total 2022 finished production in the sector to 203 thousand mt. A 9% production decline in A80 species drove an overall decline of 6% across all fisheries in 2023, to 192 thousand mt, the second lowest level since 2009.

First wholesale value of finished production, aggregated across all species processed in the sector has varied in line with annual average per-unit values (Figure 3, weighted average price), driven by variation in average price over Amendment 80 target species. Average value per mt was fairly volatile from 2008 to 2013, varying between $1,952 and $2,639 per mt; the longest period of relative price stability occurred from 2013 to 2016, adhering close to the average of $2,115 for those years. High volatility returned beginning 2017, with a 26% increase (the largest year-on-year percentage change in average price to-date), followed by a time-series high of $2,871 per mt in 2018. Sharp declines followed in each of the next three years, with average price reaching a historic low of $1,751 in 2021. This was concurrent with a historic low in finished production volume from A80 target species, resulting in a historic low in first wholesale value of $219 million that year, 35% below the time-series average of $336 million per year. Both average price and production volume recovered somewhat in 2022, but both declined again in 2023, pushing aggregate value to $262 million in A80 species fisheries, and $360 in aggregate across production in the sector, the second lowest values to-date. While exhibiting somewhat distinct pattern of variation over the time-series, both production volume and average price metrics for non-A80 species in the BSAI and GOA both declined sharply in 2020-2021, contributing to the historically low production value in the sector that year.

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.

Table 9.6: Amendment 80 Fleet - Retained Catch and Discard Volume and Rate, by Fishery and Area, Fleet Total and Median Vessel Values

			Fleet Aggregate			Median Vessel		
	Year	Vessels	Retained catch (1000t)	Discard (1000t)	Discard rate (% of total catch)	Retained catch (1000t)	Discard (1000t)	Discard rate (% of total catch)
BSAI - Amendment 80 target species	2008	22	270.64	11.42	4	13.01	0.30	3
	2009	21	239.66	12.80	5	12.22	0.51	5
	2010	20	257.57	12.68	5	13.96	0.44	3
	2011	20	262.29	6.50	2	14.34	0.17	2
	2012	20	265.04	6.82	3	14.55	0.23	2
	2013	18	260.43	6.79	3	15.03	0.31	2
	2014	18	254.97	3.17	1	13.94	0.15	1
	2015	18	248.00	3.08	1	12.84	0.18	1
	2016	19	253.93	3.98	2	13.68	0.15	1
	2017	19	238.78	2.93	1	12.25	0.13	1
	2018	19	241.76	3.12	1	12.05	0.16	1
	2019	20	236.27	3.80	2	10.76	0.18	2
	2020	19	227.27	3.36	1	9.65	0.16	2
	2021	19	207.04	3.61	2	10.32	0.17	2
	2022	18	251.86	4.26	2	14.01	0.18	2
	2023	17	222.98	3.67	2	12.31	0.20	2
BSAI - All other species	2008	22	44.81	25.83	58	1.82	1.27	69
	2009	21	55.43	20.94	38	2.30	1.00	50
	2010	20	63.18	20.49	32	2.38	0.96	45
	2011	20	62.11	17.45	28	3.16	0.80	27
	2012	20	60.34	13.51	22	3.17	0.63	23
	2013	18	70.85	20.27	29	3.97	1.17	30
	2014	18	73.94	23.83	32	3.94	1.22	31
	2015	18	59.78	14.88	25	3.66	0.79	26
	2016	19	60.12	14.84	25	3.33	0.77	27
	2017	19	53.02	12.89	24	3.09	0.60	23
	2018	19	63.04	18.51	29	3.41	0.87	28
	2019	20	67.32	17.45	26	3.30	0.86	27
	2020	19	72.03	18.42	26	3.96	1.01	23
	2021	19	59.52	18.76	32	2.68	0.77	24
	2022	18	64.94	18.69	29	3.55	0.90	25
	2023	17	72.04	17.61	24	4.17	0.88	21

Table 9.6: Amendment 80 Fleet - Retained Catch and Discard Volume and Rate, by Fishery and Area, Fleet Total and Median Vessel Values *(continued)*

			Fleet Aggregate			Median Vessel		
	Year	Vessels	Retained catch (1000t)	Discard (1000t)	Discard rate (% of total catch)	Retained catch (1000t)	Discard (1000t)	Discard rate (% of total catch)
	2008	12	20.54	3.76	18	1.88	0.29	15
	2009	17	20.19	6.09	30	0.99	0.17	24
	2010	16	21.36	5.25	25	0.91	0.24	18
	2011	16	24.34	4.42	18	0.75	0.19	16
	2012	16	24.20	3.40	14	0.67	0.07	13
	2013	13	20.46	3.61	18	0.98	0.15	10
	2014	10	39.19	2.96	8	2.11	0.13	6
	2015	9	27.05	2.53	9	2.14	0.23	6
	2016	13	22.29	1.61	7	0.70	0.02	2
	2017	10	29.43	2.70	9	2.58	0.06	3
	2018	8	22.82	1.29	6	2.61	0.09	5
	2019	10	23.76	2.39	10	2.15	0.05	10
	2020	8	21.39	1.61	8	2.80	0.13	9
	2021	6	27.77	3.25	12	5.17	0.31	13
GOA - All	2022	7	31.36	2.37	8	5.65	0.30	8
species	2023	8	28.07	2.45	9	3.16	0.27	8
	2008	22	335.99	41.00	12	15.76	1.63	12
	2009	21	315.29	39.83	13	16.12	1.70	11
	2010	20	342.11	38.43	11	18.58	1.69	12
	2011	20	348.74	28.37	8	18.88	1.43	8
	2012	20	349.58	23.74	7	18.57	1.21	8
	2013	18	351.74	30.67	9	19.65	1.66	9
	2014	18	368.11	29.96	8	20.07	1.38	8
	2015	18	334.83	20.49	6	19.39	1.13	6
	2016	19	336.34	20.44	6	19.40	1.07	6
	2017	19	321.23	18.52	6	15.27	0.88	6
	2018	19	327.62	22.92	7	16.97	1.13	6
	2019	20	327.36	23.64	7	15.54	1.07	7
	2020	19	320.69	23.39	7	16.99	1.17	7
	2021	19	294.33	25.62	9	15.36	1.22	9
All Alaska	2022	18	348.15	25.32	7	17.68	1.13	7
Fisheries	2023	17	323.08	23.72	7	17.21	1.23	7

Note All dollar values are inflation-adjusted to 2023, -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).

Table 9.7: Amendment 80 Fleet - Finished Production Volume and Value, Average Price, and Recovery Rate, by Fishery and Area, Fleet Total and Median Vessel Values

			Fleet Aggregate				Median Vessel		
	Year	Vessels	Finished weight (1000t)	Wholesale value ($million)	Weighted average price ($/t)	Recovery Rate (% of roundweight)	Finished weight (1000t)	Wholesale value ($million)	Recovery Rate (% of roundweight)
	2008	22	152.31	339.66	2230	64	6.89	14.70	65
	2009	21	140.54	275.14	1958	64	7.52	13.59	65
	2010	20	154.95	334.68	2160	63	8.43	16.57	63
	2011	20	163.61	431.77	2639	63	8.56	20.41	63
	2012	20	167.18	432.16	2585	64	8.96	20.59	63
	2013	18	159.85	312.13	1953	61	8.32	15.48	61
	2014	18	158.16	319.87	2022	62	8.53	14.11	62
	2015	18	153.65	312.32	2033	61	7.57	12.96	62
	2016	19	158.99	326.07	2051	62	8.15	14.53	62
	2017	19	158.31	410.68	2594	62	7.29	16.28	62
	2018	19	154.99	444.91	2871	62	7.33	20.81	62
	2019	20	150.28	362.19	2410	60	6.34	14.47	62
BSAI -	2020	19	148.41	290.22	1956	62	7.16	12.86	62
Amendment	2021	19	125.25	219.41	1752	61	6.54	10.56	62
80 target	2022	18	153.01	303.27	1982	62	8.59	16.68	62
species	2023	17	138.66	261.67	1887	62	7.51	16.28	62

Table 9.7: Amendment 80 Fleet - Finished Production Volume and Value, Average Price, and Recovery Rate, by Fishery and Area, Fleet Total and Median Vessel Values *(continued)*

			Fleet Aggregate				Median Vessel		
	Year	Vessels	Finished weight (1000t)	Wholesale value ($million)	Weighted average price ($/t)	Recovery Rate (% of roundweight)	Finished weight (1000t)	Wholesale value ($million)	Recovery Rate (% of roundweight)
	2008	22	22.28	48.35	2170	61	0.92	1.91	60
	2009	21	29.67	56.87	1917	62	1.23	1.90	60
	2010	20	34.29	61.80	1802	61	1.27	2.09	60
	2011	20	34.77	80.59	2318	61	1.71	3.66	61
	2012	20	34.05	85.90	2523	62	1.82	3.90	62
	2013	18	37.90	70.03	1848	60	2.18	4.17	60
	2014	18	38.74	72.50	1871	60	2.12	3.89	60
	2015	18	32.96	56.46	1713	61	1.96	3.09	60
	2016	19	31.77	73.10	2301	60	1.64	2.55	59
	2017	19	29.36	69.16	2356	61	1.53	2.58	60
	2018	19	33.10	64.55	1950	60	1.88	3.35	59
	2019	20	36.79	76.44	2078	60	1.81	3.28	59
	2020	19	39.53	70.87	1793	60	2.11	3.21	60
BSAI -	2021	19	30.87	51.47	1667	60	1.42	1.97	60
All other	2022	18	32.86	64.74	1970	60	1.79	3.32	59
species	2023	17	36.91	67.82	1837	60	2.33	4.36	59

Table 9.7: Amendment 80 Fleet - Finished Production Volume and Value, Average Price, and Recovery Rate, by Fishery and Area, Fleet Total and Median Vessel Values *(continued)*

			Fleet Aggregate				Median Vessel		
	Year	Vessels	Finished weight (1000t)	Wholesale value ($million)	Weighted average price ($/t)	Recovery Rate (% of roundweight)	Finished weight (1000t)	Wholesale value ($million)	Recovery Rate (% of roundweight)
	2008	12	11.10	29.69	2675	56	0.93	2.43	52
	2009	17	10.95	27.81	2540	58	0.42	1.18	51
	2010	16	12.15	36.42	2998	58	0.49	1.53	52
	2011	16	13.85	53.21	3842	57	0.39	1.82	52
	2012	16	13.21	44.68	3382	56	0.38	1.47	51
	2013	13	11.71	29.63	2530	57	0.54	1.67	51
	2014	10	21.34	56.49	2647	58	1.13	4.04	53
	2015	9	15.29	38.92	2545	57	1.88	5.37	54
	2016	13	12.74	36.76	2885	55	0.37	0.87	52
	2017	10	16.90	55.01	3255	58	1.38	4.89	54
	2018	8	12.64	37.16	2940	54	1.49	4.66	53
	2019	10	13.59	29.29	2155	55	1.10	2.76	55
	2020	8	11.91	21.87	1836	55	1.58	3.25	55
GOA -	2021	6	14.83	28.04	1891	54	2.62	4.64	53
All	2022	7	17.00	37.91	2230	55	3.23	7.03	57
species	2023	8	16.07	30.10	1873	56	1.76	3.44	56

	2008	22	185.69	417.70	2249	63	8.26	17.98	64
	2009	21	181.15	359.83	1986	63	9.18	16.63	63
	2010	20	201.38	432.89	2150	62	10.66	20.53	63
	2011	20	212.23	565.57	2665	62	10.96	28.19	62
	2012	20	214.44	562.75	2624	63	10.55	26.75	63
	2013	18	209.45	411.79	1966	61	10.75	20.38	61
	2014	18	218.25	448.87	2057	61	11.79	23.44	62
	2015	18	201.90	407.70	2019	61	11.44	20.70	62
	2016	19	203.50	435.93	2142	61	10.80	22.42	62
	2017	19	204.58	534.86	2614	62	10.09	27.32	62
	2018	19	200.73	546.62	2723	61	10.76	27.25	61
	2019	20	200.66	467.92	2332	60	9.21	20.61	60
	2020	19	199.86	382.96	1916	61	11.03	19.31	61
All	2021	19	170.95	298.92	1749	60	8.55	17.25	60
Alaska	2022	18	202.88	405.92	2001	61	10.29	21.24	60
Fisheries	2023	17	191.64	359.60	1876	61	9.92	20.06	61

Note All dollar values are inflation-adjusted to 2023, -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 16-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 represent the overwhelming source of revenue for the sector; quota lease royalty revenue is received by a varying number of QS holders, always a minority and fewer than five from 2020 to 2023. As a reflection of the limited extent of QS lease activity within the sector, QS royalty revenue has varied between 0% and 0.4% of aggregate annual revenue across the sector in any given year (and, being offset by QS lease costs, royalty revenue solely represents an economic transfer within the sector; see discussion of QS lease costs below)[7] . Revenue from other sources has been negligible over the time period: income from non-production vessel services (e.g., tendering, charters, cargo transport) has been reported in only three years and by a single entity, and only one LLP sale has been reported in EDR data since 2008 (results are confidential for both revenue categories).[8]

Aggregate fishery product sales, which ranged from $329 million to $537 million between 2008 and 2017, reached a recent peak of $533 million in 2018, followed by a steady decline over the next three years, reaching the lowest level in the 16-year period in 2021, declining 16% from the previous year to $299 million in aggregate ($17.6 million at the median). Sales revenue recovered somewhat in 2022, to $380 million, but declined to $360 million in 2023; the period from 2020 to 2023 represents four of the five lowest years for aggregate sales revenue in the sector.

[7]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 mt of yellowfin sole QS was transferred between QS holders and harvesting vessels, for a total of $1.3 million, or approximately $70 per mt (nominal 2014 value).

[8]As of 2023, 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.

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 2023 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 mt 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 on outstanding debt, and 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 mt 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.

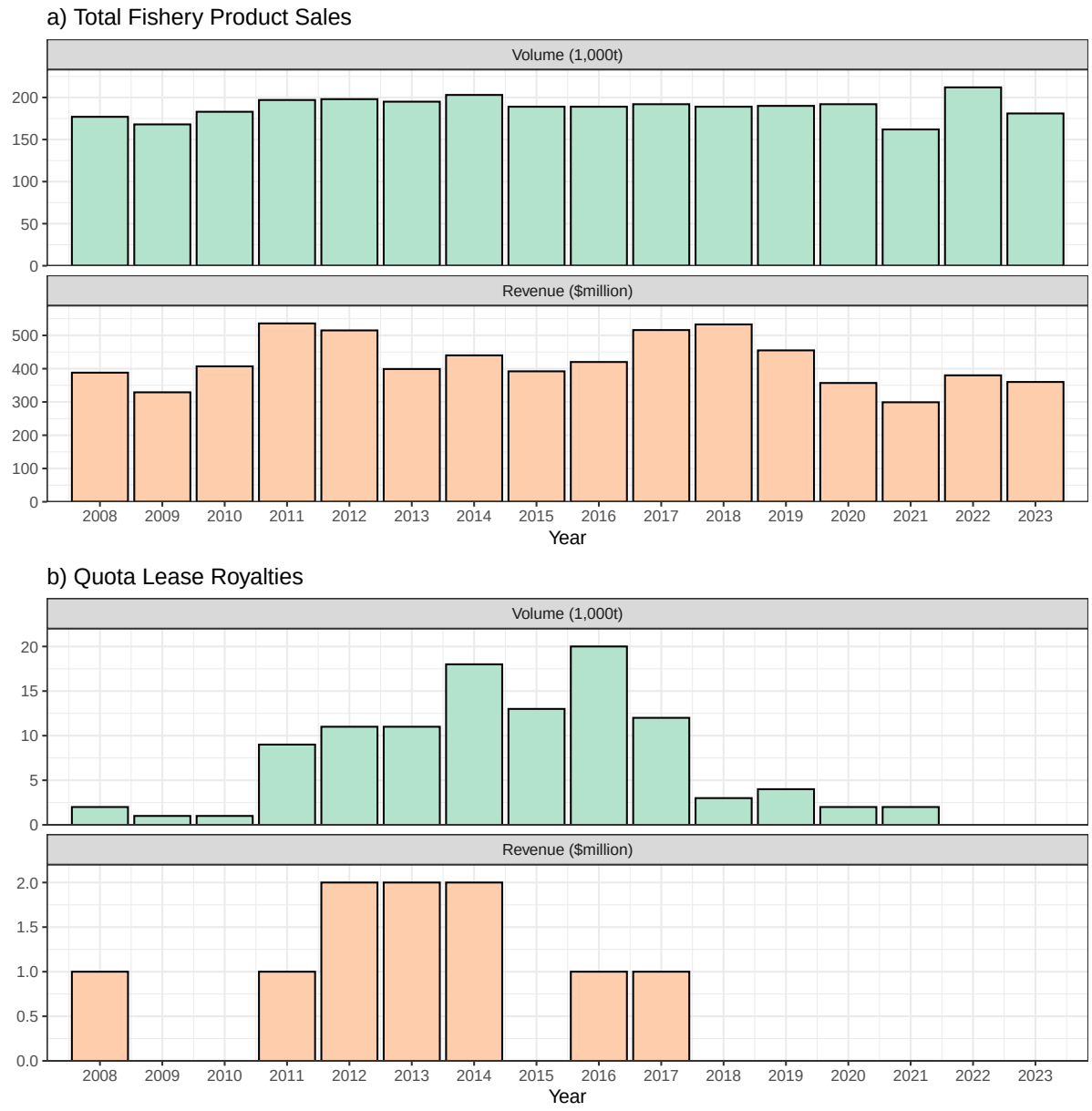

Figure 9.7: Amendment 80 Sector Annual Revenue from All Sources, including Volume and Value of Total Fishery Product Sales Quota Royalties.

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	$ 388	177	$ 17.29	7.47
	2009	21	$ 329	168	$ 14.71	8.45
	2010	20	$ 407	183	$ 18.67	9.76
	2011	20	$ 536	197	$ 26.24	10.17
	2012	20	$ 515	198	$ 24.72	9.39
	2013	18	$ 399	195	$ 20.15	10.38
	2014	18	$ 440	203	$ 22.76	10.65
	2015	18	$ 392	189	$ 19.95	10.58
	2016	19	$ 420	189	$ 20.6	9.96
	2017	19	$ 516	192	$ 24.4	9.5
	2018	19	$ 533	189	$ 28.72	10.29
	2019	20	$ 455	190	$ 20.32	8.55
	2020	19	$ 357	192	$ 20.91	10.6
	2021	19	$ 299	162	$ 17.6	8.17
	2022	18	$ 380	212	$ 21.12	10.31
	2023	17	$ 360	181	$ 19.83	9.19
Quota Lease Royalties	2008	6	$ 1	2	$ 0.02	0.17
	2009	3	$ 0	1	$ 0.04	0.46
	2010	6	$ 0	1	$ 0.02	0.1
	2011	10	$ 1	9	$ 0.05	0.32
	2012	10	$ 2	11	$ 0.1	0.65
	2013	7	$ 2	11	$ 0.27	2
	2014	8	$ 2	18	$ 0.25	2.85
	2015	4	$ 0	13	$ 0.07	3.3
	2016	5	$ 1	20	$ 0.23	5.07
	2017	5	$ 1	12	$ 0.12	1.56
	2018	6	$ 0	3	$ 0.01	0.6
	2019	5	$ 0	4	$ 0.1	0.36
	2020	4	$ 0	2	$ 0.08	0.34
	2021	4	$ 0	2	$ 0.1	0.35
	2022	2	*	*	*	*
	2023	1	*	*	*	*
Other Income from Vessel Operations	2008	0	-	-	-	-
	2009	0	-	-	-	-
	2010	1	*	-	*	-
	2011	0	-	-	-	-
	2012	1	*	-	*	-
	2013	1	*	-	*	-
	2014	0	-	-	-	-
	2015	0	-	-	-	-
	2016	0	-	-	-	-
	2017	0	-	-	-	-
	2018	0	-	-	-	-
	2019	0	-	-	-	-
	2020	0	-	-	-	-
	2021	0	-	-	-	-
	2022	0	-	-	-	-
	2023	0	-	-	-	-

Note All dollar values are inflation-adjusted to 2023, -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 Aggregate Operating Expenses and *Pro-Rata* Indices, by Expense Category

Note Tabular values for fleet aggregate statistics shown in the above figure are reported in Table 9.9; median vessel values are reported in Table 9.10.

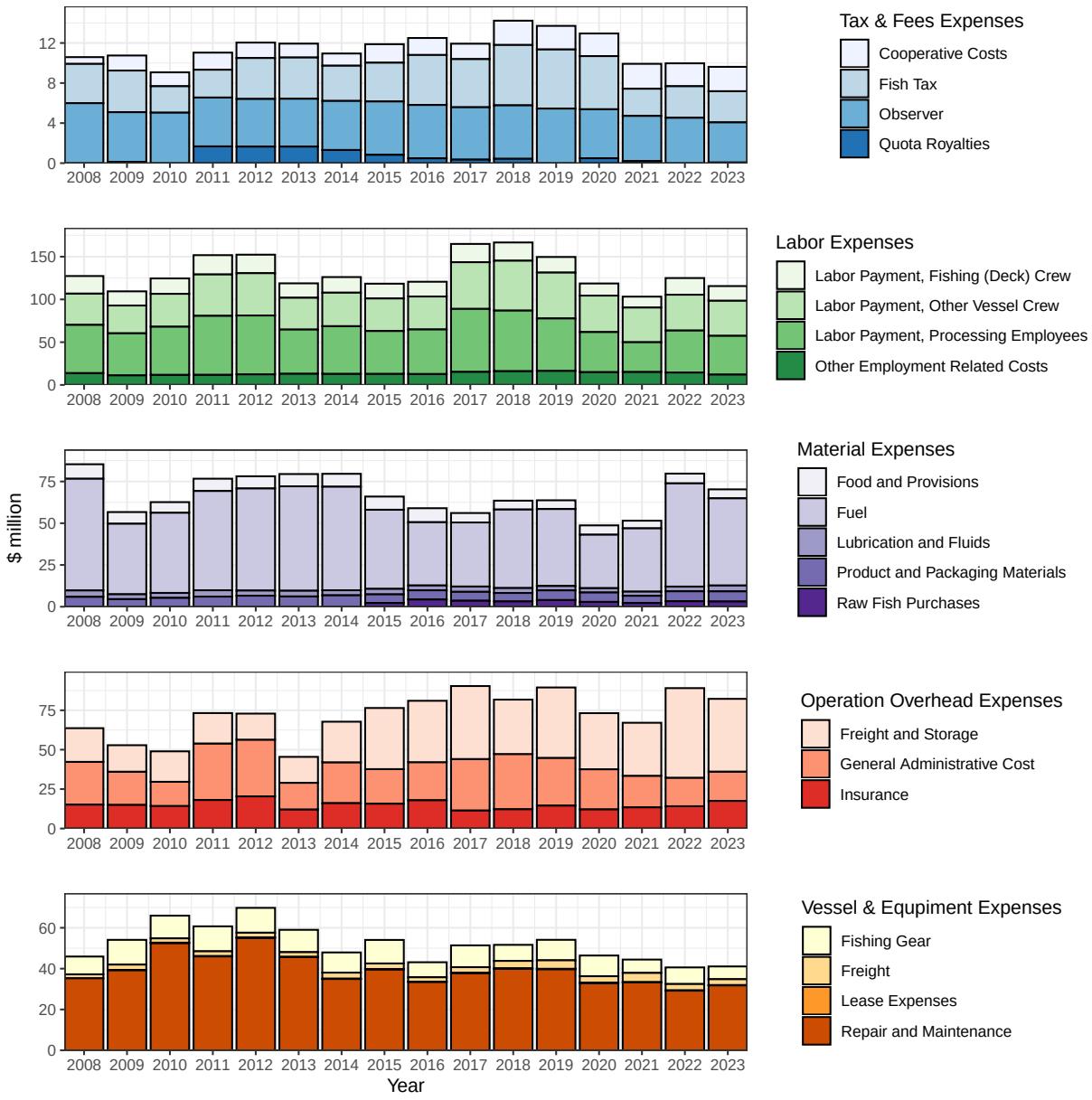

Figure 9.9: Amendment 80 Sector Aggregate Operating Expenses, by Expense Category and Item, and Year

Note Tabular values for fleet aggregate statistics shown in the above figure are reported in Table 9.9; median vessel values are reported in Table 9.10.

As depicted in Figure 9.9, over the last 16 years, combined labor costs (direct wages and bonuses, payroll taxes, benefits, and travel and recruitment expenses) consistently represent the greatest proportion of annual expenses, followed by overhead, materials costs, vessel costs, and taxes and fees representing the smallest proportion. Over the 2008 to 2023 period, A80 sector aggregate operating and overhead expenses averaged $203 million per year, varying from a high of $386 million in 2012 (with 20 active vessels), and reaching a low of $276 million in 2021 (with 18 active vessels), increasing to $345 million in 2022, followed by $319 in 2023. Prior to 2021, annual expenses as a proportion of gross revenue varied between 70% and 87%; beginning in 2018, the

cost margin increased steadily, from 71% in 2018 to a peak of 92% in 2021, substantially exceeding the average of 78% over the previous 13 years. As categories of expenses, vessel-, materials-, and overhead expenses have alternated in relative ordering over the 2008 to 2023 period.

Labor expenses are broken down into four categories: 1) fishing (deck) crew labor, 2) other on-board vessel crew labor, 3) processing employee labor, and 4) other non-wage employment-related costs (including employee recruitment, travel, and benefits expenses).[9] Of the individual itemized expense categories shown in Figure 9.9, at nearly 17% of total annual expenses on average over the time series, processing labor cost has historically been the largest single line item cost, followed by fuel cost (15% annual average), labor cost for vessel officers (13%), repair and maintenance cost (12%), and product freight and storage (10%). However, labor costs associated with processing employee wages reached a peak of $73 million in 2017 and declined each subsequent year to a low of $34.6 million in 2021 before increasing to $49 million in 2022 and $45 million in 2023. Combined labor costs increased substantially during 2017-2018, to approximately $165 million each year, representing 44% of total fleet operating costs for both years, before subsequently declining over subsequent years, to $103 million in 2021 (37% 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 26%, while direct wage costs for senior vessel crew declined by a relatively modest 5%, to $41 million, displacing processing labor as the largest component of labor costs for the first time, and at nearly 15% of total 2021 aggregate operating expenses, representing the largest single expense item that year, slightly greater than fuel costs. Notably, in contrast to payments to labor, which all declined relative to the prior year, other non-wage employment-related expenses (which likely included lodging and transportation costs associated with quarantine requirements for vessel personnel prior to boarding vessels) showed a small (1.4%) year-on-year proportional increase in 2021, the first year when covid-19 pandemic measures might have been expected to increase employment-related operating costs. Labor payments to processing employees and other fishing crew members both increased substantially in 2022, to $19 million and $49 million, respectively, with payments to other vessel crew members increasing only slightly; all categories of labor expenses declined for 2023, most substantially for non-wage employment expenses, which declined by 16% to $12.3 million.

Vessel fuel costs are proportionately the most variable expense item historically, ranging from 10% to 20% of aggregate fleet-level expenses; after a period of declining fuel costs between 2013 to 2016, fuel costs for the fleet increased to $47 million in 2018; after a substantial decline in 2020 to $32 million, the lowest annual total for fuel cost to-date, fuel cost rebounded in 2022 to $62 million, and $52 million in 2023 - at 18% and 16% of total operating expenses in 2022 and 2023, fuel cost has ranked as the largest individual expense item in the most recent two years, exceeding any category of labor cost.

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

[9]Note that, while fishing (deck) crew comprises a relatively homogeneous set of positions and skills, "Other vessel crew" (including captains, other vessel officers, engineers, pursers, and maintenance and cafeteria workers (labeled "Other employees'' in Figure 9.9 and Tables 9.9 and 9.10) and "processing employees", as labor categories, each comprise a wide variety of positions and skill levels; in particular, "processing employees" includes positions ranging from highly skilled factory manager and foreman positions, to skilled and unskilled line processing line workers.

transitional costs appear to have tapered off somewhat in 2023 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.

Table 9.9: Amendment 80 Fleet Aggregate Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item

	Year	Vessels	Total Fleet Cost ($million)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
	2008	22	$ 20.61	6.1 %	5.31 %	$ 3.41	$ 116.56
	2009	21	$ 16.58	5.84 %	5.03 %	$ 3.12	$ 98.54
	2010	20	$ 18.03	5.79 %	4.43 %	$ 3.36	$ 98.25
	2011	20	$ 22.6	6.02 %	4.2 %	$ 4.15	$ 114.74
	2012	20	$ 21.62	5.6 %	4.19 %	$ 4.15	$ 109.03
	2013	18	$ 16.85	5.35 %	4.21 %	$ 3.3	$ 86.21
	2014	18	$ 18.26	5.49 %	4.14 %	$ 3.47	$ 90
	2015	18	$ 17.27	5.29 %	4.4 %	$ 3.28	$ 91.57
	2016	19	$ 17.25	5.45 %	4.1 %	$ 3.07	$ 91.28
	2017	19	$ 21.37	5.7 %	4.14 %	$ 3.84	$ 111.13
	2018	19	$ 21.34	5.65 %	4 %	$ 3.64	$ 112.74
Labor	2019	20	$ 18.27	4.92 %	4.01 %	$ 3	$ 96.08
Payment,	2020	19	$ 14.16	4.72 %	3.96 %	$ 2.52	$ 73.91
Fishing	2021	19	$ 12.78	4.63 %	4.27 %	$ 2.16	$ 78.71
(Deck)	2022	18	$ 19.47	5.65 %	5.12 %	$ 3.64	$ 91.73
Crew	2023	17	$ 17.21	5.4 %	4.78 %	$ 3.54	$ 95.21
	2008	21	$ 36.55	10.82 %	9.42 %	$ 6.04	$ 206.66
	2009	21	$ 32.5	11.45 %	9.86 %	$ 6.12	$ 193.07
	2010	20	$ 38.47	12.35 %	9.46 %	$ 7.16	$ 209.66
	2011	20	$ 48.4	12.89 %	9 %	$ 8.89	$ 245.71
	2012	20	$ 49.5	12.82 %	9.59 %	$ 9.5	$ 249.6
	2013	18	$ 37.22	11.81 %	9.3 %	$ 7.29	$ 190.46
	2014	18	$ 39.22	11.8 %	8.89 %	$ 7.44	$ 193.27
	2015	18	$ 38.08	11.65 %	9.7 %	$ 7.22	$ 201.86
	2016	19	$ 38.59	12.2 %	9.16 %	$ 6.87	$ 204.2
	2017	19	$ 54.63	14.58 %	10.58 %	$ 9.82	$ 284.07
	2018	19	$ 58.37	15.45 %	10.93 %	$ 9.97	$ 308.3
Labor	2019	20	$ 53.62	14.46 %	11.77 %	$ 8.81	$ 282.06
Payment,	2020	19	$ 42.68	14.23 %	11.95 %	$ 7.6	$ 222.78
Other	2021	19	$ 40.55	14.68 %	13.53 %	$ 6.85	$ 249.67
Vessel	2022	18	$ 41.93	12.17 %	11.02 %	$ 7.83	$ 197.53
Crew	2023	17	$ 41.02	12.86 %	11.39 %	$ 8.43	$ 226.87

Table 9.9: Amendment 80 Fleet Aggregate Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

		Year	Vessels	Total Fleet Cost ($million)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
		2008	22	$ 56.27	16.66 %	14.5 %	$ 9.3	$ 318.2
		2009	21	$ 49.03	17.27 %	14.88 %	$ 9.23	$ 291.32
		2010	20	$ 56.2	18.05 %	13.82 %	$ 10.46	$ 306.29
		2011	20	$ 68.84	18.33 %	12.8 %	$ 12.65	$ 349.49
		2012	20	$ 68.73	17.8 %	13.31 %	$ 13.19	$ 346.55
		2013	18	$ 51.48	16.34 %	12.86 %	$ 10.09	$ 263.44
		2014	18	$ 55.6	16.73 %	12.6 %	$ 10.55	$ 273.96
		2015	18	$ 50	15.3 %	12.74 %	$ 9.48	$ 265.07
		2016	19	$ 51.98	16.43 %	12.34 %	$ 9.26	$ 275.06
		2017	19	$ 73.43	19.6 %	14.22 %	$ 13.2	$ 381.78
		2018	19	$ 70.64	18.7 %	13.23 %	$ 12.06	$ 373.12
		2019	20	$ 61.18	16.5 %	13.43 %	$ 10.05	$ 321.81
	Labor	2020	19	$ 46.69	15.57 %	13.07 %	$ 8.32	$ 243.72
	Payment,	2021	19	$ 34.61	12.53 %	11.55 %	$ 5.84	$ 213.1
	Processing	2022	18	$ 49.03	14.23 %	12.88 %	$ 9.16	$ 230.99
	Employees	2023	17	$ 45.1	14.14 %	12.52 %	$ 9.27	$ 249.45
		2008	22	$ 13.94	4.13 %	3.59 %	$ 2.3	$ 78.84
		2009	21	$ 11.34	3.99 %	3.44 %	$ 2.13	$ 67.35
		2010	20	$ 11.86	3.81 %	2.92 %	$ 2.21	$ 64.64
		2011	20	$ 11.94	3.18 %	2.22 %	$ 2.19	$ 60.63
		2012	20	$ 12.47	3.23 %	2.41 %	$ 2.39	$ 62.87
		2013	18	$ 13.24	4.2 %	3.31 %	$ 2.59	$ 67.77
		2014	18	$ 13.06	3.93 %	2.96 %	$ 2.48	$ 64.38
		2015	18	$ 13.05	3.99 %	3.32 %	$ 2.47	$ 69.16
		2016	19	$ 12.86	4.07 %	3.05 %	$ 2.29	$ 68.07
		2017	19	$ 15.46	4.13 %	2.99 %	$ 2.78	$ 80.41
		2018	19	$ 16.26	4.3 %	3.05 %	$ 2.78	$ 85.91
		2019	20	$ 16.57	4.47 %	3.64 %	$ 2.72	$ 87.14
	Other	2020	19	$ 15.11	5.04 %	4.23 %	$ 2.69	$ 78.87
	Employment	2021	19	$ 15.32	5.54 %	5.11 %	$ 2.59	$ 94.3
	Related	2022	18	$ 14.57	4.23 %	3.83 %	$ 2.72	$ 68.63
Labor	Costs	2023	17	$ 12.29	3.85 %	3.41 %	$ 2.53	$ 67.96

Table 9.9: Amendment 80 Fleet Aggregate Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

	Year	Vessels	Total Fleet Cost ($million)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
	2008	19	$ 8.72	2.58 %	2.25 %	$ 1.44	$ 49.31
	2009	21	$ 12.12	4.27 %	3.68 %	$ 2.28	$ 72.02
	2010	20	$ 11.14	3.58 %	2.74 %	$ 2.07	$ 60.71
	2011	20	$ 12.23	3.26 %	2.27 %	$ 2.25	$ 62.07
	2012	19	$ 12.18	3.15 %	2.36 %	$ 2.34	$ 61.4
	2013	18	$ 10.93	3.47 %	2.73 %	$ 2.14	$ 55.92
	2014	18	$ 9.9	2.98 %	2.24 %	$ 1.88	$ 48.76
	2015	18	$ 11.53	3.53 %	2.94 %	$ 2.19	$ 61.12
	2016	14	$ 7.36	2.33 %	1.75 %	$ 1.31	$ 38.94
	2017	19	$ 10.67	2.85 %	2.07 %	$ 1.92	$ 55.48
	2018	19	$ 7.85	2.08 %	1.47 %	$ 1.34	$ 41.44
	2019	20	$ 10.04	2.71 %	2.2 %	$ 1.65	$ 52.8
	2020	19	$ 10.13	3.38 %	2.84 %	$ 1.81	$ 52.89
	2021	18	$ 6.55	2.37 %	2.19 %	$ 1.11	$ 40.33
Fishing	2022	18	$ 8.14	2.36 %	2.14 %	$ 1.52	$ 38.36
Gear	2023	17	$ 6.26	1.96 %	1.74 %	$ 1.29	$ 34.65
	2008	22	$ 1.93	0.57 %	0.5 %	$ 0.32	$ 10.9
	2009	21	$ 2.63	0.93 %	0.8 %	$ 0.5	$ 15.62
	2010	20	$ 2.12	0.68 %	0.52 %	$ 0.4	$ 11.58
	2011	20	$ 2.36	0.63 %	0.44 %	$ 0.43	$ 11.98
	2012	20	$ 2.36	0.61 %	0.46 %	$ 0.45	$ 11.89
	2013	18	$ 2.34	0.74 %	0.58 %	$ 0.46	$ 11.96
	2014	18	$ 2.95	0.89 %	0.67 %	$ 0.56	$ 14.54
	2015	18	$ 2.8	0.86 %	0.71 %	$ 0.53	$ 14.85
	2016	19	$ 2.16	0.68 %	0.51 %	$ 0.38	$ 11.41
	2017	17	$ 2.74	0.73 %	0.53 %	$ 0.49	$ 14.25
	2018	19	$ 3.73	0.99 %	0.7 %	$ 0.64	$ 19.72
	2019	20	$ 4.19	1.13 %	0.92 %	$ 0.69	$ 22.02
	2020	19	$ 3.29	1.1 %	0.92 %	$ 0.59	$ 17.17
	2021	19	$ 4.56	1.65 %	1.52 %	$ 0.77	$ 28.1
	2022	18	$ 3.11	0.9 %	0.82 %	$ 0.58	$ 14.65
Freight	2023	17	$ 2.89	0.91 %	0.8 %	$ 0.59	$ 16

Table 9.9: Amendment 80 Fleet Aggregate Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

		Year	Vessels	Total Fleet Cost ($million)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
		2008	1	*	*	*	*	*
		2009	5	$ 0.07	0.02 %	0.02 %	$ 0.01	$ 0.42
		2010	6	$ 0.18	0.06 %	0.05 %	$ 0.03	$ 1
		2011	7	$ 0.12	0.03 %	0.02 %	$ 0.02	$ 0.59
		2012	8	$ 0.14	0.04 %	0.03 %	$ 0.03	$ 0.71
		2013	6	$ 0.1	0.03 %	0.02 %	$ 0.02	$ 0.51
		2014	5	$ 0.13	0.04 %	0.03 %	$ 0.02	$ 0.63
		2015	5	$ 0.04	0.01 %	0.01 %	$ 0.01	$ 0.19
		2016	7	$ 0.09	0.03 %	0.02 %	$ 0.02	$ 0.49
		2017	9	$ 0.11	0.03 %	0.02 %	$ 0.02	$ 0.59
		2018	9	$ 0.11	0.03 %	0.02 %	$ 0.02	$ 0.57
		2019	7	$ 0.15	0.04 %	0.03 %	$ 0.02	$ 0.79
		2020	4	$ 0.09	0.03 %	0.03 %	$ 0.02	$ 0.48
		2021	5	$ 0.07	0.03 %	0.02 %	$ 0.01	$ 0.45
	Lease	2022	7	$ 0.13	0.04 %	0.03 %	$ 0.02	$ 0.59
	Expenses	2023	5	$ 0.09	0.03 %	0.03 %	$ 0.02	$ 0.52
		2008	22	$ 35.28	10.45 %	9.09 %	$ 5.83	$ 199.5
		2009	21	$ 39.29	13.84 %	11.93 %	$ 7.4	$ 233.44
		2010	20	$ 52.53	16.87 %	12.92 %	$ 9.78	$ 286.3
		2011	19	$ 46.01	12.25 %	8.56 %	$ 8.45	$ 233.6
		2012	20	$ 55.1	14.27 %	10.67 %	$ 10.57	$ 277.85
		2013	18	$ 45.64	14.49 %	11.4 %	$ 8.94	$ 233.54
		2014	18	$ 34.96	10.52 %	7.92 %	$ 6.64	$ 172.29
		2015	18	$ 39.69	12.15 %	10.11 %	$ 7.53	$ 210.43
		2016	19	$ 33.53	10.6 %	7.96 %	$ 5.97	$ 177.42
		2017	19	$ 37.88	10.11 %	7.33 %	$ 6.81	$ 196.95
		2018	19	$ 39.96	10.58 %	7.49 %	$ 6.82	$ 211.05
		2019	20	$ 39.74	10.71 %	8.73 %	$ 6.53	$ 209.03
		2020	19	$ 32.92	10.98 %	9.21 %	$ 5.87	$ 171.84
	Repair	2021	19	$ 33.27	12.04 %	11.1 %	$ 5.62	$ 204.84
	and	2022	18	$ 29.22	8.48 %	7.68 %	$ 5.46	$ 137.66
Vessel	Maintenance	2023	17	$ 31.84	9.99 %	8.84 %	$ 6.54	$ 176.14

Table 9.9: Amendment 80 Fleet Aggregate Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

	Year	Vessels	Total Fleet Cost ($million)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
	2008	19	$ 8.69	2.57 %	2.24 %	$ 1.44	$ 49.16
	2009	18	$ 7	2.47 %	2.12 %	$ 1.32	$ 41.58
	2010	17	$ 6.38	2.05 %	1.57 %	$ 1.19	$ 34.78
	2011	17	$ 7.36	1.96 %	1.37 %	$ 1.35	$ 37.36
	2012	17	$ 7.3	1.89 %	1.41 %	$ 1.4	$ 36.81
	2013	15	$ 7.35	2.33 %	1.84 %	$ 1.44	$ 37.62
	2014	15	$ 7.74	2.33 %	1.75 %	$ 1.47	$ 38.16
	2015	15	$ 7.91	2.42 %	2.02 %	$ 1.5	$ 41.94
	2016	16	$ 8.39	2.65 %	1.99 %	$ 1.49	$ 44.41
	2017	14	$ 5.65	1.51 %	1.09 %	$ 1.02	$ 29.36
	2018	14	$ 5.32	1.41 %	1 %	$ 0.91	$ 28.11
	2019	17	$ 5.23	1.41 %	1.15 %	$ 0.86	$ 27.51
	2020	16	$ 5.59	1.86 %	1.56 %	$ 1	$ 29.18
Food	2021	16	$ 4.6	1.67 %	1.54 %	$ 0.78	$ 28.33
and	2022	15	$ 5.86	1.7 %	1.54 %	$ 1.09	$ 27.62
Provisions	2023	14	$ 5.38	1.69 %	1.49 %	$ 1.11	$ 29.77
	2008	22	$ 66.89	19.81 %	17.24 %	$ 11.06	$ 378.26
	2009	21	$ 42.25	14.88 %	12.82 %	$ 7.96	$ 251.02
	2010	20	$ 48	15.41 %	11.8 %	$ 8.94	$ 261.63
	2011	20	$ 59.45	15.83 %	11.06 %	$ 10.92	$ 301.82
	2012	20	$ 61.13	15.83 %	11.84 %	$ 11.73	$ 308.27
	2013	18	$ 62.54	19.85 %	15.63 %	$ 12.25	$ 320.01
	2014	18	$ 62.02	18.66 %	14.05 %	$ 11.77	$ 305.65
	2015	18	$ 47.38	14.5 %	12.07 %	$ 8.99	$ 251.16
	2016	19	$ 37.88	11.98 %	8.99 %	$ 6.75	$ 200.46
	2017	19	$ 38.38	10.24 %	7.43 %	$ 6.9	$ 199.56
	2018	19	$ 47.02	12.45 %	8.81 %	$ 8.03	$ 248.36
	2019	20	$ 46.09	12.43 %	10.12 %	$ 7.57	$ 242.46
	2020	19	$ 32.02	10.68 %	8.96 %	$ 5.7	$ 167.12
	2021	19	$ 37.9	13.72 %	12.65 %	$ 6.4	$ 233.33
	2022	18	$ 61.82	17.94 %	16.24 %	$ 11.54	$ 291.23
Fuel	2023	17	$ 52.22	16.38 %	14.5 %	$ 10.73	$ 288.86

Table 9.9: Amendment 80 Fleet Aggregate Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

	Year	Vessels	Total Fleet Cost ($million)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
	2008	22	$ 3.81	1.13 %	0.98 %	$ 0.63	$ 21.56
	2009	21	$ 2.92	1.03 %	0.89 %	$ 0.55	$ 17.33
	2010	20	$ 2.98	0.96 %	0.73 %	$ 0.56	$ 16.26
	2011	20	$ 3.8	1.01 %	0.71 %	$ 0.7	$ 19.3
	2012	19	$ 3.08	0.8 %	0.6 %	$ 0.59	$ 15.53
	2013	18	$ 3.43	1.09 %	0.86 %	$ 0.67	$ 17.53
	2014	18	$ 3.02	0.91 %	0.69 %	$ 0.57	$ 14.9
	2015	18	$ 3.29	1.01 %	0.84 %	$ 0.62	$ 17.44
	2016	19	$ 2.86	0.91 %	0.68 %	$ 0.51	$ 15.16
	2017	19	$ 3.17	0.85 %	0.61 %	$ 0.57	$ 16.5
	2018	19	$ 2.94	0.78 %	0.55 %	$ 0.5	$ 15.53
	2019	20	$ 2.59	0.7 %	0.57 %	$ 0.42	$ 13.61
	2020	19	$ 2.59	0.86 %	0.73 %	$ 0.46	$ 13.53
Lubrication	2021	19	$ 2.47	0.89 %	0.82 %	$ 0.42	$ 15.21
and	2022	18	$ 2.8	0.81 %	0.74 %	$ 0.52	$ 13.21
Fluids	2023	17	$ 3.5	1.1 %	0.97 %	$ 0.72	$ 19.38
	2008	22	$ 5.92	1.75 %	1.53 %	$ 0.98	$ 33.48
	2009	21	$ 4.52	1.59 %	1.37 %	$ 0.85	$ 26.87
	2010	20	$ 5.28	1.7 %	1.3 %	$ 0.98	$ 28.79
	2011	20	$ 6.06	1.61 %	1.13 %	$ 1.11	$ 30.78
	2012	20	$ 6.6	1.71 %	1.28 %	$ 1.27	$ 33.3
	2013	18	$ 6.13	1.95 %	1.53 %	$ 1.2	$ 31.38
	2014	18	$ 6.82	2.05 %	1.54 %	$ 1.29	$ 33.59
	2015	18	$ 5.13	1.57 %	1.31 %	$ 0.97	$ 27.2
	2016	19	$ 5.53	1.75 %	1.31 %	$ 0.98	$ 29.27
	2017	19	$ 5.33	1.42 %	1.03 %	$ 0.96	$ 27.72
	2018	19	$ 5.08	1.34 %	0.95 %	$ 0.87	$ 26.83
	2019	20	$ 5.84	1.58 %	1.28 %	$ 0.96	$ 30.74
Product	2020	19	$ 5.64	1.88 %	1.58 %	$ 1	$ 29.43
and	2021	19	$ 4.34	1.57 %	1.45 %	$ 0.73	$ 26.72
Packaging	2022	18	$ 5.96	1.73 %	1.57 %	$ 1.11	$ 28.08
Materials	2023	17	$ 6.08	1.91 %	1.69 %	$ 1.25	$ 33.64
	2008	2	*	*	*	*	*
	2010	1	*	*	*	*	*
	2011	1	*	*	*	*	*
	2012	1	*	*	*	*	*
	2013	1	*	*	*	*	*
	2015	4	$ 2.26	0.69 %	0.58 %	$ 0.43	$ 12.01
	2016	5	$ 4.32	1.37 %	1.03 %	$ 0.77	$ 22.87
	2017	5	$ 3.58	0.96 %	0.69 %	$ 0.64	$ 18.62
	2018	6	$ 3.15	0.83 %	0.59 %	$ 0.54	$ 16.65
	2019	7	$ 3.98	1.07 %	0.87 %	$ 0.65	$ 20.92
	2020	7	$ 2.87	0.96 %	0.8 %	$ 0.51	$ 15
Raw	2021	6	$ 2.21	0.8 %	0.74 %	$ 0.37	$ 13.58
Fish	2022	6	$ 3.28	0.95 %	0.86 %	$ 0.61	$ 15.43
Materials Purchases	2023	5	$ 3.11	0.97 %	0.86 %	$ 0.64	$ 17.19

Table 9.9: Amendment 80 Fleet Aggregate Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

	Year	Vessels	Total Fleet Cost ($million)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
	2008	16	$ 0.68	0.2 %	0.17 %	$ 0.11	$ 3.84
	2009	15	$ 1.5	0.53 %	0.45 %	$ 0.28	$ 8.91
	2010	14	$ 1.39	0.45 %	0.34 %	$ 0.26	$ 7.59
	2011	16	$ 1.71	0.45 %	0.32 %	$ 0.31	$ 8.67
	2012	16	$ 1.54	0.4 %	0.3 %	$ 0.29	$ 7.74
	2013	14	$ 1.39	0.44 %	0.35 %	$ 0.27	$ 7.12
	2014	14	$ 1.22	0.37 %	0.28 %	$ 0.23	$ 6.02
	2015	14	$ 1.85	0.57 %	0.47 %	$ 0.35	$ 9.81
	2016	15	$ 1.7	0.54 %	0.4 %	$ 0.3	$ 8.98
	2017	18	$ 1.54	0.41 %	0.3 %	$ 0.28	$ 8.03
	2018	19	$ 2.43	0.64 %	0.45 %	$ 0.41	$ 12.82
	2019	20	$ 2.36	0.64 %	0.52 %	$ 0.39	$ 12.41
	2020	19	$ 2.26	0.75 %	0.63 %	$ 0.4	$ 11.77
	2021	19	$ 2.49	0.9 %	0.83 %	$ 0.42	$ 15.32
Cooperative	2022	18	$ 2.29	0.66 %	0.6 %	$ 0.43	$ 10.77
Costs	2023	17	$ 2.44	0.77 %	0.68 %	$ 0.5	$ 13.51
	2008	22	$ 3.92	1.16 %	1.01 %	$ 0.65	$ 22.15
	2009	21	$ 4.16	1.47 %	1.26 %	$ 0.78	$ 24.74
	2010	20	$ 2.64	0.85 %	0.65 %	$ 0.49	$ 14.38
	2011	20	$ 2.78	0.74 %	0.52 %	$ 0.51	$ 14.13
	2012	20	$ 4.09	1.06 %	0.79 %	$ 0.78	$ 20.61
	2013	18	$ 4.12	1.31 %	1.03 %	$ 0.81	$ 21.09
	2014	18	$ 3.52	1.06 %	0.8 %	$ 0.67	$ 17.34
	2015	18	$ 3.87	1.18 %	0.98 %	$ 0.73	$ 20.49
	2016	19	$ 4.99	1.58 %	1.18 %	$ 0.89	$ 26.4
	2017	19	$ 4.81	1.28 %	0.93 %	$ 0.87	$ 25.03
	2018	19	$ 6.03	1.6 %	1.13 %	$ 1.03	$ 31.88
	2019	20	$ 5.9	1.59 %	1.29 %	$ 0.97	$ 31.01
	2020	19	$ 5.31	1.77 %	1.49 %	$ 0.95	$ 27.71
	2021	19	$ 2.71	0.98 %	0.9 %	$ 0.46	$ 16.66
Fish	2022	18	$ 3.15	0.92 %	0.83 %	$ 0.59	$ 14.86
Tax	2023	17	$ 3.11	0.98 %	0.86 %	$ 0.64	$ 17.21

Table 9.9: Amendment 80 Fleet Aggregate Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

		Year	Vessels	Total Fleet Cost ($million)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
		2008	22	$ 5.99	1.77 %	1.54 %	$ 0.99	$ 33.88
		2009	21	$ 4.97	1.75 %	1.51 %	$ 0.94	$ 29.56
		2010	20	$ 5.04	1.62 %	1.24 %	$ 0.94	$ 27.47
		2011	20	$ 4.88	1.3 %	0.91 %	$ 0.9	$ 24.76
		2012	19	$ 4.76	1.23 %	0.92 %	$ 0.91	$ 24.02
		2013	18	$ 4.78	1.52 %	1.19 %	$ 0.94	$ 24.45
		2014	18	$ 4.9	1.47 %	1.11 %	$ 0.93	$ 24.13
		2015	18	$ 5.33	1.63 %	1.36 %	$ 1.01	$ 28.24
		2016	19	$ 5.33	1.68 %	1.26 %	$ 0.95	$ 28.18
		2017	19	$ 5.23	1.4 %	1.01 %	$ 0.94	$ 27.22
		2018	19	$ 5.34	1.41 %	1 %	$ 0.91	$ 28.22
		2019	20	$ 5.45	1.47 %	1.2 %	$ 0.9	$ 28.67
		2020	19	$ 4.89	1.63 %	1.37 %	$ 0.87	$ 25.5
		2021	19	$ 4.52	1.64 %	1.51 %	$ 0.76	$ 27.82
		2022	18	$ 4.53	1.31 %	1.19 %	$ 0.85	$ 21.33
	Observer	2023	17	$ 4.01	1.26 %	1.11 %	$ 0.82	$ 22.19
		2008	2	*	*	*	*	*
		2009	4	$ 0.12	0.04 %	0.04 %	$ 0.02	$ 0.7
		2010	2	*	*	*	*	*
		2011	8	$ 1.67	0.44 %	0.31 %	$ 0.31	$ 8.47
		2012	4	$ 1.65	0.43 %	0.32 %	$ 0.32	$ 8.3
		2013	3	$ 1.65	0.52 %	0.41 %	$ 0.32	$ 8.42
		2014	8	$ 1.31	0.39 %	0.3 %	$ 0.25	$ 6.44
		2015	7	$ 0.83	0.25 %	0.21 %	$ 0.16	$ 4.4
		2016	9	$ 0.48	0.15 %	0.11 %	$ 0.09	$ 2.54
		2017	5	$ 0.35	0.09 %	0.07 %	$ 0.06	$ 1.8
		2018	4	$ 0.43	0.11 %	0.08 %	$ 0.07	$ 2.29
		2019	2	*	*	*	*	*
		2020	9	$ 0.49	0.16 %	0.14 %	$ 0.09	$ 2.56
		2021	3	$ 0.2	0.07 %	0.07 %	$ 0.03	$ 1.23
	Quota	2022	2	*	*	*	*	*
Fees	Royalties	2023	3	$ 0.06	0.02 %	0.02 %	$ 0.01	$ 0.32

Table 9.9: Amendment 80 Fleet Aggregate Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

	Year	Vessels	Total Fleet Cost ($million)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
Freight and Storage	2008	9	$ 21.38	6.33 %	5.51 %	$ 3.53	$ 120.89
	2009	10	$ 16.8	5.92 %	5.1 %	$ 3.16	$ 99.83
	2010	8	$ 19.33	6.21 %	4.75 %	$ 3.6	$ 105.35
	2011	4	$ 19.29	5.14 %	3.59 %	$ 3.54	$ 97.93
	2012	4	$ 16.52	4.28 %	3.2 %	$ 3.17	$ 83.3
	2013	4	$ 16.43	5.22 %	4.11 %	$ 3.22	$ 84.08
	2014	7	$ 25.75	7.75 %	5.84 %	$ 4.89	$ 126.89
	2015	10	$ 38.78	11.87 %	9.88 %	$ 7.36	$ 205.58
	2016	10	$ 38.94	12.31 %	9.25 %	$ 6.93	$ 206.08
	2017	13	$ 46.3	12.36 %	8.96 %	$ 8.32	$ 240.74
	2018	10	$ 34.52	9.14 %	6.47 %	$ 5.9	$ 182.36
	2019	14	$ 44.64	12.04 %	9.8 %	$ 7.33	$ 234.82
	2020	10	$ 35.58	11.86 %	9.96 %	$ 6.34	$ 185.72
	2021	10	$ 33.61	12.17 %	11.22 %	$ 5.67	$ 206.89
	2022	16	$ 56.82	16.49 %	14.93 %	$ 10.61	$ 267.68
	2023	14	$ 46.14	14.47 %	12.81 %	$ 9.48	$ 255.23
General Administrative Cost	2008	22	$ 27.15	8.04 %	7 %	$ 4.49	$ 153.54
	2009	21	$ 21.11	7.44 %	6.41 %	$ 3.98	$ 125.43
	2010	16	$ 15.4	4.95 %	3.79 %	$ 2.87	$ 83.94
	2011	16	$ 35.89	9.56 %	6.68 %	$ 6.59	$ 182.21
	2012	20	$ 36	9.32 %	6.97 %	$ 6.91	$ 181.52
	2013	18	$ 17.01	5.4 %	4.25 %	$ 3.33	$ 87.06
	2014	16	$ 25.94	7.81 %	5.88 %	$ 4.92	$ 127.85
	2015	11	$ 21.97	6.73 %	5.6 %	$ 4.17	$ 116.49
	2016	11	$ 24.19	7.65 %	5.74 %	$ 4.31	$ 128.02
	2017	15	$ 32.68	8.72 %	6.33 %	$ 5.88	$ 169.93
	2018	15	$ 35.07	9.28 %	6.57 %	$ 5.99	$ 185.24
	2019	20	$ 30.34	8.18 %	6.66 %	$ 4.98	$ 159.58
	2020	18	$ 25.51	8.5 %	7.14 %	$ 4.54	$ 133.13
	2021	16	$ 20.05	7.26 %	6.69 %	$ 3.39	$ 123.45
	2022	16	$ 18.12	5.26 %	4.76 %	$ 3.38	$ 85.34
	2023	17	$ 18.61	5.84 %	5.17 %	$ 3.82	$ 102.93

Table 9.9: Amendment 80 Fleet Aggregate Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

	Year	Vessels	Total Fleet Cost ($million)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
	2008	22	$ 15.12	4.48 %	3.9 %	$ 2.5	$ 85.48
	2009	21	$ 14.94	5.26 %	4.54 %	$ 2.81	$ 88.78
	2010	20	$ 14.23	4.57 %	3.5 %	$ 2.65	$ 77.53
	2011	20	$ 18.06	4.81 %	3.36 %	$ 3.32	$ 91.71
	2012	20	$ 20.38	5.28 %	3.95 %	$ 3.91	$ 102.79
	2013	18	$ 12	3.81 %	3 %	$ 2.35	$ 61.4
	2014	17	$ 16.07	4.83 %	3.64 %	$ 3.05	$ 79.19
	2015	18	$ 15.7	4.81 %	4 %	$ 2.98	$ 83.24
	2016	19	$ 17.9	5.66 %	4.25 %	$ 3.19	$ 94.72
	2017	19	$ 11.39	3.04 %	2.2 %	$ 2.05	$ 59.2
	2018	19	$ 12.19	3.23 %	2.28 %	$ 2.08	$ 64.37
	2019	20	$ 14.5	3.91 %	3.18 %	$ 2.38	$ 76.26
	2020	19	$ 12.09	4.03 %	3.38 %	$ 2.15	$ 63.12
	2021	19	$ 13.42	4.86 %	4.48 %	$ 2.27	$ 82.62
	2022	18	$ 14.12	4.1 %	3.71 %	$ 2.64	$ 66.51
Overhead Insurance	2023	17	$ 17.5	5.49 %	4.86 %	$ 3.6	$ 96.8
	2008	22	$ 337.69	100 %	87.02 %	$ 55.82	$ 1909.5
	2009	21	$ 283.85	100 %	86.16 %	$ 53.46	$ 1686.51
	2010	20	$ 311.42	100 %	76.57 %	$ 57.97	$ 1697.33
	2011	20	$ 375.56	100 %	69.85 %	$ 69	$ 1906.68
	2012	20	$ 386.18	100 %	74.79 %	$ 74.11	$ 1947.35
	2013	18	$ 315.06	100 %	78.73 %	$ 61.73	$ 1612.21
	2014	18	$ 332.4	100 %	75.32 %	$ 63.09	$ 1637.99
	2015	18	$ 326.76	100 %	83.27 %	$ 61.98	$ 1732.22
	2016	19	$ 316.34	100 %	75.11 %	$ 56.33	$ 1673.97
	2017	19	$ 374.73	100 %	72.55 %	$ 67.37	$ 1948.36
	2018	19	$ 377.79	100 %	70.77 %	$ 64.51	$ 1995.52
	2019	20	$ 370.88	100 %	81.43 %	$ 60.91	$ 1950.86
	2020	19	$ 299.92	100 %	83.94 %	$ 53.43	$ 1565.46
All	2021	19	$ 276.24	100 %	92.19 %	$ 46.64	$ 1700.66
Annual	2022	18	$ 344.56	100 %	90.55 %	$ 64.34	$ 1623.26
Expenses	2023	17	$ 318.88	100 %	88.54 %	$ 65.53	$ 1763.82

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: A80 Vessel Median Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item

	Year	Vessels	Cost per Vessel, median ($1,000)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
	2008	22	$ 923.12	6.01 %	5.07 %	$ 3.8	$ 122.27
	2009	21	$ 832.82	5.33 %	4.78 %	$ 3.65	$ 94.14
	2010	20	$ 841.87	5.65 %	4.1 %	$ 3.53	$ 97.18
	2011	20	$ 1161.58	5.41 %	3.52 %	$ 4	$ 101.82
	2012	20	$ 1010.33	5.62 %	3.64 %	$ 3.72	$ 100.41
	2013	18	$ 846.63	5.15 %	4.18 %	$ 3.09	$ 81.54
	2014	18	$ 1003.93	5.05 %	4 %	$ 3.28	$ 83.19
	2015	18	$ 910.99	4.9 %	4.57 %	$ 3.13	$ 94.87
	2016	19	$ 879.43	5.37 %	4.21 %	$ 3.2	$ 93.11
	2017	19	$ 1067.66	5.22 %	4.3 %	$ 3.67	$ 114.07
	2018	19	$ 1233.24	5.38 %	4 %	$ 4.17	$ 116.32
Labor	2019	20	$ 926.19	4.73 %	4.07 %	$ 3.45	$ 95.91
Payment,	2020	19	$ 804.27	4.49 %	3.89 %	$ 2.83	$ 77.29
Fishing	2021	19	$ 818.33	4.42 %	3.98 %	$ 2.29	$ 79.75
(Deck)	2022	18	$ 1039.03	5.13 %	4.41 %	$ 3.53	$ 85.36
Crew	2023	17	$ 930.2	4.49 %	3.98 %	$ 3.16	$ 95.02
	2008	21	$ 1500.75	10.27 %	9.48 %	$ 5.34	$ 203
	2009	21	$ 1378.92	12.28 %	11.64 %	$ 5.9	$ 204.81
	2010	20	$ 1898.89	13.36 %	11.68 %	$ 6.95	$ 229.81
	2011	20	$ 2543.84	14.55 %	10.64 %	$ 8.51	$ 255.93
	2012	20	$ 2685.94	13.68 %	10.72 %	$ 9.21	$ 258.72
	2013	18	$ 2109.5	11.84 %	10.28 %	$ 7.27	$ 203.21
	2014	18	$ 2109.23	12.49 %	9.7 %	$ 7.17	$ 196.77
	2015	18	$ 1895.09	11.82 %	10.5 %	$ 6.1	$ 205.27
	2016	19	$ 1828.74	13.27 %	11.16 %	$ 6.45	$ 233.07
	2017	19	$ 2412.53	13.92 %	10.81 %	$ 8.3	$ 275.36
	2018	19	$ 2754.34	15.65 %	11.38 %	$ 11.06	$ 302.31
	2019	20	$ 2681.24	14.87 %	11.75 %	$ 8.67	$ 285.59
Labor	2020	19	$ 2018.18	14.17 %	12.58 %	$ 7.66	$ 226.83
Payment,	2021	19	$ 2168.98	15.55 %	14.25 %	$ 6.78	$ 273.06
Other	2022	18	$ 2352.83	11.81 %	10.96 %	$ 8.55	$ 206.4
Vessel Crew	2023	17	$ 2490	13.79 %	11 %	$ 8.31	$ 233.1

Table 9.10: A80 Vessel Median Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

		Year	Vessels	Cost per Vessel, median ($1,000)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
		2008	22	$ 2560.12	16.34 %	14.73 %	$ 10.59	$ 322.34
		2009	21	$ 2355.32	16.05 %	15.08 %	$ 10.15	$ 285.6
		2010	20	$ 2518.14	17.42 %	13.77 %	$ 10.62	$ 312.02
		2011	20	$ 3424.54	18.77 %	13.06 %	$ 11.78	$ 362.7
		2012	20	$ 3387.61	18.5 %	14.23 %	$ 11.85	$ 363.24
		2013	18	$ 2528.16	15.46 %	13.12 %	$ 9.12	$ 264.97
		2014	18	$ 2870.48	16.42 %	12.59 %	$ 9.47	$ 279.81
		2015	18	$ 2532.3	14.74 %	12.86 %	$ 8.64	$ 255.5
		2016	19	$ 2554.29	16.89 %	12.77 %	$ 9.24	$ 268.99
		2017	19	$ 3931.54	18.86 %	14.74 %	$ 12.99	$ 380.84
		2018	19	$ 3838.23	18.67 %	13.52 %	$ 11.8	$ 372.34
		2019	20	$ 3133.33	16.12 %	12.78 %	$ 10.55	$ 308.8
	Labor	2020	19	$ 2363.73	15.21 %	12.68 %	$ 7.84	$ 247.07
	Payment,	2021	19	$ 1632.16	12.3 %	12.02 %	$ 5.07	$ 213.14
	Processing	2022	18	$ 2734.02	14.19 %	12.78 %	$ 9.15	$ 238.3
	Employees	2023	17	$ 2439.76	13.36 %	12.3 %	$ 8.87	$ 260.71
		2008	22	$ 355.83	3.57 %	3.13 %	$ 1.37	$ 69.62
		2009	21	$ 479.56	3.91 %	3.14 %	$ 1.81	$ 68.56
		2010	20	$ 544.34	3.72 %	2.89 %	$ 2.17	$ 61.58
		2011	20	$ 635.04	3.52 %	2.32 %	$ 2.15	$ 62.92
		2012	20	$ 659.15	3.24 %	2.22 %	$ 2.35	$ 57.57
		2013	18	$ 768.05	4.14 %	3.15 %	$ 2.62	$ 61.83
		2014	18	$ 706.04	4.07 %	2.94 %	$ 2.6	$ 62.93
		2015	18	$ 690.13	4.21 %	3.4 %	$ 2.46	$ 63.97
		2016	19	$ 704.31	4.43 %	3.15 %	$ 2.48	$ 66.75
		2017	19	$ 807.19	4.52 %	3.15 %	$ 2.75	$ 85.55
		2018	19	$ 826.06	4.6 %	3.19 %	$ 2.75	$ 87.62
		2019	20	$ 863.56	4.62 %	3.42 %	$ 2.71	$ 83.23
	Other	2020	19	$ 883.18	4.82 %	4.24 %	$ 2.82	$ 81.15
	Employment	2021	19	$ 834.2	5.23 %	5.22 %	$ 2.81	$ 101.17
	Related	2022	18	$ 802.96	4.55 %	4.02 %	$ 2.54	$ 73.4
Labor	Costs	2023	17	$ 694.9	4.64 %	3.31 %	$ 2.44	$ 77.17

Table 9.10: A80 Vessel Median Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

	Year	Vessels	Cost per Vessel, median ($1,000)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
	2008	19	$ 344.36	2.8 %	2.6 %	$ 1.06	$ 62.02
	2009	21	$ 523.72	3.89 %	3.3 %	$ 2.07	$ 71
	2010	20	$ 548.91	3.8 %	2.76 %	$ 2.07	$ 67.33
	2011	20	$ 464.58	2.42 %	1.64 %	$ 1.61	$ 42.83
	2012	19	$ 487.52	1.87 %	1.39 %	$ 1.69	$ 34.85
	2013	18	$ 607.56	3.51 %	2.61 %	$ 2.02	$ 52.01
	2014	18	$ 501.5	2.31 %	2.02 %	$ 1.65	$ 40.01
	2015	18	$ 505.77	2.95 %	2.86 %	$ 1.66	$ 48.63
	2016	14	$ 319.5	1.54 %	1.29 %	$ 1.11	$ 27.11
	2017	19	$ 499.65	2.03 %	1.48 %	$ 1.69	$ 38.85
	2018	19	$ 372.5	1.86 %	1.32 %	$ 1.3	$ 36.19
	2019	20	$ 566.34	2.92 %	2.29 %	$ 1.62	$ 56.99
	2020	19	$ 579.58	3.77 %	3.19 %	$ 1.66	$ 64.95
	2021	18	$ 378.43	2.15 %	2.13 %	$ 1.09	$ 41.51
Fishing	2022	18	$ 380.64	2.58 %	2.19 %	$ 1.35	$ 38.44
Gear	2023	17	$ 254.1	1.46 %	1.44 %	$ 0.83	$ 27.76
	2008	22	$ 62.13	0.49 %	0.44 %	$ 0.23	$ 12.52
	2009	21	$ 72.31	0.67 %	0.69 %	$ 0.35	$ 12.94
	2010	20	$ 94.54	0.66 %	0.52 %	$ 0.38	$ 11.99
	2011	20	$ 82.11	0.67 %	0.44 %	$ 0.3	$ 12.19
	2012	20	$ 85.06	0.57 %	0.45 %	$ 0.32	$ 11.61
	2013	18	$ 110.02	0.69 %	0.54 %	$ 0.46	$ 11.41
	2014	18	$ 137.64	0.78 %	0.61 %	$ 0.45	$ 12.85
	2015	18	$ 139.66	0.82 %	0.56 %	$ 0.53	$ 12.74
	2016	19	$ 74.71	0.8 %	0.56 %	$ 0.29	$ 12.98
	2017	17	$ 78.26	0.63 %	0.36 %	$ 0.25	$ 9.85
	2018	19	$ 160.55	0.78 %	0.48 %	$ 0.51	$ 12.84
	2019	20	$ 163.64	1.02 %	0.78 %	$ 0.54	$ 18.6
	2020	19	$ 99.31	0.81 %	0.86 %	$ 0.42	$ 13.37
	2021	19	$ 263.16	1.57 %	1.23 %	$ 0.9	$ 26.03
	2022	18	$ 160.65	0.91 %	0.83 %	$ 0.63	$ 16.08
Freight	2023	17	$ 183	0.92 %	0.72 %	$ 0.61	$ 14.96

Table 9.10: A80 Vessel Median Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

		Year	Vessels	Cost per Vessel, median ($1,000)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
		2008	1	*	*	*	*	*
		2009	5	$ 0	0 %	0 %	$ 0	$ 0
		2010	6	$ 0	0 %	0 %	$ 0	$ 0
		2011	7	$ 0	0 %	0 %	$ 0	$ 0
		2012	8	$ 0	0 %	0 %	$ 0	$ 0
		2013	6	$ 0	0 %	0 %	$ 0	$ 0
		2014	5	$ 0	0 %	0 %	$ 0	$ 0
		2015	5	$ 0	0 %	0 %	$ 0	$ 0
		2016	7	$ 0	0 %	0 %	$ 0	$ 0
		2017	9	$ 0	0 %	0 %	$ 0	$ 0
		2018	9	$ 0	0 %	0 %	$ 0	$ 0
		2019	7	$ 0	0 %	0 %	$ 0	$ 0
		2020	4	$ 0	0 %	0 %	$ 0	$ 0
		2021	5	$ 0	0 %	0 %	$ 0	$ 0
	Lease	2022	7	$ 0	0 %	0 %	$ 0	$ 0
	Expenses	2023	5	$ 0	0 %	0 %	$ 0	$ 0
		2008	22	$ 1249	10.46 %	9.54 %	$ 5.37	$ 202.76
		2009	21	$ 1579.12	13.41 %	11.11 %	$ 5.48	$ 234.43
		2010	20	$ 2285.72	14.5 %	10.37 %	$ 8.17	$ 216.22
		2011	19	$ 1918.96	11.31 %	8.37 %	$ 6.99	$ 212.2
		2012	20	$ 2258.42	16.63 %	10.91 %	$ 8.22	$ 295.41
		2013	18	$ 2421	15.02 %	11.46 %	$ 8.91	$ 237.75
		2014	18	$ 1915.89	10.91 %	8.17 %	$ 6.71	$ 184.69
		2015	18	$ 2003.11	9.19 %	8.09 %	$ 6.69	$ 166.12
		2016	19	$ 1270.55	8.64 %	6.66 %	$ 3.9	$ 155.41
		2017	19	$ 1827.53	8.16 %	6.03 %	$ 6.07	$ 171.79
		2018	19	$ 1988.77	9.86 %	6.94 %	$ 7.15	$ 204.96
		2019	20	$ 2016.81	9.67 %	8.54 %	$ 7.5	$ 201.89
		2020	19	$ 1657.22	9.38 %	8.4 %	$ 5.31	$ 147.59
		2021	19	$ 1514.51	11.71 %	10.75 %	$ 5.56	$ 201.83
	Repair and	2022	18	$ 1572.89	9.24 %	6.72 %	$ 5.09	$ 148.65
Vessel	Maintenance	2023	17	$ 1907.4	11 %	9.47 %	$ 6.33	$ 175.82

Table 9.10: A80 Vessel Median Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

	Year	Vessels	Cost per Vessel, median ($1,000)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
	2008	19	$ 336.92	2.46 %	2.33 %	$ 1.24	$ 53.29
	2009	18	$ 341.83	2.58 %	2.34 %	$ 1.38	$ 42.97
	2010	17	$ 359.03	2.46 %	1.91 %	$ 1.37	$ 38.51
	2011	17	$ 422.1	2.26 %	1.57 %	$ 1.4	$ 40.96
	2012	17	$ 402	1.94 %	1.42 %	$ 1.5	$ 36.57
	2013	15	$ 413.67	2.27 %	1.8 %	$ 1.51	$ 35.44
	2014	15	$ 352.12	2.21 %	1.61 %	$ 1.22	$ 35.36
	2015	15	$ 401.93	2.55 %	1.94 %	$ 1.39	$ 40.7
	2016	16	$ 392.22	2.64 %	1.86 %	$ 1.35	$ 41.01
	2017	14	$ 371.74	1.69 %	1.42 %	$ 1.22	$ 34.27
	2018	14	$ 336.08	1.49 %	1.19 %	$ 0.97	$ 30.57
	2019	17	$ 323.33	1.66 %	1.45 %	$ 0.96	$ 33.06
	2020	16	$ 339.33	1.98 %	1.94 %	$ 0.99	$ 32.8
	2021	16	$ 310.75	1.82 %	1.89 %	$ 0.88	$ 31.34
Food and	2022	15	$ 372.06	2.01 %	1.82 %	$ 1.38	$ 34.67
Provisions	2023	14	$ 358.12	1.75 %	1.81 %	$ 1.3	$ 31.61
	2008	22	$ 3134.1	21.68 %	18.47 %	$ 11.13	$ 396.16
	2009	21	$ 2026.14	15.9 %	14.23 %	$ 7.79	$ 265.3
	2010	20	$ 2501.21	16.82 %	13.09 %	$ 9.24	$ 266.48
	2011	20	$ 2834.3	17.45 %	11.47 %	$ 10.06	$ 284.73
	2012	20	$ 3164.13	15.97 %	11.81 %	$ 10.65	$ 305.41
	2013	18	$ 3525.32	19.36 %	17.1 %	$ 11.94	$ 325.26
	2014	18	$ 3320.89	19.05 %	14.09 %	$ 11.7	$ 296.83
	2015	18	$ 2333.74	13.83 %	12.14 %	$ 8.76	$ 232.32
	2016	19	$ 1812.56	11.48 %	9.16 %	$ 5.74	$ 182.23
	2017	19	$ 1882.56	10.07 %	7.63 %	$ 7.06	$ 192
	2018	19	$ 2612.2	12.49 %	8.74 %	$ 7.52	$ 241.12
	2019	20	$ 2221.68	12.24 %	10.59 %	$ 7.48	$ 247.76
	2020	19	$ 1788.78	10.79 %	9.09 %	$ 6.25	$ 170.37
	2021	19	$ 2084.44	14.41 %	13.21 %	$ 6.99	$ 239.67
	2022	18	$ 3494.23	16.66 %	16.44 %	$ 11.7	$ 307.62
Fuel	2023	17	$ 3162.5	16.88 %	14.61 %	$ 10.54	$ 300.66

Table 9.10: A80 Vessel Median Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

		Year	Vessels	Cost per Vessel, median ($1,000)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
		2008	22	$ 116.41	0.91 %	0.84 %	$ 0.4	$ 19.38
		2009	21	$ 142.23	1.05 %	0.8 %	$ 0.52	$ 16.89
		2010	20	$ 119.94	0.9 %	0.69 %	$ 0.47	$ 13.3
		2011	20	$ 161.25	0.99 %	0.7 %	$ 0.58	$ 17.35
		2012	19	$ 137.17	0.67 %	0.56 %	$ 0.53	$ 15.36
		2013	18	$ 172.23	0.96 %	0.85 %	$ 0.61	$ 16.93
		2014	18	$ 137.88	0.85 %	0.58 %	$ 0.49	$ 12.88
		2015	18	$ 149.78	1.05 %	0.83 %	$ 0.56	$ 16.88
		2016	19	$ 141.26	0.87 %	0.67 %	$ 0.44	$ 14.96
		2017	19	$ 167.53	0.89 %	0.55 %	$ 0.58	$ 17.17
		2018	19	$ 146.8	0.65 %	0.47 %	$ 0.51	$ 12.92
		2019	20	$ 96.82	0.55 %	0.43 %	$ 0.3	$ 10.61
		2020	19	$ 118.56	0.87 %	0.77 %	$ 0.36	$ 14.68
		2021	19	$ 113.72	0.7 %	0.64 %	$ 0.32	$ 12.41
	Lubrication	2022	18	$ 135.92	0.75 %	0.74 %	$ 0.44	$ 13.96
	and Fluids	2023	17	$ 220	1.14 %	0.89 %	$ 0.71	$ 20.09
		2008	22	$ 277.93	1.69 %	1.53 %	$ 1.06	$ 34.72
		2009	21	$ 201.58	1.43 %	1.32 %	$ 0.77	$ 26.03
		2010	20	$ 231.18	1.54 %	1.16 %	$ 0.97	$ 27.46
		2011	20	$ 333.12	1.55 %	1.12 %	$ 1.09	$ 27.4
		2012	20	$ 321.54	1.64 %	1.23 %	$ 1.08	$ 28.83
		2013	18	$ 283.76	1.68 %	1.36 %	$ 1.14	$ 27
		2014	18	$ 359.52	1.8 %	1.56 %	$ 1.13	$ 30.26
		2015	18	$ 249.59	1.51 %	1.3 %	$ 0.85	$ 23.94
		2016	19	$ 268.41	1.74 %	1.31 %	$ 0.92	$ 29.46
		2017	19	$ 275.79	1.39 %	1.08 %	$ 0.88	$ 27.06
		2018	19	$ 254.16	1.31 %	0.92 %	$ 0.84	$ 27.22
		2019	20	$ 302.04	1.6 %	1.28 %	$ 0.88	$ 29.3
	Product	2020	19	$ 244.78	1.71 %	1.58 %	$ 0.79	$ 30.08
	and	2021	19	$ 195.06	1.73 %	1.76 %	$ 0.54	$ 29.76
	Packaging	2022	18	$ 274.09	1.56 %	1.55 %	$ 0.95	$ 29.24
	Materials	2023	17	$ 284	1.75 %	1.62 %	$ 0.97	$ 31.84
		2008	2	*	*	*	*	*
		2010	1	*	*	*	*	*
		2011	1	*	*	*	*	*
		2012	1	*	*	*	*	*
		2013	1	*	*	*	*	*
		2015	4	$ 0	0 %	0 %	$ 0	$ 0
		2016	5	$ 0	0 %	0 %	$ 0	$ 0
		2017	5	$ 0	0 %	0 %	$ 0	$ 0
		2018	6	$ 0	0 %	0 %	$ 0	$ 0
		2019	7	$ 0	0 %	0 %	$ 0	$ 0
		2020	7	$ 0	0 %	0 %	$ 0	$ 0
		2021	6	$ 0	0 %	0 %	$ 0	$ 0
	Raw Fish	2022	6	$ 0	0 %	0 %	$ 0	$ 0
Materials	Purchases	2023	5	$ 0	0 %	0 %	$ 0	$ 0

Table 9.10: A80 Vessel Median Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

	Year	Vessels	Cost per Vessel, median ($1,000)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
	2008	16	$ 31.43	0.19 %	0.2 %	$ 0.12	$ 3.72
	2009	15	$ 68.7	0.43 %	0.5 %	$ 0.23	$ 9.75
	2010	14	$ 79.69	0.55 %	0.38 %	$ 0.25	$ 8.62
	2011	16	$ 75.64	0.52 %	0.36 %	$ 0.26	$ 9.52
	2012	16	$ 83.09	0.5 %	0.36 %	$ 0.34	$ 10.18
	2013	14	$ 67.6	0.47 %	0.33 %	$ 0.22	$ 7.26
	2014	14	$ 62.77	0.43 %	0.26 %	$ 0.22	$ 6.07
	2015	14	$ 58.12	0.44 %	0.34 %	$ 0.19	$ 6.66
	2016	15	$ 67.98	0.55 %	0.29 %	$ 0.3	$ 6.94
	2017	18	$ 86.82	0.39 %	0.27 %	$ 0.3	$ 8.81
	2018	19	$ 135.81	0.66 %	0.45 %	$ 0.42	$ 13.28
	2019	20	$ 115.57	0.66 %	0.52 %	$ 0.34	$ 12.25
	2020	19	$ 138.28	0.82 %	0.7 %	$ 0.38	$ 13.75
	2021	19	$ 131.29	1.1 %	0.96 %	$ 0.44	$ 17.23
Cooperative	2022	18	$ 124.92	0.66 %	0.66 %	$ 0.4	$ 12.12
Costs	2023	17	$ 144.8	0.76 %	0.75 %	$ 0.47	$ 15.94
	2008	22	$ 182.92	1.13 %	1.05 %	$ 0.71	$ 24.95
	2009	21	$ 190.56	1.42 %	1.28 %	$ 0.84	$ 21.73
	2010	20	$ 110.95	0.79 %	0.66 %	$ 0.39	$ 14.09
	2011	20	$ 132.59	0.79 %	0.55 %	$ 0.43	$ 13.49
	2012	20	$ 181.57	1.1 %	0.83 %	$ 0.77	$ 20.95
	2013	18	$ 204.97	1.36 %	1.04 %	$ 0.72	$ 21.05
	2014	18	$ 193.28	1.1 %	0.86 %	$ 0.67	$ 17.82
	2015	18	$ 194.28	1.2 %	1.02 %	$ 0.63	$ 21.86
	2016	19	$ 273.93	1.84 %	1.2 %	$ 0.96	$ 28.06
	2017	19	$ 195.16	1.31 %	1.04 %	$ 0.68	$ 26.24
	2018	19	$ 246.92	1.66 %	1.17 %	$ 0.82	$ 32.36
	2019	20	$ 254.13	1.52 %	1.28 %	$ 0.96	$ 30.04
	2020	19	$ 247.34	1.77 %	1.55 %	$ 1.12	$ 29.45
	2021	19	$ 153.1	0.99 %	0.93 %	$ 0.49	$ 16.68
	2022	18	$ 155.09	0.91 %	0.81 %	$ 0.56	$ 16.17
Fish Tax	2023	17	$ 161.8	0.91 %	0.8 %	$ 0.58	$ 14.55

Table 9.10: A80 Vessel Median Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

		Year	Vessels	Cost per Vessel, median ($1,000)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
		2008	22	$ 255.33	1.56 %	1.4 %	$ 0.96	$ 30.82
		2009	21	$ 236.89	1.9 %	1.6 %	$ 0.95	$ 30.08
		2010	20	$ 258.53	1.75 %	1.31 %	$ 0.94	$ 25.55
		2011	20	$ 259.15	1.33 %	0.9 %	$ 0.88	$ 25.6
		2012	19	$ 247.45	1.17 %	0.93 %	$ 0.91	$ 23.8
		2013	18	$ 265.67	1.46 %	1.23 %	$ 0.92	$ 25.3
		2014	18	$ 269.64	1.53 %	1.23 %	$ 0.94	$ 24.33
		2015	18	$ 284.73	1.57 %	1.4 %	$ 0.97	$ 26.28
		2016	19	$ 279.7	1.58 %	1.27 %	$ 0.93	$ 28.23
		2017	19	$ 277.83	1.51 %	1.05 %	$ 0.89	$ 26.75
		2018	19	$ 266.59	1.58 %	1.07 %	$ 0.9	$ 28.99
		2019	20	$ 263.36	1.47 %	1.22 %	$ 0.91	$ 29.88
		2020	19	$ 257.76	1.77 %	1.38 %	$ 0.87	$ 25.79
		2021	19	$ 246.3	1.8 %	1.46 %	$ 0.84	$ 30.14
		2022	18	$ 257.84	1.48 %	1.14 %	$ 0.84	$ 24.11
	Observer	2023	17	$ 249.6	1.42 %	1.03 %	$ 0.8	$ 22.49
		2008	2	*	*	*	*	*
		2009	4	$ 0	0 %	0 %	$ 0	$ 0
		2010	2	*	*	*	*	*
		2011	8	$ 0	0 %	0 %	$ 0	$ 0
		2012	4	$ 0	0 %	0 %	$ 0	$ 0
		2013	3	$ 0	0 %	0 %	$ 0	$ 0
		2014	8	$ 0	0 %	0 %	$ 0	$ 0
		2015	7	$ 0	0 %	0 %	$ 0	$ 0
		2016	9	$ 0	0 %	0 %	$ 0	$ 0
		2017	5	$ 0	0 %	0 %	$ 0	$ 0
		2018	4	$ 0	0 %	0 %	$ 0	$ 0
		2019	2	*	*	*	*	*
		2020	9	$ 0	0 %	0 %	$ 0	$ 0
		2021	3	$ 0	0 %	0 %	$ 0	$ 0
	Quota	2022	2	*	*	*	*	*
Fees	Royalties	2023	3	$ 0	0 %	0 %	$ 0	$ 0

Table 9.10: A80 Vessel Median Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

	Year	Vessels	Cost per Vessel, median ($1,000)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
	2008	9	$ 0	0 %	0 %	$ 0	$ 0
	2009	10	$ 0	0 %	0 %	$ 0	$ 0
	2010	8	$ 0	0 %	0 %	$ 0	$ 0
	2011	4	$ 0	0 %	0 %	$ 0	$ 0
	2012	4	$ 0	0 %	0 %	$ 0	$ 0
	2013	4	$ 0	0 %	0 %	$ 0	$ 0
	2014	7	$ 0	0 %	0 %	$ 0	$ 0
	2015	10	$ 2712.12	17.02 %	16.17 %	$ 8.95	$ 315.75
	2016	10	$ 2340.13	16.98 %	15.8 %	$ 8.13	$ 307.71
	2017	13	$ 2592.29	14.96 %	12.31 %	$ 9.92	$ 320.84
	2018	10	$ 5.91	0.02 %	0.02 %	$ 0.02	$ 0.63
	2019	14	$ 2543.93	14.29 %	12.01 %	$ 7.76	$ 311.7
	2020	10	$ 792.77	11.84 %	14.26 %	$ 5.99	$ 177.79
	2021	10	$ 0.24	0 %	0 %	$ 0	$ 0.04
Freight and	2022	16	$ 3344.32	18.06 %	15.98 %	$ 11.73	$ 315.05
Storage	2023	14	$ 3069	16.78 %	14.21 %	$ 10.05	$ 311.12
	2008	22	$ 610.05	5.2 %	4.75 %	$ 2.42	$ 104.58
	2009	21	$ 959.93	8.78 %	7.72 %	$ 3.34	$ 150.63
	2010	16	$ 610.58	4.63 %	3.55 %	$ 2.15	$ 68.24
	2011	16	$ 852.36	4.6 %	3.14 %	$ 3.04	$ 76.24
	2012	20	$ 944.72	4.69 %	3.91 %	$ 3.81	$ 90
	2013	18	$ 703.84	4.68 %	4.15 %	$ 2.91	$ 77.48
	2014	16	$ 1373.77	8.02 %	6.49 %	$ 4.93	$ 130.57
	2015	11	$ 1609.43	8.58 %	7.13 %	$ 5.22	$ 157.01
	2016	11	$ 1754.33	8.8 %	6.78 %	$ 6.07	$ 160.35
	2017	15	$ 2061.7	7.1 %	4.75 %	$ 6.79	$ 131.38
	2018	15	$ 2159	8.12 %	5.36 %	$ 7.44	$ 156.76
	2019	20	$ 1428.31	6.35 %	5.27 %	$ 4.67	$ 121.98
	2020	18	$ 907.32	6.06 %	6.18 %	$ 3.47	$ 99.39
General	2021	16	$ 504.57	4.39 %	4.02 %	$ 1.4	$ 65.18
Administrative	2022	16	$ 715.08	3.9 %	3.76 %	$ 2.23	$ 66.93
Cost	2023	17	$ 575.5	3.45 %	3.74 %	$ 2.04	$ 62.76

Table 9.10: A80 Vessel Median Operating Expenses and *Pro-Rata* Indices, by Expense Category and Item *(continued)*

		Year	Vessels	Cost per Vessel, median ($1,000)	Percent of Total Expenses	Percent of Gross Revenue	Cost per vessel-day ($1000)	Cost per 1000 t ($)
		2008	22	$ 629.92	3.95 %	3.87 %	$ 2.22	$ 85.25
		2009	21	$ 618.76	5.31 %	4.65 %	$ 2.1	$ 86.22
		2010	20	$ 664.49	4.55 %	3.34 %	$ 2.44	$ 70.03
		2011	20	$ 664.85	3.59 %	2.5 %	$ 2.17	$ 62.75
		2012	20	$ 756.79	4.12 %	3.05 %	$ 2.85	$ 73.86
		2013	18	$ 709.29	3.87 %	3 %	$ 2.28	$ 63.98
		2014	17	$ 824.25	5.52 %	3.51 %	$ 2.84	$ 86.2
		2015	18	$ 585.35	3.82 %	3.43 %	$ 1.92	$ 63.34
		2016	19	$ 546	4.17 %	3.31 %	$ 1.87	$ 68.57
		2017	19	$ 528.26	2.98 %	2.55 %	$ 1.7	$ 56.98
		2018	19	$ 538.49	3.44 %	2.71 %	$ 1.62	$ 68.32
		2019	20	$ 591.9	4.01 %	3.3 %	$ 1.93	$ 80.67
		2020	19	$ 588.11	4.42 %	3.97 %	$ 1.94	$ 67.91
		2021	19	$ 705.61	5.12 %	4.78 %	$ 2.22	$ 88.08
		2022	18	$ 762.05	3.76 %	3.26 %	$ 2.62	$ 64.53
Overhead	Insurance	2023	17	$ 1087	5.16 %	4.66 %	$ 3.52	$ 90.88
		2008	22	$ 15120.61	100 %	87.28 %	$ 62.95	$ 2025.99
		2009	21	$ 12448.57	100 %	82.96 %	$ 50.2	$ 1697.18
		2010	20	$ 14163.07	100 %	76.09 %	$ 58.55	$ 1638.15
		2011	20	$ 19176.74	100 %	70.98 %	$ 74.41	$ 1930.21
		2012	20	$ 21677.84	100 %	79.82 %	$ 81.39	$ 1919.35
		2013	18	$ 16250.49	100 %	76.92 %	$ 63.72	$ 1630.05
		2014	18	$ 18115.14	100 %	75.93 %	$ 64.27	$ 1630.99
		2015	18	$ 17915.5	100 %	86.75 %	$ 63.17	$ 1660.53
		2016	19	$ 15818.33	100 %	76.79 %	$ 52.13	$ 1723.42
		2017	19	$ 18906.64	100 %	79.18 %	$ 70.37	$ 1940.06
		2018	19	$ 22617.85	100 %	73.38 %	$ 70.94	$ 1999.06
		2019	20	$ 18143.5	100 %	81.25 %	$ 58.59	$ 1970.21
		2020	19	$ 14260.78	100 %	89.09 %	$ 56.28	$ 1639.71
		2021	19	$ 12068.29	100 %	91.25 %	$ 45.03	$ 1662.84
All Annual		2022	18	$ 17428.18	100 %	91.62 %	$ 61.82	$ 1750.65
Expenses		2023	17	$ 16241.05	100 %	88.16 %	$ 57.12	$ 1797.2

Note All dollar values are inflation-adjusted to 2023-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 16-year period, in terms of a high-level income analysis. This synthesis underlines the severity of the adverse economic conditions the Amendment 80 sector has faced in recent years, most severely in 2021: with gross

revenues across the sector in sharp decline successively in 2019 through 2021, and aggregate expenses declining to a lesser degree, the Amendment 80 sector saw the worst four-year period of financial performance of the 16-year period during 2019-2023, since the management program went into effect. From a fleet aggregate gross revenue of $300 million in 2021, operating costs of $106 million, and overhead of $67 million, aggregate gross income in 2021 fell to $90 million, and operating income of $23 million (an operating margin of 7.8% of gross revenue), less than one-fourth the average annual value of $99 million (an average 21.9% operating margin) over the previous 13 years. Financial performance by these estimated measures has marginally improved from 2021, with operating income reaching $41 million in aggregate during 2023 on gross revenue of $360 million (an 11.5% operating margin). Nonetheless, the most recent three years comprise the three lowest years of economic returns across the sector since the management program began in 2008.

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. [10] 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.

[10] 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.

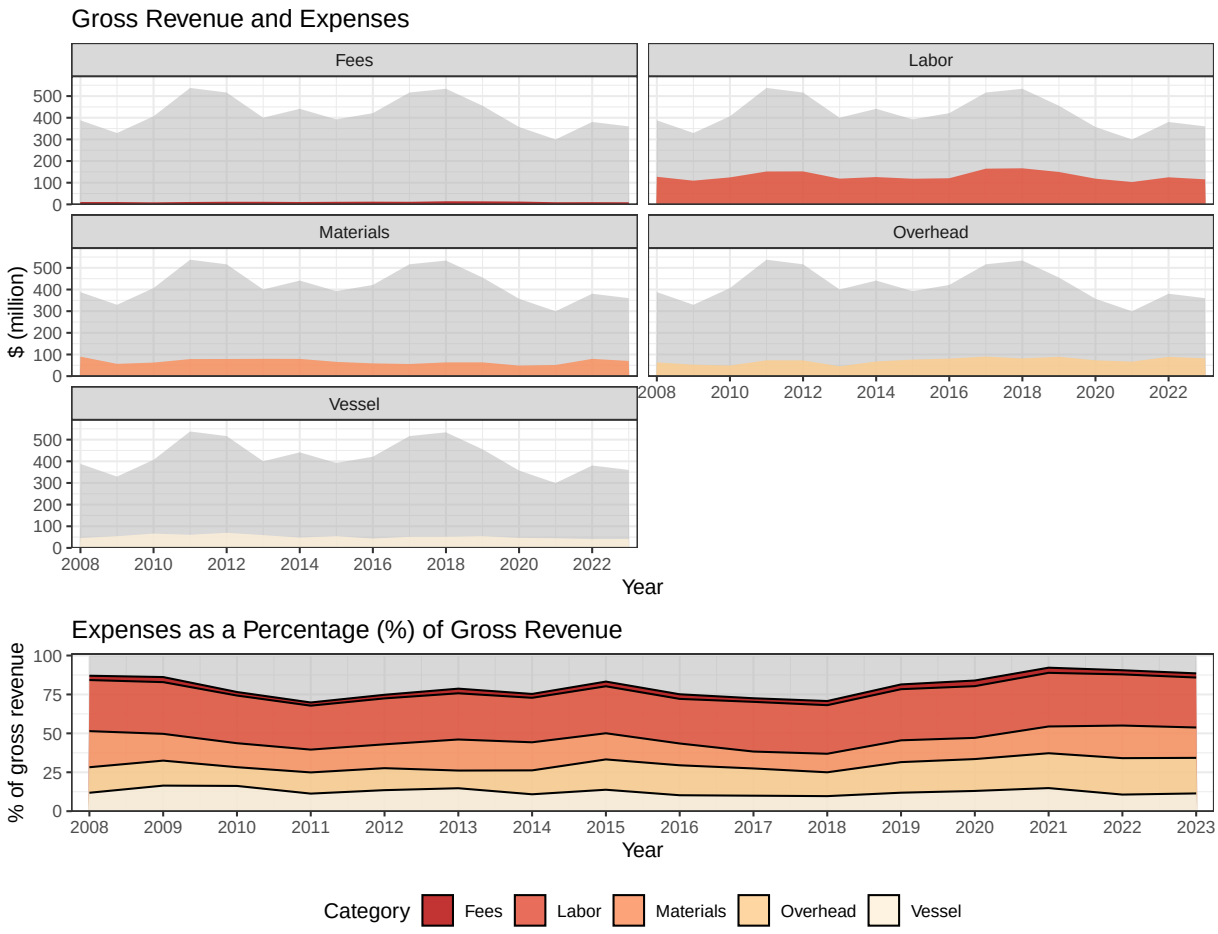

Figure 9.10: Amendment 80 sector gross revenue and operating costs.

Note Tabular values for fleet aggregate statistics shown in the above figure, as well as vessel median values, are reported in Table 9.11.

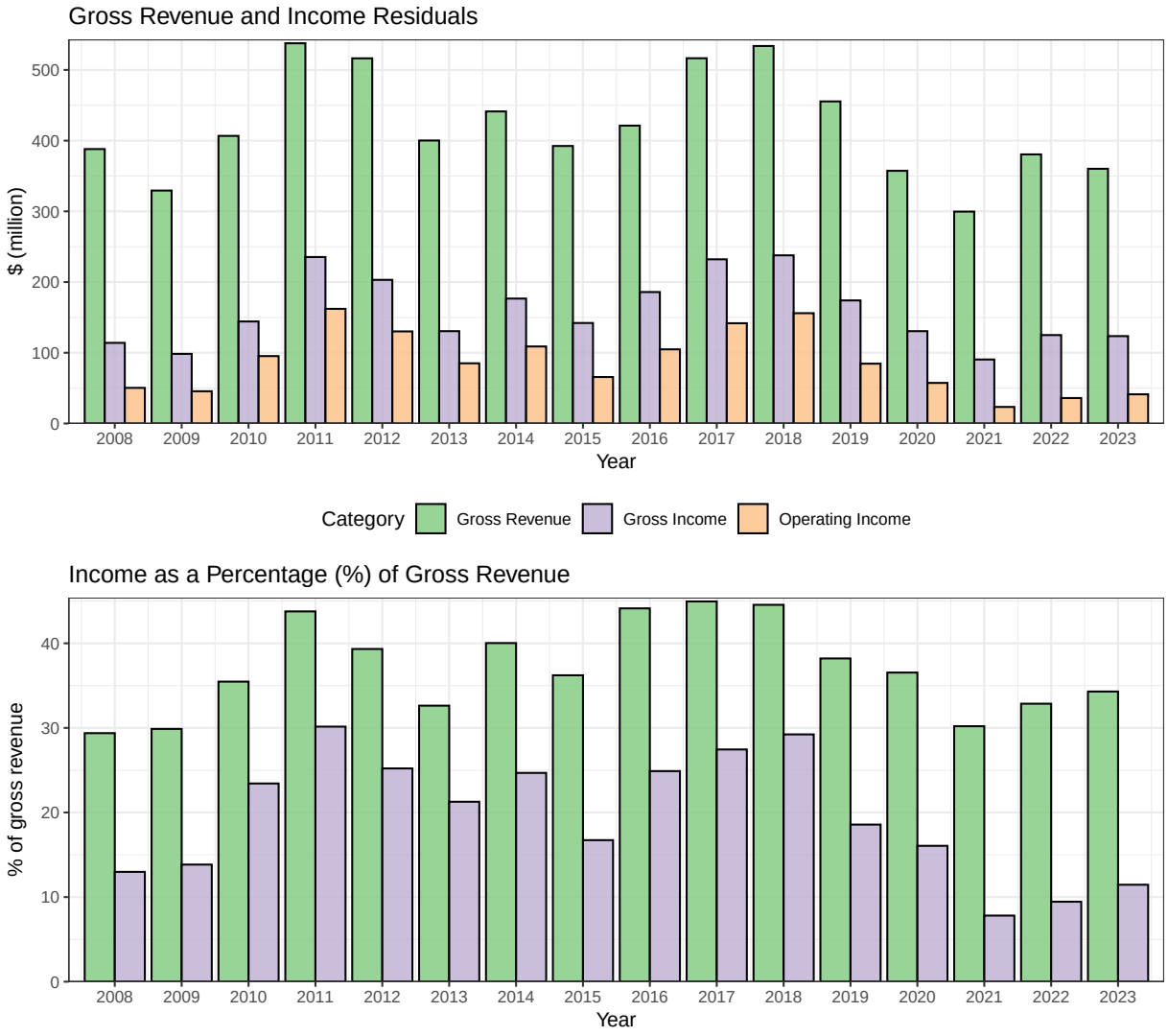

Figure 9.11: Amendment 80 sector gross revenue and net operating income residuals.

Note Tabular values for fleet aggregate statistics shown in the above figure, as well as vessel median values, are reported 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. 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 fleet-wide summary value. [11]

Combined capital expenditures in total for the fleet have varied between $11 million and $23 million prior to 2017 (where non- confidential values can be reported). As of the most recent three years, 2021-2023, capital investment expenditure has increased substantially, largely driven by large expenditures across capital categories associated with entry of new vessels to the sector between 2017 and 2021 as well as extensive and ongoing capital improvement investment by new owners of Amendment 80 vessels formerly owned and operated by Fishing Company of Alaska, reaching a high of $35 million in aggregate during 2022, and $1.2 million at the median vessel level.

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 (noting that the latter is calculated for each respective labor category as fleet total labor income divided by number of persons employed; as such, the value of this metric reflects variation in employment turnover at the vessel level (which includes the transfer of individual crew or processing employees between vessels within the same company) and is therefore not equivalent to a pay per FTE metric). These are a limited set of the available metrics on employment and labor earnings in the Amendment 80 sector, noting that a more comprehensive analysis could encompass additional metrics, including daily wage rates by labor category, FTE-equivalent annual earnings estimates, and the share of gross production revenue accruing to labor earnings by segment.

Total fishing crew positions across the fleet during 2023 reached a low of 89 (compared to an average of 109 prior to 2023), and 188 distinct crew members employed during the year. Aggregate gross wages paid to deck crew reached a low of $12.8 million in 2021, increasing to

[11] 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.

$19.5 million in 2022, while average annual gross wages per deck crew member employed during 2021 declined to $67.3 thousand for 2021, increasing to $91.6 thousand as of 2023. Processing employment reached a low during 2021, with processing positions in aggregate across the fleet at 442, and the number of distinct persons employed declining to 1,288. Total gross wages paid to processing employees declined to $34.6 million in 2021, and $27 thousand per distinct processing employee (or approximately $79 thousand per processing position), both setting record lows for the period. For other vessel crew, including officers, engineers, and others involved in onboard management and record-keeping, the number of positions in total across the fleet increased to 190 in 2021, the highest level to-date likely reflecting the more complex staffing requirements for the larger class of vessels recently entering the sector, while number of distinct persons employed in such positions increased from 409 to 419 during 2021. Fleet-aggregate gross wages for this crew category declined by 5 percent 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 2023 (tabular data are reported in Table 9.14, noting that these results are inclusive of licensed crew members (i.e., fishing (deck) crew, and vessel officers and other on-board crew members), not including processing employees. [12] Over the 2015 to 2023 period, the Seattle Metropolitan Statistical Area (MSA) has consistently been the predominant location of residence for Amendment 80 vessel crew members. [13]. During 2023, 321 of the total 517 licensed crew members (62%) identified in EDR reporting were residents of the Seattle MSA. The estimated income contribution to the Seattle MSA area from direct gross wages paid to vessel crew members during 2023 is $31 million, and $34.5 million to the state of Washington overall, which accounted for 360 (70%) of all crew members for the year. Alaska residents have accounted for between 3% and 8% of AM80 crew employment over the through 2023, with a low in 2021 of 16 individuals and an estimated $1.35 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 $3.5 million in estimated wage income paid to residents of the community during 2015; 6 residents of that community were employed in the fleet during 2023, with estimated combined gross wage earnings of $570 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).

[12]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.

[13]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

			Fleet Total		Vessel Median	
	Year	Vessels	$ million	Percent of Fleet Gross Revenue	$1,000	Percent of Vessel Gross Revenue
	2008	22	$ 388.07	100 %	$ 17292.13	100 %
	2009	21	$ 329.43	100 %	$ 14713.01	100 %
	2010	20	$ 406.72	100 %	$ 18666.18	100 %
	2011	20	$ 537.67	100 %	$ 26239.09	100 %
	2012	20	$ 516.38	100 %	$ 24749.19	100 %
	2013	18	$ 400.18	100 %	$ 20282.14	100 %
	2014	18	$ 441.3	100 %	$ 22799.13	100 %
	2015	18	$ 392.43	100 %	$ 19946.55	100 %
	2016	19	$ 421.19	100 %	$ 20600.37	100 %
	2017	19	$ 516.51	100 %	$ 24398.02	100 %
	2018	19	$ 533.8	100 %	$ 28729.24	100 %
	2019	20	$ 455.44	100 %	$ 20422.47	100 %
	2020	19	$ 357.3	100 %	$ 20909.26	100 %
	2021	19	$ 299.64	100 %	$ 17595.47	100 %
Gross	2022	18	$ 380.53	100 %	$ 21121.14	100 %
Revenue	2023	17	$ 360.17	100 %	$ 19834.64	100 %
	2008	22	$ 127.37	32.82 %	$ 5390.54	32.2 %
	2009	21	$ 109.45	33.22 %	$ 4809.49	36.62 %
	2010	20	$ 124.55	30.62 %	$ 5640.1	34.56 %
	2011	20	$ 151.78	28.23 %	$ 7762.98	33.31 %
	2012	20	$ 152.31	29.5 %	$ 7646.15	33.08 %
	2013	18	$ 118.79	29.68 %	$ 5932.38	30.72 %
	2014	18	$ 126.14	28.58 %	$ 6296.49	29.87 %
	2015	18	$ 118.4	30.17 %	$ 5941.65	33.02 %
	2016	19	$ 120.68	28.65 %	$ 5781.21	34.61 %
	2017	19	$ 164.9	31.93 %	$ 9032.61	35.67 %
	2018	19	$ 166.61	31.21 %	$ 9044.73	33.61 %
	2019	20	$ 149.63	32.85 %	$ 7315.59	33.65 %
	2020	19	$ 118.65	33.21 %	$ 6258.68	34.6 %
	2021	19	$ 103.27	34.46 %	$ 5740.14	33.36 %
Labor -	2022	18	$ 125	32.85 %	$ 6888.09	32.37 %
Total Costs	2023	17	$ 115.61	32.1 %	$ 6113	31.92 %
	2008	22	$ 146.67	37.79 %	$ 6485.37	37.02 %
	2009	21	$ 121.55	36.9 %	$ 5830.41	38.44 %
	2010	20	$ 137.91	33.91 %	$ 6569.62	34.15 %
	2011	20	$ 150.54	28 %	$ 7629.65	28.42 %
	2012	20	$ 160.97	31.17 %	$ 7920.14	29.66 %
	2013	18	$ 150.82	37.69 %	$ 7915.44	38.26 %
	2014	18	$ 138.49	31.38 %	$ 6900.01	30.75 %
	2015	18	$ 131.9	33.61 %	$ 6429.97	31.72 %
	2016	19	$ 114.62	27.21 %	$ 4651.45	27.4 %
	2017	19	$ 119.46	23.13 %	$ 6115.03	22.27 %
	2018	19	$ 129.4	24.24 %	$ 6819	24.21 %
	2019	20	$ 131.77	28.93 %	$ 6211.59	29.51 %
Operating	2020	19	$ 108.09	30.25 %	$ 5317.54	32.27 %
(Non-labor)	2021	19	$ 105.89	35.34 %	$ 4906.66	36.49 %
- Total	2022	18	$ 130.51	34.3 %	$ 6967.41	34.24 %
Costs	2023	17	$ 121.02	33.6 %	$ 6920.3	34.34 %

Table 9.11: Amendment 80 Fleet Operating Costs and Income, Fleet Total and Vessel Median *(continued)*

			Fleet Total		Vessel Median	
	Year	Vessels	$ million	Percent of Fleet Gross Revenue	$1,000	Percent of Vessel Gross Revenue
	2008	22	$ 114.02	29.38 %	$ 5255.27	31.48 %
	2009	21	$ 98.43	29.88 %	$ 3745.59	24.48 %
	2010	20	$ 144.26	35.47 %	$ 6277.02	31.99 %
	2011	20	$ 235.36	43.77 %	$ 10570.93	42.72 %
	2012	20	$ 203.1	39.33 %	$ 10392.33	38.92 %
	2013	18	$ 130.56	32.63 %	$ 6102.59	31.34 %
	2014	18	$ 176.67	40.03 %	$ 8632.03	37.67 %
	2015	18	$ 142.12	36.22 %	$ 6413.37	35.38 %
	2016	19	$ 185.88	44.13 %	$ 8014.19	43.57 %
	2017	19	$ 232.16	44.95 %	$ 10474.93	42.15 %
	2018	19	$ 237.79	44.55 %	$ 11897.25	41.99 %
	2019	20	$ 174.03	38.21 %	$ 7958.02	38.04 %
	2020	19	$ 130.56	36.54 %	$ 6463.04	32.48 %
	2021	19	$ 90.48	30.2 %	$ 4735.14	24.74 %
Gross	2022	18	$ 125.03	32.86 %	$ 6585.21	30.74 %
Income	2023	17	$ 123.55	34.3 %	$ 6725	32.62 %
	2008	22	$ 63.65	16.4 %	$ 2443.75	14 %
	2009	21	$ 52.86	16.05 %	$ 1394.11	15.22 %
	2010	20	$ 48.96	12.04 %	$ 1239.66	8.7 %
	2011	20	$ 73.24	13.62 %	$ 1511.93	5.91 %
	2012	20	$ 72.9	14.12 %	$ 1849.23	7.8 %
	2013	18	$ 45.44	11.36 %	$ 1573.59	8.52 %
	2014	18	$ 67.77	15.36 %	$ 2808.64	11.35 %
	2015	18	$ 76.46	19.48 %	$ 3732.61	21.34 %
	2016	19	$ 81.04	19.24 %	$ 4068.57	20.24 %
	2017	19	$ 90.37	17.5 %	$ 5047.86	20.22 %
	2018	19	$ 81.78	15.32 %	$ 4844.72	17.42 %
	2019	20	$ 89.48	19.65 %	$ 4698.78	21.85 %
	2020	19	$ 73.18	20.48 %	$ 4176.63	26.56 %
	2021	19	$ 67.08	22.39 %	$ 4007.34	22.4 %
Overhead -	2022	18	$ 89.05	23.4 %	$ 4664.62	24.39 %
Total Costs	2023	17	$ 82.25	22.84 %	$ 4448.2	22.33 %
	2008	22	$ 50.38	12.98 %	$ 1759.21	12.72 %
	2009	21	$ 45.58	13.84 %	$ 1891.54	17.04 %
	2010	20	$ 95.3	23.43 %	$ 4647.77	23.91 %
	2011	20	$ 162.11	30.15 %	$ 7612.31	29.02 %
	2012	20	$ 130.2	25.21 %	$ 4873.3	20.18 %
	2013	18	$ 85.12	21.27 %	$ 3864.79	23.08 %
	2014	18	$ 108.91	24.68 %	$ 4404.32	24.07 %
	2015	18	$ 65.67	16.73 %	$ 2520.89	13.25 %
	2016	19	$ 104.85	24.89 %	$ 3883.24	23.21 %
	2017	19	$ 141.78	27.45 %	$ 4246.8	20.82 %
	2018	19	$ 156.01	29.23 %	$ 6029.32	26.62 %
	2019	20	$ 84.56	18.57 %	$ 4186.5	18.75 %
	2020	19	$ 57.38	16.06 %	$ 1649.78	10.91 %
	2021	19	$ 23.4	7.81 %	$ 803.11	8.75 %
Operating	2022	18	$ 35.98	9.45 %	$ 1675.2	8.38 %
Income	2023	17	$ 41.29	11.46 %	$ 1109.21	11.84 %

Note All dollar values are inflation-adjusted to 2023-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
	2008	12	$ 130	40 %	$ 2.16	20 %
	2009	8	*	*	*	*
	2010	8	*	*	*	*
	2011	9	*	*	*	*
	2012	10	$ 356	41 %	$ 3.76	16 %
	2013	9	*	*	*	*
	2014	9	*	*	*	*
	2015	11	$ 270	24 %	$ 2.69	18 %
	2016	13	$ 186	35 %	$ 3.67	24 %
	2017	13	*	*	*	*
	2018	18	$ 186	21 %	$ 5.12	12 %
	2019	18	$ 164	19 %	$ 5.19	14 %
	2020	15	$ 121	24 %	$ 3.38	9 %
	2021	15	$ 195	36 %	$ 3.26	10 %
Fishing	2022	12	*	*	*	*
gear	2023	13	$ 126	15 %	$ 2.99	9 %
	2008	11	*	*	*	*
	2009	9	*	*	*	*
	2010	13	$ 206	28 %	$ 3.90	28 %
	2011	10	*	*	*	*
	2012	14	*	*	*	*
	2013	9	*	*	*	*
	2014	8	*	*	*	*
	2015	10	$ 169	18 %	$ 2.17	14 %
	2016	8	*	*	*	*
	2017	11	*	*	*	*
	2018	15	*	*	*	*
	2019	19	*	*	*	*
Processing	2020	14	*	*	*	*
plant	2021	10	*	*	*	*
and	2022	12	*	*	*	*
equipment	2023	8	*	*	*	*

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
	2008	11	$ 70	33 %	$ 2.47	22 %
	2009	13	$ 544	75 %	$ 8.54	74 %
	2010	15	$ 146	57 %	$ 7.18	52 %
	2011	11	$ 166	32 %	$ 4.02	36 %
	2012	18	*	*	*	*
	2013	11	*	*	*	*
	2014	13	$ 501	73 %	$ 8.45	47 %
	2015	12	*	*	*	*
	2016	10	*	*	*	*
	2017	11	*	*	*	*
	2018	17	*	*	*	*
Vessel	2019	20	$ 265	33 %	$ 11.76	31 %
and	2020	13	*	*	*	*
other	2021	14	*	*	*	*
onboard	2022	13	$ 573	50 %	$ 13.11	37 %
equipment	2023	11	$ 522	50 %	$ 9.98	30 %
	2008	9	*	*	*	*
	2009	5	*	*	*	*
	2010	4	*	*	*	*
	2011	8	*	*	*	*
	2012	7	*	*	*	*
	2013	8	$ 143	44 %	$ 1.09	5 %
	2014	10	*	*	*	*
	2015	10	*	*	*	*
	2016	6	*	*	*	*
	2017	9	*	*	*	*
	2018	11	*	*	*	*
	2019	14	*	*	*	*
	2020	14	*	*	*	*
Other	2021	10	*	*	*	*
capital	2022	9	*	*	*	*
expenditures	2023	12	*	*	*	*

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
	2008	17	$ 497	100 %	$ 11.03	100 %
	2009	16	$ 443	100 %	$ 11.49	100 %
	2010	18	$ 471	100 %	$ 13.83	100 %
	2011	15	$ 403	100 %	$ 11.30	100 %
	2012	19	$ 375	100 %	$ 23.40	100 %
	2013	16	*	*	*	*
	2014	18	$ 519	100 %	$ 17.99	100 %
	2015	16	$ 566	100 %	$ 15.26	100 %
	2016	18	$ 383	100 %	$ 15.43	100 %
	2017	19	*	*	*	*
	2018	19	*	*	*	*
	2019	20	*	*	*	*
Total	2020	18	*	*	*	*
Annual	2021	18	$ 526	100 %	$ 33.18	100 %
Capital	2022	18	$ 1,189	100 %	$ 35.18	100 %
Expenditures	2023	17	$ 963	100 %	$ 33.73	100 %

Note All dollar values are inflation-adjusted to 2023-equivalent value. Vessel median dollar values are shown in $1,000 and Fleet total 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
	2008	22	6	134	10	340	$ 20,612,873	$ 60,626
	2009	21	6	120	12	273	$ 16,584,727	$ 60,750
	2010	20	6	114	11	269	$ 18,027,268	$ 67,016
	2011	20	6	111	9	234	$ 22,600,921	$ 96,585
	2012	19	6	106	10	240	$ 21,613,602	$ 90,057
	2013	18	6	105	8	214	$ 16,847,142	$ 78,725
	2014	18	6	106	11	239	$ 18,263,151	$ 76,415
	2015	18	6	107	10	231	$ 17,273,341	$ 74,776
	2016	19	6	108	13	262	$ 17,249,256	$ 65,837
	2017	19	6	103	11	202	$ 21,374,253	$ 105,813
	2018	19	6	99	8	178	$ 21,343,701	$ 119,908
	2019	20	6	104	10	211	$ 18,265,709	$ 86,567
	2020	19	6	104	10	172	$ 14,160,554	$ 82,329
Fishing	2021	19	6	98	11	190	$ 12,784,701	$ 67,288
(Deck)	2022	18	6	111	13	260	$ 19,470,211	$ 74,885
Crew	2023	17	6	89	11	188	$ 17,212,206	$ 91,554
	2008	22	6	156	18	418	$ 36,546,897	$ 87,433
	2009	21	6	136	16	371	$ 32,495,073	$ 87,588
	2010	20	7	145	18	374	$ 38,468,422	$ 102,857
	2011	20	7	150	18	356	$ 48,397,990	$ 135,949
	2012	19	7	164	20	424	$ 49,417,847	$ 116,552
	2013	18	7	160	19	383	$ 37,219,753	$ 97,180
	2014	18	7	140	18	347	$ 39,220,659	$ 113,028
	2015	18	7	141	18	338	$ 38,077,433	$ 112,655
	2016	19	7	157	18	417	$ 38,589,495	$ 92,541
	2017	19	7	160	20	446	$ 54,634,910	$ 122,500
	2018	19	7	165	19	372	$ 58,366,830	$ 156,900
	2019	20	8	174	21	426	$ 53,622,155	$ 125,874
	2020	19	8	173	20	409	$ 42,681,986	$ 104,357
Other	2021	19	8	190	18	419	$ 40,554,945	$ 96,790
Vessel	2022	18	8	160	19	395	$ 41,928,021	$ 106,147
Crew	2023	17	9	161	21	424	$ 41,015,357	$ 96,734

Table 9.13: Amendment 80 Fleet Employment and Average Gross Wages, by Labor Category, Fleet Total and Median Vessel Values *(continued)*

			Positions on board		Number of employees during the year		Labor Income	
	Year	Vessels	Median	Total	Median	Total	Fleet total	Average per employee
	2008	22	22	529	56	1,465	$ 56,272,706	$ 38,411
	2009	21	23	516	56	1,341	$ 49,031,711	$ 36,564
	2010	20	23	476	60	1,414	$ 56,197,721	$ 39,744
	2011	20	23	473	60	1,234	$ 68,839,710	$ 55,786
	2012	19	23	444	52	1,286	$ 68,691,891	$ 53,415
	2013	18	23	437	59	1,183	$ 51,481,251	$ 43,518
	2014	18	24	449	75	1,300	$ 55,595,342	$ 42,766
	2015	18	24	449	62	1,160	$ 50,001,501	$ 43,105
	2016	19	25	477	65	1,357	$ 51,980,933	$ 38,306
	2017	19	24	504	76	1,533	$ 73,428,793	$ 47,899
	2018	19	25	526	74	1,595	$ 70,639,131	$ 44,288
	2019	20	26	557	75	1,590	$ 61,178,966	$ 38,477
	2020	19	28	497	76	1,578	$ 46,694,329	$ 29,591
	2021	19	24	442	70	1,288	$ 34,614,765	$ 26,875
Processing	2022	18	26	448	86	1,609	$ 49,030,091	$ 30,472
Employees	2023	17	27	468	94	1,536	$ 45,097,973	$ 29,361

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.

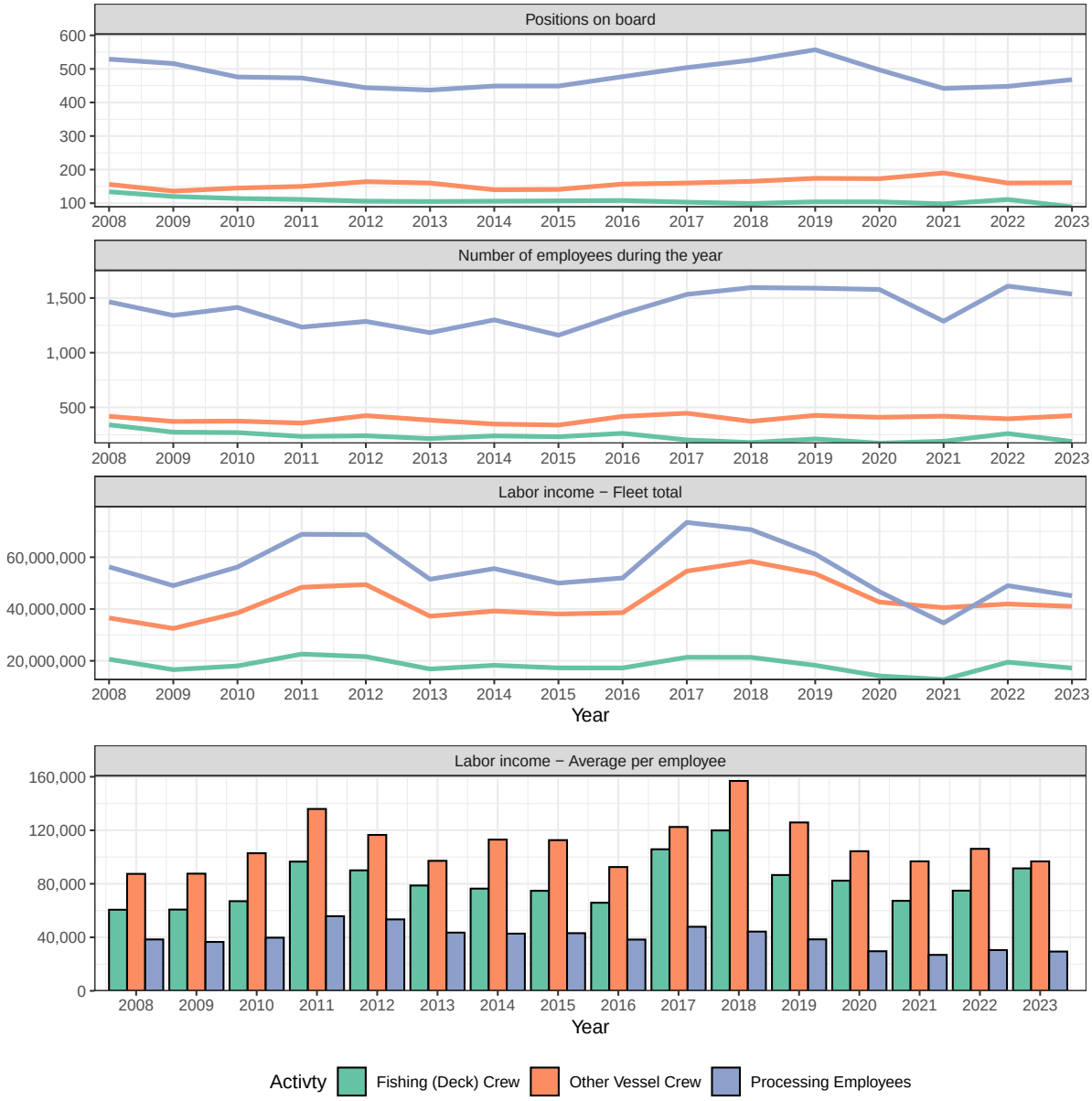

Figure 9.12: Amendment 80 Fleet Employment and Average Gross Wages, by Labor Category, Fleet Total and Median Vessel Values.

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
		2015	41	5 %	$ 2.99
		2016	23	3 %	$ 1.80
		2017	11	2 %	$ 1.24
		2018	6	1 %	$ 0.86
		2019	14	2 %	$ 1.64
		2020	4	1 %	$ 0.41
		2021	4	1 %	$ 0.40
	Unalaska/Dutch	2022	5	1 %	$ 0.61
	Harbor	2023	6	1 %	$ 0.68
		2015	16	2 %	$ 1.17
		2016	31	4 %	$ 2.43
		2017	31	5 %	$ 3.50
		2018	18	3 %	$ 2.57
		2019	24	4 %	$ 2.81
		2020	20	4 %	$ 2.03
		2021	12	2 %	$ 1.19
	Other	2022	13	3 %	$ 1.58
	Alaska	2023	15	3 %	$ 1.69
		2015	57	8 %	$ 4.16
		2016	54	8 %	$ 4.24
		2017	42	6 %	$ 4.74
		2018	24	4 %	$ 3.43
		2019	38	6 %	$ 4.44
		2020	24	4 %	$ 2.43
		2021	16	3 %	$ 1.59
	Alaska	2022	18	4 %	$ 2.19
Alaska	Total	2023	21	4 %	$ 2.37
		2015	28	4 %	$ 2.04
		2016	15	2 %	$ 1.18
		2017	11	2 %	$ 1.24
		2018	7	1 %	$ 1
		2019	10	2 %	$ 1.17
		2020	9	2 %	$ 0.91
		2021	6	1 %	$ 0.60
	Oregon	2022	6	1 %	$ 0.73
Oregon	Total	2023	12	2 %	$ 1.35
		2015	373	49 %	$ 27.24
		2016	390	55 %	$ 30.59
		2017	427	63 %	$ 48.22
		2018	369	66 %	$ 52.71
		2019	394	64 %	$ 46.06
		2020	347	62 %	$ 35.16
		2021	385	72 %	$ 38.31
	Seattle	2022	322	64 %	$ 39.23
	MSA	2023	321	62 %	$ 36.15

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
		2015	112	15 %	$ 8.18
		2016	82	12 %	$ 6.43
		2017	59	9 %	$ 6.66
		2018	48	9 %	$ 6.86
		2019	50	8 %	$ 5.84
		2020	60	11 %	$ 6.08
		2021	31	6 %	$ 3.08
	Other	2022	42	8 %	$ 5.12
	Wash.	2023	38	7 %	$ 4.28
		2015	488	64 %	$ 35.63
		2016	473	66 %	$ 37.10
		2017	488	73 %	$ 55.11
		2018	418	75 %	$ 59.71
		2019	446	73 %	$ 52.13
		2020	409	73 %	$ 41.44
		2021	418	78 %	$ 41.59
	Wash.	2022	365	72 %	$ 44.47
Washington	Total	2023	360	70 %	$ 40.55
		2015	178	23 %	$ 13
		2016	154	22 %	$ 12.08
		2017	103	15 %	$ 11.63
		2018	90	16 %	$ 12.86
		2019	105	17 %	$ 12.27
		2020	99	18 %	$ 10.03
		2021	83	15 %	$ 8.26
		2022	101	20 %	$ 12.30
Other		2023	108	21 %	$ 12.16
		2015	7	1 %	$ 0.51
		2016	16	2 %	$ 1.25
		2017	29	4 %	$ 3.27
		2018	19	3 %	$ 2.71
		2019	16	3 %	$ 1.87
		2020	20	4 %	$ 2.03
		2021	13	2 %	$ 1.29
		2022	14	3 %	$ 1.71
Unknown		2023	16	3 %	$ 1.80
		2015	758	100 %	$ 55.35
		2016	712	100 %	$ 55.84
		2017	673	100 %	$ 76
		2018	558	100 %	$ 79.71
		2019	615	100 %	$ 71.89
		2020	561	100 %	$ 56.84
		2021	536	100 %	$ 53.33
All		2022	504	100 %	$ 61.40
Locations		2023	517	100 %	$ 58.23

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 2023-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).

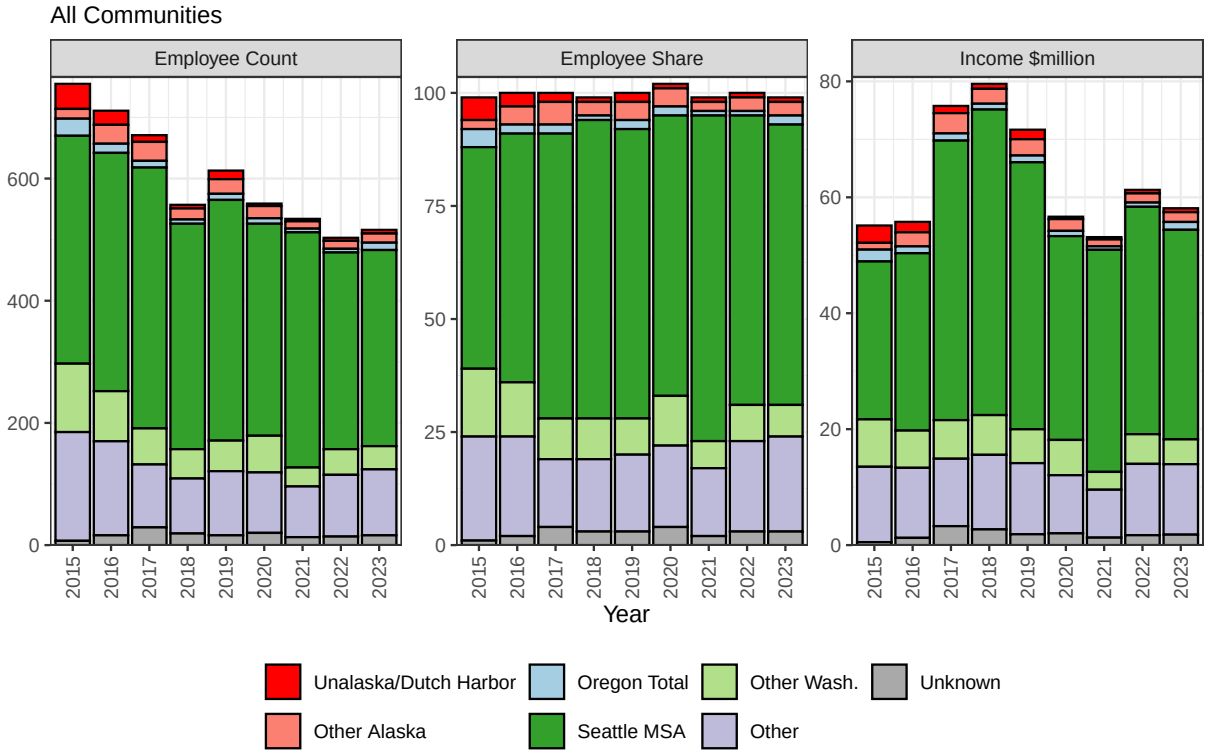

Figure 9.13: Amendment 80 Catcher/Processor Fleet - Estimated Crew Employment and Income, by Community of Residence.

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.
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