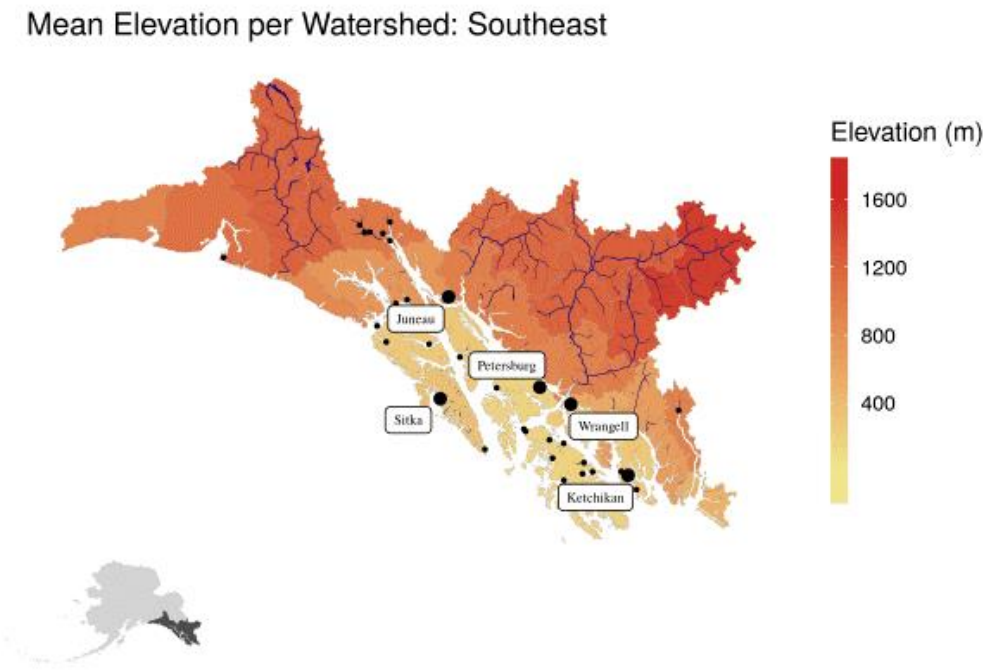
SOUTHEAST ALASKA

Geography

Southeast Alaska is a diverse region, categorized by thousands of small, steep coastal watersheds that provide ideal spawning habitat for pink salmon and chum salmon in particular. Though pink salmon and chum salmon predominate, all five species are caught and return to this region, with traditional importance of local peoples on sockeye salmon. Recent declines in returns of Chinook salmon to large river systems such as the Stikine and Taku embody the challenge of managing and conserving salmon populations that move beyond international borders as most fish returning to these systems were hatched in Canada but migrate through US waters to get home. Southeast is a distinct ADF&G management area. It is adjoined on the north by the Yakutat management area which is managed separately. For purposes of SASAP, the two have been merged.



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.

Early people and salmon systems

The Indigenous Tlingit people of the region have resided in the Southeast region for at least 6,000 years, with traditions based in coastal and maritime practices in the temperate rainforest climate. Tlingit traditional knowledge and fishing practices are based off the belief that salmon are sentient beings that will continue to return to their ancestral streams if they are treated with respect from humans. Indigenous management practices utilizing traditional knowledge informed a system of relational sustainability where allocation and utilization was linked to clan groups, heritage-based property rights, cultural values of avoiding waste, and communication of respect to the salmon (Langdon 2006).

Clan trustees over streams, termed *heen sati*, were responsible for sustaining salmon returns to their stream. This management system illustrates the complex relationship between salmon and people in southeast at the time when US assumed jurisdiction that has been displaced and transformed through economic and political processes (Arnold 2009). Tlingit continue to recognize their special relationship with the salmon of their customary and traditional areas through subsistence harvests that are shared widely among relations and distributed to guests at ritual celebrations.

The Kooteeyaa (pole) in Fig. 1 demonstrates ownership of a sockeye salmon stream on Prince of Wales Island by the Kakoshittan clan. This is an at.oow (sacred) object in Tlingit culture that tells the clan story about ownership of the stream and demonstrates respect for salmon. Source: Steve J. Langdon

Fig. 1

Changes in systems

Following Russian contact throughout Alaska, the fur trade began in 1743, but not until 1781 in the Southeast region when British and later American fur traders arrived. Russians came to Southeast Alaska in 1788. The Russians established a trading site in Sitka in 1799 that was destroyed by the Tlingit people in 1802. Two years later, it was retaken by the Russians and named New Archangel (Harris et al. 1974). They also established a post at Yakutat in 1796. Both Russian outposts were destroyed by the Tlingit after Russian depredations on sea otters and salmon that the Tlingit regarded as their property.

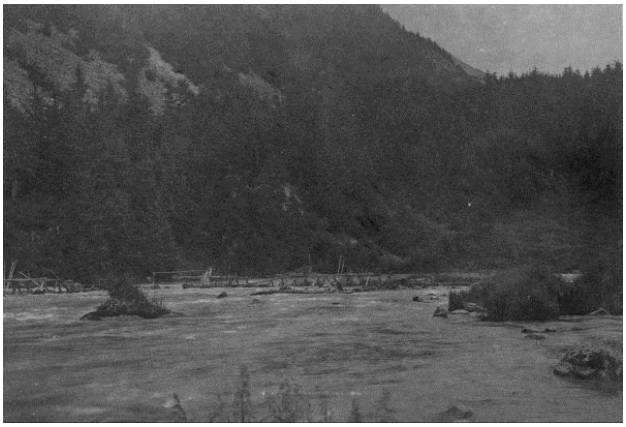
The Russians were able to re-establish an outpost in Sitka in 1804 that endured until the US assumed jurisdiction in 1867. The Russians exercised no hegemony outside of Sitka, where they utilized the Redoubt Lake sockeye system, but were repeatedly attacked at the outpost as Tlingit objected to Russian appropriation. In 1867, Tlingit and Haida outside of Sitka controlled and managed their salmon systems. In 1878, the first cannery was established at the Tlingit village of Klawock, where the industrialists recognized the ownership of the Klawock River by the local clan leader who they paid a lease fee.

Shortly after in Sitka, Tlingits confronted cannery entrepreneurs who attempted to bring in Chinese labor to work the lines. The resulting Tlingit protest is indicative of ensuing conflicts regarding rights to access salmon and struggles between Indigenous fishermen and non-Indigenous fishermen, entrepreneurs, and imported processing workers (Goforth 2014).

Contestant in Golden North Salmon Derby, 1968

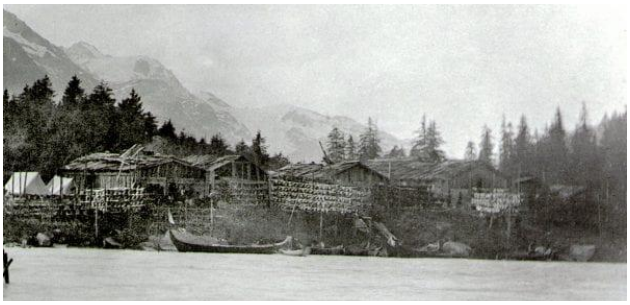
By the 1920s, Tlingit and Haida fishermen had adopted mobile fishing gear. These vessels and activities became the economic foundation for most villages. The White Act of 1924 prohibited exclusive right of fishery in Alaska, a provision that much later was used by the Supreme Court to find that Tlingit and Haida fishing rights were not compensable as they had not been recognized by the federal government (Price 1990). Tlingits pursued their land and fishing claims through legal claims in the 1930s and a number of groups sought reservations to protect their traditional lands and streams. Ultimately, they joined the movement leading to ANCSA in 1971 but never received the fishing rights that they fought for. After Alaska became a state in 1959, conflicts over access to salmon escalated to be a key problem due to the state's failure to recognize Native rights.

The Alaska Limited Entry Act in the 1970s created a program establishing permits awarded to individuals for the right to fish a gear type in a region. Permits could be sold or transferred to other individuals and sale of permits by village fishermen led to alienation of access to lifestyle for Indigenous fishermen and has resulted in the almost complete disappearance of commercial fisheries in most of the region's villages (Arnold 2008). An exception to this generalization is the Metlakatla Indian Reserve on Annette Island (see discussion in the Case Studies section under *Pacific Salmon Commission and International Issues*).



Tlingit salmon traps located in the Chilkoot River, 1894. Credit: Pratt, University of Washington UW33470

Huna Tlingit purse seining for sockeye salmon in 2002 during a special opening to commemorate a historically significant fishery to them closed in 1973.



Salmon drying on racks in front of Chilkoot village, 1894. Credit: Pratt, University of Washington UW33470

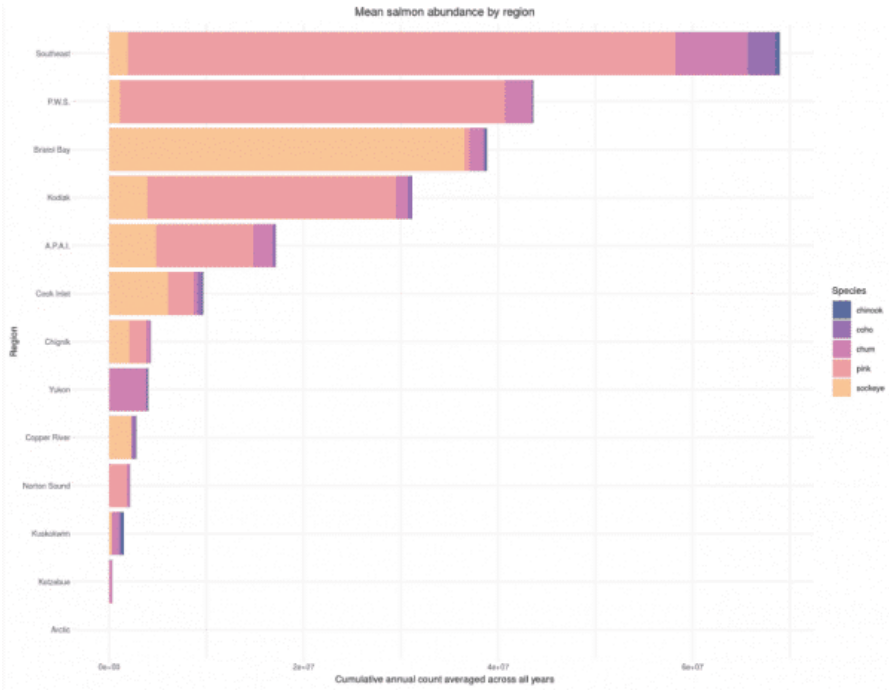
Regional Snapshot Today

Salmon and habitat

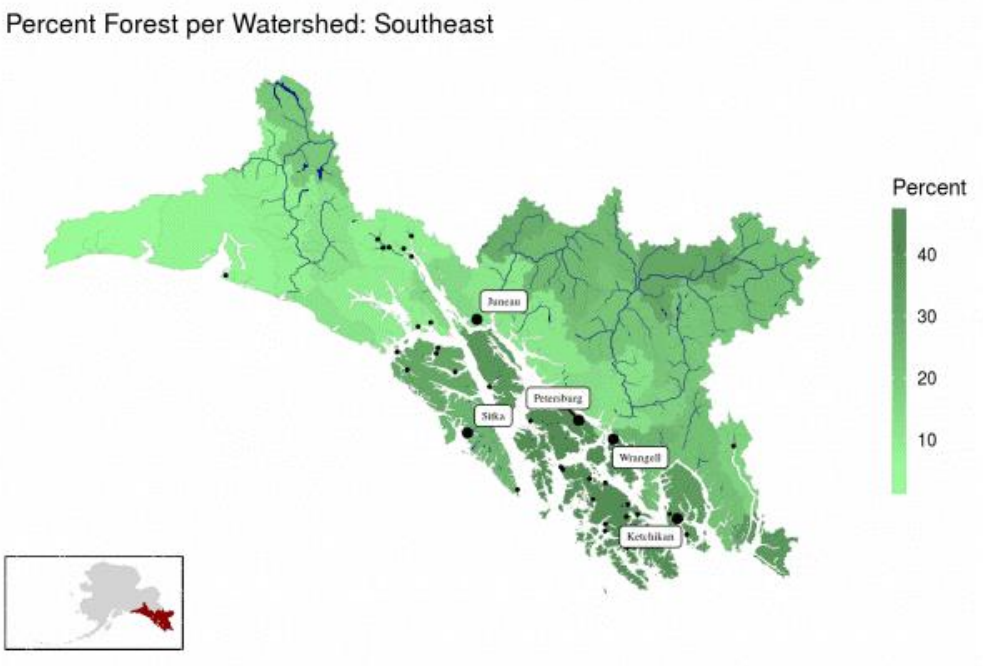
Southeast Alaska is defined by thousands of short small watersheds that between 2001 and 2015 supported the production of approximately 56 million wild pink salmon per year. Adult chum salmon abundance (7.4 million per year) is bolstered by the release of approximately 600 million juvenile salmon from hatcheries. Southeast Alaska is by far the richest in terms of total salmon abundance compared to the other regions of the state, where on average over 75 million total salmon return and are caught here. A challenge to management is the complex mixed-stock fisheries that occur with Chinook salmon and coho salmon from British Columbia (see Case Studies, below). The landscape is dominated by conifer rainforests, kept moist by seemingly incessant rain. In an average fall season, 290 mm of precipitation falls (11.5 inches). In the face of increased probability and magnitude of flooding, maintaining connections of rivers to their floodplains will provide options for spawning and rearing salmon and is a tangible way of responding to a rapidly changing climate.

Southeast Alaska consists of a narrow mainland strip of steep, rugged mountains and ice fields and more than 1000 offshore islands. The area is densely forested and mountainous, often rising abruptly from sea level to 1000 m or more. The steep terrain is drained primarily by moderate to small rivers and streams, with the exception of several large glacial rivers that cut through the coast mountain range into the Canadian provinces of British Columbia and the Yukon Territory.

These landscape characteristics shape the abundance and distribution of five Pacific salmon species found within the region. Pink, chum, and coho salmon are species that favor moderate to small size streams and are the most abundant and widely distributed species in Southeast Alaska due to the prevalence of this type of habitat. The presence of sockeye salmon is strongly associated with lakes that provide juvenile rearing habitat. Sockeye salmon are less common within the region but are found in most watersheds with lakes that are accessible from the sea. Chinook salmon are the least abundant salmon species within Southeast Alaska. Chinook salmon are predominantly found in larger mainland rivers, with the largest populations found in transboundary rivers such as the Taku, Stikine, and Alsek rivers, as well as in the Yakutat forelands.



Average annual count of salmon in each SASAP region of Alaska. Jeanette Clark and Robyn Thiessen-Bock. Estimate of total Alaskan salmon abundance by region, 2000-2015. Knowledge Network for Biocomplexity. [doi:10.5063/F1BR8QG4](doi:10.5063/F1BR8QG4)



Jared Kibele and Rachel Carlson. 2018. Percent landcover per SASAP region and Hydrologic Unit (HUC8) boundary for Alaskan watersheds. Knowledge Network for Biocomplexity. [doi:10.5063/F18G8J1V](doi:10.5063/F18G8J1V)

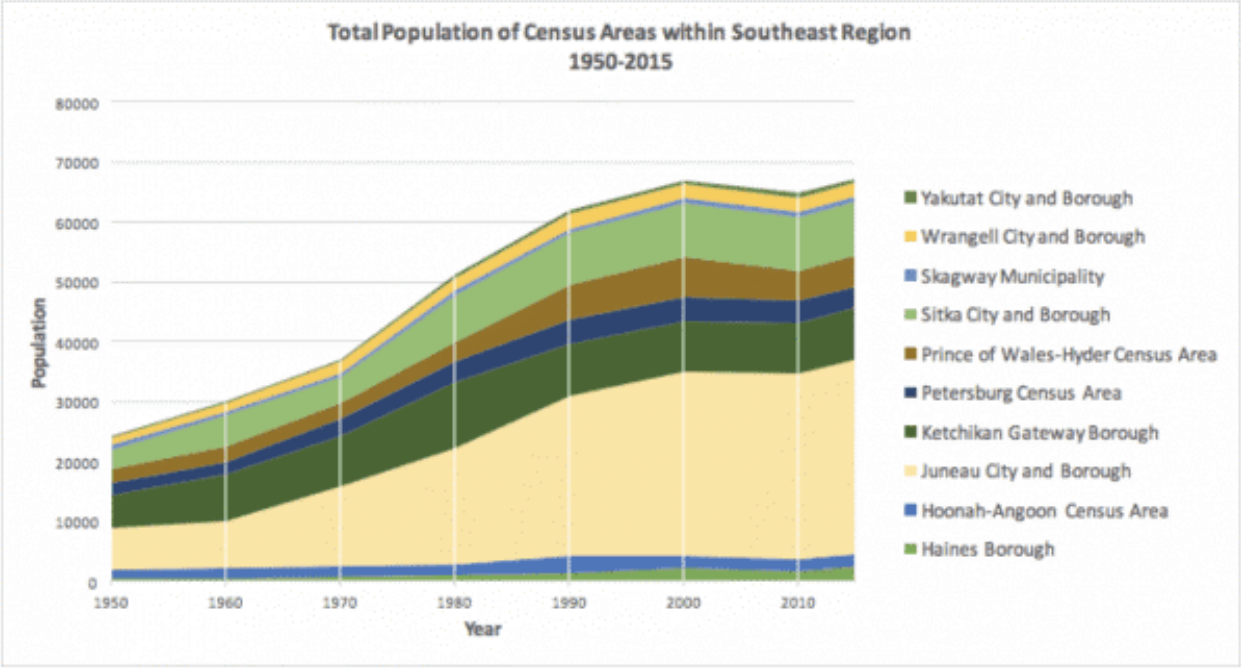
Salmon and people

Subsistence ways of life, harvests, and sharing practices are integral to the cultural identity of the region. Similar to other regions in Alaska, several highly productive households are often tied to commercial fishing activities and share subsistence fish throughout the community. Between 1987 and 2000, Chinook salmon subsistence harvests made up the majority by weight (77% in 1987; 58% in 2000), followed by either sockeye or coho, and chum and pink salmon. The decline of Chinook harvests during this time relates partially to an increase in the utilization of set gillnet and home pack from commercial drift gillnet focused on sockeye. Rod and reel gear is popular for harvesting subsistence salmon in addition to commercial home pack among Wrangell community members (Paige et al. 2009). 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.

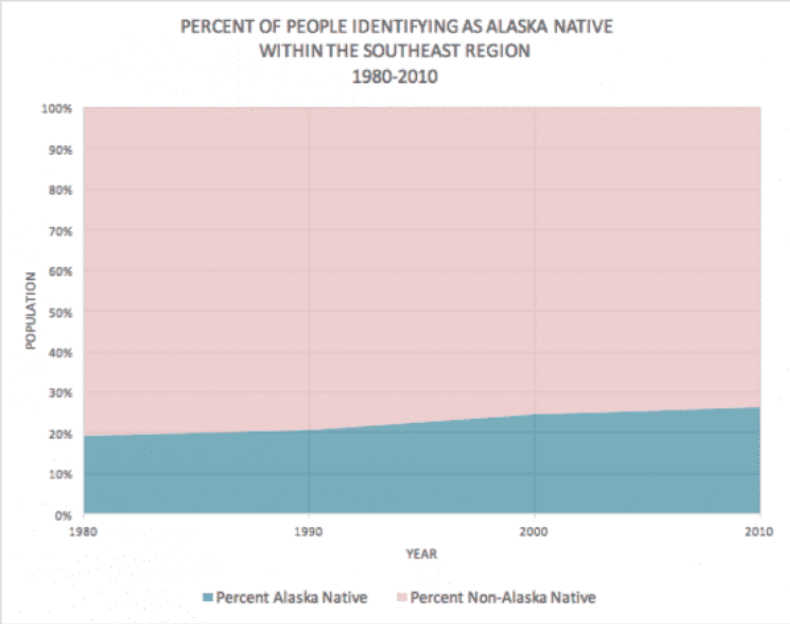
Sport fishery resident angler numbers have remained stable since the mid-1980s between 20,000 and 40,000, whereas nonresident anglers gradually increased, peaking at 100,000 in 2007. Sport fish harvests rely partially on hatchery-produced fish in Ketchikan, Juneau, Haines, and Skagway areas but to a lesser extent in outer coast areas like Sitka. Saltwater charter fishing operations focus trips near Ketchikan, Prince of Wales, Sitka, Juneau, and Glacier Bay with Chinook harvests rapidly increasing from 1977 to 2011, though the number of charter vessels has decreased from 809 in 2009 to 689 in 2013 (Chadwick et al. 2015).

Commercial salmon fisheries in Southeast include purse seine, set and drift gillnet, and hand and power troll gear types and operate within overlapping jurisdictions between state and federal and United States and Canada. Similar to other regions, there is some evidence of capital stuffing for salmon purse seine fisheries since the mid-1980s (Iverson & Farrington 2010). The commercial salmon harvest in 2016 was 31.7 million fish with an ex-vessel value of $121 million (Conrad & Gray 2017). Pot and longline fisheries are also important for Southeast vessels. In a study of job satisfaction among commercial fishermen in Craig and Petersburg communities, fishing emerged more as a cultural identity rather than a job because regulatory and environmental changes affect job satisfaction linked to livelihood identity. A study participant from Petersburg stated that “it is not the money that’s important, it is the job. Fishers define themselves by their job. If they couldn’t fish, they wouldn’t be themselves—they’d have no identity.” Fishermen participating in salmon seining reported lower job satisfaction linked to place and control, as “Q-teasing” practices often situate crew fishing for salmon to secure a spot for the more lucrative halibut fishery (Pollnac & Poggie 2006). Continuing encroachments and remaking of

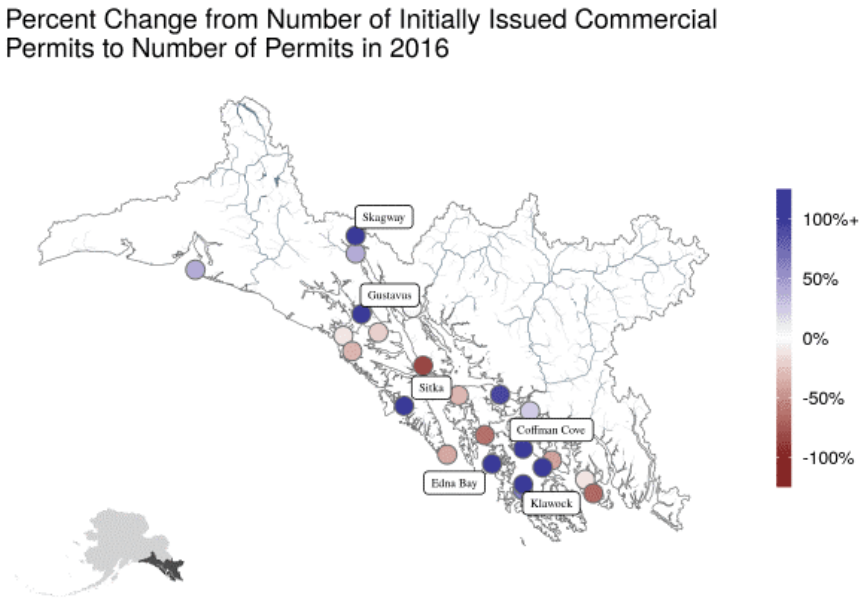
traditional ties to salmon in the region have been brought about with the increase in Atlantic salmon farming that threatens prices of wild salmon and raises ecological questions about escapees spreading diseases (Arnold 2008).



Total population of the Southeast region census areas, 1950 - 2015. 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



Census questionnaires in 2000 and 2010 allowed reporting of Alaska Native in combination with other ethnicities, whereas 1980 and 1990 did not allow for this option. The data presented here 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](doi:10.5063/F1XW4H3V)



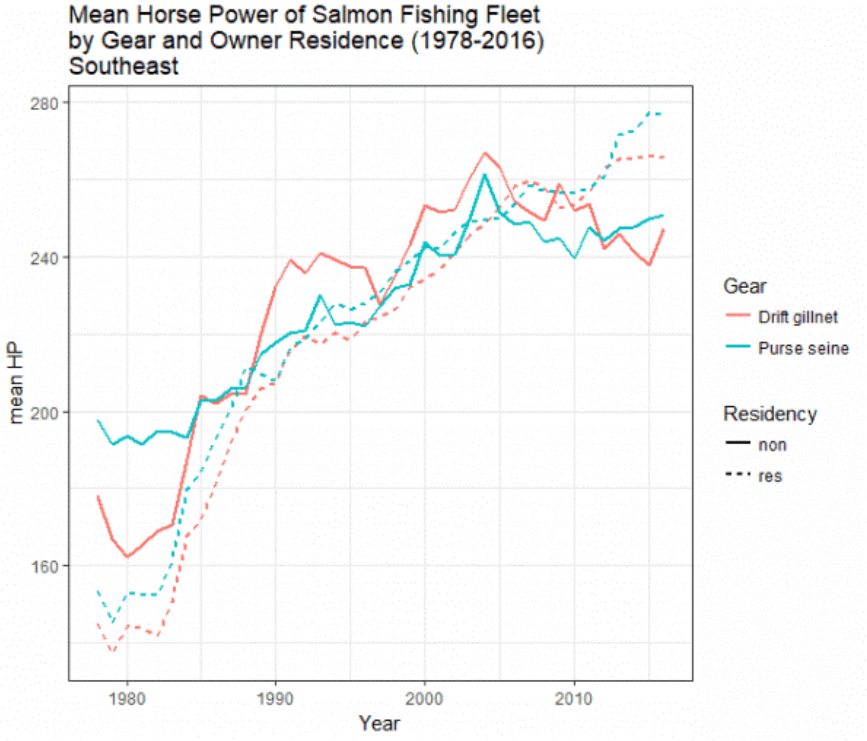
Percent change from number of initially issued (ranging from 1975-1982) permanent commercial salmon permits held by Alaska residents to number of permits in 2016 by community. Alaska Department of Fish and Game, Commercial Fisheries Entry Commission. 2017. Commercial Fisheries Entry Commission (CFEC) Public Permit Holders by Community of Residence 1975-2016. Knowledge Network for Biocomplexity. [doi:10.5063/F189144V](doi:10.5063/F189144V).

Salmon and economy

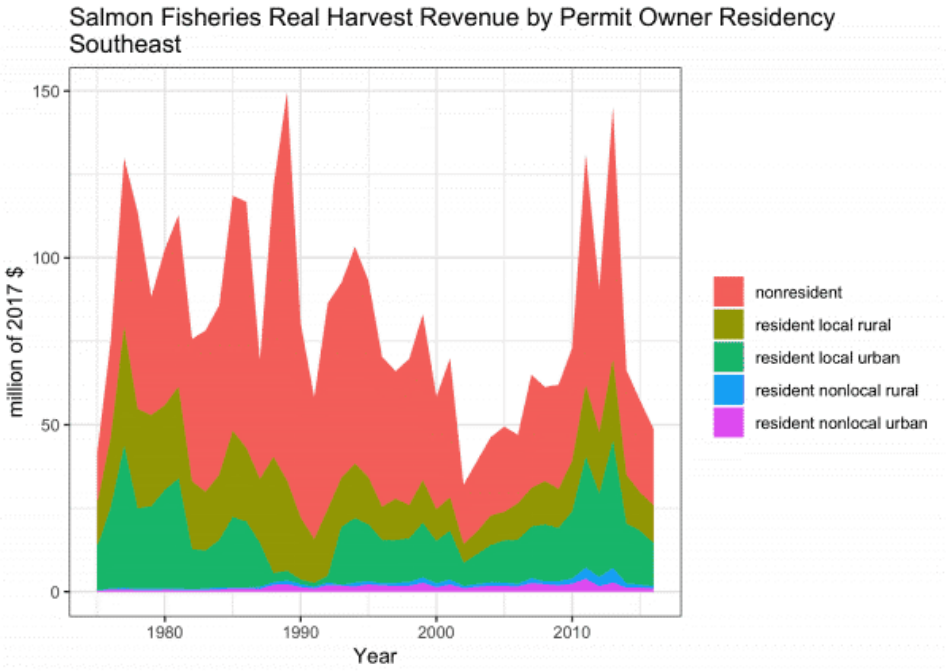
Southeast salmon fisheries are the state's largest in volume and second most valuable, having generated $3.4 billion in revenue since 1975, and are highly dependent on hatchery production. Harvest revenue variability from year to year is the fourth lowest in the state. Given this low risk and large size in volume and value, Southeast Alaska salmon fisheries have historically attracted a larger share of nonresident permit holders than other salmon regions of the state.

Since the 1980s, about half, sometimes more than half, of the revenue generated has been received by permit holders residing outside Alaska. The share of revenue received by local rural residents has declined from the pre- to the post-2000 period while the share of revenue for the local urban permit holders, mainly residing in Juneau and Ketchikan, has increased.

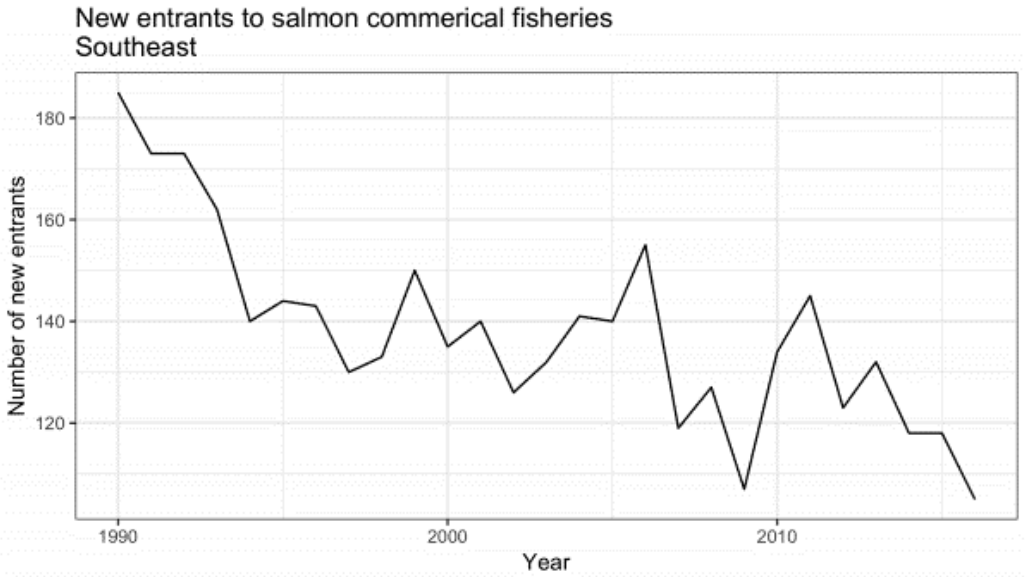
Since the 1970s, the region's salmon catch has been highly dependent on hatchery production, which is largely responsible for record harvest revenues observed in the post-2000 period. The state's investments in salmon enhancement (hatcheries) started in Southeast before 1980 and continues to this day. Compared to other regions, Southeast Alaska has consistently received the largest and consistent enhancement support from the state, issuing up to $7 million annually in loans to Southeast Alaska aquaculture associations. Besides commercial salmon fisheries, subsistence and sport fishing are also important sectors that add to the complexity of the Southeast Alaska salmon system.



Mean horse power of salmon fishing fleets in the Southeast region, by gear type 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 fisheries real permit earnings in the Southeast region, by permit owner type. Tobias Schwoerer. Regional commercial salmon permit earnings by residency status, Alaska, 1975-2016. Knowledge Network for Biocomplexity. [doi:10.5063/F1WW7FZ2](doi:10.5063/F1WW7FZ2).



New entrants to salmon commercial fisheries, 1990 - 2016. Commercial Fisheries Entry Commission CFEC and Tobias Schwoerer. 2016. Commercial Fisheries Entry Commission Public Permit Database from 1975-2016. Knowledge Network for Biocomplexity. [doi:10.5063/F1CV4G17](doi:10.5063/F1CV4G17)

Salmon and subsistence

State Regulatory Framework

This overview includes two subsistence fisheries management areas: the Yakutat Area and the Southeastern Alaska Area. In the Yakutat area, a subsistence permit is required, a record of harvest must be kept, and a report returned to ADF&G at the end of the season. A variety of gear is allowed, but most fishers use nets or troll gear. There are no daily or annual limits on the number of fish harvested and fishing locations are not restricted to specific streams. The ANS for this fishery is 5,800 – 7,832 salmon. See 5 AAC 01.650 -695 for more detail.

In contrast to the Yakutat Area, subsistence salmon fisheries in the Southeastern Area are among the most highly regulated in Alaska. This is due in part to the relatively small, local salmon systems with limited harvestable surpluses. C&T findings for this area are also complex, with some portions of the area outside the non-subsistence areas having negative C&T findings for salmon stocks. In these areas and in the non-subsistence areas (Juneau and Ketchikan), personal use salmon fisheries are available, requiring permits and a sport fishing license. Elsewhere, subsistence permits are mandatory, along with recording harvests and reporting harvests at the end of the season.

Subsistence permits usually have bag and possession limits linked to particular streams and species. In addition, “permits will not be issued for the taking of coho salmon from the Taku River and Stikine river drainage, or for king salmon.” However, kings and coho taken incidentally under the terms of a subsistence permit for other salmon may be retained (5 AAC 01.730(b). See 5 AAC 01.700 – 760 for details on regulations governing specific locations.

This management area also has a complex ANS finding, as follows:

Districts 1 – 4: 9,068 – 17,503 salmon
Districts 5 – 8, District 10, and Section 9-B: 4,120 0-7,345 salmon
Section 9-A and District 13: 10,487 – 20,225 salmon
District 12: 1,100 – 1,700 salmon
District 14: 600 – 1,500 salmon
District 15: 7,174 – 10,414.

Adding these specific ANS findings with those for Yakutat gives a total ANS for the region of 38,349 to 66,519 salmon.

Federal Regulatory Framework

For the most part, federal subsistence salmon fishing regulations for the Yakutat and Southeastern areas mirror state regulations. However, allowable gear in the

Southeastern Area includes gaffs, spears, gillnets, seines, dip nets, cast nets, handlines, or rod and reel. Handlines may be used for snagging salmon. There is no subsistence salmon fishery in the Taku River, and the Klawock river drainage is closed to the use of seines and gillnets during July and August.

In addition, subsistence salmon fishing in the Stikine River was open by federal permit to qualified rural Alaska residents. Legal gear includes dip net, spears, gaffs, rod and reel, beach seines, and gillnets. Seasons were May 15 – June 20 for Chinook salmon (limit 5 per household); June 21 – July 31 for sockeye salmon (limit 40 per household); and August 1 – October 1 for coho salmon (limit 20 per household). This fishery also had guideline harvest limits of 125 Chinook, 600 sockeye, and 400 coho salmon.

Generally, federal regulations applied to inland waters within or adjacent to the Wrangell-St. Elias National Park and Preserve, Tongass National Forest, Glacier Bay National Preserve, Admiralty Island National Monument, and Misty Fjords National Monument. Marine waters except the Makhnati Island Area were excluded. General domain lands managed by the BLM were open only on non-navigable waters. Glacier Bay National Park is closed to subsistence fishing.

Subsistence Salmon Harvest Patterns

Figure 12-2 depicts total salmon harvests as estimated from permit returns for the Southeastern and Yakutat areas from 1985 through 2016, including state subsistence and personal use permits and federal permits for the Stikine River. The average annual harvest over that time period was 56,412 salmon. Since 1994, sockeye salmon composed 83% of the total subsistence salmon harvest as estimated from permits, followed by pink (6%), coho (5%), chum (4%), and Chinook (2%) (Figure 12-2).

Based on the most recent findings from comprehensive household harvest surveys, salmon provide about 29% of the total noncommercial harvest of wild foods in rural southeast Alaska communities (Figure 12-3). Household survey findings summarize salmon harvests for home use from all sources: subsistence fisheries, rod and reel (sport regulations), and removal from commercial harvests (“home pack”). Salmon (from subsistence, personal use, and sport fisheries) made up about 37% of the noncommercial harvests of wild resources by residents of the Juneau Non-subsistence Area in 2014, and 39% of the total wild resource harvest by residents of the Ketchikan Non-subsistence Area (ADF&G 2017; see also Fall 2016). For the period 2007 – 2011, 84.7% of the harvest of salmon for home use by residents of the Juneau Non-subsistence Area came from sport fisheries, 14.0% from subsistence fisheries, and 1.3% from personal use fisheries. For the same period, residents of the Ketchikan Non-subsistence Area obtained 92.3% of their home use salmon in sport fisheries, 7.3% in subsistence fisheries, and 0.3% in personal use fisheries (Fall

2013:20). In 2015, 86.8% of Juneau (including Douglas) residents' noncommercial, non-sport salmon harvest for home was taken in Southeast Alaska; for Ketchikan residents (including Saxman), 93.4% of this harvest occurred in Southeast Alaska (Fall et al. 2018:14-19,261)

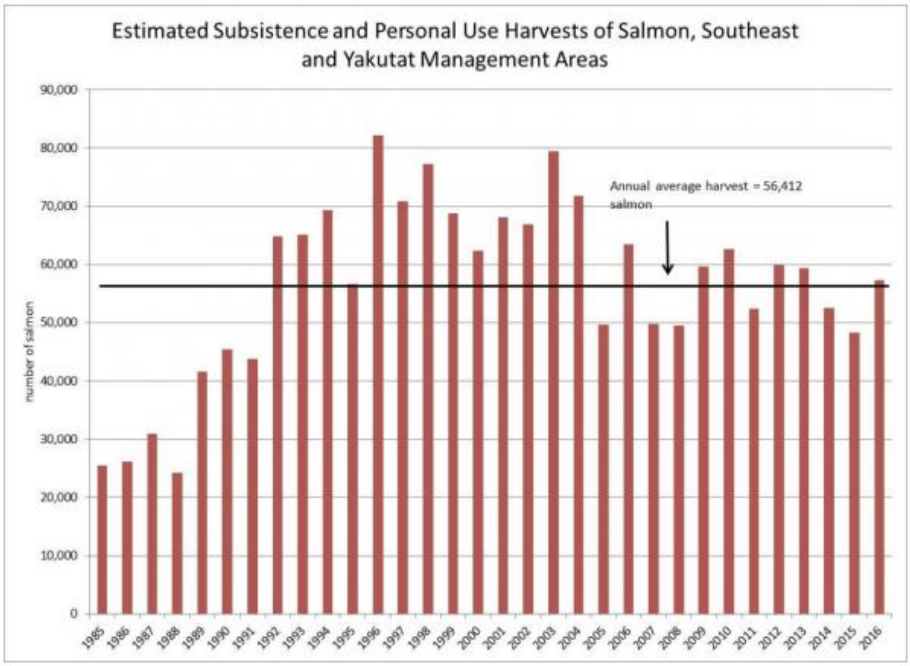


Fig. 12-2. Alaska Department of Fish and Game, Division of Subsistence. Subsistence and personal use harvest of salmon in Alaska, 1960-2012. Knowledge Network for Biocomplexity. doi:10.5063/F18P5XTN.

Comparisons of permit and survey data

Annual harvest assessment programs in Southeast Alaska perhaps result in the largest underestimate of subsistence salmon harvests and, more broadly, salmon harvests for home use, of any management area in Alaska. In a presentation for the conference on "Understanding Harvest Assessment in the North" in 1995 in Girdwood, Alaska, Wolfe compared estimates of salmon harvests for home use in Southeast Alaska communities in 1987 based on permit returns with those based on post-season surveys conducted as part of the Tongass Resource Use Comprehensive Study (TRUCS) conducted by ADF&G, ISER, and the US Forest Service. Using permit data (which only account for harvests within authorized subsistence fisheries), the harvest estimate was 30,737 salmon in 1987; the household surveys estimated the harvest for home use (subsistence nets, rod and reel, and commercial retention) to be 172,293 salmon, a 460% difference. The summary noted that "The researchers believe that the interviews resulted in better information because they offered confidentiality, provided broader coverage, and made it easier for users to respond" (ADF&G and ISER 1996:5).

A workshop sponsored by ADF&G and the Alaska Intertribal Council took place in Juneau in December 2001, attended by ADF&G and US Forest Service staff as well as representatives of six communities and several Alaska Native organizations, to review the subsistence permit system and harvest monitoring program in the Southeast Region. The summary of the workshop noted:

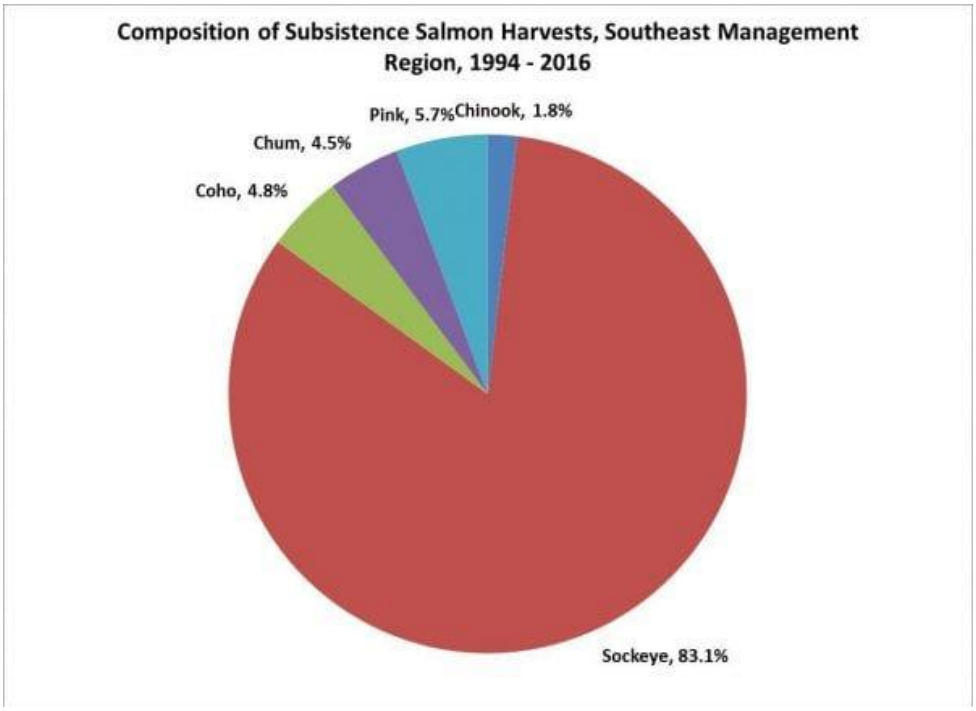
> *In the Southeast region, subsistence regulations create the greatest challenges for harvest assessment programs because of small salmon systems and consequent relatively low seasonal and, in some cases, daily harvest limits on permits that are needed for resource conservation. Workshop participants asserted, and household surveys confirmed that this likely leads to under-reporting on the permits. Often, people need to travel relatively long distances to harvest subsistence fish and have obligations to share with other families (Fall 2003:9-10).*

A study conducted by ADF&G evaluated the reliability and validity of harvest monitoring methods used to estimate subsistence harvests in Southeast Alaska by comparing permit data and post-season survey data from six communities for 2000 or 2001 (Walker 2009). The comparison suggested that the permit system provided reliable estimates of harvests in the subsistence fishery for Wrangell and Petersburg: estimates based on permits and those based on post-season surveys did not differ significantly for the 2000 study year. However, comparisons of estimates for 2001 showed that the permit system did not reflect actual harvest practices and harvest levels in Angoon, Hoonah, Kake, or Yakutat. The study suggested several reasons for the underestimate based on permit returns: underreporting harvests on returned permits, sharing of permits, fishers not obtaining permits, and other sources of salmon for home use (such as rod and reel and removal from commercial catches) not being recorded on permits.

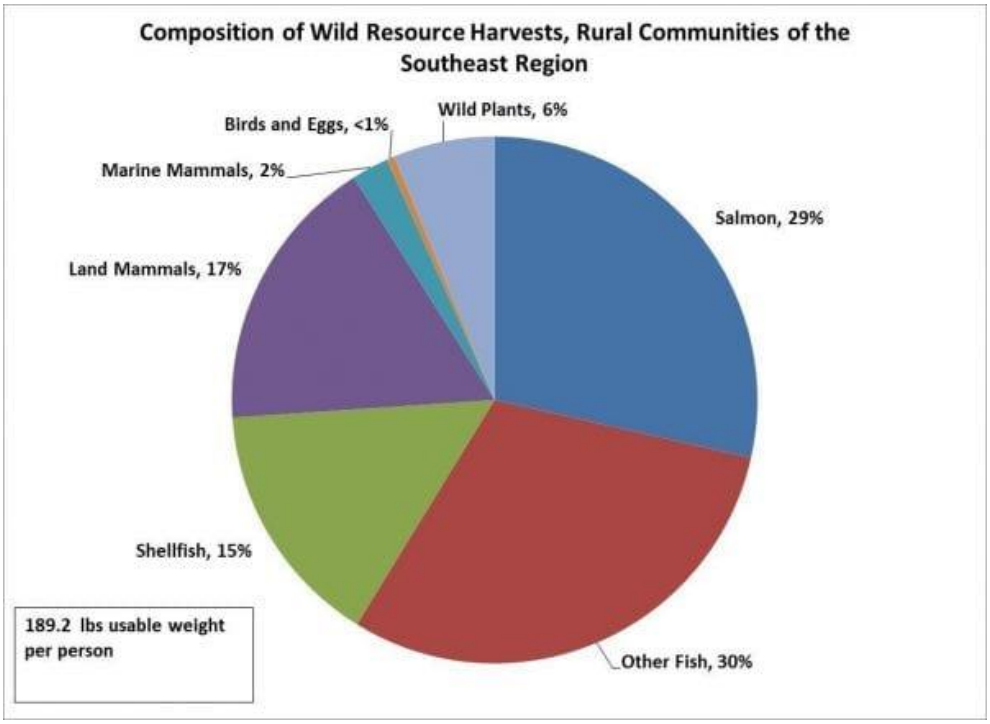
Another ADF&G study compared available harvest data from permits and from household surveys for the period 1996 – 2006. Comparisons could be made for 18 community/year combinations within that period. The study found that permit harvest estimates represented only 19% of the total harvest for home use estimated from the surveys (which included harvests with subsistence nets, rod and reel, and commercial retention) (note this is very similar to the 18% found by Wolfe for 1987, above). Harvest estimates based on permits only represented 57% of the estimated harvests with subsistence nets based on survey responses. On average, rod and reel produced 37% of the harvest for home use in surveyed communities, removal from commercial harvests produced on average 19%, and subsistence nets provided 44% (Naves, Turek, and Simeone 2010:16-17).

Effect of loss of commercial fishing permits

Loss of commercial fishing permits has affected access to salmon for home use in Southeast Alaska communities. For example, Angoon residents harvested 74 lb. per person of salmon in 1984 and 82 lb. per person of salmon in 1996; of this harvest, 29% in 1984 was retained from commercial catches, as was 35% in 1996. Salmon harvests fell to 37 lb. per person in 2012, and no salmon were retained from commercial catches. In 1986, Angoon residents held 162 commercial fishing permits; they held 17 in 2012 (Grant and Sill 2017:274). In addition to the loss of direct access to fish to take home, loss of commercial permits results in few to no transportation options to fishing locations, loss of gear for fishing, and loss of income to support harvest activities.



Composition of subsistence salmon harvests in the Southeast Management Region, 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



Percent composition of wild resource harvests in rural communities of the Southeast Region; 189.2 pounds usable weight per person. 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.

Salmon and governance

For purposes of this research, the Yakutat area, treated as separate area by state management, is merged into the Southeast region. In this region, governance topics address many areas and concerns such as allocation among users, impacts of development, and Alaska resident benefits from commercial salmon fisheries. Governance in Southeast is a complex web of interconnected state and federal and international institutions that involve state and regional leaders in multilateral decision-making institutions. More than any other region, transboundary salmon migration is of critical importance to governance.

Federal lands in the Tongass National Forest are covered by Title 8 of ANILCA that establishes a rural subsistence priority when numbers are low. Due to the dispersed, small and weak status of sockeye salmon stocks used by rural, particularly Indigenous groups, the Southeast Regional Advisory Council receives and processes

more proposals concerning rural priority for salmon fisheries than any other regional council.

The North Pacific Fishery Management Council has jurisdiction over waters between 3-200 miles where commercial trolling for salmon occurs. The position of Southeast Alaska in the international arena is the result of the appearance in state and federal waters of numerous stocks of salmon available to fishermen in Alaskan waters that are bound for spawning grounds in Canada, Washington, and Oregon. In August, a renegotiation of the Pacific Salmon Treaty that governs fisheries on these stocks was concluded. Due to concerns about Chinook salmon stock levels throughout the treaty, the quota for Alaskan fishermen harvesting those fish was reduced by 7.5%, a situation of great concern to all of the region's salmon users. Between 2000-2017, Southeast Alaska salmon fisheries were declared a disaster on one occasion.

Regional governance overview

This region is the most complicated in Alaska in terms of the governance of salmon and people. Reasons for this include the existence of the troll salmon fishery in federal waters governed by the NPFMC, the harvesting of salmon stocks returning to streams in British Columbia, Washington, and Oregon governed by the Pacific Salmon Treaty, and the existence of significant transboundary salmon stocks and transboundary environmental issues related to Canadian mineral extraction and potential shipping of oil from northern British Columbian ports. Other distinctive regional characteristics of salmon governance are discussed below.

Land ownership

Terrestrial jurisdictions in southeast Alaska are shown in the figure to the right. The Tongass National Forest and Glacier Bay National Park and Preserve together have jurisdiction over 90% of the land in Southeast Alaska. Admiralty Island National Monument and Misty Fjords National Monument are additional federal conservation units. Alaska Native corporations, regional and village, have holdings throughout the region typically in proximity to traditional Tlingit and Haida villages. The most extensive state holdings are in the Upper Lynn Canal area including major portions of the Chilkat and Chilkoot River valleys.

A unique territorial jurisdiction in Alaska is the Annette Island Reserve occupied by the Tsimshian Indians near the southern boundary of the region. Metlakatla is the only community on the island reserve. This is the only Indian Reservation in Alaska and as such is not subject to the State of Alaska laws including those concerning natural resource use. A discussion of salmon governance on Annette Island Reserve is found at the end of this section under issues.

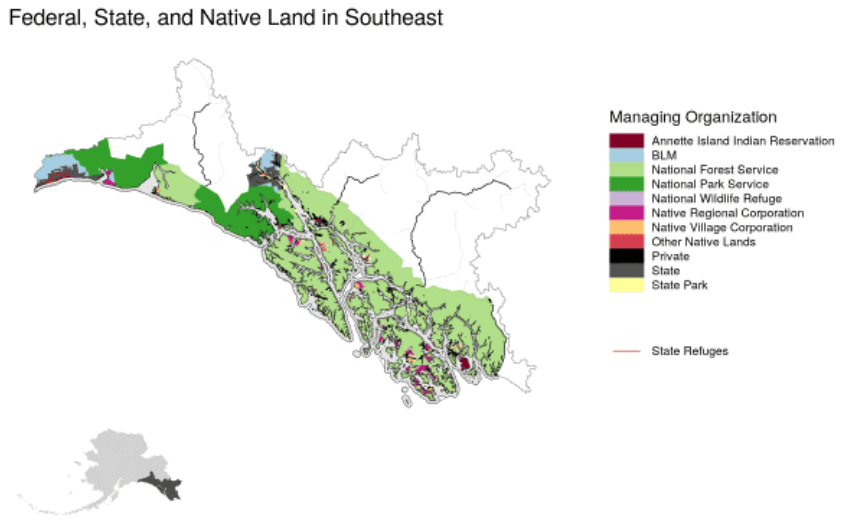
There are six boroughs in southeast Alaska: Yakutat, Haines, Juneau, Sitka, Petersburg, and Wrangell. In addition to the Metlakatla Indian Reserve, there are 16

local tribes representing the Tlingit, Haida, Tsimshian, and other Indigenous people in their communities. The Central Council of Tlingit and Haida Indian Tribes (CCTHITA) is a federally recognized regional tribe. Tribes are especially active concerning subsistence and transboundary river issues (see below).

Hatchery production of salmon in Southeast Alaska began over 100 years ago. At the present time, with sixteen hatcheries, there are more operating hatcheries in Southeast Alaska than in any other region. Most are run by regional nonprofit aquaculture associations. Some provide primarily for the commercial fleets and a smaller number for sports fishing – Chinook salmon in particular. They are funded by a combination of cost recovery fishing, commercial fishermen assessment, sport fish fees, and other funds acquired locally or through grants. The locations of the Southeast hatcheries through recent time can be seen by clicking on the link below.

https://www.adfg.alaska.gov/static/fishing/PDFs/hatcheries/ak_hatch.pdf

Another category of actors in regional salmon governance are fishermen's associations that are organized by gear group including the Alaska Trollers Association, Southeast Purse Seiners' Association, and the United Southeast Drift Gillnetter's Association.



Emily O'Dean and Jeanette Clark. Land status in Alaska, 2018. Knowledge Network for Biocomplexity. doi:10.5063/F1NK3C9X.

The Southeast Alaska Conservation Council is the oldest and most important environmental organization in the region that participates in regional planning, legal action, and other activities to provide environmental protections for salmon habitat in Southeast Alaska. The Southeast Watershed Coalition is engaged across the region

in such projects as community-based watershed management, restoration, mitigation, and stream temperature monitoring. Their activities are undertaken in cooperation with a variety of organizations including local conservation councils, tribes, and federal government agencies.

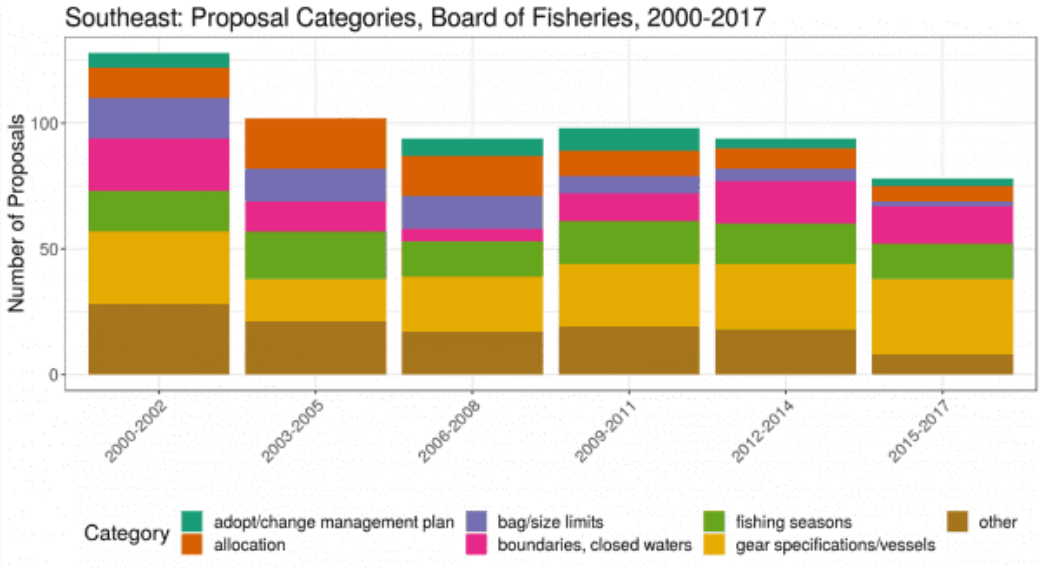
Board of Fisheries

Southeast region entities submitted 574 proposals to the Board of Fisheries over the study period. In terms of regional participation in Board of Fisheries regulatory process, the Southeast region is second only to Cook Inlet in activity level (Krupa et al 2017). Of the proposals, 344 were for commercial fisheries, which was more than twice as many as submitted for sport fishing. There were 60 subsistence proposals submitted during the period, the second highest of any region. Proposals have addressed gear/vessel specifications, boundaries, and closed waters and seasons most frequently over the period. Other than ADF&G proposers, hatcheries succeeded over 50% of the time while Advisory Committees did quite well in comparison to other regions with a success rate of nearly 50%.

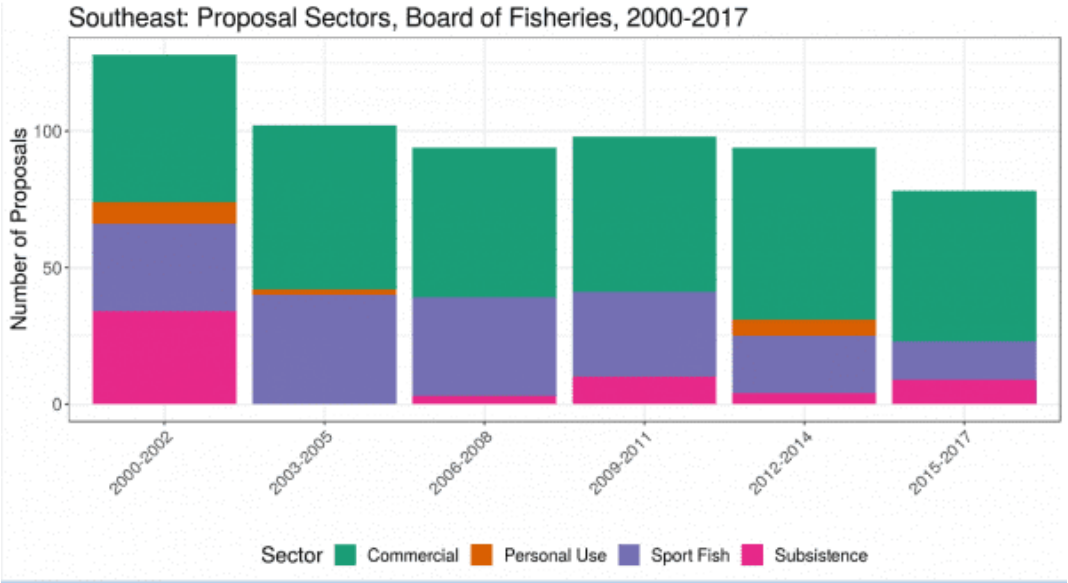
The numbers of proposals have declined over the 2000-17 period from over 120 initially to about 80 during the last cycle. Proposals concerning commercial fisheries are the most numerous of the four sectors and have remained virtually at the same level over the period. Sport fish proposals have been second and subsistence proposals, with over 30 proposals in the first two years, have dropped to less than ten in recent years.

The majority of proposals in Southeast in the early period came from individuals and they have stayed at or near the most throughout the period. The second most numerous submitting entity are the associations, primarily organizations representing different fishing gear types. Advisory Councils have been present throughout and more recently submitted more proposals. The Alaska Department of Fish and Game has typically submitted the third most proposals throughout the period. Tribes and village councils have submitted very few proposals.

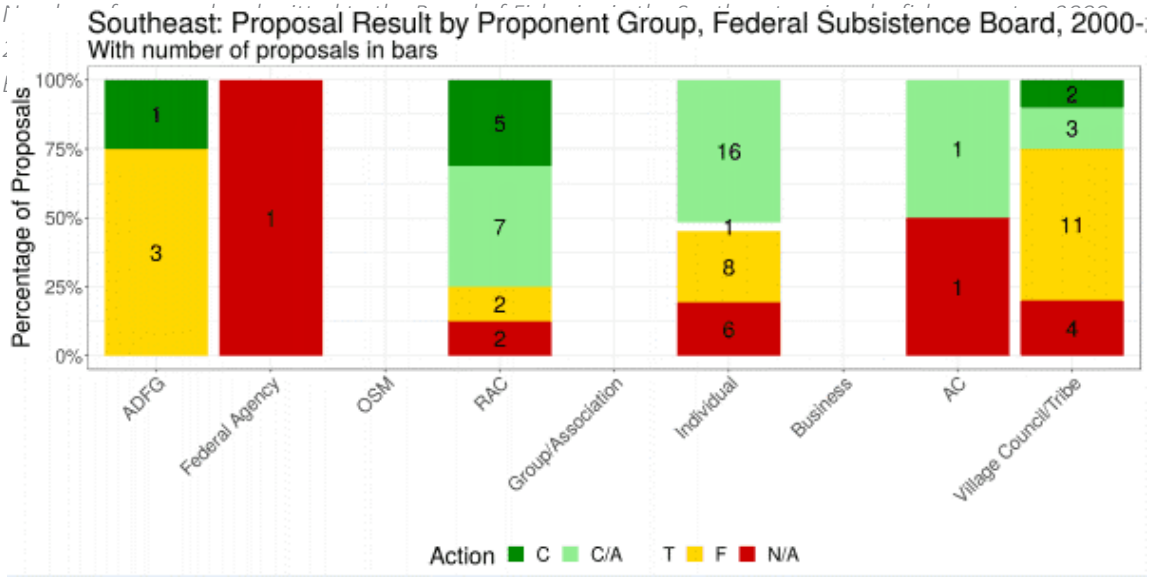
While submitting far fewer proposals than other entities, ADF&G has achieved an exceptionally high rate of proposal success at nearly 90%. Hatcheries have also succeeded at a high rate with over 67% of nearly 30 proposals passing. Advisory councils have succeeded on nearly 50% of nearly 70 proposals. Associations and individuals have been considerably less successful as less than 30% of proposals of these groups have succeeded. Tribes and village councils have very few proposals, none of which have succeeded.



Number of proposals submitted to the Board of Fisheries in the Southeast region, by proposal category, 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](doi:10.5063/F1D21VW7)



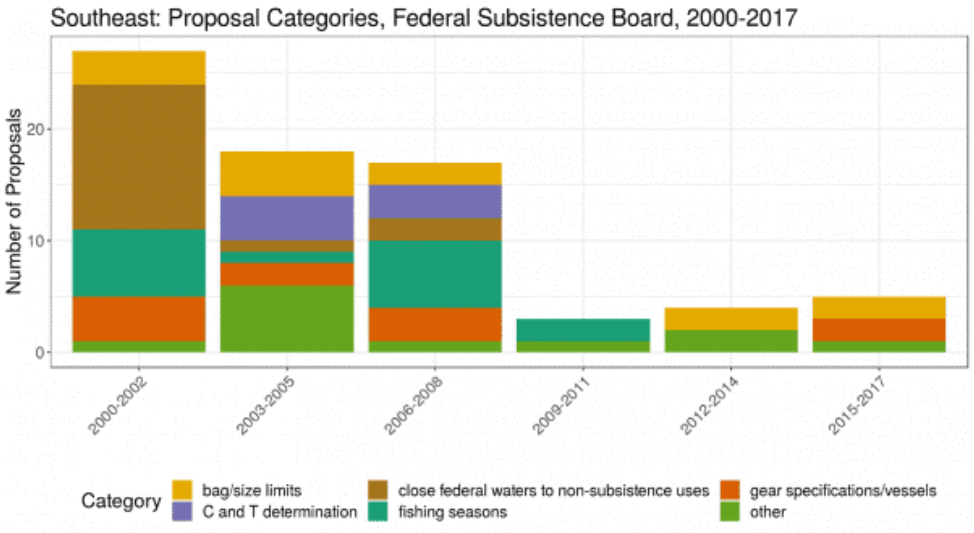
Number of proposals submitted to the Board of Fisheries in the Southeast region, by proposal category, 2000 - 2017. Stephen Langdon, Taylor Brelsford, Jim Fall, and Jeanette Clark. 2018. Salmon Proposals to the Alaska Board of Fisheries, 2000-2017. Knowledge Network for Biocomplexity. [doi:10.5063/F1D21VW7](doi:10.5063/F1D21VW7)



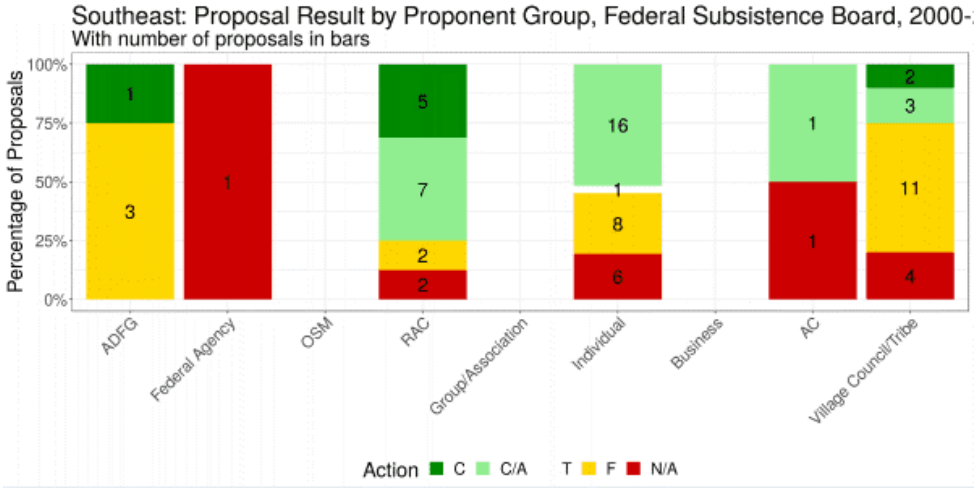
Number of proposals submitted to the Board of Fisheries in the Southeast region, by proponent group, 2000 - 2017. Stephen Langdon, Taylor Brelsford, Jim Fall, and Jeanette Clark. 2018. Salmon Proposals to the Alaska Board of Fisheries, 2000-2017. Knowledge Network for Biocomplexity. doi:10.5063/F1D21VW7

Federal Subsistence Board

Southeast is Regional Advisory Committee 1 in the federal subsistence program. With 74 proposals, Southeast received the highest number of salmon proposals of the regional advisory committees. A large number of proposals to close federal waters to nonqualified subsistence users occurred initially. Subsequently there were proposals for C and T determinations (to determine eligibility for subsistence use status) and then most recently, proposals have addressed gear/vessel issues and bag/size limits. The bag/size limit has been significant due to the low numbers of salmon that are allowed to be taken. In terms of success, individual proposers have done well with over 50% of proposals approved. The RAC has also done well. Village Council/Tribes have been active in submitting proposals and have succeeded about 25% of the time.



Number of proposals submitted to the Federal Subsistence Board in the Southeast region, by proposal category, 2000 - 2017. Taylor Brelsford, Steve Langdon, and Jeanette Clark. 2018. Alaska Federal Subsistence Board Proposals 2000-2015. Knowledge Network for Biocomplexity. [doi:10.5063/F1HT2MMN](doi:10.5063/F1HT2MMN)



Result of proposals submitted to the Federal Subsistence Board, by proponent group, 2000 - 2017. Taylor Brelsford, Steve Langdon, and Jeanette Clark. 2018. Alaska Federal Subsistence Board Proposals 2000-2015. Knowledge Network for Biocomplexity. [doi:10.5063/](doi:10.5063/)F1HT2MMN

Advisory Committees

Southeast Alaska has 23 Advisory Committees, more than any other region of the state. Of those, three are urban and have been active in the period between 2000-17, averaging more than one meeting a year. A large majority of the remainder of the committees are rural, single, no road. Of the 23 identified Advisory Committees in the region, seven did not meet at all from 2000-2017, while six others have met on three or fewer occasions. Thus nearly 60% of the Southeast region Advisory Committees are effectively inactive. The link below takes you to a regional map showing the configuration of current advisory committees in the region:

http://www.adfg.alaska.gov/static/regulations/regprocess/images/sereg.jpg

CASE STUDIES

CASE STUDIES

Purse Seine Permit Buyback Program

By Steve Langdon

The Limited Entry Act of 1973 created the Commercial Fisheries Entry Commission (CFEC) that was authorized to determine the number of limited entry permits to be created in specific fisheries defined by species, area and gear type as well as develop the methods for awarding permits. In addition, the CFEC was given the authority to determine the "optimum" number of permits for a fishery; optimum is defined as the number of fishing units that balances the economic health of the fishery; allows for an efficient harvest; and avoids economic hardship to LEP holders. The act allowed for the development of permit buyback programs that would take a certain number of "excess" permits out of use by purchasing them from the owners using an assessment tax on other permit owners as long as the number of permits in use exceeded the "optimum" level. Such programs would be voluntary.

The State Supreme Court noted that the determination of "optimum" permit numbers was essential in order to achieve the Constitution's provisions for "no exclusive privilege or right" being created and stated that "limited entry has the potential to be a system which has the effect of creating an exclusive fishery to ensure the wealth of the permit holders and permits values, while exceeding the constitutional purposes of limited entry." Should run sizes and prices sharply increase, under this interpretation the CFEC would be required to increase the number of permits in a fishery even while payment for buyback programs was ongoing (Shriver 2014).

Faced with declining revenues due to slumping prices for salmon in the early 1990s, a buyback program was undertaken in the southeast purse seine fishery by permit holders seeking to reduce

the number of possible fishing units and thereby improve their economic position. Legislative changes were required in 2002 to make the program constitutional and operational. The program required a determination of the optimum level of permits, a designated goal in terms of permit reduction, authorization by vote of a majority of the current purse seine owners to engage in the program and the identification of funds needed to make the purchases. Funds were obtained from a federal grant and a federal loan. The purchase price for permits was based on the current market value of a permit.

The program was carried out in two phases, in 2008 and in 2012. During the first phase, 35 permits were purchased and during the second phase 64 permits were purchased. In total, the buyback program reduced the number of southeast purse seine permits from 419 to 320, a 24% reduction. Following the buy back, fish prices and run strength substantially increased leading to huge increases in permit values by 2015.

The southeast purse seine buyback program experience provides an example of fisheries adjustment for the future that raises substantial questions about assumption of costs, equity among users, and realization of benefits. In this case, taxpayers shouldered a substantial portion of the monies used for buyback while benefits were realized by the remaining purse seine permit holders. At the same time, employment opportunities were substantially reduced by reducing the number of permits.

Pacific Salmon Commission and International Issues

The Pacific Salmon Commission

The Southeast region is distinctive in being the most implicated in the international management of salmon conducted through the Pacific Salmon Commission under the terms of the Pacific Salmon Treaty. The commission operates through five panels, four under its direct governance and special panels for species. Of the special panels, the Chinook panel is of greatest significance to governance of Alaska salmon as it manages treaty-wide Chinook harvests including those taken in southeast Alaska by commercial and sport fisheries. The PSC also directs funds to be used for rehabilitation and enhancement of depleted stocks – especially Chinooks – of the transboundary rivers.

The Chinook Panel and its technical committee endeavor to manage stocks in US jurisdictions on a stock by stock basis. Southeast Alaska Chinook stocks considered in PSC management are the Situk, Alsek, Chilkat, Taku, Stikine, Unuk, and Chickamin three of which are also managed for in-stream harvests by the Transboundary Panel. Chinook escapements to all seven of these rivers were below lower level escapement goals in 2016 and 2017. The PSC establishes a quota for southeast Alaska Chinook harvests in the commercial fisheries.

The Northern Panel deals with issues associated with the harvest of intermingled southeast Alaska and northern British Columbia pink, chum and sockeye salmon caught in saltwater. Alaskan salmon stocks from the southern half of the region are the focus due to their capture in some British Columbia net fisheries. Likewise, Alaskan fishermen intercept Canadian salmon headed primarily for the Nass and Skeena Rivers in purse seine and gillnet fisheries operating in areas near the border. The Alaskan interception fisheries are governed by quota percentage amounts associated with Nass and Skeena River sockeye stocks. The Alaska quota shared by purse seine and drift gillnet fishermen is approximately 16% of the total catch from these stocks. There have been substantial discrepancies from these quotas since they were initially established. Weak runs in recent years have led managers to reduce the fishing time in Alaskan waters where interceptions are known to occur.

The Transboundary Panel considers topics associated with three significant salmon producing transboundary rivers in the region – Alsek, Taku and Stikine. For each river, negotiations between 1999 and 2008 resulted in allocation agreements, management agreements, and enhancement agreements.

Allocations were developed from "baseline catch" data (BLCs). On the Alaskan side, commercial fisheries are associated with each river directed at Chinook, sockeye and coho runs. A federal subsistence fishery overseen by the Forest Service typically occurs in the lower Stikine River for federally qualified subsistence users including residents of Petersburg and Wrangell, the two communities closest to the fishery. The State of Alaska has authorized a personal use fishery in the Taku River since the residents of Juneau-Douglas, the closest community, do not qualify for subsistence uses under state or federal criteria (see subsistence section). A subsistence fishery for Chinook, coho and sockeye salmon is conducted when stock status allows at the mouth of Alsek River.

On the Canadian side, in-river commercial fisheries are authorized in the Stikine and Taku but not in the Alsek. First Nations harvests have a priority and occur on the basis of treaty agreements that allow harvest for food, social and ceremonial needs. First Nations have treaty-based specified quotas that are adjusted in-season based on abundance levels. They fish in customary locations during open periods established by Canadian fishery managers. Sport fisheries also occur in authorized areas in all three systems.

Governance cost of management of the southeast Alaskan transboundary program are paid for by the federal government and used to hire ADF&G staff in southeast Alaska.

North Pacific Fisheries Management Council

In southeast Alaska, federal waters outside three-miles are under the jurisdiction of North Pacific Fisheries Management Council (NPFMC) and managed through the National Oceanic and Atmospheric Administration (NOAA). The troll fishery, authorized only east of 175˚ west, primarily targeting migrating Chinook salmon stocks, has historically taken place in waters outside of three-miles throughout the region and is the only salmon fishery that takes place in federal waters offshore of the southeast region. The NPFMC operates fisheries in its waters through Fishery Management Plans (FMP). The plans are developed by scientists based on best

available data. The federal salmon FMP is legally required to meet ten standards established for the conduct of federal fisheries noted earlier. Through the FMP, the troll fishery in southeast Alaska is conducted according to the terms of the Pacific Salmon Treaty and in-season management has been delegated to the State of Alaska based on evaluation that the State's management successfully meets MSFMCA standards.

A portion of the Tsimshian Indian fishing fleet in the Metlakatla harbor on Annette Island Reservation. Source: Metlakatla Indian Community website

Metlakatla Indian Community

Located near the southern border of Alaska, the Annette Island Indian Reservation of the Tsimshian Indians is a unique Alaskan jurisdiction where governance is carried out through arrangements between the tribe, the federal government and the State of Alaska.

As a federally recognized tribe whose reservation is defined as Indian Country, the Metlakatla Indian Community exercises rights similar to those of most Native American Indian reservations and is not subject to state laws over its lands and waters. Established in 1915, the Tsimshian Fisheries Reserve provides that waters around the island out to 3,000 feet offshore are part of the reserve. Within those waters, the tribe, subject to federal oversight and concurrence, decides who, when and where salmon can be harvested. Tribal management has been delegated from the regional BIA director to the tribal Fisheries Management Board (FMB) that consists of the mayor and the BIA superintendent. They receive recommendations for the fisheries from the staff based on in-season data and historic patterns of harvest. All decisions are made by the FMB.

The tribe manages 50 streams that produce pink salmon and 34 that produce chum salmon on the reservation. The tribal salmon management plan outlines the practices adopted to maintain sustainable fisheries, provide for sharing with state fishermen and carry out the federal purpose of providing benefits for tribal members. Escapement goals have been set for streams and stream surveys are used to estimate the annual return. Areas are closed to fishing to protect stressed stocks.

The salmon fishery on the Annette Islands Reserve is the largest tribally-managed salmon fishery in the United States. The tribe has established troll, purse seine and drift gillnet salmon fisheries for tribal members. In order to fish in state or federal waters, Indian reservation resident fishermen must also hold State limited entry permits. The tribe is under the jurisdiction of the Pacific Salmon Commission for purposes of salmon conservation and subject to the fishing regimes established by the Northern Panel, although they are not represented on the technical committee of that panel.

Metlakatla's harvests are reported to the Alaska Commercial Fisheries Entry Commission but done so as total purse seine and total drift gillnet harvests. In 2016, the tribe reported fish landings by 17 purse seine vessels and 74 drift gillnet vessels totaling 1,940,311 salmon with an ex-vessel value of $4.1 million. Approximately 250 persons were employed in commercial salmon fishing. For the first time in over 25 years of reporting, average fish caught per day by the Metlakatla purse seine fleet exceeded the remainder of the southeast Alaska purse seine fleet. Metlakatlan fishermen caught approximately 6.1% of the southern southeast salmon harvest.

Metlakatlan salmon fishery openings allowed approximately double the time for other southeast purse seine fisheries and approximately 10% more fishing time for the drift gillnetters compared to the southeast gillnet fleet. The tribe operates a fish processing facility in partnership with Silver Bay Seafoods. The tribe operates the Tamgas Fish Hatchery that produces chum and coho most of which are caught in terminal fisheries in tribal waters. In the past, the reservation used floating fish traps to catch salmon and retains the right to use that gear even though it is illegal in nearby state waters.

Glacier Bay National Park and Preserve

An important jurisdiction of southeast salmon governance is Glacier Bay National Park and Preserve (GBPP). In 1980 ANILCA authorized subsistence uses in most newly created federal jurisdictions; however, it banned subsistence activities in Glacier Bay National Park long utilized for subsistence salmon by the Tlingit people of Hoonah. In 1999, the Glacier Bay Fishing Act banned commercial fishing in Glacier Bay National Park except for a cohort of fishermen who qualified to continue their fisheries for their lifetimes. They were granted Lifetime Access Permits (LAPs) that can neither be sold nor transferred and would allow the holder to continue fishing as long as they could subject to state regulations of the fishery for which they qualified.

Power and hand trolling as well as purse seining for salmon – traditional commercial gears operated in park waters – would be allowed to continue only for permitted individuals based on Alaska fisheries management policies. A recent assessment by NPS indicates that few of the LAP holders are now fishing in Glacier Bay National Park waters. While commercial and subsistence salmon fisheries in the park were wiped out, a limited amount of guided sport fishing

for salmon continues to be allowed. Only a limited number of guides are authorized by permit to conduct sport fishing activities in the park subject to state and federal regulation.

Timber extraction and the Tongass National Forest

Development and its impacts on salmon in southeast Alaska have a long history related primarily to timber extraction (logging and associated activities) and mineral extraction. Major timber development and impacts associated with the clear-cutting of mature forest began in 1947 when two fifty-year sales of Tongass National Forest trees to pulp producing companies were consummated. Following those sales, major logging of substantial contiguous acreage, known as clearcutting, was undertaken focusing most intensively on Prince of Wales Island and other areas of the southern part of the region. The rates of harvest were initially intended to track a 100-year replacement cycle for the forest but actual harvest of mature forest occurred at a much more rapid rate.

Timber harvest and management in the Tongass National Forest became a major national issue in the 1980s and 1990s. In 2001 the US Forest Service implemented the so-called "Roadless Rule" for all National Forests ending most road construction and in Alaska essentially halting logging on Tongass National Forest lands. In 2018, the Forest Service announced its intention to develop a new rule for Alaska only that would allow new road construction. The issue is extremely controversial in southeast Alaska as development interests favor the new rule and environmental interests oppose it. Former Governor Walker, who indicated support for a new rule, convened an advisory panel on the issue in October 2018.

There are many issues associated with the impact of forest harvesting on salmon reproduction including spawning habitat destruction and degradation, loss of canopy protecting resident salmon and sediment deposition damaging spawning habitat. Another significant impact as discussed earlier are the placement of culverts in anadromous streams that may prevent salmon movement and prevent spawning or outmigration. In order to accomplish timber harvest in areas away from the coast and transport logs to locations where they can be processed or shipped, extensive road building is necessary. The road system in the Tongass National Forest classifies roads as permanent or temporary. Such roads have been present in some places for over 60 years.

In 2001, US Forest Service and ADF&G Habitat and Restoration division personnel conducted a road status study pertaining to fish passage and water quality on Tongass roads. The first phase of the research examined 2173 miles of permanent roads amounting to 60% of the permanent roads in the forest. A total of 273 culverts across anadromous fish streams were identified of which 179 (66%) were "assumed to block fish passage." Four most frequent problems associated with culverts identified were altered water velocity, perching, blockage and structural damage. The standard fish used for the analysis is a coho smolt, the most likely salmonid to be found throughout the waters of anadromous fish streams in southeast Alaska. A program of replacement and maintenance has been undertaken by the Forest Service to correct the identified culvert problems.

Mineral Extraction

Mineral extraction is also a significant current issue in southeast Alaska. The Chilkat River drainage is one of the few major streams outside the federal jurisdiction of the Forest Service or National Park Service in southeast Alaska. Most of the Chilkat River valley acreage that is not held by the Klukwan village corporation or tribe is under the jurisdiction of the State of Alaska. A substantial gold mining operation is under development by Constantine Metal Resources Ltd. of Canada on a tributary of the Klehini River that flows into the Chilkat River near the village of Klukwan.

The firm has engaged in exploratory drilling in the area and intends to prepare a development plan for this gold-zinc prospect. It has obtained permits from the Bureau of Land Management (BLM) for that purpose. In December 2017, the Chilkat Indian Tribe of Klukwan and three conservation groups sued the U.S. Bureau of Land Management (BLM) for failing to consider the future impacts of mine development before approving an exploration plan for a hard rock mine project in the Chilkat River watershed. Tribal opposition to the mine is based on the threat that mine activities pose for water quality and salmon reproduction.

A major area of governance concern over mining activities in the southeast region are Canadian mines that are positioned at the headwaters of southeast Alaskan rivers that support salmon runs. There are eight recognized transboundary rivers that support salmon runs in Alaska. Dangers posed by the mines include acid-mine drainage, heavy metals pollution and catastrophic dam failure. In 2014, an earthen dam at the Mount Polley dam in central British Columbia collapsed spilling massive quantities of toxic sludge into the Fraser River, the province's largest salmon producing system. This event prompted concern and brought attention to identify what Canadian mines were operating in Alaska River headwaters. The Tulsequah Chief mine has been operating just over the border on a tributary of the Taku River for over 60 years sending toxic wastes down the river. A large-scale Canadian mine, Red Chris, opened in 2015 in the headwaters of southeast Alaska's Stikine River, one of the state's most prolific salmon producers. Red Chris –owned by the same company responsible for the Mount Polley mine disaster –is one of six large-scale mines that British Columbia is aggressively developing in the transboundary region straddling B.C. and Alaska. There are four other mines or mine prospects currently operating or in development in the headwaters areas.

Following the opening of Red Chris, Governor Walker initiated contacts with the British Columbia government on the issue of mining activities and transboundary rivers in 2015. In 2015 a memorandum of understanding between the State of Alaska and the Province of British Columbia was signed to establish a process of communications and information exchange. In 2017, Senators Murkowski and Sullivan and Representative Young sent a letter to Secretary of State Tillerson requesting State Depart attention to the issue of transboundary mines "to impress upon their Canadian counterparts the critical need for binding protections, joint water quality monitoring, and financial assurances to protect Americans downstream of large-scale Canadian mines."

Engagement did happen at the federal level. Under the Boundary Waters Treaty, the US and Canada have established the International Joint Commission to act on treaty-related issues. Article IV of the treaty requires full mitigation of potential impacts on waters of the other nation and addresses mining discharge issues. The US Commissioners accused the British Columbia parties of refusing to refer the mining issues to this body. The revelation makes clear what is at

risk for Southeast Alaska if it remains unprotected from B.C. mines near the headwaters of transboundary rivers — and Alaska's urgent need for binding enforceable protections and financial assurances, which only federal action can achieve.

In June 2018, Alaska and British Columbia held an information exchange meeting in keeping with the memorandum of understanding. Subsequently, in October 2018, Senators Lisa Murkowski and Dan Sullivan, Representative Don Young, Governor Bill Walker, and Lt. Governor Byron Mallott sent letter urging Secretary of State Mike Pompeo and the U.S. Department of State to act to defend Alaskan interests, salmon, and salmon-producing rivers from under-regulated mining activity in transboundary British Columbian / Alaskan watersheds. In the interim, Governor Walker has set up an advisory panel and continued discussions with British Columbia counterparts in an effort to move toward an agreement that addresses the major issues necessary to provide protections for Alaskan interests.

The issue of governance of potential impacts of Canadian mines on Alaskan environments and especially salmon rivers also raised concerns among southeast Alaska tribes. In 2014 the Southeast Alaska Indigenous Transboundary Commission (SEITC) was created as a consortium of 15 sovereign Tribal nations located in Southeast Alaska. The purpose of the SEITC is to protect the vital and sacred rivers essential to their communities and culture. SEITC derives its authority from Tribal governments. The organization has held discussions with the State of Alaska and with British Columbia tribes concerning transboundary rivers and potential threats from mining activities to the rivers and has called on the Department of Commerce to intervene to bring these issues before the IJC.

References

ADF&G and ISER. 1996. Understanding Harvest Assessment in the North: Synthesis of the Conference on Harvest Assessment, April 20 – 22, 1995, Girdwood, Alaska. ADF&G and ISER. Anchorage.

Arnold, D. (2009). The fishermen's frontier: people and salmon in Southeast Alaska. University of Washington Press.

Chadwick, B., Frenette, B., Chapell, R., Fowler, P., Piazza, K., & Marston, B. (2015). Overview of the Sport Fisheries for King Salmon in Southeast Alaska through 2014: A Report to the Board of Fisheries (Speical Publication No. 15-02) (p. 60). Anchorage, Alaska: Alaska Department of Fish and Game.

Conrad, S., & Gray, D. (2017). Overview of the 2016 Southeast Alaska and Yakutat Commercial, Personal Use, and Subsistence Salmon Fisheries (Fishery Management Report No. 17–25) (p. 30). Anchorage, Alaska: Alaska Department of Fish and Game. Retrieved from http://www.adfg.alaska.gov/FedAidPDFs/FMR17-25.pdf

Fall, James. A. 2003. Implementation of statewide subsistence Fisheries Harvest Assessment Strategy. Final Report for US Fish and Wildlife Service, Office of Subsistence Management, Fisheries Resource Monitoring Program Project No. FIS01-107. Alaska Department of Fish and Game, Division of Subsistence, in collaboration with the Alaska Inter-Tribal Council. Anchorage.

Grant, Rosalie A. and Lauren A. Sill. Angoon. 2013. In The Harvest and Use of Wild Resources in Haines, Hoonah, Angoon, Whale Pass, and Hydaburg, Alaska, 2012, edited by Lauren A. Sill and David Koster, pp. 200 – 280. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 399. Juneau.

Iverson, K., & Farrington, C. (2010). Vessel Length, Horsepower, Fishing Participation and Diversification among Alaska's Salmon Purse Seine Vessels, 1978 – 2008 (CFEC Report No. 10–1N). Juneau, Alaska: Alaska Department of Fish and Game.

Langdon, S. J. (2006a). Selective Traditional Tlingit Salmon Fishing Techniques on the West Coast of the Prince of Wales Archipelago. In Traditional ecological knowledge and natural resource management (pp. 21–46). University of Nebraska Press. Retrieved from https://www.researchgate.net/profile/Steve_Langdon2/publication/299389084_2006_Tidal_Pulse_Fishing_Selective_Traditional_Tlingit_Salmon_Fishing_Techniques_on_the_West_coast_of_the_Prince_of_Wales_Archipelago_IN_C_Menzies_ed_Traditional_Ecological_Knowledge_and_Natural_Resou/links/56f30d4408ae38d7109a54ce/2006-Tidal-Pulse-Fishing-Selective-Traditional-Tlingit-Salmon-Fishing-Techniques-on-the-West-coast-of-the-Prince-of-Wales-Archipelago-IN-C-Menzies-ed-Traditional-Ecological-Knowledge-and-Natural-Resou.pdf

Langdon, S. J. (2006b). Tidal Pulse Fishing: Selective Traditional Tlingit Salmon Fishing Techniques on the West Coast on the Prince of Wales. ResearchGate.

Langdon, S. J. (2006c). Traditional Knowledge and Harvesting of Salmon by Huna and Hunyaa Tlingit (Fisheries Information Service No. 02-104) (p. 196). Anchorage, Alaska: US Fish and Wildlife Service.

Naves, Lilliana, Michael F. Turek, and William E. Simeone. 2010. Subsistence – Personal Use Salmon Harvest, Southeast – Yakutat Management Region, 1996-2006. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 350. Anchorage.

Paige, A. W., Churchill, S., Ratner, N., Turek, M., & Coiley-Kenner, P. (2009). Local Knowledge, Harvest Patterns, and Community Uses of Salmon in Wrangell, Alaska (Technical Paper No. 323) (p. 105). Juneau, Alaska: Alaska Department of Fish and Game.

Pollnac, R. B., & Poggie, J. J. (2006). Job satisfaction in the fishery in two southeast Alaskan towns. Human Organization, 65(3), 329–339. Retrieved from http://www.sfaajournals.net/doi/abs/10.17730/humo.65.3.3j2w39a21tq3j4l1

Price, Robert E. 1990. The Great Father in Alaska – The Case of the Tlingit and Haida Salmon Fishery. First Street Press. Douglas.

Shriver, Jen. 2014. Changes in the Value of Southeast Alaska Purse Seine Limited Entry Permits Following Two Permit Buyback Programs. Master's Thesis. University of Alaska, Fairbanks. Fairbanks.

Walker, Robert. 2009. The Validity and Reliability of Fisheries Harvest Monitoring Methods, Southeast Alaska. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 286. Anchorage.