

Appendix C: Economic Engines

Oil and Gas

Oil and Gas at a Glance

- The oil and gas sector is the largest industry in Alaska, creating about 77,600 jobs in 2018, or about a quarter of all wage and salary employment in the state.ⁱ
- Between 2019 and 2021, Alaska produced an average of approximately 160 million barrels of oil each year. In 2021, Alaska produced the sixth largest quantity of crude oil of any US state.ⁱⁱ
- Between 2019 and 2021, approximately 76 million barrels equivalent of natural gas were extracted annually in the Cook Inlet Region of Alaska.
- In 2021 alone, over 3.1 billion barrels equivalent of natural gas were extracted in the North Slope region, but most of this oil was reinjected into the ground, not sold.ⁱⁱⁱ
- The industry is the largest source of revenue for state government, paying \$2.7 billion in taxes and royalties in FY 2019. Local governments collected \$449 million in oil and gas revenues the same year.^{iv}
- Oil and gas contributions to the Alaska Permanent Fund were \$46.9 billion cumulatively at the end of FY 2021.¹

Alaska has a long history of oil and gas production. While the Trans-Alaska Pipeline System (TAPS) was not constructed until the 1970s, there was smaller-scale development of oil and gas resources as early as 1919 in the Gulf of Alaska Basin. This was followed by the discovery of additional resources in the Cook Inlet Basin in the 1950s. In the most recent 3 years for which we have complete data (2019-2021), Alaska produced an average of 160 million barrels of oil annually, or just under 450,000 barrels per day. This is markedly lower than the peak years of the late 1980s but still represents the largest industry when accounting for all direct, indirect, and induced jobs, including government jobs funded by oil revenues. The ongoing contribution of oil and gas development (royalties and revenues) into Alaska’s Permanent Fund are critical to improving the State’s long-term prospects for self-sufficiency.

Oil Production in Alaska

Annual total oil production in Alaska

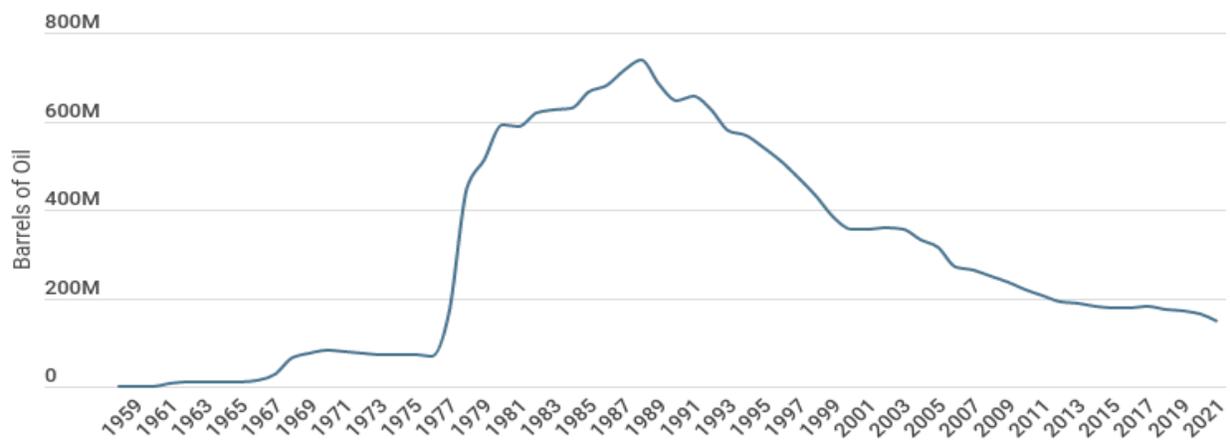


Figure 1: Annual total oil production in Alaska.

¹ Alaska Permanent Fund Corporation. “Alaska Permanent Fund Financial History and Projections as of March 31, 2022.”

Source: Alaska Oil and Gas Conservation Commission (AOGCC).

Alaska also has a robust natural gas sector. While there are significant gas resources on the North Slope of Alaska, very little of it reaches the market due to the dearth of infrastructure for, and cost associated with, moving natural gas from the North Slope of Alaska to a port capable of liquifying and exporting it to global markets. Most of the natural gas that gets sold and used in Alaska comes from the Cook Inlet region and is primarily consumed in-state. Natural gas heats almost 50% of homes in Alaska and provides about 40% of the electricity generated by utilities in the state.^v However, there is little natural gas distribution outside of Southcentral Alaska and parts of the Interior, leaving much of the state dependent on high-cost diesel and fuel oil for heat and electricity.

Gas Production in Cook Inlet

Annual total gas production in Cook Inlet, Alaska

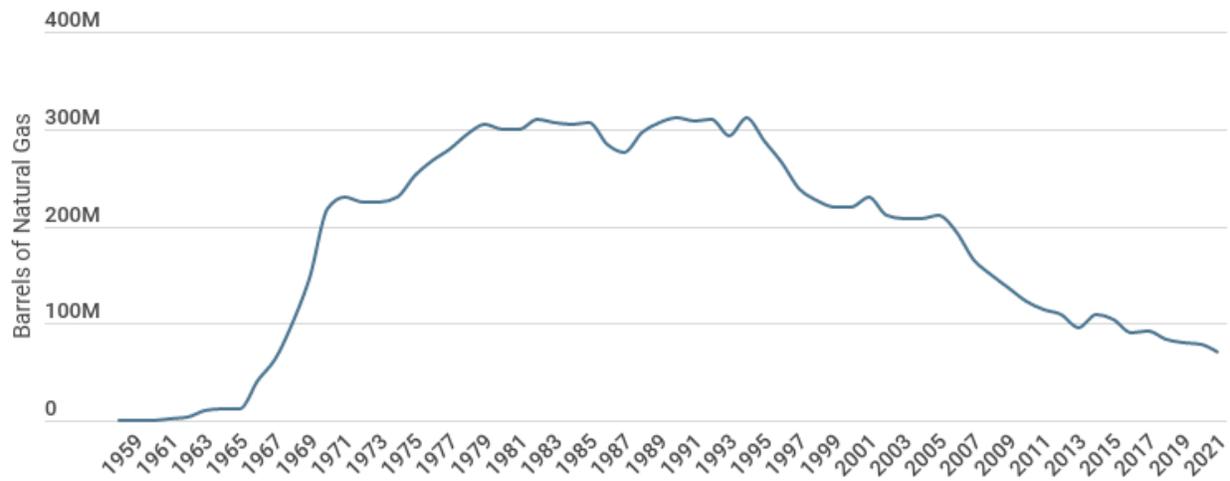


Figure 2: Annual total gas production in Cook Inlet, Alaska.

Source: AOGCC.

Due to varying levels of production and dramatically fluctuating prices, the value of oil produced in Alaska can be volatile and hard to predict. The State of Alaska relies heavily on royalties and taxes paid by oil producers. In some years, the funds collected by the state from oil producers can be greatly in excess of expectations and lead to a budget surplus. In other years, when revenues from oil production were low, the state has had to use nontraditional methods for balancing the state budget. In 1981, the inflation-adjusted gross value of the oil produced in Alaska was nearly \$39 billion. In the last three years (2019-2021), the value of oil has averaged slightly less than \$9 billion.^{vi}

Value of Oil Produced in Alaska

Wellhead value of oil produced, real 2021 dollars

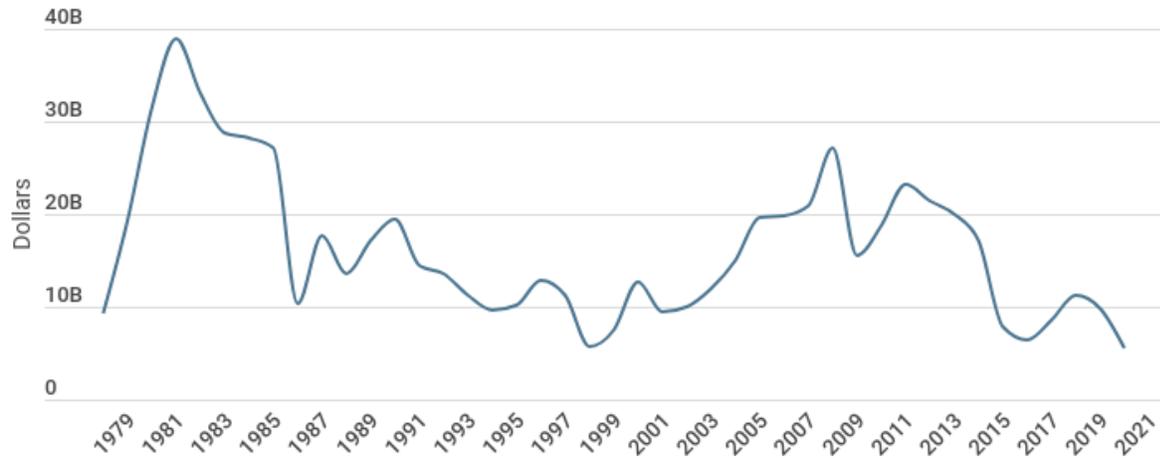


Figure 3: Wellhead value of oil produced, real 2021 dollars.

Source: AOGCC.

Oil and Gas Infrastructure

TAPS, the main line of which stretches 800 miles from Prudhoe Bay on the North Slope to Valdez on the coast of Prince William Sound, is a critical piece of infrastructure for the oil and gas industry in Alaska. Additional pipeline projects have been proposed, including a plan to construct a natural gas pipeline from the North Slope to the Cook Inlet region to produce liquefied natural gas (LNG) for export and in-state use. However, due to the complexity of global supply and demand, and regulatory concerns, this project is still in the planning phase. A gas line would potentially create thousands of jobs in Alaska, along with state and local government revenues and reduced energy costs for many residents.

Critical issues for oil and gas:

- Federal restrictions on drilling, such as in the Arctic National Wildlife Refuge (ANWR).
- Need for consistency and transparency in the federal permitting process.

Opportunities:

- LNG export to global markets.
- New production in ANWR, the National Petroleum Reserve—Alaska, and the continental shelf.
- Innovative new alternative uses for natural gas, such as hydrogen fuel production.

Mining

Mining Industry at a Glance:

- Zinc, lead, and gold exports ranked in the top five exports by value from Alaska, with \$1.5 billion in exports in 2020 across the three commodities.^{vii}
- In 2020, the mining industry supported 9,600 jobs in Alaska and \$890 million in wages.^{viii}
- Alaska is home to six major operating mines, with a further two in the advanced permitting stages.^{ix}

Mining has deep roots in Alaska. From the gold rush beginning in the late 1800s which brought thousands of people to Alaska seeking riches, to the construction of Red Dog Mine in the 1980s, the resource wealth of the state has been a cornerstone of Alaska's economy. Today, zinc, lead, and gold rank among the top five commodities exported from Alaska by value, with copper and other precious metals also ranking among the top 20.^x

Mines Across Alaska

Current operating, permitting, and exploratory mines, 2022.



Figure 4: Current operating, permitting, and exploratory mines, 2022.

Source: Alaska Miners Association.

With six operating mines, two mines in the permitting stages, and a further seven deposits in the advanced exploration stages, the mining industry will likely continue to play an important role in the state's export economy into the future. Currently operational mines in the state produce gold, silver, coal, zinc, copper, and lead. Mines under development or exploration are expected to produce gold, copper, zinc, cobalt, rare earth elements, and more.^{xi}

Alaska mines and prospects

Mine	Development Stage	Minerals Produced
Red Dog	Operating	Silver, Zinc, & Lead
Usibelli	Operating	Coal
Fort Knox	Operating	Gold
Pogo	Operating	Gold
Kensington	Operating	Gold
Greens Creek	Operating	Gold, Silver, Zinc, & Lead
Pebble	Permitting	Copper, Gold, Molybdenum
Donlin	Permitting	Gold
Manh Choh	Advanced Exploration	Gold
Upper Kobuk	Advanced Exploration	Copper, Zinc, Gold, Silver, & Cobalt
Graphite Creek	Advanced Exploration	Graphite
Livengood	Advanced Exploration	Gold
Palmer	Advanced Exploration	Copper, Zinc, Silver, Gold, & Barite
Niblack	Advanced Exploration	Copper, Gold, Silver, & Zinc
Bokan Mountain	Advanced Exploration	Rare Earth Elements

Table 1: Alaska mines and prospects.

Source: Alaska Miners Association

In 2020, the mining industry supported 9,600 total jobs in Alaska, including 4,700 direct jobs.^{xii} Mining employment has grown 2% annually on average between 2011 and 2020.^{xiii} The industry experienced employment growth during both economic downturns of the last decade—the 2015 to 2018 recession caused by the drop in oil prices and the 2020 downturn caused by the COVID-19 pandemic.

Growth in Mining Employment

Mining industry employment in Alaska, 2011 to 2020.

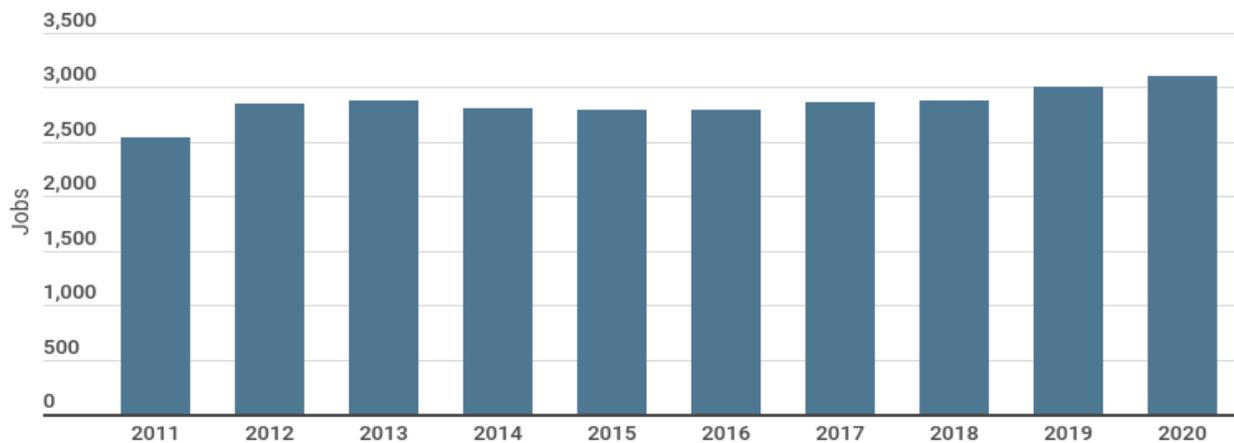


Figure 5: Mining industry employment in Alaska, 2011 to 2020.

Source: QCEW

Note: Numbers for each year represent an annual average.

Mineral extraction contributes extensively to Alaska's GDP and the state's international export balance. Over the last five years Alaska has exported \$1.8 billion on average annually in mineral ore and concentrates. Zinc makes up the majority of mineral exports by value, despite experiencing a decline over the last three years. Despite this, total mineral exports have remained relatively steady, mostly because of growing gold exports from the gold mines in the state.

Mineral Exports from Alaska

Mineral exports from Alaska by commodity and value, 2017 to 2020.

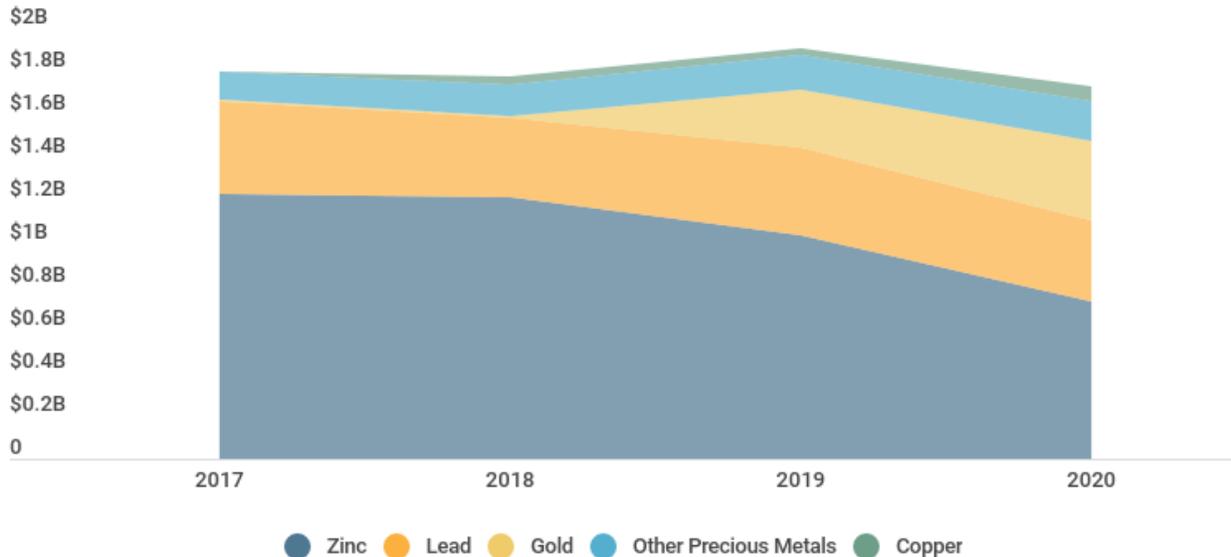


Figure 6: Mineral exports from Alaska by commodity and value, 2017 to 2020.

Source: U.S. Census Bureau.

Growing interest in rare earth elements (REE) and other types of critical minerals present an opportunity for Alaska’s mining industry. REE are a set of 17 metallic elements which are used in the manufacture of many technologies including cellphones, hard drives, electric vehicles, satellites, and more.^{xiv} At least one of the mines engaged in advanced exploration in Alaska—Bokan Mountain located southwest of Ketchikan—possesses REEs.^{xv} In addition to mine exploration in the region, the company developing Bokan Mountain, Ucore Rare Metals, Inc, has proposed to construct a REE processing facility in Ketchikan, which would create additional jobs.

The 2021 Infrastructure Investment and Jobs Act includes federal funding to survey for deposits of critical minerals. In addition to REEs, Alaska also has known deposits of cobalt in the Upper Kobuk, which is used in the manufacture of rechargeable batteries. The Nome area has a significant graphite deposit in advanced exploration as well. Other yet-to-be discovered critical minerals could create jobs and investment in Alaska while reducing dependence on overseas resources.

Critical Issues for Alaska Mining

- Need for coordination, timeliness, efficiency, consistency, and transparency in the federal permitting process.
- High nonresident worker share.
- High operational expenses resulting from remoteness of mines, especially in energy costs.
- Energy intensity combined with high energy costs prevent capturing local value-added processes.
- Regulatory barriers and oversight.
- Public opposition to some projects.

Opportunities for Alaska Mining

- Expansion of value-added processing in-state.

- Growing demand for REEs and other critical minerals to support the technology industry.
- Electrification of mining processes and equipment.
- Renewable energy and low carbon fuel sources used in extraction and processing technologies.

Seafood

Fisheries stats at a glance:

- Alaska leads all states in both pounds harvested and total value of landings, with more pounds landed in the state than the rest of the U.S combined.^{xvi}
- 17 of the top 100 fisheries ports in the US are Alaskan ports, including three of the top five— Unalaska, Aleutian Islands, and Kodiak (by pounds landed) in 2021.^{xvii}
- In 2019, the seafood industry directly employed a total of 62,200 workers (37,400 full-time equivalent) in Alaska throughout the year, including almost 20,000 resident fishermen.^{xviii}
- The seafood industry’s economic output in Alaska was \$5.7 billion in 2019.^{xix}
- Seafood processors contributed \$81 million in tax revenues to state government, and \$45 million to local governments in 2019.^{xx}

Alaska’s iconic seafood industry reaches back to at least 1878 with the first salmon canneries in Sitka and Klawock.^{xxi} Over nearly 150 years, commercial fisheries in Alaska have undergone major changes with the banning of fish traps at statehood, the introduction of the limited-entry permit system in the 1970s, and the advent of the quota system in the 1990s. Despite global competition (including from farmed salmon) Alaska’s seafood industry remains a leading Economic Engine in 2022.

With a total of 62,200 workers in 2019, seafood creates more direct private sector jobs than any other industry in the state, with the important caveat that the oil and gas industry creates more total jobs through multiplier effects. Of these, 31,300 were in fishing and harvesting, 27,100 in processing, and 3,800 in management, hatcheries, and other related activities. About 20,000 Alaska residents worked as skippers or crewmembers in commercial fisheries in 2019.^{xxii} Importantly, these figures count the number of unique individuals working at any time over the course of the full year. In a typical year, between 20,000 and 25,000 individuals are employed in harvesting during the peak month (July). As a year-round average, a typical employment figure for a given year is between 6,500 and 8,500 harvesting workers, incorporating the slower months of the year. Nonresident participation in fisheries is high.

Seafood harvesting employment by year

Seafood harvesting employment as an annual average and for July (peak employment month).

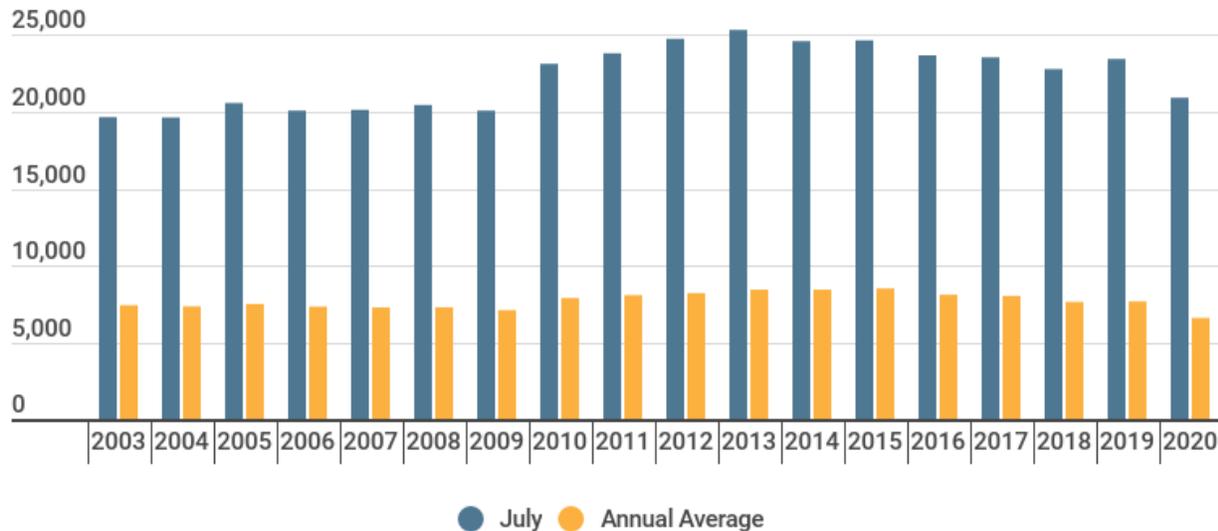


Figure 7: Seafood harvesting employment as an annual average and for July (peak employment month).
Source: DOLWD.

For 2019, DOLWD estimated peak (July) employment in harvesting at 23,440 and an annual average of 7,653. Almost 60% of the latter figure were involved in salmon fisheries. In 2020, when fisheries suffered pandemic-related disruptions, a similar proportion still worked in salmon harvesting. Groundfish (especially pacific cod and pollock), halibut, and sablefish collectively employ most of the remainder.^{xxiii}

Seafood harvesting employment by region and species group

Annual average harvesting employment for 2019 and 2020.

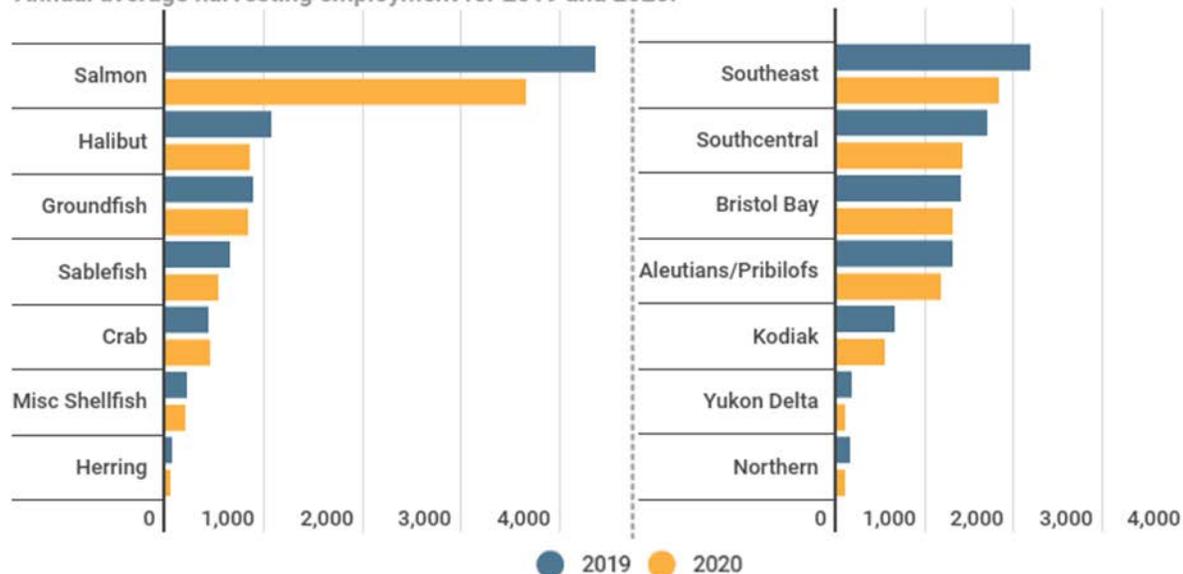


Figure 8: Annual average harvesting employment for 2019 and 2020.
Source: DOLWD.

Commercial fisheries are especially important sources of income and employment in Southeast, the Gulf of Alaska, and Southwest Alaska. Southeast, Southcentral, and Bristol Bay top the list due to their large

salmon fisheries. With the exception of the Aleutian and Pribilof Islands, where groundfish dominates harvesting employment, salmon are the largest source of fisheries jobs.

The processing segment of the seafood industry is also a large source of employment. In July 2019, for instance, more than 20,000 individuals worked in seafood processing in Alaska.^{xxiv} However, a combination of the pandemic and difficulties obtaining work visas reduced employment in 2020 and 2021. According to DOLWD, almost 80% of all seafood processing workers were nonresidents in 2020, a share similar to other years.^{xxv}

By ex-vessel value (the sum paid to the crew upon delivery of the seafood to a processor), salmon and pollock account for roughly similar shares. In 2020 all Alaska seafood harvests amounted to nearly \$1.5 billion in ex-vessel value, of which salmon were \$449 million and pollock \$420 million. These were followed by crab (\$181 million), Pacific cod (\$137 million), halibut and sablefish (\$112.5 million), and rockfish and Atka mackerel (\$63 million).^{xxvi}

Ex-vessel value by species group

Adjusted for inflation (2020 dollars).

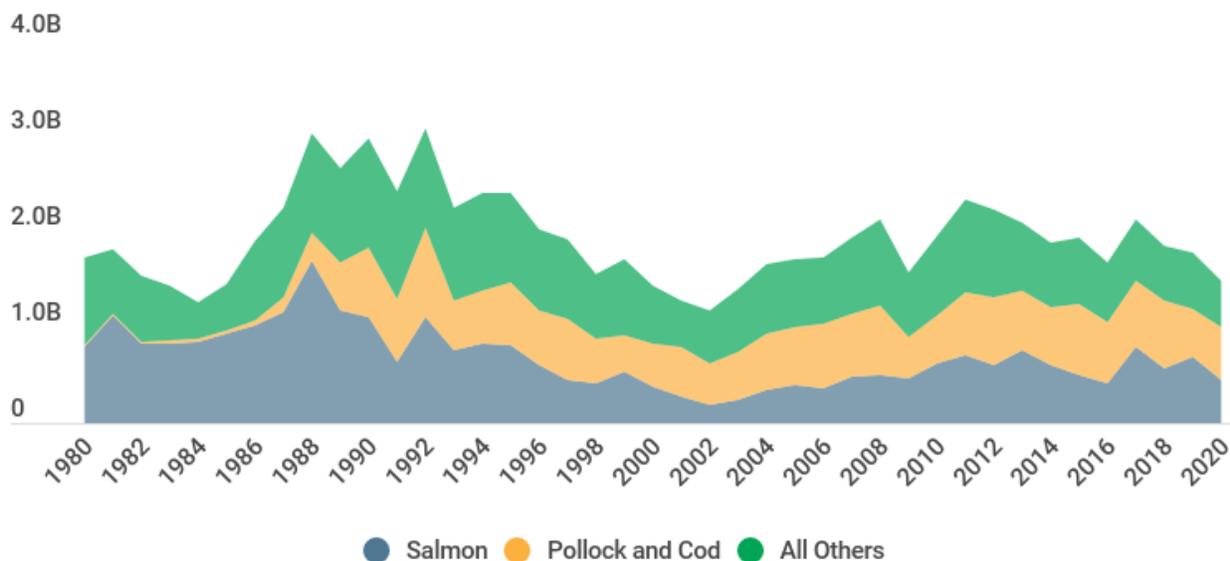


Figure 9: Ex-vessel value by species group.

Source: National Oceanic and Atmospheric Administration (NOAA) Fisheries. Deflated by CPI-U, CED calculations.

An important trend in Alaska’s seafood industry is price competition in global markets where seafood products are sold. Prices can change dramatically from year to year, and long-term pressures have been especially hard on the salmon market. Economist Gunnar Knapp argues that the expansion of farmed Atlantic salmon in places like Chile and Norway since the mid-1990s have reduced the pricing power of wild salmon fisheries.^{xxvii} After reaching a low in the early 2000s, salmon prices rebounded somewhat on the strength of wild salmon’s premium market positioning.

Critical Issues for Alaska Seafood

- High nonresident worker share, especially in processing.
- Worker shortages and visa challenges in seafood processing.
- “Greying of the fleet”; few young people entering fisheries as older permit holders retire.
- Availability and expense of buying permits, vessels, quota, and gear.

- Competition from aquaculture.
- Recent reductions in crab, pollock, and Pacific cod allowable catch.
- Threats related to climate change and ocean acidification.

Opportunities for Alaska Seafood

- Expansion of value-added processing in-state.
- Establish handling designation/standard for premium, wild-caught seafood
- Processing automation to improve efficiency.
- Renewable energy and low carbon fuel sources in processing technology.
- Electrification of marine vessels.
- Construction and financing of new fishing vessels.
- Expansion of precision fishing and maritime tech startups supported by groups like the Alaska Ocean Cluster and Alaska Fisheries Development Foundation.
- Diversification through mariculture.

Visitor Industry

Tourism at a Glance:

- The number of tourists arriving in the state increased steadily from 2010 to 2019, reaching 2.4 million before falling to 427,000 in 2020 as result of the COVID-19 pandemic.^{xxviii}
- No large cruise ships visited Alaska in 2020, and only 116,000 passengers visited in 2021, about one-tenth of the pre-pandemic volume.^{xxix} Other forms of transportation to the state were also dramatically reduced, air travel in the state was down 57% over the previous year in 2020^{xxx} and with the border closure and travel restrictions in Canada, visitors to the state by road were also reduced.
- Visitors directly or indirectly contribute to a variety of state and local government revenues through taxes and fees. In 2019, these amounted to \$143.3 million to state government,^{xxxi} and \$45 million in local government bed taxes in FY 2020.^{xxxii}
- Tourism created roughly 35,000 direct jobs in Alaska in 2019, and approximately 50,000 total jobs.^{xxxiii}

With its untamed wilderness, stunning views, and extraordinary wildlife, Alaska is a major destination for domestic and international visitors. In 2019, the peak year for visitation before the COVID-19 pandemic, 2.4 million visitors traveled to the state. This means that for every resident, there were three visitors that year. Visitors spent \$2.79 billion that year, which circulated through the state economy in the form of wages, business income, and state and local taxes.^{xxxiv}

Tourism is a major employer in the state. In 2019, the industry generated roughly 35,000 direct jobs, with a payroll of \$1.1 billion. In 2020, employment and wages both fell by 79% as the COVID-19 pandemic effectively eliminated cruise ship travel.^{xxxv} Past research indicates that Southcentral Alaska accounts for the greatest number of tourism-related jobs, followed by Southeast and the Interior.^{xxxvi} As a share of total employment in each region, Southeast sees the greatest impacts, with roughly one job in four being tied to tourism before COVID-19.^{xxxvii} Statewide, tourism supports about one in ten jobs.

Annual summer visitors to Alaska

All transportation modes, April to October visitation.

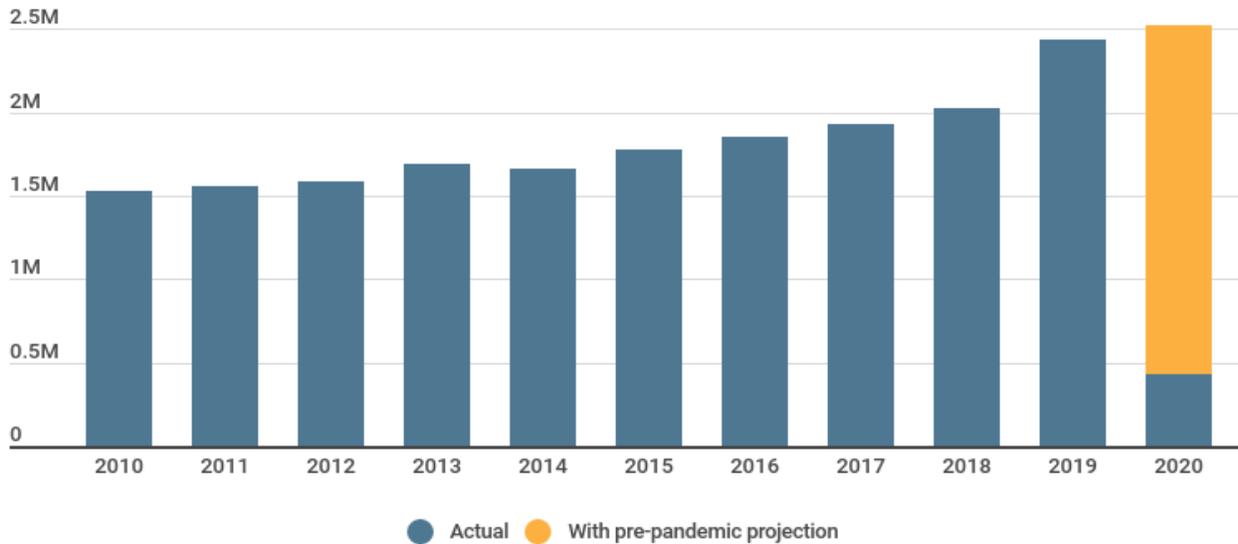


Figure 10: Annual summer visitors to Alaska, 2010 to 2020.

Source: McKinley Research.

The visitor market in Alaska can be broken into three transportation markets, each with its own economic characteristics: cruise ships (accounting for 60% of visitors in 2019), air (36%), and highway or ferry (4%).^{xxxviii} Most cruise ships enter the state through Southeast Alaska’s Inside Passage, making it the most frequently visited part of Alaska. Anchorage is the most common entry point for air visitors.

Leisure travel to Alaska (including all modes of transportation) rose steadily from 2010 to 2019 and then plummeted to zero in 2020 due to COVID-19. In the absence of the pandemic, McKinley Research Group estimated that visitation would have reached over 2.5 million in 2020. Instead, it fell by over 80% in 2020, with no large cruise ships arriving that year, reduced air travel, and border closures.^{xxxix} The 2021 season saw a small number of cruise ships return to Alaska, with about 116,000 visitors—less than one-tenth of the pre-pandemic projection.^{xl} However, the 2021 season did see a surge in independent travelers—visitors to the state traveling independent of big tour companies or cruise ship operators.^{xli}

One metric that can be used to gauge the impact of the visitor industry is bed tax revenues levied by local governments. Many communities that host visitors charge such a tax, ranging from a few dollars per night to over 10% of the nightly rate. Overall, the bed taxes around the state generated over \$45 million dollars combined in FY 2020. Local bed tax revenues halved in FY 2021, generating just over \$20 million dollars in revenues statewide.^{xlii} These figures are reported by State of Alaska fiscal year, which runs from July 1 to June 30, meaning that much of the 2020 visitor season was reported in FY 2021.

Bed Tax

Total statewide bed tax revenue 2018 to 2021.

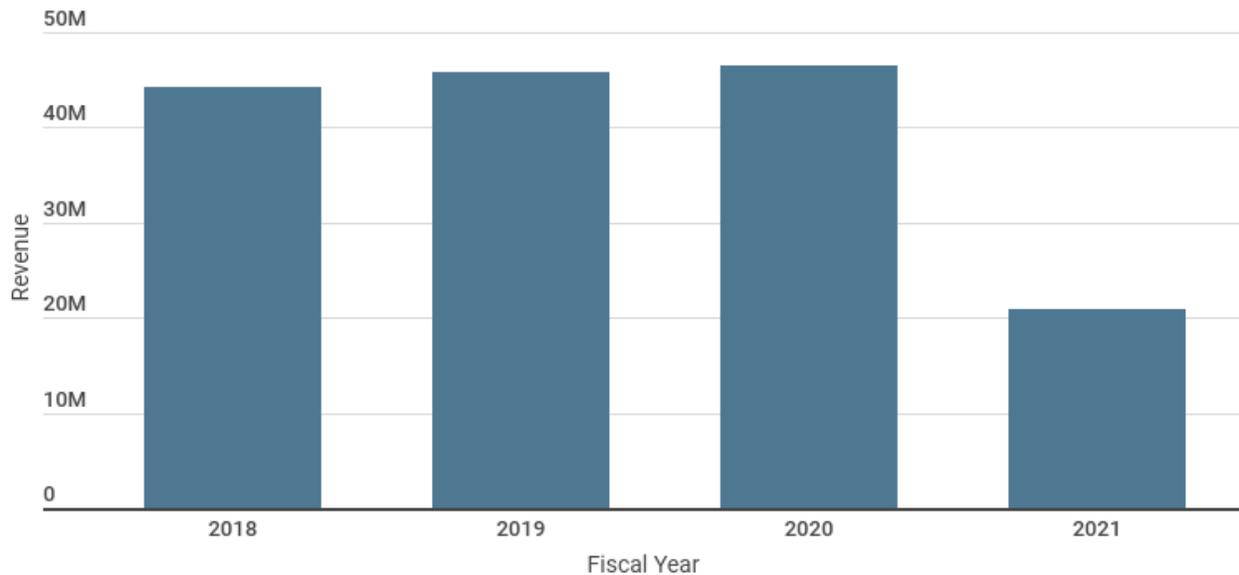


Figure 11: Total statewide bed tax revenue 2018 to 2021.

Source: State of Alaska Division of Community and Regional Affairs (DCRA).

New Visitor Segment Development

Outside of traditional tourism visitor segments, interest in new visitor development opportunities is growing. Cultural tourism, shoulder season and winter visitation, outdoor recreation, and independent travelers are all receiving attention. Development of new tourism segments has the potential to grow visitation, bringing more economic value to the state, but also support small businesses and provide more robust year-round revenue and employment opportunities.

One example of a growing visitor segment is adventure travel. Outdoor recreation is already a major driver of tourism in Alaska, and it is increasingly recognized as an industry in its own right, albeit one that overlaps with tourism. Increasing access to recreation opportunities and promoting Alaska as an adventure travel destination might be a way to grow this visitor segment.

The Bureau of Economic Analysis (BEA) now produces estimates of the economic impacts of outdoor recreation at the state level. According to the BEA, over 17,700 Alaskans were employed in outdoor recreation earning a combined \$1 billion in compensation in 2020. The top three outdoor recreation activities in terms of total value added were boating/fishing, RVing, and climbing/hiking/tent camping.^{xliii} These impacts derive from money spent by both resident and nonresident consumers when they recreate, purchasing equipment, meals, lodging, and transportation.

The value of outdoor recreation in Alaska

Value added to Alaska economy by selected outdoor recreation activities.

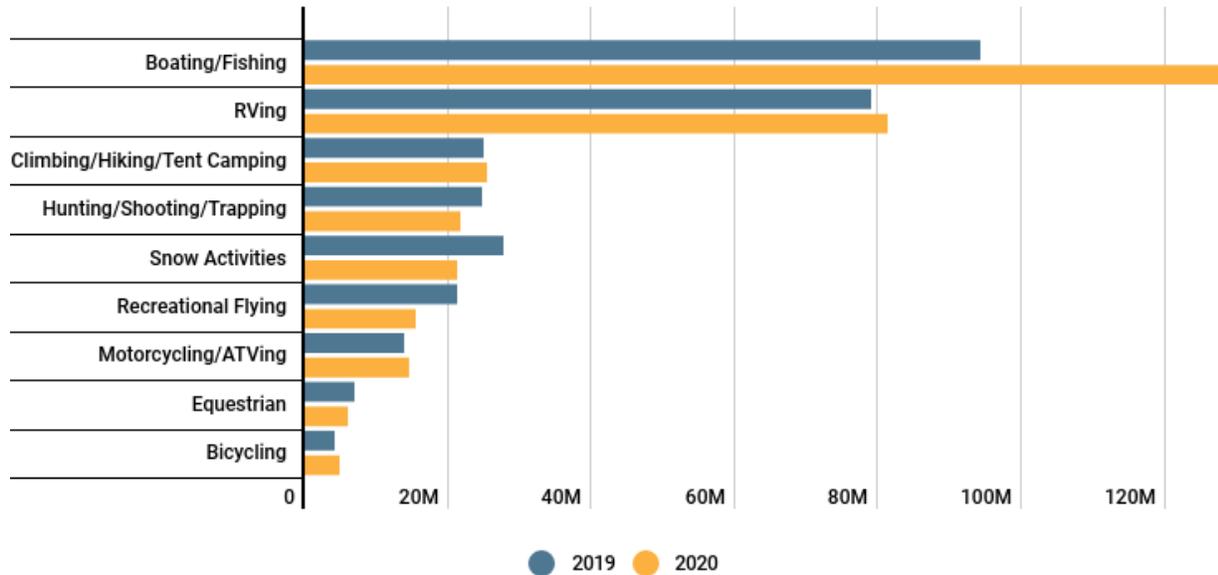


Figure 12: Value added to Alaska economy by selected outdoor recreation activities.
Source: BEA.

Critical Issues for the Visitor Industry

- Recovery from the COVID-19 pandemic.
- Workforce and supply chain shortages.
- International visa restrictions affecting both visitors and workforce.

Opportunities

- Continued expansion into new market segments:
 - Cultural tourism;
 - Independent tourism;
 - Shoulder season and winter tourism;
 - Adventure travel.
- Investment in recreation assets that attract visitors or improve access:
 - Creation of a long trails, marine trails, and hut systems for multi-day itineraries.

Defense Sector

Defense at a Glance

- Alaska is home to a large defense presence, with major Air Force, Army, and Coast Guard installations hosting more than 30,000 personnel in 2021.^{xliv}
- The state’s strategic position in the Arctic and Pacific Rim have attracted large defense investments in the state, such as F-35 aircraft and a Long-Range Discrimination Radar.
- Defense spending in Alaska—including contracts and payroll—was \$3.7 billion in federal fiscal year 2020.^{xlv}
- The estimated number of jobs in Alaska tied to defense is 58,000—roughly one in six jobs in the state.^{xlvi}

The military has played a large role in shaping Alaska's economy and demographics since World War II (1941-45). The defense buildup in the 1950s during the early Cold War brought an influx of active duty servicemembers, civilian defense workers, and contractors—along with their families. This population growth contributed to a booming economy and accelerated the push for statehood, achieved in 1959. Ports, airports, highways, and telecommunications systems built for defense purposes also helped spur development of the private sector economy.^{xlvii}

Today, Alaska is home to two large Air Force bases (Eielson and Elmendorf Air Force bases) and two large Army installations (Fort Richardson and Fort Wainwright), one Space Force station (Clear), one major Coast Guard base (Kodiak), and numerous smaller stations. Together they hosted 30,562 total personnel in September 2021,^{xlviii} with a total payroll of more than \$1.9 billion.^{xlix} This figure includes active duty, civilian defense workers, reservists, and members of the National Guard. Department of Defense (DOD) and Department of Homeland Security (DHS) contracts performed in-state in FY 2021 had a value of nearly \$1.8 billion.^l

That combined \$3.7 billion in spending has an enormous impact on Alaska’s economy as a whole, and to communities hosting installations in particular. For FY 2018, the University of Alaska Center for Economic Development estimated that DOD and DHS spending created a total of 58,000 jobs in Alaska—about one in six civilian jobs. In the Interior, defense spending creates a total of one-third of all civilian employment.^{li} These figures include indirect and induced jobs created as the initial spending circulates through businesses and households.

The defense contracts awarded in Alaska are focused on the needs of the major installations in the state. Construction is the largest category, associated with several large projects. These include a long-range discrimination radar (LRDR), and facilities for the F-35 fighters. “Administrative and Support and Waste Management and Remediation Services” is the second largest category, consisting of a variety of on-post facilities services as well as environmental remediation. The installations are large purchasers of refined fuel (under manufacturing) and utility services (such as power) as well as professional services like engineering.^{lii}

Defense spending in Alaska by industry

DOD and DHS spending in FY 2021 for contracts performed in Alaska.

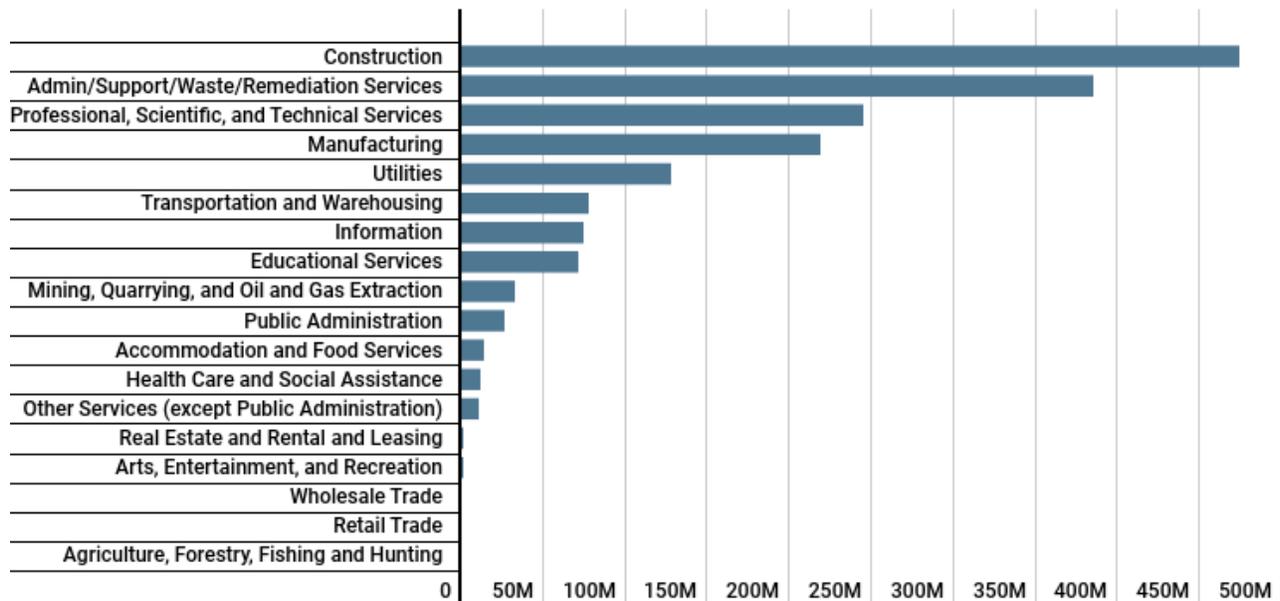


Figure 13: DOD and DHS spending in FY 2021 for contracts performed in Alaska.

Source: SAM.gov

An important point about defense contracts in Alaska is that in-state firms capture a majority of the awarded values. One analysis showed that between FY 2017 and FY 2019, 77% of the dollar value of contracts performed in Alaska were performed by firms based in the state.^{liii} Alaska Native Corporations are the largest in-state defense vendors, although thousands of firms in the state win prime or sub-contracts each year. While successful at obtaining defense contracts in-state, Alaska-based defense vendors actually earn a majority of their revenue outside of Alaska—again due to the success of Alaska Native Corporations.^{liiv} Profits earned outside Alaska circulate within the state in the form of shareholder dividends, scholarships, and community development funds.

As during the Cold War, Alaska’s geostrategic position in the Arctic and Pacific Rim is important to U.S. defense policy. The DOD published its most recent *Arctic Strategy* in 2019, calling for a greater ability to defend U.S. sovereignty and increase operational capabilities in the region through the stationing of two F-35 squadrons and the construction of at least one Polar Security Cutter (icebreaker), among other measures. The DOD-wide strategy was followed by Arctic strategy documents by the Air Force in 2020, and the Navy and Army in 2021.

As the job creation estimates show, military spending in Alaska produces large economic impacts. The opportunity to homeport an icebreaker, host new assets like the LRDR, or expand the number of servicemembers would all carry significant economic potential.

Critical issues for Defense

- Limited community housing to host new personnel
- Transferability of occupational licenses for spouses
- Increased emphasis on quality of life and recreational amenities for defense communities

Opportunities

- Construction of a deep draft port in Nome for Arctic defense and resupply.
- Homeporting additional Coast Guard or Navy vessels in Alaska.
- Growing U.S. icebreaker fleet.
- Stationing additional personnel in Alaska
- Establishment of new command structures in-state
- Opportunity for cold climate technology or energy development for defense purposes
- Infrastructure improvements to further enable rapid deployment.

Logistics and Air Cargo

Logistics stats at a glance:

- Logistics-related industries in Alaska supported 11,615 direct jobs in 2020.^{lv}
- Air transportation supported approximately 5,100 jobs in 2020, a 18% drop in employment compared to 2019.^{lvi}
- Ted Stevens Anchorage International Airport ranked second in the U.S. and fourth in the world for cargo volume in 2020, after a 25% increase over 2019.^{lvii}

As a state heavily reliant on imports to support its economy, the local logistics sector is a well-established critical component of Alaska’s economic existence. The industry supports every business and household in the state. However, growing interest in the state’s strategic geographic position in the Pacific and Arctic signal new economic potential for the industry. Recent developments at Ted Stevens Anchorage International Airport, positioning itself as a strategic air cargo hub due to proximity to Asia, have highlighted the growing role that Alaska could play in the global supply chain.

Ted Stevens Anchorage International Airport (TSAIA) serves as a logical stopping point for air cargo carriers to refuel and redistribute cargo on flights from Asia to North America. Anchorage’s geographic position between the major industrial centers of East Asia and the Lower 48 allows aircraft to carry more cargo and less fuel, increasing profitability.

Top U.S. cargo airports by volume, 2020

Airport	State	Cargo Volume (Millions of Lbs.)
Memphis International	TN	25,157
Ted Stevens Anchorage International	AK	22,883
Louisville Muhammad Ali International	KY	16,757
Los Angeles International	CA	13,172
Miami International	FL	9,930

Table 2: Top U.S. cargo airports by volume, 2020.

Source: FAA.

Cargo volumes at TSAIA have grown over the last five years, with a significant 25% jump in cargo volume in 2020 over 2019. This trend is consistent with global growth in air cargo, corresponding to global demand for goods;^{lviii} however, air cargo volumes in Anchorage have grown faster than the global average. For the last two decades, Anchorage has consistently ranked among the top six cargo airports in the world.

Growth in Cargo Moving through Ted Stevens

Pounds of landed cargo at Ted Stevens International Airport, 2011 to 2020

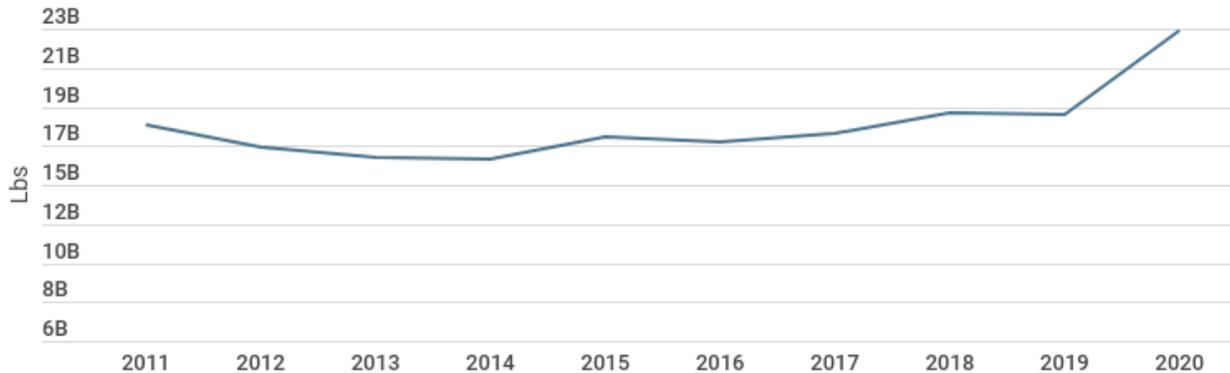


Figure 14: Pounds of landed cargo at Ted Stevens International Airport, 2011 to 2020.

Source: FAA.

In 2020, total employment in logistics related industries—air transportation, water transportation, truck transportation, support services, and warehousing and storage—included approximately 11,600 jobs. Over the last decade employment in logistics related industries grew slight to 13,148 jobs in 2019 (pre-pandemic), approximately 0.4% annually. However, like with many areas of Alaska’s economy, logistics related employment was impacted by the COVID-19 pandemic, losing 12% of its total jobs between 2019 and 2020.^{lix}

Logistics Employment Impacted by COVID-19 Pandemic

Total employment in logistics related industries, 2011 to 2020.

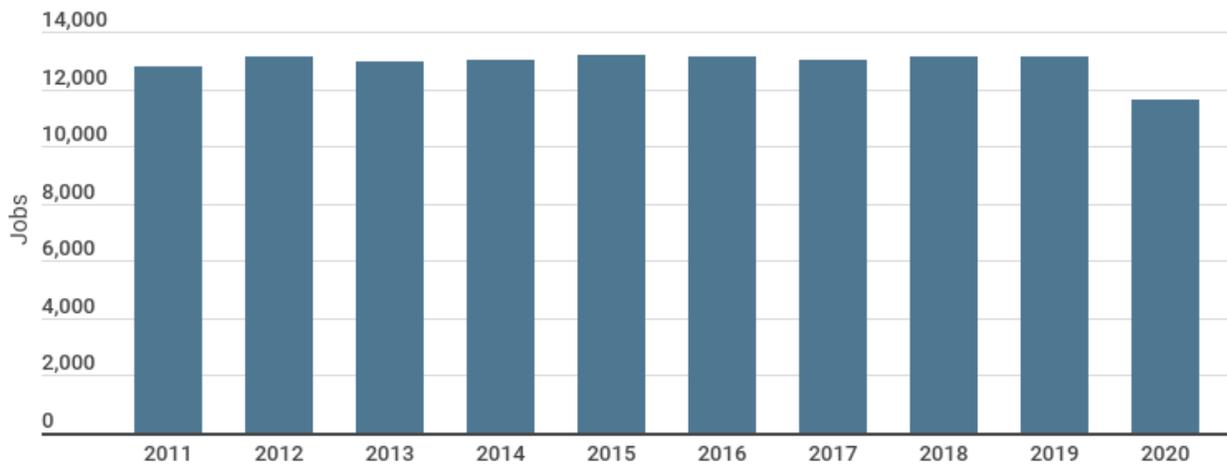


Figure 15: Total employment in logistics related industries, 2011 to 2020.

Source: QCEW.

Critical Issues for Alaska Logistics Industry

- Capacity limitations.
- Lack of infrastructure.
- Access to skilled workforce.

Opportunities for Alaska Logistics Industry

- Increased traffic in the Arctic.

- Further marketing TSAIA as a cargo hub.
- Expand TSAIA capabilities (foreign trade zone freight sorting, secure storage, cold storage, refueling, maintenance/repair/overhaul aka MRO).
- Opening air-to-sea multi-modal cargo transportation routes.
- Accessing value of cargo stopovers in Anchorage from transpacific flights.
- Accessing backhaul capacity to Lower 48 to export Alaskan-made products.

Forest Products

Forestry at a Glance:

- There are 129 million acres of forested land in Alaska, predominantly owned by federal, state, and local governments, and Alaska Native Corporations.^{lx}
- The timber industry supported 329 jobs in 2020, an 88% decline from its peak in 1990.^{lxi}
- 10 million board feet of logs harvested from Tongass National Forest were exported from Alaska in 2021.^{lxii}

Forestry has a deep history in Alaska, with the timber industry serving as one of the cornerstones of Alaska’s economy well into the 1990s. In the past, logging activities were focused in Southeast Alaska—predominantly Tongass National Forest—with some activity in Interior Alaska and elsewhere. In 1975, the timber industry supported at least 2,100 jobs across the state with logging and sawmill operations.

However, in the 1990s, with changes to resource management policies at the federal level restricting harvest allowances, the timber industry in Alaska began to decline. As a result of harvest reductions coinciding with environmental restrictions and regulations, and economic pressures, the two pulp mills in Southeast closed.

In 2020, the timber industry in Alaska supported approximately 329 jobs. Employment is driven by timber harvests occurring on State of Alaska and Alaska Native Corporation lands. In 2019, 151.5 million board feet (MMBF) of timber were harvested in Alaska.^{lxiii}

Long Term Decline in Timber Employment

Logging and sawmill employment over time, 1975 to 2020.

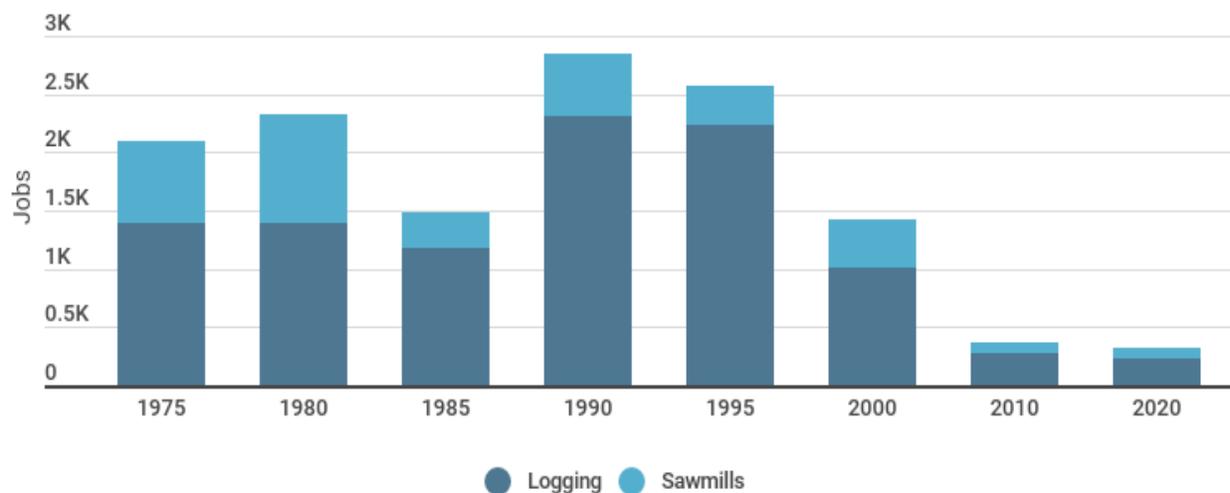


Figure 16: Logging and sawmill employment over time, 1975 to 2020.

Source: BLS.

Timber harvests in Alaska focus primarily on Sitka spruce and western hemlock, with some harvesting of White Spruce, cottonwood, aspen, and paper birch in the interior. The majority of the timber harvested now is exported as raw logs, however a handful of small dry-kiln facilities in Southeast, Southcentral, and Interior Alaska support small, local timber industries.

Decline in National Forest Timber Harvests

Annual National Forest timber harvest volume and total value in real 2021 dollars, 1976 to 2020.

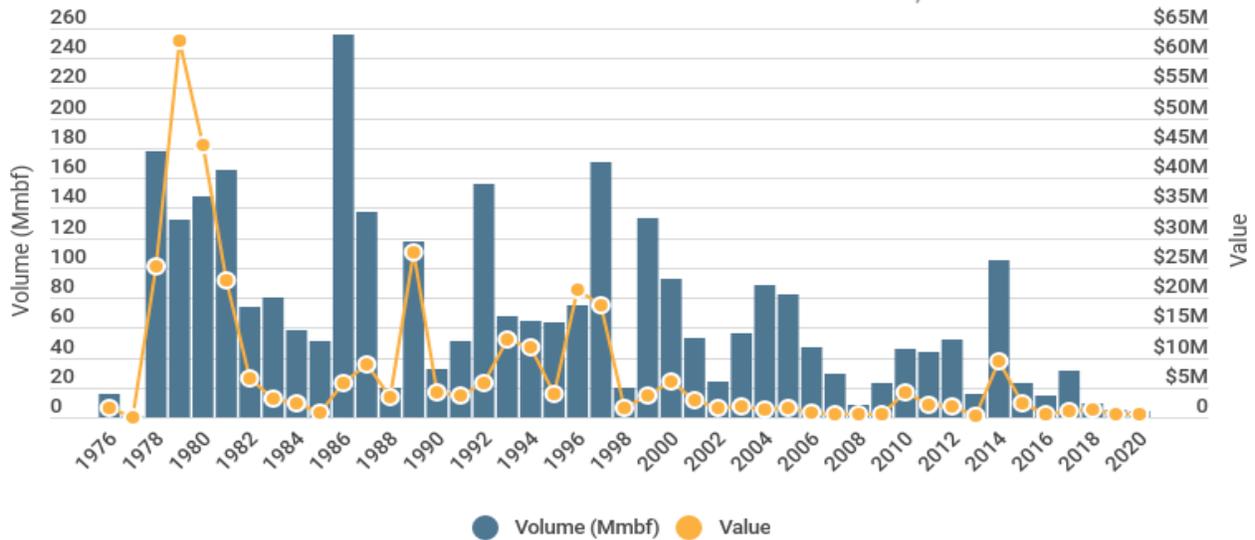


Figure 17: Annual National Forest timber harvest volumes and total value in real 2021 dollars, 1976 to 2020. Source: U.S. Forest Service (USFS).

However, the loss of the timber industry in Alaska is not just about declining logging jobs. The timber industry supported local manufacturers, builders, and makers. The loss of local supply creates a deficit for local value-added activities. For example, in the 1970s and 1980s, when timber production was higher, the industry supported approximately 930 jobs in sawmills, enabling local manufacture of lumber and other wood products like pulp.^{lxiv} However, as those sawmills closed with decreased timber production, raw timber was exported in increasing quantities and the value those sawmills produced for Alaska’s economy was lost. In 2021, 9.9 MMBF of logs from Tongass National Forest were exported from Alaska. Approximately 3% of those exports went to the Lower 48, while 97% were exported to other countries in the Pacific Rim.^{lxv}

Variability in Tongass National Forest Derived Timber Exports

Annual log exports from Tongass National Forest, 2001 to 2021.

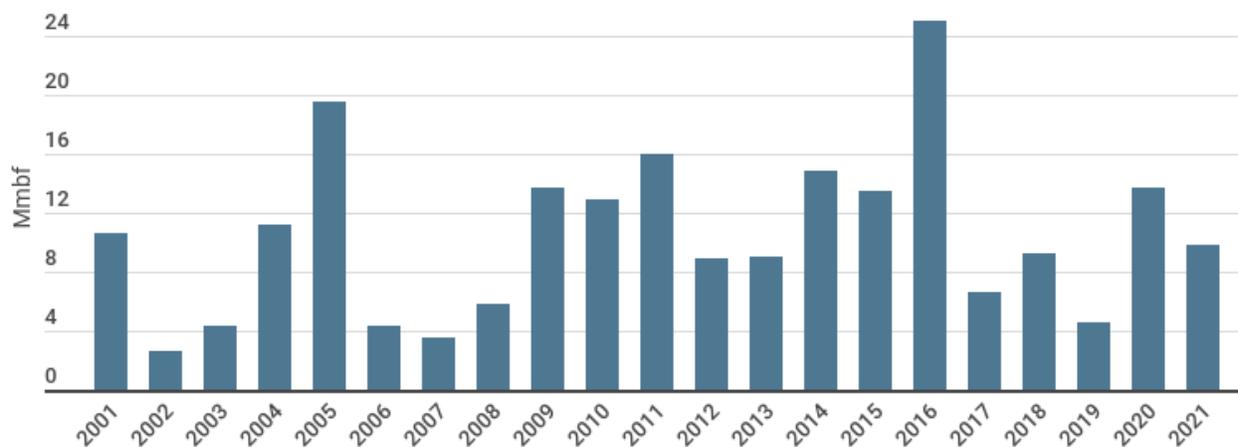


Figure 18: Annual log exports from Tongass National Forest, 2001 to 2021. Source: USFS.

In recent years, however, Alaskan entrepreneurs and manufacturers have turned toward value-added forest products on a relatively small scale.^{lxvi} Local timber operations in the interior support biomass energy production; artists incorporate local woods into art pieces; local manufacturers use sustainably harvested wood to produce skis, lumber, and other products; and Alaska Native tribes harvest forest products significant for well-being, cultural value, art, medicinal purposes, and to support their livelihood. Some communities across Alaska severely impacted by the invasive spruce bark beetle have been engaged in discussions on ways to harvest and utilize dead trees.^{lxvii}

In 2021, a Southeast Alaska CDFI, Spruce Root, was awarded an EDA Build Back Better Regional Challenge Phase 1 grant to develop a southeast Alaska sustainable forest products cluster. The application proposes to (1) develop a sustainable forest products business incubator; (2) invest in long-term planning, market analysis, and infrastructure projects with Tongass National Forest and Sealaska; (3) invest in biomass energy projects; (4) improve forest accessibility; and (5) promote forest product workforce development.^{lxviii}

Critical Issues for Alaska Forestry Industry

- Economic losses due to reinstatement of the Alaska Roadless Rule restricting access to new areas of Tongass National Forest and limiting repairs to current access points.
- High cost of energy limiting value-added processing.
- Low, uneconomical volume of timber sales by the USFS.
- Environmental regulations.

Opportunities for Alaska Forestry Industry

- Developing sustainable forest products cluster in Southeast Alaska.
- Development of new value-added forestry products.
- Increased use of biomass technologies for local energy production.
- Transition to young growth harvest.

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