May 2016

Economic Impact of the

Seafood Industry on the Kodiak Island Borough

Prepared for:

Kodiak Island Borough
City of Kodiak

Revised Report

Prepared by:

McDowell GROUP

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Executive Summary

The purpose of this study was to measure the role of the seafood industry in the Kodiak Island Borough's (KIB) economy. Few regions in Alaska are more dependent on the seafood industry than the KIB, yet the industry's impact specifically on the local economy had not been assessed in many years. With the baseline of data and economic impact analyses provided in this study, the KIB intends to establish a predictive model that will allow it to better understand the impact on the local economy of proposed state and federal fisheries management actions.

This study provides measures of the economic impact in the KIB stemming from commercial fishing and seafood processing, including all direct, indirect, and induced impacts (i.e., the multiplier effects). The analysis is based in part on detailed harvest, production, and employment data provided by a number of state and federal data government agencies. To conduct economic impact modeling, that data was linked with information gathered by McDowell Group pertaining to the scale and type of local spending in support of harvesting and processing operations. The analysis relies on 2014 data, the most recent full year for which necessary data was available.

In 2014 the seafood industry accounted for an annual average of just over 3,900 jobs in the KIB, $236 million in total annual labor income, and $396 million in total output, including all direct, indirect, and induced effects. That represents, conservatively, 30 percent to 40 percent of the local economy, measured in terms of income and employment, respectively. More detailed summary results are provided in this executive summary, beginning with an overview of harvest and production statistics relevant to the KIB's economy. *Note: Citations can be found in the body of the report.*

Kodiak Seafood Landings and Values

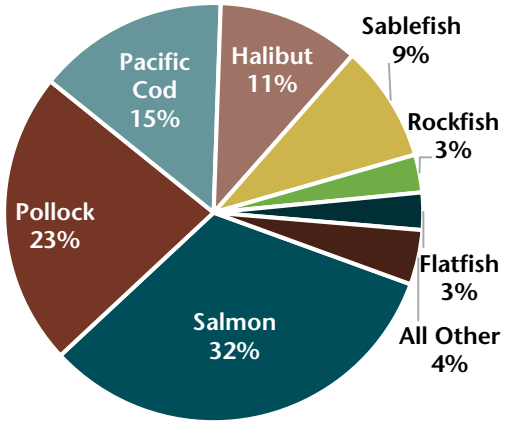
- Approximately 488 million pounds of seafood worth approximately $151 million to fishermen was delivered to Kodiak Island processors in 2014. This includes landings by resident and non-resident fishermen.

ES Table 1. Volume and Value of KIB Landings, 2014

Species	Kodiak Landings (Million lbs.)	Total Ex-vessel value ($Million)
Salmon	66.4	$48.9
Pollock	273.0	$34.2
Pacific Cod	69.5	$22.2
Halibut	2.6	$16.5
Sablefish	2.9	$13.6
Rockfish	24.2	$4.4
Flatfish	39.0	$4.3
All Other	9.8	$6.4
Total	487.6	$150.5

Source: CFEC

Percent of Ex-vessel Value of KIB Landings by Species, 2014



Source: CFEC.

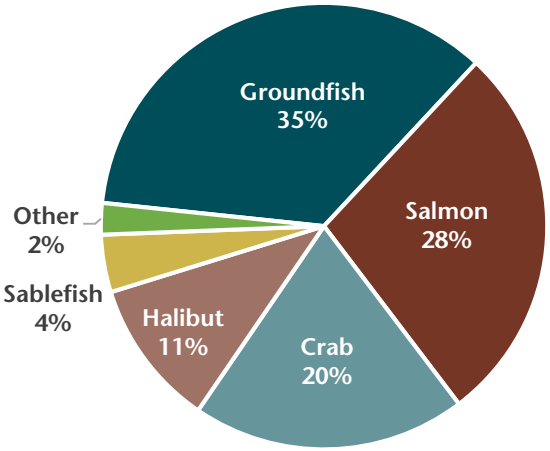
- Approximately 439 KIB resident permit holders fished 642 permits and harvested 325 million pounds of seafood worth approximately $130 million in 2014. This harvest is from commercial fisheries located in the Kodiak region and elsewhere in Alaska, such as the Bristol Bay region and the Bering Sea, among other areas.

ES Table 2. Estimated KIB Resident Earnings and Number of Permits Fished, by Fishery, 2014

Fishery	Number of Permits Fished	Estimated Total Gross Earnings ($million)
Trawl Groundfish*	27	$35.2
Salmon Seine*	125	$23.4
Bering Sea Tanner Crab*	10	$16.6
Halibut Longlining	141	$13.6
Pot Groundfish*	41	$11.4
Bristol Bay King Crab	9	$8.1
Salmon Setnet	94	$6.4
Sablefish Longlining	22	$5.3
Salmon Driftnet*	44	$5.0
Other Shellfish*	17	$2.1
Longline Groundfish*	16	$1.8
Other Groundfish *	66	$1.3
Herring*	20	$0.7
Other Crab*	6	$0.7
Other Salmon*	4	$0.6
Total	642	$132.1

Note: Permits fished is not equivalent to the number of resident vessels.
* Indicates average permit earnings were used to estimate the figure.
Source: CFEC and McDowell Group estimates.

Percent of Ex-vessel Value Paid to KIB Residents by Species, 2014



Source CFEC.

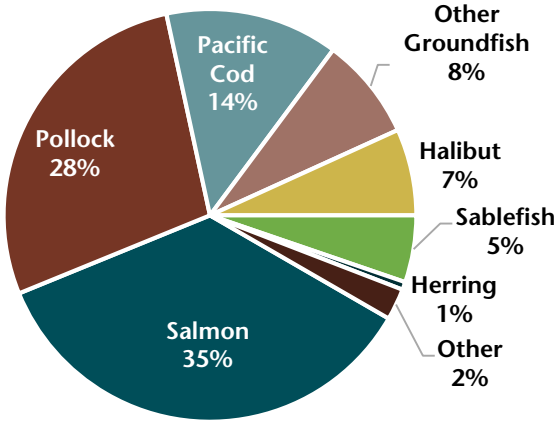
- In 2014, Kodiak Island processors produced 226 million net pounds of seafood products worth approximately $325 million at the first wholesale level.

ES Table 3. Volume and Value of KIB Seafood Production, 2014

Species	First Wholesale Volume (Million lbs.)	First Wholesale Value ($Million)
Salmon	46.4	$115.5
Pollock	106.5	$90.0
Pacific Cod	28.3	$44.3
Other Groundfish	34.3	$26.4
Halibut	2.7	$22.1
Sablefish	2.5	$17.0
Herring	1.9	$7.9
Other	3.2	$1.6
Total	225.7	$324.8

Source: COAR

Percentage of Total KIB Processed Seafood Value By Species, 2014



Source: COAR

Trends in Landings and Value, 2005—2014

This study provides a point-in-time "snap-shot" of the seafood industry's role in the KIB economy. However, it is useful to consider current economic impacts in the context of recent trends.

- Total KIB landings in 2014 (488 million pounds) were 33 percent above the 2005 level.
    - Groundfish landings have nearly doubled, with pollock landings tripling.
    - Halibut landings fell by approximately 70 percent.
- Over the ten-year period, salmon landings peaked in 2006 at 142 million pounds and salmon ex-vessel value peaked in 2013 at $67 million.
- The total number of KIB resident halibut IFQ holders has fallen every year, from 291 in 2005 to 219 in 2014. At the same time, the total quota shares owned by KIB residents has stayed relatively stable.
- Total KIB resident ownership of sablefish quota shares increased by nearly 30 percent and the number of resident owners increased slightly.

Local Investment

The community of Kodiak has made substantial investment in seafood industry-related infrastructure. The City of Kodiak's public utilities, transportation connections, and maritime infrastructure have been scaled to serve the needs of the seafood industry. A healthy seafood industry is critical to the community's ability to pay for these investments.

- Seafood processors use approximately one-third of all electricity and half of water consumed in the City of Kodiak and surrounding area.
- The Kodiak Electric Association has invested approximately $60 million in its electrical generation and management systems in recent years.
- More than $30 million was spent upgrading the City-owned Pier III. A new crane owned by Matson Inc. expanded the capacity of the facility, allowing it to handle larger vessels.
- The city-owned Kodiak Shipyard offers the largest Travelift in Alaska, a washdown pad, electricity, and equipment rental. Costing approximately $16 million, the facility has hauled about 50 vessels per year since it opened in 2009.

Economic Impact of the Seafood Industry

A substantial share of the KIB's working age population of approximately 9,500 residents earns income directly from the seafood industry.

- 1,269 KIB residents earned income directly from commercial fisheries in 2014, based on the number of active local permit holders and crew licenses sold to KIB residents.

- Seafood processing activity directly employed 1,290 KIB residents in 2014.

The seafood industry's economic impact in the KIB includes local spending by these residents as well as local spending by non-resident participants. The number of non-resident permit holders who landed fish in the KIB in 2014 is not known, but non-residents accounted for an estimated 230 million pounds of landings in the KIB with an ex-vessel value of $68 million. Seafood processing employed 1,758 non-KIB residents in 2014.

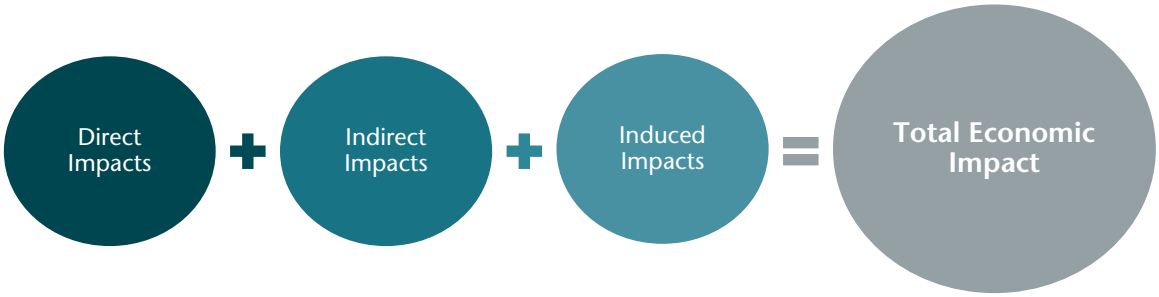
Measuring the economic impact of the commercial fishing industry involves careful examination of resident and non-resident spending in the KIB. Similarly, local spending in support of processing operations is an important aspect of the seafood industry's local economic impact. Ultimately it is the total amount of local spending, by fishermen, processing workers, and plant managers that determines the full economic impact of commercial fishing and seafood processing.

The seafood industry's economic impact includes direct, indirect, and induced effects:

- Direct effects include the skippers and crew who participate in commercial fishing and the income they earn from fishing. Direct effects also include seafood processing jobs with KIB processors and the wages paid to the workers who hold those jobs.

- Indirect effects include jobs and income created by fishermen purchasing supplies, gear, equipment, and services locally in support of their fishing operations. Similarly, local spending by plant managers on various goods and services creates processing-related indirect economic activity in the KIB.

- Induced effects are those created by local spending of the personal income generated by the seafood industry. This includes local spending of take-home pay earned by fishermen (boat owners, permit/quota owners, skippers, and crew) and local spending of the wages earned by processing workers. As this personal income is spent locally, additional jobs and wages are created. Employment with the school district, bars and restaurants, health care providers, grocery stores, and throughout the economy is represented in this category.



To better understand seafood industry-related spending in the KIB, a series of "key informant" interviews were conducted with participants in the commercial fisheries most important to the region. Similarly, a survey of Kodiak processors was conducted to model spending patterns in the processing sector. With informed assumptions about fishermen and processor spending in Kodiak (which varies by gear group and by species), McDowell Group modeled the total economic impact of the seafood industry in the KIB. The results of that analysis follow.

Overview of Economic Impacts

This economic impact analysis produced estimates of annual-equivalent employment connected with each fishery and for the seafood industry overall. It is important to recognize that annualized or "full-time equivalent" measures of commercial fishing employment generally underrepresent the total number of people that earn some amount of income from commercial fishing. However, annualizing commercial fishing employment estimates allows for direct comparison to other sectors of the economy. Further, annualized fishing employment estimates can be summed with indirect and induced employment estimates (which as annual averages) to produce a complete picture of the employment impact of the industry.

The following estimates of employment attributable to each fishery include direct, indirect, and induced employment. Non-resident fishermen are not counted in the KIB employment estimates, however the local spending effects of those fishermen is considered in the analysis of indirect and induced impacts. Estimates of processing employment includes resident and nonresident workers employed in KIB, though the analysis includes a substantially lower multiplier effect for non-resident workers.

Key findings:

- Including direct, indirect, and induced impacts, commercial fishing accounted for the annual equivalent approximately 1,350 annualized jobs and $88 million in labor income in the KIB in 2014. Economic output (total expenditures in the KIB) totaled $156 million. This includes local economic impacts associated with the ex-vessel value of fish landed in the KIB, plus the economic impact of resident fishermen earning income from "external" fisheries, such as the Bristol Bay salmon fishery.

- Seafood processing in the KIB accounted for a total of 2,370 annualized jobs and $132 million in labor income in 2014, including all direct, indirect, and induced effects.

- In total, in 2014 the seafood industry accounted for 3,920 jobs in the KIB, $236 million in total annual labor income, and $396 million in total output, including all multiplier effects. Economic impacts for various components of the seafood industry are summarized in the following table.

Relative Importance in the KIB Economy

- With seafood industry-related labor income totaling $236 million, commercial fishing and seafood processing together accounted for about 30 percent of all personal income in the KIB economy in 2014 (directly or through multiplier effects).

- McDowell Group's estimate of 3,920 seafood industry related jobs in the KIB indicates the industry accounted for 38 percent of all Kodiak area employment in 2014.

The employment, income, and output estimates presented in this study represent a snapshot of the seafood industry in 2014, the most recent year for which complete data is available. The seafood industry, however, is a dynamic industry, where values of landings can vary substantially year-to year. If this analysis had focused on 2013 or 2015, for example, the results of the economic impact analysis would differ according to landings values those years.

ES Table 4. Economic Impact of the Seafood Industry in the KIB, 2014 including Direct, Indirect, and Induced Impacts

Category	Employment	Labor Income ($Million)	Output ($Million)
Salmon			
Fishing	342	$22.3	$39.5
Processing	664	$37.4	$58.6
Salmon Total	1,006	$59.7	$98.0
Groundfish			
Fishing	462	$29.4	$60.5
Processing	1,490	$82.0	$126.1
Groundfish Total	1,952	$111.4	$186.6
Halibut & Sablefish			
Fishing	228	$15.6	$22.9
Processing	64	$3.5	$4.5
Halibut & Sablefish Total	292	$19.1	$27.5
Other Fisheries			
Fishing	42	$2.8	$4.4
Processing	52	$2.9	$4.1
Other Fisheries Total	94	$5.7	$8.5
External Fisheries			
Comm. Fishing Only	275	$18.3	$28.4
Taxes	57	$4.4	$8.8
Processing-Related Capital Expenditures	99	$6.5	$16.1
Government and Non-Profit Organizations	144	$11.2	$22.1
Total Processing	2,370	$132.4	$209.5
Total Fishing	1,349	$88.3	$155.6
Total Other	201	$15.6	$30.9
Grand Total	3,920	$236.3	$395.9

Note: Job figures are annualized. Values may not sum due to rounding.
Source: McDowell Group.

Impacts of Changes in Harvest Volumes and Values

By quantifying the relationship between harvest volumes and values and KIB labor income in 2014, this analysis provides guidance on the potential economic impact of changes in seafood industry activity in the region. For example:

- For every million pounds of salmon landed and processed in the KIB, $900,000 in total labor income is created in the KIB economy, including all direct, indirect, and induced effects.
- For every million dollars paid to fishermen for salmon landed in the KIB, a total of $1.22 million in labor income is created in the KIB, including all harvest and processing related multiplier effects.
- For every million pounds of groundfish landed in the KIB, $270,000 in total labor income is generated.

- For every million dollars paid to fishermen for groundfish landed in the KIB, $1.71 million in total local labor income is generated.

ES Table 5. Harvest Volume and Value Relationships to Total Labor Income in the KIB, 2014

Fishery	Volume of Landings (Million lbs.)	Ex-vessel Value ($Million)	Total Labor Income ($Million)	Volume to Labor Income Multiplier	Ex-vessel Value to Labor Income Multiplier
Salmon	66.4	$48.9	$59.7	0.90	1.22
Groundfish	405.6	$65.2	$111.4	0.27	1.71
Halibut & Sablefish	5.5	$30.1	$19.1	3.46	0.64
Other	9.8	$5.6	$5.7	0.58	1.02

Source: McDowell Group.

These figures provide a simplified indication of the relationship between landings and income for KIB residents. Actual "marginal" changes (meaning relatively small changes) in landings volume and value would have somewhat less economic impact than these averages suggest. The larger the change in harvest volume and value, the more accurate the multipliers presented in ES Table 5 become.

Finally, it is important to recognize that a myriad of factors may determine the socioeconomic impact of specific fisheries management measures. Some of those impacts could be immediate, in the form of reduced earnings for fishermen and lower volumes and values for processors. Other impacts may unfold gradually, with multiplier effects potentially occurring over a several year period, as the economy adjusts to changes in basic sector activity. In any case, this study documents the KIB's very high level of economic dependence on the seafood industry and the risk (or opportunity) the economy faces associated with the health of fish resources and management of those resources.

Rural KIB Communities

Most of the economic impacts measured in this study occur in and around the community of Kodiak. However, the borough's outlying communities (Old Harbor, Akhiok, Karluk, Larsen Bay, Port Lions, and Ouzinkie) experience varying degrees of economic impact from the seafood industry, in addition to a traditional reliance on subsistence fishing.

- The total population of these outlying communities in 2014 was 770 residents, about 5 percent of the borough's population.
- In 2014, rural KIB residents earned $4 million in ex-vessel value from 48 permits, 11 percent of all fished KIB permits. In 2005, 53 permits were fished.
- From 2005 to 2014, rural KIB resident ownership of halibut quota shares fell nearly 30 percent; sablefish ownership fell 100 percent.
- Ocean Beauty operates a processing plant close to Akhiok, and Icicle Seafoods seasonally employs 200 workers at their Larsen Bay facility.
- Five of these six communities have formed a Gulf of Alaska Community Quota Entity (Old Harbor, Ouzinkie, Larsen Bay, Port Lions, and Akhiok) and two villages have purchased quota through their CQE: Old Harbor and Ouzinkie.

Introduction and Methodology

Located in the rich fishing grounds of the Gulf of Alaska, Kodiak's economy is closely tied to the seafood industry, and is one of the top commercial fishing ports in the United States.

The City Kodiak and Kodiak Island Borough contracted with McDowell Group measure the economic impact of commercial fishing and seafood processing on the Kodiak area economy. The first section of the report describes fisheries in which KIB residents participate, details seafood landings in the KIB, and summarizes the volume and value of seafood produced by KIB processors. The second section describes the economic impact the seafood industry (both harvesting and processing activity) had on the KIB economy in 2014 and briefly places this sector within the broader context of the entire KIB economy.

Methodology

McDowell Group's research team used a variety of research and analysis tools, including key informant interviews, a survey of area processors, and economic modeling. Approximately 20 interviews were conducted with fishermen, processors, businesses, city and borough officials, and other individuals involved with or impacted by the KIB seafood industry. Qualitative information gathered during these interviews related to spending patterns associated with seafood harvesting and processing, public infrastructure, business investment, and trends and challenges impacting the region. A survey of the nine largest KIB processors gathered data on capital and operating expenditures by spending category.

Existing literature concerning KIB-area fisheries and socio-economic impacts on the KIB of fishery management decisions were reviewed prior to conducting this report. Sources included the Alaska Department of Fish and Game (ADF&G), Alaska Commercial Fisheries Entry Commission (CFEC), National Marine Fisheries Services (NMFS), Alaska Department of Labor and Workforce Development (DOL) and the North Pacific Fishery Management Council (NPFMC).

Other economic impact analysis conducted by McDowell Group that have addressed Kodiak area seafood industry impacts have had a much broader regional and statewide focus, including the impacts of resident and non-resident participants as well as activity in the Kodiak region that may not directly impact the local economy.

The economic modeling conducted for purposes of this study is described in the economic impact chapter.

Definitions and Information Sources

Ex-vessel and First Wholesale Prices

This report provides ex-vessel and first wholesale price information. Ex-vessel prices are the amount processors pay fishermen for their catch. First wholesale value reflects the value of a processed product when sold by a processor to an entity outside of their affiliate network. It typically refers to the value of product as it leaves Alaska.

Adjustments for Inflation

Some monetary values presented in the report are inflation-adjusted to 2014 dollars using the Bureau of Labor Statistics' Anchorage Consumer Price Index.

Data Sources

Data on harvest volume and value, processing volume and value, participation and other secondary information was drawn from a variety of sources. Following are brief descriptions of the primary sources of harvest information:

Alaska Department of Commerce, Community, and Economic Development (DCCED) data was used for general demographic information on each community.

Alaska Department of Fish and Game (ADF&G) data was used for ex-vessel prices and first wholesale volume and value of seafood which came Commercial Operator's Annual Reports (COAR).

Alaska Commercial Fisheries Entry Commission (CFEC) data included estimated ex-vessel gross earnings and ex-vessel harvest volumes by residents and non-resident. This data also included fishery participation by fishery, permit ownership by community and fishery, quartile gross earnings by fishery, and estimated permit values by fishery. CFEC operator cards are a "proxy" for KIB residents who are fishing in either state or federal fisheries. CFEC operator cards are used to measure resident participation by accounting for those KIB residents who are accessing any fishery (state or federal, limited or open access). While a more detailed analysis would require examination of federal license limitation permits (LLPs) and vessel ownership, using operator cards is sufficient for this report as its focus is on the economic impact of commercial fishing in 2014.

Alaska Department of Labor and Workforce Development (DOL) data included resident and non-resident wages and tenure for individuals employed in KIB's processing sector. Data from DOL also included harvesting positions by month and fishery in the Kodiak area, and estimated crewmember by vessel and fishery.

National Marine Fisheries Service (NMFS) data included resident ownership of sablefish, halibut, and crab individual fishing quota (IFQ) by community and management area.

Alaska Fisheries Information Network (AKFIN) data included first wholesale volume and value of seafood which originated with ADF&G's COAR.

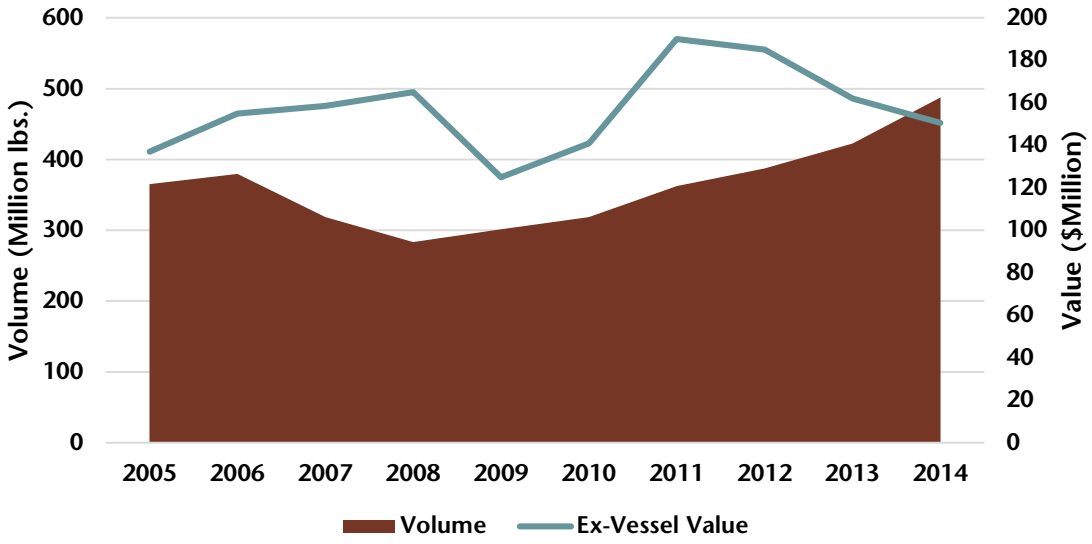
Commercial Fishing and Seafood Processing Activity in the Kodiak Island Area

This chapter summarizes commercial fishing and processing volume, value, and employment data related to commercial fishing and seafood processing in the KIB. All values have been adjusted for inflation and are reported in 2014 dollars.

Commercial Fishing Landings in the Kodiak Island Borough

Over the last decade, the volume of seafood landed in the borough has steadily increased, from 365 million pounds in 2005 (worth $137 million in ex-vessel value) to 488 million pounds in 2014 (worth $151 million). During this time period, volume peaked at 488 million pounds 2014 — driven primarily by pollock — and value peaked in 2011 when $190 million of seafood was landed at KIB docks. Preliminary data indicates 2015 volume likely surpassed 2014, with pollock again driving the increase.

Figure 1. Annual Ex-Vessel Volume and Value Landed in KIB, 2005—2014

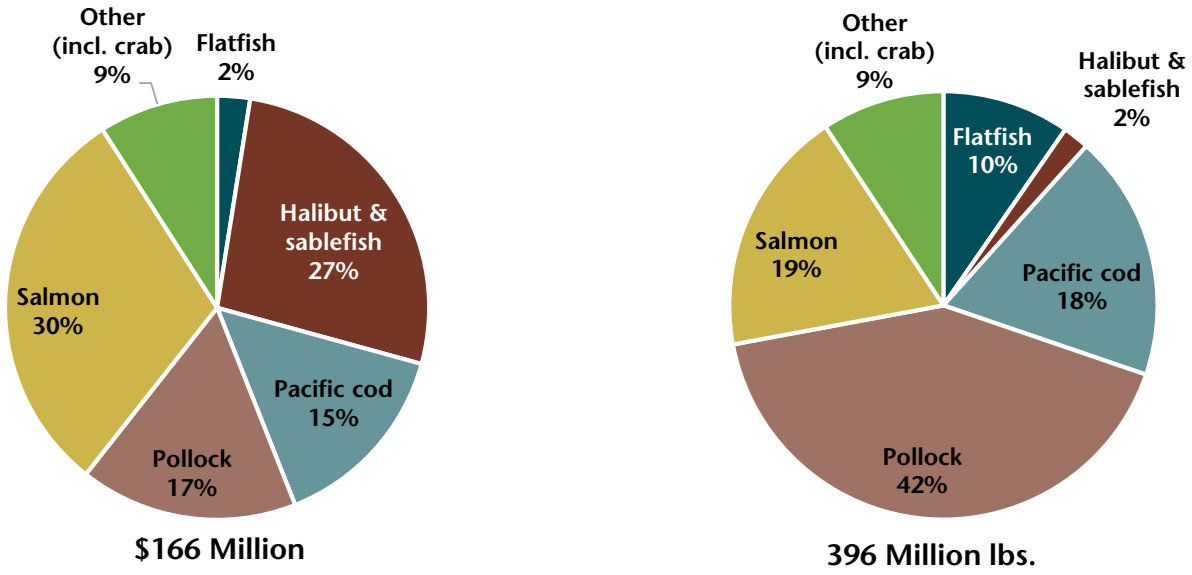


Note: Values are inflation adjusted.
Source: ADF&G (COAR).

The five-year span from 2010 to 2014 has averaged 396 million pounds worth $166 million in ex-vessel value landed in the KIB. Figure 2 shows the composition of this average annual catch, by species. Pollock dominates total landings (42 percent), followed by salmon (19 percent), and pacific cod (18 percent). Measured in terms of ex-vessel value, however, salmon dominates at 30 percent, followed by halibut and sablefish (27 percent), and pollock (17 percent).

Pollock is a high-volume fishery with low value per unit harvested. In contrast, the halibut and sablefish fisheries are low-volume with high value, averaging 2 percent of volume and 27 percent of value from 2010 to 2014.

Figure 2. Ex-Vessel Volume and Value Landed in KIB, by Key Species, Five-Year Average (2010—2014)



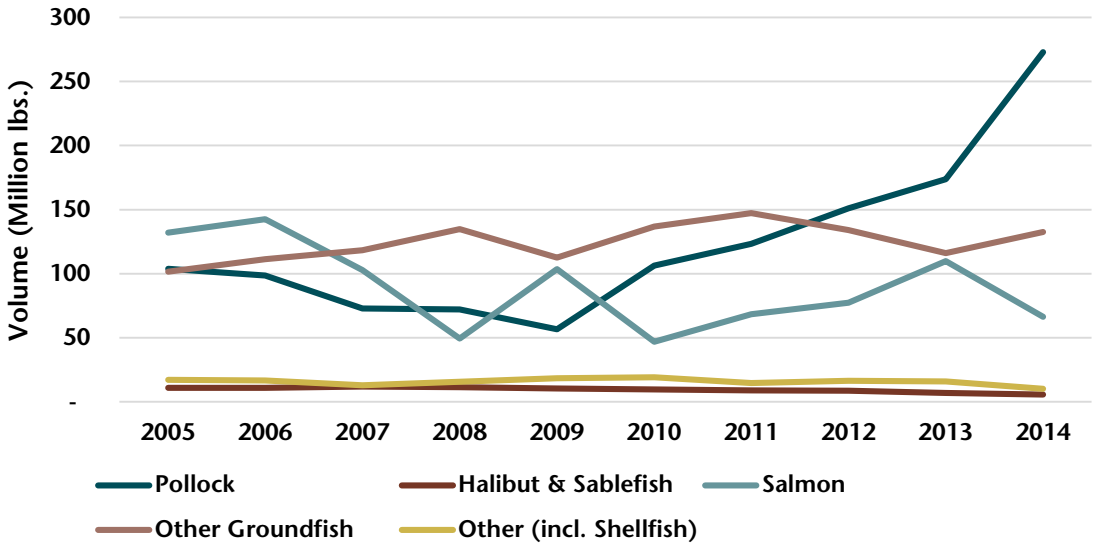
Source: ADF&G (COAR).

Trends in Seafood Landings and Value by Species

Landings in Kodiak have trended up over the last decade, increasing 34 percent since 2005. The most notable increase – 162 percent over the last decade – has been observed in the pollock fishery. Other groundfish, including Pacific cod, rockfish, and flatfish, experienced increases as well, but not to the same degree as pollock. Salmon landings have fluctuated, primarily a result of pink salmon runs, with 2014 landings approximately half of 2005 landings.

Halibut landings fell about 70 percent over the last decade, largely a result of lower quotas. At the same time, sablefish landings have been relatively stable, peaking in 2012. Crab landings – including king, tanner, and Dungeness species – have trended lower, driven in part by intermittent closures of local tanner crab fisheries.

Figure 3. Ex-Vessel Volume Landed in KIB, by Key Species, 2005—2014

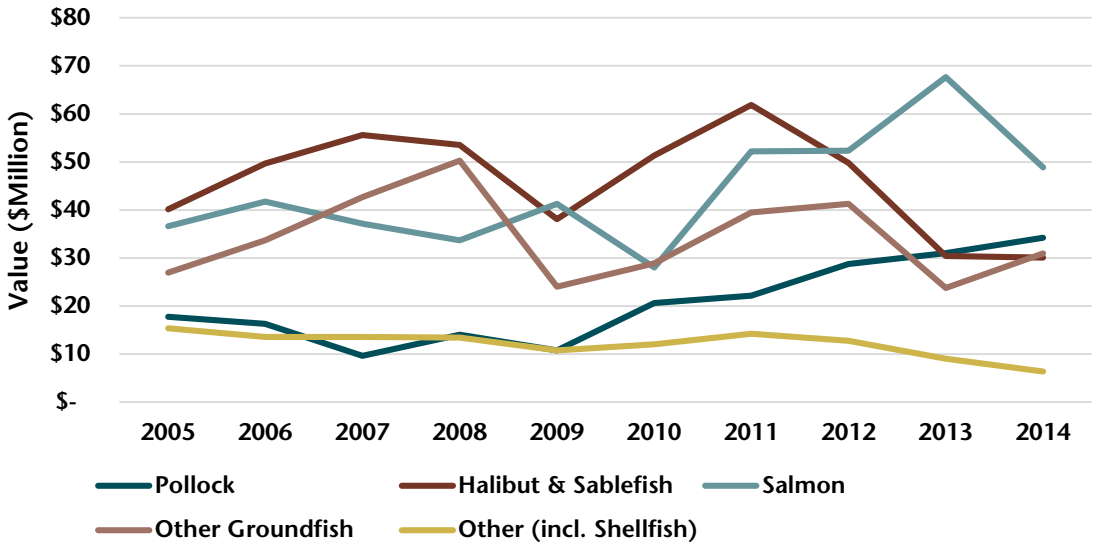


Source: ADF&G (COAR).

While total landings have risen 34 percent, total real ex-vessel value increased just 10 percent from 2005 to 2014. This is largely due to the fact that pollock drove the increase in volume. Even with a 162 percent increase in volume, total ex-vessel value of pollock landings increased 92 percent, representing a notable reduction in per unit value. The value of other groundfish trended up: Pacific cod increased just over 5 percent, flatfish values increased nearly 20 percent, and rockfish experienced a 91 percent increase. Total salmon values peaked in 2013 at nearly $70 million before slipping to $49 million in 2014 – a 34 increase over 2005.

Higher ex-vessel halibut prices helped temper a reduction in halibut landings but fishermen still saw a 50 percent decrease in halibut value in the last decade. In contrast, the value of sablefish landings increased 43 percent, primarily a result of high prices. The value of crab landings fell nearly 70 percent from 2005 to 2014.

Figure 4. Ex-Vessel Value Landed in KIB, by Key Species, 2005—2014



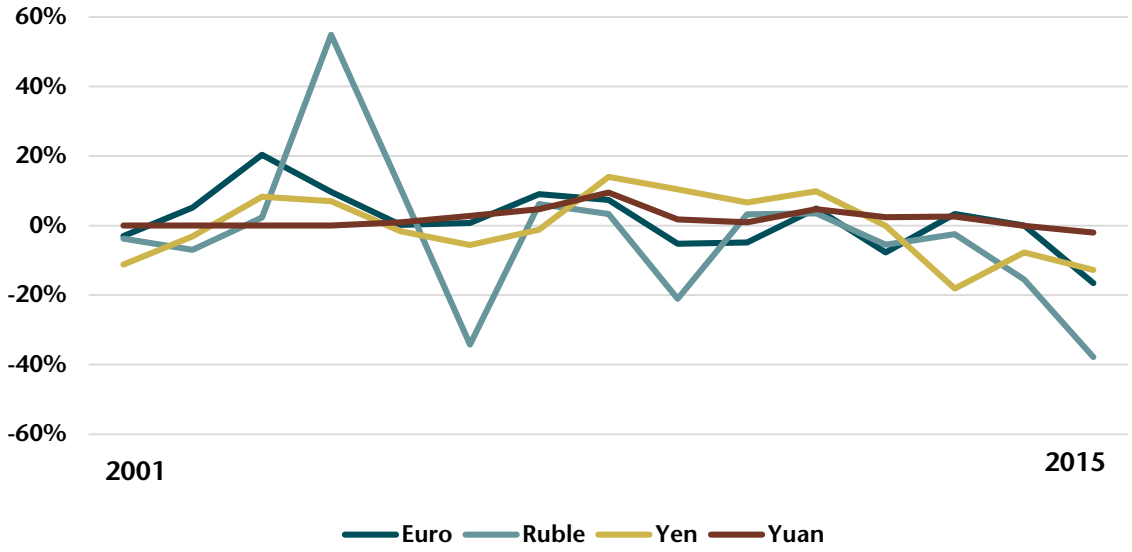
Note: Values are inflation adjusted.
Source: ADF&G (COAR).

Currency Rates

The value of Alaska's seafood products – for both fishermen and processors – is impacted by myriad factors, with currency rates being one of the most prominent.

When the U.S. dollar is valued higher than other international currencies such as the yen (Japan), Alaska seafood is more expensive. At the same time, Alaska seafood must compete with product originating in countries with relatively weak currencies, a dynamic which makes the competing seafood cheaper than Alaska production. Between 2014 and 2015, the Japanese yen lost 20 percent of its value relative to the U.S. dollar while the Russian ruble fell 53 percent. In effect, Japanese customers have lost purchasing power when buying U.S. products while Russian products have become cheaper. Over this same time, the euro and yuan decreased 17 and 2 percent when compared to the U.S. dollar, respectively.

Figure 5. Annual Change in Currency Value Relative to the U.S. Dollar, 2001—2015

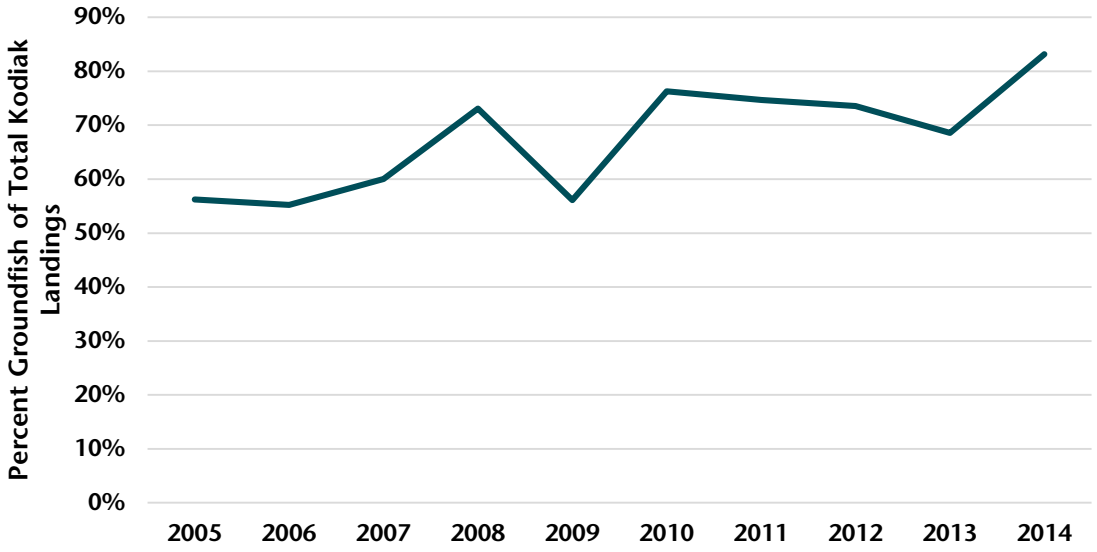


Source: http://www.usforex.com/, accessed 5/6/2016.

Groundfish Landings

In 2014, the primary groundfish species (including pollock, Pacific cod, rockfish, and flatfish) made up 83 percent of all landings in Kodiak, up from a five-year average of 75 percent of total landings. Most of the additional groundfish harvest stems from an increase in pollock quota, which has increased from landings around 57 million pounds in 2009 to 273 million pounds. Quota for other groundfish species, including Pacific cod, flatfish, and rockfish, have remained relatively stable in the last five years.

Figure 6. Groundfish Landed in KIB as a Percent of Total Seafood Landings, 2005—2014



Source: ADF&G (COAR).

Kodiak Island Borough Commercial Fishermen

In 2014, 599 KIB residents held permits to fish commercially in state and federal fisheries throughout Alaska. Of these, 439 KIB residents fished, harvesting 325 million pounds of seafood worth $127 million in ex-vessel value, including harvests and landings throughout Alaska (not just KIB).[1] Many permit holders are issued permits to fish commercially but the fishery is never opened (e.g. Kodiak Tanner crab), or the fishery is uneconomic which lowers participation (e.g. Kodiak herring gillnet and seine).

The total number of Kodiak resident permit holders (which includes those who are fishing in federally managed fisheries) has fluctuated substantially over the last decade – most notably in 2011 when this category increased by 53 holders.[2] Over the same time period, volume peaked in 2014 at 325 million pounds and ex-vessel value peaked at $167 million in 2011.

Qualitative sources indicate substantial participation by resident crewmembers in both local and other Alaska fisheries. Unfortunately, limitations in crew license data allow only a rough picture of crewing activity by KIB residents. (Crew licenses can be used for all commercial fisheries in Alaska, and there is no tracking of crew license usage by specific fishery).

In 2014, 830 annual crew licenses were sold to crew members who specified the KIB as their place of residence. Over the last 10 years, a peak of 909 crew licenses purchased by KIB residents occurred in 2013, and a low of 812 crew licenses was observed in 2008.

Table 6. Seafood Volume, Ex-Vessel Value, Permits, and Crew License Activity for KIB Residents, 2005—2014

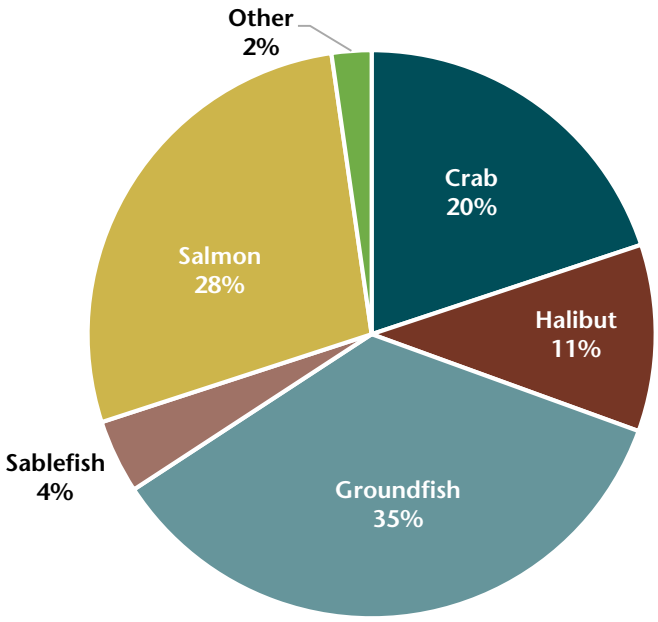
Year	Volume (Million lbs.)	Ex-Vessel Value ($Million)	Permit Holders	Fished Permits	Resident Crew Licenses
2005	288.7	$124.7	679	872	855
2006	287.8	$130.5	656	785	849
2007	278.0	$143.5	657	755	814
2008	250.8	$160.1	636	767	812
2009	237.2	$114.6	620	716	820
2010	267.7	$149.0	593	802	828
2011	296.5	$179.1	646	863	890
2012	302.6	$166.6	647	856	864
2013	298.9	$143.7	608	678	909
2014	324.5	$127.3	599	642	830

Note: These data do not include child or 7-day commercial fishing license sales. Permit figures are from CFEC and include participation in the federal fisheries, but do not differentiate between state and federally managed fisheries. Values are inflation adjusted.
Source: CFEC and ADF&G (Crew License Statistics).

In 2014, more than $127 million in ex-vessel value was generated by KIB residents in fisheries throughout Alaska, with groundfish ($45 million), salmon ($35 million), and crab ($25 million) accounting for more than 80 percent of this total. Halibut, sablefish, and other species comprised the remainder ($22 million).

[1]The $127 million figure differs from the $132.1 estimate presented in ES Table 2 because the latter figures is based on average gross earnings per permit. This estimate was made because CFEC withholds data for fisheries with limited participation.
[2] CFEC operator cards are used as a proxy for fishing activity.

Figure 7. Proportion of Ex-Vessel Value Generated by KIB Resident Permit Holders, by Key Species, 2014



Source: CFEC.

Seafood Harvesting Employment

Accounting for seafood harvesting jobs is imprecise because of the seasonal nature of work performed and the self-employed classification under which most crewmembers fall.

Alaska's Department of Labor and Workforce Development (DOL) provides estimates based upon the typical number of crewmembers needed to operate in Alaska fisheries. For example, the DOL estimates 3.3 crewmembers per vessel are needed on the typical vessel active in Kodiak's salmon seine fishery. Note that this figure does not include the captain of the vessel.

Using these methods, DOL estimates seafood harvesting jobs on vessels participating in fisheries throughout the Kodiak region totaled a quarterly average of 775 positions in 2014 – above the 740 observed in 2005 and below the peak of 881 in 2012.[3]

[3] Note: These data include both resident and non-resident employees. The Kodiak area is a designation by the Alaska Department of Labor and Workforce Development, which includes 36 fisheries surrounding Kodiak Island.

Table 7. Quarterly Fish Harvesting Employment in KIB, 2010—2014

Year	Q1 Average	Q2 Average	Q3 Average	Q4 Average	Quarterly Average
2005	689	832	1,136	302	740
2006	638	719	1,178	348	721
2007	509	850	1,244	453	764
2008	552	806	1,139	383	720
2009	462	847	1,134	320	691
2010	412	803	1,136	269	655
2011	531	778	1,307	381	749
2012	729	993	1,330	471	881
2013	558	900	1,283	338	770
2014	477	902	1,357	364	775

Source: Alaska Department of Labor and Workforce Development.

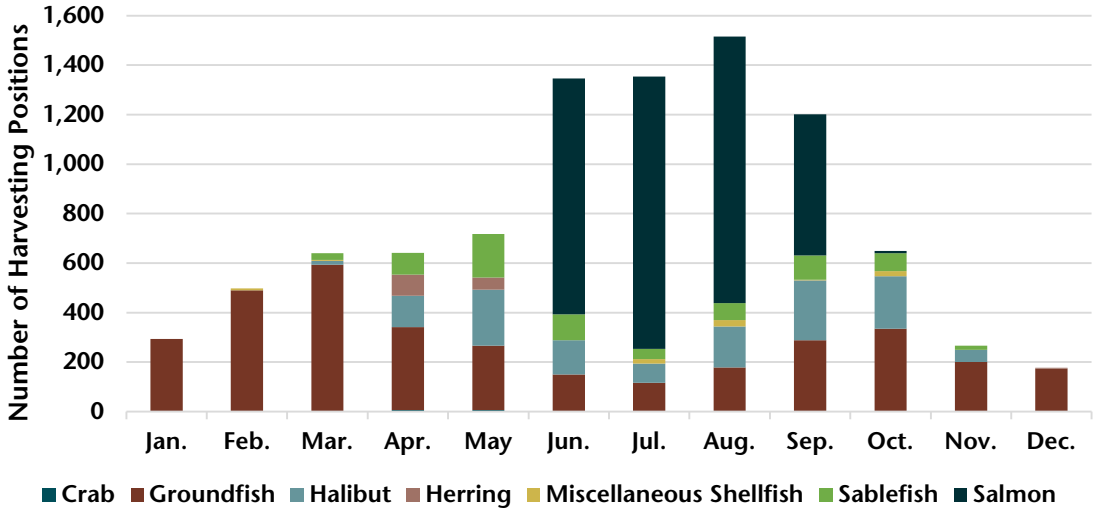
As shown in Figure 7 below, Kodiak fisheries employment is dominated by salmon setnet and seining activity from June through September. In 2014, salmon fisheries contributed an average of 925 positions during the salmon season, with a peak of 1,100 in the month of July. Averaged over the entire year, salmon was responsible for 309 average monthly positions.

While groundfish fisheries – such as pollock trawl, pot cod, and longline cod – had a lower peak employment (594 positions in March) when compared to salmon fisheries, groundfish fisheries are conducted nearly year-round, resulting in an average monthly employment of 285 positions. Groundfish-related harvest employment has two annual peaks, peaking in February/March and September/October.

Halibut harvest employment begins in March. In 2014, this fishery maintained an average of 104 monthly jobs. It is common for salmon fishermen to harvest halibut before and after summer salmon season. Consequently, peak employment occurs in May (227 positions) and September (242 positions).

Sablefish, herring, crab, and miscellaneous shellfish comprise the remainder of Kodiak-area harvesting employment. In sum, these fisheries totaled an average of 77 positions on a monthly basis.

Figure 8. Monthly Commercial Fishing Employment in the Kodiak Area, by Species Targeted, 2014



Source: Alaska Department of Labor and Workforce Development.

Seafood Processing

Kodiak is regularly among the top U.S. ports by total seafood landings. The seafood processing sector in Kodiak handles deliveries year-round, including seafood harvested near Kodiak Island as well as in the Gulf of Alaska, Cook Inlet, Prince William Sound, and the Bering Sea/ Aleutian Island region. Most of KIB's processing capacity is located in the City of Kodiak with additional plants in Larsen Bay and Alitak. A variety of establishments have licenses allowing processing of seafood on vessels or at small facilities.

Commercial seafood processing began on Kodiak Island in the late 1800s when the first salmon cannery was built near the Karluk River.[4] Following statehood, and later with the establishment of the Exclusive Economic Zone, which prevented foreign fleets from harvesting seafood near Alaska's cost, seafood processing capacity expanded greatly. Following the collapse of regional crab fisheries in the 1980s, processing capacity pivoted to focus on developing groundfish fisheries. Today, salmon and groundfish comprise the majority of the seafood handled by KIB processors.

In 2014, Kodiak's processing sector produced 226 million pounds of seafood products worth $324 million. Groundfish contributed the largest share (60 percent of the volume and 41 percent of the first wholesale value) of these products, followed by salmon (21 percent of the volume and 36 percent of the value). Crab, halibut, and sablefish species barely contributed 2 percent of overall volume, but made up 17 percent of the first wholesale value of seafood products produced by Kodiak processors.

Processing activity has increased in the last few years, primarily a result of increased pollock landings. While landings have increased from 2005 to 2014, the total value of products has not increased proportionally. Total first wholesale value of seafood products peaked in 2013.

[4] http://www.afsc.noaa.gov/REFM/Socioeconomics/Projects/communityprofiles/Regional_Kodiak_Island_Archipelago.pdf

Table 8. First Wholesale Volume and Value of Seafood Processed in KIB, 2005—2014

Year	Volume (Million lbs.)	Real Value ($Million)
2005	172.8	$293.9
2006	180.4	$305.5
2007	181.1	$342.9
2008	154.9	$329.1
2009	160.7	$293.8
2010	174.4	$331.8
2011	187.4	$373.9
2012	198.8	$383.6
2013	204.8	$384.1
2014	225.7	$324.8
10-Year Average	184.1	$336.3

Note: Values are inflation adjusted.
Source: McDowell Group estimates based on AF&G COAR and AKFIN data.

The main product types produced in Kodiak are headed and gutted (H&G) pollock and salmon, canned salmon, salmon and groundfish fillets, surimi, and whole fish. The majority of Kodiak seafood products, other than canned salmon, are frozen and sold to secondary processors for additional processing. A relatively small amount of product is flown fresh to domestic and international markets, primarily halibut, sablefish, and salmon. Live crab shipments have occurred in the past.

Pollock, Pacific cod, rockfish, and flatfish have the most variety of product forms, including individual quick frozen (IQF) fillets, block fillets, and shatterpacks. About a third of salmon landed in the KIB are canned, with the remainder sold as H&G and fillets (both frozen and fresh). A small amount of high-value roe is produced from salmon, herring, pollock, and Pacific cod.

Fish meal and fish oil products are produced at a facility located in the City of Kodiak. Discards from processing activity are transported by truck or pipeline to the plant. These discards include scraps which remain after seafood has been processed, as well as undersized fish for which there is no other viable market. As a privately held business, no publically available data is available on the volume and value of products produced from this plant. However, it is safe to assume nearly all discards produced by processors in the City of Kodiak goes to this fishmeal plant.[5] The data presented in this report does not include volume or value derived from fish meal production.

Processing employment

The State of Alaska tracks processing employment and wages through two primary databases: the Occupational Database (ODB) and the Quarterly Census of Employment and Wages (QCEW). ODB data includes the number of employees within a region who receive the majority of their annual income from the processing sector. ODB data tends to produce a lower wage figure than the QCEW data because individuals who generated the majority of their annual wage in a non-processing sector are not included. QCEW data complements ODB data by

[5] Personal communication, Dan James, Chief Operating Officer, Kodiak Fishmeal Company, 5/5/2016.

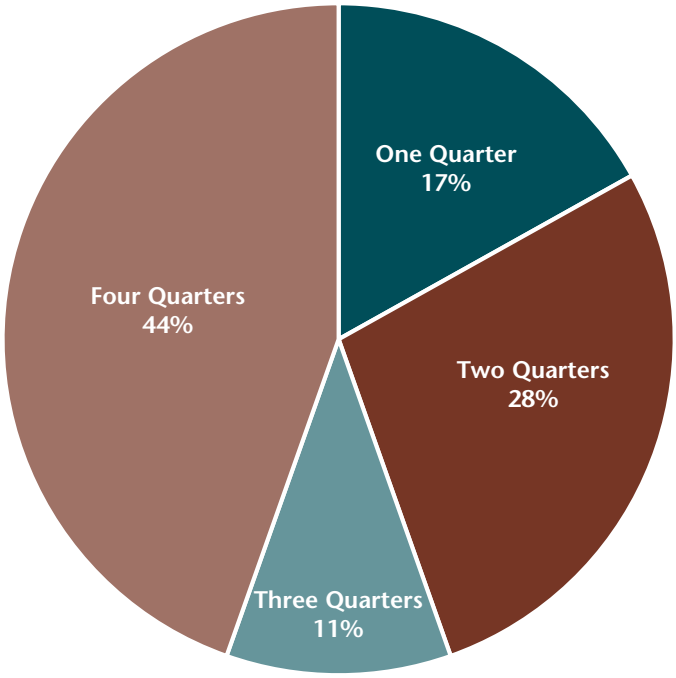
including the total number of employees and wages associated with the processing sector in a region by month. Both sources are presented below.

Occupational Database

In 2014, slightly more than 3,000 workers participated in the KIB seafood processing industry according to ODB data. A "seafood processor worker" is defined as any worker employed by a seafood processing company, including individuals manually processing seafood, forklift operators, maintenance technicians, electricians, managers, office staff, or other positions. In contrast to other job numbers presented in this report, these figures are not annualized.

Seafood processing occurs year-round in KIB, reducing seasonal fluctuation often observed in processing employment. In 2014, more than half (55 percent) of all seafood processing workers were employed in the seafood processing sector for at least three quarters.

Figure 9. Percent of Quarters Worked by Seafood Processing Employees in KIB, by Quarter, 2014



Source: Alaska Department of Labor and Workforce Development, ODB.

Since 2005, this sector has grown from 2,368 workers to 3,048 workers in 2014. Over this period, an average of 48 percent of these workers were year-round residents of KIB, as defined by Alaska Permanent Fund Dividend residency standards. Most of the remainder were residents of other states or international workers. A small portion of KIB processing workers are residents of other Alaska communities. Kodiak's seafood processors employ the highest percentage of local residents of any major production region in Alaska. This is primarily due to greater species diversification than fisheries in Southcentral or Southeast Alaska, and a larger population base than major ports in western Alaska.

Total real processing wages (including overtime) have increased from $41 million in 2005 to $53 million in 2014. While local residents composed 42 percent of the workforce, they received 69 percent of all 2014 wages. Local residents earn a higher share of wages because managers, processing machinery technicians, and other higher paid positions are more likely to be year-round KIB residents.

According to local processors, groundfish processing accounted for approximately 50 percent of total wages and benefits, followed by salmon processing (25 percent). Approximately 15 percent of all wages and benefits paid by processors went to processing activity not directly connected with a specific species, such as administration, management, and maintenance.

Table 9. KIB Seafood Processing Workers and Wages by Residency, 2005—2014

Year	Total Processing Workers	Local KIB Resident Processing Workers	Percent Local KIB Resident	Total Wages ($Million)	Wages to KIB Residents ($Million)	Percent Local KIB Resident Wage
2005	2,368	1,244	52.5%	$40.6	$26.9	66.3%
2006	2,984	1,248	41.8%	$45.4	$28.0	61.7%
2007	2,530	1,328	52.5%	$44.8	$30.7	68.7%
2008	2,503	1,251	50.0%	$40.7	$27.4	67.4%
2009	2,974	1,409	47.4%	$46.6	$30.4	65.2%
2010	3,074	1,437	46.7%	$47.2	$29.9	63.3%
2011	3,226	1,496	46.4%	$51.1	$33.7	66.1%
2012	3,154	1,596	50.6%	$49.8	$34.2	68.6%
2013	3,076	1,596	51.9%	$49.4	$31.8	64.5%
2014	3,048	1,290	42.3%	$52.9	$36.4	68.8%

Note: Seafood processing employment is defined as all NAICS 311700 employment. Values are inflation adjusted.
Source: Alaska Department of Labor and Workforce Development, ODB.

From 2010 to 2014, approximately 40 percent of seafood workers had worked in the sector for five consecutive years. Over the same time period, nearly 13 percent of seafood processing workers also worked one or more other jobs in Alaska outside of seafood processing.

Table 10. Seafood Processing Residency and Longevity in KIB, 2010—2014

	2010	2011	2012	2013	2014
Worked in Seafood Processing Five Straight Prior Years	40.7%	39.0%	32.9%	45.2%	42.3%
Worked in Another Non-Seafood Processing Job in Alaska	14.0%	13.1%	12.2%	13.1%	13.6%

Note: Seafood processing employment is defined as all NAICS 317000 employment.
Source: Alaska Department of Labor and Workforce Development, ODB.

Quarterly Census of Employment and Wages

According to QCEW data, a monthly average of 1,724 processing workers were employed in KIB in 2014. From 2005 to 2014 average monthly employment has trended up, peaking in 2012 at 1,821. Similarly, total wages have increased from $68.4 million in 2005 to $70.5 million in 2014, peaking in 2012 at $80.6 million. While total employment increased 26 percent, wages have been slower to increase, rising only 3 percent.

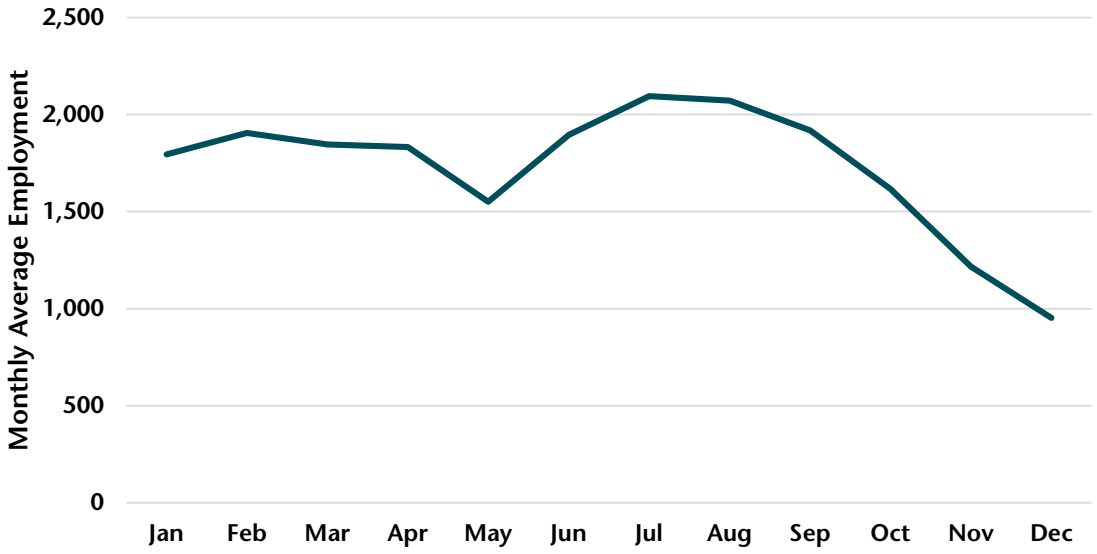
Table 11. KIB Seafood Processing Employment and Wages, 2005—2014

Year	Average Monthly Employment	Total Wages ($Million)
2005	1,368	$68.4
2006	1,458	$69.3
2007	1,428	$71.0
2008	1,507	$67.9
2009	1,539	$63.4
2010	1,598	$75.7
2011	1,799	$78.1
2012	1,821	$80.6
2013	1,816	$75.6
2014	1,724	$70.5

Note: Values are inflation adjusted.
Source: Alaska Department of Labor and Workforce Development, QCEW.

In 2014, the seasonal variation of KIB processing sector employment fluctuated from a high of nearly 2,100 positions in July and August, to a low of 950 in December. Peak employment is driven primarily by salmon processing activity.

Figure 10. Average KIB Processing Employment by Month, 2014



Source: Alaska Department of Labor and Workforce Development, QCEW.

Commercial salmon harvesting and processing has been conducted on Kodiak Island since the late 1800s. More KIB residents work in the local salmon fisheries than any other Alaska fishery. This section details KIB salmon landings data, explores resident participation and ownership, and provides an overview of processing activity associated with salmon. All values (except where noted) have been adjusted for inflation and are reported in 2014 dollars.

Commercial Salmon Harvest Activity

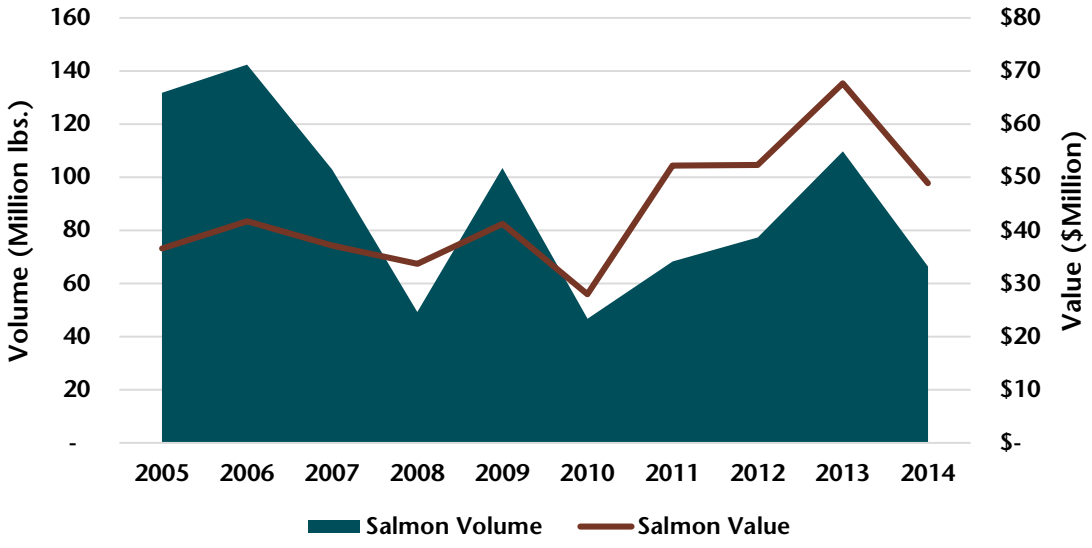
In 2014, Kodiak salmon landings totaled 66 million pounds with an ex-vessel value of $49 million. Of these, an estimated 39 million pounds were landed by KIB residents with an ex-vessel value of $29 million.

Landings have fluctuated significantly year-to-year, primarily as a result of pink salmon harvests which tend to be higher in odd years. From 2005 to 2015, salmon landings peaked at 142 million pounds in 2006; two years later, landings fell by two-thirds to 49 million pounds.

Ex-vessel value of salmon landed in the KIB has not fluctuated as much as landings, though it does tend to be more variable than other key species in the region. Even though landings fell by two-thirds from 2006 to 2008, value only slipped by roughly 20 percent. Total salmon values peaked in 2013 at nearly $70 million before retreating to $49 million the next year.

Preliminary 2015 figures show a relatively large harvest but lower salmon prices resulted in lower overall ex-vessel value in 2015. The 2015 ex-vessel value will be revised upwards later this spring, as bonuses and other supplementary payments are added, but it is unlikely that the revision will push the 2015 value above the prior year. indicate values have not recovered to 2013 levels.

Figure 11. Annual Ex-Vessel Volume and Value of Salmon Landed in KIB, 2005—2014



Note: Ex-vessel values are inflation adjusted.
Source: ADF&G (COAR).

KIB Resident Activity in Other Alaska Salmon Fisheries

While purse seining and setnet fisheries on Kodiak Island are the primary salmon fisheries pursued by KIB residents, local fishermen are active in other Alaska salmon fisheries. In 2014, residents fished 64 salmon permits outside the Kodiak Archipelago. Gillnet fisheries in Bristol Bay made up 70 percent of these permits, with the remainder in Prince William Sound, Chignik, Cook Inlet, and Southeast.

Table 12. Salmon Permits Fished by KIB Residents, by Gear Type, 2010—2014

Gear Type	2010	2011	2012	2013	2014
Kodiak Purse Seine	90	106	108	109	117
Kodiak Setnet	92	96	98	88	86
Bristol Bay Drift Gillnet	42	42	36	36	37
Bristol Bay Setnet	10	8	10	8	8
Prince William Sound Purse Seine	3	1	3	3	4
Chignik Purse Seine	2	2	4	5	4
All Other	13	17	9	11	11
Total Fished Permits	252	272	268	260	267

Source: CFEC.

The value of salmon permits held by KIB residents has increased substantially over the last decade. In 2005, residents owned 398 permits worth an estimated $11 million. Ten years later, the 289 permits owned by residents was worth $29 million.

Permit values in 2005 were shaped in part by a period of weak ex-vessel prices, while prices in the years leading up to 2014 were relatively strong. Following the price reductions in 2015, permit values have fallen relative to 2014 values. As of April 2016, sellers were offering Kodiak seine permits as low as $35,000.[6]

Table 13. Estimated Value of Statewide Salmon Permits Held by KIB Residents, 2005 and 2014

	2005			2014		
Fishery	Permits owned by KIB Residents	Average Permit Value	Estimated Total Value of Permits	Permits owned by KIB Residents	Average Permit Value	Estimated Total Value of Permits
Kodiak Purse Seine	197	$17,900	$3,538,700	196	$50,600	$9,917,600
Kodiak Setnet	105	$47,500	$4,985,600	102	77,500	7,905,000
Bristol Bay Drift Gillnet	41	$64,300	$2,636,900	43	149,500	6,428,500
All Other	55	-	$2,777,700	48	-	4,310,200
Total	398	-	$13,938,900	389	-	$28,561,300

Note: Values may not sum due to rounding. Values are inflation adjusted.
Source: CFEC.

[6] http://www.alaskaboat.com/permitpage.php, accessed 4/7/2016.

Statewide and Local Salmon Harvest

KIB permit holders harvested 45 million pounds of salmon worth $35 million throughout Alaska in 2014. Volume peaked in 2006 at 80 million pounds, while gross earning peaked in 2013 at $48 million. From 2005 to 2014, local seine and setnet fisheries accounted for an average of 83 percent of the total ex-vessel value generated by KIB residents in statewide salmon fisheries.

Table 14. Ex-Vessel Value and Volume of Salmon Harvested by KIB Resident Permit Holders, 2005—2014

Year	Total Volume (Million lbs.)	Total Ex-Vessel Value ($Million)	Ex-vessel Value Generated from KIB Salmon Fisheries ($Million)	Percent of Value from Local Salmon Fisheries
2005	74.3	$22.2	$18.9	85%
2006	80.0	$25.2	$21.3	85%
2007	67.9	$25.7	$21.9	85%
2008	33.8	$23.1	$18.4	80%
2009	62.7	$26.9	$22.4	83%
2010	34.6	$22.2	$15.1	68%
2011	42.9	$34.6	$29.2	84%
2012	51.1	$35.8	$31.1	87%
2013	76.7	$48.5	$40.6	84%
2014	45.2	$35.3	$29.0	82%

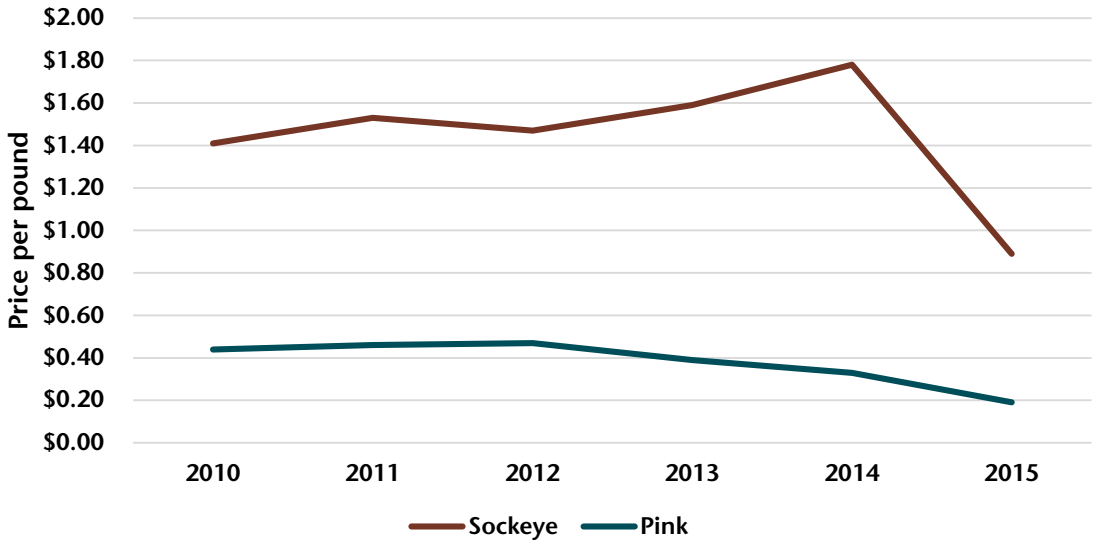
Note: Values are inflation adjusted.
Source: CFEC, ADF&G (COAR).

Ex-vessel Salmon Prices

While all five salmon species are harvested in the Kodiak area, sockeye and pink salmon generate the most gross earnings for commercial fishermen. Average ex-vessel prices for KIB sockeye salmon peaked at $1.78 per pound in 2014 before slumping to $0.90 in 2015.[7] Pink salmon prices averaged nearly $0.50 per pound from 2010 to 2012 nearly $0.40 record before declining to a low of nearly $0.20 in 2015.

[7] 2015 prices are preliminary and are somewhat conservative as they do not include bonuses or other supplementary payments; however, the difference between final and preliminary prices is expected to be minimal in 2015.

Figure 12. Ex-Vessel Price of Key Salmon Species in the Kodiak Area, 2010—2015



Note: Values are not inflation adjusted. 2015 data is preliminary and will likely be revised upward slightly.
Source: ADF&G (2010-2014: COAR and 2015: Fish Tickets and ADF&G estimates).

Salmon Seine Fishery

Typically opening early June and running until the end of September, Kodiak's seine fishery is one of the region's most significant in terms of volume, gross earnings, and resident participation. In 2014, 187 permit holders participated in the fishery, including 120 KIB residents (64 percent). Total volume from the fishery was 51 million pounds, with resident fishermen harvesting 35 million pounds of the total (68 percent). Fishermen earned $35 million, of which 65 percent ($23 million) accrued to KIB residents. Average gross earnings for KIB resident seiners was approximately $191,000; while gross earnings for non-resident seiners was approximately $188,000.

Table 15. Ex-Vessel Volume and Value of Salmon Harvested by KIB Resident Seine Fleet, 2014

Category	KIB Residents	Non-Residents	Total Seine Permit Holders
Permit Holders Who Fished	120	67	187
Total Volume (Million lbs.)	34.5	16.3	50.7
Total Estimated Gross Earnings ($Million)	$22.9	$12.2	$35.1

Source: CFEC.

The typical employment arrangement observed on seine vessels is a skipper (who is typically the permit owner), two individuals on deck, and another crewmember running a skiff. Average crew shares are 10 percent for experienced deckhands and slightly more for the skiffman. Crew shares are typically calculated based on total earnings minus groceries and fuel costs. In 2014, with 187 permits fished and three crewmembers per permit, Kodiak seiners employed approximately 561 crewmembers. Quartile data available from the Commercial Fisheries Entry Commission (CFEC) provides additional details about how income is distributed throughout the Kodiak seine fleet. In 2014, one quarter of estimated gross earnings went to 16 permits (it is appropriate to consider this equivalent to 16 vessels), or nearly 9 percent of all permits. For this top quartile, average estimated

gross earnings were $545,810. The bottom quartile includes 102 permits (55 percent of all permits) who averaged $86,250 in estimated gross earnings.

Assuming a 10-percent crew share, estimated gross earnings per crewmember averaged slightly more than $19,000 in 2014, before deductions such as fuel and groceries. Crew on vessels in the top quartile averaged approximately $54,500, while the lowest quartile vessels generated crew shares averaging $8,625.

Table 16. Estimated Gross Earnings by Quartile by Permit and Crew for Kodiak Seine Fishery, 2014

Quartile	Number of Permits	Percent of Permits	Total Estimated Gross Earnings ($Million)	Percent of Estimated Gross Earnings	Average Estimated Gross Earnings	Average Estimated Crew Share at 10 percent
1 (Top 25 percent)	16	8.7	$8.7	24.9	$545,810	$54,580
2	27	14.7	$8.8	25.3	$328,655	$32,865
3	39	21.2	$8.6	24.7	$222,090	$22,210
4 (Bottom 25 percent)	102	55.4	$8.8	25.1	$86,250	$8,625
Total	184	100.0	$35.1	100.0	$190,575	$19,060

Note: Crew shares typically have expenses such as fuel and groceries deducted. These estimates are before deductions. Values may not sum due to rounding. Number of active permits can be slightly different from the number of permit holders that fished.
Source: CFEC, McDowell Group estimates (crew earnings).

Salmon Setnet Fishery

In general, estimated gross earnings for a setnet site is lower than the average seine vessel. In 2014, a total of 149 setnet permit holders harvested 7 million pounds of salmon worth $9 million.[8] KIB residents harvested 69 percent of the volume (5 million pounds) and earned 68 percent ($6 million) of total estimated gross earnings. Average gross earnings for resident setnetters was approximately $70,000; gross earnings for non-resident setnetters was approximately $60,000.

The typical setnet operation has approximately one crewmember per permit, resulting in an estimated 149 crew positions in 2014. It is common to fish multiple permits at one setnet site. Nearly all salmon is tendered from setnet sites along the South and West side of Kodiak Island to processing plants around the Island. The tenders arrive every few days, bringing ice, groceries, fuel, mail, and other supplies.

Table 17. Ex-Vessel Volume and Value of Salmon Harvested by KIB Resident Setnet Participants, 2014

Category	KIB Residents	Non-Residents	Total Setnet Permit Holders
Permit Holders Who Fished	87	62	149
Total Volume (pounds)	4.7	2.2	6.9
Total Estimated Gross Earnings ($Millions)	$6.1	$2.8	$8.9

Source: CFEC.

The top quartile of earnings accrued to approximately 6 percent (8 permits) of all permits with average gross earnings of $287,800. The bottom quartile included 92 permits, which earned an estimated average gross of $24,620. It is important to note this data may contain errors as some setnet operators with multiple permits

[8] Because of inconsistencies with how landings are connected to permits, it is possible these figures understate the number of total active set net permits.

co-mingle all harvested salmon in one holding skiff. This could result in the actual volume of salmon not being accurately connected to setnet permits.

Table 18. Estimated Gross Earnings by Quartile by Permit for Kodiak Setnet Fishery, 2014

Quartile	Number of Active Permits	Percent of Permits	Total Estimated Gross Earnings ($Million)	Percent of Estimated Gross Earnings	Average Estimated Gross Earnings
1 (Top 25 percent)	8	5.5	$2.3	25.7	$287,800
2	17	11.6	$2.2	24.2	$127,530
3	29	19.9	$2.2	24.8	$76,705
4 (Bottom 25 percent)	92	63.0	$2.3	25.3	$24,620
Total	146	100.0	$9.0	100.0	$61,370

Note: Values may not sum due to rounding. Number of active permits can be slightly different from the number of permit holders that fished.
Source: CFEC.

Salmon Processing Activity

The KIB's processing sector has its roots in canning salmon from the 1880s.[9] Canneries began near the largest salmon-producing rivers in the region, in particular the Karluk River. Cannery production peaked in the 1930s, until overfishing contributed to the decline of wild salmon runs. Salmon enhancement programs from two area hatcheries have increased salmon populations, particularly for pink salmon.

Today, the majority of salmon processed in the region is frozen in a headed-and-gutted (H&G) format. Other products include canned salmon, fresh and frozen fillets, and roe. Located centrally in the Gulf of Alaska, the KIB often processes salmon from fisheries in the Bering Sea/Aleutian Island (BSAI) and Southcentral Alaska, especially pink salmon from Prince William Sound.

In 2014, Kodiak Island Borough plants produced 46.4 million pounds of processed salmon, worth $116 million in first wholesale value. Peak volume and value was observed in 2013 when area processors produced 79 million pounds worth $189 million. Following this record year, production volume and value fell in 2014.

[9] http://www.afsc.noaa.gov/REFM/Socioeconomics/Projects/communityprofiles/Regional_Kodiak_Island_Archipelago.pdf

Table 19. First Wholesale Volume and Value of Salmon Processed in KIB, 2005—2014

Year	Volume (Million lbs.)	Real Value ($Million)
2005	73.8	$111.6
2006	74.4	$124.6
2007	76.8	$136.0
2008	47.5	$110.2
2009	73.0	$139.2
2010	53.0	$122.5
2011	53.9	$134.6
2012	57.1	$157.7
2013	78.6	$189.3
2014	46.4	$115.5
10-Year Average	63.4	$134.1

Note: Values are inflation adjusted.
Source: AKFIN.

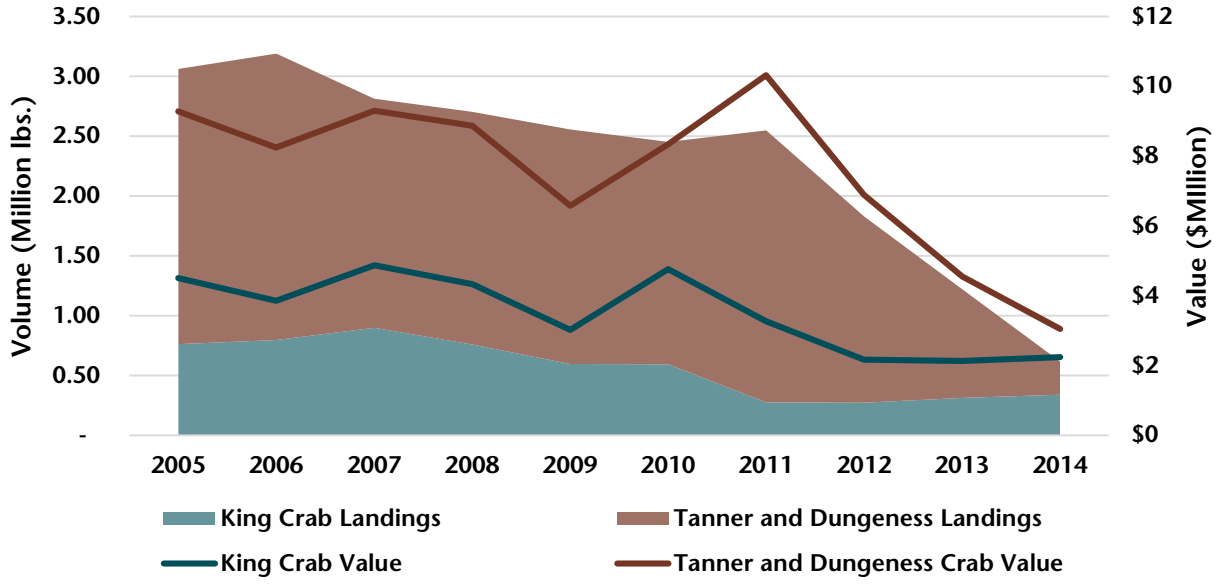
Historically, the City of Kodiak handled large landings of crab from local and BSAI region fisheries. Today – following the closure of nearby king crab fisheries, intermittent closures of local tanner crab fisheries, and a reduction of landings from the BSAI region – crab no longer plays as significant of a role. Similarly, crab harvesting activity by KIB residents has fallen substantially. This section details harvesting activity, landings, and processing volume and value associated with crab. All values (except where noted) have been adjusted for inflation and are reported in 2014 dollars.

Commercial Crab Landings

Landings of crab – including king and tanner from the BSAI region and local tanner and Dungeness species – have trended lower since 2005. Approximately 620,000 pounds were landed in 2014, substantially less than the ten-year peak of 3 million pounds in 2006. Ex-vessel value has trended lower as well, with the exception of a peak in 2011 of $10 million. The 2014 total value was slightly more than $3 million.

Crab vessels harvesting species in the Bering Sea and Bristol Bay region use pot gear, are typically longer than 90-feet, and have 5 to 7 crew. Vessels active in smaller tanner and Dungeness fisheries around the Kodiak Archipelago are smaller vessels, typically less than 58-feet, with 1 to 3 crewmembers. Following rationalization of most BSAI crab fisheries in 2005, KIB resident participation fell as the number of vessels active in the fishery was reduced. In contrast to earlier years where crab fishermen could access the fishery relatively easily, rationalization allocated the annual quota among existing vessel owners, captains, and crews. Today, crab IFQs are often leased with quota owners typically charging 60 to 70 percent of gross ex-vessel value, depending on the species.

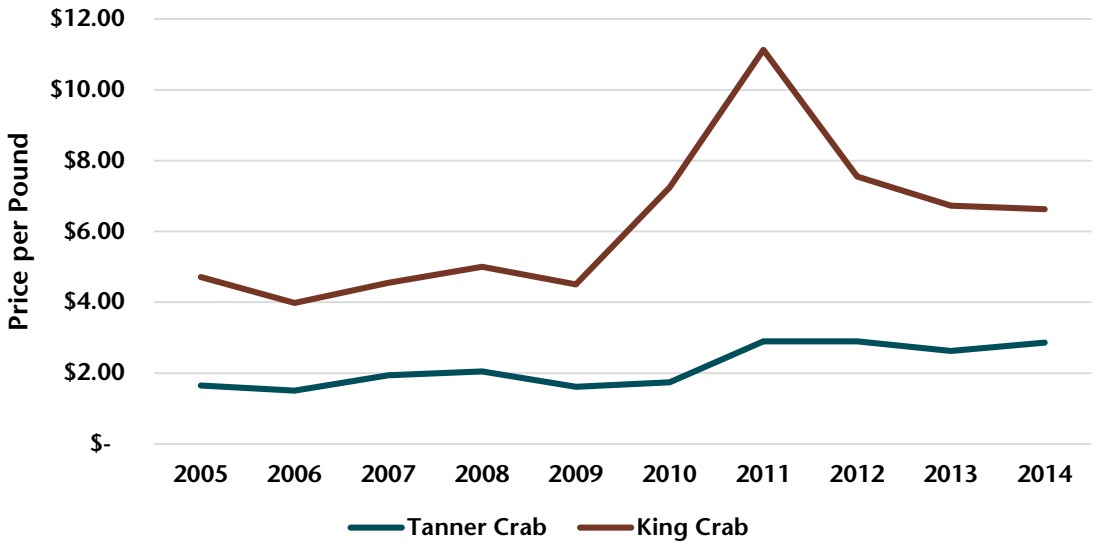
Figure 13. Annual Ex-Vessel Volume and Value of Crab Species Landed in KIB, 2005—2014



Note: Values are inflation adjusted.
Source: ADF&G (COAR).

Crab is a low-volume, high-value fishery, capturing some of the highest ex-vessel prices per pound observed in Alaska fisheries. In 2014, KIB processors paid around $7 and $3 a pound king and tanner crab, respectively.

Figure 14. Estimated Ex-Vessel Tanner and King Crab Prices Paid by KIB Processors, 2005—2014



Note: Values are inflation adjusted.
Source: ADF&G (COAR).

In most years, the majority of crab harvests by KIB residents takes place outside the Kodiak region, primarily in the BSAI region. In 2014, Kodiak residents earned $25 million harvesting 8 million pounds of crab.[10] The Bering Sea tanner and Bristol Bay red king crab fisheries are the most important crab fisheries to KIB residents in term of ex-vessel value. The Kodiak tanner crab fishery, which was closed in 2014, generates income for approximately 40 to 50 KIB resident permit holders on smaller vessels, typically less than 58-feet. Residents earned $3 million from the fishery in 2011 and slightly more than 1 million in 2013.

Table 20. Alaska Crab Harvest by KIB Residents, 2010—2014

Fishery	2010	2011	2012	2013	2014
Bering Sea Tanner Crab	$7.4	$15.7	$24.2	$20.9	$16.6
Bristol Bay Red King Crab	$15.1	$12.6	$9.2	$7.6	$8.1
Other Crab Fisheries	$2.2	$5.5	$4.2	$2.1	$0.7
Total Value ($Million)	$24.7	$33.8	$37.6	$30.6	$25.4
Bering Sea Tanner Crab	5.7	6.2	11.3	9.0	6.9
Bristol Bay King Crab	2.0	1.2	1.2	1.1	1.2
Other Crab Fisheries	1.1	1.7	1.4	0.7	0.2
Total Volume (Million lbs.)	8.8	9.1	13.9	10.8	8.3

Notes: BSAI opilio are included in Bering Sea Tanner Crab fishery. Values are not inflation adjusted.
* *Other* categories includes 12 other fisheries.
Source: CFEC.

[10] CFEC.

During rationalization in 2005, many residents of KIB were allocated IFQs for BSAI crab fisheries. From 2005 to 2014, the number of residents who own crab IFQs expanded (from 46 to 53), along with the combined amount of quota shares owned by residents (from 146.1 million to 158.4 million). However, total ownership of crab IFQ in 2014 was 14 percent below the peak seen in 2011. No rural KIB community had residents who owned crab IFQ over this period.

Table 21. Crab IFQ Ownership by KIB Residents, 2005—2014

Year	Number of KIB Resident Quota Share Holders	IFQ Quota Shares Held by KIB Residents (Million)	Quota (Million lbs.)
2005	46	146.1	4.5
2006	47	170.4	4.4
2007	48	175.6	7.3
2008	54	175.5	6.7
2009	58	181.7	5.7
2010	57	174.2	5.7
2011	57	183.1	8.6
2012	55	173.9	6.3
2013	53	167.1	5.3
2014	53	158.4	7.1

Note: These figures include multiple BSAI crab fisheries.
Source: AKFIN.

Crab Processing Activity

While the area's processing sector had its roots first in salmon, increasing king crab harvests in the 1950s led to investment in seafood processing capacity.[11] Today, most crab landings occur in winter, with a peak in January. From 2005 to 2014, crab processing activity has slow substantially, from 2 million pounds of processed crab to less than 500,000 pounds.

Almost all of the crab landed in Kodiak is cooked and frozen into sections that are sorted into boxes based on the number of legs to fill a 10-pound box. In 2013 (the most recent year for which data is available), Kodiak's seafood processing sector processed 0.8 million pounds of crab, worth $6 million in first wholesale value.

[11] http://www.afsc.noaa.gov/REFM/Socioeconomics/Projects/communityprofiles/Regional_Kodiak_Island_Archipelago.pdf

Table 22. First Wholesale Volume and Value of Crab Processed in Kodiak, 2005—2014

Year	Volume (Million lbs.)	First Wholesale Value ($Million)
2005	2.0	$12.2
2006	2.1	$12.0
2007	1.8	$11.6
2008	2.6	$17.5
2009	1.8	$11.6
2010	1.7	$14.3
2011	1.7	$14.2
2012	1.2	$9.5
2013	0.8	$5.8
2014	N/A	N/A

Note: N/A indicates value was withheld to preserve confidentiality. Values are inflation adjusted.
Source: AKFIN.

Halibut and sablefish are high-value, low-volume fisheries. This has been especially true in recent years, which have seen suppressed total allowable catch (TAC) levels and high ex-vessel prices. In 2014, halibut and sablefish accounted for just 2 percent of KIB landings, but 20 percent of total ex-vessel value. This section reviews commercial fishing and processing activity associated with these two fisheries. All values (except where noted) have been adjusted for inflation and are reported in 2014 dollars.

Commercial Halibut and Sablefish Fishing Activity

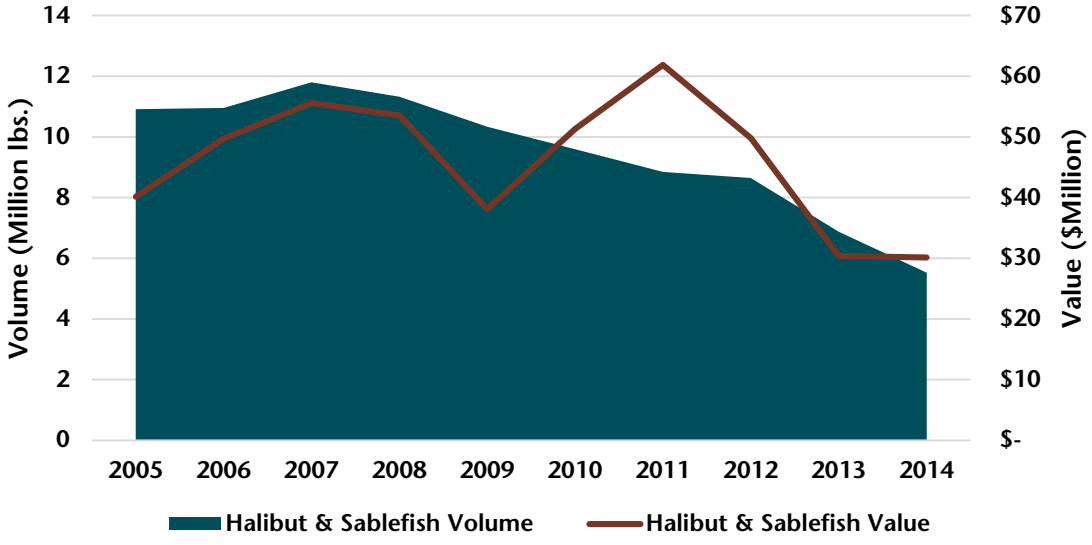
From 2007 to 2014, halibut and sablefish landings in the KIB have trended lower, primarily a result of reduced TACs. Over this period, landings peaked at 12 million pounds in 2007, before falling to 6 million pounds in 2014. Total ex-vessel value has also decreased, though not as significantly, with a peak of $62 million in 2011.

Harvested primarily by longline vessels under 58-feet, it is common for fishermen to pursue halibut and sablefish from the same vessel. The typical longline crew size is 2 to 4, not including the skipper. The fishing season for longline halibut and sablefish opens in March and concludes in November.

In 2014, trawl vessels delivered 750,000 pounds of sablefish to KIB processors. While this is a small portion of trawler's overall volume, sablefish are highly valuable relative to other groundfish species such as pollock. In the same year, jig vessels delivered 4,000 pounds of halibut.

The majority of landings of halibut and sablefish in the KIB take place in the city of Kodiak. In 2014, 3 million pounds of halibut worth $17 million and 3 million pounds of sablefish worth $14 million were landed in Kodiak.

Figure 15. Annual Ex-Vessel Volume and Value of Halibut and Sablefish Landed in KIB, 2005—2014



Note: Values are inflation adjusted.
Source: ADF&G (COAR).

For most of the decade beginning in 2005, halibut landings exceeded sablefish landings, but at a declining ratio. From 2005 to 2009, approximately 1 pound of sablefish was landed for every 3 pounds of halibut. In 2014, halibut landings were lower than sablefish, the first time in the last decade.

Table 23. Ex-Vessel Volume and Value of Halibut and Sablefish delivered to KIB, 2005—2014

	Halibut Landings (Million lbs.)	Halibut Ex-Vessel Value ($Million)	Sablefish Landings (Million lbs.)	Sablefish Ex-Vessel Value ($Million)
2005	8.4	$30.6	2.5	$9.5
2006	8.5	$39.7	2.4	$10.1
2007	8.5	$42.7	3.3	$12.9
2008	8.7	$42.5	2.6	$11.0
2009	7.7	$26.4	2.6	$11.7
2010	6.7	$35.8	2.9	$15.6
2011	5.9	$40.8	3.0	$21.1
2012	5.1	$30.0	3.6	$19.8
2013	3.5	$17.3	3.4	$13.1
2014	2.6	$16.5	2.9	$13.6

Note: Values are inflation adjusted.
Source: ADF&G (COAR).

Landings by KIB residents

In 2014, KIB residents harvested 5 million pounds of halibut and sablefish throughout Alaska worth $19 million – a significant reduction compared to 2005 when 12 million pounds worth $42 million was harvested.

Table 24. Ex-Vessel Value and Volume of Halibut and Sablefish Harvested by KIB Resident Permit Holders, 2005—2014

	Halibut		Sablefish	
Year	Volume (Million lbs.)	Value ($Million)	Volume (Million lbs.)	Value ($Million)
2005	9.7	$35.6	2.5	$6.3
2006	9.0	$40.7	2.5	$7.2
2007	9.2	$45.0	2.4	$7.2
2008	9.6	$44.5	2.5	$8.4
2009	10.7	$27.1	2.3	$7.6
2010	10.5	$40.6	2.4	$9.3
2011	7.9	$39.5	2.2	$11.1
2012	5.4	$22.8	2.1	$8.1
2013	4.4	$15.8	2.0	$5.6
2014	3.0	$13.6	1.6	$5.3
10-Year Average	7.9	$32.5	2.3	$7.6

Note: Values are inflation adjusted. Earning do not include trawl-caught sablefish.
Source: CFEC, ADF&G (COAR).

Resident Longline IFQ Participation

Rationalized in 1995, halibut and sablefish longline harvesters were allocated Individual Fishing Quota (IFQ) based on their catch history. In 2014, 137 KIB resident permit holders fished for halibut and 22 fished for sablefish.[12] Many fishermen in Kodiak lease halibut and sablefish quota, with lease rates reported around 60 to 70 percent of gross earnings.

The total number of KIB resident halibut IFQ holders has fallen each of the last ten years, from 291 in 2005 to 219 in 2014. At the same time, the total halibut quota shares owned by KIB residents has stayed relatively stable, only down around 4 percent.

Table 25. Longline IFQ Halibut Ownership by KIB Residents, 2005—2014

Year	Number of KIB Resident Quota Share Holders	IFQ Quota Shares Held by KIB Residents (Million)	Quota (Million lbs.)
2005	291	48.1	8.3
2006	288	50.0	7.9
2007	283	50.0	7.7
2008	268	51.6	8.0
2009	258	49.9	7.2
2010	252	48.8	6.6
2011	245	49.0	5.1
2012	230	48.4	3.8
2013	226	48.8	3.4
2014	219	46.2	2.1

Source: AKFIN.

In 2014, 60 KIB residents owned sablefish IFQs, representing slightly more than 1 million pounds of quota. From 2005 to 2014, the number of resident owners increased slightly, though the amount of quota shares they owned increased 30 percent. The annual quota available for fishing during this period remained fairly stable, averaging slightly more than 1 million pounds.

[12] CFEC.

Table 26. IFQ Sablefish Ownership by KIB Residents, 2005—2014

Year	Number of KIB Resident Quota Share Holders	IFQ Quota Shares Held by KIB Residents (Million)	Quota (Million lbs.)
2005	57	14.9	1.7
2006	58	17.0	1.8
2007	62	16.1	1.7
2008	62	16.9	1.5
2009	60	17.6	1.4
2010	63	19.2	1.5
2011	58	17.7	1.4
2012	60	18.2	1.6
2013	61	19.9	1.7
2014	60	19.4	1.4

Source: AKFIN.

Proportion of Total IFQ Ownership

KIB is within IPHC management areas 3A and 3B, and its residents are quota shareholders in these halibut fisheries, as well as from the BSAI (Areas 4ABCDE) to Southeast Alaska (Area 2C).

In 2014, KIB residents owned 13 and 6 percent of all Alaska halibut and sablefish quota share, respectively. Residents tend to own higher proportions in areas closer to the Kodiak Archipelago, holding 21 and 16 percent of all 3B and 3A quota shares, respectively. Similarly, residents owned 9 percent of quota in the Central Gulf sablefish region which surrounds Kodiak Island and 11 percent of Western Gulf sablefish quota.

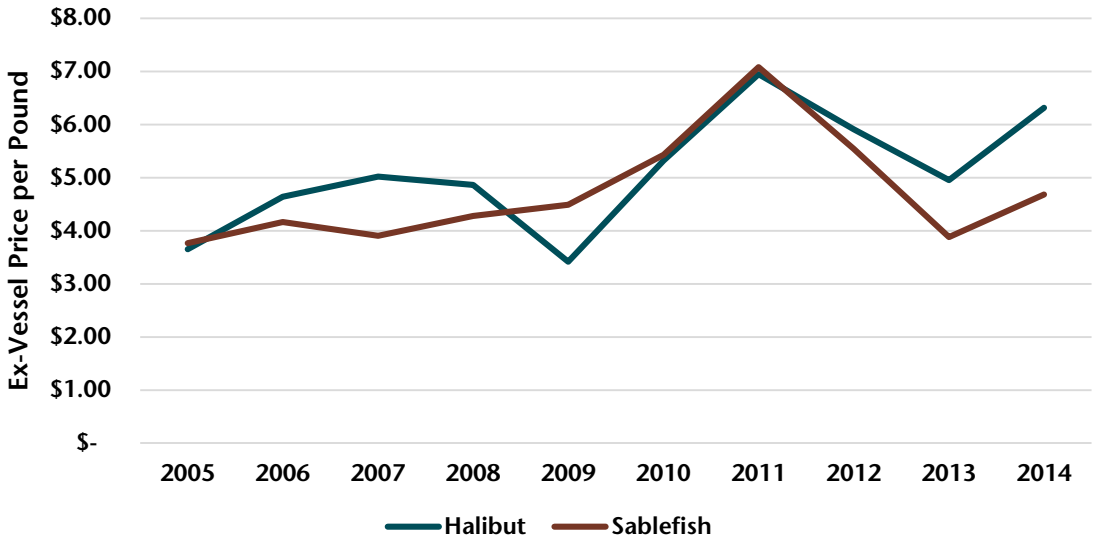
Table 27. KIB Resident Participation in the IFQ Halibut and Sablefish Program, 2014

Species	IPHC Management Area	Percent of IFQ Owned by KIB Residents	Quota Owned by KIB Residents (lbs.)	Total Quota (lbs.)
Halibut				
	4B/C/D/E	13%	209,062	1,627,920
	3B	21%	585,227	2,840,000
	4A	18%	156,125	850,000
	3A	16%	1,194,010	7,317,730
	2C	<1%	110	3,318,720
Total		13%	2,144,534	15,954,370
Sablefish				
	Western Gulf	11%	276,872	2,610,246
	Central Gulf	9%	705,593	8,256,227
	Western Yakutat	6%	205,210	3,295,877
	Aleutian Islands	6%	145,588	2,394,196
	Southeast Gulf	1%	53,061	5,941,397
	Bering Sea	1%	14,152	1,181,666
Total		6%	1,400,475	23,679,609

Source: NMFS FAKR Permits and Licenses.

Between 2005 and 2015, average ex-vessel prices for halibut and sablefish increased to historic heights, both peaking at around $7 a pound in 2011. In 2014, the estimated ex-vessel price for halibut and sablefish was approximately $6 and $5 a pound, respectively. Halibut prices vary depending on size with larger fish generating a higher price. Sablefish harvested by trawl typically receive a lower price than those harvested with longlines.

Figure 16. Estimated Real Ex-Vessel Halibut and Sablefish Prices in the Kodiak Area, 2005—2014



Note: Values are inflation adjusted. Includes all gear types.
Source: ADF&G (COAR).

Halibut and Sablefish Processing Activity

In 2014, slightly more than 2 million pounds of halibut products (mostly frozen fillets) were produced in KIB, worth $22 million in first wholesale value. Similarly, nearly 3 million pounds of sablefish products (mostly frozen H&G fish) were produced worth $17 million in first wholesale value. Kodiak processors tend to produce a higher proportion of frozen halibut and sablefish than other Alaska processors who typically sell fresh to market. This dynamic is likely due to logistics and relatively high volumes.

Table 28. First Wholesale Volume and Value of Halibut and Sablefish Processed in KIB, 2005—2014

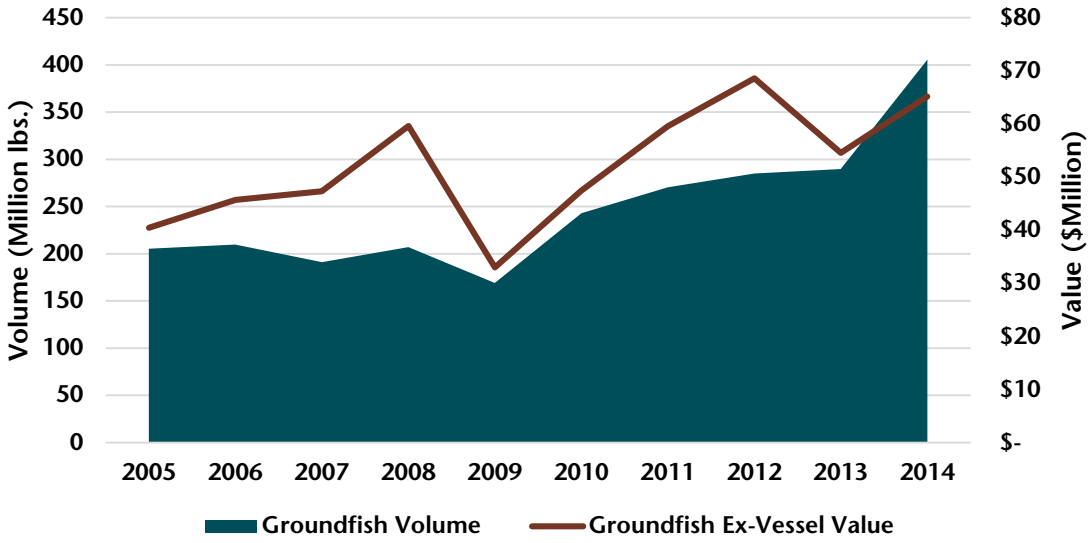
Year	Halibut		Sablefish	
	Volume (Million lbs.)	Value ($Million)	Volume (Million lbs.)	Value ($Million)
2005	8.1	$39.8	2.2	$11.1
2006	6.2	$33.7	2.3	$12.3
2007	8.1	$51.4	2.9	$15.7
2008	7.6	$46.7	2.3	$14.1
2009	6.7	$34.7	2.3	$14.5
2010	6.1	$46.7	2.6	$19.5
2011	5.8	$47.7	2.9	$25.3
2012	6.9	$35.4	3.3	$23.2
2013	3.3	$23.3	3.1	$17.2
2014	2.4	$22.1	2.5	$17.0
10-Year Average	6.1	$38.2	2.6	$17.0

Note: Values are inflation adjusted. In 2011, 2012, and 2014, ex-vessel landings and values for halibut or sablefish have exceeded the first wholesale volume and value. Variations in methodology between data sources explain the difference.
Source: AKFIN.

From 2010 to 2014, groundfish landings accounted for an average of 76 percent of all seafood landed in KIB. The majority of groundfish volume consists of pollock, followed by Pacific cod, rockfish and flatfish species. This section details commercial fishing activity and processing activity associated with groundfish harvests.

Harvested primarily by trawl, pot, longline, and jig gear types, groundfish landings and ex-vessel value has nearly doubled in the last decade, with a record 406 million pounds worth $65 million in ex-vessel value landed in 2014. Preliminary data indicate 2015 landings even higher than 2014 landings.

Figure 17. Annual Ex-Vessel Volume and Value of Groundfish Landed in KIB, 2005—2014



Note: Values are inflation adjusted.
Source: ADF&G (COAR).

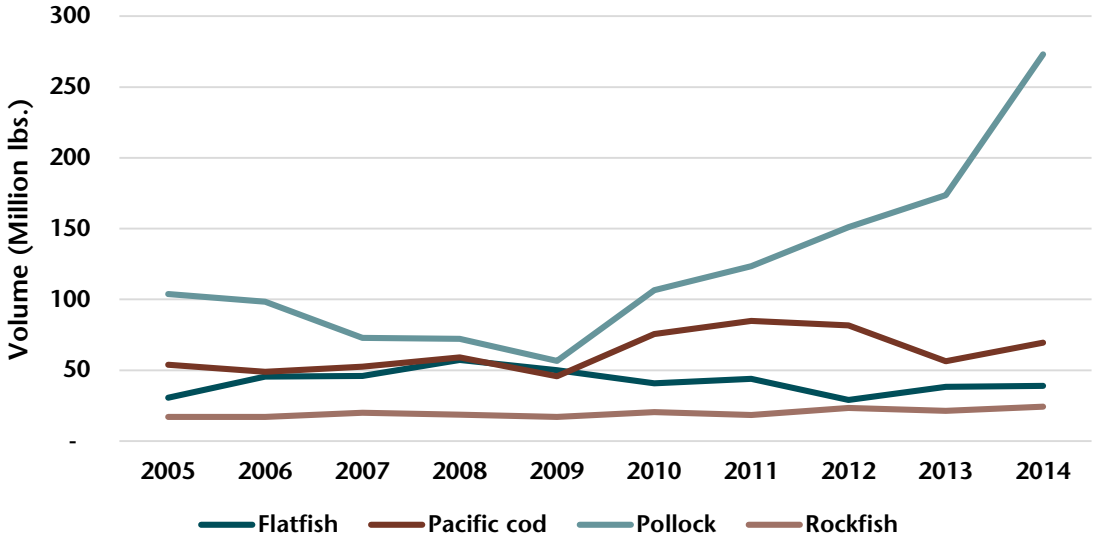
Much of this increase is due to larger TACs for pollock, which make up an average of 55 percent of all groundfish landings. Pacific cod are second at 25 percent, followed by flatfish (13 percent) and rockfish (7 percent).

Groundfish harvest falls under a variety of management regimes, from the open access jig fisheries to rationalized American Fisheries Act pollock fishery in the Bering Sea and Central Gulf of Alaska Rockfish Program.[13] In 2014, KIB residents fished 150 permits in state and federal trawl, longline, pot, and jig groundfish fisheries.[14]

As shown in Figure 18, pollock landings nearly tripling since 2005, from 104 million pounds to 273 million pounds in 2014. Landings of other groundfish species remained roughly stable.

[13] The Central Gulf of Alaska Rockfish Program requires 100% of harvested volume from this program to be landed in the City of Kodiak.
[14] CFEC operator cards are used as a proxy.

Figure 18. Annual Ex-Vessel Volume of Groundfish Landed in KIB, by Key Species, 2005—2014

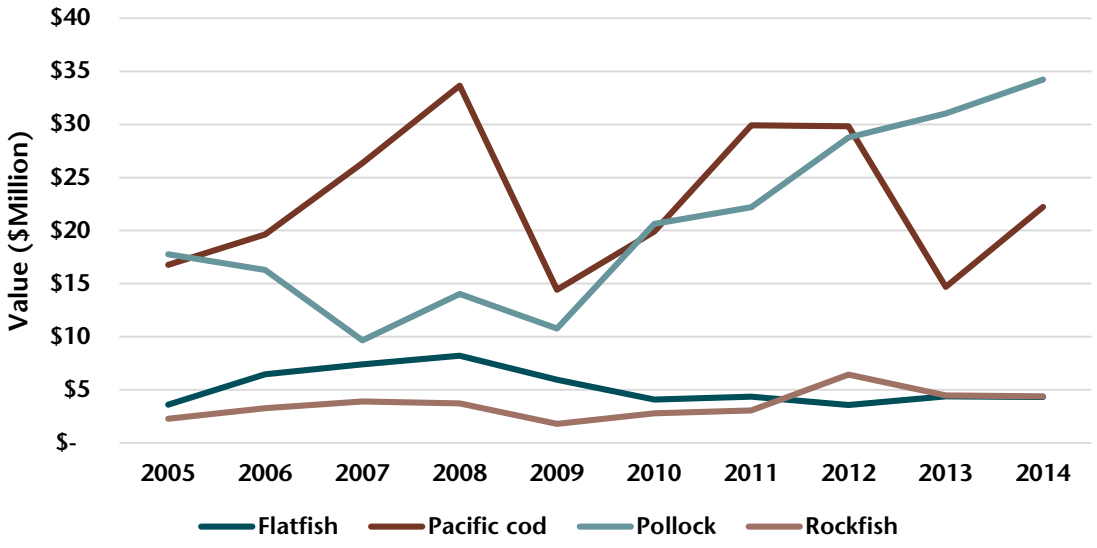


Source: ADF&G (COAR).

As shown in Figure 19, the ex-vessel value of Pacific cod landed in KIB has often surpassed those of pollock. This dynamic has shifted in recent years, as total pollock ex-vessel values have increased, exceeding the total value of Pacific cod in 2013 and 2014.

Over the last ten years, the combined ex-vessel value of all Pacific cod landings in KIB ($253 million) was higher than those for pollock landings ($205 million).

Figure 19. Annual Ex-Vessel Value of Groundfish Landed in KIB, by Key Species, 2005—2014



Note: Values are inflation adjusted.
Source: ADF&G (COAR).

Total groundfish harvests by KIB residents have increased in recent years, with 2014 marking a record 250 million pounds. However, the value of this harvest has not increased at the same rate, with peak values actually occurring in 2008 at $58 million.

Table 29. Groundfish Species Harvested and Permits Fished by KIB Residents, 2005—2014

	Volume (Million lbs.)	Ex-Vessel Value ($Million)	Number of Permits Fished
2005	182.3	$38.7	235
2006	177.2	$42.2	196
2007	183.1	$48.6	183
2008	177.7	$58.1	199
2009	139.2	$30.7	179
2010	188.9	$43.6	180
2011	219.0	$54.0	245
2012	219.6	$55.1	251
2013	186.2	$38.0	127
2014	250.1	$44.9	150
10 Year Average	192.3	$45.4	195

Note: Includes permits held for all groundfish gear types. Values are inflation adjusted.
Source: CFEC and ADF&G (COAR).

Prices paid to fishermen for groundfish species are typically among the lowest of all major species in Alaska. In 2014, ex-vessel prices for pollock averaged $0.13 a pound for pollock, $0.32 a pound for Pacific cod, $0.18 a pound for rockfish, and $0.11 a pound for flatfish (sole/flounder).

Table 30. Average Nominal Ex-Vessel Price per Pound for Key Groundfish Species in KIB, 2005—2014

	Pollock	Pacific Cod	Rockfish	Flatfish
2005	$0.14	$0.31	$0.11	$0.09
2006	$0.14	$0.40	$0.16	$0.12
2007	$0.11	$0.50	$0.16	$0.14
2008	$0.17	$0.57	$0.18	$0.13
2009	$0.17	$0.32	$0.09	$0.11
2010	$0.18	$0.26	$0.12	$0.09
2011	$0.17	$0.35	$0.15	$0.09
2012	$0.18	$0.37	$0.26	$0.12
2013	$0.18	$0.26	$0.21	$0.11
2014	$0.13	$0.32	$0.18	$0.11

Note: Flatfish category includes Bering flounder, Alaska plaice flounder, arrowtooth flounder, starry flounder, Kamchatka flounder, butter sole, Dover sole, English sole, flathead sole, rex sole, rock sole, sand sole, yellowfin sole, and Greenland turbot. Values are not inflation adjusted.
Source: ADF&G (COAR).

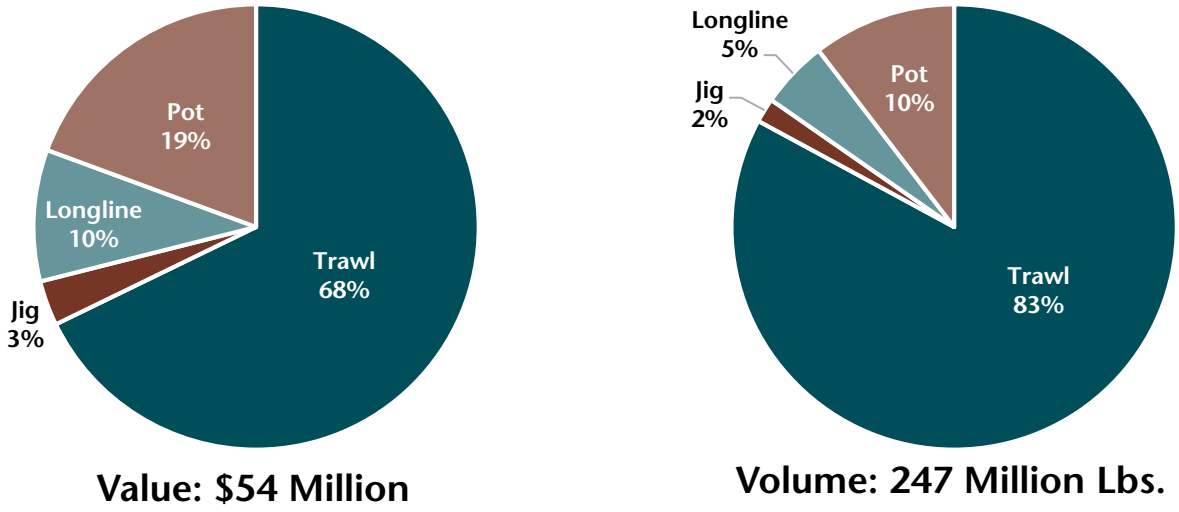
In 2015 and early 2016, fishermen and processors reported catches with a higher proportion of smaller-sized pollock than usual. Because of their abundance, it is a challenge for fishermen to avoid these smaller fish. Processors often divert a substantial portion of deliveries to the local fish meal plant because the smaller fish cannot be efficiently processed. Fishermen typically do not get paid for diverted landings. Recently however, a local processor reports they are developing markets for these smaller fish.

Groundfish Harvest

Groundfish are harvested by trawl, longline, pot, and jig gear. In a typical year, trawlers harvest the vast majority of groundfish (83 percent), followed by fishermen using pot gear (10 percent), longlines (5 percent), and jig gear (2 percent). The largest trawl landings (by volume) are pollock, followed by cod, flatfish and rockfish. Pot, longline, and jig fishermen typically do not target pollock or flatfish, focusing instead on higher-value groundfish such as Pacific cod and rockfish.

Most trawl landings are pollock, while pot, longline, and jig fishermen typically target higher value groundfish such as Pacific cod and rockfish.

Figure 20. Ex-Vessel Volume and Value of Groundfish Landed in KIB, by Gear Type, Ten Year Average (2005—2014)



Note: Figures have been inflation adjusted.
Source: ADF&G (COAR).

Trawl Fleet

The trawl fleet in the KIB is unique in its versatility. Each vessel operates in a variety of groundfish fisheries, with most of the vessels participating in the License Limitation Program (LLP) of the federal Western and Central Gulf of Alaska trawl fleet.[15] Most trawl vessels delivering to the KIB are above 90-feet with three crewmembers and a captain.

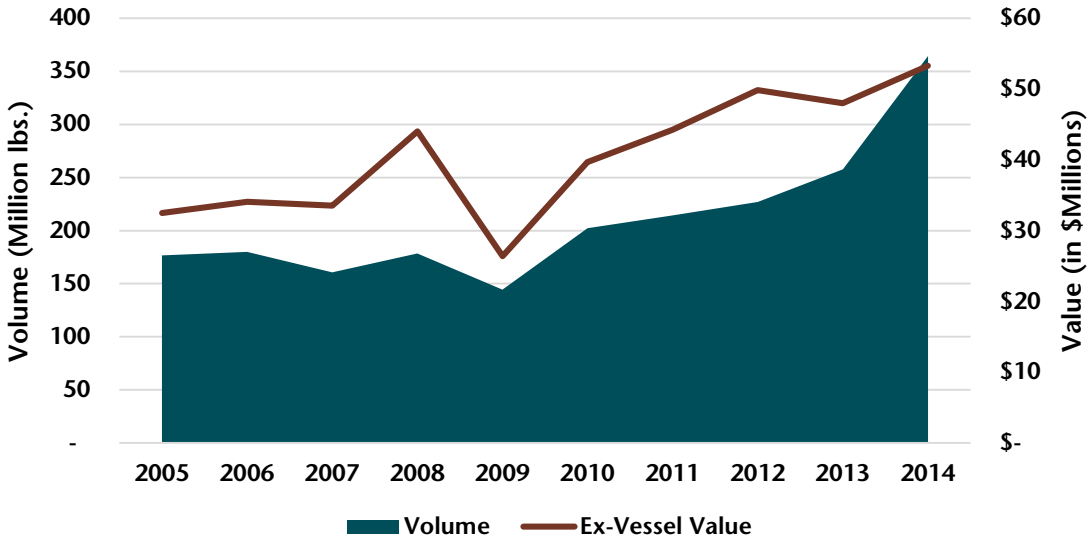
The trawl season generally lasts from January to through October, starting with the pollock A season and Pacific cod, moving into rockfish and flatfish, and finishing with pollock D season and Pacific cod. In the Kodiak area, it is also common for trawl vessels to tender salmon during the summer months. On a typical trawl vessel, it is common to have a skipper and three crew.

[15] According to NPFMC's Fishing Fleet Profiles, 35 total vessels operate in the Western Gulf trawl fleet and 69 operate in the Central Gulf trawl fleet.

In 2014, 49 trawl vessels delivered to the KIB 361 million pounds of groundfish worth $50 million in ex-vessel value.[16] Roughly three quarters of these landings consisted of pollock, followed by Pacific cod and flatfish (approximately 10 percent each). Rockfish accounted for the remainder (see Table 32). Trawl vessels also harvest a relatively small amount of sablefish. These landings are detailed in the *Halibut and Sablefish* chapter.

It is important to note groundfish is also harvested in the Gulf of Alaska by a small number of catcher-processor vessels. While these landings bypass KIB processors, these vessels do purchase fuel, groceries, and other supplies within the KIB.

Figure 21. Annual Ex-Vessel Volume and Value of Groundfish Landed in KIB, by Trawl Fleet, 2005—2014



Source: ADF&G (COAR).

Table 31. Ex-Vessel Groundfish Landings in Kodiak by Trawl Vessels, by Species, 2014

Species	Ex-Vessel Value ($Million)	Ex-Vessel Volume (Million lbs.)	Percent of Total Landings
Pollock	$34.2	272.7	75%
Pacific Cod	$7.7	28.8	8%
Flatfish	$4.4	39.1	11%
Rockfish	$3.6	20.3	6%
Total	$49.9	360.9	100%

Note: Sablefish landings are not included in these figures.
Source: ADF&G (COAR).

Statewide Landings by KIB Residents

In 2014, KIB residents operated 27 permits to access different state and federal trawl fisheries.[17] Because of the relatively small number of KIB residents active in these fisheries, data is limited on ex-vessel volume and value. While publically available data shows gross earnings of approximately $10 million on 65 million pounds of landings in 2014, McDowell Group estimates actual gross earnings are closer to $35 million on an unknown

[16] ADF&G (COAR).
[17] CFEC.

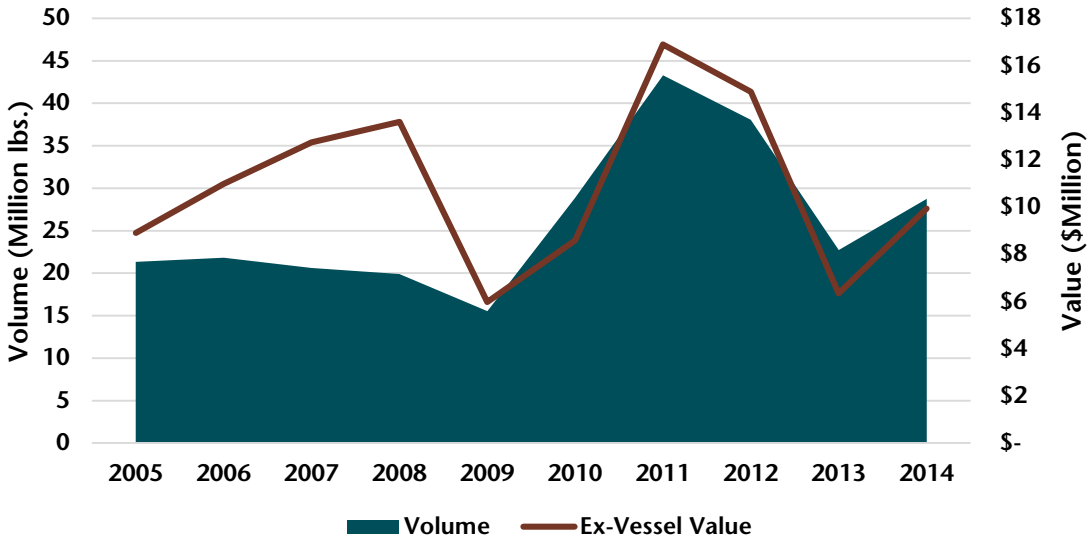
amount of volume based on the average earnings per permit from these fisheries. Most of these earnings come from GOA trawl fisheries, with some residents generating earnings from Bering Sea trawl fisheries.

Pot Fleet

Pot vessels primarily target Pacific cod, with some rockfish and pollock harvested as well. Including state and federal fisheries, the seasons typically last from January 1st to February/mid-March and September to October/November (and sometimes lasting until December 31st). These vessels operate under a non-trawl LLP with the pot gear fleet receiving nearly 28 percent of the Central GOA Pacific cod TAC. In addition, a state-waters fishery for Pacific cod splits its annual Guideline Harvest Level evenly with the pot and jig fleets and opens after the closure of the federal fishery.

In 2014, 38 pot vessels landed 29 million pounds of Pacific cod worth nearly $10 million in Kodiak. These figures are down from a peak in 2011 when slightly more than 42 million pounds worth roughly $16 million were landed.[18]

Figure 22. Annual Ex-Vessel Volume and Value of Groundfish Landed in KIB, by Pot Fleet, 2005—2014



Note: Data does not include small amount of confidential data.
Source: ADF&G (COAR).

Statewide Landings by KIB Residents

In 2014, KIB resident permit holders harvested an estimated 33 million pounds of groundfish (primarily Pacific cod) throughout Alaska with pot gear worth slightly more than $11 million.[19] These landings include harvesting activities in the GOA and BSAI region.

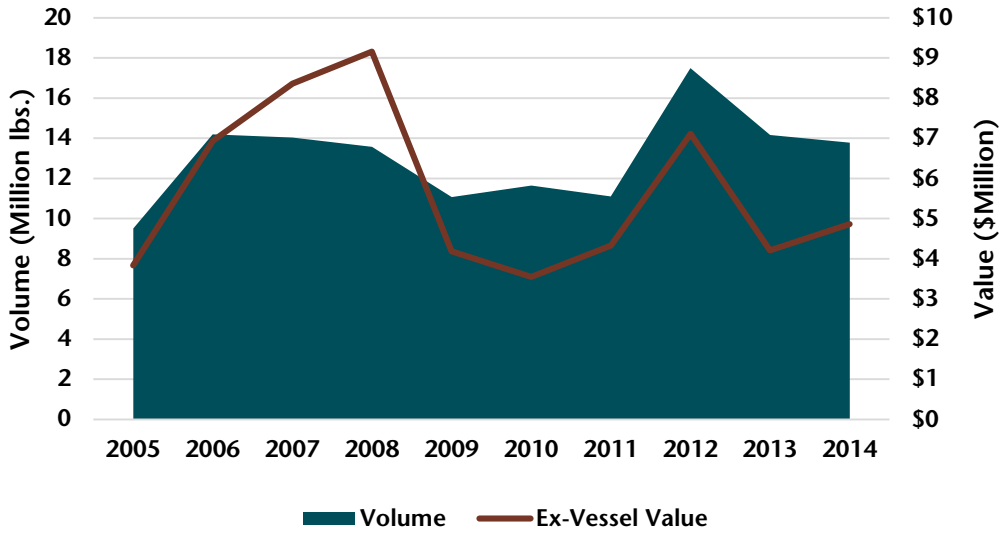
Longline Fleet

Longline gear is also utilized for groundfish harvests off the coast of Kodiak, targeting primarily Pacific cod. Many of the vessels that are active in this fleet are under 58-feet, operate with 2-3 crewmembers, are

[18] DF&G (COAR)
[19] This estimate is based on data from CFEC on the average harvest volume and gross earnings per permit, by fishery. In contrast to trawl vessel, higher participation by KIB residents results in less data being withheld.

homeported in Kodiak or Southcentral ports, and also fish halibut and sablefish. In 2014, 114 longline vessels delivered 14 million pounds of groundfish to Kodiak, worth $5 million.

Figure 23. Annual Ex-Vessel Volume and Value of Groundfish Landed in KIB, by Longline Fleet, 2005—2014



Source: ADF&G (COAR).

STATEWIDE LANDINGS BY KIB RESIDENTS

In 2014, KIB residents fished 16 longline groundfish permits through the state, earning an estimated $2 million. This estimate is based on the average gross earnings in Alaska longline groundfish fisheries.

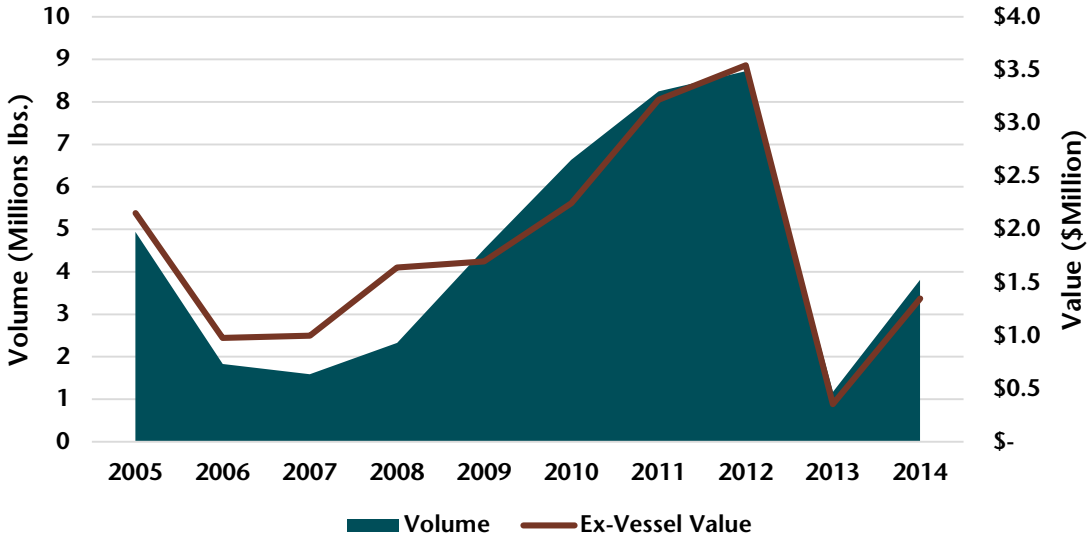
Jig Fleet

A typical jig operation is a skipper and a crew member. With minimal upfront capital costs, the jig fishery is considered a "stepping stone" fishery into other, more capital-intensive fishing operations. It is also used as a supplemental fishery, with permit holders engaging in other fishing opportunities such as seining.

In 2014, the jig fleet was allocated 1 percent of the federal Pacific cod allocation in the Central Gulf of Alaska region and nearly 2 percent in the Western Gulf of Alaska region. This allocation is floating and increases/decreases based on the prior year's harvest with a cap of 6 percent. The A season opens in January and closes when quota is reached. The B season begins in June. Many of the jig vessels also participate in the state water jig fisheries, alongside the pot fleet. The majority of the fleet is homeported in Kodiak and a typical vessel is less than 58-feet.

In 2014, 80 vessels landed 4 million pounds of groundfish (primarily Pacific cod) worth slightly more than $1 million dollars in the KIB. Nearly of these landings came from residents.

Figure 24. Annual Ex-Vessel Volume and Value of Groundfish Landed in KIB, by Jig Fleet, 2005—2014



Source: ADF&G (COAR).

Statewide Landings by KIB Residents

In 2014, KIB residents harvested 4 million of groundfish (primarily Pacific cod) with jig gear worth approximately $1 million in 2014. Most harvest volume came from harvesting activity close to Kodiak Island.

Table 32. KIB Resident Groundfish Jig Activity, 2005—2014

	2010	2011	2012	2013	2014
Permits Fished	79	142	135	44	65
Gross Earnings ($Million)	$1.6	$2.7	$2.7	$0.5	$1.3
Volume Harvested (Million lbs.)	5.4	7.8	7.1	1.8	4.2

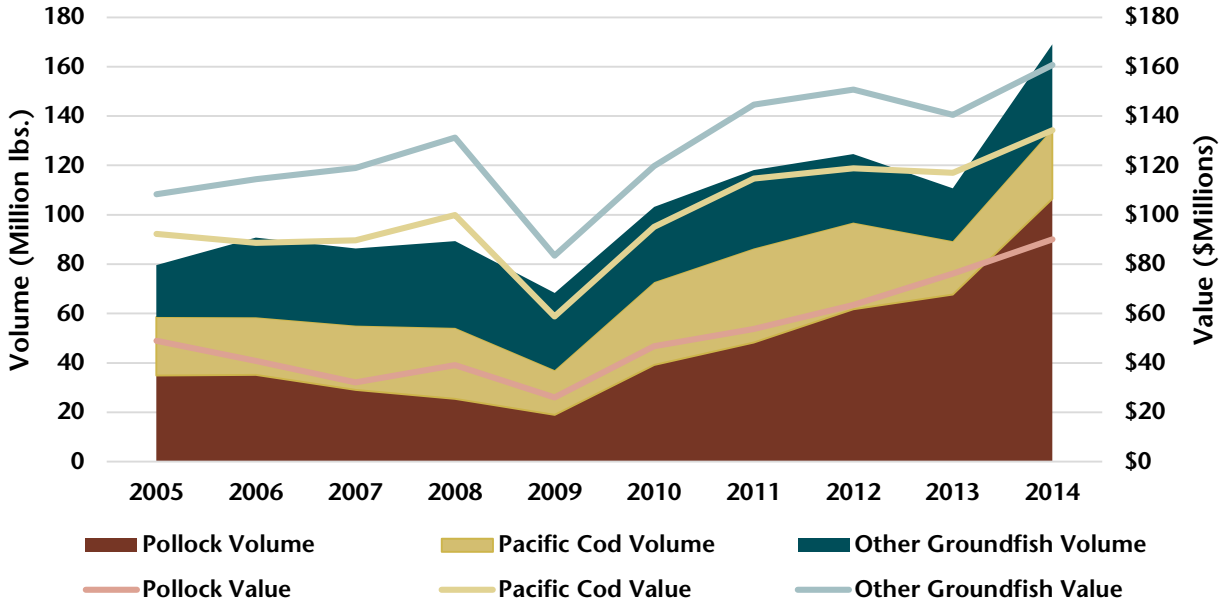
Note: Data from one participant in the dinglebar troll fishery is not included.
Source: ADF&G (COAR)

Groundfish Processing Activity

Groundfish processing capacity in the KIB (mainly in the City of Kodiak) increased in the 1980s, partly in response to falling crab landings. Today, KIB's processing sector handles groundfish landings throughout most of the year, with peak production occurring in the spring and fall. Most groundfish are processed frozen into H&G or other products, including frozen blocks, individual quick frozen and shatter packs, fillets, roe, and surimi. Groundfish waste or species too small for effective processing are turned into fishmeal at the local meal plant. A significant proportion of groundfish undergoes primary processing before being transported to reprocessing facilities located primarily in Asia. After undergoing final processing, the groundfish is exported to its final market.

Pollock quota has substantially increased in the last few years. As a result, KIB processors produced more than triple the amount of pollock products in 2014 compared to 2005. In 2014, 106 million pounds of processed pollock was produced worth $90 million, 28 million pounds of Pacific cod was produced worth nearly $44 million, and other groundfish species totaled 34 million pounds worth $26 million. Other groundfish species include rockfish, sole, and other species.

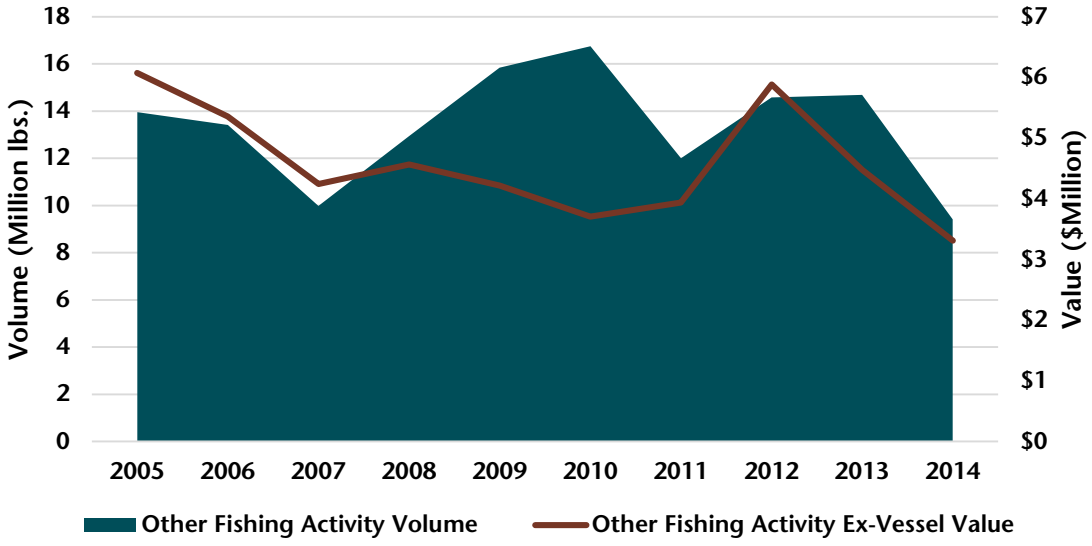
Figure 25. First Wholesale Volume and Value of Groundfish Processed in Kodiak, 2005—2014



Source: AKFIN.

The diversity of Kodiak's fishing fleet extends beyond groundfish, salmon, halibut, and sablefish. In 2014, 9 million pounds of herring, scallops, sea cucumbers, and other seafood, worth slightly more than $3 million, was landed in the KIB. These landings make up approximately 2 percent of total ex-vessel value and 2 percent of seafood landings in the KIB. Other species landed in the KIB include lingcod, skates, geoduck clams, sea cucumbers, and octopus.

Figure 26. Annual Ex-Vessel Volume and Value of All Other Species Landed in KIB, 2005—2014



Source: ADF&G (COAR).

Herring

Nearly 5 million pounds of herring worth $405,000 was delivered to KIB processors in 2014 by 27 vessels. Herring is harvested primarily by seine with a portion coming from gillnet fisheries. Ex-vessel herring prices have fluctuated substantially in the last few years, with low prices reducing participation.

In 2014, 20 KIB resident permit holders participated Southeast, Kodiak, and Bristol Bay herring fisheries, harvesting nearly 16 million pounds worth slightly more than $700,000 in ex-vessel value in 2014. Kodiak's herring seine fleet typically travels to Sitka in the early spring to follow the herring north to Kodiak and on to Bristol Bay.

Other Fisheries

A number of small fisheries harvesting miscellaneous species accounted for almost 5 million pounds of landings in the KIB worth nearly $3 million in ex-vessel value. Confidentiality constraints restrict the amount of data available for these fisheries, but it is likely scallops and sea cucumbers make up the majority of value from these species. In 2014, KIB residents generated slightly more than $2 million from approximately 200,000 pounds harvested in miscellaneous Alaska fisheries.

Other Seafood Processing Activity

Many other species are processed in Kodiak include herring, scallops, sea cucumbers, geoducks, octopus, and other species. Due to the small numbers of processing plants handling these species, data is limited. In 2014, about 3 million pounds of herring was processed in Kodiak, worth approximately $2 million in first wholesale value. Other shellfish products produced in recent years averaged 500,000 pounds annually.

Economic Impacts of the Seafood Industry in Kodiak

The seafood industry impacts the Kodiak Island Borough (KIB) economy in complex and profound ways. In fact, as this analysis reveals, commercial fishing, seafood processing, and related activity in the support sector are the core of the economy. This chapter begins with an overview of how various components of the seafood industry effect the local economy, and how those effects can be measured. Following that, the results of McDowell Group's economic impact analysis are presented.

Sources of Economic Impact

One way to describe KIB's seafood economy is to consider all of the various local activities required to produce $325 million in seafood products in KIB. That dollar amount is the total first wholesale value of seafood production in KIB in 2014 and provides a measure of the seafood industry's total direct "output" that year. The key sources of spending and income that are required to generate that output include:

- Payments to commercial fishermen for their catch (paid at ex-vessel prices)
- Payment of wages to seafood processing workers
- Purchases of goods and services required to handle, process, and add value to fish and seafood

In addition to the economic impact with seafood landed and processed in KIB, the impact of the seafood industry also includes the income earned by KIB-based fishermen who fish and sell their catch elsewhere in Alaska, including Bering Sea groundfish and crab fisheries, Bristol Bay salmon fisheries, and other fisheries.

The economic impact of commercial fishing varies from fishery to fishery but generally depends on:

- The residency of boat owners, permit and quota holders, and crew.
    - KIB resident fishermen are more likely to secure a greater portion of their service and supply needs locally than their non-resident fishermen typically secure a smaller portion of their service and supply needs locally.
    - KIB resident fishermen will spend locally more of the personal income they earn by commercial fishing than their non-resident counterparts.

Similarly, the economic impact of seafood processing varies from species to species and product to product, but generally depends on:

- Where seafood processors purchase the supplies, equipment, and services they need to conduct processing operations.
- The residency of processing plant employees, with resident workers spending more of their wages locally than non-resident workers.

Where fishermen and processing workers reside is a particularly important aspect of the economic impact of the seafood industry. In addition to spending more of their seafood-industry generated personal income in the

KIB economy, local residents are more likely be home-owners (paying property taxes), have children in local schools, seek medical care from local providers, and have other forms of socioeconomic impact.

Ultimately, it is the total amount of local spending by fishermen, processing workers, and plant managers that determines the economic impact of commercial fishing and seafood processing. The economic impact of this spending can be described as either "indirect effects" or "induced effects":

- "Indirect effects" include jobs, income, and other economic activity created by fishermen purchasing supplies, gear, equipment, and services locally in support of their fishing operations. Similarly, local spending by plant managers on various goods and services creates indirect economic activity in Kodiak.

- "Induced effects" are those created by local spending of the personal income generated by the seafood industry. This includes local spending of take-home pay earned by fishermen (boat owners, permit/quota owners, skippers, and crew) and local spending of the wages earned by processing workers. As this personal income is spent in Kodiak, additional jobs and wages are created.

Together, indirect and induced economic impacts are termed "multiplier effects." Economic impact models provide guidance on the scale of these multiplier effects. IMPLAN is a predictive input-output model of local and state economies, and is widely used in Alaska and across the country to measure the economic impact of industrial and commercial activity. The model provides a means to measure the employment and labor income effects of money as it flows through various sectors of the economy. While IMPLAN includes the framework to generate overall, aggregated measures of the multiplier effects of commercial fishing and seafood processing, the model's output often produces inaccurate results because it fails to capture the effect of non-resident participation in the industry. As such, IMPLAN nearly always requires some degree of modification to reflect local conditions. For this study, IMPLAN is used to measure multiplier effects at the sub-industry and household level (retail, food services, professional services, etc.), rather than at the whole-industry level.

In this study, the economic impact the seafood industry in the KIB is measured in terms of employment, labor income, and output:

- *Employment* is measured in terms of annualized numbers rather than peak or total participation. Annualizing commercial fishing employment estimates, while understating the number of people that earn income by commercial fishing, allows for "apples-to-apples" comparison to other sectors of the economy.

- *Total participation* is the total number of people earning income from commercial fishing or seafood processing. This number is higher than the annualized employment estimates.

- *Labor income* is a measure of wages, salaries, and net income earned by harvesters, processors, and support sector workers.

- *Output* as defined in this report is a measure of total direct, indirect and induced spending related to seafood industry operations.

A key research challenge in this study was to develop estimates of local spending versus non-local spending for fishermen and processors. KIB resident fishermen meet some of their service, supply and equipment needs

through businesses located outside of KIB and outside of Alaska. Conversely, non-resident fishermen purchase some services and supplies locally (in KIB). The same is true for processors, who meet their service and supply needs through a combination of local and non-local purchases. McDowell Group conducted "key informant" interviews with fisherman and processors, and conducted a formal survey of processors to gather information regarding purchasing patterns and values.

Measures of seafood industry economic impacts presented in this chapter are organized by species, broken out by harvesting and processing activity. Estimates of impacts associated with harvesting activity are based on a variety of data, particularly gross earnings by residency and fishery. For processing-related impacts, KIB processors were asked to allocate expenditures on wages and salaries to species. Additionally, information gathered from interviews with processors was used to inform species-specific impacts.

Estimates were made, by fishery, of the proportion of gross commercial fishing income that stayed in the KIB economy. Local business and fishermen across gear types were interviewed to develop or refine these estimates. Processors provided data on spending in KIB by categories including utilities, fuel, food and food service, professional services, and others.

The results of McDowell Group's economic impact analysis are summarized in the following tables; economic impacts are aggregated and described for the salmon, groundfish, halibut/sablefish fisheries, and all other fisheries combined. The economic impact of income earned by KIB-based fishermen who fish elsewhere in the state (in Bristol Bay, for example) is described separately.

Salmon Fisheries

In 2014, salmon with a total ex-vessel value of $49 million was landed in KIB. Processors more than doubled the value of that salmon, producing a total of $115 million in first wholesale value. The study team estimated a total direct local impact of approximately $30 million in 2014 associated with commercial salmon fishing, including income to skippers and crew, and local purchases of goods and services. The direct impact of salmon processing was estimated at $38 million, including resident payroll and local purchases of goods and services (this estimate of processor purchases does not include payments to fishermen for their fish).

As noted previously in this report, 187 Kodiak seine permits were fished in 2014, including 120 resident permit holders and 67 non-resident permit holders. A total of $35.1 million in ex-vessel earnings were generated; $22.9 million by residents and $12.2 million by non-residents. Assuming three crewmembers per permit, participation in the salmon seine fishery totaled approximately 748 skippers and crew.

The Kodiak salmon setnet fishery had 149 active permit holders in 2014, including 87 residents and 62 non-residents. Residents earned gross income (ex-vessel) of $6.1 million while non-residents earned $2.8 million, for a setnet fishery total of $8.9 million. Assuming one crewmember per permit, total participation in the setnet fishery is estimated at 298, including permit holder and crew.

Processors indicated that approximately 23 percent of labor costs are attributable to salmon. This would suggest that salmon processing accounted for about $16 million in wages for an annual average of about 400 processing workers. These are a somewhat artificial measures, as processing workers will handle multiple species over the course of their time on the job. Further, salmon processing is highly seasonal, so peak season

participation in processing is well above this hypothetical annual average. At the peak of the summer processing season, there may be 1,500 workers or more engaged in salmon processing, borough-wide, including residents and nonresidents.

The total economic impact of Kodiak area commercial salmon fishing in 2014 is estimated at 342 jobs, $22 million in labor income, and just under $40 million in total output. These estimates include all direct, indirect, and induced economic impacts. The estimate of salmon fishing-related jobs is an annualized figure, and is not a measure of total participation in commercial salmon fishing (which would include a total count of permit holders and crew). The annualized employment estimate includes resident permit holders and crew, and the effects of their spending in Kodiak. Only the local spending effects of non-resident permit holders and crew are including in the employment estimate (a non-resident permit holder is not counted in the estimate of total salmon-related employment in KIB).

Salmon processing generated an estimated 664 jobs (annual average), $37 million in labor income, and $59 million in output. Salmon processing impacts include activity associated with tendering and processing fishing harvested outside the Kodiak area (such as Prince William Sound seine fisheries). This estimate of processing employment attributable to salmon includes resident and nonresident workers, though with reduced multiplier effects assigned to the non-resident processing workforce.

In total, salmon harvesting and processing in KIB accounted for just over 1,000 jobs (annualized estimates), approximately $60 million in labor income, and just under $100 million in total output in 2014, including all multiplier effects.

Table 33. Total KIB Economic Impact of Kodiak Area Salmon Fisheries in 2014 (including Direct, Indirect, and Induced Impacts)

Category	Employment	Labor Income ($millions)	Output ($millions)
Fishing	342	$22.3	$39.5
Processing	664	$37.4	$58.6
Total	1,006	$59.7	$98.0

Note: Employment figures are annualized. Values may not sum due to rounding.
Source: McDowell Group.

As described above, the total number of people who earn income from salmon fishing and processing is well above this annualized estimate of about 1,000 jobs. Including all resident and non-resident fishermen and processing workers, and workers in the local support sector who benefit from fishermen and processor spending, there are certainly over 3,000 people who derive some amount of income from the salmon fishery.

Groundfish Fisheries

In 2014, groundfish with a total ex-vessel value of $65 million was landed in KIB from trawl, longline, pot, and jig fisheries. The first wholesale value of the groundfish processed in KIB totaled $161 million. Because groundfish make up the majority of landings in the KIB (83 percent in 2014) they play an important role in maintaining a workforce that assists in the viability in processing other, lower volume species.

In 2014, 49 trawl vessels delivered groundfish to KIB processors, along with 114 longline, 80 jig, and 38 pot vessels. This represent an estimated 907 resident and non-resident fishermen, including skippers and crew.[20]

According to KIB processors, approximately 57 percent of total annual processing labor costs in 2014 were attributable to processing groundfish (including 27 percent for pollock, 18 percent for Pacific cod, and 12 percent for rockfish and flatfish combined). This suggests that an annual average of 900 processing jobs and $40 million in total annual payroll were groundfish-related in 2014. Peak participation in groundfish processing is higher than this annualized estimate. In January and February of 2014, seafood processing employment in KIB averaged 1,850 workers, which is largely attributable to groundfish.

Local spending in support of commercial groundfish harvest (including trawl, longline, pot, and jig) was estimated at $46 million. An estimated $81 million was spent in KIB by processors in support of their groundfish processing operations.

The total economic impact in KIB of groundfish fishing in 2014 is estimated at an annualized average of 462 jobs, $29 million in labor income, and just under $61 million in total output, including all direct, indirect, and induced economic impacts. Similar to the salmon fishery analysis, the annualized employment estimate includes resident permit holders and crew, and the effects of their spending in Kodiak. Only the local spending effects of non-resident permit holders and crew are including in the employment estimate (a non-resident permit holder is not counted in the estimate of total groundfish-related employment in the KIB).

Groundfish processing generated just under 1,500 total jobs (annual average), $82 million in labor income, and $126 million in output in the KIB economy. This estimate of processing-related employment attributable to groundfish includes annualized estimates of resident and non-resident processing workers, though with induced impacts based on reduced multiplier effects from the non-resident processing workforce.

The total economic impact in KIB from groundfish harvesting and processing was measured at just over 1,950 jobs, approximately $111 million in labor income, and just under $187 million in total output in 2014, including all multiplier effects.

Table 34. Total KIB Economic Impact of Groundfish Fisheries in 2014
(including Direct, Indirect, and Induced Impacts)

Category	Employment	Labor Income ($millions)	Output ($millions)
Fishing	462	$29.4	$60.5
Processing	1,490	$82.0	$126.1
Total	1,952	$111.4	$186.6

Note: Employment figures are annualized. Values may not sum due to rounding.
Source: McDowell Group.

Similar to other fisheries, the total number of people who earn income from groundfish harvest and processing is greater than the annualized estimate, including 650 fishermen and as many as 1,800 processing workers. Including all resident and non-resident fishermen and processing workers, and workers in the local support

[20] In addition to a skipper on every vessel, this estimate assumes an average of 3 crewmembers per trawl and pot vessel, 2.5 crewmembers for longline vessels, and 1 crewmember for jig vessels.

sector who benefit from fishermen and processor spending, there may be 3,000 people who derive some amount of income from groundfish (a number similar to the salmon fishery).

Halibut and Sablefish Fisheries

In 2014, halibut and sablefish with a total ex-vessel value of $30 million was landed in KIB. The first wholesale value of the halibut and sablefish processed in KIB totaled $39 million. In 2014, approximately 154 longline and 6 jig vessels delivered halibut to the KIB; 77 longline and 31 trawl vessels delivered sablefish. From this activity, commercial halibut harvesting provided income for an estimated 628 crew and skippers and sablefish harvesting provided income for 432 skipper and crew. [21]

According to KIB processors, halibut and sablefish account for a small percentage of overall processing employment in KIB, at approximately 3 percent. Based on that percentage, approximately 50 jobs (annualized) and $2 million in wages in the processing sector are attributable to halibut and sablefish.

Local resident and non-resident spending in support of commercial harvest of halibut and sablefish was estimated at $18 million, with processing related expenditures totaling $4 million.

The total KIB economic impact of halibut and sablefish harvest in 2014 is estimated at an annualized average of 228 jobs, $16 million in labor income, and just under $23 million in total output, including all multiplier effects. Halibut and sablefish processing generated just over 60 total jobs (annual average), $3.5 million in labor income, and $4.5 million in output.

The total economic impact in KIB from halibut and sablefish harvesting and processing was measured for just over 290 jobs, approximately $19 million in labor income, and just under $28 million in total output in 2014, including all multiplier effects.

Table 35. Total KIB Economic Impact of Halibut and Sablefish Fisheries in 2014 (including Direct, Indirect, and Induced Impacts)

Category	Employment	Labor Income ($millions)	Output ($millions)
Fishing	228	$15.6	$22.9
Processing	64	$3.5	$4.5
Total	292	$19.1	$27.5

Note: Employment figures are annualized. Values may not sum due to rounding.
Source: McDowell Group.

Other Fisheries

A variety of other fisheries generate economic activity in KIB, including king crab, herring, and other lower volume and value fisheries. The total combined landed ex-vessel value of these fisheries was roughly $5.5 million in 2014. The first wholesale value of the harvest was $11.7 million. Estimated local spending in support of these fisheries totaled $3.4 million by fishermen and $3.2 million by processors.

[21] In addition to a skipper on every vessel, this estimate assumes an average of 3 crewmembers per trawl and longline vessel and 1 crewmember per jig vessel.

The aggregate economic impact in KIB of commercial harvest in these other fisheries in 2014 is estimated at an annualized average of 42 jobs, $2.8 million in labor income, and $4.4 million in total output, including multiplier effects. Processing of these fish and seafood generated 52 total jobs (annual average), $2.9 million in labor income, and $4.1 million in output.

The total economic impact in KIB from harvesting and processing associated with these other fisheries was measured for just over 94 jobs, approximately $5.7 million in labor income, and just under $8.5 million in total output in 2014, including all multiplier effects.

Table 36. Total KIB Economic Impact of "Other Fisheries" in 2014
(including Direct, Indirect, and Induced Impacts)

Category	Employment	Labor Income ($millions)	Output ($millions)
Fishing	42	$2.8	$4.4
Processing	52	$2.9	$4.1
Total	94	$5.7	$8.5

Note: Employment figures are annualized. Values may not sum due to rounding.
Source: McDowell Group.

External Fisheries

KIB-based fishermen participate in a variety of fisheries in Alaska where their harvest is not sold or processed in KIB. In total, KIB residents harvested an estimated $44 million in seafood that was not landed and processed in KIB. Bering Sea crab ($25 million) and Bristol Bay salmon ($5 million) are the largest external fisheries, based on publically available data. Groundfish fisheries in the BSAI are also likely to contribute heavily to KIB resident earnings, but data is withheld because of relatively low participation. An estimated $22 million in spending occurred in KIB to support these commercial fishing activities.

The economic impact in 2014 of these "external" fisheries was measured at 275 jobs, $18.3 million in labor income, and $28.4 million in total output. These figures include all direct, indirect, and induced effects.

Table 37. Total KIB Economic Impact of "External Fisheries" in 2014
(including Direct, Indirect, and Induced Impacts)

Category	Employment	Labor Income ($millions)	Output ($millions)
Fishing	275	$18.3	$28.4
Processing	-	-	-
Total	275	$18.3	$28.4

Note: Employment figures are annualized. Values may not sum due to rounding.
Source: McDowell Group.

Other Seafood Industry Economic Impacts in Kodiak

The economic impact of the seafood industry includes jobs and income generated by taxes paid by the industry, capital expenditures made by processors on new and upgraded facilities, and by government agencies and non-profit organizations with seafood industry-related missions.

Processor Capital Expenditures

For the three-year period including 2012 through 2014, seafood processing companies spent a total of $117 million on capital improvement projects (capex) in KIB. The 2014 KIB capex total was $60 million. The most important economic benefit associated with this spending is the long-term return on that investment in terms of increased capacity to efficiently process and add value to larger volumes of fish, enhancing KIB's role as a key processing center, as well as drawing in additional taxes (fish and property taxes) to the community.

Not all capex directly impacts the KIB economy. The materials and equipment that often account for a large share of processing facility capex are generally not sourced locally. Further, not all the specialized labor required for equipment installation and other aspects of construction projects can be provided locally. Based on McDowell Group's experience assessing the impact of other facility construction projects in Alaska, the annual economic impacts of processing-related capex are estimated at just under 100 jobs, $6.5 million in labor income, and $16 million in output. These are annual averages based on expenditures made during 2012 through 2014.

Table 38. Total KIB Economic Impact of Seafood Processor Capital Expenditures (including Direct, Indirect, and Induced Impacts)

	Employment	Labor Income ($millions)	Output ($millions)
Total	99	$6.5	$16.1

Note: Employment figures are annualized.
Source: McDowell Group.

Economic Impacts of Seafood-Related Taxes

The seafood industry is a critical source of tax revenue to support local government operations. Sources of revenue includes severance taxes, property taxes, and shared State fisheries taxes. Each of these taxes is described in more detail below.

KIB Severance Taxes

A severance tax is levied on seafood landed in the KIB. The tax is based on the Borough's mill rate, currently at 10.75 mills or 1.075 percent. To calculate the tax payment, the mill rate is multiplied by the ex-vessel value of fish landings.

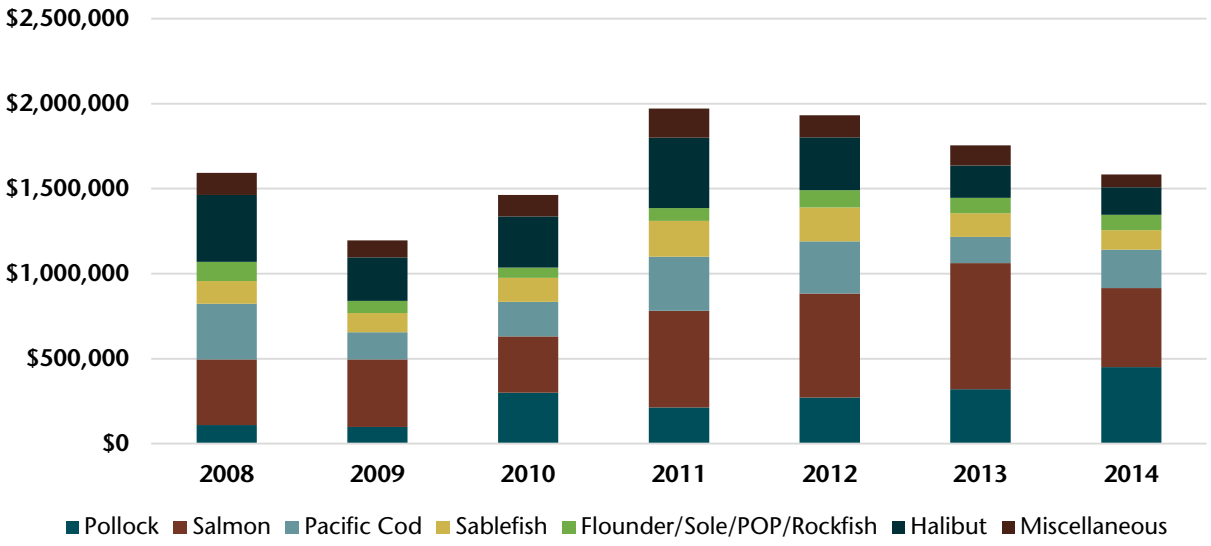
In 2014, severance tax generated $1.6 million in revenue, including $465,735 from salmon harvests, $450,090 from pollock, $225,750 from Pacific cod, $161,500 from halibut, $113,768 from sablefish, $91,328 from other groundfish, and $75,961 from other miscellaneous harvests.

From 2008 to 2014, approximately $11 million in revenue was generated. Over that period, salmon harvesting accounted for slightly more than 30 percent ($3.5 million) of total tax revenue, halibut about 18 percent ($2.0 million), pollock slightly more than 15 percent ($1.7 million), Pacific cod 15 percent ($1.7 million), and sablefish added approximately 9 percent ($1.0 million). Flounder, sole, Pacific ocean perch (POP), rockfish, and miscellaneous species accounted for the remaining 13 percent ($1.4 million).

Over this same six-year period, pollock has increased from just 7 percent of the total in 2008 to 28 percent in 2014. Halibut has trended lower over the same time, falling from 25 percent of the total in 2008 to a low of

10 percent in 2014. Before falling to 29 percent of the total in in 2014, salmon contributed a record 42 percent of KIB severance tax revenue in 2013.

Figure 27. KIB Severance Tax Revenue, by Species, 2008—2014



Source: Kodiak Island Borough.

Property Taxes

In 2015, the City of Kodiak's eight largest processors were all among the top 20 property tax payers in the KIB, with processors taking the top four places. These eight processors had a total assessed value of $113 million, and at the 12.75 mill rate, accounted for approximately $1.4 million in tax revenue. With the acquisition of Westward Seafood's Kodiak facility and investment in a new plant, Trident Seafoods is the largest property tax payer in Kodiak with facilities assessed at approximately $32 million. Ocean Beauty Seafoods is the second largest with $28 million in assessed value, and International Seafoods is the third largest with $17 million in assessed value. Total assessed value of seafood processing facilities in the KIB is anticipated to increase in the near term as a result of investment and periodic adjustments made by the Borough's Assessing Department.

Revenue Sharing

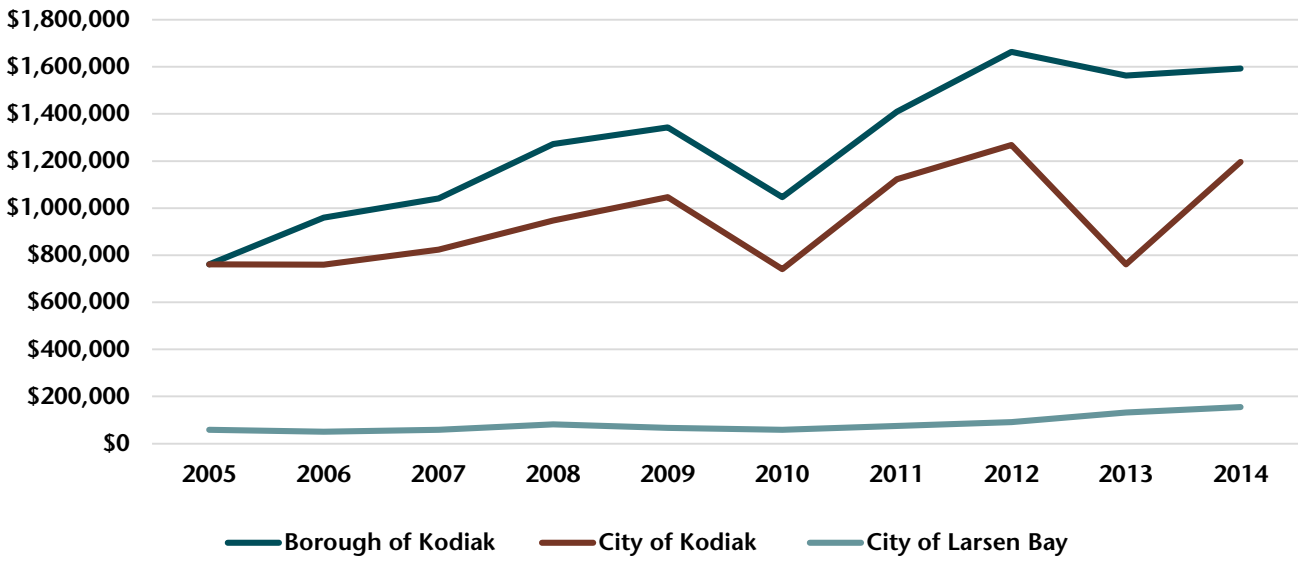
The State of Alaska levies two primary fisheries-related taxes which is shared with the community or borough where seafood is landed or processed.[22] The Fisheries Business Tax is a 1 to 5 percent tax on the ex-vessel value of seafood landed in Alaska, within state waters. The Fisheries Resource Landings Tax is a 1 to 3 percent tax levied on the ex-vessel value of seafood landed outside state waters but moved through Alaska ports for transshipment. Most of this tax revenue is generated from factory trawlers and offshore processors. The Fisheries Business Tax is typically the larger of the two taxes, typically generating over 95 percent of the combined total.

While Old Harbor, Port Lions, Akhiok, and Ouzinkie have received sporadic payments in the past, the KIB, City of Kodiak, and Larsen Bay have generated the most consistent payments over the last ten years, due to

[22] A portion of tax revenue generated by these taxes are transferred to the Alaska Department of Commerce, Community, and Economic Development from the Alaska Department of Revenue for disbursement to Alaska communities. In 2014, $1,883,694 was transferred with payments made to all KIB communities and the KIB. Payments ranged from slightly more than $20,000 for smaller villages to nearly $100,000 for the City of Kodiak and the KIB.

processing capacity located within the boundaries of the respective governments. Payments have trended up over the last ten years. In 2014, KIB received $1.6 million; City of Kodiak received $1.2 million; and City of Larsen Bay received approximately $107,000.

Figure 28. Combined Annual Fisheries Business Tax and Fisheries Resource Landings Tax Revenue Payments Shared with KIB, City of Kodiak, and City of Larsen Bay, 2005—2014



Source: Alaska Department of Commerce, Community, and Economic Development.

Economic Impact of Seafood Industry-Related Taxes

Severance taxes, state (shared) landing taxes, and property taxes together accounted for a total of $6 million in revenue for local government in 2014. This money supports a variety of local government services and as it circulated through the local economy creates jobs and wages. Based on modeling conducted for purposes of this study, tax-related employment (including all multiplier effects) was estimated at 57 jobs, with $4 million in total annual labor income. Total tax-related output was estimated at $9 million. This tax-related economic impact does not include sales taxes paid by fishermen or processors, or property taxes paid by KIB households supported by the seafood industry.

Table 39. Total KIB Economic Impact of Seafood Related Taxes (including Direct, Indirect, and Induced Impacts)

	Employment	Labor Income ($millions)	Output ($millions)
Total	57	$4.4	$8.8

Note: Employment figures are annualized.
Source: McDowell Group.

Economic Impact of Seafood Industry-Related Government Agencies and Non-Profit Organizations

The economic impact of the seafood industry in KIB includes the jobs and wages at various agencies and organizations that pursue a fisheries related mission. This includes the Kodiak Regional Aquaculture Association (KRAA), an important economic contributor from the salmon it produces and the jobs, wages and local spending it directly accounts for.

In 2015, approximately 5.2 million salmon produced by KRAA were harvested, worth an estimated $4.5 million in ex-vessel value. These hatchery salmon comprised 15 percent of KIB's pink salmon harvest, 10 percent of the sockeye and coho harvest, and 5 percent of the chum harvest. KRAA operates two hatcheries: Kitoi Bay Hatchery located on Afognak Island, producing the majority of the organization's annual production of pink, sockeye, chum, and coho salmon; and Pillar Creek Hatchery located on the Kodiak road system, producing king, sockeye, and coho salmon, as well as rainbow trout (which are released for recreational harvest).

KRAA employees about 20 full-time and 20 seasonal employees with an annual payroll of $1.8 to $2.0 million. An estimated $1 million is spent annually in Kodiak by the organization on groceries, maintenance supplies, equipment rentals, and other expenses.

The Alaska Department of Fish and Game has a significant contingent (approximately 100 full-time and seasonal workers) in KIB. Other fisheries-related organizations such as the Kodiak Seafood and Marine Science Center, Kodiak Fisheries Research Center, and National Oceanic and Atmospheric Administration hosts jobs in the KIB and have indirect and induced economic impacts associated with its activities.

The total direct, indirect, and induced impacts of this non-profit and government activity in KIB is estimated at 144 jobs, $11 million in annual labor income, and $22 million in total output. This employment figure is an annual average. The total number of workers employed in these activities is higher during the summer when fishing and hatchery operations are at a peak. These estimates do not include the economic impact of the KRAA salmon that are harvested in commercial fisheries.

Table 40. Total KIB Economic Impact of Seafood-Related Government Agencies and Non-Profit Organizations (including Direct, Indirect, and Induced Impacts)

	Employment	Labor Income ($millions)	Output ($millions)
Total	144	$11.2	$22.1

Note: Employment figures are annualized.
Source: McDowell Group.

Summary of Seafood Industry Economic Impacts

In summary, the seafood industry accounted for 3,920 jobs in KIB in 2014, $236 million in total annual labor income, and $396 million in total output, including all direct, indirect, and induced effects. The relative importance of this economic activity in the overall KIB economy is described in a following section of this report.

Table 41. Economic Impact of the Seafood Industry in KIB, 2014 including Direct, Indirect, and Induced Impacts

Category	Employment	Labor Income ($millions)	Output ($millions)
Salmon			
Fishing	342	$22.3	$39.5
Processing	664	37.4	58.6
Salmon Total	1,006	$59.7	$98.0
Groundfish			
Fishing	462	29.4	60.5
Processing	1,490	82.0	126.1
Groundfish Total	1,952	$111.4	$186.6
Halibut & Sablefish			
Fishing	228	15.6	22.9
Processing	64	3.5	4.5
Halibut & Sablefish Total	292	$19.1	$27.5
Other Fisheries			
Fishing	42	2.8	4.4
Processing	52	2.9	4.1
Other Fisheries Total	94	$5.7	$8.5
External Fisheries			
Comm. Fishing Only	275	18.3	28.4
Taxes	57	4.4	8.8
Processing-Related Capital Expenditures	99	6.5	16.1
Government and Non-Profit Organizations	144	11.2	22.1
Total Processing	2,370	132.4	209.5
Total Fishing	1,349	88.3	155.6
Total Other	201	15.6	30.9
Grand Total	3,920	$236.3	$395.9

Note: Employment figures are annualized. Values may not sum due to rounding.
Source: McDowell Group.

Infrastructure-Related Economic Impacts

Economic impact modeling often does not fully capture the economic importance of industries that are large component of the overall economy. For example, KIB's seafood industry provides economies-of-scale in public services and infrastructure that can reduce costs for all consumers. These and similar benefits are described below.

Electricity and Water

Seafood processing consumes significant amounts of electricity and water. Seafood processors located in Kodiak City use approximately one-third of all electricity generated by Kodiak Electric Association (KEA) and half of the water treated and collected by the City of Kodiak. [23,24] Electricity and water demand by processors has two peaks per year related to peak fishing periods. The first peak typically occurs in March, primarily as a result of the pollock A and B seasons. Demand tapers in May and June before climbing again in August/September as a result of salmon and pollock harvests.

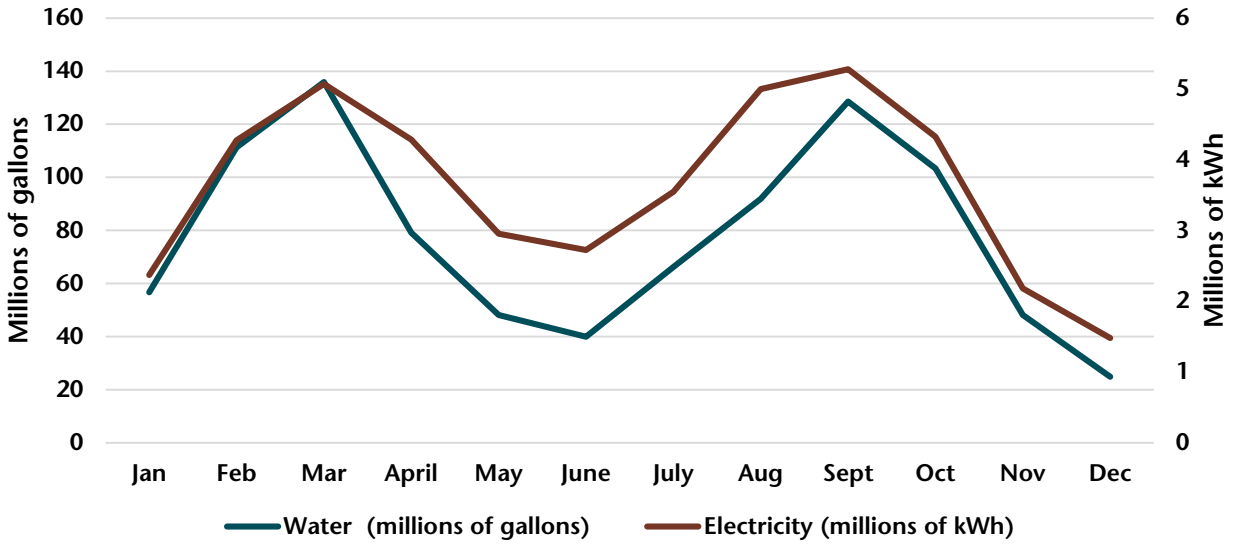
Peak electrical consumption for processors in the City of Kodiak is approximately 5.0 million kWh per month and the annual low has averaged 1.4 million kWh per month. At the current rate of 13.23 cents per kWh, processors have paid more than $5 million annually for electricity. Recent investments in capacity have been driven, in-part, by increased seafood processing.[25] Icicle Seafoods' plant in Larsen Bay is connected to the local utility which generates electricity with hydropower and diesel. Ocean Beauty Seafoods' Alitak plant is powered with diesel generators.

Approximately $60 million has been spent by KEA to upgrade its electrical generation and management systems in recent years. Since 2009, six wind turbines were installed, hydroelectricity generation was expanded, a stand-by battery was purchased, and a flywheel system was developed.[26] These projects were funded primarily by KEA through bonding and grants from the State of Alaska.

From 2013 to 2015, Kodiak processors used an estimated average of 934 million gallons of water per year with monthly consumption averaging nearly 80 million gallons.[27] Peak consumption increases to approximately 140 million gallons per month, and the low is approximately 25 million gallons per month. At the current water rate of $1.75 per 1,000 gallons, local processors have paid the City of Kodiak slightly more than $1.6 million annually for the last three years. The city's new treatment plant, built in 2011 and 2012 cost approximately $6.5 million with most funding originating from the State of Alaska.

[23] Personal communication, Tina Fairbanks, Executive Director, Kodiak Regional Aquaculture Association, 2/16/2016.
[24] Personal communication, Mark Kozak, City of Kodiak Public Works Director, 2/17/2016.
[25] Personal communication, Darron Scott, President of Kodiak Electric Association, 2/23/2016.
[26] Personal communication, Darron Scott, President of Kodiak Electric Association, 5/9/2016.
[27] Note: Figures on water consumption are for total industrial and commercial water meters, of which processors were estimated to comprise 90 percent of total volume, per Mark Kozak, City of Kodiak Public Works Director. The numbers presented above have been adjusted by McDowell Group.

Figure 29. Three-Year Estimated Average Processor Electricity and Water Consumption, by Month, 2013-2015



Note: City of Kodiak processors are not included.
Source: Kodiak Electric Association (electricity), City of Kodiak (water).

Marine Transportation Services

KIB processors use marine shipping as the primary method to transport processed seafood from the region. Samson Tug and Barge, and Matson provide scheduled service, and a number of contract carriers provide one-off or as-needed transportation. Matson operates from the city-owned Pier III, Samson Tug and Barge operates their own facility in Womens Bay, and contract carriers use both public and private facilities. The two processing plants in Alitak and Larsen Bay are served by Samson Tug and Barge, Alaska Marine Lines, and other contract carriers.

Because cargo flows through both private and public shipping facilities, data on shipping volumes are limited. However, the City of Kodiak tracks volume through its facilities, with Pier III providing most of the volume. From 2010 to 2015, total bi-directional volume averaged approximately 277 million pounds annually. A majority of this volume was out-bound processed seafood. It is not possible to estimate how in-bound freight rates would differ in the absence of large volumes of seafood being shipped out of Kodiak, but it is clear that costs for other Kodiak businesses and households would be substantially higher.

Table 42. Total Volume at City of Kodiak Marine Facilities, 2010—2015

Year	Freight (Million lbs.)
2010	297.5
2011	230.4
2012	265.8
2013	258.6
2014	289.3
2015	318.4
2010-2015 Average	276.7

Source: City of Kodiak

Local Investment in Key Facilities

Recognizing its importance to the local economy, both the KIB and City of Kodiak have made substantial investments in infrastructure and facilities that support the industry. Examples are described below.

MARINE TRAVEL LIFT

Kodiak has made substantial investment in boat maintenance and repair facilities, including a 660-ton marine Travel lift and development of related uplands for vessel staging and work areas. The $16 million project includes state and federal funds, but is primarily a local investment. The lift is the largest in Alaska and can handle vessels up to 180-feet long and 42-feet wide. Since beginning operations in 2010, the City's travel lift has served an average of approximately 50 vessels per year. Approximately 85 percent of the vessels using the facilities are local vessels with the remainder coming from Southwest Alaska, Seward, Homer, other Cook Inlet locations, Cordova, and Valdez. In an average year, local trawlers account for 45 percent of haul-outs, other commercial fishing vessels total 40 percent, and non-commercial fishing vessels (such as tugs and freight vessels) equal the remaining 15 percent.[28] This facility plays an important role in keeping commercial fishing-related dollars circulating in the local economy – dollars that would otherwise go to haul-out facilities and service providers local elsewhere in Alaska or Washington.

DOCK FACILITIES

The City of Kodiak owns a variety of marine facilities which assist the local fishing fleet and attract outside vessels to the community. Most recent improvements or replacements have been funded by a combination of City of Kodiak and State of Alaska monies.

The City of Kodiak owns and operates two marinas: the 250-slip St. Paul Harbor for vessels 24-feet to 60-feet, and the 325- slip St. Herman Harbor for vessels 17-feet to 150-feet. While some of St. Herman Harbor is new, most of it is more than 30-years old. The City of Kodiak is examining options to fund this estimated $30 million project. The 400-foot, 50-year old Channel Transit Float is slating for replacement, pending funding from the State of Alaska.[29]

Pier I was built in 1965 and functions primarily as the dock for the M/V Tustumena, with some use by fuel barges and other vessels. The city-owned facility is being replaced at a cost of approximately $14 million, with completion anticipated summer of 2016. Recently upgraded and expanded, Pier II is a multi-purpose dock which serves large government vessels (e.g., the R/V Oscar Dyson and M/V Kennicott), cruise vessels, commercial fishing vessels, and other vessels.

Originally constructed in 1972, the city-owned Pier III handled the majority of incoming and outgoing marine shipments until replacement in 2015. Funded in part by a $33 million grant from the State of Alaska, the expanded facility allows efficient movement of shipping containers on and off vessels. A new 65-ton gantry crane, which is owned by Matson Inc., doubled the capacity of the facility, and will allow service of larger vessels than previously possible. While the old crane used diesel fuel, the new crane uses electricity, resulting in larger electricity demand. The local electrical utility installed a $4 million flywheel system to handle the increase, funded by State of Alaska, City of Kodiak, and private sources. Discussions with shipping

[28] Personal Communication, Lon White, City of Kodiak Port and Harbor Director, 3/28/2016.
[29] Personal Communication, Lon White, City of Kodiak Port and Harbor Director, 5/9/2016.

representatives indicate the seafood industry is the main factor resulting in continued investment Kodiak area marine transportation assets.

Role of the Seafood Industry in the KIB Economy

This study has documented the substantial economic impact of the seafood industry in KIB, as the source of over 3,900 jobs and $236 million in annual labor income. Placing these jobs and income in perspective requires a basic understanding of the size of the entire KIB economy. Data from the Bureau of Economic Analysis (BEA) several measures of the KIB economy. According to BEA, in 2014, KIB residents had total personal income of $752 million, with per capita personal income of $53,792.

KIB resident personal income included $499 million in earnings including wages and salaries, benefits, and proprietor's income, transfer payments totaling $109 million, and a broad category of income described as "dividends, interest, and rent" totaling $144 million (this is mainly investment income).

Table 43. Earnings by Place of Work, KIB, 2014

Type	Amount
Net Earnings	$499.1
Dividends, interest, and rent	$144.1
Personal Transfer Payments	$109.2
Total Personal Income	$752.3

Note: Values may not sum due to rounding.
Source: United States Bureau of Economic Analysis.

With seafood industry-related labor income totaling $236 million, it is evident that commercial fishing and seafood processing together account for about 30 percent of all personal income in the KIB economy (directly or through multiplier effects). This is an imprecise measure, but serves to illustrate very broadly the relative importance of the seafood industry in the KIB economy. (*Note: the seafood industry dependent population accounts for some of the transfer payments flowing into the KIB economy, through Permanent Fund Dividends, for example. Those transfer payments are not included in seafood industry-related labor income.*)

BEA employment data provide another measure of the relative importance of the seafood industry in the KIB economy. BEA data indicates the KIB economy included 10,235 full and part-time jobs in 2014. This included 7,533 wage and salary jobs, and 2,702 proprietors. Seafood processing workers are counted among the wage and salary jobs, and fishermen are included in the proprietor category. McDowell Group's estimate of 3,920 seafood industry related jobs in KIB indicates the industry accounted for 38 percent of all KIB employment in 2014.

Another way to consider the role of the seafood industry in the KIB economy is in terms of the borough's export base and support sector economies. A base (or basic) industry is an industry that provides a good or service to outside market and draws money back in the local economy. The support sector recirculates money already drawn into the economy by basic industry. The seafood industry is, by a wide margin, KIB's largest basic industry. The U.S. Coast Guard, which of course has a mission closely tied to the commercial fishing industry, is the second largest basic industry, with more than 1,000 active duty and civilian personnel based in Kodiak

and total annual labor income of approximately $100 million. The visitor industry is another basic industry in KIB, though its role in the local economy is unclear because employment in the industry is not specifically identified in published data sources (visitor industry employment is spread throughout the retail, services and transportation sectors). It is beyond the scope of this study to fully model the KIB economy in terms of its basic and support sectors. However, it is likely that the seafood industry accounts for two-thirds of all basic sector employment and earnings.

Considerations Regarding the Local Economic Impact of Changes in Seafood Industry Activity

This study describes the important role the seafood industry plays in the KIB economy. It also provides guidance on the potential economic impact of changes in seafood industry activity in the region by quantifying the relationship between harvest volumes and values in 2014, and total labor income generated in Kodiak.

For example, based on 2014 data, for every million pounds of salmon landed and processed in KIB, $900,000 in total labor income is created in the KIB economy, including all direct, indirect and induced effects. Similarly, for every million dollars paid to fishermen for salmon landed in KIB, a total of $1.2 million in labor income is created in KIB, including all multiplier effects. At the first wholesale level, for every million dollars of salmon produced in Kodiak, just over half a million in labor income is created (note that the ex-vessel and first wholesale multipliers are not additive).

This analysis indicates that for every million pounds of groundfish landed in KIB, $270,000 in total labor income is generated. For every million dollars of first wholesale value of groundfish produced in KIB, $690,000 in total local labor income is generated. These relationships are presented in the following table, along with similar analysis for other fisheries.

Table 44. Harvest Volume and Value Relationships to Total Labor Income in KIB

Fishery	Volume of Landings (Million lbs.)	Ex-vessel Value ($Million)	First Wholesale Value ($Million)	Total Labor Income ($Million)	Volume to Labor Income Multiplier	Ex-vessel Value to Labor Income Multiplier	First Wholesale Value Multiplier
Salmon	66.4	$48.9	$115.5	$59.7	0.90	1.22	0.52
Groundfish	405.6	$65.2	$160.7	$111.4	0.27	1.71	0.69
Halibut & Sablefish	5.5	$30.1	$39.1	$19.1	3.46	0.64	0.49
Other	9.8	$5.6	$11.7	$5.7	0.58	1.02	0.48

Source: McDowell Group.

In interpreting the results of this analysis, it is important recognize that changes in seafood industry employment and labor income may or may not be immediately connected to changes in the volume and value of seafood harvested and processed. Changes in ex-vessel value resulting from higher or lower prices, for example, may not be accompanied quickly by a change in fishing effort. Similarly, a change in the volume of seafood landed and processed in KIB could have immediate processing employment effects, while changes in value might not be reflected in processing employment. Further, the indirect employment and labor income effects associated with an increase or decrease in fishery harvest volume and value would be gradual, potentially occurring over

a several-year period. Multiplier effects unfold over time, over a period of years, as an economy adjusts to changes in basic sector activity.

More detailed research and more complex analysis would be required to understand the economy impacts of shifts in harvests between gear groups, processor consolidation, or changes in harvest volumes for particular species of groundfish. While the economic impact modeling conducted for this study did consider the spending and crewing patterns for each groundfish gear group (for example), processing sector implications are more complex and beyond the scope of this analysis.

In summary, this study answers important questions about the role of the seafood industry in the KIB economy. Accounting for just over 3,900 jobs and $236 million in annual labor income, the industry provides the foundation for the KIB economy. Changes in fisheries resource management policies or priorities, to the extent that such changes effect the volume and value of fish harvested by local fishermen and processed in KIB, will have a range of direct, indirect and induced economic effects over time. The magnitude of those effects can be broadly predicted with the results of this study.

Profile of Outlying KIB Communities

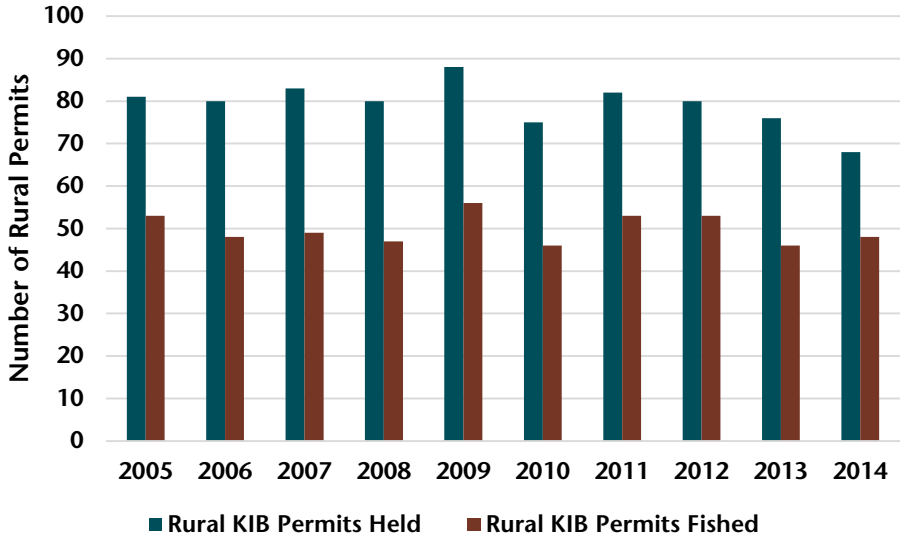
Outside of the City of Kodiak, rural communities include six Alutiiq villages that traditionally rely on a subsistence hunting and fishing lifestyle. Many of these communities have residents which participate in commercial fishing. The total population of these villages in 2014 was 770 residents.

Many rural residents are employed by local government entities, including Tribal Councils, Native corporations, and local Tribal non-profit organizations. Some of the top employers in these rural communities include the regional Native corporation (Koniag, Inc.) and Kodiak Area Native Association (KANA).

While these six villages located in the KIB are not eligible for the BSAI Community Development Quota (CDQ) Program, they are eligible for the Gulf of Alaska Community Quota Entity (CQE) Program, which allows non-profit organizations to form to purchase halibut and sablefish quota on behalf of the community for lease to community residents. Five of these six villages have formed the requisite CQE to participate (Old Harbor, Ouzinkie, Larsen Bay, Port Lions, and Akhiok) and two villages have purchased quota through their CQE: Old Harbor and Ouzinkie.

In 2014, 48 permits were fished in rural Kodiak Island communities, or 11 percent of all permits in KIB. Measured by IFQ and permit ownership, participation has slipped in halibut and sablefish fisheries while remaining relatively steady in salmon and other limited entry fisheries.

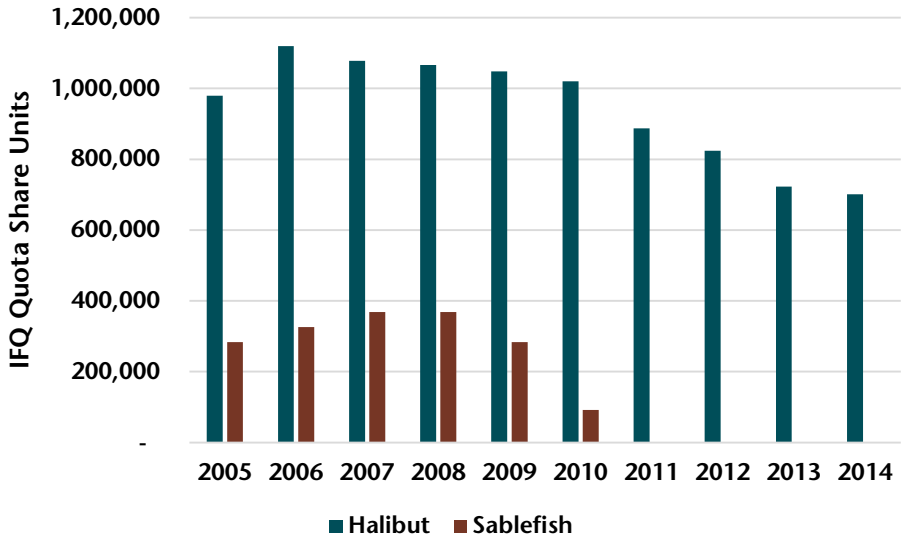
Figure 30. Rural KIB Resident Permit Holder Participation, 2005—2014



Source: CFEC.

From 2005 to 2014, the amount of halibut residents of rural KIB communities were allowed to harvest fell from more than 150,000 pounds to 31,000 pounds, a result of reduced TACs and a nearly 30 percent reduction in quota share ownership. Over the same period, sablefish quota share ownership declined 100 percent; from 2011 to 2014 no residents of rural KIB communities owned sablefish quota shares.

Figure 31. Rural KIB Resident Halibut and Sablefish IFQ Quota Share Ownership, 2005—2014



Source: AKFIN.

Akhiok

Akhiok is located on the southern end of Kodiak Island, about 80 miles southwest of the City of Kodiak. Located close to Ocean Beauty's Alitak plant (which primarily processes salmon), residents fished six salmon and two groundfish permits in 2014. The current population of Akhiok is about 90 people. Total resident wages amounted to $511,418 in 2014. The largest employers include KANA, Kodiak Island Housing Authority, and the City of Akhiok.

In 2014, there were seven active commercial fishermen, with six fishing for salmon and one fishing for groundfish. There are no IFQ quota shareholders in Akhiok.

Table 45. Akhiok Community Profile and Resident Fishery Participation, 2014

Category	Amount
Total Resident Wages	$511,418
Median Household Income	$20,500
Total Population	90
Total Permits Held	6
Total Permits Fished	8
Total Fishery Gross Earnings	$34,265
Total Fishery Landings (lbs.)	49,332

Note: Total fishery gross earnings and landings are reported from DCC&ED.
Source: CFEC, DCC&ED, and DOLWD.

Karluk

Karluk is located on the Karluk River, about 90 miles southwest of the City of Kodiak. The Karluk River was one of the top salmon-producing streams in the 1900s and home to the first canneries in Alaska. Karluk's 39 residents rely heavily on a subsistence lifestyle, with minimal commercial fishing participation. There are several sport fish and hunting lodges operating close to Karluk.

Table 46. Karluk Community Profile and Resident Fishery Participation, 2014

Category	Amount
Total Resident Wages	$467,622
Median Household Income	$19,375
Total Population	39
Total Permits Held	0
Total Permits Fished	0
Total Fishery Gross Earnings	0
Total Fishery Landings (lbs.)	0

Source: CFEC Vessel Database, DCC&ED, and DOLWD.

Larsen Bay

Larsen Bay is located 60 miles southwest of the City of Kodiak, with an estimated population of 85 residents. Total resident wages in 2014 was $673,857, with top employers being local government, seafood processing, sport fishing lodges, and commercial fishing. Residents fished nine salmon and one groundfish permits in 2014, generating nearly $500,000. Larsen Bay had a single IFQ halibut shareholder in the last ten years, owning 254 pounds in 2014. Located nearby, Icicle Seafood's plant employs approximately 200 workers each summer, processing salmon and halibut.

Table 47. Larsen Bay Community Profile and Resident Fishery Participation, 2014

Category	Amount
Total Resident Wages	$673,857
Median Household Income	$45,750
Total Population	85
Total Permits Held	11
Total Permits Fished	10
Total Fishery Gross Earnings	$492,164
Total Fishery Landings (lbs.)	1,256,816

Note: Total fishery gross earnings and landings preliminary 2015 numbers reported from DCC&ED.
Source: CFEC Vessel Database, DCC&ED, and DOLWD.

Old Harbor

Old Harbor is located on the southeast corner of Kodiak Island, about 70 miles southwest of the City of Kodiak. Its primary industries are local government, tourism, and Old Harbor's Finest (a small-scale seafood processing facility which processes seafood for commercial and sport fishermen). Total wages in 2014 were $1.3 million.

While its 228 residents largely live a subsistence lifestyle, many residents hold commercial fishing permits or are crew members. Fishing permit ownership has remained relatively stable in the last ten years. In 2014, residents

fished ten salmon, two herring, and two halibut permits. While residents averaged slightly more than 5 million pounds of ex-vessel landings from 2009 to 2013, landings slipped in 2014 to approximately 2 million pounds.

National Marine Fisheries Service (NMFS) implemented its CQE Program in 2005, in an effort to maintain the economic viability of small coastal communities. Throughout Alaska, few villages have participated in the program, but in 2014, Old Harbor's CQE non-profit organization held quota worth slightly less than 7,900 pounds of halibut in area 3B.[30]

While other villages have seen steep decline in halibut IFQ ownership, Old Harbor has been relatively successful at keeping these assets. Between 2005 and 2014, the number of residents owning halibut quota has been stable at seven while the amount of halibut the quota shares represents has fallen from 27,100 pounds to 14,500 pounds. Much of the decline is due to reduced halibut TACs.

Table 48. Old Harbor Community Profile and Resident Fishery Participation, 2014

Category	Amount
Total Resident Wages	$1,332,361
Median Household Income	$41,000
Total Population	228
Total Permits Held	18
Total Permits Fished	10
Total Fishery Gross Earnings	$1,280,479
Total Fishery Landings (in lbs.)	1,995,523

Source: CFEC Vessel Database, DCC&ED, and DOLWD.

Ouzinkie

Located on the west coast of Spruce Island, the community of Ouzinkie's 172 residents is about 10 miles northwest of the City of Kodiak. It had a population of 172 in 2014. From 2005-2014, the number of resident permit-holders who fished fell from 15 to 9. Ownership of halibut and sablefish IFQ fell as well with the number of resident quota owners slipping from 18 to 7. In 2005, Ouzinkie residents owned quota shares equaled to approximately 92,100 pounds of halibut and 10,500 pounds of sablefish; in 2014, residents owned quota equaled to 9,900 pounds and no resident owned sablefish quota shares.

In 2014, residents fished seven halibut permits, five salmon permits, and one groundfish permit, generating more than $1 million. Ouzinkie has a dock which can accommodate vessels up to 80 feet in length. In 2014, Ouzinkie's CQE non-profit held quota shares equaled to slightly more than 9,100 pounds of halibut in area 3B.[31]

[30] http://www.afsc.noaa.gov/REFM/Socioeconomics/Projects/communityprofiles/Old_Harbor_Profile_2000_2010.pdf
[31] http://www.afsc.noaa.gov/REFM/Socioeconomics/Projects/communityprofiles/Old_Harbor_Profile_2000_2010.pdf

Table 49. Ouzinkie Community Profile and Resident Fishery Participation, 2014

Category	Amount
Total Resident Wages	$1,792,008
Median Household Income	$37,857
Total Population	172
Total Permits Held	13
Total Permits Fished	13
Total Fishery Gross Earnings	$1,479,855
Total Fishery Landings (in lbs.)	1,888,107

Source: CFEC Vessel Database, DCC&ED, and DOLWD.

Port Lions

Port Lions is located on the north coast of Kodiak Island, about 19 miles west of Kodiak in Settler Cove. In 2014, the population of Port Lions was 174 people.[32] It is accessible only by air and water, with regular flights available to the City of Kodiak. Total resident wages in 2014 for Port Lions were $1.7 million. In the past, there has been processing activity nearby, most recently aboard a floating processor until 1980.[33]

The number of unique fishermen participating in Alaska fisheries has remained relatively stable from 2005 (12 permits) to 2014 (11 permits). It is common for fishermen to fish multiple permits. In 2005, these residents fished salmon (nine permits), halibut (five permits), crab (three permits), herring (two permits), groundfish (two permits), and shellfish (two permits). In 2014, residents fished for salmon (ten permits), halibut (three permits), herring (one permit), and shellfish (one permit). Port Lions residents landed more than 1 million pounds worth nearly $1 million in 2014.

Similar to other rural KIB communities, ownership of halibut and sablefish quota has declined between 2005 and 2014. In 2005, 14 Port Lions residents owned quota shares worth 34,500 pounds of halibut and one resident owned 23,800 pounds worth of sablefish quota. By 2014, no residents owned sablefish quota and just seven residents owned quota shares worth 6,200 pounds of halibut.

Table 50. Port Lions Community Profile and Resident Fishery Participation, 2014

Category	Amount
Total Resident Wages	$1,757,281
Median Household Income	$60,833
Total Population	174
Total Permits Held	17
Total Permits Fished	11
Total Fishery Gross Earnings	$837,542
Total Fishery Landings (in lbs.)	1,495,496

Source: CFEC Vessel Database, DCC&ED, and DOLWD.

[32] https://www.commerce.alaska.gov/dcra/DCRAExternal/community/Details/9d10822b-d342-4af2-9f27-668b0ff75b6b
[33] http://www.afsc.noaa.gov/REFM/Socioeconomics/Projects/communityprofiles/Port_Lions_Profile_2000_2010.pdf