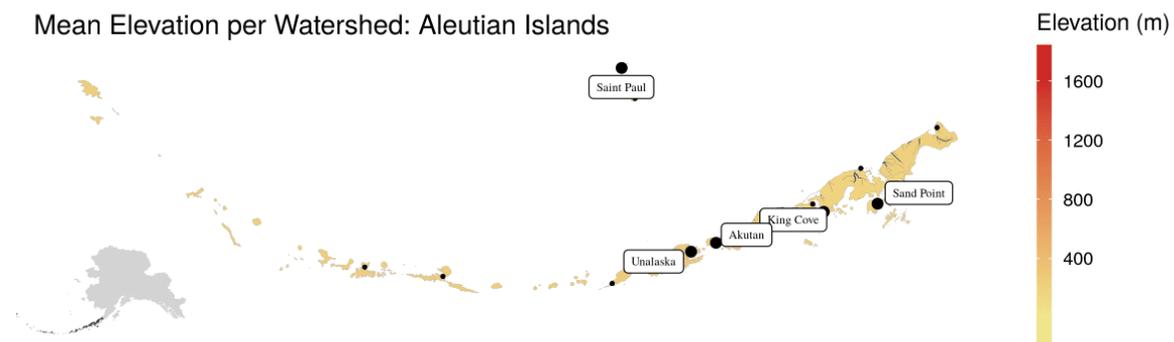


# ALASKA PENINSULA/ ALEUTIAN ISLANDS



Jared Kibele, Rachel Carlson, and Marie Johnson. 2018. Elevation per SASAP region and Hydrologic Unit (HUC8) boundary for Alaskan watersheds. Knowledge Network for Biocomplexity. [doi:10.5063/F1D798QQ](https://doi.org/10.5063/F1D798QQ).

## Geography

Although relatively small in landmass (4th smallest region) the footprint of the Alaska Peninsula and Aleutian Island region is enormous, spanning over 1600 km (1000 miles) and 10 degrees of longitude. Pink salmon, sockeye salmon, and chum salmon are most common and combine to make this region the 5th largest region in terms of total catch and escapement of salmon.

**Aleutian Islands:** Five groups of islands — Fox, Islands of Four Mountains, Andreanof, Rat, and Near—comprise the Aleutian chain. The islands are the product of high levels of seismic activity along the chain, and range in area from only a few square miles to over 1,000 square miles. There are no naturally occurring trees, although coastal areas and low hills are covered in abundant grasses and shrubs. The small size and mountainous topography of the islands mean that streams are short, rainfall-fed, and produce salmon in relatively small numbers.

**Alaska Peninsula:** The spine of the Alaska Peninsula is made of jagged peaks interspersed with glaciers that form U-shaped valleys. Lowlands exist along the north

side of the peninsula from False Pass to the boundary with Bristol Bay on the North side of the peninsula. The mountains extend nearly to the coast on the south side, and a chain of lakes exists above Chignik Bay which has traditionally been used as a portage connecting Bristol Bay and the Gulf of Alaska. These lakes are home to large numbers of juvenile sockeye salmon and the commercially important fisheries of Chignik Bay and Lagoon.

---

The Aleut people are believed to be descendants of the group of Beringian migrants who eventually also gave rise to Yup'ik and Iñupiaq peoples. Shortly after the last ice age, the proto-Aleut-Eskimo peoples split, and those who would become the Aleuts migrated great distances by sea, moving along the western Alaska, Bristol Bay, and northern Alaska Peninsula coasts and eventually reaching the westernmost Aleutian Islands (Derbeneva et al. 2002).

Although the term “Aleut” was applied to all Indigenous peoples in the region by 18th century Russian explorers, the name that the group uses for themselves is Unangaġ. Unangan settlement sites have been dated to 9,000 years or older, though younger sites (3,000–4,000 years old) are much more common (Veltre and Smith 2010). The Unangaġ were and still are maritime people, relying primarily on marine mammals, marine invertebrates, seabirds, and fish. Fish resources included salmon and to this day mixed commercial and subsistence economies primarily rely on salmon fishing.

---

## Changes in Systems

Russian contact occurred earlier (1741) in the Aleutians than anywhere else in Alaska, and its influence with respect to culture, life, and religion is evident today. The first half-century of Russian rule brought battle fatalities, epidemics, and forced labor in the sea otter, fox, and seal fur trades. The latter change also meant that women and children were burdened with hunting and fishing in addition to their other roles in society. Russian Orthodoxy replaced the traditional, spiritually centered belief system among the Unangaġ, having been told that their beliefs, as well as marriage and war customs, were unacceptable in the eyes of the church.

The U.S. government continued the forced slavery in the northern fur seal trade among Pribilof Islanders (and others that were moved to the islands and those who were sent there to work in the summers) that began in the era of Russian control. During this period, the government also controlled every aspect of Unangan life in the Pribilofs, including marriage, employment, migration, and justice. The Unangaġ were wards of the state until after World War II, during which they had the uniquely horrific experience of having been witnesses to and prisoners of the only World War II battles fought on American soil. The psychological and emotional traumas of living under

violent and oppressive colonial regimes and surviving disease and war attest to the strength and resilience of the Unangan people.

On the Alaska Peninsula, Indigenous peoples include Unanga<sup>x</sup> and Alutiit along the peninsula, and smaller numbers of Yupiit at the far northwestern edge, where it borders Bristol Bay. Compared to the level of dependence on salmon in the western Aleutian Islands, the eastern Aleutians and the Alaska Peninsula are heavily engaged in subsistence and commercial harvesting and processing of large runs of salmon (Reedy 2016). For example, in Sand Point in the 1990s, 39% of jobs were in the commercial fishing industry, and 75% of households had at least one member who was employed in commercial fishing (Fall et al. 1993). Despite the high level of dependence on the industry, local participation in Area M fisheries on the northern coast of the peninsula has decreased since the 1970s. The Area M fisheries, like others in the state, suffered economic hardships in response to the influx of farmed salmon into the global seafood market in the early 2000s. During the 1980s, the Area M drift gillnet fishery was the most valuable permit in terms of price. Less than 10 years later, that permit had lost 91% of its economic value. The price crash led to a drastic decrease in the outflow of locally held permits, but when all Area M fisheries are considered, the decrease is comparable to other salmon fisheries in the state.

## Regional Snapshot Today

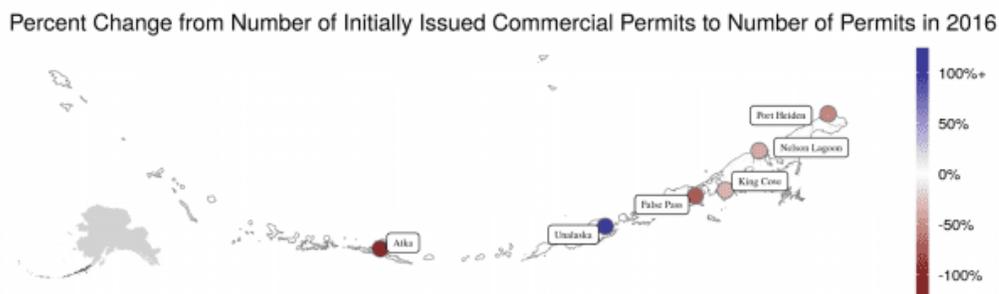
### Salmon and Habitat

In terms of climate, this region is a full 1°C cooler on average than its neighbor Chignik and receives less precipitation (95 mm vs. 146 mm). As of 2015, 8856 residents called this region home and coupled with the relatively small area of islands the average human footprint was the 5th highest in population, compared to other regions. A total of 110 culverts are known, of which 49% have or likely have fish passage problems. Over 4,000 km (1200 miles) of streams and rivers are known to contain salmon, with nearly equal representation among all five species.

# Salmon and People

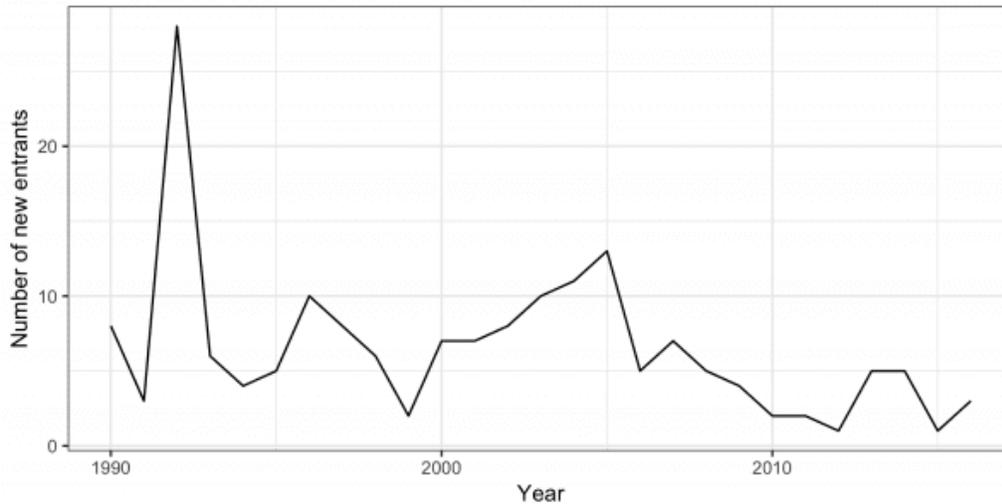
Unangan communities extend from the northern Alaska Peninsula to Adak Island in the west. Dependence on salmon for subsistence and commercial purposes is concentrated among Alaska Peninsula communities. The majority of commercial and subsistence fisheries for salmon in the Aleutian Islands extend from False Pass westward to Adak, including the Pribilof Islands. Though populations of pink and sockeye salmon return to streams in the western Aleutians, commercial harvests of salmon in the Atka-Amlia fishing district, west of Adak, have been infrequent and have not occurred in the past 20 years (Johnson and Fox 2016). Similarly, subsistence and personal use harvests of salmon in the western Aleutian Islands have historically been low compared to other regions of the state. After 1993 when the U.S. Naval Base on Adak was permanently closed, subsistence harvests of salmon decreased significantly in the community (Johnson and Fox 2016). In other Aleutian Island communities (e.g., Unalaska), subsistence harvests of sockeye salmon number in the thousands annually (roughly 2,700 fish in 2014).

For Alaska Peninsula communities, there is very little separation between commercial and subsistence fishing activities, and often subsistence fish are retained from commercial harvests (i.e., “home pack”). Understanding commercial fishing participation in fishing communities is complex and is tied to far more than economic activity. Reedy-Maschner explains that “fishing...is necessary for survival, not just in economic terms or in terms of sharing and maintaining social networks, but in terms of men negotiating place in the pecking order of fishing, establishing identity through skill, and attracting women” (2010:130). Other illustrations of status and structure in Alaska Peninsula fishing communities include the political offices that are managed by women but held by permit-holding men, female members of fishing families that often engage in shore-based full-time employment to support the status and occupation of permit-holding husbands (e.g., health and retirement benefits), and greater access to subsistence harvests afforded by commercial fishing rights, vessels, and gear (Reedy-Maschner 2010).

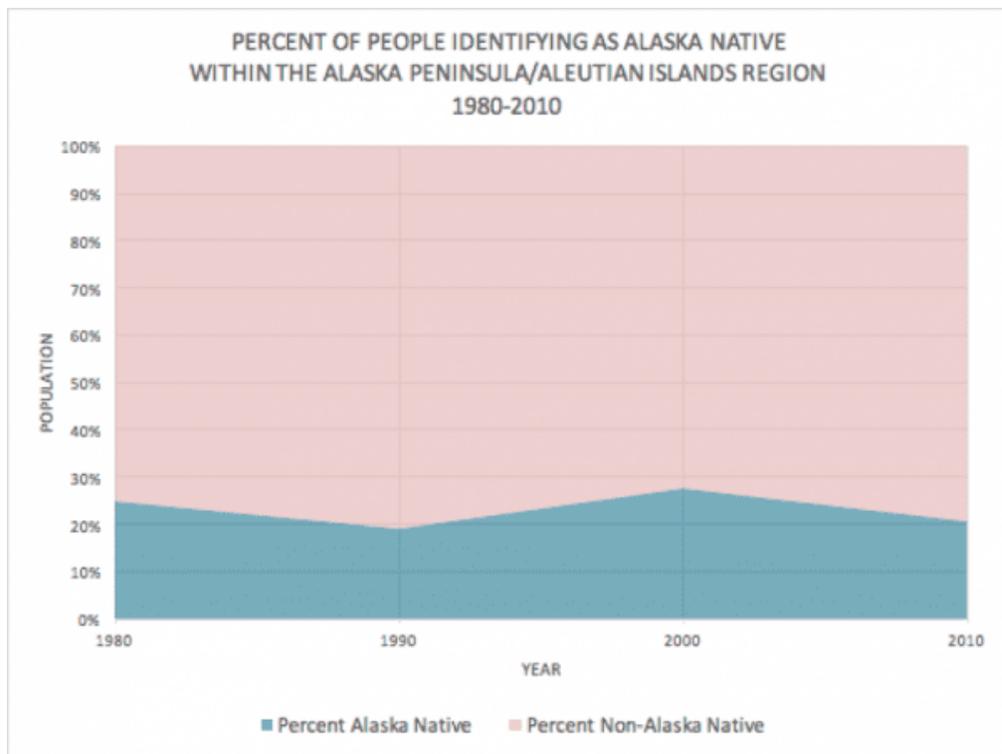


*Percent change from number of initially issued (ranging from 1975-1982) permanent commercial salmon permits held by Alaska residents to number of permits in 2016 by community. Alaska Department of Fish and Game, Commercial Fisheries Entry Commission. 2017. Commercial Fisheries Entry Commission (CFEC) Public Permit Holders by Community of Residence 1975-2016. Knowledge Network for Biocomplexity. [doi:10.5063/F1H70D1X](https://doi.org/10.5063/F1H70D1X).*

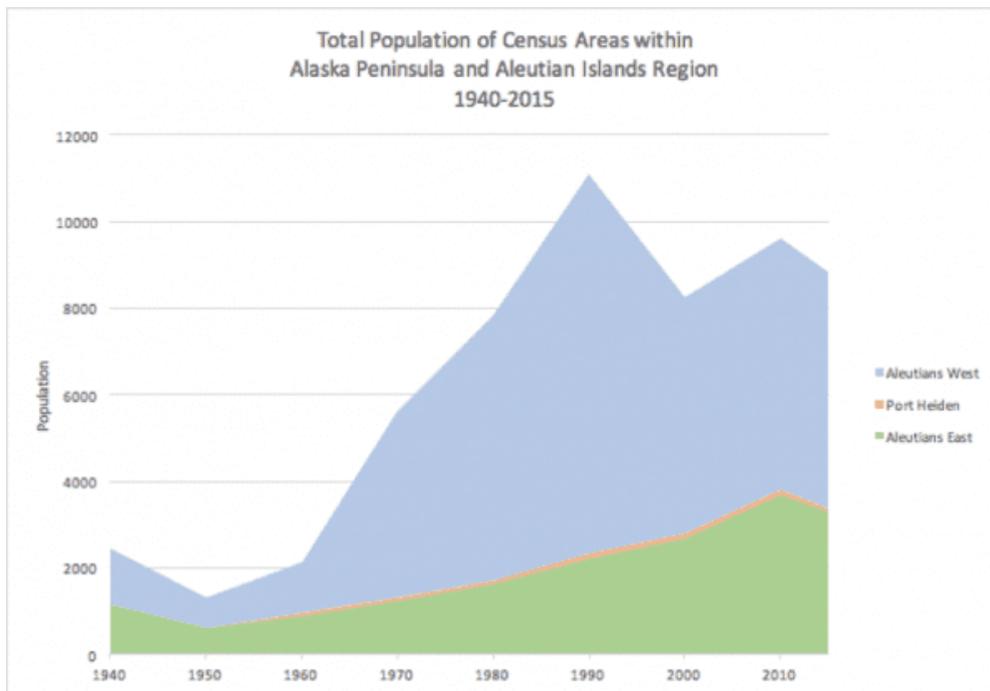
**New entrants to salmon commercial fisheries  
Alaska Peninsula and Aleutian Islands**



*Commercial fishery permit holdings among communities in the Alaska Peninsula and Aleutian Islands from 1975 to 2016. Commercial Fisheries Entry Commission CFECC and Tobias Schwoerer. 2016. Commercial Fisheries Entry Commission Public Permit Database from 1975-2016. Knowledge Network for Biocomplexity. [doi:10.5063/F1CV4G17](https://doi.org/10.5063/F1CV4G17).*



*Percent of People Identifying as Alaska Native, 1980 - 2010. Note: Census questionnaires in 2000 and 2010 allowed reporting of Alaska Native in combination with other ethnicities, whereas 1980 and 1990 did not. Data presented for 2000 and 2010 represents all people identifying as Alaska Native, either alone or in combination. United States Census Bureau, Juliet Bachtel, John Randazzo, and Erika Gavenus. 2018. Alaskan Population Demographic Information from Decennial and American Community Survey Census Data, 1940-2016. Knowledge Network for Biocomplexity. [doi:10.5063/F1XW4H3V](https://doi.org/10.5063/F1XW4H3V)*



*Total Population of the Alaska Peninsula and Aleutian Islands Region, 1940 - 2011. United States Census Bureau, Juliet Bachtel, John Randazzo, and Erika Gavenus. 2018. Alaskan Population Demographic Information from Decennial and American Community Survey Census Data, 1940-2016. Knowledge Network for Biocomplexity. [doi:10.5063/F1XW4H3V](https://doi.org/10.5063/F1XW4H3V)*



*Salmon processing in King Cove, 2018. Photo by Danielle Ringer*

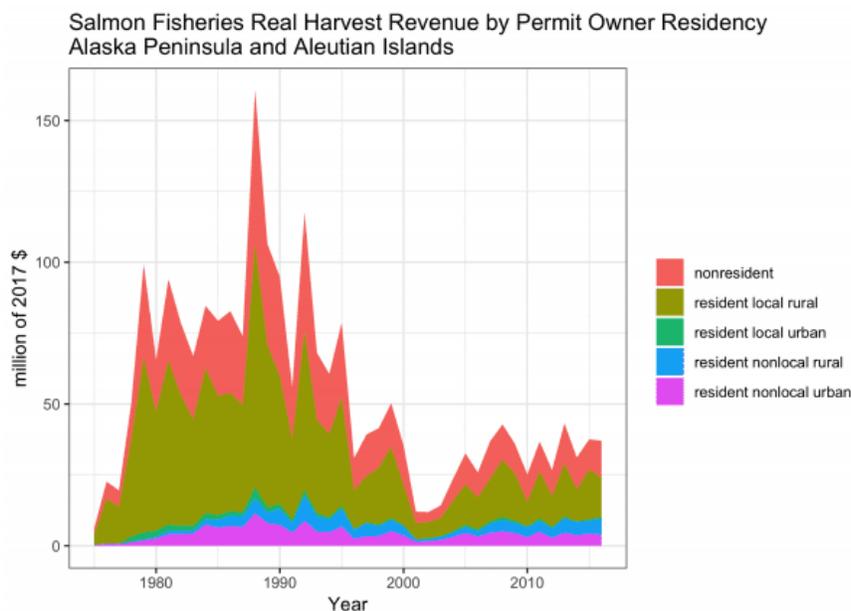
---

# Salmon and Economy

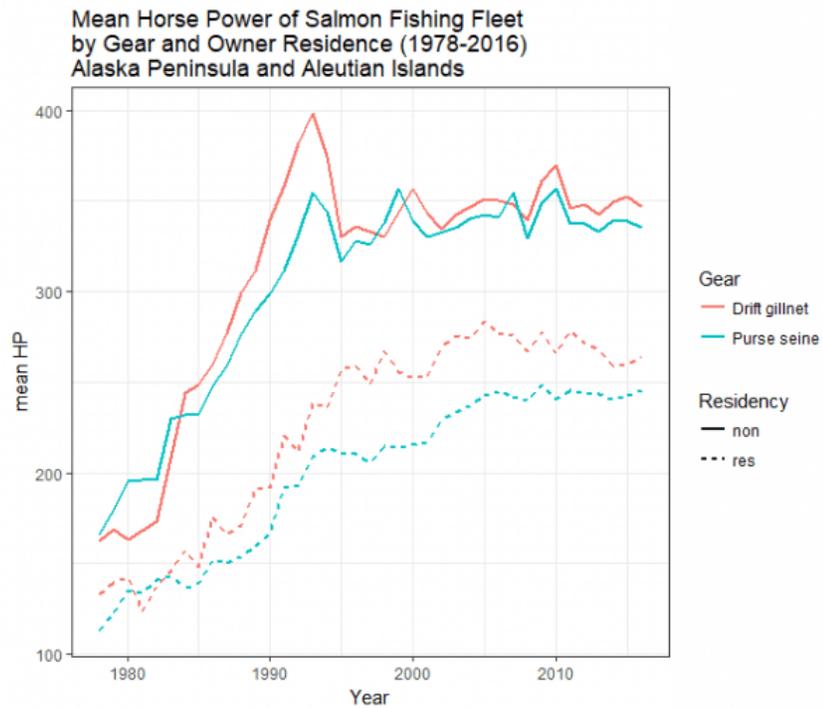
Since 1975, salmon fisheries in the Alaska Peninsula and Aleutian Islands have generated over \$2.2 billion in revenue to harvesters making it the state's fourth largest in value (2017 inflation adjusted dollars) and the state's fifth largest in volume. The salmon fisheries in the Alaska Peninsula and Aleutian Islands region are similar in size and revenue variability to salmon fisheries in Cook Inlet, where size comes at the cost of increased variability in year-by-year revenues. Sport fish and subsistence catch are comparatively small volumes in contrast to the predominate commercial salmon fishery of this region. There are no personal use fisheries occurring in this region.

Combined real (inflation-adjusted) revenue for all commercial salmon fishing permits fished in the Alaska Peninsula and Aleutian Islands region shows revenue declined between record years in the late 1980s and a historical low in the early 2000s. Since then, revenues have recovered but have not reached the high historical levels observed in the pre-2000 period. Compared with revenues in other salmon regions of Alaska, the Alaska Peninsula Aleutian Islands fisheries have always been among the top three fisheries in terms of the revenues generated for harvesters.

Commercial fishery permit holdings among communities in the Alaska Peninsula and Aleutian Islands have declined in the past 25 years (Fig. 1). The graph of Salmon Fisheries Earnings (Fig. 2) is a reminder about the stark differences in access to capital between boat owners who are Alaska residents and others from outside Alaska. Figure 3. indicates that nonresidents operate boats with higher mean HP — approximately 100HP larger on average compared to resident permit holders in both the purse seine and drift gillnet fisheries occurring in this region.



**Fig. 2. Fisheries earnings by Permit Owner Type in the Alaska Peninsula and Aleutian Islands, 1975 - 2016. Tobias Schwoerer. Regional commercial salmon permit earnings by residency status, Alaska, 1975-2016. Knowledge Network for Biocomplexity. [doi:10.5063/F1WW7FZ2](https://doi.org/10.5063/F1WW7FZ2).**



*Fig. 3. Mean horse power of salmon fleets, by gear and owner residence, 1978 - 2016. Alaska Department of Fish and Game, Commercial Fisheries Entry Commission and Tobias Schwoerer. 2018. Commercial vessel characteristics by year, state, Alaskan census area and city, 1978-2017. Knowledge Network for Biocomplexity. doi:10.5063/F14F1P2Q*

# Salmon and Subsistence

## State Regulatory Framework

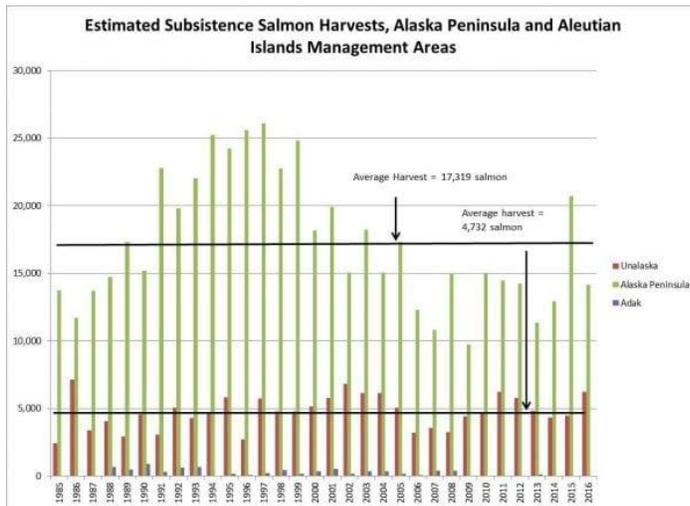
Participants in the Alaska Peninsula Management Area subsistence salmon fishery, the Adak District subsistence salmon fishery, and the Unalaska District subsistence salmon fishery must obtain a permit from the Alaska Department of Fish and Game (ADF&G), record their harvests on the permit, and return the permit to ADF&G at the end of the season. Allowable gear includes gillnets and seines. Harvest limits are 250 salmon per household in the Alaska Peninsula Area, and 25 salmon per person in the permitted household in the Unalaska and Adak districts. Permits are not required in the Akutan, Unmak, and Atka-Amlia Islands districts, but there is a 250 salmon annual limit. For a complete summary of state subsistence regulations, see 5 AAC 01.350 – 440. There are no personal use salmon fisheries in these management areas.

## Federal Regulatory Framework

Federal regulations are similar to state regulations. Federal regulations apply on waters within and inland waters adjacent to the Alaska Maritime National Wildlife Refuge (NWR), the Izembek NWR, the Alaska Peninsula NWR, and the Aniakchak National Monument and Preserve.

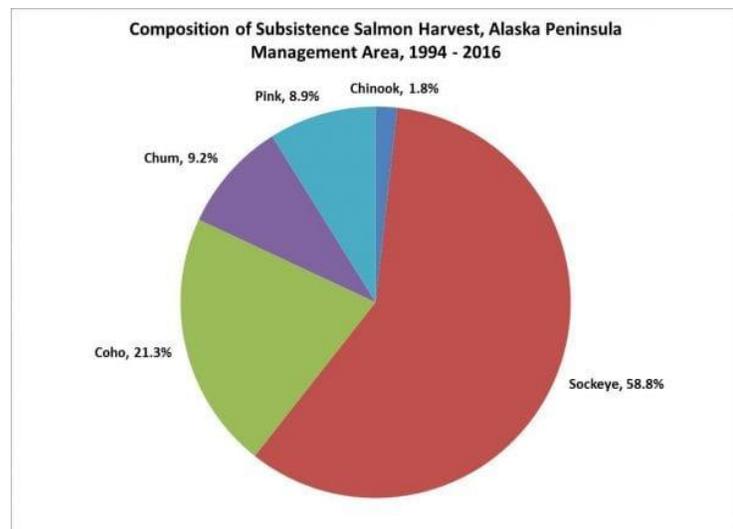
## Subsistence Salmon Harvest Patterns

For the period 1985 – 2016, estimated subsistence salmon harvests in the Alaska Peninsula Area averaged 17,319 fish, with an annual harvest ranging from 9,707 salmon in 2009 to 26,096 salmon in 1997 (Fig. 1). For the period 1994 – 2016, sockeye made up 59% of the Alaska Peninsula Area average annual harvest of 17,526 salmon, followed by coho (21%), chum (9%), pink (9%), and Chinook (2%) (Fig 2.)



**Fig. 1** Estimated Subsistence Salmon Harvests, by area of residence – 1985 – 2016. Alaska Department of Fish and Game, Division of Subsistence. Subsistence and personal use harvest of salmon in Alaska, 1960-2012. Knowledge Network for Biocomplexity. [doi:10.5063/F18P5XTN](https://doi.org/10.5063/F18P5XTN).

**Fig. 2** Composition of Subsistence Salmon Harvest, Alaska Peninsula – 1994-2016. Alaska Department of Fish and Game, Division of Subsistence. Subsistence and personal use harvest of salmon in Alaska, 1960-2012. Knowledge Network for Biocomplexity. [doi:10.5063/F18P5XTN](https://doi.org/10.5063/F18P5XTN).



In the Unalaska District for the period 1985 – 2016, the average annual estimated subsistence salmon harvests were 4,978 salmon, with a range of 2,418 fish (1985) to 6,837 fish (2002) (Figure 1-1). By species, for the period 1994 – 2016, the average annual harvest (4,978 salmon) was 76% sockeye, 12% coho, 11% pink, 1% chum, and <1% Chinook (Figure 1-3). Before the US Navy base closed at Adak in 1993, the subsistence/personal use salmon fishery there averaged an annual harvest of 611 salmon, mostly sockeye and pink. Harvests dropped after the base closed, with a recent 10-year average harvest of 103 salmon (2007-2016) (Fall et al. 2018:162). Salmon harvest estimates for communities not part of annual harvest monitoring programs (Akutan, Nikolski, Atka) are available based on occasional comprehensive harvest surveys (Fall 2018:163; Reedy-Maschner and Maschner 2012; Reedy 2016).

Integration of commercial and subsistence fishing is more pronounced in communities of the Alaska Peninsula Area than in many other areas of the state. Commercial gear (boats, nets, etc.) is regularly used in support of subsistence fishing and hunting (Reedy-Maschner 2010:93-97; Reedy-Maschner and Maschner 2012; Braund 1986). Retaining salmon from commercial harvests for home use and sharing (“home pack”) is a primary source of salmon: in 1992, 39% of the total estimated salmon used by Sand Point residents came from local households’ retention of fish from their commercial harvests, as did 51% of the salmon harvest for home use in King Cove (Figure 1-4) (Fall et al. 1993a, Fall et al. 1993b).

In recognition that a substantial portion of the salmon for home use for communities in this management area comes from sources other than the subsistence fishery, the ANS finding for the Alaska Peninsula Area of 34,000 to 56,000 salmon is based upon average estimated harvests derived from subsistence permit returns and estimated harvests with “other gear” (commercial removal and rod and reel) recorded on comprehensive household surveys conducted by ADF&G. This is also the case for the ANS finding for the Aleutian Islands Area of 13,500 to 23,000 salmon (ADF&G 2004).

The most recently available data from comprehensive surveys show that salmon provide 58% of the total harvests for home use in the communities of the combined Alaska Peninsula – Aleutian Islands Management Area (Fig. 3).

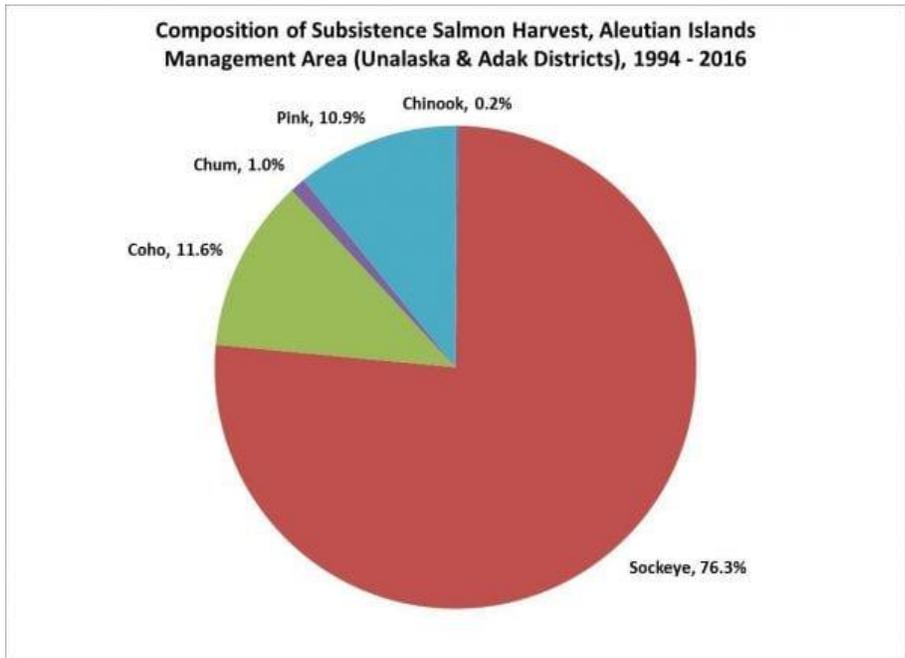
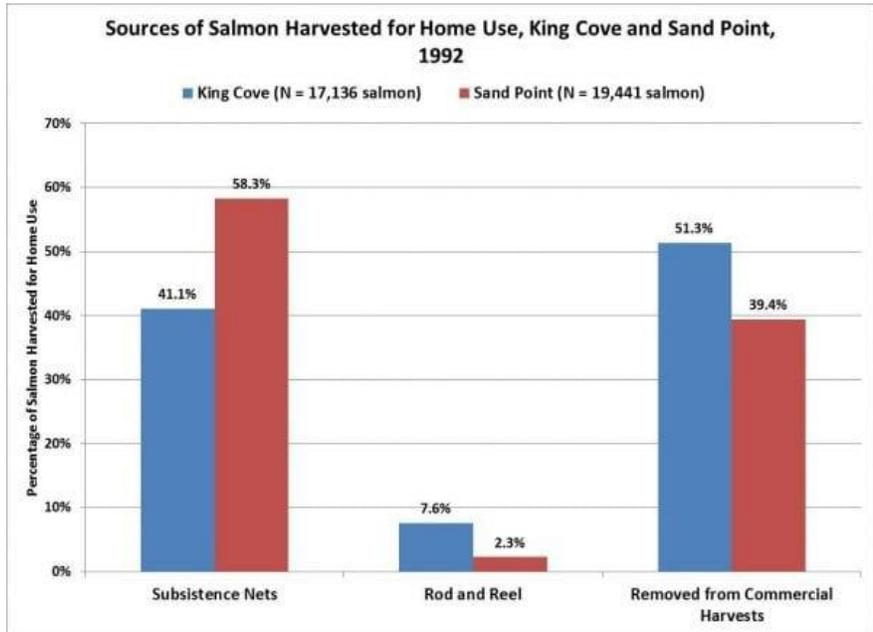
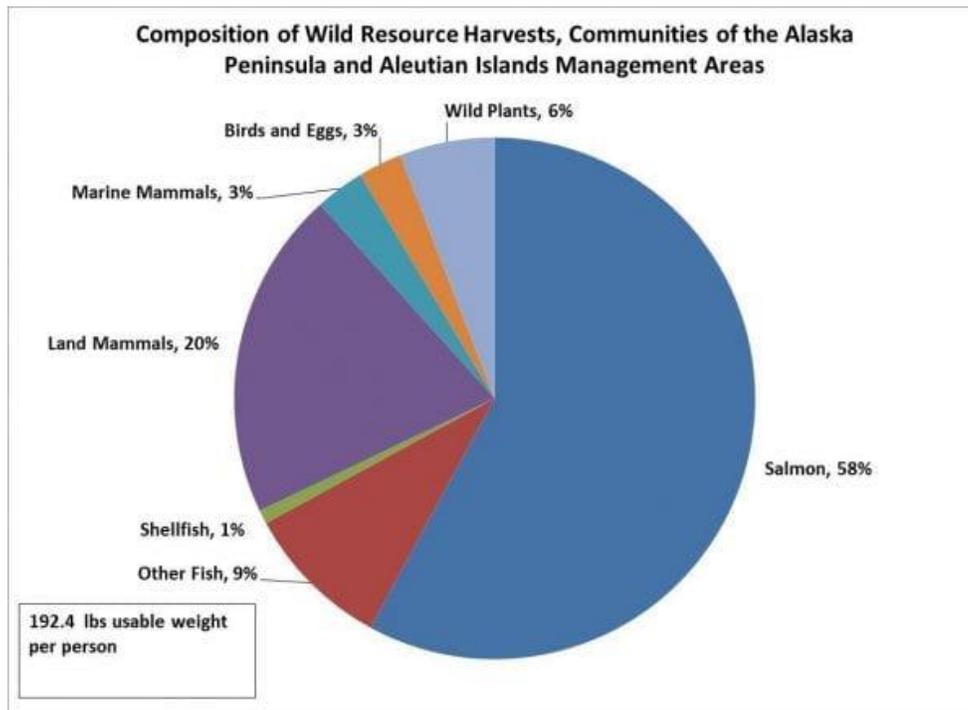


Fig 3. Composition of Subsistence Salmon Harvest, Unalaska and Adak Districts – 1994 – 2016. Alaska Department of Fish and Game, Division of Subsistence. Subsistence and personal use harvest of salmon in Alaska, 1960-2012. Knowledge Network for Biocomplexity. [doi:10.5063/F18P5XTN](https://doi.org/10.5063/F18P5XTN).



Sources of salmon harvested for home use in King Cove and Sand Point, by gear type. Alaska Department of Fish and Game, Division of Subsistence. Subsistence and personal use harvest of salmon in Alaska, 1960-2012. Knowledge Network for Biocomplexity. [doi:10.5063/F18P5XTN](https://doi.org/10.5063/F18P5XTN)



*Composition of wild resource harvest, Alaska Peninsula and Aleutian Island Communities. Alaska Department of Fish and Game, Division of Subsistence. 2018. Subsistence harvest information by region, community, resource, and year, 1964-2015. Knowledge Network for Biocomplexity. [doi:10.5063/F1S75DNC](https://doi.org/10.5063/F1S75DNC)*

## Salmon and Governance

Significant governance issues in the region deal with the maintenance of historic fisheries. Lands in the Alaska Peninsula/Aleutian Islands region are largely under federal jurisdiction, primarily held in wildlife refuges in the Aleutian Islands. State lands are found generally on the north side of the Alaska Peninsula. Most salmon fishing occurs in marine waters under state jurisdiction. Controversy over Alaska Peninsula/Aleutians Islands purse seine and drift gillnet fisheries was a major governance issue in the 1990s when chum salmon returning to the Kuskokwim River, Yukon River, and Norton Sound streams were at extremely low levels. Tagging studies showed that these stocks passed through waters of the Alaska Peninsula/Aleutian Islands area. Contention ensued when the Bering Sea regional populations sought to strictly regulate harvests in the AP/AI fisheries and the AP/AI fishermen responded that they were historic fisheries, having been conducted since the early 20th century. After much conflict, openings were limited, and caps placed on the AP/AI harvests of salmon heading for Bering Sea streams during the times they passed through AP/AI waters. Between 2000-2018, AP/AI salmon fisheries were declared a disaster on two occasions.

# Land Ownership

Federal, State, and Native Land in the Aleutian Islands



*Emily O'Dean and Jeanette Clark. Land status in Alaska, 2018. Knowledge Network for Biocomplexity. [doi:10.5063/F1NK3C9X](https://doi.org/10.5063/F1NK3C9X).*

The Alaska Peninsula – Aleutian Islands region is the most westerly jurisdiction of Alaska salmon governance. Territorial jurisdictions in AP-AI region are shown in the figure to the right. A substantial majority of the lands of the region fall under the jurisdiction of conservation units governed by the USFW. The state owns lands on the north side of the Alaska Peninsula on either side of Port Moller. Alaska Native corporations, regional and village, own coastal acreage in a number of locations associated for the most part with traditional villages. There are also military lands in the region under the jurisdiction of the Department of Defense. The East Aleutian Borough governs much of the eastern portion of the region from Unimak Island to just east of Port Moller including the Shumagin Islands.

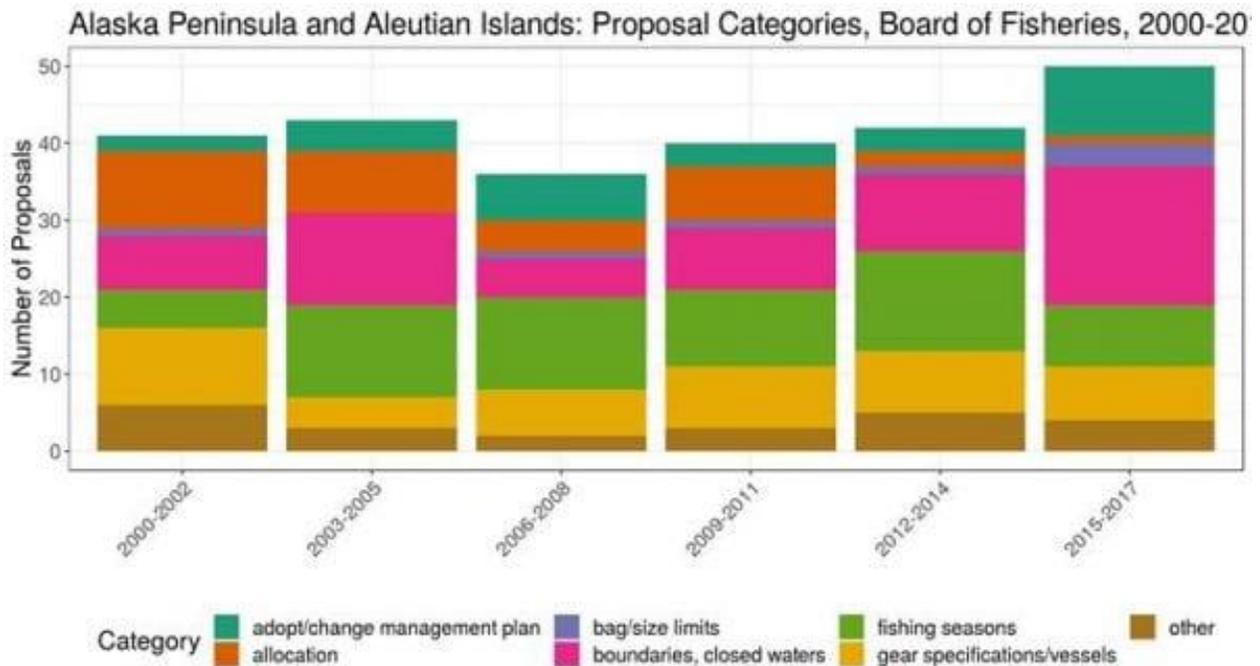
The most significant fishing association in the region that participates in governance proceedings is the Concerned Area M fishermen. The name is derived from the state designation of the management area as Area M. It is comprised predominantly of local purse seine permit holders. There are no environmental NGOs, watershed councils, or similar organizations in the region. No hatcheries operate in the region.

## Advisory Committees

There are five state Advisory Committees in the region. Four of them are rural, single community, no road committees and one is a rural, single, with road community. None of the committees have designated seats. From 2000-17, four of the five Advisory Councils averaged less than one committee meeting per year. Four communities in the region do not have Advisory Committees. State advisory committees in the region can be seen by clicking [here](#).

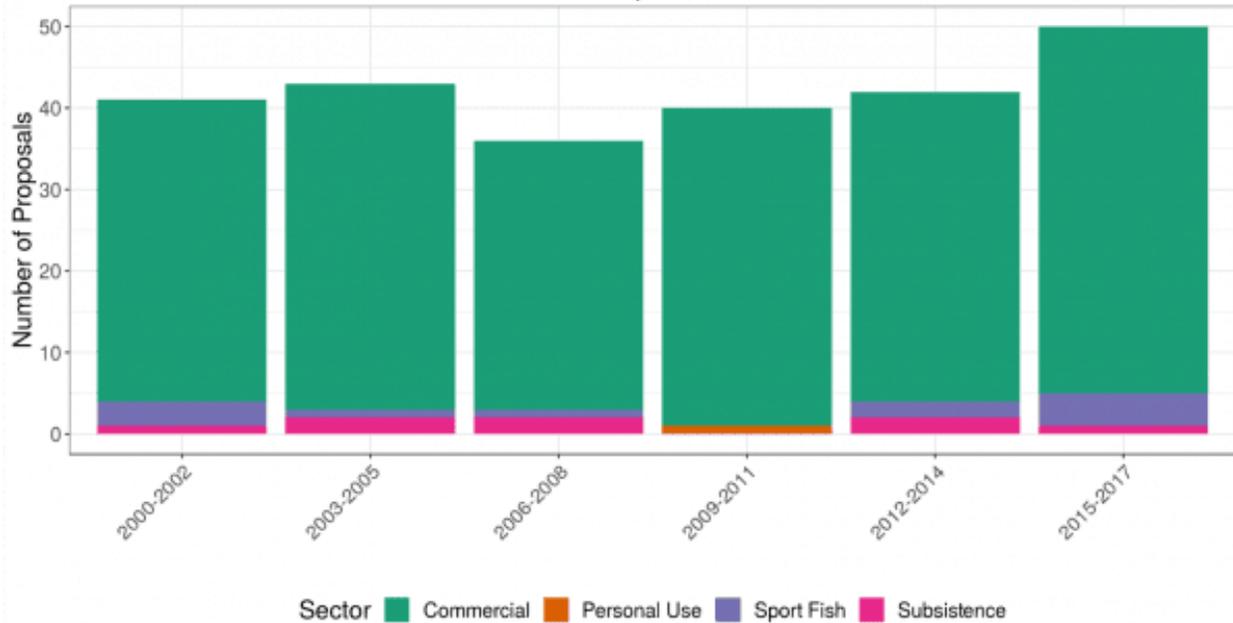
## Board of Fisheries

The following figures provide information on Alaska Peninsula – Aleutian Islands area salmon proposals concerning various categories submitted to the Board of Fisheries over the 2000-2017 period. The region is ranked fourth in the number of proposals submitted to the BOF during the study period. Commercial fishing proposals constitute the overwhelming number of proposals submitted. The topics of boundaries/closed waters and fishing seasons for commercial fisheries have been most frequently addressed reflecting continuing issues of the intermixing of salmon stocks from north of the Alaska Peninsula and from the east in the Gulf of Alaska in the catches of the regional fishermen. Allocation issues between the three permitted commercial fisheries in the region has declined as a proposal topic in recent years.



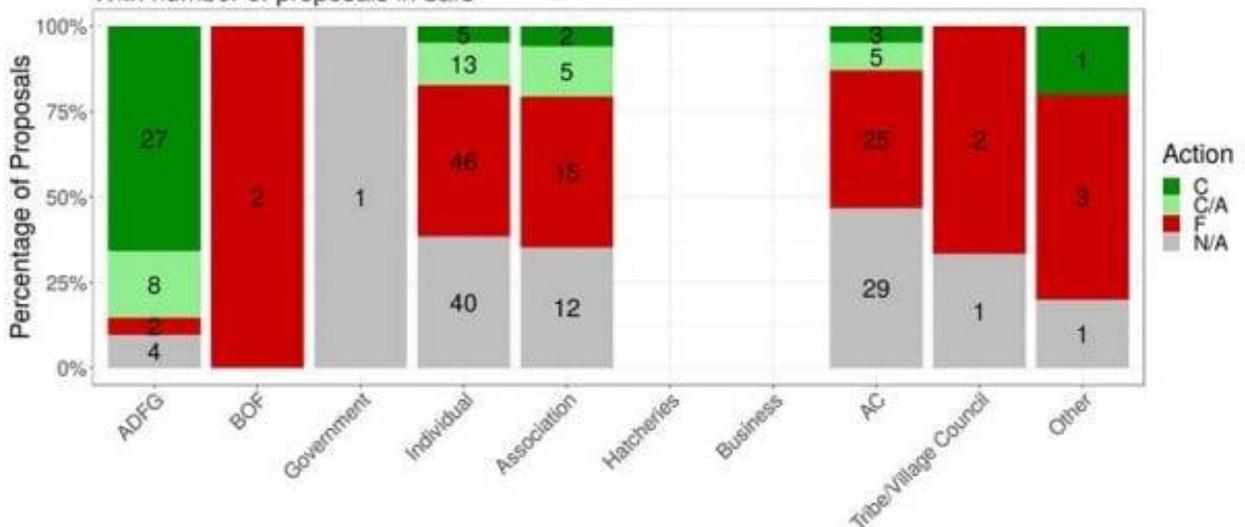
*Proposals to the Board of Fisheries, by Category: 2000 - 2016. Stephen Langdon, Taylor Brelsford, Jim Fall, and Jeanette Clark. 2018. Salmon Proposals to the Alaska Board of Fisheries, 2000-2017. Knowledge Network for Biocomplexity. [doi:10.5063/F1D21VW7](https://doi.org/10.5063/F1D21VW7)*

Alaska Peninsula and Aleutian Islands: Proposal Sectors, Board of Fisheries, 2000-2017



Proposals to the Board of Fisheries, by fishing sector: 2000 - 2017. Stephen Langdon, Taylor Brelsford, Jim Fall, and Jeanette Clark. 2018. Salmon Proposals to the Alaska Board of Fisheries, 2000-2017. Knowledge Network for Biocomplexity. [doi:10.5063/F1D21VW7](https://doi.org/10.5063/F1D21VW7)

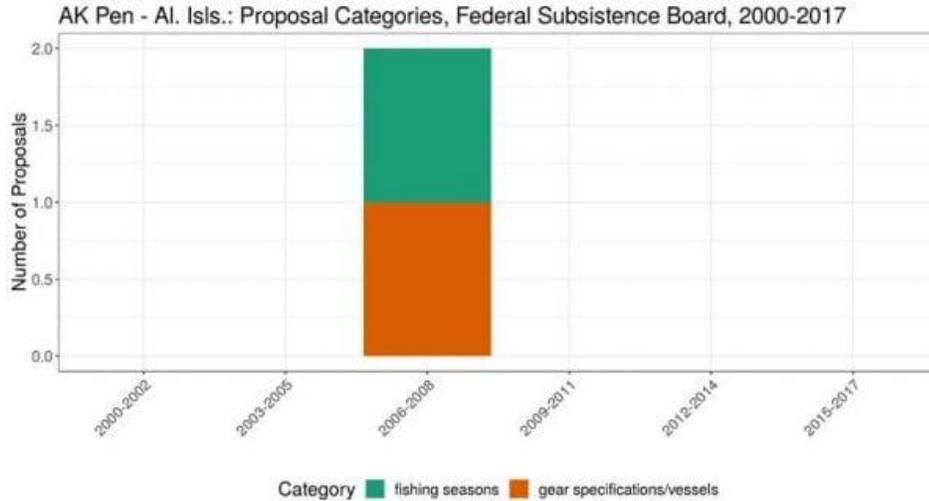
Alaska Peninsula and Aleutian Islands: Proposal Result by Proponent Group, Board  
With number of proposals in bars



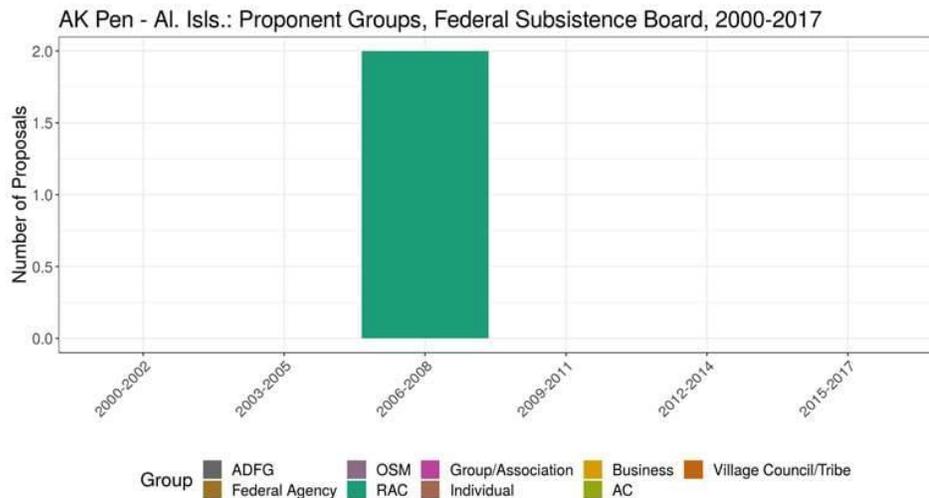
Result of proposal submissions to the Board of Fisheries, by proponent group. Stephen Langdon, Taylor Brelsford, Jim Fall, and Jeanette Clark. 2018. Salmon Proposals to the Alaska Board of Fisheries, 2000-2017. Knowledge Network for Biocomplexity. [doi:10.5063/F1D21VW](https://doi.org/10.5063/F1D21VW)

# Federal Subsistence Board

For purposes of the Federal Subsistence Board, communities in this region participate in the Region 3 Regional Advisory Council that includes Kodiak and Chignik as well. Subsistence proposals submitted to the Federal Subsistence Board, 2000-17 are displayed in the following figures. Only two proposals were submitted, both in the 2006-08 cycle. One addressed seasons, and one addressed gear.



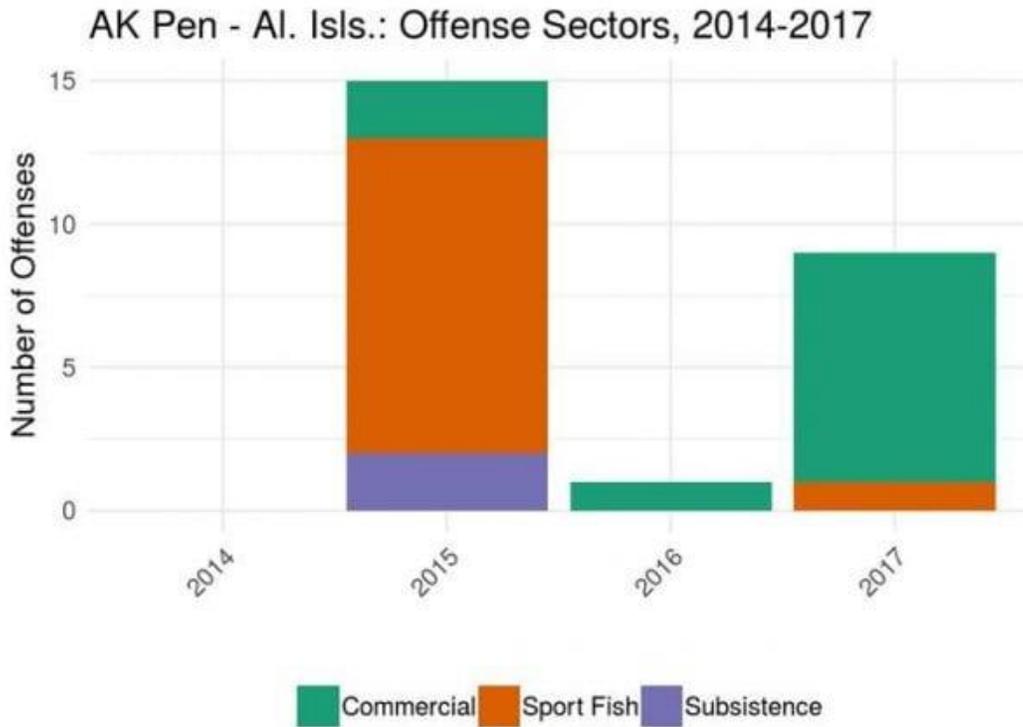
*Alaska Peninsula and Aleutian Islands: proposals by category to the Federal Subsistence Board. Taylor Brelsford, Steve Langdon, and Jeanette Clark. 2018. Alaska Federal Subsistence Board Proposals 2000-2015. Knowledge Network for Biocomplexity. [doi:10.5063/F1HT2MMN](https://doi.org/10.5063/F1HT2MMN)*



*Alaska Peninsula and Aleutian Islands: proposals to the Federal Subsistence Board, by submitting group. Taylor Brelsford, Steve Langdon, and Jeanette Clark. 2018. Alaska Federal Subsistence Board Proposals 2000-2015. Knowledge Network for Biocomplexity. [doi:10.5063/F1HT2MMN](https://doi.org/10.5063/F1HT2MMN)*

## Enforcement

Citations for violations of salmon fishing laws in the Alaska Peninsula – Aleutian Islands region over the 2014-17 period have been given primarily in the sport fish and commercial fisheries.



*Alaska Peninsula and Aleutian Islands: Offense citations by fishing sector, 2014 – 2017. Alaska Department of Public Safety, Division of Alaska Wildlife Troopers. 2018. Violations and Enforcement of Salmon Fishing Regulations, Alaska, 2014-2017. Knowledge Network for Biocomplexity. [doi:10.5063/F1VH5M32](https://doi.org/10.5063/F1VH5M32).*

# References

- Alaska Department of Fish and Game. 2004. Deliberation materials for Proposal Number 199 and ANS Findings, Alaska Board of Fisheries, February 2004. Prepared by the Division of Subsistence. Anchorage.**
- Braund, Stephen and Associates. 1986. Effects of Renewable Resource Harvest Disruption on Community Socioeconomic and Sociocultural Systems: King Cove. Mineral Management Service, Alaska OCS Region, Social and Economic Studies Program Technical Report No. 123.**
- Derbeneva, OA., Starikovskaya, EB., Wallace, DC., & Sukernik, RI. 2002. Traces of early Eurasians in the Mansi of northwest Siberia revealed by mitochondrial DNA analysis. American Journal of Human Genetics 70(4): 1009-14.**
- Fall, James A., et al. 1993a. Noncommercial harvests and uses of wild resources in Sand Point, Alaska, 1992. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 226. Juneau.**
- Fall, James A., et al. 1993b. Noncommercial harvests and uses of wild resources in King Cove, Alaska, 1992. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 227. Juneau.**
- Fall, James A. et al. 2018. Alaska Subsistence and Personal use Salmon Fisheries 2015 Annual Report. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 440. Anchorage.**
- Johnson, R. H., and E. K. C. Fox. 2016. Annual summary of the 2015 commercial and personal use salmon fisheries and salmon escapements, and the 2014 subsistence fisheries in the Alaska Peninsula, Aleutian Islands, and Atka-Amlia Islands Management Areas. Alaska Department of Fish and Game, Fishery Management Report No. 16-34, Anchorage.**
- Reedy-Maschner, K. L. 2010. Aleut Identities: Tradition and modernity in an Indigenous Fishery. Montreal & Kingston, London, Ithaca: McGill-Queen's University Press.**
- Reedy, K. L. 2016. Island Networks: Aleutian Islands Salmon and Other Subsistence Harvests. Report prepared for US Fish and Wildlife Service, Office of Subsistence Management, Fisheries Resource Monitoring Program, Project No. 12-450. Anchorage, AK.**

**Reedy-Maschner, K. L. and Maschner, H. 2012. Subsistence study for the North Aleutian Basin. US Department of the Interior, Bureau of Ocean Energy Management. Anchorage.**

**Veltre, D. & Smith, M. 2010. Historical Overview of Archaeological Research in the Aleut Region of Alaska. *Human Biology* 82(5-6): 487-506.**