2020-2024 Comprehensive Economic Development Strategy

SWAMC

Southwest Alaska Municipal Conference

Economic Development and Advocacy for Southwest Alaska

Alaska Peninsula
Aleutian Chain
Bristol Bay
Kodiak Island
Pribilof Islands

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Comprehensive Economic Development Strategy 2020-2024

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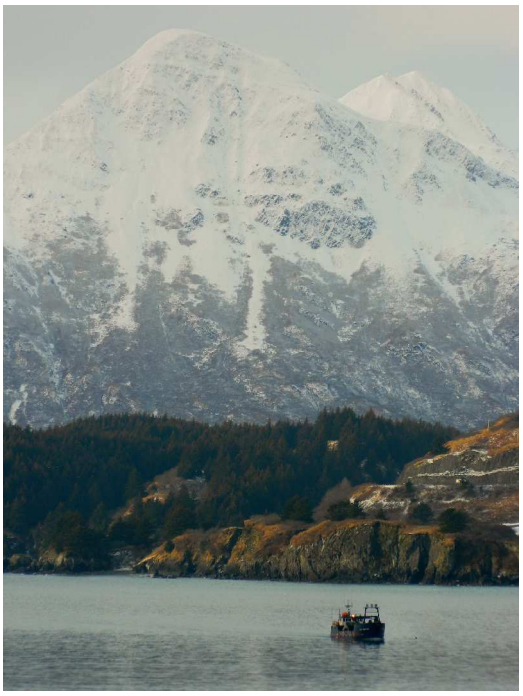


Executive Summary

The strength of Southwest Alaska Municipal Conference (SWAMC) is its ability to organize data and networks into actionable information at a large regional level with shared interests. The purpose of the Comprehensive Economic Development Strategy (CEDS) is engagement with stakeholders: local governments, businesses, associations, membership organizations, tribes, and State and Federal agencies to implement the collective best practices for the improvement of the regional economy. The CEDS is to be an evolving, guiding document for SWAMC, providing direction that supports economic development in the region backed by quantifiable data and the insight of our leadership. The CEDS analyzes strengths, weaknesses, opportunities, and threats and lays out actionable strategies that enhance the potential of Southwest Alaska.

Purpose

The CEDS is a living plan for the development of Southwest Alaska built upon data and community outreach that encompasses diverse opinions from hundreds of individuals and entities driving the regional economic engine. All of this community engagement yielded insights into projects and actions that support economic development and can insulate the region from shocks. The CEDS highlights the region's internal Strengths & Weaknesses, and external Opportunities & Threats and proposes strategies around three key areas: resources, infrastructure, and people. SWAMC uses the CEDS plan to facilitate economic development networking to leverage the potential of the region.

SWAMC is recognized by the Federal Economic Development Administration (EDA) as the region's Economic Development District (EDD) Organization, and by the State of Alaska as an Alaska Regional Development Organization (ARDOR). As such, the CEDS helps facilitate the funding of economic development projects through the EDA. This five-year plan from 2020-2024 builds on previous CEDS planning efforts and will guide SWAMC's activities. The CEDS also provides the SWAMC Board with the background and direction for prioritizing resources.

Southwest Alaska Municipal Conference

SWAMC is a 501(c)(4) non-profit regional economic development organization representing the three sub-regions of the Aleut Corporation, Bristol Bay Native Corporation, and Koniag Inc. As a regional membership organization, SWAMC advocates for the collective interests of Southwest Alaska people, businesses, and communities. The 11-member Board is comprised of two municipal and one associate member from each of the three sub-regions, plus two regional at-large seats. The Board serves as the regional CEDS committee.

SWAMC corresponds to the incorporated boundaries of the Aleutians East Borough, the Bristol Bay Borough, the Kodiak Island Borough, the Lake and Peninsula Borough, as well as two federally designated census areas – the Aleutians West Census Area and the Dillingham Census Area. The SWAMC membership includes municipal members such as cities and boroughs, and associate members, representing businesses, village and tribal councils, and nonprofit organizations. SWAMC provides an important link between the public and private sector with a coalition of local government, business, and non-profit members, all with an interest in Southwest Alaska.

Demographics and Environment

Environment

Geography

Southwest Alaska is a vast area, stretching nearly 1,500 miles across, that encompasses four boroughs and two census areas: the Aleutians East Borough, the Aleutians West Census Area, the Bristol Bay Borough, the Dillingham Census Area, the Kodiak Island Borough, and the Lake and Peninsula Borough. From Anchorage, it is 180 air miles to the nearest Southwest community of Port Alsworth, and nearly 1,700 miles to the westernmost island of Attu. There is no overland connectivity to or from the region and much of the land consists of islands; accessible only by marine vessels or airplanes. Transportation of freight and people is very expensive.

The area of the SWAMC region spans 93,875 square miles, with nearly 61,000 square miles of land mass and an additional 33,000 square miles of water surface including the State water boundaries extending three miles from land. It is an area roughly equivalent to the State of Oregon, or 16.5% of the total area of Alaska.

Southwest Alaska boasts a wide variety of landscapes and physical characteristics including estuaries and lagoons; wetlands and tidal flats; rocky islands and sea cliffs; exposed high-energy coasts; rivers, streams and lakes; boreal forests/taiga; alpine and low arctic tundra; glaciers and barren alpine; and temperate rainforests.

Southwest Alaska has nearly 12,000 miles of shoreline, which accounts for nearly 40% of the shoreline for the State of Alaska. In comparison, the contiguous 48 states have a combined shoreline of 16,900 miles. As shown in Figure 2.3, a shallow continental shelf follows the near-shore landmass, accompanied by deeper water in the western Bering Sea, and extreme depths of the Aleutian Trench. Historically, sea ice forms annually from the Pribilof Islands to the Bering Sea, extending into Bristol Bay south to Egegik, but remains ice-free year-round south of this line. Due to its proximity to a very active section of the Pacific Ring of Fire, the region is home to many active volcanoes and experiences frequent earthquakes.

Borough or Census Area	Land Area (sq. miles)	Water Area (sq. miles)	Total Area (sq. miles)	%
Aleutians East Borough	6,988.10	8,023.5	15,011.6	16.0%
Aleutians West Census Area	4,397.00	9,719.7	14,116.5	15.0%
Bristol Bay Borough	504.9	382.8	887.7	0.9%
Dillingham Census Area	18,675.00	2,253.6	20,928.40	22.3%
Kodiak Island Borough	6,559.80	5,463.8	12,023.70	12.8%
Lake & Peninsula Borough	23,782.00	7,125.0	30,907.00	32.9%
Southwest Region Total	60,906.80	32,968.5	93,874.80	100.0%

Figure 2.1: Southwest Alaska Area by Boroughs and Census Areas.
Source: U.S. Census Bureau and Alaska Department of Community & Economic Development

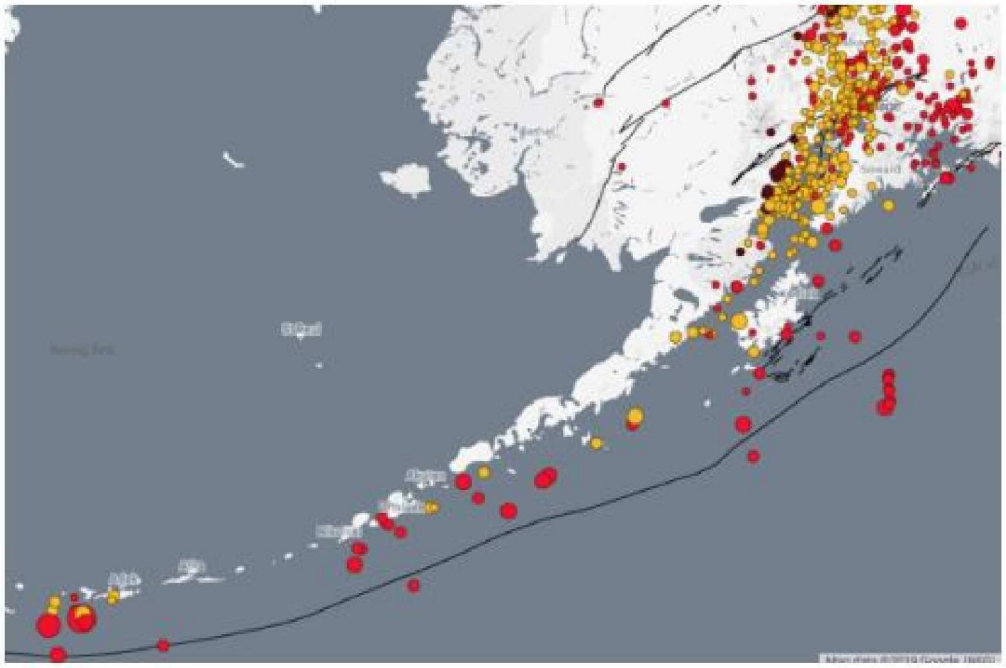


Figure 2.2: Earthquakes in Southwest Alaska.
Source: Alaska Earthquake Center

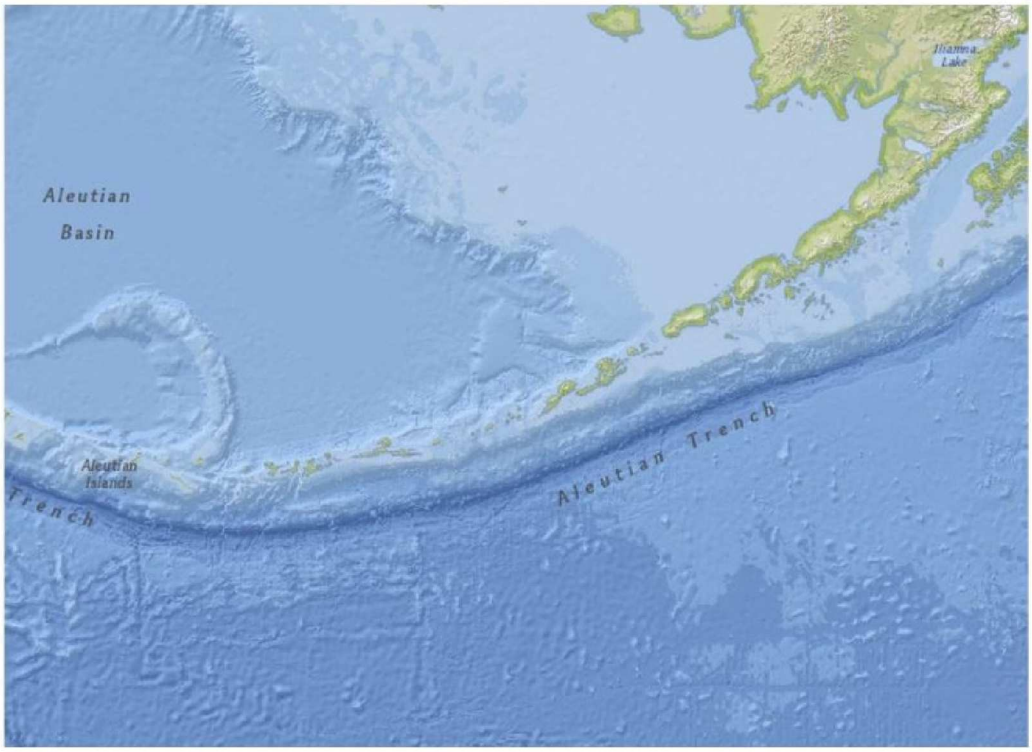


Figure 2.3: Topography of Southwest Alaska.
Source: National Geographic Map Maker, 2019

Climatology & Oceanography

There are four climatic regions in Southwest Alaska: Western Maritime, Southcentral, West Coast, and Interior. The weather of Southwest Alaska is relatively warm and mild compared to other parts of the state. Wind and rain are prevalent across the marine environment. Average temperatures range from a high of 56.1°F in Iliamna in July to an average low of 15.1°F in Dillingham in January. Dillingham receives an average of 25.32 inches of precipitation per year while Kodiak receives an average of 78 inches per year (statewide average is 19.49 inches per year). Climate dramatically influences daily life in Southwest Alaska, affecting fishery decisions to travel over air and sea. Marine and aviation forecasts are of particular importance to the region. Proposed cuts to the National Weather Service are a concern affecting the region's resiliency to the known threat of inclement weather.

Ocean basin topography, currents, the extent of sea ice, water temperature and other environmental characteristics influence the productivity of the region's saltwater environments. The Kushiro Current flows across the Pacific Ocean from Japan, splitting into two currents as it approaches North America. One current, the Alaska Current, turns north creating a counterclockwise flow into the Gulf of Alaska. Currents from the North Pacific move through saltwater passes in the Aleutian Chain into the Bering Sea. Currents in the Bering Sea are very complex, but generally tend to move counterclockwise. The interaction of ocean currents with nutrient-rich freshwater runoff from the region's uplands is part of what makes the area such a productive fisheries ecosystem.

A shallow continental shelf follows the near-shore landmass, including the entire eastern Bering Sea, north and east of the Pribilof Islands, accompanied by deeper water in the western Bering Sea, and extreme depths of the Aleutian Trench (source: www.gi.alaska.edu). The last Ice Age left deep scars in the remaining land formation, which over the centuries of heavy rainfall have created some of the biggest lakes in Alaska, fed by mineral-rich glaciers, creating abundant and rich freshwater rivers. The Alaska Department of Fish & Game lists 3,174 entries for Southwest Alaska in the Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes (source: www.adfg.alaska.gov.)

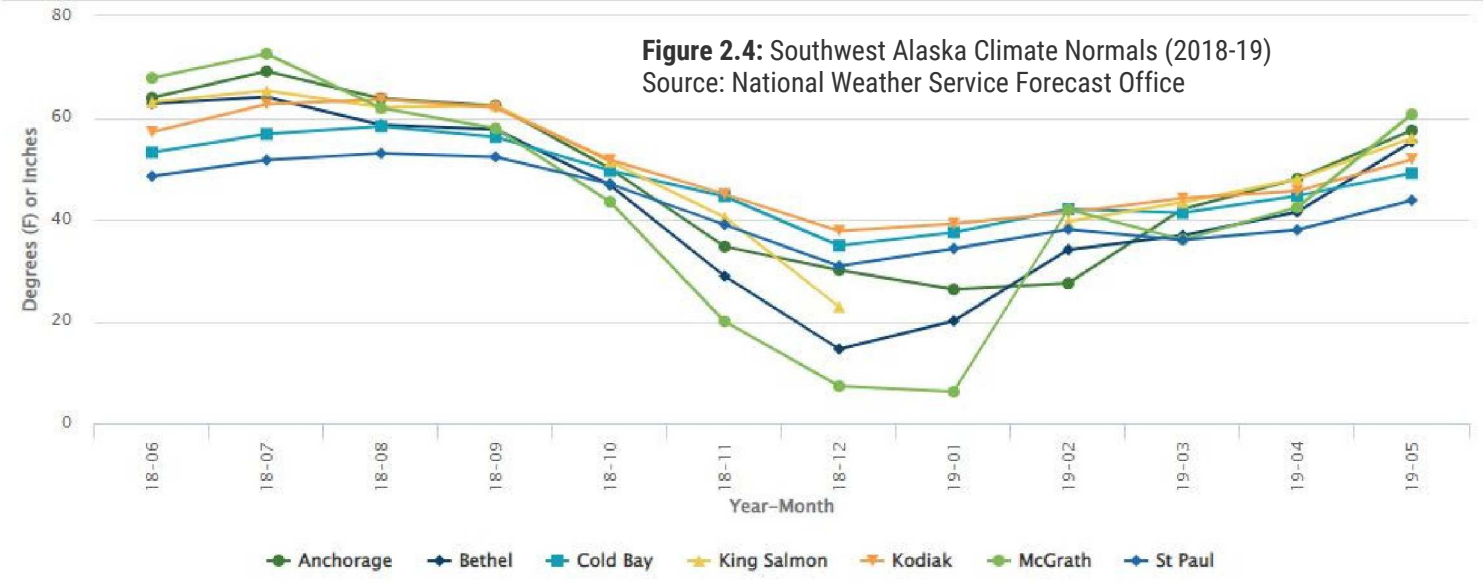


Figure 2.4: Southwest Alaska Climate Normals (2018-19)
Source: National Weather Service Forecast Office

History, Culture, and Land Ownership

Southwest Alaska has over 29,300 residents living in fifty-four communities within the region. The people of Southwest Alaska are a diverse mix, with roots in the Alaska Native cultures of Yupik, Athabascan, Aleut, and Alutiiq, overlaid with over 130 years of Russian heritage and 280 years of western influences, especially the development of commercial fisheries. The Alaska Native Claims Settlement Act (ANCSA) of 1971 defined Alaska Natives lands owned by right of traditional use and occupancy. ANCSA provided for the creation of regional and village corporations to receive settlement compensation in the form of cash and various land rights. The boundaries of three ANCSA regional corporations represent the three sub-districts of the SWAMC Region. ANCSA also created village corporations, including 47 in the SWAMC region. The regional and village corporations contribute substantially to local economic resiliency.

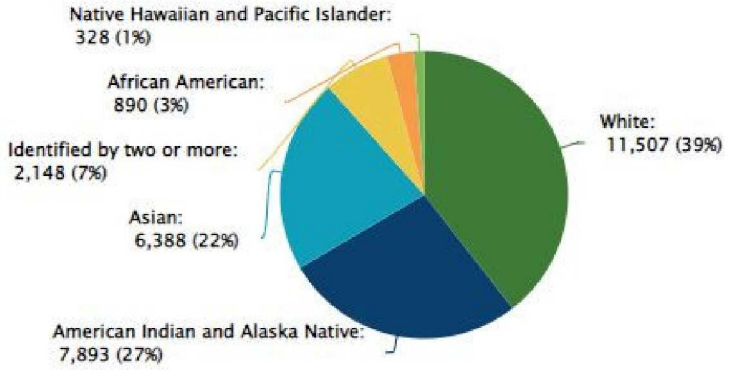


Figure 2.8: Population by Race, Southwest Alaska
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

Land ownership patterns in Southwest Alaska mirror that of the rest of the state. The federal government is the largest landowner, followed by the State of Alaska, and then private ownership, the largest of which is held by ANCSA Native corporations (see Figure 2.7). The majority of federally owned lands have been set aside for public use. The National Park Service and U.S. Fish and Wildlife Service units are managed primarily for resource protection, fish and wildlife conservation, and recreation. The Bureau of Land Management manages for multiple use purposes including timber production, fish and wildlife, recreation, water, and mining. The remaining federal land is designated for special purposes, such as military reservations.

Figure 2.7: Land Ownership in SW Alaska, Source: Alaska Department of Natural Resources

Major state land units in the region fall into several broad categories: tidelands and submerged lands, parks, game refuges and sanctuaries, and critical habitat areas, including Wood-Tikchik State Park, the largest state park in the nation at 1.6 million acres.

ANCSA lands in the region have been developed in a variety of ways including logging; tourism facilities and activities; residential real estate development; federal and state land acquisition, habitat restoration activities; mining; and gravel and rock sales. Other private landowners, including individual and community holdings, comprise less than 1% of the remaining land in the region. The University of Alaska and the Alaska Mental Health Trust both have modest land holdings within Southwest Alaska.

People of Southwest Alaska

Populations throughout the region were mostly static 2000-2010. According to the 2010 Census, there are 29,769 people living in the Southwest Region. Almost half (13,592) of these residents live in the Kodiak Island Borough. See Figure 2.5 for trends by borough and census area. These numbers estimate permanent full-time residents and do not include temporary or seasonal residents. The population of some communities in Alaska can vary by as much as 20% due to the influx of seasonal tourism, fishing and construction workers.

The Southwest region is very diverse. As seen in Figure 2.8, 39% of the population is white, followed by 27% who are American Indian and Alaska Native and 22% who are Asian. There is significant variation in demographic composition in each borough/census area. The primary Alaska Native groups in the region include Aleut, Alutiiq and Central Yupik peoples and cultural traditions.

Figure 2.5: Population 2013-2018
Source: AK Department of Labor and Workforce Development, Research and Analysis Section

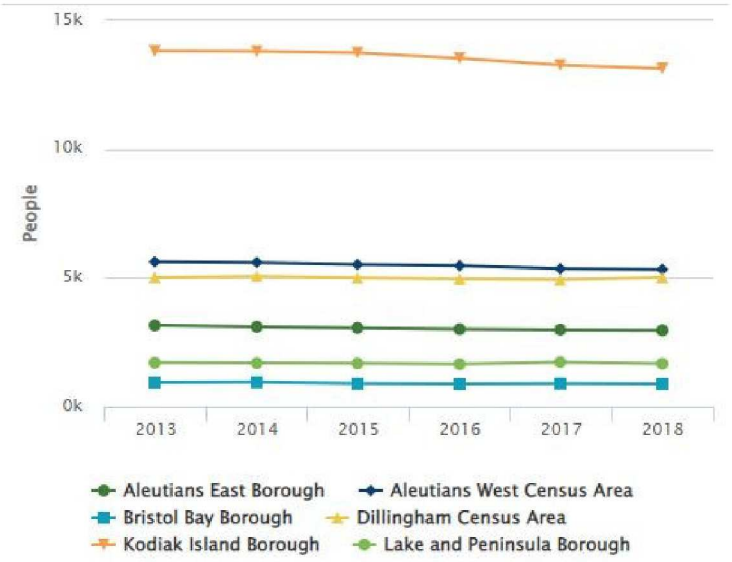
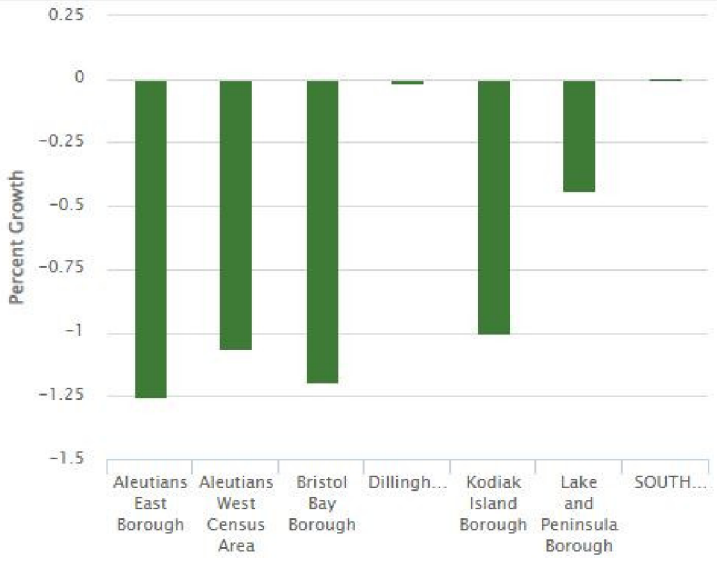


Figure 2.6: Percent Change in Population (2013-18)
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section



People of Southwest Alaska

Fifty-six percent of the population in Southwest Alaska is male, which is higher than the statewide average of 52 percent. Most of this difference is accounted for by the gender composition of the populations in the Aleutians East Borough and the Aleutians West Census Area. In each of these two sub-regions, the population is comprised of nearly two-thirds males and slightly more than one-third females. A full distribution of the population by gender and age can be seen in Figure 2.9, with females in blue and males in green.

Estimates from the Alaska Department of Labor and Workforce Development indicate that there is a net migration out of the region (see Figure 2.6). Between 2011 and 2012 - 2,507 residents moved to the region and 2,656 residents left the region for a loss of 149 residents. However, population changes due to natural increases (births minus deaths) are resulting in a steady population over time.

Figure 2.9: Southwest Population by Age and Gender (2018)
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

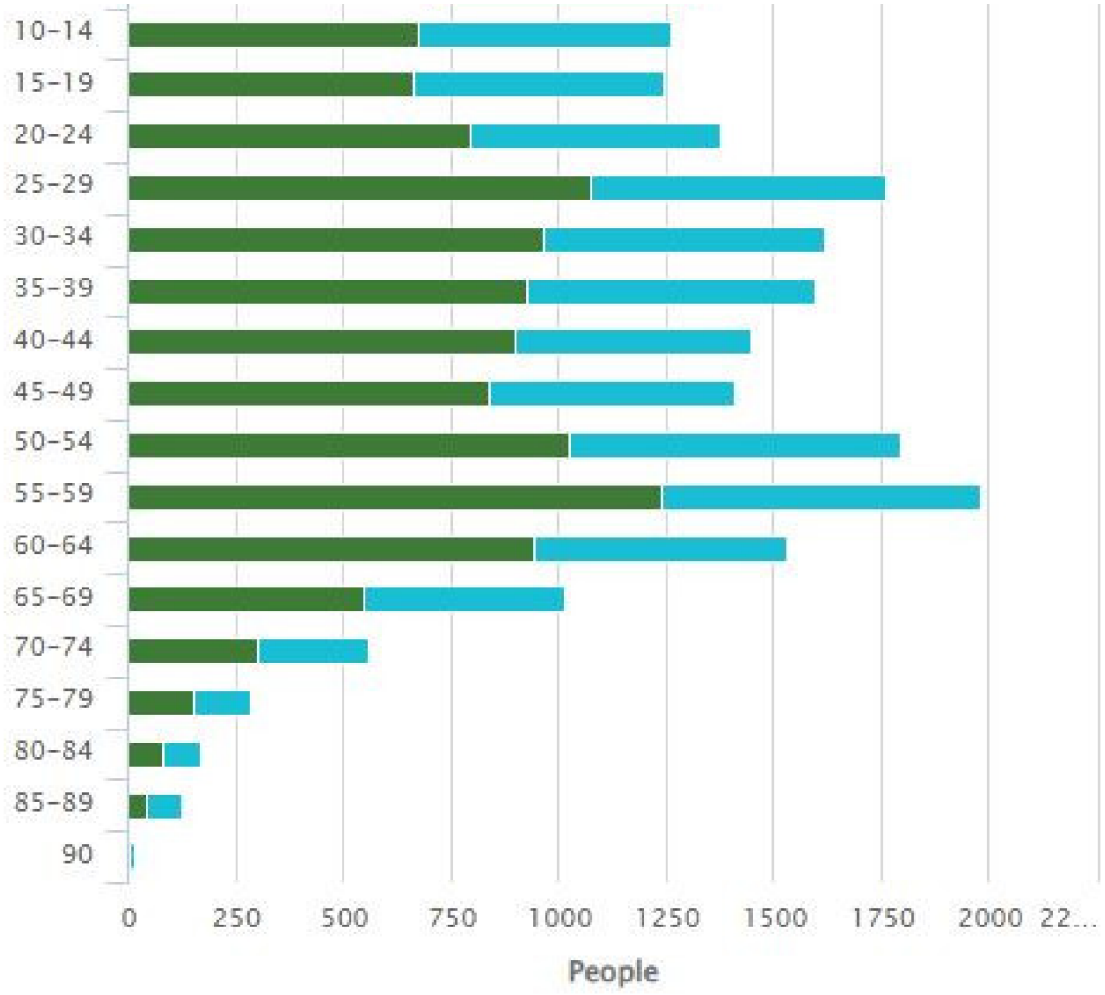


Figure 2.10: Southwest Alaska Migration Measures
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

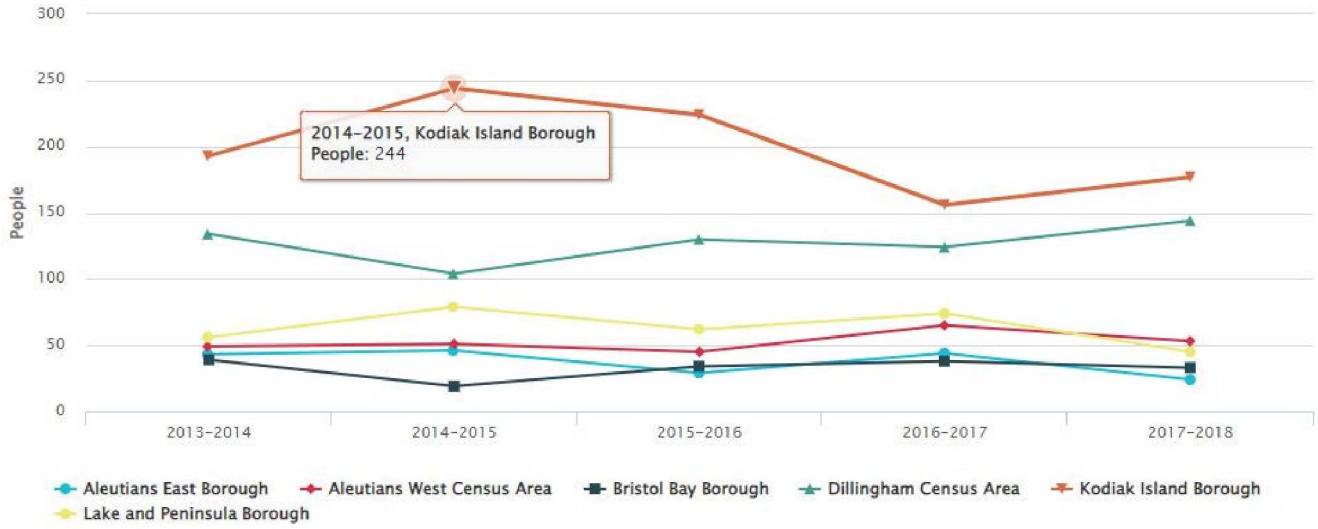
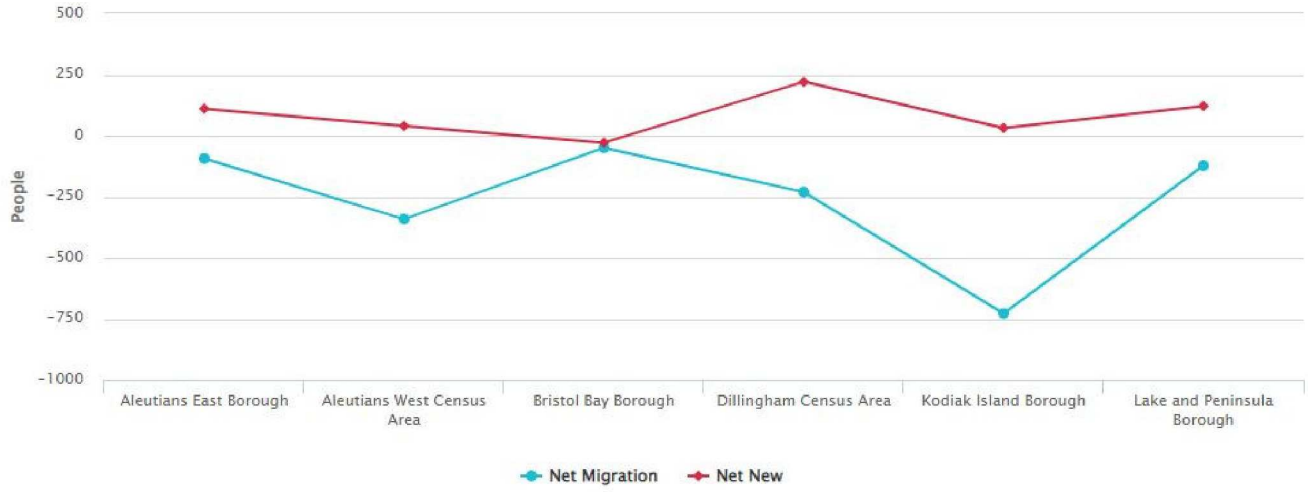


Figure 2.11: Net Migration and Net New People in Southwest Alaska
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

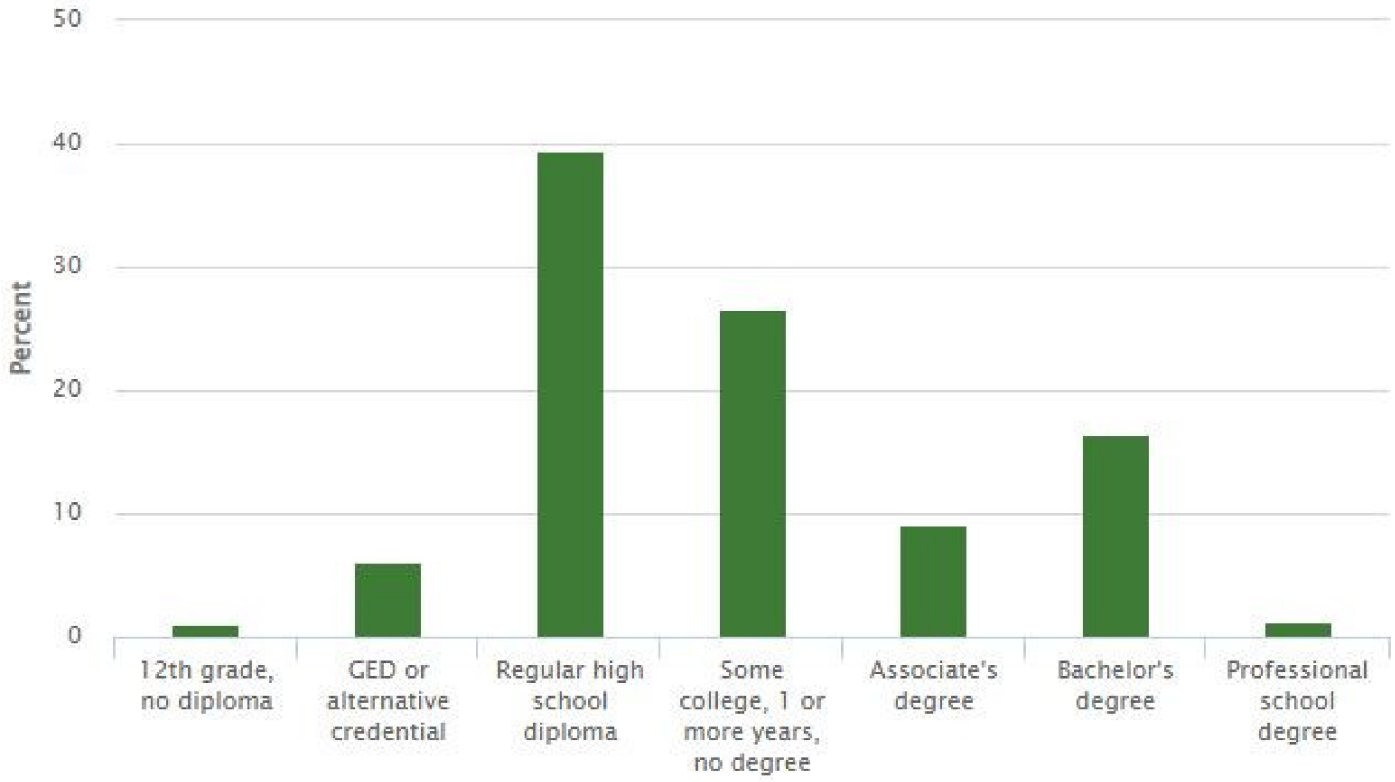


Education

In terms of education, school district enrollment has been holding steady across the region, see Figure 2.12. 53% of the population has gone to secondary school compared with 64% of the population in the state (includes some college through professional school degree). 26.9% have some college but no degree. Sixteen percent of the population has a bachelor's degree or higher compared with 27% in the state. Given the small sample size these numbers should be considered general estimates due to high margins of error.

This report uses the Census Bureau Data API but is not endorsed or certified by the Census Bureau.

Figure 2.12: Educational Attainment in the Southwest Region (2013-17)
Source: American Community Survey



Earnings, Employment, and Innovation

Regional Employment & Earnings

Employment

The labor force in Southwest Alaska is largely structured to respond to the direct demands of the commercial seafood industry, as well as support functions ancillary to that industry. Unfortunately, employment and industry data is somewhat limited due to high self-employment numbers, limited reporting, proprietary information of large sole-owner processing facilities and other factors.

The total labor force saw a small decline in the 1990s and slowly increased until 2014 when it began another slow decline (see Figure 3.1). In 2018 there were 15,353 residents in the labor force, down slightly from 15,621 in 2012. A recent change in the way labor force statistics are calculated by the Alaska Department of Labor & Workforce Development rendered labor data prior to 2010 incomparable to data from 2010 and onward. Figure 3.3 reflects unemployment rates to 2018. Unemployment has continued a slow steady decline from the great recession, but is most closely tied to the health of the resource base, primarily fisheries, though that is also reliant on a robust export market, tying it to the health of the domestic and global economy. The region shares similarities with the US, but is driven by differing factors.

Southwest Alaska reports high self-employment numbers. The U.S. Census Non-employer Statistics is based on the number of business income tax returns submitted by firms without any employees. Table 2.2 shows that the number of non-employer firms stayed fairly steady at around 3,500 firms. The total receipts have been steadily increasing over the past five years. Over half of these firms are businesses related to the fishing industry. These numbers are based on the submitter's address, so if an individual fishes in the Southwest Alaska region, but lives and completes taxes outside the region, the numbers will not be captured here.

Figure 3.1: Total Labor Force Estimates
Source: US Bureau of Labor Statistics

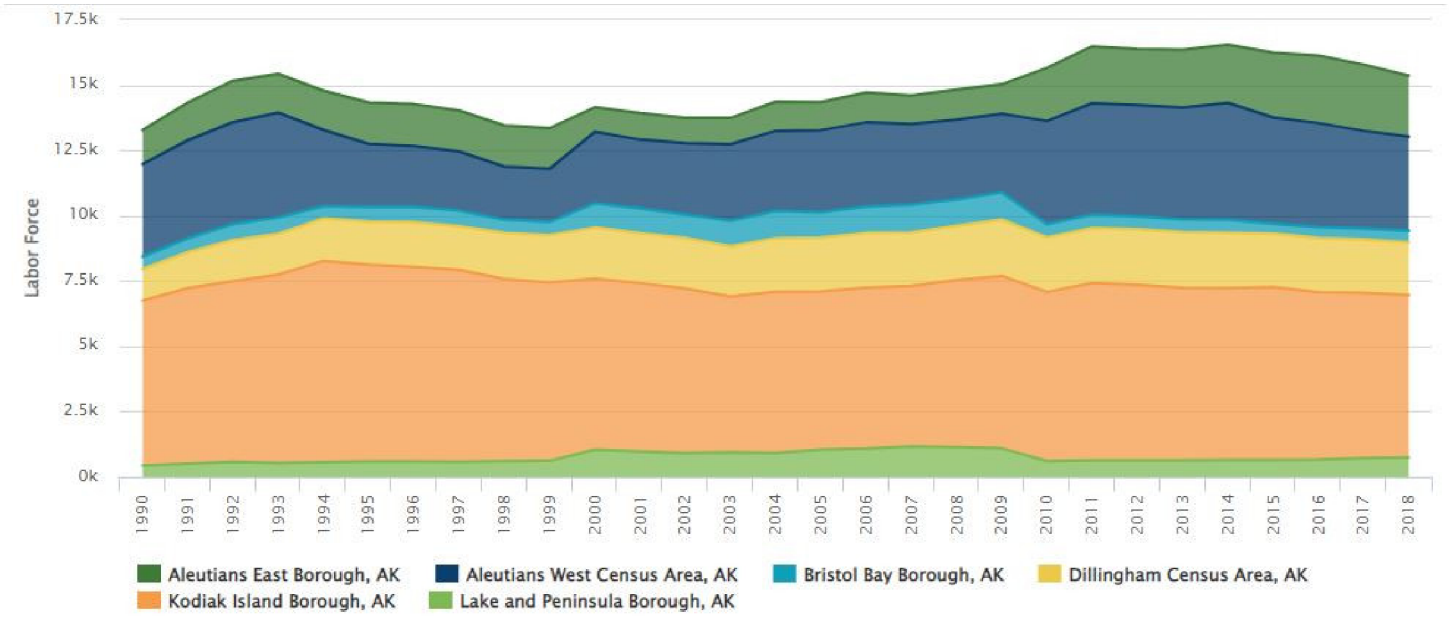


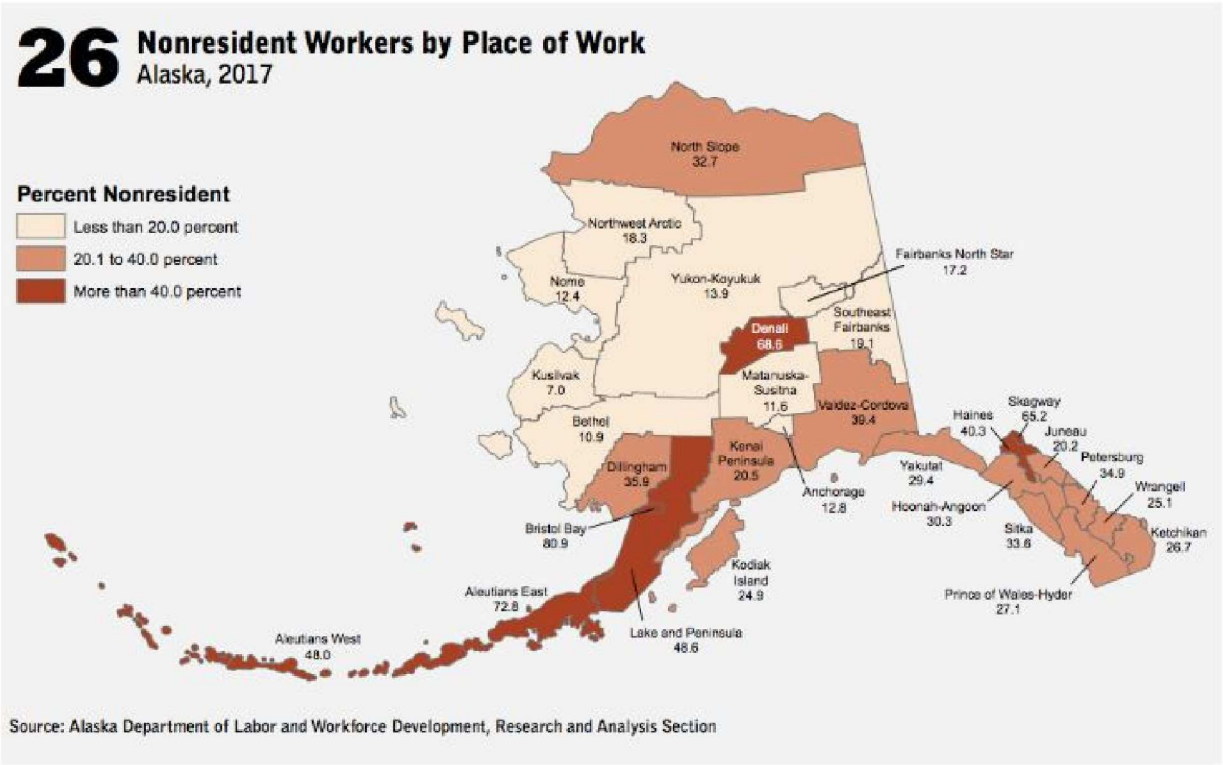
Figure 3.2: Non-Employer Statistics for the Southwest Region
Source: US Census Bureau and IRS

Location	Year	receipts ($1,000)	Number of establishments
Southwest Region	2013	717246	13204
Southwest Region	2016	296714	6332
Southwest Region	2015	307646	6426
Southwest Region	2014	351456	6832
Southwest Region	2012	350567	6685

Figure 3.3: Unemployment Rate
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section (Custom region is SWAMC)

In general, Southwest Alaska hosts many nonresident workers. Workers come from other parts of the state and from the contiguous United States for seasonal work in fishing, tourism, construction and more. Unfortunately, most of the labor force and employment figures in this section do not capture these migratory workers. Figure 3.4 shows the percentage of nonresident workers in various regions around the state. Southwest Alaska has some of the highest nonresident worker figures in Alaska, with Bristol Bay Borough (80.9%), Aleutians East Borough (72.8%), and Lake and Peninsula Borough (48.6%) seeing the highest percentages of nonresident. The employment of non-American labor is subject to Federal labor laws and quotas that can vary from year to year. This adds a level of unpredictability to labor availability.

Figure 3.4: Nonresident Workers by Place of Work 2017, Source: Alaska Department of Labor and Workforce Development, Nonresidents Working in Alaska



Regional Earnings

Per capita income for the region varies by borough and census Area (see Figure 3.5). Over the twenty-year period between 1997 and 2017, the region saw an average increase in per capita income of 18.9%. All regions experienced steady and faster growth than Alaska, with Bristol Bay Borough and Lake and Peninsula Borough experiencing growth rates of 278.4% and 238.8% respectively over the two decades preceding 2017. In this time both regions experienced record-breaking salmon runs in Bristol Bay and strong catches and improving prices for cod and groundfish.

Figure 3.5: Per Capita Personal Income (1997-2017) Source: US Bureau of Economic Analysis

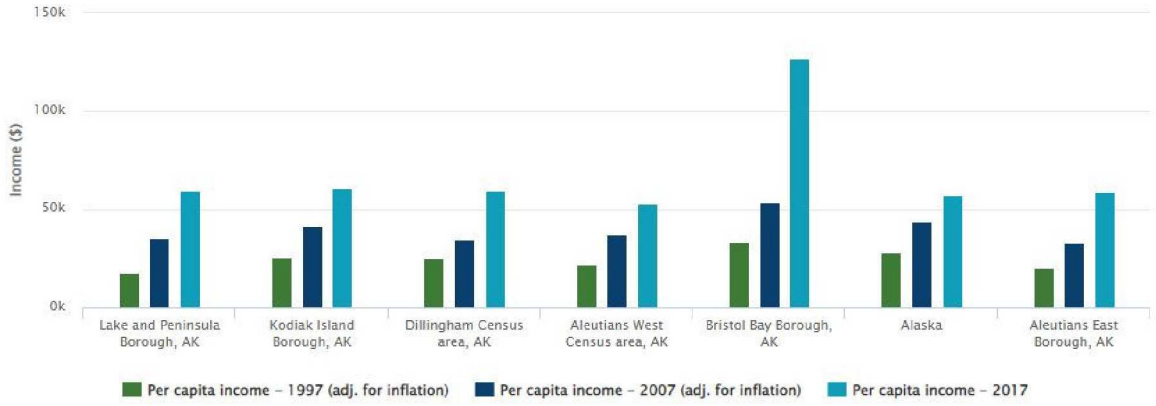


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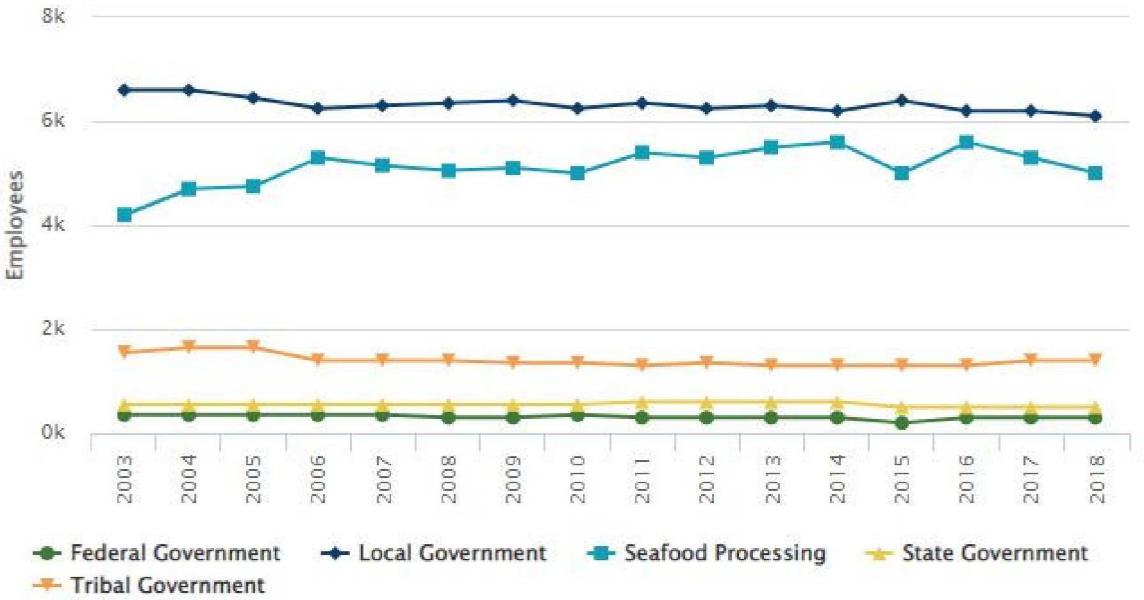
Figure 3.6: Southwest Employment Trends Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section



Taxes

At a statewide level, the tax climate in Alaska is relatively favorable compared to other U.S. states. The Tax Foundation compiles an annual State Business Tax Climate Index. Alaska ranks second out of all the states (a rank of 1 is most favorable for business). The only state with a higher ranking in 2019 is Wyoming. See Table 3.7 for a breakdown of Alaska's tax ranking.

A particularly relevant fact to the Southwest Alaska region is the fisheries business tax. The fisheries business tax is assessed on fisheries businesses and persons who process or export fisheries resources from Alaska. The Department of Revenue Tax Division collects fisheries business taxes primarily from licensed processors and persons who export unprocessed fish from Alaska. The State also levies the fishery resource landing tax on processed fishery resources. The Southwest region includes additional taxes that vary at the municipal level. These taxes are levied in a variety of ways including through property taxes, sales taxes, bed taxes, fuel taxes, liquor taxes and natural resources taxes.

Figure 3.7: Alaska Business Tax Climate Index, 2019
Source: Tax Foundation, 2019 State Business Tax Climate Index

Indicator	Rank
Individual Income Tax Rank	1
Overall Rank	2
Sales Tax Rank	5
Unemployment Insurance Tax Rank	23
Corporate Tax Rank	25
Property Tax Rank	35

Innovation

The U.S. Economic Development Administration (EDA) publishes an Innovation Index for comparing regions to the U.S. in order to assess innovative capacity. The innovation calculation uses measurable inputs and outputs from a region to evaluate what is driving innovation and where there is room for improvement. The scores are compared to the United States as a whole, which is given a baseline value of 100. Higher scores mean that a region is performing better than the country; scores lower than 100 mean that the region is not performing as well as the country as a whole.

In 2014, the SWAMC region received a relatively low overall score of 74, less than Alaska's score of 88.8. In 2016, the region moved up to a score of 85.9, an increase of over 10 points, while Alaska only grew to 90.7 points. This growth in the last year is mirrored in the subcategories, with the region nearly closing gaps with Alaska in certain sectors. Productivity and Employment, for example, features the region and Alaska with only a .1 point difference. Data for the SWAMC region still indicates that the region excels in the number of large establishments per 10,000 workers (1.52 establishments per 10,000 workers compared with 1.08 for the U.S.), job growth to population growth ratio (a ratio of 1.47 compared to .49 for the U.S. between 1997 to 2011), and slightly lower unemployment rates (7.5 percent compared to 8.9 percent for the U.S.). Figure 3.8 shows how the SWAMC region scored compared to the state and the U.S.

Innovation Index Indicators

The index is calculated using the following indicators:

• Human Capital: (Educational Attainment, Technology-based Knowledge Applications, Population Growth Rates)

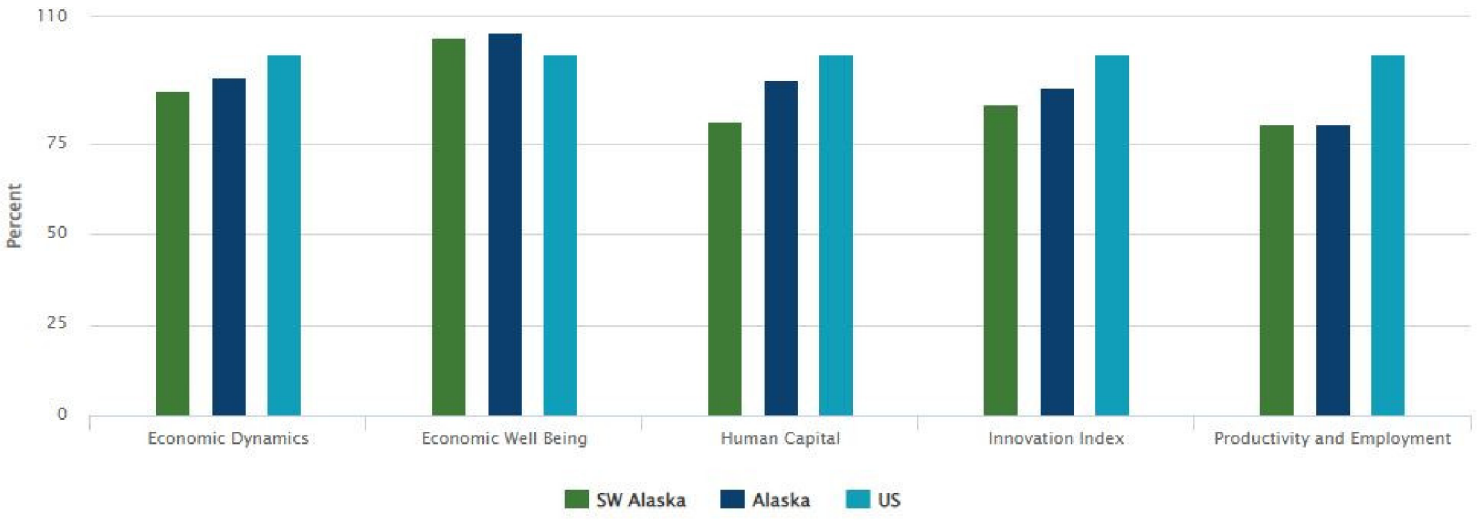
• Economic Dynamics: (Average Venture Capital, Establishment Churn, Broadband Density + Penetration, Establishment Sizes)

• Productivity and Employment: (Change in High-Tech Employment, Job Growth, Gross Domestic Product Per Worker, Average Patents per 1,000 Workers)

• Economic Well-Being: (Average Poverty Rate, Average Unemployment Rates, Average Net Migration, Average Growth in Per Capita Personal Income, Compensation)

Source: Innovation Index (partnership between U.S. Commerce Department's Economic Development Administration, Purdue Center for Regional Development, Indiana Business Research Center, Indiana University's Kelley School of Business and others).

Figure 3.8: Innovation Index
Source: Stats America, Innovation Index



Transportation and Infrastructure

Southwest Alaska is a large region with a small and dispersed population. Maintaining infrastructure is difficult given the challenging logistical costs of mobilization. Although, the resource rich region provides a market incentive to develop expensive infrastructure in order to access resources. Some of the highest capacity fishing communities in the nation are located in Southwest Alaska.

Expensive infrastructure is also justified given the military and scientific geo-location, particularly because of Southwest Alaska's proximity to Asia and the Arctic. The geography limits overland connectivity, leaving water and air as the primary modes of inter-community transportation. Communities create a network of valuable ports, airfields, electrical systems, and human and industrial shelter from the elements, allowing for strategic access points for resource utilization throughout Southwest Alaska.

Water

Transportation by boat is the most common means of transporting goods to and around Southwest Alaska. Unalaska's deep-water port is one of the most productive cargo ports in the United States, along with Kodiak and Bristol Bay ports, as an anchor for both regional fishing as well as domestic and international cargo.

The Alaska Marine Highway system serves the Kodiak hub year-round, and the Aleutian Chain as far west as Unalaska during the summer months, May-September; no scheduled marine services are available for communities of the Bering sea and communities west of Unalaska. As seen in Figure 4.2 - 4.5, Kodiak sees the highest ridership.

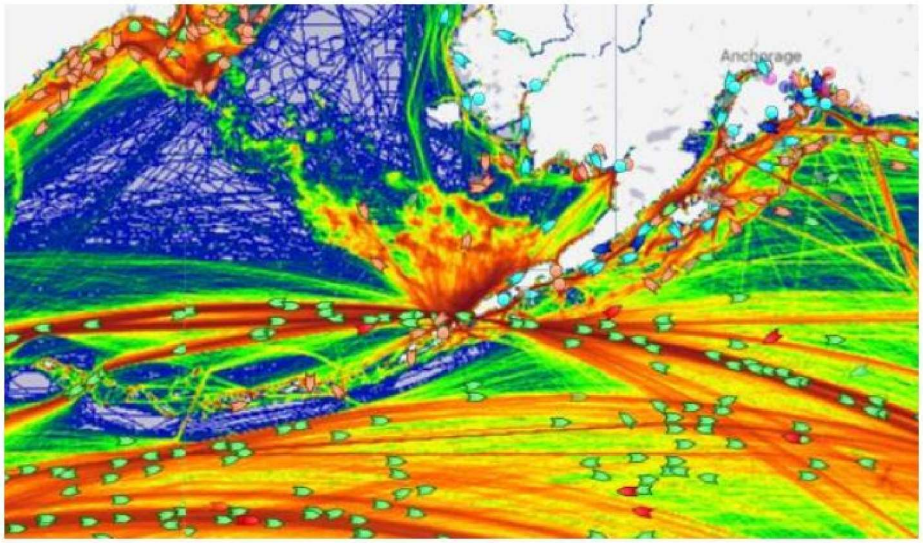


Figure 4.1: World Map of Shipping Traffic Density, Source: Marine Traffic Density Maps

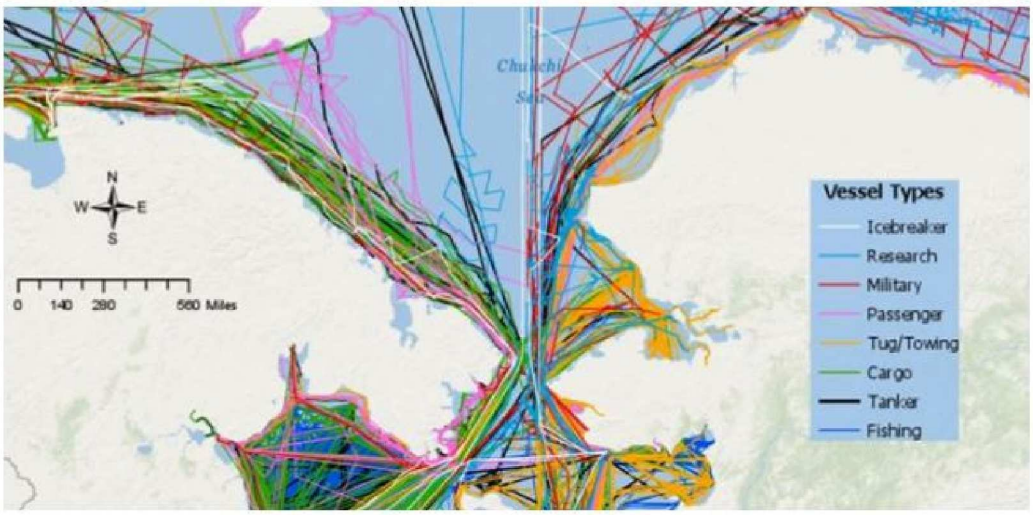


Figure 4.6: Bering Strait and Arctic Transits by Vessel Type (2018), Source: Marine Exchange of Alaska, Bering Strait and Arctic Transits Report

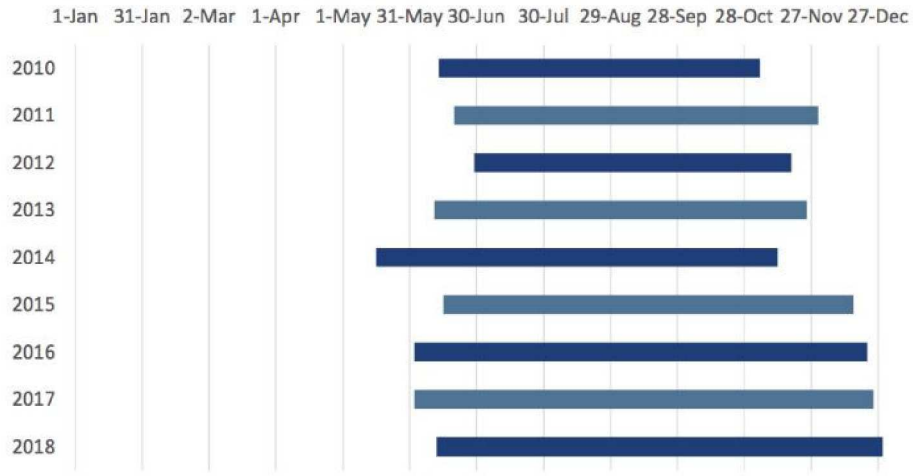


Figure 4.7: Bering Strait Shipping Season Lengths - First and Last Transit, Source: Marine Exchange of Alaska, Bering Strait and Arctic Transits Report

Ridership dropped in all ports in 2013 due to the M/V Tustumena being out of service for an extended time. Normal service resumed in 2014 and ridership trends rose. The M/V Tustumena was out of service most of the summer of 2017 due to the need to replace critical steel portions of the vessel. Money was appropriated in the 2017 State Capital Budget to match Federal funding to construct a new vessel to replace the Tustumena.

Given the high per-capita costs of operating the Alaska Marine Highway System (AMHS) and State budget shortfalls, a growing concern in Southwest Alaska is the long-term sustainability of reliable ferry service. SWAMC participated in an effort led by the Southeast Conference to look at operational models and practices that could reduce the level of State subsidy for the AMHS.

Figure 4.2: Kodiak Ferry Ridership Trends: Embarking
Source: Alaska Marine Highway System

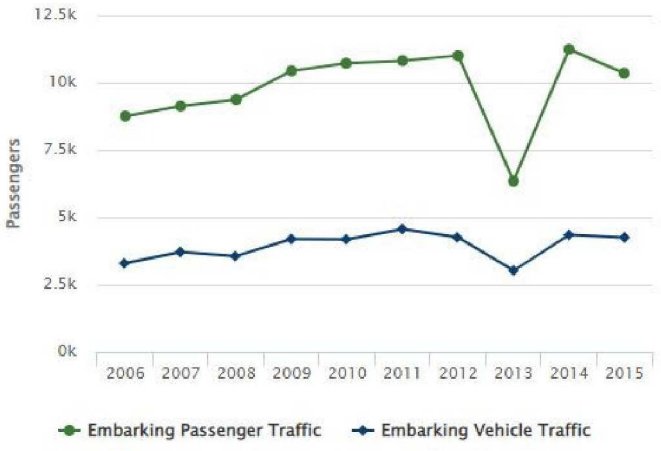


Figure 4.3: Kodiak Ferry Ridership Trends: Disembarking
Source: Alaska Marine Highway System

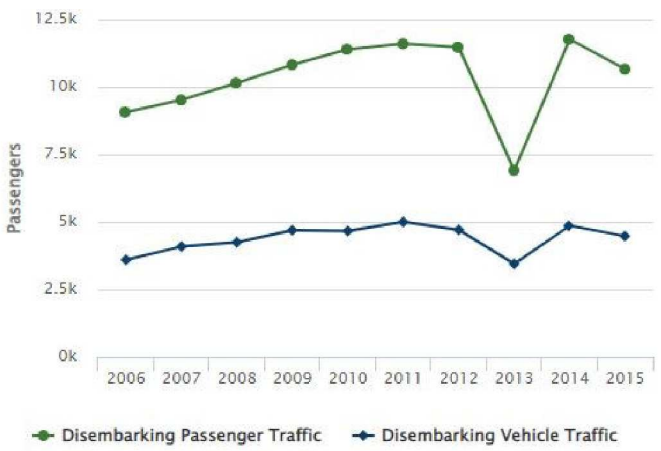


Figure 4.4: Aleutian Ridership Trends: Embarking
Source: Alaska Marine Highway System

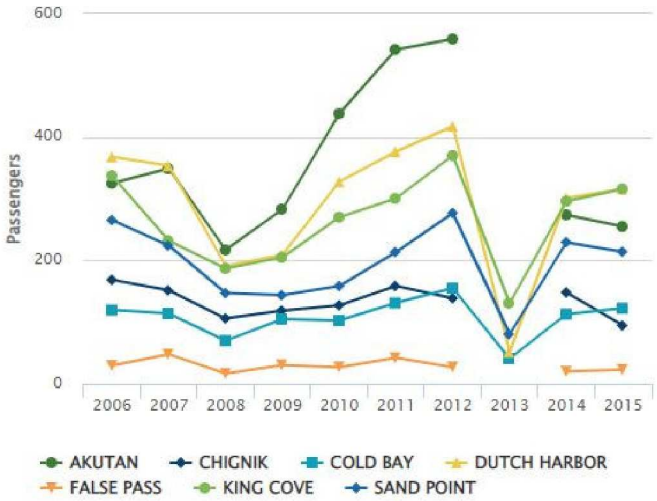
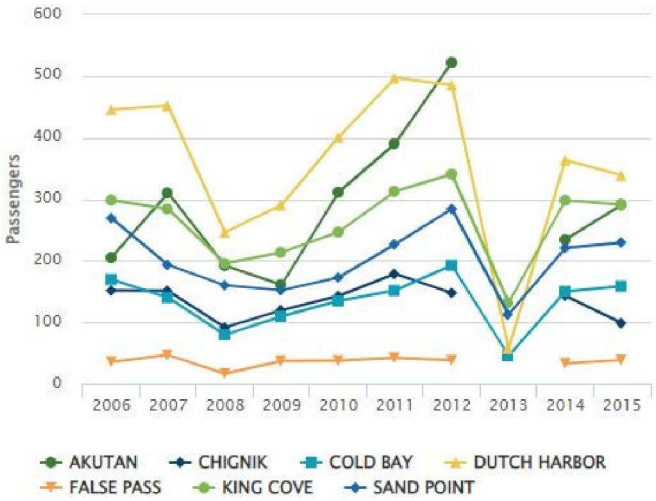


Figure 4.5: Aleutian Ridership Trends: Disembarking
Source: Alaska Marine Highway System



Air

Aviation is the principal means of transporting people to and from the communities throughout the Southwest region. A lack of interconnected roads means passenger and light goods such as mail and perishable food typically move by air. Extreme weather, poor visibility, long distances, limited airport infrastructure, and low economies of scale all present challenges to the use of air travel.

The cost of flying has increased significantly over the past decade. Figure 4.10 shows average air-fare rates to specific locations in Southwest Alaska from 2010 to 2017. While the price over time seems to remain steady, real prices for airfare to select communities have risen faster than inflation. Adjusted for inflation, prices increased between 11% and 23% over the 7-year period.

Figure 4.8: Runway Length by Airport (ft)
Source: Federal Aviation Administration

Airports	Runway Length (ft)
Shemya Airport	10004
King Salmon	8901
Cold Bay Airport	10180
Kodiak	7550
Adak Airport	7790

Figure 4.9: Air Traffic Density over Southwest Alaska,
Source: ESRI Global Air Traffic As Data Art

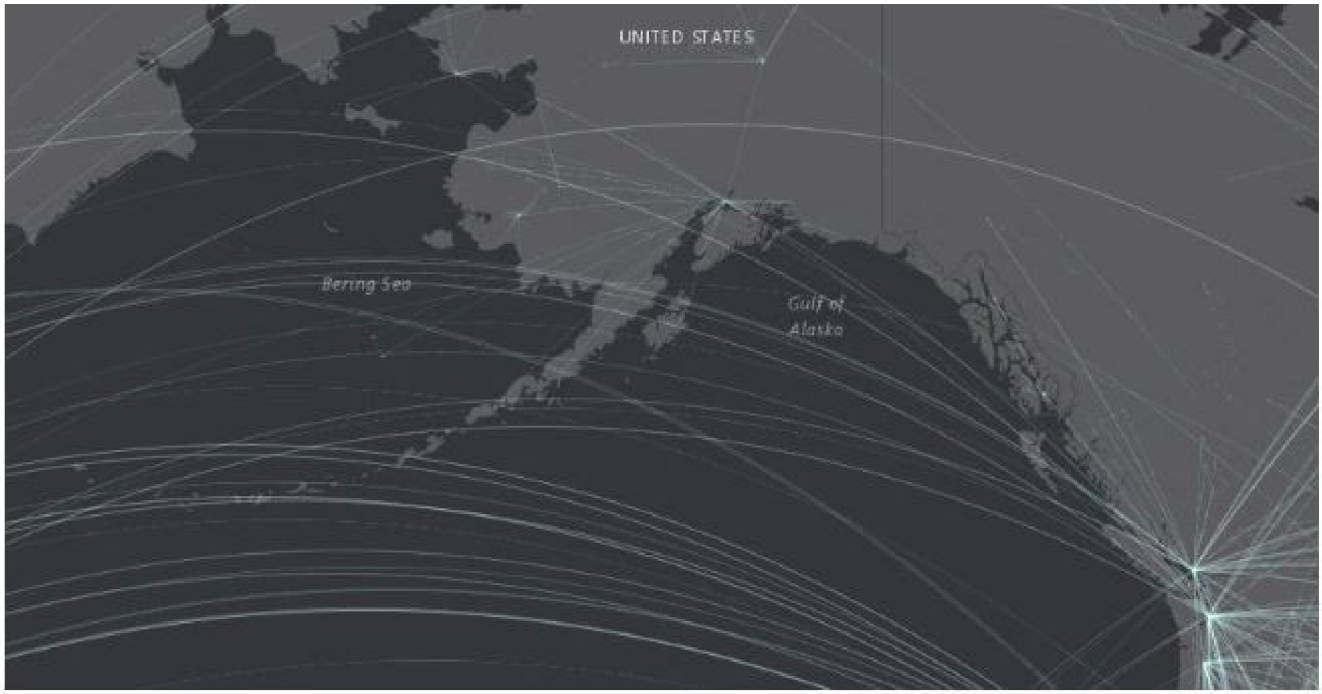


Figure 4.10: Average Roundtrip Airfare Prices (2010-2017)
Source: Bureau of Transportation Statistics

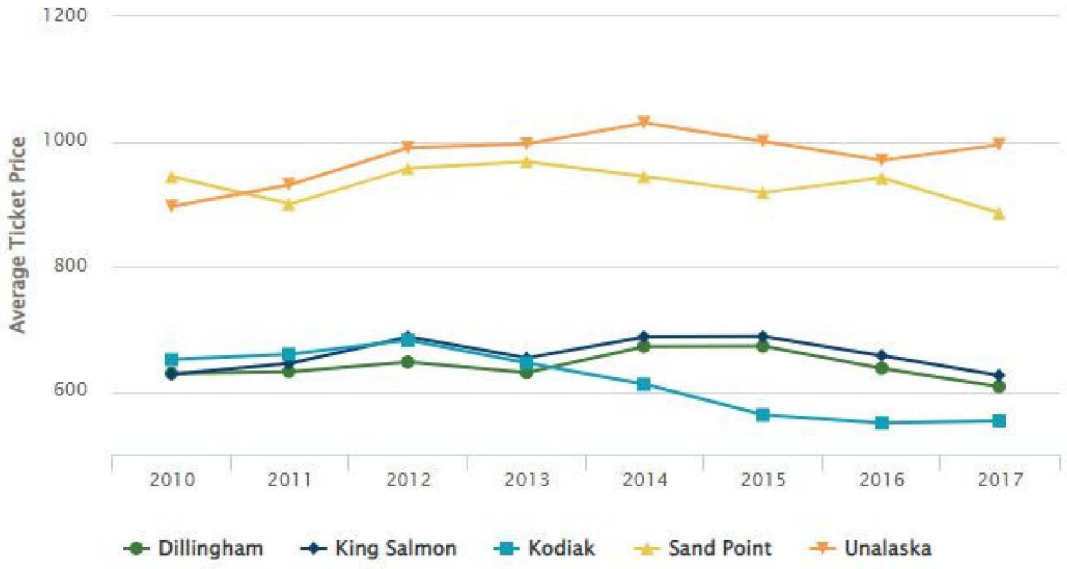
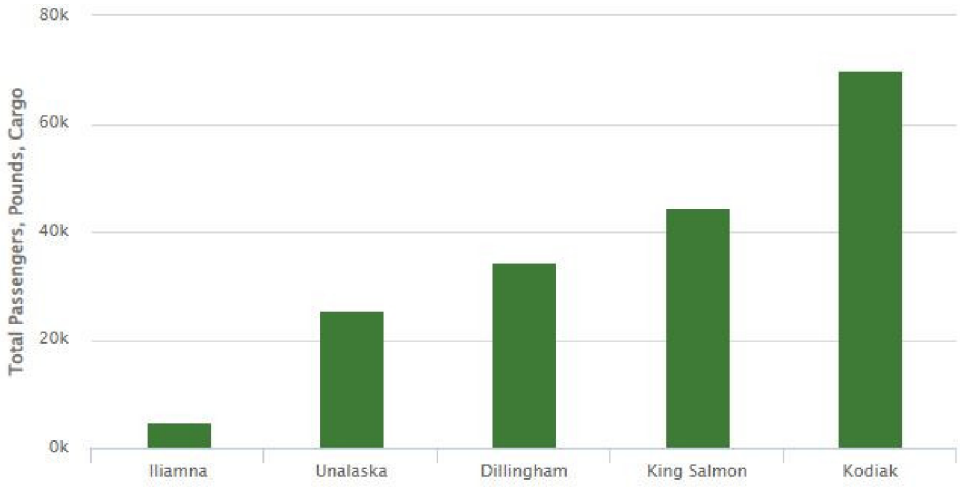


Figure 4.9: Air Traffic Density over Southwest Alaska,
Source: ESRI Global Air Traffic As Data Art



Roads

There is limited overland connectivity in Southwest Alaska. Connector roads that do exist are short and connect communities that are in close proximity; none over approximately 25 miles in length.

Infrastructure

Communications

The SWAMC region has limited communication infrastructure. Connect Alaska compiles maps and information on the availability of broadband and internet connectivity around the state. Figure 4.12 shows that like other rural regions of the state, Southwest Alaska has limited broadband availability. Broadband connectivity, defined as the availability of download speeds of at least 768 Kbps and upload speeds of 200 Kbps, varies widely across the region.

Dillingham and Kodiak have more households with broadband service at 96% and 91% respectively; Bristol Bay Borough and Lake and Peninsula Borough have broadband coverage of 76% and 51%. In the Aleutians, Unalaska, Cold Bay, King Cove, and Sand Point have 1 Mbps broadband service available from TelAlaska . Table 4.12 shows connection availability and costs in the SWAMC region as of October 1, 2014. This table shows that cost varies across the region, with prices ranging from $95 a month for 150 megabits per second download speed in Kodiak and Anchorage to $165 for six megabits per second of data in Dillingham. While network connection services still remain limited in many areas, recent investments in microwave and fiber optic networks are slowly bringing increasing levels of service to Southwest Alaska. However, more remote areas are still encountering reduced services compared to more populated ones.

Figure 4.12: BroadBand
Source: Connect Alaska

City	Provider	Speed	Data Package	Price/Monthly
Unalaska	Hughesnet	3 mbps down	25 GB	175
Anchorage	GCI	150 mbps	250 GB	95
Naknek	BB Telephone Coop	6 mbps	40 GB	150
King Cove	dishNET	2 mbps	50 GB	150
Dillingham	Nushagak Coop	6 mbps	100 GB	165
Levelock	BB Telephone Coop	6 mbps	40 GB	150
Sand Point	dishNET	2 mbps	50 GB	150
Kodiak	GCI	150 mbps down Up to 1 Gig	250 GB	95

Housing

The housing stock in Southwest Alaska varies greatly between communities. According to interviews and conversations within the SWAMC network, many communities are experiencing shortages of affordable and adequate housing. Figure 4.14 and Figure 4.15 show information on housing units, average household size and overcrowding percentages for the six boroughs/census areas as well as for the state. Four of the six areas are experiencing higher overcrowding levels than the state as a whole; in the Dillingham Census Area, 20% of occupied housing units are overcrowded, followed by 11.8% in the Lake and Peninsula Borough and 10% in both the Aleutians West Census Area and the Kodiak Island Borough.

2.7

Average Household Size in the Southwest Region

Figure 4.13: Percent of households spending over 30% of income on housing in:

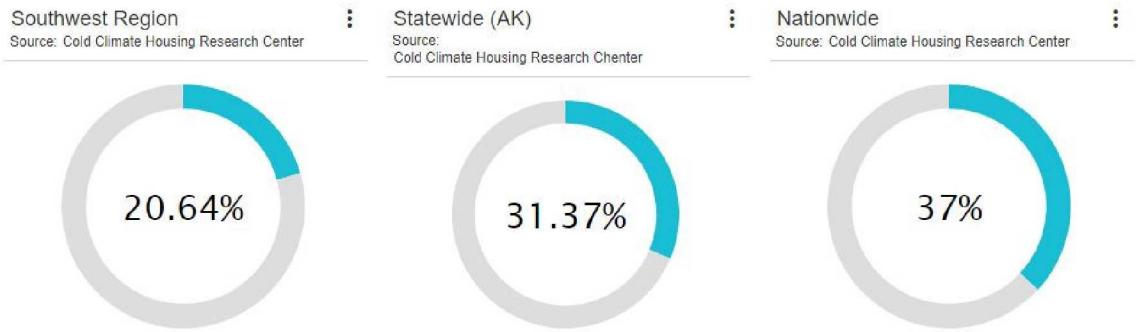


Figure 4.14: Total Housing Units by Location
Source: Cold Climate Housing Research Center

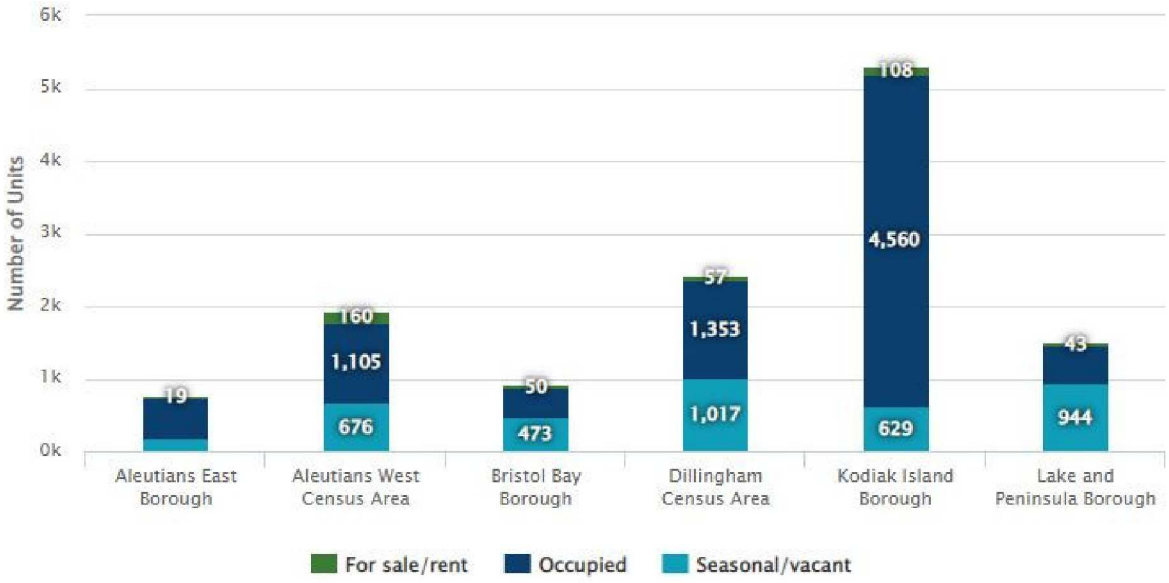
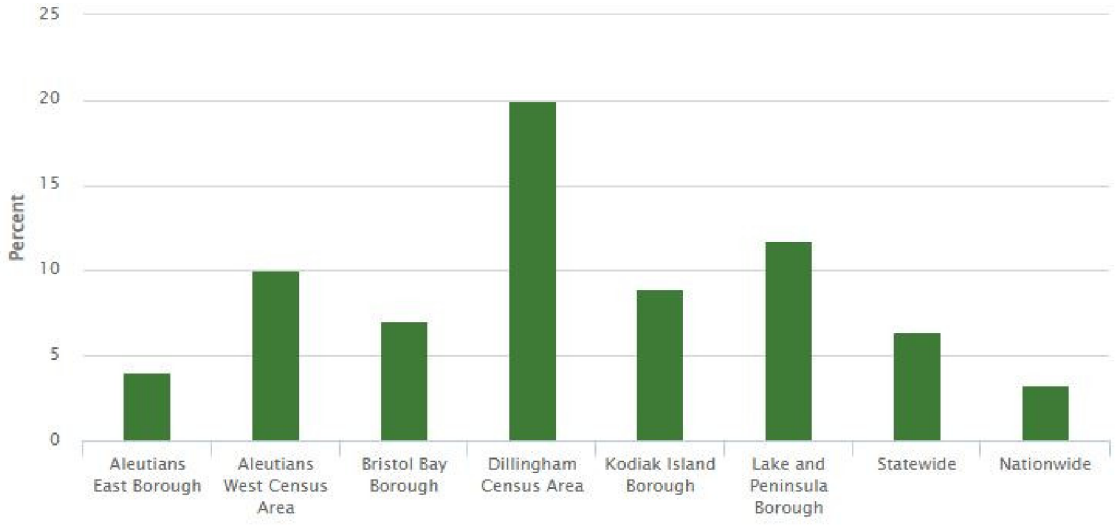


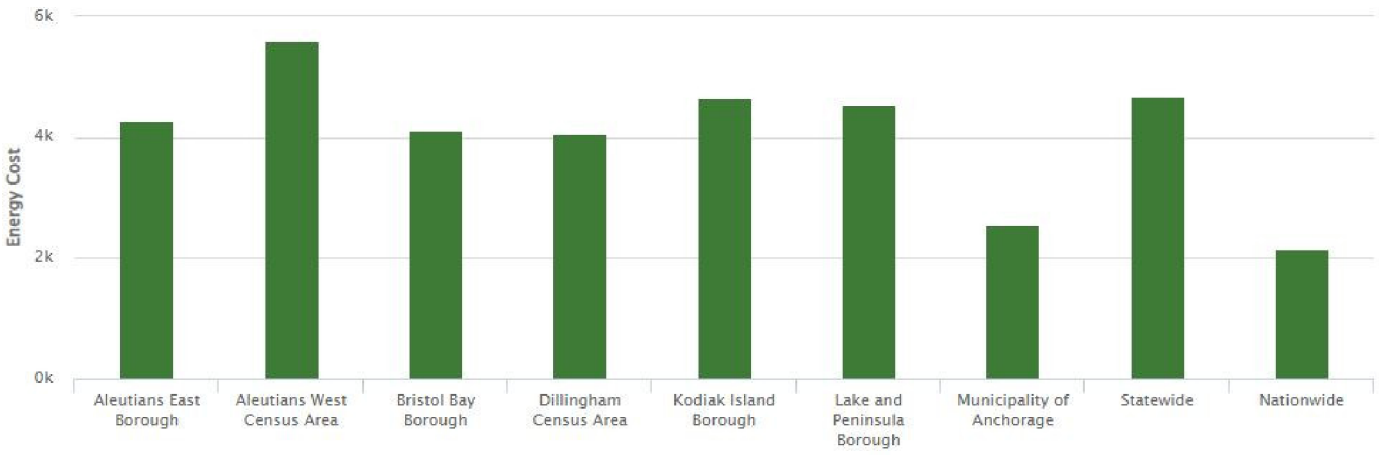
Figure 4.15: Percent of occupied housing units that are overcrowded
Source: Cold Climate Housing Research Center



Energy

Energy costs in Southwest Alaska are generally high with significant variability between communities. Annual household energy costs range from $2,560 in the Municipality of Anchorage to $5,603 in the Aleutian West Census Area. All SWAMC regions experience energy costs that are higher than the state average of $4,681 per year and most regions are more than three times the national average of $2,146 per year (see Figure 4.16). Affordability is an issue for some communities although the region has fewer households spending over 30% of their income than the rest of the state and the nation. There are a number of energy cost saving programs in the state that are available to help reduce energy costs, including the Alaska Housing and Finance Corporation (AHFC)'s Weatherization Assistance Program. Participation in these energy programs varied widely across the region: 40% of Lake and Peninsula Borough households participated in a program, while only 4% of households participated from the Aleutians West Census Area.

Figure 4.16: Average annual energy cost, by Location
Source: Cold Climate Housing Research Center



The Alaska Energy Authority's Power Cost Equalization (PCE) program subsidizes the cost of electricity for approved rural communities. The PCE subsidy has helped buffer households from the increasing rise in energy costs. Figure 4.18 shows the residential energy cost per kilowatt hour before and after the PCE subsidy. While the program helps buffer households from increasing energy costs, it only applies to residential energy costs. As a result, commercial energy costs remain very high in Southwest Alaska.

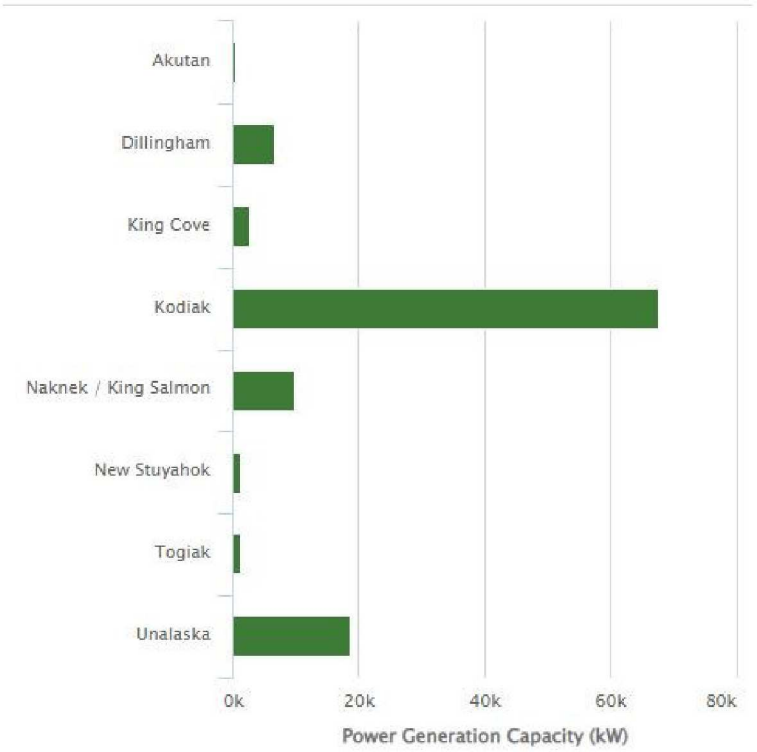


Figure 4.17.1: Total Energy Generation Capacity by Community (kW)
Source: Alaska Energy Statistics

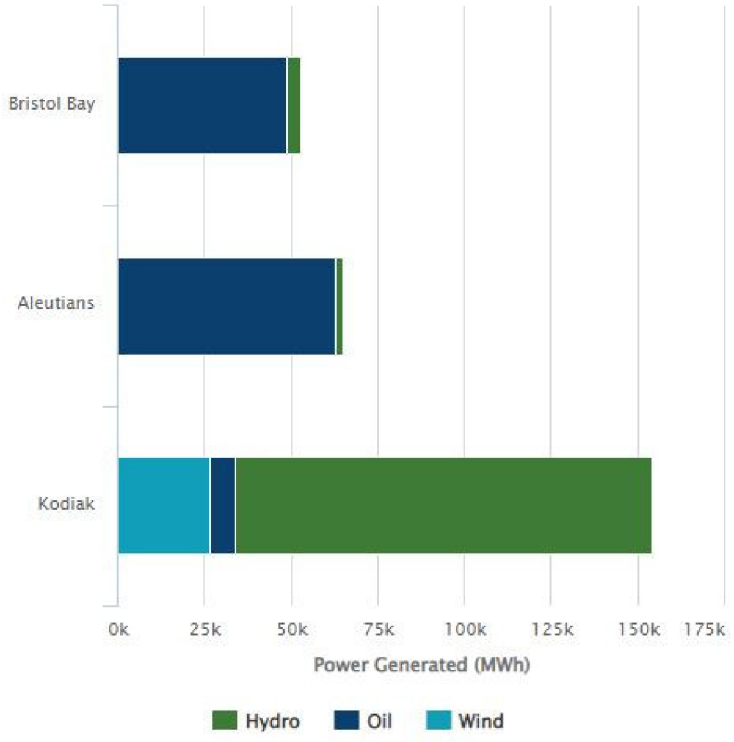


Figure 4.17.2: Total Power Generated by Region and Fuel Type (MWh)
Source: Alaska Energy Statistics

Figure 4.17.3: Average Southwest Region Participation in Energy Subsidy Programs
Source: Cold Climate Housing Research Center

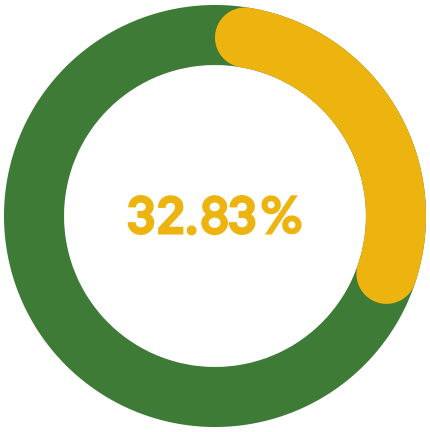
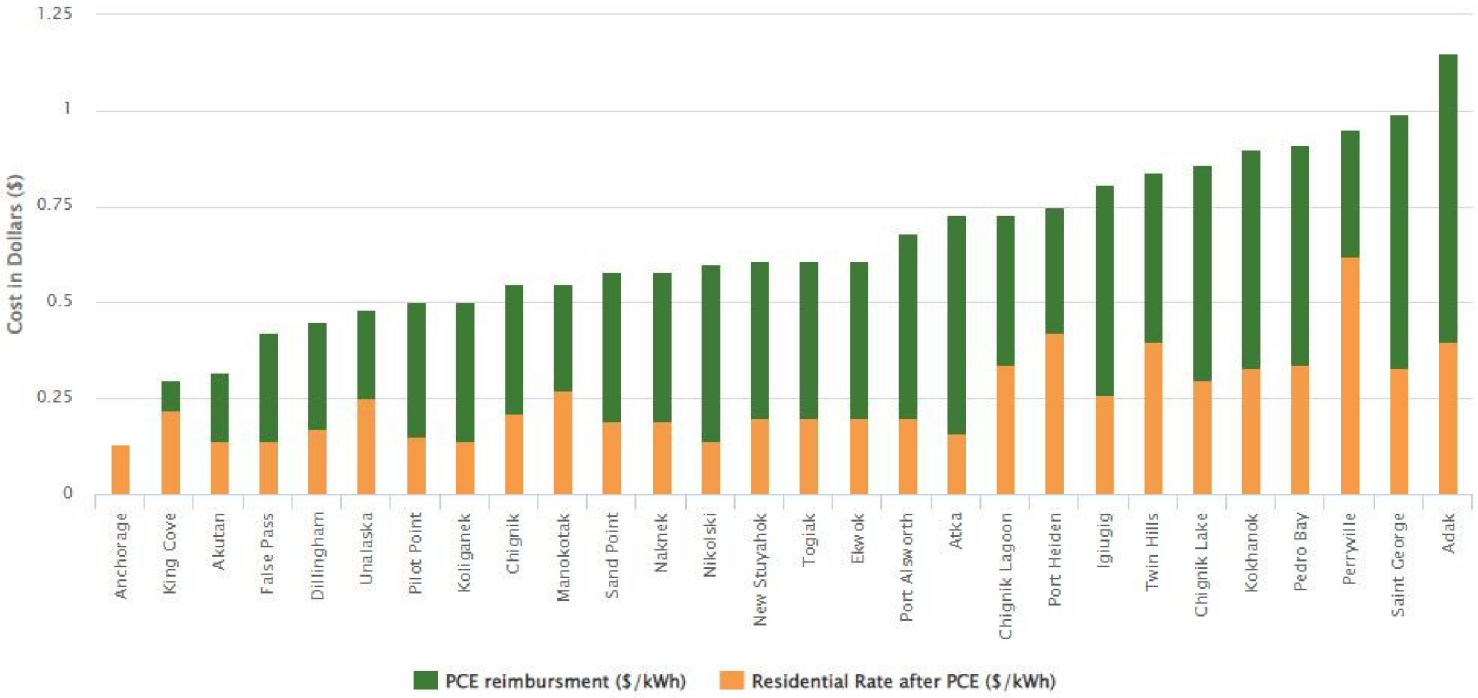


Figure 4.18: Residential Energy Costs and PCE Reimbursements
Source: Alaska Energy Statistics and UAA's Institute for Socioeconomic Research



Industry and Occupation

Industry and Occupation Trends

Employment

As discussed previously, the Southwest Alaska region's economy is largely based on seafood. Due to many factors including seasonality of employment, proprietary information of large single-owner processing facilities and the high numbers of self-employed individuals, creating an accurate employment and industry profile of the region is challenging. Nonetheless, it is helpful to look at the available indicators to better understand the economy of Southwest Alaska.

The Department of Labor publishes Quarterly Census Employment and Wages (QCEW) data which includes the number of people employed in all industries for a particular region. The QCEW data for Southwest Alaska is limited because employment information for some of the largest employers is kept confidential. Of the industries with available information, the manufacturing industry is the one with a location quotient higher than the U.S. This is unsurprising because Manufacturing includes seafood processing, which is one of the largest sources of employment in the region.

In 2016, SWAMC funded and released A Linked Economy: Southwest Alaska's Economic Linkages to the State and beyond, a report that updated an earlier 2004 version. Like the earlier version the study evaluated the region's contributions and economic value to the state of Alaska and the nation as a whole. This information clearly showed the economic value of Southwest Alaska to the state and gives a helpful perspective on the importance of the region's economy and the scale of the region's fishing industry. According to the report, total industry output for the region represented about 6% of the total output of the state ($2.2 billion out of $38 billion for the state in 2004 dollars). Fish processing in the region accounts for 67% of statewide fish processing employment and 68% of fish processing output.

Figure 5.1: SW Region Contributions to AK in Key Sectors
Source: IMPLAN 2016

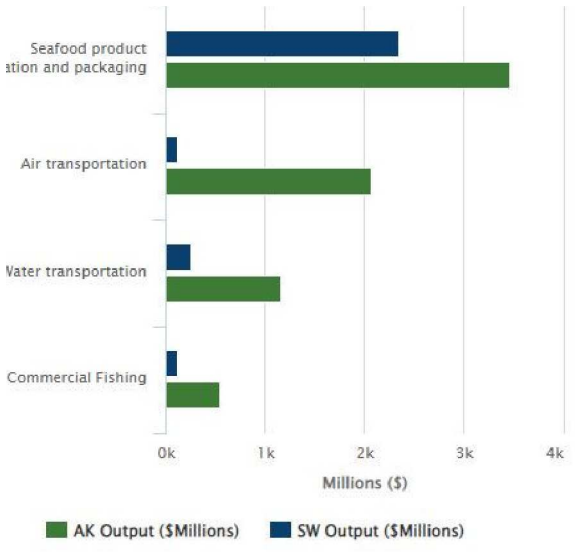


Figure 5.2: Southwest Share of State Total Outputs in Key Sectors
Source: IMPLAN 2016

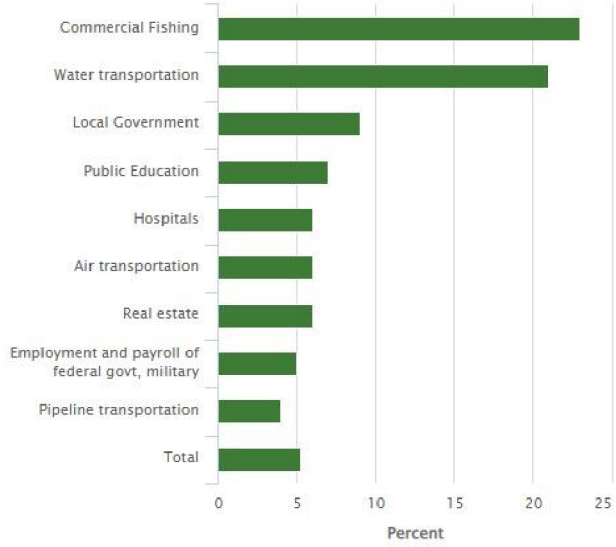


Figure 5.3: Non-Employer Statistics by Sector, in Southwest Alaska
Source: US Census Bureau and IRS

Meaning of 2002 NAICS code	# of Establishments	Receipts ($1,000)
Accommodation and Food Services	104	3979
Agriculture, Forestry, Fishing, and Hunting	1662	96099
Arts, Entertainment, and Recreation	82	1865
Construction	156	5850
Educational Services	27	322
Finance and Insurance	45	161
Health Care and Social Assistance	113	2885
Information	6	60
Manufacturing	21	811
Other Services (except public administration)	205	6508
Professional, Scientific, and Technical Services	222	6034
Real Estate and Rental, and Leasing	91	7674
Retail Trade	145	5050
Transportation and Warehousing	127	7067
Utilities	3	17
Wholesale Trade	13	483

Looking at non-employer statistics is a helpful way to understand the self-employment picture for the region. Non-employment data comes from IRS tax returns and includes data for all establishments with no employees. In 2011 there were 3,404 non-employer firms in the Southwest Alaska region that generated a combined $183 million. Figure 5.3 shows the number of non-employer establishments for the top 12 industry classifications. In 2016 there were 1,662 non-employment firms in the agriculture, forestry, fishing and hunting classification. This is further evidence of the high number of individuals involved in the fishing industry in Southwest Alaska.

Figure 5.4: Occupations, 2010-2016
Source: Alaska Department of Labor and Workforce Development

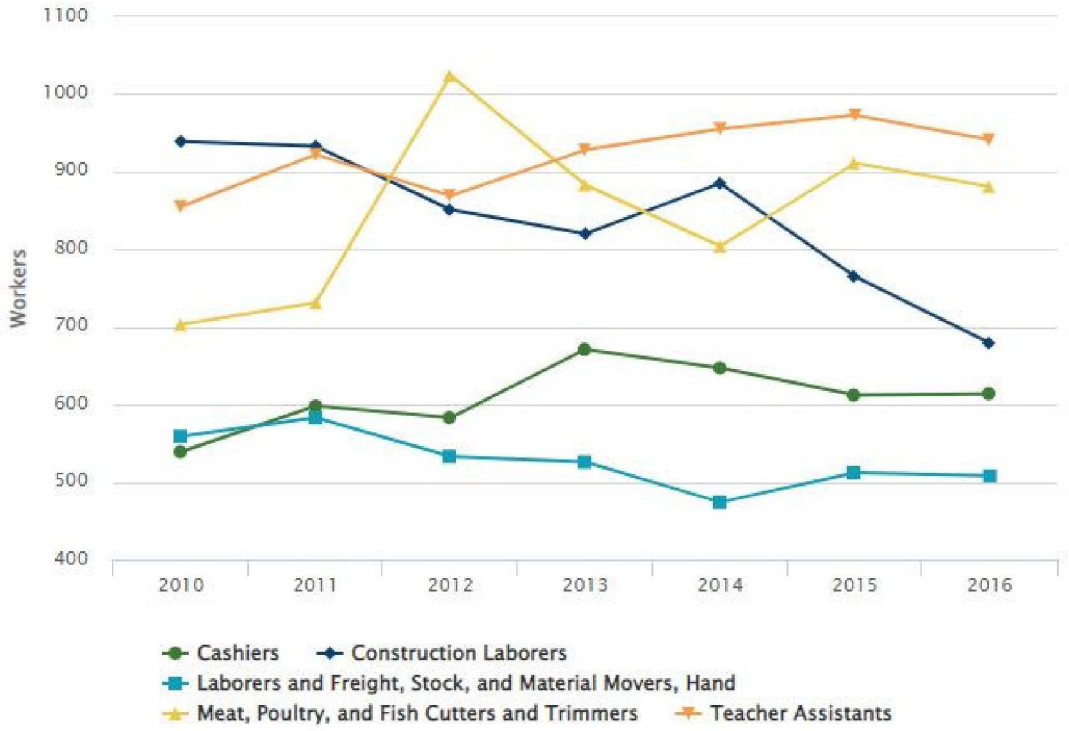


Figure 5.4 shows the top occupations for the Southwest Alaska region between 2010 and 2016. This information includes Kusivak and Bethel Census Areas, which are not in the SWAMC region. The information comes from the Alaska Department of Labor and Workforce Development's Occupational Database, which only includes occupational information for Alaska residents. It does not include federal workers, military individuals, the self-employed or nonresidents. Among residents employed in the region, the most popular occupation in 2016 was Teacher Assistants with 941 individuals. This is a slight decrease from the year before, but Teacher Assistant occupations have remained fairly consistent over the last 5 years.

Figure 5.5: Total Seafood Processing Workforce
Source: Alaska Laborstats

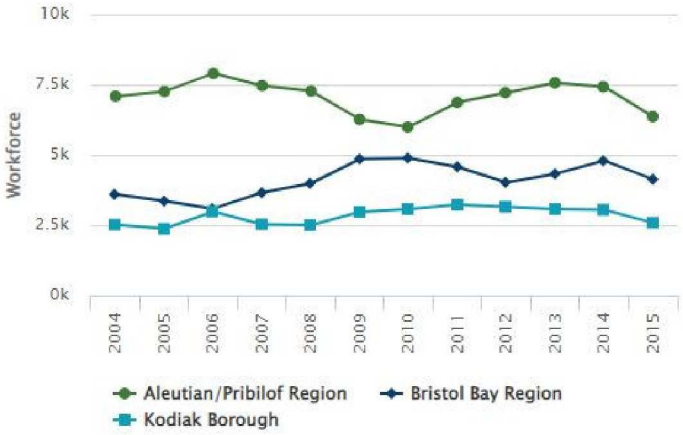


Figure 5.6: Average Wage for Local Workers
Source: Alaska Laborstats

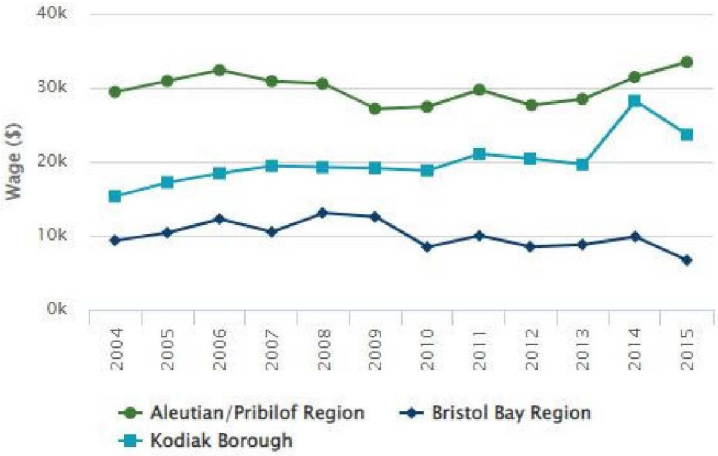


Figure 5.7: Local and Non-Resident Seafood Processing Workers
Source: Alaska Laborstats

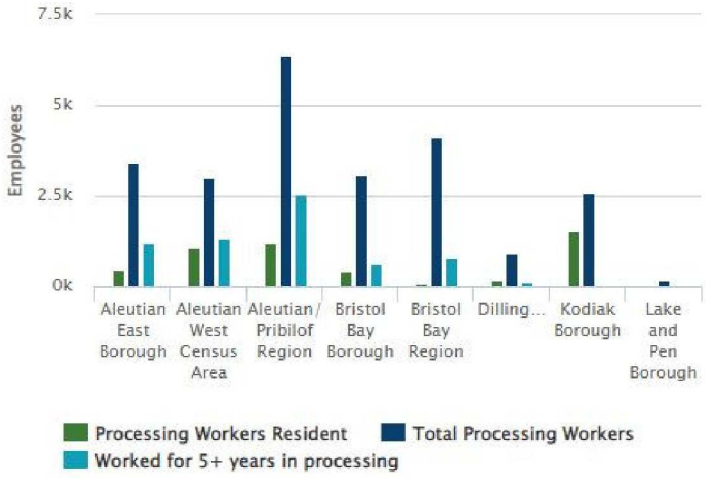


Figure 5.8: Seafood Proc. Wages by Resident and Non-Resident
Source: Alaska Laborstats

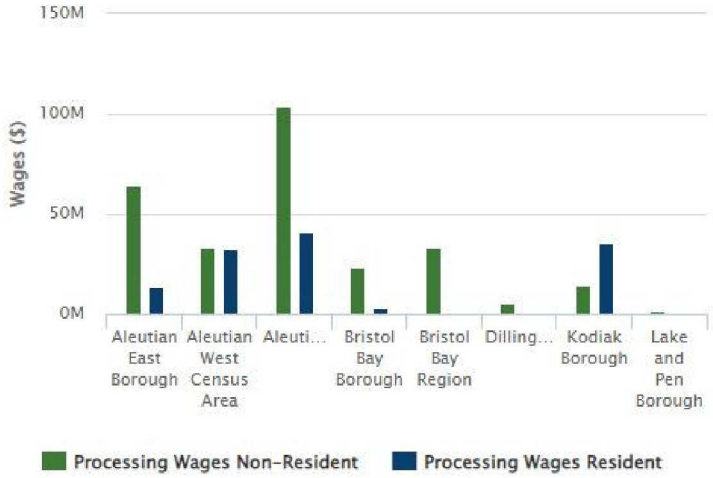


Figure 5.9: "Top Job" Occupations in the Maritime Industry for the Southwest Region (2016)
Source: Alaska Labor Statistics

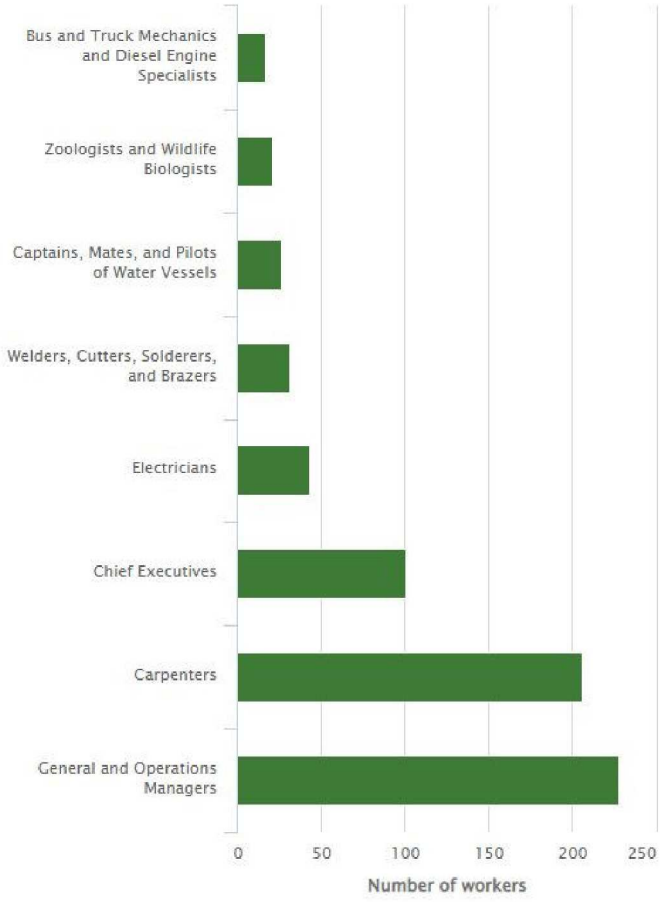
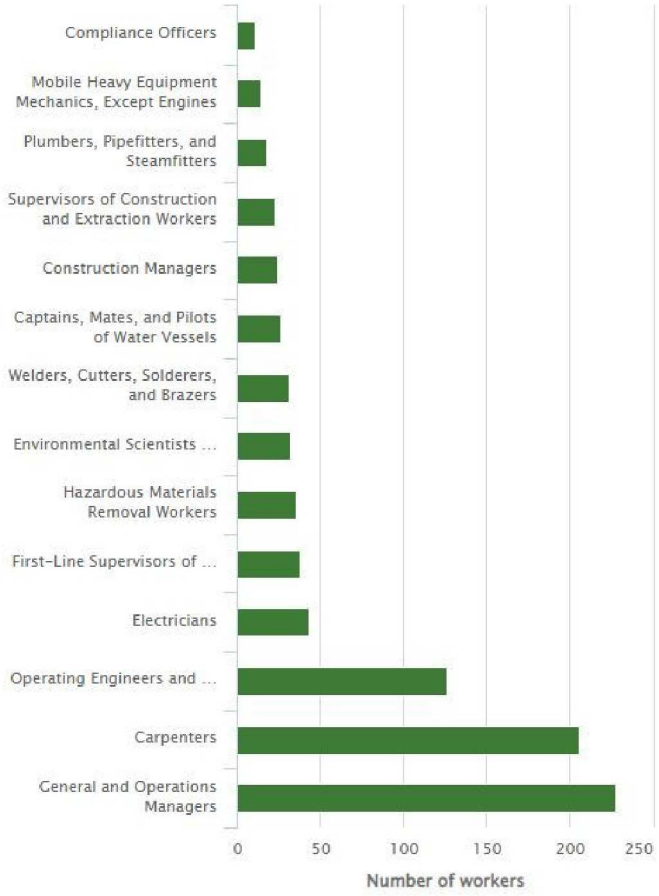


Figure 5.10: "Top Job" Occupations in the oil & gas industry for the Southwest Region (2016)
Source: Alaska Laborstats



Resources

Seafood

Southwest Alaska's economic engine is driven by the region's abundant marine resources, home to five of the top ten seafood ports in the United States by volume and six of the top ten ports in the United States in terms of value (Figure 6.1).

Regional fishery landings declined in 2012-2014 but then increased to almost 700 million tons in 2015. In 2017, fishery landings reached an all-time high. (Figure 6.2). Similarly, fishery values have been quite variable since 2011, dipping until 2015 but then increasing dramatically by 2017. Total price per pound has increased from roughly $0.28 to $0.34.

Figure 6.1: Top 15 Ports in the US 2018
Source: NOAA Commercial Fisheries and Landings

Port	Rank	Millions of Lbs	Millions of $
New Bedford, MA	1	111	390
Dutch Harbor, AK	2	769	173
Naknek, AK	3	187	154
Kodiak, AK	4	530	152
Alaska Penninsula (Other), AK	5	268	112
Aleutian Island (Other), AK	6	552	106
Honolulu, HI	7	34	104
Empire-Venice, LA	8	294	100
Cape May-Wildwood, NJ	9	102	81
Sitka, AK	10	91	75
Cordova, AK	11	99	65
Bristol Bay (Other), AK	12	43	64
Westport, WA	13	150	64
Brownsville-Port Isabel, TX	14	23	63
Seward, AK	15	51	60

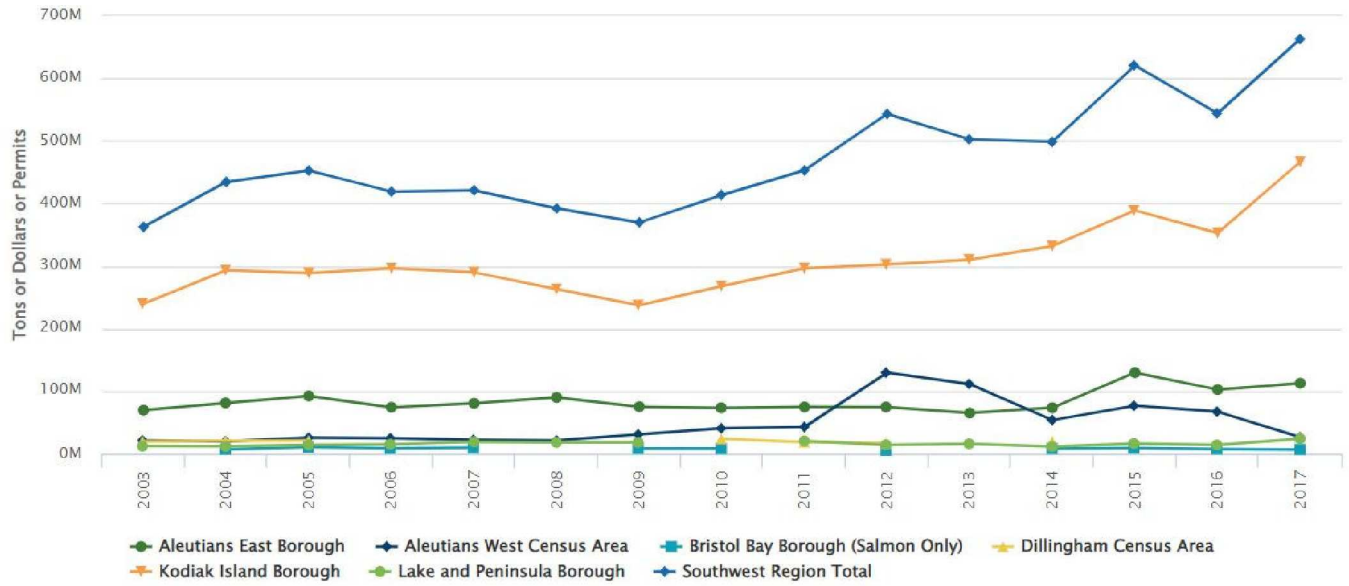
The Western Alaska Community Development Quota (CDQ) Program is a federally managed economic development program. Three of the six CDQ groups established by the program are in Southwest Alaska: the Aleutian Pribilof Islands Community Development Association (APICDA), the Bristol Bay Economic Development Corporation (BBEDC), and the Central Bering Sea Fisherman's Association (CBSFA).

These three organizations represent 24 of the 65 communities under the CDQ umbrella (within a fifty nautical mile radius of the Bering Sea coast). In 2013, Alaska's Department of Commerce, Community and Economic Development (DCCED) released the decennial review of the CDQ groups, which includes information from 2006-2010. According to DCCED's reports, the CDQ groups invested a combined $21.5 million dollars each year in the region over the five-year period. In 2010, the CDQ groups employed 1,114 workers collectively (direct and indirect), with an average of 82% of jobs going to member residents in the region. Nearly all jobs supported by BBEDC and CBSFA went to residents: 95% and 84% respectively, and 39% of jobs supported by APICDA went to member residents.

Figure 6.1: Top 15 Ports in the US 2018
Source: NOAA Commercial Fisheries and Landings

NPFMC Fleet Profile	Vessels
Halibut IFQ Fleet	1060
Sablefish IFQ Fleet	397
Halibut CDQ Fleet	211
Groundfish Pot Fleet	123
AFA Catcher Vessels	83
BSAI Crab Fleet	79
Jig Fleet	77
Longline Catcher Vessels	74
Central GOA Trawlers	53
Western GOA Trawlers	42
Freezer Longliners	39
Amendment 80 Fleet	24
AGA Mothership Fleet	16
AFA Catcher Processors	15
Scallop Fleet	14
Non-AFA BSA I Trawlers	13

Figure 6.2: Southwest Alaska Fisheries Value, Landing Trends, and Permit Usage
Source: National Marine Fisheries Service



Resources

Figure 6.3: Vessels in Southwest Alaska
Source: National Maritime Fisheries Service

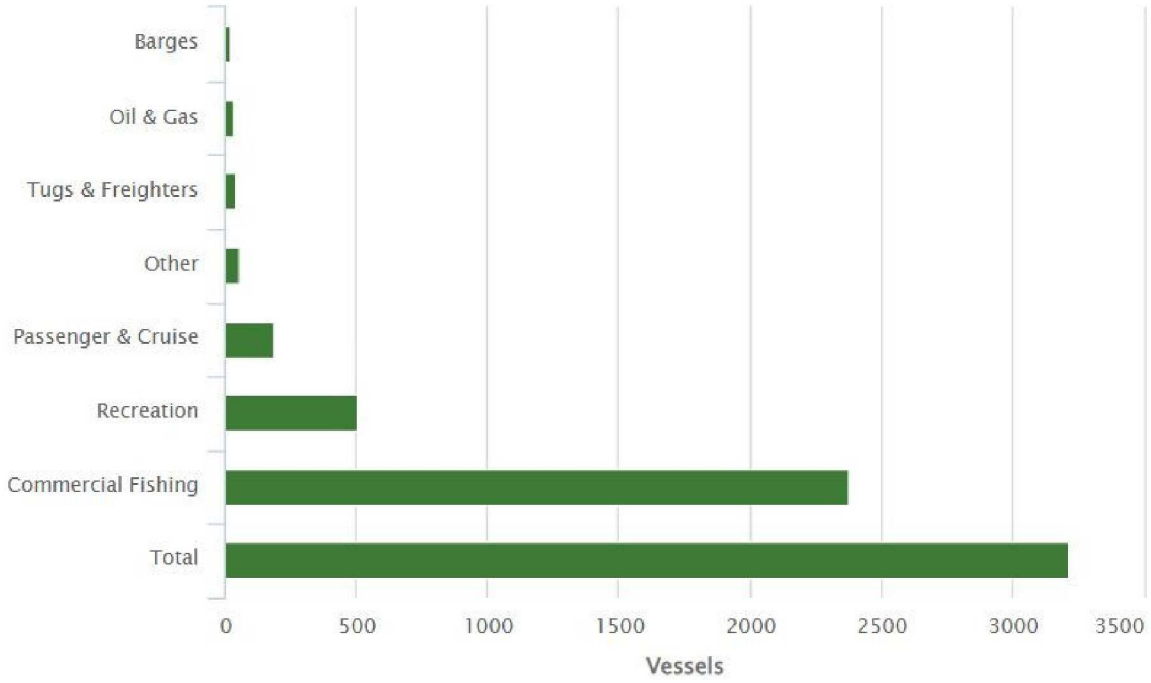
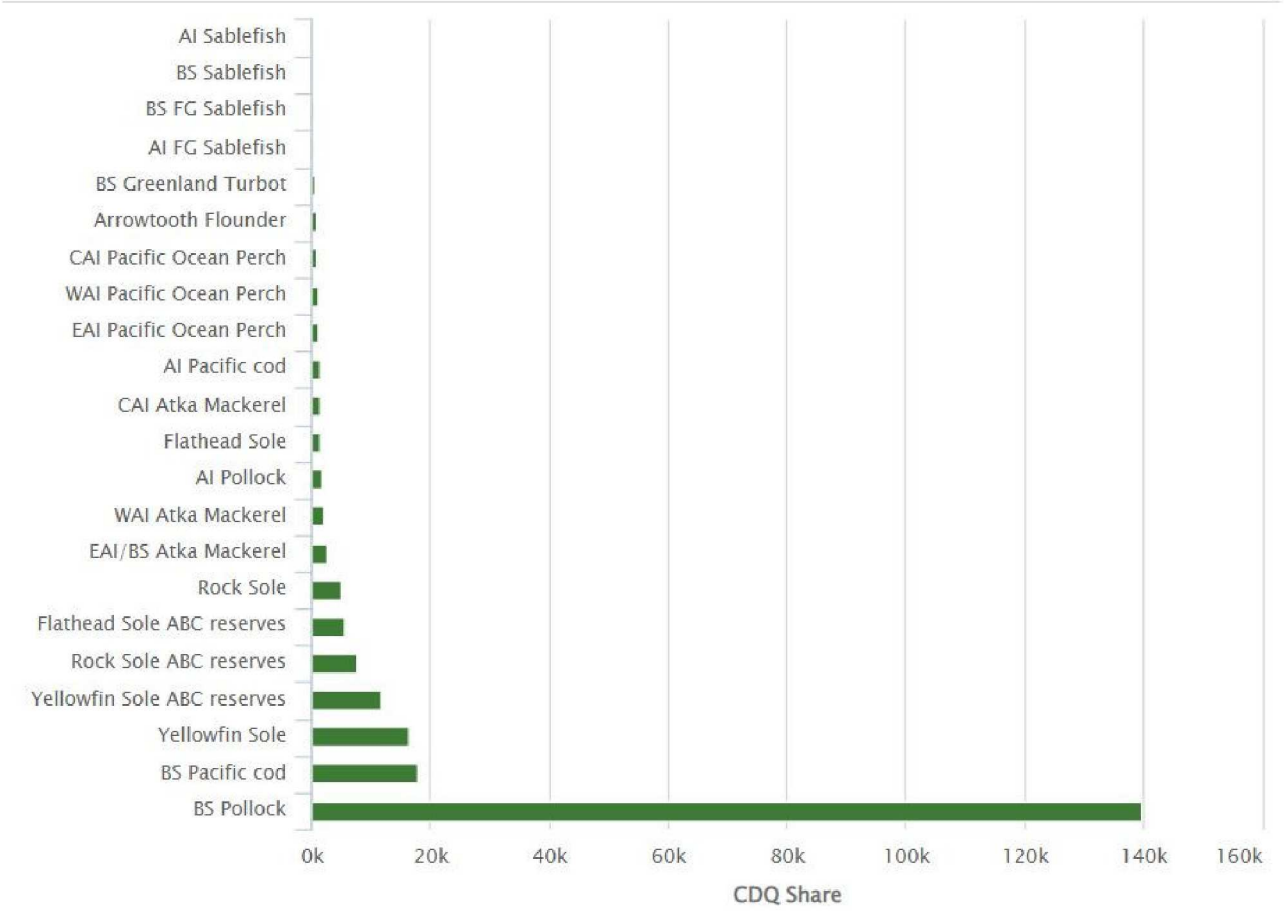


Figure 6.5: Southwest Region CDQ Quotas for Select Fish Species
Source: Community Development Quota Program (CDQ)



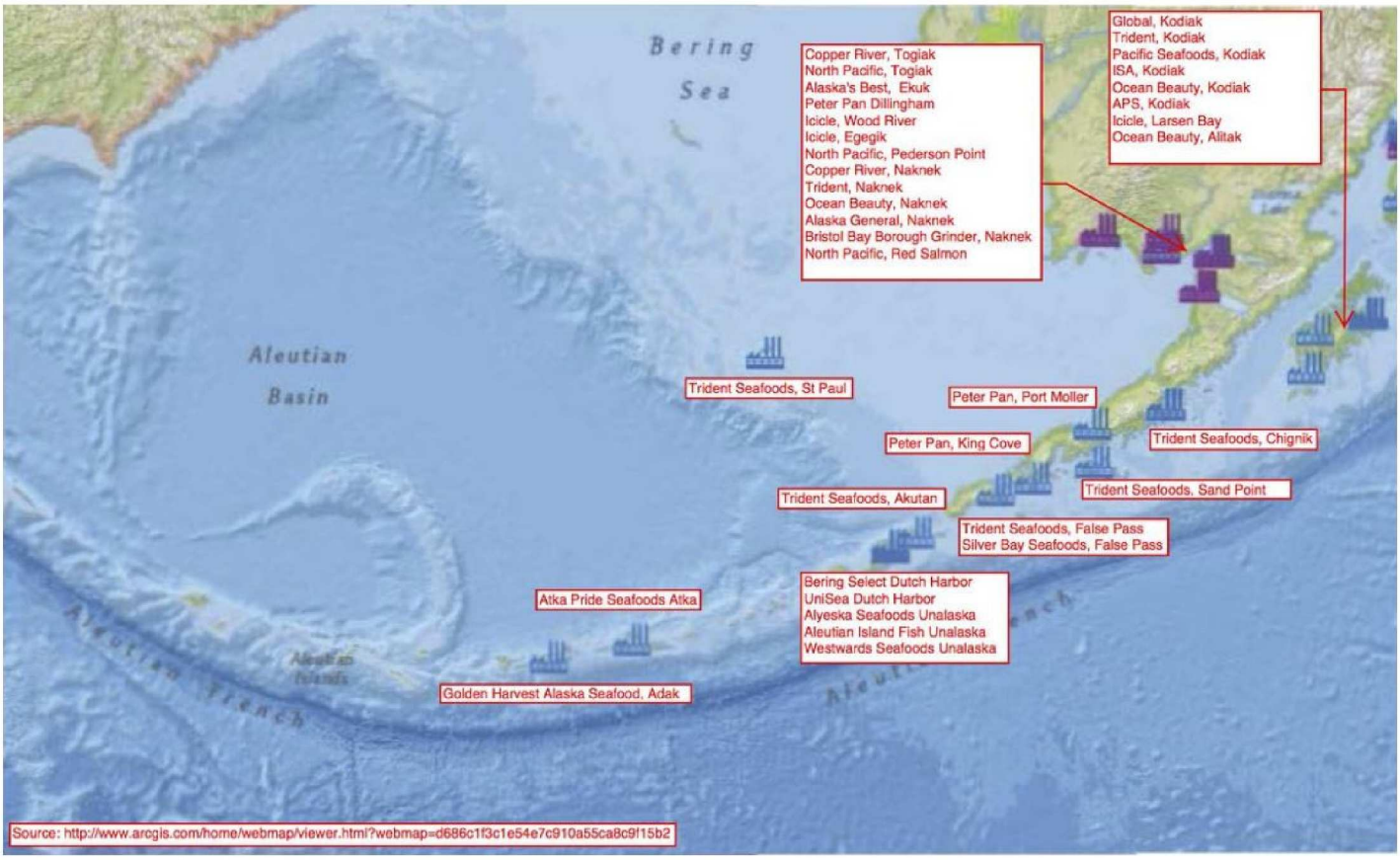


Figure 6.6: Seafood processing plants employing over 100 workers, Source: Trident, Icicle, and Peter Pan Seafoods

Subsistence

Subsistence, defined as the customary and traditional uses of wild foods and resources, is an important aspect of the culture and economy of Southwest Alaska. Subsistence resources account for a substantial and vital portion of all economic activity and value in many of the communities in the region. Subsistence enhances food security in rural communities where opportunities for year-round employment in the cash economy are limited. Engaging in subsistence practices can supplement earnings from the cash economy, serves as an alternative to public assistance, and mitigates the impact of the extreme seasonality. Along with being a vital part of the economy, engaging in subsistence is a vital part of the culture of many southwest communities and serves as a way for people to share and learn about their culture. Subsistence surveys are conducted sporadically which creates challenges for presenting data. As such, no data on subsistence is presented here.

Mining

The Southwest region has rich mineral wealth due to its history of volcanism. However, much has remained inaccessible due to the harsh climate, high energy costs, limited transportation infrastructure, and with one large mine, the Pebble Project, concerns about resource conflicts between a nonrenewable mineral and the renewable salmon resource. Interest in the region's minerals has increased over the past decade. According to a 2012 report by the Alaska Miner's Association, over half (52%) of mining expenditures in Alaska were made in the Southwest Alaska ($137 million). Mining has the potential to help diversify the regional economy if the correct balance can be made for responsible development.

Figure 6.7: Mines and Points of Geologic Interest in Southwest Alaska,
Source: State of Alaska Department of Natural Resources, Alaska's Mineral Resources (2012, Updated)

Oil & Gas

The region has offshore oil and gas deposits in the North Aleutian Basin, although a leasing schedule has not been announced to sell development rights as of 2019. Given the geography, potential resource conflicts and the long-term headwinds against OCS development, it is unlikely that this resource will be developed in the near-future.

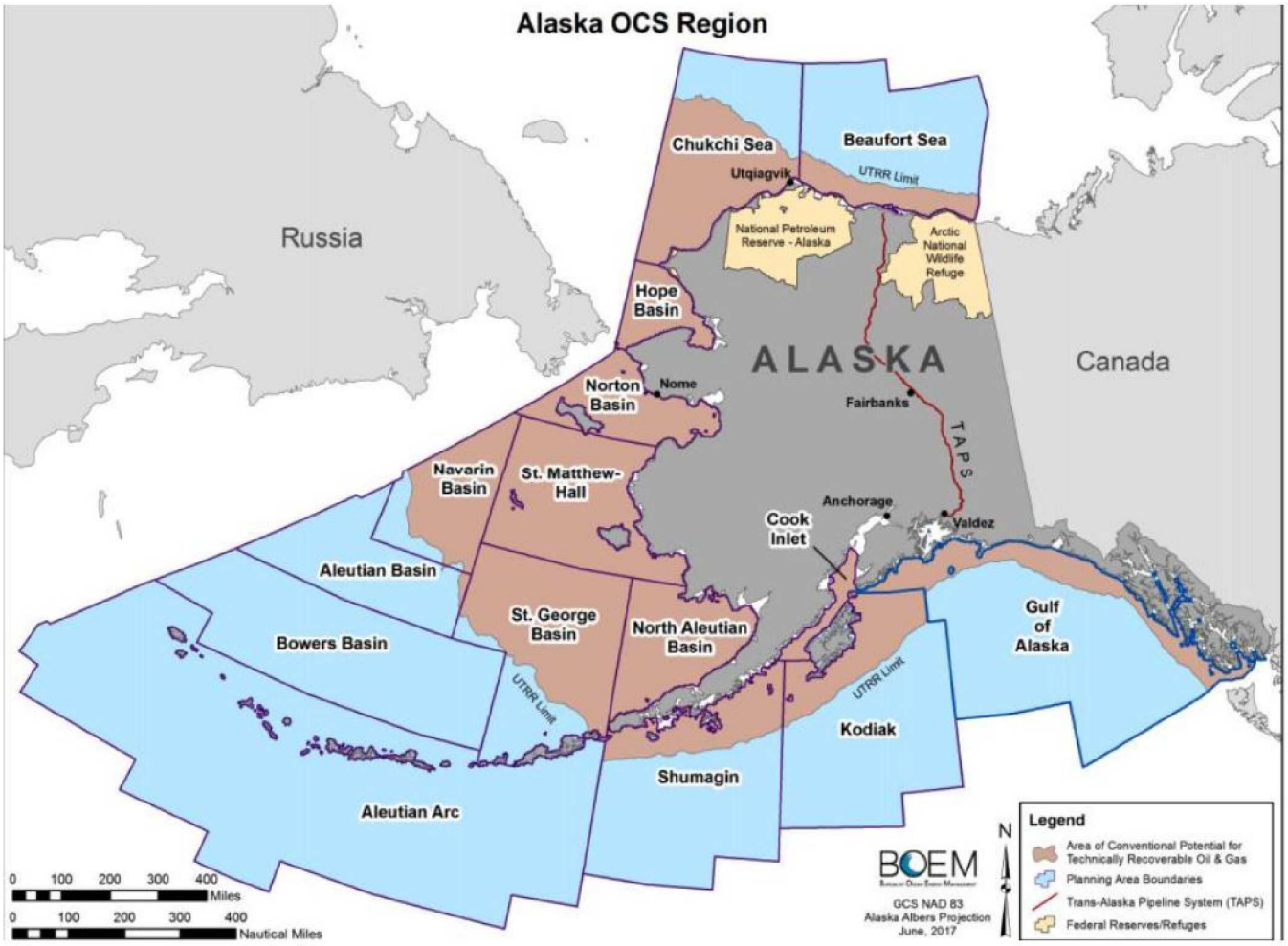


Figure 6.8: 2016 Assessment of Oil and Gas Resources: Alaska Outer Continental Shelf Region, Source: US Department of the Interior, Bureau of Ocean Energy Managements

Tourism

Compared with the rest of the state, tourism growth in Southwest Alaska is very modest. Higher costs, complicated travel logistics, and a limited transportation infrastructure impedes visitation and tourism development in the region. However, recent interests and investment in tourism are encouraging. In 2012, the Alaska Partnership for Economic Development (APED) recognized that tourism was a growing industry in Alaska with considerable potential for additional growth.

Using the 2017 Alaska Department of Labor data, APED compiled information on the tourism cluster, including the distribution of tourism jobs around the state. The report concluded that the tourism industry employs approximately 2,177 people in Southwest Alaska, which is about 5 percent of the total tourism sector employment for the state. Figure 6.9 shows the approximate number of jobs per business type that are directly and indirectly related to tourism in the region

The Alaska Department of Commerce, Community and Economic Development's (DCCED) 2011 Alaska Visitor Statistics Program (AVSP) provides some interesting insights about tourism in Southwest Alaska. It should be noted that the AVSP report includes the Yukon-Kuskokwim region, which is not within the SWAMC region.

Figure 6.10 shows that two-thirds of visitors to the Southwest region were visiting for Vacation or Pleasure. Figure 6.11 shows the amount of visitor spending in the region during the 2016-2017 season.

Figure 6.9: Tourism Related Jobs in Southwest Alaska
Source: Alaska Department of Commerce

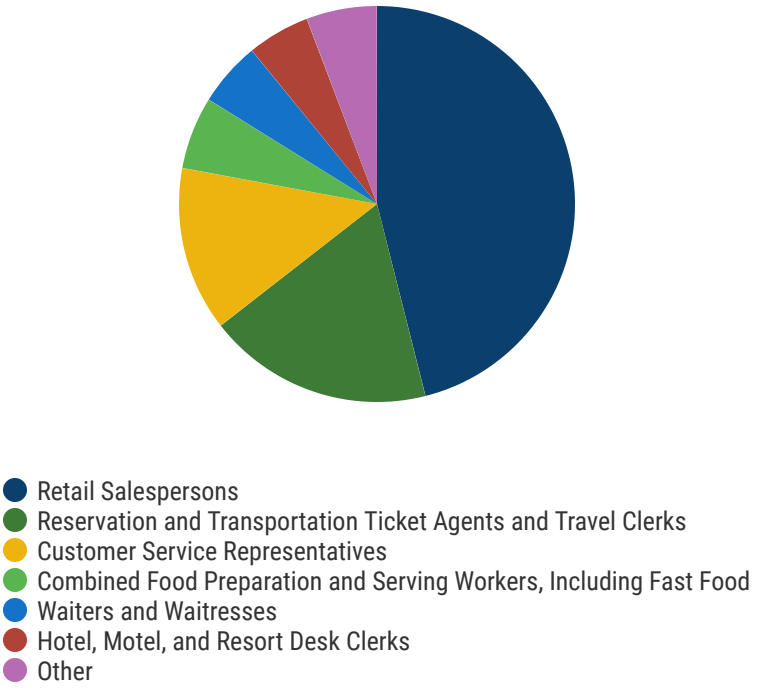
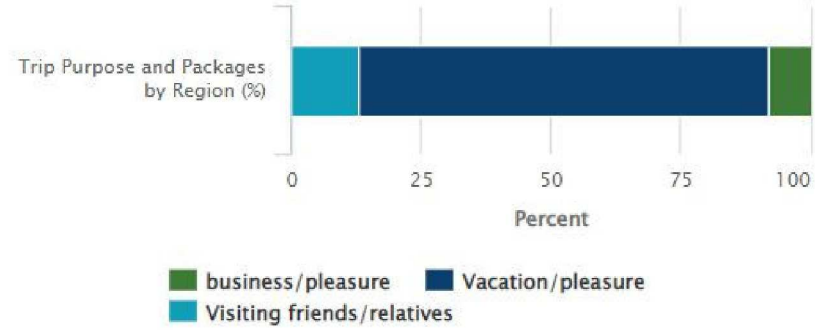


Figure 6.10: Visitors to Southwest Alaska by Trip Purpose
Source: Alaska Department of Commerce



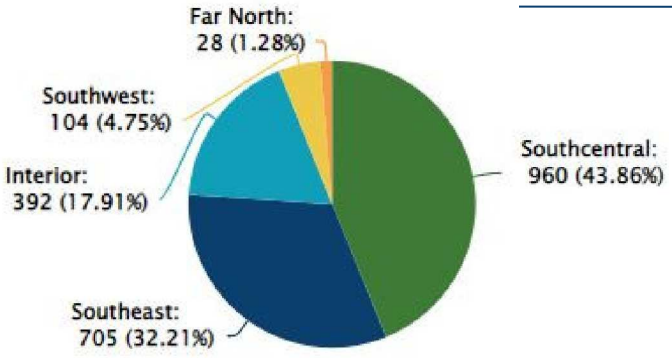


Figure 6.11: Total Visitor Spending by Region (In Millions of $)
Source: Alaska Department of Commerce

SWOT Analysis

(Strengths – Weaknesses – Opportunities – Threats)

Strategic evaluation requires assessing economic advantages, Strengths (S) and Opportunities (O), and considering how to mitigate disadvantages, Weaknesses (W) and Threats (T). A SWOT analysis helps quantify factors affecting economic potential, and points actions towards achieving SWAMC's mission. The analysis addresses economic resiliency to ensure long-term success, viability, durability, and resiliency in the face of change. Southwest Alaska's rich marine resources, strategic but limited infrastructure and people are the foundations of the region's economy. SWAMC's SWOT analysis has been conducted on the basis of these three pillars, resources, infrastructure, and people.

Resources

Relative Advantages

Strengths	Opportunities
☐ Strong Seafood Industry ☐ High Ocean Productivity ☐ High Mineral Potential ☐ Natural Environment ☐ Tourism Potential ☐ Geostrategic Location ☐ Stranded Energy Potential	☐ Increased Resident Resource Ownership ☐ Increased Seafood Products Demand ☐ Increased Tourism Demand ☐ Increase Minerals Demand ☐ Increasing Arctic Demand
Weaknesses	**Threats**
☐ Extreme Weather ☐ Resource Fluctuations ☐ Strong Resource Seasonality ☐ Lack of Value-Add Manufacturing ☐ Resource Development Conflict	☐ Impacts of Climate Change ☐ Impacts of Competing Products ☐ Impacts of Federal EPA Regulations ☐ Impacts of Bycatch ☐ Impacts of Resource Conflict ☐ Impacts of Geopolitics ☐ Competition for Eco & Adventure Tourism ☐ Contamination of Soil and Groundwater

Resources - Internal Strengths

Seafood Industry – The commercial fishing industry harvests between 5-6 billion pounds each year from Alaska waters, over 60% of all US domestic harvest. Of the top fishing ports in America, Alaska is home to four of the top 10 by volume, and 6 of the 10 by value. [1] The majority of Alaska landings occur in state and federal waters in the SWAMC region, although immense value comes from high value halibut, salmon and shellfish harvested in state waters. See Figure 6.2 in Resources.

Ocean Productivity – As productive as the wild harvest fisheries are, the ocean has a much higher carrying capacity to sustainably produce new products. The absolute limit is uncertain, although the State of Alaska has pledged the goal of growing the mariculture industry to a $100 million industry by the mid-2030s. With most of Alaska's coastline, underutilized protected waters, and existing seafood infrastructure, the region is poised to capture a substantial portion of this value. [2] See Table 2.1 Southwest Alaska Area by Boroughs and Census Areas.

Mineral Development – Rich mineral deposits include the Pebble Mine, in addition to many other identified and speculative deposits. Given concerns of resource conflict the development of large deposits remains speculative. [3] There is a 5% confidence interval for up to 33.72 trillion cubic feet (tcf) of gas and over 2 billion barrels of oil (bbl), it is unlikely these resources will be developed given low confidence, energy alternatives, and competition with existing resources. [4]

Natural Environment - Dramatic mountains, vast and numerous fresh-water lakes and rivers, wetlands, forests, mysterious island archipelagos, volcanoes and productive ecosystems with abundant natural wildlife create demand for outside visitors to explore the region. The mountains, rivers, lakes, wetlands, forests, archipelagos, volcanoes and wildlife in the region also help shape the identity of communities and provide subsistence opportunities for many residents. See Figure 2.3 outlining the topographic features of Alaska.

Tourism Development – The national park system includes Lake Clark National Park and Preserve, Katmai National Park and Preserve, and Aniakchak National Monument and Preserve, in addition to national wildlife refuges and national historic landmarks. State parks including the largest state park in the country, Wood-Tikchik State Park at 1.6 million acres also provide opportunities to grow tourism. [5] Statewide Tourism economic output was up 32% to $4.5 billion in the decade preceding 2017, 5% of which is made up of sales within the southwest. Visitors stay longer in southwest Alaska, for an average of 14 days which is double the State average and spend more. The most popular activities were wildlife viewing, fishing, cultural activities, and hiking/nature walks. [6] See figures 7.1, 4.1, 4.6, and 4.9 Outlining Geostrategic Location on Map, Air and Plane Transits, and Animal Migrations.

Geostrategic Location – Located in the geostrategic location of the North Pacific between Asia, North America and the Arctic, air and marine superhighways direct the flow of commercial aircraft and vessels moving goods, services and people through Southwest Alaska to every major region of the world. Six airlines pass through airspace in the region daily. Roughly 4,443 vessels transit between Asia and America on an annual basis, and as the Arctic opens, traffic through the Bering Sea has reached a high of 484 vessels, up 123 percent from 2008-2012. [7] The geostrategic location of Southwest Alaska has been of increasing military importance lately as Asian Powers maneuver for geopolitical prestige, the Russian Empire flexes muscle and many nations jockey for access to the Arctic. [8][9][10] Southwest Alaska is also biologically strategically positioned between the North Pacific and Arctic Oceans, where nutrient rich ecosystems are uniquely plentiful and diverse in marine fish, bird and mammal species. The Pribilof Islands of Saint Paul and Saint George are placed on important migration routes for nearly all fish, birds and mammals that populate the rich Bering Sea.

Stranded Energy Potential – The Alaska Energy Authority's Renewable Energy Atlas of Alaska identifies many Gigawatts of power potential – Wind, Tidal, Ocean, River, Hydro, Geothermal, Biomass and to a lesser extent Solar – available to Southwest Alaska. The convergence of the North Pacific and Bering Sea creates massive potential for ocean and tidal energy. The Aleutians are the epicenter of many North Pacific storm systems that move eastward along the Aleutians, hitting Bristol Bay and Kodiak regions, providing an amazing source of wind power. The collision of the Pacific and North American Plate creates geothermal energy. [11]

Resources – External Opportunities

Increasing Resident Resource Ownership – The local population may be more willing to commit to long-term investment in the region. Limited access to capital, the largest barrier to becoming permit holders or owners, could be overcome through management and financial policies. For example, Bristol Bay Economic Development Corporation currently offers a permit buy-back program to increase the number of locally owned permits. [12]

Increased Seafood Products Demand – As the world population grows, and becomes relatively wealthier, demand for high quality, sustainable protein sources provided by seafood are likely to increase. [13] See Figure 6.2 Outlining Increased Demand and Catches of Seafood.

Increasing Eco & Adventure Tourism Demand – The vast and dramatic landscape that creates difficulties for transportation linkages, add to the region's remoteness, mystique, abundant natural wildlife and overall natural beauty and are a tourism draw, especially for recreational fishermen, adventurers and travelers looking for ecotourism opportunities. Growing classes of newly wealthy are looking for new and exciting adventures and may be willing to spend extra money for a unique experience. [14] Adventure tourism is growing as well – the market rose 65 percent between 2009 and 2012. [15] Southwest Alaska's abundance of public lands and proximity to national and state parks also make it a desirable location for U.S. and international travelers. See Figure 6.10 Outlining Increasing Eco & Adventure Tourism Demand.

Increased Minerals Demand – Strained traditional sources and concerns around exploiting third-world countries for minerals is driving increased demand for minerals from well managed resource supplies like those found in Alaska. [16]

Increasing Arctic Demand – The Arctic and OCS represent some of the least understood environments on earth, and thus a great opportunity for new resources and exploratory possibility, and as Arctic Sea Ice retreats, there is increased likelihood for Arctic Resource Development, which would be served by ice-free points in Southwest Alaska.

Resources – Internal Weaknesses

Extreme Weather – While Southwest Alaska is relatively warm by Alaska standards, high winds are prevalent throughout the region, with the highest winds in the Aleutians and Gulf Coast. The low pressures that generate wind also create a prevalence of low cloud cover, fog, and precipitation. This combination of wind and obstructed visibility from precipitation (often rain) places additional strain on the transportation networks, reducing service and increasing costs of operation. See Figure 2.4 Outlining Extreme Weather and Climate Normals.

Resource Fluctuation – Natural resources experience natural and commodity-based fluctuations on biological and economic cycles. Seafood, the economic engine in the region, is subject to these forces which exposes the regional economy to constant uncertainty. [17][18]

Resource Seasonality – Natural resources are known for their seasonality. These cycles drive industry and employment in Southwest Alaska. Seasonality makes scaling industrial processes difficult, and employees suffer from uneven revenue streams. [19]

Resource Value-Adding – Alaska's fisheries resources are fully utilized, and because the resource is managed for long-term returns, short-term extraction is effectively capped. Over the long-term, new commercial fisheries resources are not expected to proliferate, which leaves only two means of incorporating new money into the regional economy: increased ownership, which allows resource rents to flow back to the region and increasing value for each unit produced. Due to the maturity of the fishery and high costs of entry, increased local ownership opportunities are limited. Fish access rights are expensive for fishermen, making it difficult for the next generation to enter the industry. When permits are owned by nonresidents they contribute less to the regional wealth because that revenue generally leaves Southwest Alaska. Due to the high costs of energy for operations including capital mobilization, utilization, and transportation, value-added processes are limited.

Resource Conflict – Abundant resources can lead to conflict for best use and concerns of trading one resource for another. The Fisheries Managers focus on long-term sustainability of the fisheries and balance allocation between different fisher user groups. The proposed Pebble Mine claims to be one of the biggest copper, gold, and molybdenum mines in the world, and brings the potential to diversify the regional economy. However, concerns from the fisheries sector about developing mines at the expense of fish (and culture) has left the project's future uncertain. [20]

Resources – External Threats

Impacts of Climate Change – Climate change risks communities, businesses and individuals losing access to key fisheries resources for commercial, sport or subsistence groups. Ocean Acidification poses a great risk to Southwest Alaska's fisheries, in addition to other ecosystem changes that cause species migration or decline due to alterations in the food-web, currents, water temperature or chemical make-up. [21]

Impacts of Competing Products – Wild harvest fisheries compete with farmed fish products and other proteins for market share, which ultimately determines the health of the local economy. [22]

Impacts of Environmental Protections – While often necessary, protections for the natural environment can put additional burdens on local industry. For example, the Steller sea lion was listed as an endangered species in 1990 under the Endangered Species Act. Since its listing, various restrictions and regulations on fishing have had a negative impact on the region's fishing industry. [23]

Impacts of Bycatch - Ineffective use of resources leads to lost economic potential. While very few stocks in Alaska are classified as overfished, and the general consensus is that Alaska manages stocks for long-term sustainability, resource conflicts still arise as is evidenced in periods of low abundance, and further conflicted unintentional harvest of non-target species, or bycatch. Continued conflict over best use of the resource will perpetuate ineffective use of the resources. [24]

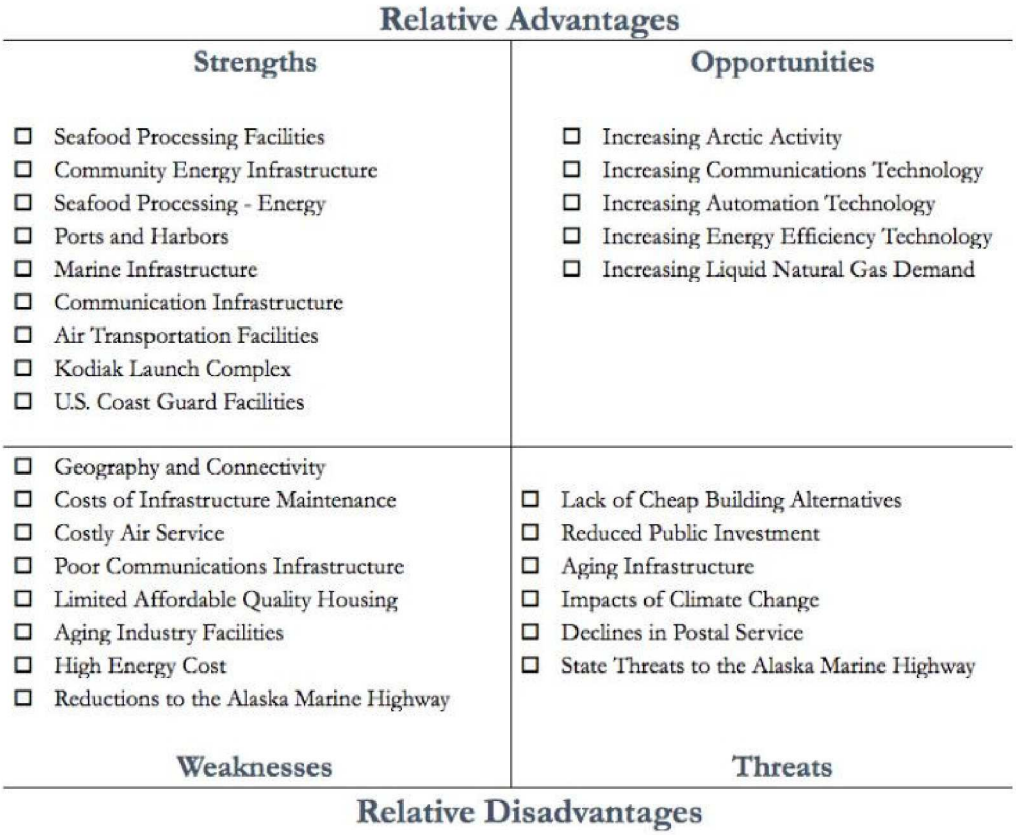
Impacts of Resource Conflict – Existing and proposed mining projects have the potential for large-scale spills or accidents, which could affect natural resources such as fish habitat. [25]

Impacts of Geopolitics – Southwest Alaska resources are destined for global destinations, particularly seafood. Global trade tension and other geopolitical forces can affect prices and access to important markets. [26]

Competition for Eco & Adventure Tourism – Southwest Alaska is contending in what is becoming an increasingly competitive international market for adventure travel and outdoor activities. Simultaneously, other adventure destinations in locations such as Chile, Ecuador, Japan and Iceland are growing in popularity. [27]

Contamination of soil and groundwater – There are numerous examples of pollution, primarily on land, that have the potential to contaminate groundwater. Some of these sites would be classified as brownfield sites and may require remediation. Many sites are related to military installations and date back to World War II. Other sites are related to communication installations. The most recent concern is with PFAS contamination at airports and other locations.

Infrastructure



Infrastructure - Internal Strengths

Seafood Processing – Eighteen communities offering land-based processing facilities, and 22 vessel-based processors support the logistics of moving product from mobile vessels to global markets. [28] According to Trident's website, the Akutan shore plant is the largest seafood production facility in North America, processing over three million pounds of seafood daily and housing up to 1,150 employees. Saint Paul is home to the largest crab processing facility in the world, processing 500,000 pounds of crab daily and employing up to 400 workers in peak season. [29] Unisea's processing facility in Dutch Harbor processes pollock, crab, halibut, cod and more, and employs up to 1,200 employees. [30] Icicle Seafoods also has shore plant facilities in Egegik, Larsen Bay and Wood River, which collectively employ about 1,000 employees. [31] Peter Pan Seafoods has major processing facilities in King Cove, Dillingham and Port Moller, employing 500, 320 and 140 people respectively during peak production periods. [32] Kodiak Island has 13 state registered fish processing facilities, ranging in size from family owned boutique smokehouses to large scale industrial operations capable of processing 1.5 million pounds of fish per day. [33][34] In all, Kodiak Island employs 1,856 fish processor workers in peak season. [35] The floating Catcher-Processor Vessels that operate in the region are some of the most sophisticated commercial vessels in the world.[36] See Figure 6.6 Outlining Seafood Processing Infrastructure.

Community Energy – The combined installed energy capacity in region is 136 Megawatts (MW), and sub regionally: Aleutians – 38 MW, Bristol Bay – 28 MW, Kodiak – 70 MW. Aside from the Kodiak grid, which boasts 23 MW of hydro, 9 MW of Wind, and 3 MW of other (batteries and fly wheel), the region is primarily powered with traditional hydrocarbon fuels. This installed energy capacity is a great asset as communities are strategically situated throughout the region. The exception is the far Western Aleutians, where only four communities span an island chain over 750 miles between Nikolski and Shemya, a military facility near the end of the island chain at Attu. [37] See Figure 4.17 Outlining Community Energy Infrastructure.

Seafood Processing Energy – Substantial energy capacity exists with private micro-grids owned and operated by seafood processing companies. In most cases the capacity at these facilities exceeds that of the local utility and serves the purpose of providing control over access to power which is critical to value-added processing. The exception to private power grids are the communities of Kodiak, Naknek/King Salmon, and Unalaska where the community provides power to processors over the community energy grid, although even in these communities, the processing facilities maintain the means to produce their own power. Throughout the region, no less than 14 micro-grids exist that are solely owned and operated by private fish processing companies. [38]

Seafood Harvest (Federal) – Federal water fisheries are managed by NOAAs National Marine Fisheries Services and include mostly larger vessels required to travel further from port, and include the floating processor fleet, the majority of which operate in the Gulf of Alaska and Bering Sea within the Southwest Alaska region. Ninety-four floating processors represent the Amendment 80, American Fisheries Act and Freezer Longliner fleets. One hundred and ninety-one trawl catcher vessels catch the majority of fisheries volume delivered to shore-based and floating processors. Other important federal fishing vessels include longline and pot vessels, which are better detailed in the State data below. [39] See Figure 6.4 Outlining Seafood Harvest Infrastructure in Federal Waters.

Seafood Harvest (State) – The State of Alaska, Commercial Fisheries Entry Commission (CFEC), manages registered vessels in Alaska including many of the vessels operating in commercial fisheries. The Home Port designation is self-reported, with many vessels reporting non-Alaskan ports; there are 1,049 vessels registered to a non-Alaska Home Ports but registered to fish in Alaska. There are 1,200 vessels between 32’ and 295’ representing mostly commercial fishing vessels reporting Home Ports in Southwest Alaska. There are 634 32’ vessels, representing the Bristol Bay drift fleet. There are 370 33’-57’ vessels representing the diversified small boat fleet. There are 62 58’ Super-58s, which represent an important diversified vessel fishing many species from the Bering Sea to California. There are 133 vessels over 58’ which mostly represent federal fisheries in waters between 3-200 miles from shore. [40] See Figure 6.4 Outlining Seafood Harvest Infrastructure in Federal Waters.

Pleasure craft – The State CFEC record all registered vessels and their Home Port. There are 830 vessels between 7’ and 31’ which likely participate in Sport and Personal Use Fisheries. [41]

Strategic Ports and Harbors – Unalaska has the westernmost container terminal in the state and serves as the staging area for supplies and fuel to the Bering Sea marine fleet and many communities in Western Alaska. In 2006, the Port of Dutch Harbor (Unalaska) saw almost 1.2 million short tons of freight move through, which includes both foreign and domestic receipts and shipments. Unalaska is only one of two international ports in Alaska, serving export markets to Asia. [42] The Port of Kodiak is a major logistical center and important domestic port which serves Kodiak and many other small coastal Gulf communities to the west. [43] See Figure 6.1 Outlining the top grossing ports in the US, 6 of which are in Southwest Alaska.

Marine – The marine infrastructure of Southwest Alaska supports one of the richest fisheries ecosystems in the world. Six of the top ten fishing ports, by value, are located in the SWAMC region. Strategically located ports capable of supporting harvesting and processing of fisheries resources spread from Kodiak Island to Adak, St. Paul, and Bristol Bay. This includes ports of refuge every few hundred miles. In addition to providing the lifeline to the area's fisheries, the marine infrastructure supports other vital community services ranging from basic supply of food, shelter, fuel, and marine supplies to specialized services. Twenty-two communities offer harbor facilities capable of servicing and supporting harvest vessels, and offering supply stations for food, fuel, gear, and all aspects of support necessary to effectively execute the commercial fisheries of the Western Gulf of Alaska, Aleutian Islands, and Bering Sea. See Figure 6.1 Outlining Marine Infrastructure.

Communication – Adequate communication infrastructure is critical for successful natural resource management, educational advantages, and better connection to domestic and global networks, with an overall effect of more opportunity and a better quality of life. Fiber optic cable connects Kodiak, home to 45 percent of the regional population, with Bristol Bay which hosts a hybrid fiber/micro-wave system reaching another 25 percent of the population; the Alaska Peninsula, and Aleutian and Pribilof Islands are serviced by satellite. Expanded communication infrastructure has enhanced and improved the productivity of the region to create new businesses and increase the speed of information transfer. The increasing availability of the internet has opened up access to shopping and business opportunities. For example, Amazon Prime has become a frequently used means of shipping inexpensive globally available supplies. See Figure 4.12 Outlining Communication Infrastructure.

Air Transportation – Air transportation is the primary means of regional travel; all communities in the SWAMC region have capabilities to receive air service, ranging from dirt runways to some of the largest runways in Alaska (e.g., Cold Bay at 10,180 ft., Adak at 7,790 ft., Shemya at 10,004 ft., King Salmon at 8,901 ft. and Kodiak at 7,880 ft.). [44] These runways provide occasional emergency landing services for the airline superhighway over the North Pacific. Additionally, a service industry for supporting and maintaining small aircraft exists in Dillingham, King Salmon, Cold Bay and Kodiak. See Figures 4.8, 4.9, 4.10, and 4.11 Outlining Air Fields Infrastructure, and Locations.

Pacific Spaceport Complex – The Alaska Aerospace Corporation (AAC) maintains the Pacific Spaceport Complex on Kodiak Island. AAC works with both national and commercial organizations, primarily doing satellite launches. The Launch Complex brings direct and indirect benefits to the region through local contracting, local hire and increased visitation to the region. The Pacific Spaceport Complex offers the advantage of location, with a wide-open southern launch corridor and an unobstructed down-range flight plan over relatively open-ocean. The location is ideal for launching expendable launch vehicles with payloads requiring low-Earth polar or sun-synchronous orbits. [45]

US Coast Guard – The United States Coast Guard Kodiak base is the largest in the Pacific Area, with a crew of 85 officers and 517 enlisted personnel on 23,000 acres. The Air Station operates MH-60 Jayhawk and MH-65 Dolphin helicopters, and the HC-130 Hercules fixed-wing aircraft, in addition to three military class Cutters, Munro, Spar, and Alex Haley and an Aid to Navigation Team responsible for 71 sites throughout Alaska. The station's primary mission is search and rescue in a 4 million-square-mile area of responsibility covering the Gulf of Alaska, Bristol Bay, the Bering Sea, and Alaska's Pacific coast. [46]

Military Strategic Location – Shemya Alaska offers a military strategic location. It currently houses the COBRA DANE L-band large phased array radar system, monitoring activity throughout the Pacific Ocean. [47] Eareckson Air Station, is a United States Air Force military airport located on Shemya Island in the Aleutians. The active US Air Force Station closed in 1994 and is owned and operated by the USAF 611th Air Support Squadron at Elmendorf AFB. The Department of Defense plans to invest over $278 million to operate, maintain, and modernize its Cobra Dane radar system—which helps defend against incoming missiles and tracks space objects such as satellites and debris. [48]

Infrastructure – External Opportunities

Increasing Arctic Activity – A book called The Fast-Changing Arctic discusses emerging opportunities: resources, security and science. Research from the Marine Exchange of Alaska shows a steadily increasing number of Vessel Transits between the Bering Strait and increasing periods of ice-free water. [49][50]

Increasing Communications Need – A broadband internet connection is increasingly being seen as a basic human right in order to participate in the modern global economy, as more services and networks for good are supplied through a high-speed digital connection. See Figure 4.12 Outlining Services and Good Available Through Internet.

Increasing Automation Technology – Typically, primary processing occurs locally to create a minimally viable shelf-stable product, where additional processing produces the retail product. Generally, primary processing doubles the value of the resource, and second processing (retail) doubles it again. Traditionally, the high local cost of energy and labor, dictated minimal local processing, although increases in automation may change this dynamic. Increasing value-added production locally will increase the money flowing to the Southwest Alaska economy a result of the raw resource moving up the value-chain.

Increasing Energy Production Technology – Improving renewable energy technology means that energy investments are becoming more feasible, increasing the likelihood of unlocking stranded energy potential. See Figure 4.17 Outlining AEA Renewable Energy Data.

Increasing Liquid Natural Gas Demand – The natural gas supply has expanded dramatically, while the costs have fallen. Infrastructure for delivering natural gas is flourishing. This increases the opportunity for accessing LNG as a cheap energy resource for Southwest Alaska. See Figure 4.17 and Figure 6.8 outlining the increasing demand and infrastructure for LNG.

Infrastructure – Internal Weaknesses

Geography and Connectivity – The lack of overland connectivity limits transportation options to air and sea, raising the cost of moving goods, services and people. Vessels are an efficient means of moving goods, although scaling capabilities to meet needs in small sized communities create further inefficiencies. While vessels are well equipped to move a large quantity of any one item, using vessels to serve communities with many different needs provides for inefficient designs that would be otherwise more capable. The ocean south and east of the Aleutians is ice-free year-round, although sea fast ice forms in Bristol Bay as far south as Egegik, [51] including the Pribilof Islands, completely eliminating the option for marine transportation. The only other current transportation alternative is flying. Flying is fast and flexible, although it is also very expensive, and does not effectively move bulk goods. Air service is constrained by lack of economies of scale, long distances, small populations, and small air strips allowing for only small aircraft to service the community. There is no possibility of an overland route being established to the Southwest Alaska region in the foreseeable future. See Figure 2.3 Outlining Regional Topography and Figures 4.2-4.5 on Challenges to Transportation.

Maintenance – The limitations to regional transportation linkages precipitate that moving, establishing, and maintaining infrastructure is relatively expensive and slow in comparison to most other regions. Small populations mean there are fewer people and thus higher costs per user of infrastructure, which is especially challenging for public use infrastructure that may not make sense from a market perspective but is critical from a community perspective. Many Southwest Alaska coastal communities have aging infrastructure and limited public funding for replacement due to budget cuts.

Costly Air Service – Southwest Alaska has a small number of airline operators serving the region. Flights are expensive, and service is often unreliable. Of the 66 airports in the region, many have runways that are insufficient in length or width to handle cargo and/or more than eight passenger aircraft. See Figures 4.8 and 4.10 Outlining Transportation Costs and Runway Locations & Lengths.

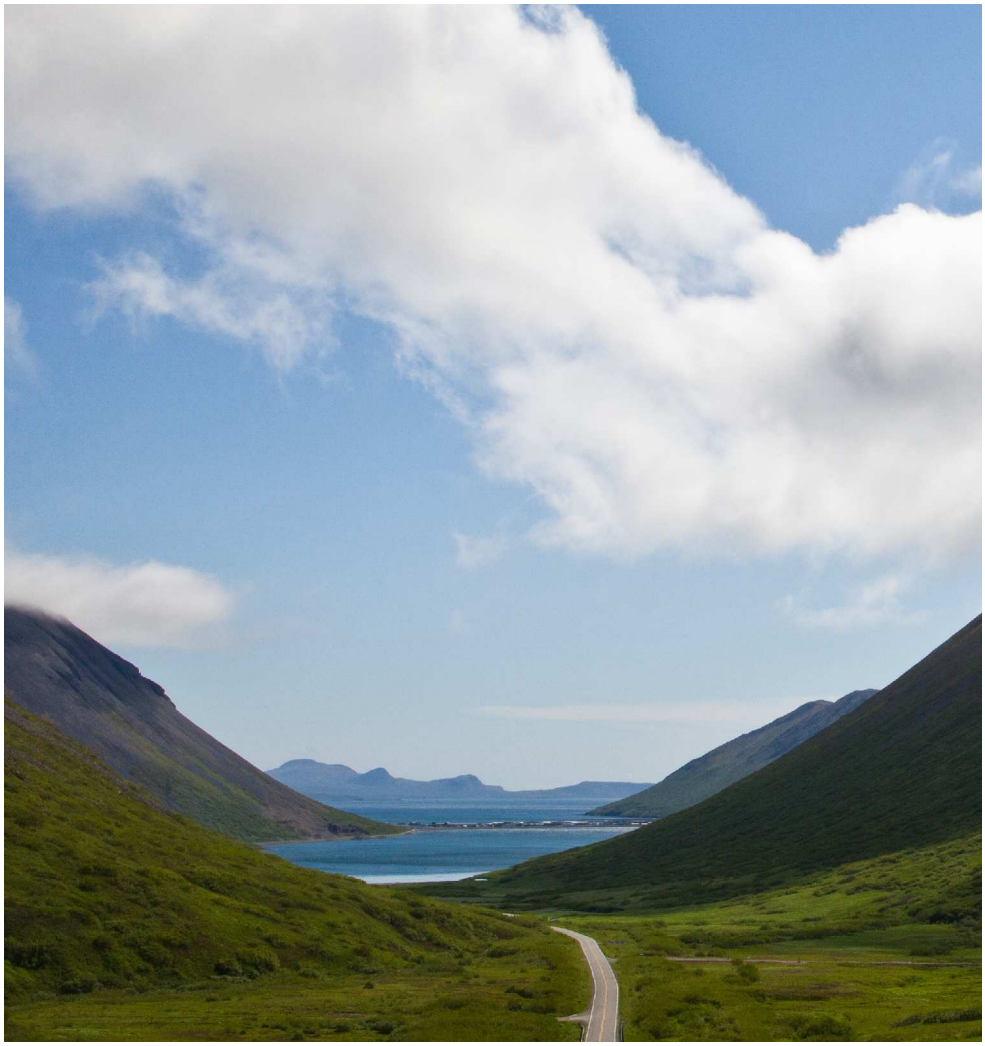
Poor Communication Infrastructure – Cellphones are becoming ubiquitous, in many circumstances replacing landlines as the primary medium of communication. Networks are often strained to provide reliable services, particularly for downloading over the cell network. Internet infrastructure has been built out throughout the region, although service is slow and expensive relative to urban service plans. While Kodiak's urban zone is served by fiber optic cable, the Kodiak villages, Alaska Peninsula, and Aleutians/Pribilofs only receive expensive, slow, and unreliable satellite service. The Bristol Bay region is served by a microwave system that is expensive with reduced capacity. Cost are high and service capacity is low in all areas outside of Kodiak's urban zone. See Figure 4.12 Outlining Communications Infrastructure.

Limited Affordable Quality Housing – Housing is expensive to build and maintain, which leads to relatively high levels of overcrowding and aging abandoned and condemned housing stock. In some communities there is land for development, but the cost of construction and lack of funding create barriers to new housing developments. [52][53] See Figure 4.13-4.15 Outlining Housing Stats, Overcrowding, Abandoned, Condemned.

Aging Processing Facilities – The Seafood processing industry in Southwest Alaska has some of the oldest plants in the state; many are decades old and some are over 100-years old. Aged infrastructure adds costs to updating processes that could be more easily implemented in new builds. Facilities were constructed in a period of low diesel prices and energy efficiency was not a concern or priority. As the price of energy rises, the cost of inefficiency becomes more important.

High Energy Cost – Many communities struggle to import energy due to high costs and the logistical challenge of bringing fuel into remote locations. High costs of energy act as a tax on the disposable spending power of local populations and an increased cost of doing business. The cost and technological ability to access stranded energy supplies prevents many local sources of energy from entering the local economy. See Figure 4.16 Outlining Energy Costs.

The Alaska Marine Highway – The Alaska Marine Highway System currently services Southwest Alaska with the M/V Tustumena, the oldest vessel in the State fleet. A replacement ferry has been designed although State funding for new capital and operations costs are at risk due to budget cuts. The State is looking at cuts in service, reorganization, and privatization in an attempt to dramatically reduce or eliminate the substantial subsidization the State now must provide to the AMHS.



Infrastructure – External Threats

Lack of Cheap Energy Alternatives – Current technology is unable to provide the energy needs of Southwest Alaska at a cheaper delivered cost of power than existing energy systems.

Reduced Public Investment – To date a great deal of public expenditure has been invested in regional infrastructure, which may not be the case if public budgets tighten.

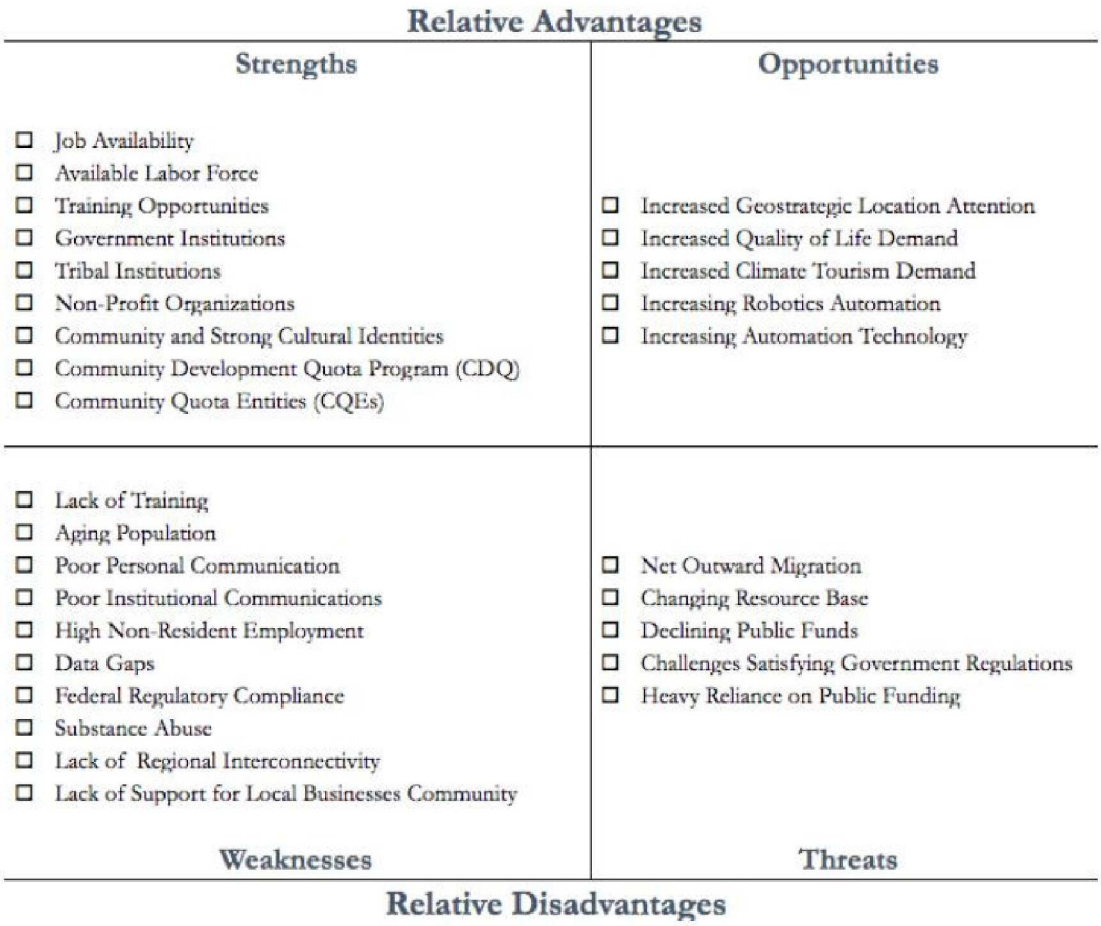
Impacts of Natural Environment – Southwest Alaska's location along the Pacific Ring of Fire means the region is subject to frequent earthquakes and volcanic eruptions that also pose the threat of tsunamis. According to the U.S. Geological Survey and the Alaska Volcano Observatory, 36 of the 41 active volcanoes in Alaska are in Southwest Alaska. According to the Alaska Earthquake Information Center (AEIC) there are over 200 earthquakes with magnitude 4 and greater per year, and about 60 over magnitude 7 in the past 100-years from Kodiak to Attu. While eruptions and earthquakes with magnitudes large enough to cause damage are infrequent, large events do have the potential to negatively impact the region's economy. [54][55]

Impacts of Climate Change – Climate change threatens many coastal communities in Southwest Alaska. Some communities are already struggling with erosion, melting permafrost and flooding as a result of climate change.

Decline of Postal Services - Potential cuts to postal services and rural mail delivery would be catastrophic to the region's economy [56] See Figure 4.11, using the filter to see mail and cargo delivery volumes.

Decline of Alaska Marine Highway System - Reduced funding for the Alaska Marine Highway will mean less revenue from tourism and increased costs to communities. [57]

People and Partnerships



People - Internal Strengths

Jobs Availability – The unemployment rate is lower in some Southwest Alaska communities relative to the State average. Many employers, especially in the resource economies need to import workers because there are not enough available workers. [58] See Figures 3.4 and 3.6 Outlining Employment Statistics.

Labor Force – Communities throughout the region provide a ready and capable workforce. See Figure 3.1 Outlining Demographics.

Training – A system for training and preparing workers exists.

Government Institutions – A framework of local, state, and federal government programs and services to spur economic development to improve living standards exists throughout the region. The large federal and state presence in the region, in the form of land ownership and major facilities, precipitates a large public sector to manage these resources, equating to salaries injecting new cash into the economy. Additionally, a large government sector brings in funds through grants, infrastructure funding, statewide programs and more. There is also an inflow of government transfers tied to Alaska Native corporate dividends, as well as federal subsidies that go to residents that fall below the poverty line.

Tribal Institutions – Alaska has an additional resource of Tribal Institutions, including Tribal Governments, Native Regional Corporations, Native Regional Non-Profits, and Native Village Corporations delivering services, jobs, and investment.

Non-Profit – Interacting as a mediating layer between local, national, tribal and all other aspects of interactivity, the non-profit sector collates data and information to bring additional resources into the regional economy.

Community – Small and islanded communities develop strong interpersonal networks with shared interests and sense of family. People are good at helping each other. This sense of community decreases some costs and increases quality of life.

Community Development Quota Program (CDQ) – The CDQ Program receives about 10% of the Bering Sea Federal fisheries resources to create local ownership of the fishing industry, creating investment in the region. These funds support economic development, education, fisheries, tourism, workforce development and other community development activities and facilities throughout the region. Three of these organizations operate in Southwest Alaska and contribute to in-region investments: Aleutian-Pribilof Islands Community Development Association (APICDA), The Bristol Bay Economic Development Corporation (BBEDC) and the Central Bering Sea Fishermen's Association (CBSFA). [59]

Community Quota Entities (CQEs) – In 2002, the North Pacific Fishery Management Council took action to address the decline in local resource ownership by small, coastal non-CDQ communities and the negative economic impacts of the decline, by allowing 45 Gulf Coast communities to form non-profit corporations called Community Quota Entities. CQEs purchase catcher vessel quota shares and lease the resulting Individual Fishing Quotas to community residents on an annual basis. There are currently 14 SWAMC communities eligible to participate in the CQE program. [60]

People - External Opportunities

Increased Geostrategic Location Attention – Over the past five years there has been a national geopolitical shift with an increased interest in strategy and security to the Asia-Pacific region. Southwest Alaska is strategically positioned and may benefit from increased federal infrastructure, investment and resources as a result of its strategic position.

Increased Quality of Life Demand – In an increasingly crowded, fast-paced and connected world, anxiety among many people is increasing. Within this backdrop, many people find the wide-open spaces and connection to people and the natural world offered by rural Southwest Alaska to be highly-valued. [61][62]

Increased Climate Tourism Demand – As the average global temperature reaches new highs regularly, year after year, people are increasingly traveling to northern climates to escape summer heat waves. Southwest Alaska may benefit from people traveling north. [63][64]

People - External Opportunities

Increasing Robotics Automation – Rural Alaska is synonymous for people overcoming a challenging environment, and often enduring a difficult job for gruelingly long hours. Increasing Automation of Dull, Dirty, Dangerous jobs may increase a desire to live and work in the wilds of Alaska.

Increasing Automation Technology – Advances in autonomous transportation technology has the potential to drastically reduce the cost of life in the region. High transportation costs are one of the major drivers of living costs in Southwest Alaska due to lower material costs and lowering travel barriers for residents, which would result in more people choosing to live in Southwest Alaska.

People – Internal Weaknesses

Lack of Training – Many in-region jobs are outsourced to a non-resident workforce. To remain competitive, Alaska's maritime sector needs to ensure Alaskans are qualified to earn well-paid positions and increase the number of Alaskans in this workforce by addressing gaps in technical skills, access to information and training, a lack of exposure to industry, and opportunities for youth. [65]

Aging Population – The Southwest Alaska population has remained relatively stagnant while those owning resource rights (permits) continues to age. This "graying of the fleet" and associated barriers prevent the small pool of younger fisherman from taking their places. See Figures 2.8 and 2.9 on Population and Workforce Demographics.

Poor Personal Communication – Basic communication can be difficult, raising the costs of doing business. Networks are not always reliable, people do not always have access to communication hardware and capacity limits prevent text, voice, and especially graphics transmissions. Bringing in an outside workforce becomes more difficult as they learn communication access is not what they expect, limiting their enjoyment, and ultimately employer's ability to retain employees.

Poor Institutional Communication – Communication technologies available at institutions like SAVEC and the UAF Bristol Bay and Aleutian campuses are limited compared to urban counterparts. This limits cost effective digital training and online courses.

Non-Resident Employment – Many jobs in the region are filled by non-residents. [66] See Figure 3.4 Outlining Non-resident Workforce.

Data Gaps – The lack of relevant participation data, especially with commercial fishing crew, is a data gap which presents difficulties collecting baseline data to improve conditions for the largest single labor force in the region. There is no workforce development database for tracking employment opportunities, training opportunities and skilled laborers in the region. The information that is available is scattered and difficult to find. [67]

Substance Abuse – Substance abuse is a serious problem in employing residents and keeping them employed. [69]

Federal Regulatory Compliance – Interactions with federal agencies can be strained and frustrating for Southwest Alaska business owners and leaders. Different federal agencies have different rules and procedures, making permitting and licensing processes confusing, expensive and difficult to navigate. Many regulations are not a good fit for Alaska but are enforced here. [68]

Regional Interconnectivity – Expensive transportation, especially inter-region transportation, limits partnerships and networking between neighboring communities. See Figures 4.2-6 Outlining Transportation Linkages.

Local Business Community –Bristol Bay and Kodiak are the only two communities in-region with a Chamber of Commerce. Chambers support and promote local businesses development interests.

People - External Threats

Impacts of Out-Migration – A globally connected world provides greater exposure to outside opportunities. High costs of living, low levels of infrastructure and relative isolation all work together to increase outmigration. While total population is holding steady due to a higher number of births than deaths, the region is experiencing a net outward migration, contributing to Brain Drain. Some services and organizations have offices and conduct business in Anchorage, making it challenging for local development. [70]

Changing Resource Base – Changing climatic conditions may already be causing fish population to migrate. In order to meet these changing conditions, employers may ultimately shift their workforces to new locations, thus threatening employment in communities where the availability of seafood resources are decreasing. [71]

Declining Public Funds – Currently, the region is heavily reliant on public funds for employment and infrastructure; Southwest Alaska's economy is vulnerable to federal and state funding cuts. Many training programs are covered through a mix of fee for service, but also offset by public funds to make the courses affordable. [72]

Changes to Government Regulation – Government regulations are overbearing and cost private business money and difficulty of doing business, which translates into lower regional economic potential. Rural Alaska generally has increased costs of doing business, and the effect of onerous regulations may create an outsized burden for industry in the Southwest Region. [73]

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