Considerations Regarding an Extraterritorial Jurisdiction Petition for Northern Southeast Alaska Marine Waters

A Staff Report to the Federal Subsistence Board

ISSUE STATEMENT

On May 10, 2010 and in supplemental materials on June 15, 2011, Kootznoowoo, Incorporated, the Native village corporation for the community of Angoon, Alaska, petitioned the Secretary of Agriculture to exercise extraterritorial jurisdiction into "marine waters adjacent to Admiralty Island and beyond." The Secretary of Agriculture forwarded the petition documents to the Secretary of the Interior and the Federal Subsistence Board.

The central issue of the petition and the supplement is whether State management of the commercial purse seine fishery has interfered with subsistence fishing on Federal public lands and associated waters to such an extent as to result in a failure to provide the subsistence priority to Angoon residents. This issue can be separated into three distinct questions:

1. Is there a Federal subsistence priority for Angoon residents?
2. Does State management of the commercial purse seine fishery interfere with subsistence fishing on Federal public lands and associated waters?
3. If there is interference, does it occur to such an extent as to result in failure to provide the subsistence priority to Angoon residents?

PETITION REQUEST

The Kootznoowoo petition of May 10, 2010, requests Federal assertion of extraterritorial jurisdiction to restrict or close commercial fishing in marine waters surrounding Angoon. The petitioner defines these waters as comprised of a combination of 1) reserved Federal waters within and immediately surrounding Admiralty Island within the boundaries of Admiralty Island National Monument and Kootznoowoo Wilderness Area, 2) reserved Federal waters three miles distant from the continental mainland and islands of Admiralty, Chichagof and Baranof, and 3) all marine waters and lands encompassed by "Angoon Territory," the defined boundaries of which are based on past use and current ownership.

The petition supplement of June 15, 2011, specifically recommends reducing the harvest area adjacent to Hidden Falls Hatchery, and closing all fishing districts in Chatham, Icy, and Peril Straits during June, July and the first two weeks of August to protect sockeye salmon and allow for the continuation of subsistence uses on Federal public lands and waters. Additionally, the petitioner requests that "Kootznoowoo's rights, interests and quiet enjoyment of Federal lands and waters within Admiralty Island" be acknowledged, maintained and protected and that any current and continued enforcement efforts contrary to these be dismissed and discontinued.

Attached maps provide reference to these locations, and to the location of Federal public lands in this area (**Maps 1-3**).

The petitioner states that extraterritorial jurisdiction is needed to protect the subsistence priority for sockeye salmon for residents of the City of Angoon.

The petitioner contends that management of commercial fisheries by the State of Alaska has interfered with sockeye salmon escapements and subsistence harvests in systems fished by residents of the City of Angoon, including the Eva, Hasselborg, Kanalku, Kook, and Sitkoh drainages, to such an extent as to result in a failure of the subsistence priority.

The petitioner further states that none of the sockeye salmon stocks in these drainages have escapement goals, but that escapements, as well as subsistence harvest fishing opportunities, have declined while commercial fishing opportunities have increased.

The petitioner wants to ensure these runs are rebuilt and Angoon residents receive their subsistence fishing priority by restricting commercial harvests, reducing the harvest area adjacent to Hidden Falls Salmon Hatchery and eventually closing the hatchery, and developing a management plan that would include sockeye salmon escapement goals and subsistence harvest guidelines. Additionally, the petitioner requests that the U.S. Forest Service and State of Alaska pay mitigation costs for lost harvests to Angoon residents until agreed upon sockeye salmon escapement goals are achieved.

PROCESS

The Secretaries have not delegated the authority to restrict or eliminate activities occurring on non-Federal lands to the Federal Subsistence Board (36 C.F.R. § 242.10(a)). However, under its authority, the Federal Subsistence Board may evaluate whether hunting, fishing, or trapping activities which occur on lands or waters in Alaska other than Federal public lands interfere with subsistence hunting, fishing, or trapping on Federal public lands to such an extent as to result in a failure to provide the subsistence priority.

Coordinating with the Secretaries, the Federal Subsistence Board adopted procedures for addressing this type of petition (OSM 2005). For the Kootznoowoo petition, the Federal Subsistence Board requested a staff analysis of available information (this report), which will be made available to all interested parties. After taking public testimony and consulting with the Southeast Alaska Subsistence Regional Advisory Councils, other Federal agencies, and the State of Alaska, the Federal Subsistence Board will make a recommendation to the Secretaries regarding the Kootznoowoo petition for extraterritorial jurisdiction. This recommendation will not be released to the public.

ORGANIZATION OF REPORT

In order to address the three questions outlined above, which are central to analyzing the Kootznoowoo 2010 petition and 2011 petition supplement, the report provides the following information:

- Brief historical background of the sockeye salmon in relation to Angoon traditional use and development of commercial fisheries.
- Description of Angoon subsistence practices.

- Evaluation of State of Alaska and Federal management actions and regulations in relation to provision of the subsistence priority for sockeye salmon on Federal public lands and associated waters for Angoon residents.
- Assessment of sockeye salmon runs to the freshwater systems at issue.
- Examination of Kootznoowoo's requested finding in its 2010 petition and 2011 supplement.
- Advice on and examination of alternatives to the requested actions.

HISTORICAL BACKGROUND

Prior to the large scale commercialization of salmon fisheries in Southeast Alaska, which began with the advent of large canning operations in 1878, fishing access to salmon streams was controlled by Tlingit matrilineal clans (Arnold 2008; Betts and Wolfe 1992; Moser 1900). The Kootznoowoo were one of 13 or 14 regional Tlingit *kwaan* groups, and claimed the lands and waters surrounding Admiralty Island, northeast Baranof, and southeast Chichagof Islands. The Tlingit system of clan ownership was ignored by both the nascent commercial canning industry and the U.S. government, and largely unregulated access and exploitation of salmon stocks led to the decline of sockeye salmon runs beginning about 1915.

Sockeye salmon in the Angoon area were never as abundant as some of the other salmon species because of the limited number of freshwater systems with suitable lakes needed to rear juveniles. However, the commercial fishing and canning industry depleted available sockeye salmon (Thomas, Schroeder and Bosworth 1990), which led to a commercial shift to pink salmon in the 1920's, and commercial salmon catches again increased, reached a peak in 1936 and then declined through 1959, at which time Alaska became a state. The State of Alaska adopted a more closely regulated commercial salmon management system in which cannery fish traps were prohibited (1962) and a limited entry system was put into place (1970s to early 1980s).

From 1878 until the late 1890s, Southeast Alaska cannery production grew slowly, focused on the less abundant but more desirable sockeye salmon. There were never more than six canneries operating until 1889, when the number doubled to twelve (Arnold 2008). These canneries produced on average 150,000 cases of sockeye salmon per year. As the fishing industry expanded only the most productive areas and the species of highest value were initially exploited (Cooley 1963). After stocks were depleted in an area, the industry targeted other species and expanded operations into other areas. By 1918, 76 canneries were producing nearly 3.5 million cases of salmon annually (Arnold 2008). While much of this expansion was due to the harvest of pink salmon, fishermen continued to harvest sockeye salmon for which they were paid seven times the price of pink salmon. By the 1920's the physical limitations of supply became a factor of growing importance.

Since statehood, the modern purse seine salmon fishery, regulated by the State of Alaska, has accounted for about 79% of the commercial salmon harvest each year across Southeast Alaska (Thynes et al. 2011). Other commercial fishing is done by drift gillnet or by trolling. The primary species harvested during the purse seine fishery is pink salmon, but chum salmon are also targeted. While pink salmon runs primarily consist of wild fish, most chum salmon are the result of hatchery production. Other salmon species, including sockeye salmon, are incidentally harvested.

For the northern portion of Southeast Alaska, a portion of which is of interest to the petitioner, the most recent 10-year average (2002-2011) species composition of the entire purse seine fishery consisted of 87.5% pink salmon *Oncorhynchus gorbuscha,* 11.4% chum salmon *O. keta,* 0.6% sockeye salmon *O. nerka,* 0.5% coho salmon *O. kisutch,* and >0.1% Chinook salmon *O. tshawytscha,* while the average

annual species harvest during this period was 18,168,591 pink, 2,376,445 chum, 115,817 sockeye, 104,952 coho, and 8,000 Chinook salmon (Davidson et. al 2012) (**Table 1**).

The hatchery of concern to the petitioner is Hidden Falls Hatchery on Baranof Island, which is across Chatham Strait from the community of Angoon (**Map 2**). The hatchery was built in 1979, operated by the State of Alaska until 1988, and then operated by the Northern Southeast Regional Aquaculture Association through the present (NSRAA 2012). Commercial fishing for salmon returning to the hatchery is allowed to occur within a Terminal Harvest Area defined in regulation as "the waters of District 12 within two nautical miles of the Baranof Island shoreline south of the latitude of South Point and north of 57º 06.83' N. latitude, excluding the waters of Kelp Bay" (5 AAC 33.374). The hatchery produces about 84,000,000 chum fry each year, and plans to produce 94,000,000 fry beginning in 2012.

The most recent 10-year average (2002-2011) commercial purse seine harvest within the Terminal Harvest Area was 1,014,971chum salmon (Davidson et. al 2012) (**Table 2**). The hatchery also produces about 600,000 Chinook salmon smolt and about 3,000,000 coho salmon smolt each year, which are also harvested by commercial purse seine vessels as well as commercial troll vessels. While not produced by the hatchery, sockeye salmon are also harvested in the Terminal Harvest Area; the 2002-2011 average harvest by the purse seine fishery was 2,903 sockeye salmon.

ANGOON SUBSISTENCE

An estimated 466 residents in 167 households lived in Angoon in 2011 (ADCCED 2012), for whom salmon are among the most important subsistence resources (ADF&G 2012). In 1996, the most recent year for which comprehensive subsistence resource use information is available, salmon represented about 32% of the total pounds of fish and wildlife harvest taken for subsistence use by Angoon residents, and was used by 79.9% of all households. Sockeye salmon was used by 67.8% of Angoon households in 1996. Total estimated annual harvests of sockeye salmon by Angoon residents range from 56 to 1,620 during 1985 -2008 based on reported permit numbers, and from 1,178 to 2,793 during 1996-2002 based on expanded permit numbers (**Table 3**).

Geiger and ADF&G staff (2007) list four systems in northern Chatham Straits traditionally used by Angoon residents for sockeye salmon subsistence fishing: Basket Bay and Kook Lake; Sitkoh Bay and Lake; Kanalku Bay and Lake; and Hasselborg River and Salt Lake (**Map 2**). These systems have a well-documented history of customary land use and traditional fishing rights by the people of Angoon (Goldschmidt and Haas 1998 [1946]). Sockeye salmon from these systems continue to be an important subsistence resource for local people, although harvest patterns have been subject to changes in socioeconomic, regulatory, and environmental conditions.

The area around Angoon is physically and biologically diverse, which has allowed local harvesters to choose among different areas as circumstances change (George and Bosworth 1998). From historic times to present, local people have continued to prefer Kanalku Bay for subsistence harvest of sockeye salmon due to its proximity to the village and ease of access through sheltered waterways (Vinzant, Bednarski, and Heinl 2011). The preference of Kanalku Bay for subsistence salmon harvesting has resulted in the average number of sockeye harvested exceeding the harvest limit in 13 of the 16 years for which harvests were reported (**Figure 1A**).

George and Bosworth (1998) state that "In recent years, out of concern for the salmon stocks in some areas, bag limits imposed by the Department of Fish and Game have limited sockeye harvests to twenty-

five fish per permit. However, it is not unusual for fishers to take the number of fish they feel they need for subsistence regardless of the permit limit. Continuing efforts are underway to develop subsistence regulations that conserve the salmon resource and are still consistent with customary and traditional fishing practices." Comparisons between household survey data and permit data indicated that permit data under-reported Angoon subsistence salmon harvests by 22.2% in 1996 and 15% in 2001 (Naves, Turek, and Simeon 2010).

Hasselborg River-Salt Lake, on the east side of Chatham Strait, and Hanus Bay-Lake Eva, on the west side of Chatham Strait, are two other historically important locations used by Angoon residents to harvest sockeye salmon for subsistence uses (**Map 2; Figure 1B; Table 4**). Hasselborg River-Salt Lake has been a traditionally important location to harvest both subsistence coho and sockeye salmon. Historically, there was a summer settlement on the shores of Hasselborg River where salmon were harvested and smoked for winter (George and Bosworth 1998). Local people prefer to harvest subsistence sockeye salmon in Kanalku Bay, but supplement that harvest with sockeye salmon from Hasselborg River-Salt Lake during times of depressed runs or regulatory restrictions. Hanus Bay-Lake Eva, a system not mentioned by Geiger and ADF&G staff (2007), supports a small run of sockeye salmon that a few Angoon residents have fished in the past and continue to periodically fish (George and Bosworth 1998).

The people of Angoon also maintain contemporary ties to two traditional subsistence sockeye systems on the west side of Chatham Strait, at Basket Bay (Kook Creek and Lake), and Sitkoh Bay (Sitkoh Lake Creek) (**Map 2; Figure 1C; Table 4**). Historically, Basket Bay was the site of a Tlingit village located near a stream supporting sockeye, pink and chum salmon runs. Basket Bay continues to be an important fishing site for local users. When access to sockeye salmon has been restricted in Kanalku Bay and Lake, subsistence users often switch to harvesting sockeye salmon from Basket Bay, where local people claim the sockeye salmon are larger than those obtained from Kanalku or Sitkoh Bay (George and Bosworth 1998). While local people historically travelled to Sitkoh Bay to harvest salmon, their numbers increased substantially during the 1960s to approximately 60% of Angoon residents, as local people sought work at the Chatham Cannery. Cannery workers participated in subsistence fishing at Sitkoh Bay around their cannery schedule. Participation in the Sitkoh Bay subsistence fishery remained high until the cannery closed in 1971. While Angoon residents still travel to Sitkoh Bay to fish for sockeye salmon in July, the number of participants fluctuates in relation to the availability of other subsistence resources.

The people of Angoon have a long history of integrating commercial and subsistence fishing practices to ensure an adequate subsistence harvest of salmon for household use. Often commercial fishing households obtained some or all of their subsistence salmon by retaining fish from their commercial catches. "The practice of retaining fish from commercial catches for subsistence use has resulted in part because of the relatively restrictive state regulations on subsistence salmon fishing. During the 1980s, state regulations defined the allowable gear, locations, openings, and possession limits for subsistence harvests of pink, chum, and sockeye salmon in both communities. Subsistence possession limits were exceedingly low in comparison with traditional use levels, allowing a 10-25 fish limit per permit for sockeye streams in the Kake and Angoon areas" (Betts and Wolfe 1992). Since the late 1980s the practice of retaining commercial catch salmon for subsistence use has been disappearing due to the declining the number of Angoon residents participating in the commercial fishery. In 1990, 60 Angoon residents participated in commercial salmon fisheries as permit holders, by 2000 that number had decreased to 19 permit holders, and most recently in 2010 only two Angoon residents participated in the commercial salmon fishery as permit holders. This decline has led to an increased reliance on obtaining fish in subsistence fisheries by Angoon residents (Geiger and ADF&G staff 2007).

In the late 1990s declining sockeye salmon abundance led to concerns over the sustainability of the subsistence fisheries at Kanalku Lake and Basket Bay. Kanalku Lake was closed to subsistence fishing beginning in 2002 by a voluntary agreement between the community of Angoon and Alaska Department of Fish and Game, and outfitter-guides were prohibited from using Kanalku Creek by the U.S. Forest Service that same year (Geiger and ADF&G 2007). While a few subsistence permits were issued and fished for Kanalku in 2003, the voluntary closure remained in effect with no reported fishing from 2004 through 2007, after which permits were again requested and issued beginning in 2008 (**Figure 1A**). Subsistence sockeye salmon harvests reported from Basket Bay/Kook Lake have generally remained fairly stable since 2000, while reported harvests from Sitkoh, Hasselborg and Eva have tended to fluctuate more during the same time period, including years in which no harvests were reported (**Table 4**).

Most of the waters fished by residents of Angoon appear to be marine waters, which are under State jurisdiction. However, locations provided from State permits (**Table 4**) indicate harvests may also occur in some inland waters. Marine waters for purposes of the Federal subsistence program are defined as follows: "Marine Waters means, for the purposes of this part, those waters located seaward of the mean high tide line or the waters located seaward of the straight line drawn from headland to headland across the mouths of rivers or other waters as they flow into the sea" (36 CFR 242.14). Except for a few locations, Federal jurisdiction in Southeast Alaska is generally restricted to inland waters. Inland waters are defined as follows: "Inland Waters means, for the purposes of this part, those waters located landward of the mean high tide line or the waters located upstream of the straight line drawn from headland to headland across the mouths of rivers or other waters as they flow into the sea. Inland waters include, but are not limited to, lakes, reservoirs, ponds, streams, and rivers" (36 CFR 242.14).

STATE FISHERIES REGULATIONS

State fisheries regulations consist of Alaska Statutes, passed by the Alaska State Legislature, Title 16 Fish and Game, and Alaska Administrative Code (AAC) adopted by the Alaska Board of Fisheries, Title 5 Fish and Game. The Alaska Board of Fisheries is charged with sustainable management of the salmon resources and allocating harvests among competing users in State-managed fisheries with subsistence as the priority consumptive use (5 AAC 39.222 Policy for the management of sustainable salmon fisheries).

Additionally, specific regulations have been adopted to manage commercial (5 AAC Chapter 33), sport (5 AAC Chapter 46), personal use (5 AAC Chapter 77Article 14), and subsistence (5 AAC Chapter 1 Article 14) fisheries in the Southeast Alaska Area. If applicable, salmon fisheries are managed in accordance with conservation and harvest goals agreed to under the United States-Canada Pacific Salmon Treaty (5 AAC 33.361). The Alaska Department of Fish and Game and Alaska Board of Fisheries are also responsible for establishing salmon escapement goals based on concepts, criteria, and procedures set forth in regulation (5 AAC 39.223 Policy for statewide salmon escapement goals).

Under State law, all Alaska residents may participate in subsistence fishing in areas open to subsistence uses, except during times of resource shortages (§16.05.258). Unless specifically exempted, salmon may be taken only under the authority of a subsistence fishing permit issued by the Commissioner of the Alaska Department of Fish and Game (5 AAC 01.015) (**Figure 2**).

For the waters of Northern Southeast Alaska of interest to the petitioner, the Alaska Board of Fisheries found that salmon are customarily and traditionally taken or used for subsistence in District 9, which includes portions of Chatham Strait and Frederick Sound; District 10, which includes portions of Frederick Sound and Seymour Canal; District11, which includes portions of Seymour Canal and Stephens

Passage; District12, which includes Northern Chatham Strait; District13, which includes Peril Straits and the outer coast of Chichagof Island; and District14, which includes Icy Strait (AAC 01.716(4), (6), (8), and (21)) (**Map 3**). For the above districts, the Alaska Board of Fisheries found the number of salmon reasonably necessary for subsistence uses were a range of 4,178 to 10,133 for Districts 11, 12, 14, and 15 combined; a range of 10,487 to 20,225 for District 13 and Section A of District 9 combined; and a range of 4,120 to 7,345 for Districts 5, 6, 7, 8, Section B of 9, and 10 combined.

The community of Angoon lies within the Juneau Management Area, which also includes the communities of Hoonah, Elfin Cove, Gustavus, Pelican, Tenakee Springs, and Juneau (Naves, Turek, and Simeone 2010). Within the Juneau Management Area, subsistence household sockeye salmon open dates and harvest limits have changed over time for various fishing locations (Yuhas personal communication 2011 and 2012) (**Table 5**).

Angoon residents are the main participants in subsistence salmon fisheries in District 12, which consist of the waters south of a line from Fishery Point to South Passage Point and north of Point Caution (5 AAC 01.716(6)), and the waters of Basket Bay inside a line from latitude 57º30.83'N, longitude 134º53.20'W to latitude 57º39.28'N, longitude 134º53.88'W (5 AAC 01.716(4)). Angoon residents are also the main participants in the Sitkoh Bay subsistence fishery, managed by Sitka Management Area staff, and which is on the east side of Chichagof Island located in Section C of District 13 (5 AAC 01.716 (8)).

Commercial purse seine fishing in the area of interest to the petitioner is regulated under the Northern Southeast Purse Seine Management Plan (5 AAC 33.366). This plan provides specific regulations for District 12, north of Point Marsden (along the Hawk Inlet shore, hereafter referred to as the Hawk Inlet fishery), and in Section 14-C north of the latitude of Porpoise Islands. The plan specifically addresses the number of sockeye salmon that can be taken during the Hawk Inlet pink salmon purse seine fishery, and more generally addresses the incidental harvest of coho salmon during the chum salmon fishery conducted north of Porpoise Islands. The Hawk Inlet fishery is managed for the harvest of northward migrating pink salmon in Chatham Strait. Openings are only allowed during July in areas for which harvestable numbers of pink salmon are observed and must consider conservation concerns for other species. The fishery must be closed after 15,000 wild sockeye salmon are taken, and the Alaska Department of Fish and Game must conduct aerial surveys, sampling, and interviews during each opening to estimate the sockeye salmon harvest. The 15,000 sockeye salmon cap includes wild sockeye salmon harvested by purse seine vessels in other areas concurrently open north of Point Marsden, but excludes any hatchery-produced sockeye salmon that are taken. The cap helps to allocate fish between purse seiners in Chatham and Icy Straits and gillnetters fishing further inland.

A regulatory management plan is also in place to regulate the harvest of chum, Chinook, and coho salmon returning to the Hidden Falls Hatchery (5 AAC 33.374. District12: Hidden Falls Hatchery Terminal Harvest Area Salmon Management Plan). This hatchery is located on Baranof Island in Kasnyku Bay on Chatham Strait, and has been operated by Northern Southeast Regional Aquaculture Association since 1988 (**Map 2**). The plan allows commercial purse seine and troll vessels to harvest salmon not needed by the hatchery for taking and fertilizing eggs (broodstock) and generating operating funds through the sale of salmon (cost recovery), within a defined Terminal Harvest Area. The season for chum and Chinook salmon begins April 15, openings are set by emergency orders issued by the Alaska Department of Fish and Game, and purse seine openings are limited to two days per week through June 30. Beginning July 1, more restrictions may be placed on commercial chum and Chinook salmon fishing to ensure hatchery broodstock and cost recovery needs are met. No commercial coho salmon fishing is allowed until all hatchery broodstock and cost recovery needs have been met.

The Alaska Department of Fish and Game has issued emergency orders to provide sockeye salmon migrating southward to Kanalku and Kook Lakes some protection from harvest by commercial purse seine vessels. For Kanalku Lake sockeye salmon, a portion of the Chatham Strait shoreline has been closed to purse seine fishing into early August or later along an area of about nine nautical miles from Parker Point to Point Samuel, west and north of Kootznahoo Inlet and the community of Angoon and Kanalku Inlet (Davidson et al. 2012, Geiger and ADF&G staff 2007) (**Map 4**). For Kook Lake sockeye salmon, an area of about four nautical miles from Little Basket Bay to Don's Creek has been closed by emergency order (Davidson et al. 2012, Geiger and ADF&G staff 2007) (**Map 4**).

STATE COMMERCIAL PURSE SEINE FISHERY MANAGEMENT

The Alaska Department of Fish and Game develops and publishes a Southeast Alaska purse seine management plan prior to each fishing season that describes harvest strategies based on expected salmon run abundance as well as anticipated management issues (for example, Davidson 2011a). Management is conducted according to State statutes and regulations, in consultation with the fishing industry and public through a Purse Seine Management Task Force process. During the season, pink salmon abundance is estimated using aerial surveys along migratory corridors, in bays, and in spawning streams; commercial fishery performance (catch and catch-per-unit-effort); test fishing assessments; and monitoring of pink salmon sex ratios from commercial and test fishing catches.

Pink salmon in Southeast Alaska are managed as three separate stock groupings: Southern Southeast Sub-region, consisting of Districts 1-8; Northern Southeast Sub-region, consisting of Districts 9-12, 13 inside, 14 and 15; and Northern Southeast Outside Sub-region, consisting of District 13 outside (Davidson et. al 2012) (**Map 5**). The State has established separate pink salmon biological escapement goals for the three sub-regions and each of these have been further subdivided into individual management target goals for each District.

Since 2002, the State changed its management approach to fishing during the peak of the pink salmon run from a two-day on and two-day off fishing schedule, which had been in place since the 1980s, to a more flexible schedule allowing longer fishing periods, commonly four to six days with specific area openings and closures. Based on requests from the fishing industry, this change was made to improve product quality by spreading out deliveries to processing plants and reducing the time between harvest and delivery (Clark et al. 2007).

PURSE SEINE FISHERY AND SOCKEYE SALMON

Regulation of the commercial purse seine fishery has been highly controversial due in large part to the interception of sockeye salmon stocks harvested by subsistence users. In March 2006, the Office of Subsistence Management sent a letter to the Director of the Alaska Department of Fish and Game's Division of Commercial Fisheries suggesting that their staff submit a project proposal to the Fisheries Resource Monitoring Program to develop stock contribution estimates for sockeye salmon taken in purse seine fisheries conducted in Districts 3, 4, 9, and 12 (OSM 2006). The letter indicated that funding for this work should consist of matching State and Federal funds. The Alaska Department of Fish and Game declined the invitation due to cost considerations and incomplete development of the genetics baseline data needed to produce such estimates (ADF&G 2006).

Geiger and ADF&G staff (2007) summarized available information on sockeye salmon stock status, fishery management, harvest, and escapement through 2006. The need for such a summary and analysis of available information was directed by both the Regional Forester of the U.S. Forest Service and the Commissioner of Alaska Department of Fish and Game, and the final report was supposed to be a joint effort by both agencies. While both agencies contributed information, a final report was issued by the Alaska Department of Fish and Game without consulting the U.S. Forest Service or addressing their concerns and review comments on the draft report.

An Office of Subsistence Management review of the draft report, conducted at the request of the U.S. Forest Service, found the document to be a "needed first step to resolve this issue and management question," and "the series of questions and ensuing discussion to be a very productive framework" (OSM 2007). The review did question the report's finding that commercial purse seine harvests occurred after most of the subsistence harvests had been taken, because the result was based only on purse seine harvests for areas closest to the subsistence fisheries, as well as the implicit assumption that other seine harvest areas do not interfere with the subsistence sockeye harvest, because timing of the subsistence harvest may not be dictated and restrained by permit requirements rather than by traditional patterns. The review recommended that "any differences be resolved through a normal editing and review process," which did not occur.

Geiger and ADF&G staff (2007) set out to answer specific questions concerning escapement levels and the status of the subsistence fishery, the fishery management process and decisions, and policy about escapement levels and subsistence opportunity. While they did not provide answers to any of the questions due to an overall lack of information, they recommended that the Alaska Department of Fish and Game "work to develop escapement targets," "that these targets be used to guide management actions in the seine and subsistence fisheries," and "that staff continue to develop inseason escapement monitoring tools, where possible" for incorporation into management. To date, no answers for any of the posed questions have been developed.

FEDERAL FISHERIES REGULATIONS

The Federal Subsistence Management Program is charged with providing for a subsistence priority on Federal public lands and associated waters consistent with the maintenance of healthy fish and wildlife populations. Title VIII of the Alaska National Interest Lands Conservation Act of 1980 sets out a congressional statement of policy and the authority for a subsistence priority on Federal public lands in Alaska.

> *§802. It is hereby declared to be the policy of Congress that--*
>
> *(1) consistent with sound management principles, and the conservation of healthy populations of fish and wildlife, the utilization of the public lands in Alaska is to cause the least adverse impact possible on rural residents who depend upon subsistence uses of the resources of such lands; consistent with management of fish and wildlife in accordance with recognized scientific principles and the purposes for each unit established, designated, or expanded by or pursuant to Titles II through VII of this Act, the purpose of this title is to provide the opportunity for rural residents engaged in a subsistence way of life to do so;*
>
> *(2) nonwasteful subsistence uses of fish and wildlife and other renewable resources shall be the priority consumptive uses of all such resources on the public lands of Alaska when it is necessary*

to restrict taking in order to assure the continued viability of a fish or wildlife population or the continuation of subsistence uses of such population, the taking of such population for nonwasteful subsistence uses shall be given preference on the public lands over other consumptive uses; ….

§804. Except as otherwise provided in this Act and other Federal laws, the taking on public lands of fish and wildlife for nonwasteful subsistence uses shall be accorded priority over the taking on such lands of fish and wildlife for other purposes. Whenever it is necessary to restrict the taking of populations of fish and wildlife on such lands for subsistence uses in order to protect the continued viability of such populations, or to continue such uses, such priority shall be implemented through appropriate limitations based on the application of the following criteria:
(1) customary and direct dependence upon the populations as the mainstay of livelihood;
(2) local residency; and
(3) the availability of alternative resources.

This ANILCA mandate is implemented through the Federal Subsistence Management regulations found at 36 CFR § 242 and 50 CFR § 100. The authority to restrict fishing activities that occur on lands or waters other than Federal public lands derives from the Property Clause of the U.S. Constitution, the statutes and executive orders establishing and administering the various Federal areas, and subsequent judicial interpretations. A Federal reservation includes more than just title to the Federal lands and waters; it also includes the authority to protect the Federal purposes identified by Congress when establishing the reservation. The Secretaries of the Interior and Agriculture have retained the authority to protect the purposes for which the various land units were established by regulating off the public lands if necessary. Relative to subsistence, this authority is delineated at §___.10(a):

The Secretaries, however, retain their existing authority to restrict or eliminate hunting, fishing, or trapping activities which occur on lands or waters in Alaska other than public lands when such activities interfere with subsistence hunting, fishing, or trapping on the public lands to such an extent as to result in a failure to provide the subsistence priority.

The Federal Subsistence Board also has a role leading up to a Secretarial decision. It is found at §___.10(d)(4)(xviii):

(4) The Board is empowered, to the extent necessary, to implement Title VIII of ANILCA, to:

(xviii) Evaluate whether hunting, fishing, or trapping activities which occur on lands or waters in Alaska other than public lands interfere with subsistence hunting, fishing, or trapping on the public lands to such an extent as to result in a failure to provide the subsistence priority, and after appropriate consultation with the State of Alaska, the Regional Councils, and other Federal agencies, make a recommendation to the Secretaries for their action;

The Federal Subsistence Board determined that residents of the City of Angoon and along the western shore of Admiralty Island north of the latitude of Sand Island, south of the latitude of Thayer Creek, and west of 134°30' West longitude, including Killisnoo Island have a positive customary and traditional use determination for salmon in District 12, Section 12A, the area south of a line from Fishery Point to South Passage Point (§__.24(a)(2)). Additionally, residents of drainages flowing into Districts 12 and 14 have a positive customary and traditional use determination for all fish in District 12 within Sections A (excluding the area south of a line from Fishery Point to South Passage Point) and B.

For Southeast Alaska, Federally qualified users must possess a subsistence fishing permit to take salmon (§__.27(13)(ii)). This may be either a State (**Figure 2**) or Federal (**Figures 3A** and **B**) permit. The Federal subsistence household harvest limit for sockeye salmon is currently either the same as that provided for in adjacent State subsistence or personal use fisheries, or 10 sockeye in possession and 20 per household for streams in which a harvest limit has not been established for State subsistence or personal use fisheries (§__.27(13)(xii)). Use of rod and reel for subsistence fishing is allowable under a Federal permit without a requirement for a State sport fishing license, and no closed season is specified. The Federal Subsistence Board has delegated authority to Federal managers (in this case the Forest Service District Ranger) to issue emergency special actions for Federal public lands and waters to assure continued viability of fish or to continue subsistence uses of a fish population.

ASSESSMENT OF SOCKEYE SALMON RUNS TO SYSTEMS OF INTEREST

Spawning Populations and Potential Production

Beginning in 2001, the U.S. Forest Service provided funding through the Fisheries Resource Monitoring Program to the Alaska Department of Fish and Game to estimate the abundance sockeye salmon spawning populations, using mark-recapture techniques, and to estimate sockeye salmon juvenile rearing capacity, using limnology sampling for Kanalku, Sitkoh, and Kook Lakes (Conitz and Cartwright 2005). Similar work was attempted for the Hasselborg River and Lake system, but this was unsuccessful (Conitz and Cartwright 2002). The investigators decided that further efforts at sockeye salmon assessment for Hasselborg River were not needed since current harvest levels did not seem to present a problem to sustaining the run.

Conitz and Cartwright (2003) found that sockeye salmon fry densities in Kanalku Lake (3 fry per 100 m^2), Kook Lake (2 fry per 100 m^2), and Sitkoh Lake (11 fry per 100 m^2) were "well below" the "typical carrying capacity" of 20 fry per 100 m^2, which are "found in most oligotrophic Alaskan Lakes." All three lakes had healthy zooplankton populations that were "well within the range of 100-1,000 mg per m^2 over which fry growth appears to show a positive response to prey availability." Estimated seasonal mean zooplankton abundance was 569 mg per m^2 for Sitkoh Lake, 419 mg per m^2 for Kanalku Lake, and 311 mg per m^2 for Kook Lake. The authors concluded that "At this early stage of the study, it appears sockeye fry populations in Kanalku and Kook Lakes have been limited by low escapements rather than by food availability." A similar conclusion concerning Kanalku Lake was reached in an earlier study conducted by Barto and Cook (1996). More recent work in Kanalku Lake has similarly indicated that zooplankton prey availability did not seem to be limiting sockeye production, and that the lake could probably support a much larger population of sockeye salmon juveniles (Vinzant, Host, and Conitz 2009).

Kanalku Lake annual escapement estimates have ranged from 240 sockeye salmon in 2001 to 2,970 sockeye salmon in 2010 (**Table 6**). Since the installation of the weir in 2007, four years of daily and total escapements estimates have been collected for Kanalku Lake (2007-2010). During these four years, the date on which the first sockeye salmon passed the weir has been as early as 2 July in 2010 and as late as 31 July in 2008. The earliest date on which half the escapement had passed the weir was 19 July in 2009, and the latest date on which half the escapement had passed the weir was 5 August in 2008. While a preliminary escapement estimate of 700 sockeye salmon was made for Kanalku Lake in 2011, run timing information is not yet available (Bednarski 2011). Escapement estimates for 2001-2006 were made using mark-recapture techniques and did not provide run timing information.

Kook Lake annual escapement estimates have ranged from 380 sockeye salmon in 2001 to 10,165 in 2006 (**Table 6**). Since the installation of the weir in 2007, five years of daily and total escapement estimates

have been collected for Kook Lake (2005-2007, 2010 and 2011). During these five years, the date on which the first sockeye salmon passed the weir has been as early as 27 June in 2006 and as late as 20 July in 2010. The earliest date on which half the escapement had passed the weir was 14 July in 2011, and the latest date on which half the escapement had passed the weir was 25 August in 2005. Escapement estimates for 1994, 1995, 2001, and 2002 were made using mark-recapture techniques and did not provide run timing information.

To estimate total returns of sockeye salmon returning to any of these systems, as well as to estimate the number of adult sockeye salmon produced from each year's spawning population, requires information of the number of sockeye salmon harvested from each system and the number that escape harvest and enter the system to spawn. No stock specific harvest estimates are available from the commercial fishery that would facilitate such estimates.

Migration Patterns of Returning Adults

There is no specific information concerning migration patterns of sockeye salmon returning to any of the systems used by Angoon residents for subsistence fishing (Kanalku, Kook, Sitkoh, Hasselborg, and Eva Lakes). It is likely, however, that these sockeye salmon would have to migrate from the Gulf of Alaska through Icy and Peril Straits to enter Chatham Strait from the north, or directly from the Gulf of Alaska into southern Chatham Strait. During their migration, these sockeye salmon would pass through areas in which commercial purse seine fisheries occur. Studies on other sockeye salmon stocks suggest that salmon returning from the sea to spawn may take different routes to their home river each year. For example, different proportions of the Fraser River sockeye salmon run take the northern and southern routes along the coast of Vancouver Island each year based on differing oceanographic conditions (Groot and Quinn 1987). Studies using ultrasonic telemetry transmitters indicated that Fraser River sockeye salmon traveling the northern route showed a general preference for swimming in a general southeast direction (towards the Fraser River), did not follow the shoreline, and, while usually remaining in the upper 30 m of the water column, varied the depth of migration in relation to the thermocline, temperature, and salinity (Quinn, Terhart, and Groot 1989). Another ultrasonic telemetry study, based on the behavior of only five tagged sockeye salmon, found no evidence of avoidance behavior (for example, rapid diving or horizontal swimming) in relation to either the approach of a purse seine vessel or during the setting and pursing of the net (Quinn, Cook, and Ellis 1986). Lastly, a study in the vicinity of Vancouver Island, in the Strait of Juan de Fuca, indicated that sockeye and pink salmon migrated at similar depths, since similar percentages of the total catch of each species were captured at the same depth using troll gear (Quinn 2005).

Effects of Commercial Purse Seine Fishing on Returning Adults

To examine the possible effect of State management of the commercial purse seine fishery on the sockeye salmon runs at issue, information was collected and examined concerning subsistence sockeye salmon harvests on and off Federal public lands, sockeye salmon escapements into systems utilized by Angoon residents, and commercial purse seine harvests. This information was mostly obtained through information requests to the Alaska Department of Fish and Game (Yuhas 2012 and 2011, personal communication). Information from Geiger and ADF&G staff (2007) was also reviewed since it provided a summary of available information through 2006. While no information is available on sockeye salmon stock composition of commercial purse seine harvests or the specific migration patterns of sockeye salmon traveling through the various fishing areas, there is indirect evidence that commercial fishing does affect the runs of issue.

Recognizing the potential effects of purse seine fishing on sockeye salmon escapements, the Alaska Department of Fish and Game has taken some steps to reduce the harvest of sockeye salmon bound for

Kanalku and Kook Lakes systems by closing shoreline areas via emergency order to purse seine fishing near these systems (**Map 4**). However, while timing of commercial purse seine fishing openings in Northern Chatham Strait varies considerably depending on the abundance and timing of pink salmon runs, openings in District 12 do often overlap a portion of the escapement of sockeye salmon entering both Kanalku (**Figures 4A** and **B**) and Kook Lakes (**Figures 5A-C**).

The commercial purse seine fishery follows the various pink runs as they move through Chatham Strait, but also takes sockeye salmon from runs that overlap the timing of pink salmon runs. The largest harvest of sockeye salmon in Northern Chatham Strait occurs in statistical area 112-16, which includes the Hawk Inlet fishery, and while many of these sockeye salmon are thought to be bound for systems to the north, it is likely that a component of the harvest consists of south bound fish, including sockeye salmon eventually bound for the five systems of interest to the petitioner (Kanalku, Kook, Sitkoh, Hasselborg, and Eva). For example, when comparing commercial purse seine harvests in statistical areas 112-14, 113-12, and 113-11 of Northern Chatham Straits (west side) to Kook Lake sockeye salmon escapement, little temporal separation appears to exist between the harvests and Kook Lake escapement. Because of the overlap in timing, it is reasonable to assume that some sockeye salmon migrating to Kook Lake may be susceptible to harvest in the commercial seine fishery.

When a simple linear trend line was fit to the total hours fished over year the relationship was insignificant (p-value = 0.90). There does not appear to be any increasing or decreasing trend in the total hours allowed for commercial purse seine fishing in District 12 during the period 1980-2011 (**Figure 6**). Rather, the number of fishing hours provided probably tracks the abundance of pink salmon, with more fishing time provided for large runs and less time provided for small runs.

The 2009 and 2010 Northern Southeast Alaska commercial purse seine seasons suggest that when commercial purse seine fishing time is reduced due to lowered pink salmon abundance, sockeye salmon escapements into Kook and Kanalku Lakes are improved. In 2009, District 12 purse seine fishing was managed conservatively early in the season, with reductions to normal fishing schedules and areas, and then liberalized in August, with the provision of more fishing time and lifting of area closures, when most of the seine fleet had moved out of the area (Davidson et al. 2011b). Provided fishing time in many areas were well below 10-year averages, while in some areas were about average. Additionally, numbers of purse seine vessels fishing in most areas, and harvests of pink and chum salmon, were well below the 10-year average levels. Unlike most areas, the Hawk Inlet fishery recorded the second largest pink salmon harvest since the fishery was reinstated in 1989 (1.5 million) while remaining below the regulatory cap of 15,000 wild sockeye salmon (14,233). Fishing time for Hawk Inlet was reduced from traditional levels in early July and then increased later in July. Additionally, the fleet was restricted from fishing in the northernmost area, in an effort to target pink salmon while avoiding the area with the greatest test fishing catches of sockeye salmon. The reduction in fishing time early in the season may have been at least partly responsible for the largest recorded escapement since the weir project began in 2001of 2,664 sockeye salmon into Kanalku Lake (**Table 6**). No escapement estimates were available for any of the other systems of interest.

In 2010, the Northern Southeast Alaska commercial purse seine fishery in District 12 was restricted more than in 2009 because pink salmon runs to District 12 were poor; only a few areas were open to purse seine fishing (Davidson et al. 2011c). The total 2010 pink salmon harvest from District 12 was only 5% of the 10-year average harvest. Point Augusta was open a total of 105 hours (23% of the 10-year average); Tenakee Inlet was open a total of 45 hours and closed after 4 July (15% of the 10-year average); and Hawk Inlet shoreline, Basket Bay, West Admiralty, and Southwest Admiralty were not open at all. Additionally, no purse seine openings were allowed in Sections 12-A and 13-C or District 14. Sockeye

salmon escapements into Kook Lake in Basket Bay (6,565) and Sitkoh Lake (15,324 were both very good, while the escapement into Kanalku Lake (2,970) slightly exceeded that in 2009 to become the greatest recorded since the weir project began in 2001 (**Table 6**).

In 2011, pink salmon runs to Northern Southeast Alaska were very strong, and commercial purse seine fishing did not have to be restricted (Davidson et al. 2012). The total Northern Southeast Alaska purse seine harvest of 47, 210,364 salmon was the largest recorded salmon harvest since statehood, with the previous record being 41,681,456 salmon in 1999. This was largely due to the harvest of 45,587,909 pink salmon, which was the largest recorded harvest of this species since statehood. While not at record levels, purse seine harvests of sockeye, coho, and Chinook salmon all greatly exceeded the most recent 10-year average (2001-2010). Only the chum salmon purse seine harvest was not particular large. The Hawk Inlet fishery harvest of 20,240 wild sockeye salmon was the greatest since 1989, and was the first time the 15,000 wild sockeye salmon harvest limit had been exceeded.

In contrast to the previous two years in which commercial purse seine fishing was reduced and sockeye salmon escapements into Kook, Sitkoh, and Kanalku Lakes were very good, 2011 escapements into Kook Lake (2,702), Sitkoh Lake (3,374), Kanalku Lake (700) in 2011were not as large (**Table 6**). Escapements in all three systems were well below those recorded for 2010, and while the only escapement estimate available for 2009 was for Kanalku Lake, the 2011 escapement for this system was well below that recorded in 2009. Reported subsistence harvests in 2011 were also less than those reported in 2010 and 2009 for most systems (**Table 3**). In particular, the reported Kanalku harvest of 160 sockeye salmon in 2011, was much less than harvests reported in either 2010 (556) or 2009 (600).

Potential for Determining Sockeye Salmon Stock Specific Harvests in Commercial Fisheries
Without stock composition information for sockeye salmon harvested in the Northern Southeast Alaska commercial purse seine fishery, it is not possible to 1) estimate total sockeye salmon runs to the systems of issue, 2) quantify the overall impact of these harvests on resulting escapements and production, 3) quantify the overall impact of these harvests on subsistence fisheries in these systems, and 4) predict effects of time and area purse seine openings and closures on sockeye salmon escapements and subsistence harvests. The high level of genetic variability found among Southeast Alaska sockeye salmon populations that have been sampled suggests that useful studies could be done to inform management of commercial mixed-stock fisheries (Gilk et al. 2010), and successful genetic stock identification work is being conducted on gillnet and purse seine fisheries in Southern Southeast Alaska (Guthrie et al. 2010). The only stock of interest to the petitioner that appears to be contained within the current database maintained for such studies is the Sitkoh Lake population (Beacham et. al 2005).

QUESTIONS TO ASSIST IN DETERMINING THE NEED FOR EXTRATERRITORIAL JURISDICTION

Is there a Federal subsistence priority for Angoon residents?
Under ANILCA Section 804, the taking on Federal public lands of fish and wildlife for nonwasteful subsistence uses is prioritized over the taking for other purposes.

The Federal Subsistence Board determined that residents of Angoon have a positive customary and traditional use determination for salmon in District 12, Section 12A, the area south of a line from Fishery Point to South Passage Point. Additionally, Angoon residents have a positive customary and traditional use determination for all fish in District 12 within Sections A (excluding the area south of a line from Fishery Point to South Passage Point) and B.

Angoon residents may fish in Federal waters under Federal regulations, but under current Federal regulations are subject to the same sockeye salmon household limits as provided under State regulations. Angoon residents have not requested higher Federal household limits than those provided under State subsistence or personal use regulations. Federal regulations provide some additional subsistence fishing opportunity by allowing use of rod and reel gear and not specifying a closed season.

Does State management of the commercial purse seine fishery interfere with subsistence fishing on Federal public lands and associated waters?
Although evidence is largely inferential, since no stock composition numbers for commercial take are available, it is likely that sockeye salmon returning to Federally managed waters migrate through areas in which commercial purse seine fishing is conducted, and purse seine openings sometimes overlap the periods during which sockeye salmon are entering these systems. It is not possible to quantify the magnitude of the impact on these stocks because no sockeye salmon production estimates are available for these systems, and the contribution of these stocks to purse seine harvests is not known.

If there is interference, does it occur to such an extent as to result in failure to provide the subsistence priority to Angoon residents?
This is a difficult question to answer since sockeye salmon run forecasts, escapement goals, and estimates of purse seine stock specific catches are not available. Annual subsistence harvest limits have been reduced in Kanalku in response to decreased abundance, and Angoon residents state that they are no longer able to harvest sufficient numbers of sockeye salmon from this system to meet their needs. This system is close to the community of Angoon and is the preferred system from which residents harvest sockeye salmon. Sockeye salmon bound for the systems at issue are more likely than not caught in the commercial purse seine fishery. However, without estimates of the numbers taken and the production capacity of these systems, it is difficult to unequivocally conclude that interference by the purse seine fishery has resulted in a failure to provide for the subsistence priority of Angoon residents.

ALTERNATIVE REMEDIES UNDER FEDERAL SUBSISTENCE BOARD AUTHORITY

The Federal Subsistence Board is empowered under 36 CFR §242.10(d)(4)(vi) to restrict the taking of fish and wildlife for nonsubsistence on Federal public lands when necessary to conserve healthy populations of fish and wildlife or continue subsistence uses of such populations. If there is adequate evidence that such an action is necessary to allow for the continuation of subsistence uses of sockeye salmon on Federal public lands, the Federal Subsistence Board could exercise this authority, which has also been delegated to local Federal subsistence fishery managers. While little harvesting in addition to that of Federally qualified users seems to occur on Federal public lands and waters, the Board may wish to consider whether or not it is prudent to close these lands to other uses before taking additional actions to conserve sockeye salmon and allow for the continuation of subsistence uses. For example, the Federal Subsistence Board could close Federal public lands and associated waters to other uses in the Kanalku and Kook Lakes drainages, as well as in the Sitkoh, Hasselborg, and Eva Lakes drainages (**Map 2**).

The Federal Subsistence Board also has the authority to increase annual household harvest limits for fish taken on Federal public lands and associated waters. While current sockeye salmon runs to the systems at issue may not be great enough to support a substantial increase in take, there is some evidence that Angoon residents are already taking more sockeye salmon, perhaps over 30% more, than is currently

allowed under State subsistence fishing permits (Conitz and Cartwright 2005). This suggests that the current annual limit of 15 sockeye salmon per household for Kanalku could be raised to 20 per household, which would at least encourage subsistence users to more accurately report their harvests without fear of legal prosecution. Doing this would mean that Federal and State annual harvests limits would no longer be aligned and would require either separate Federal and State permits or a joint State-Federal permit clearly showing the differences. This would also require Federally qualified users to shift their fishing efforts to Federal public waters to take advantage of an increased annual household limit. Aside from dip net fishing at the falls in the Kanalku Lake system, we do not know whether other suitable sites exist or whether they can accommodate existing users.

SUMMARY

The Alaska Board of Fisheries is charged with sustainable management of the salmon resources and allocating harvests among competing users in State-managed fisheries, with subsistence being the priority consumptive use. Management of the commercial purse seine fishery falls within the authority of the State of Alaska, unless the Secretaries choose to exercise extraterritorial jurisdiction. Limitations of available information make it difficult to reliably anticipate the outcome of a total closure or other management changes to the commercial purse seine fisheries in the districts at issue. While it is reasonable to conclude that a total closure would result in more sockeye salmon from each run to reach their natal systems, there is not enough information to precisely calculate whether or not these increased numbers would ensure that all the needs discussed in the Kootznoowoo petition would be met.

Productivity for some of these sockeye salmon stocks has been low in recent years, and weak returns have posed a hardship in terminal areas. The Federal Subsistence Board has the authority to raise annual household harvest limits and close Federal public lands to other uses in order to provide for the conservation of healthy populations of sockeye and the continuation of subsistence uses.

If the Secretaries choose to exercise extraterritorial jurisdiction they should consider whether or not the commercial purse seine fishery is interfering with subsistence fishing to such an extent as to result in failure to provide the subsistence priority. It appears more likely than not that the commercial purse seine fishery is reducing the number of sockeye salmon returning to Federally managed waters.

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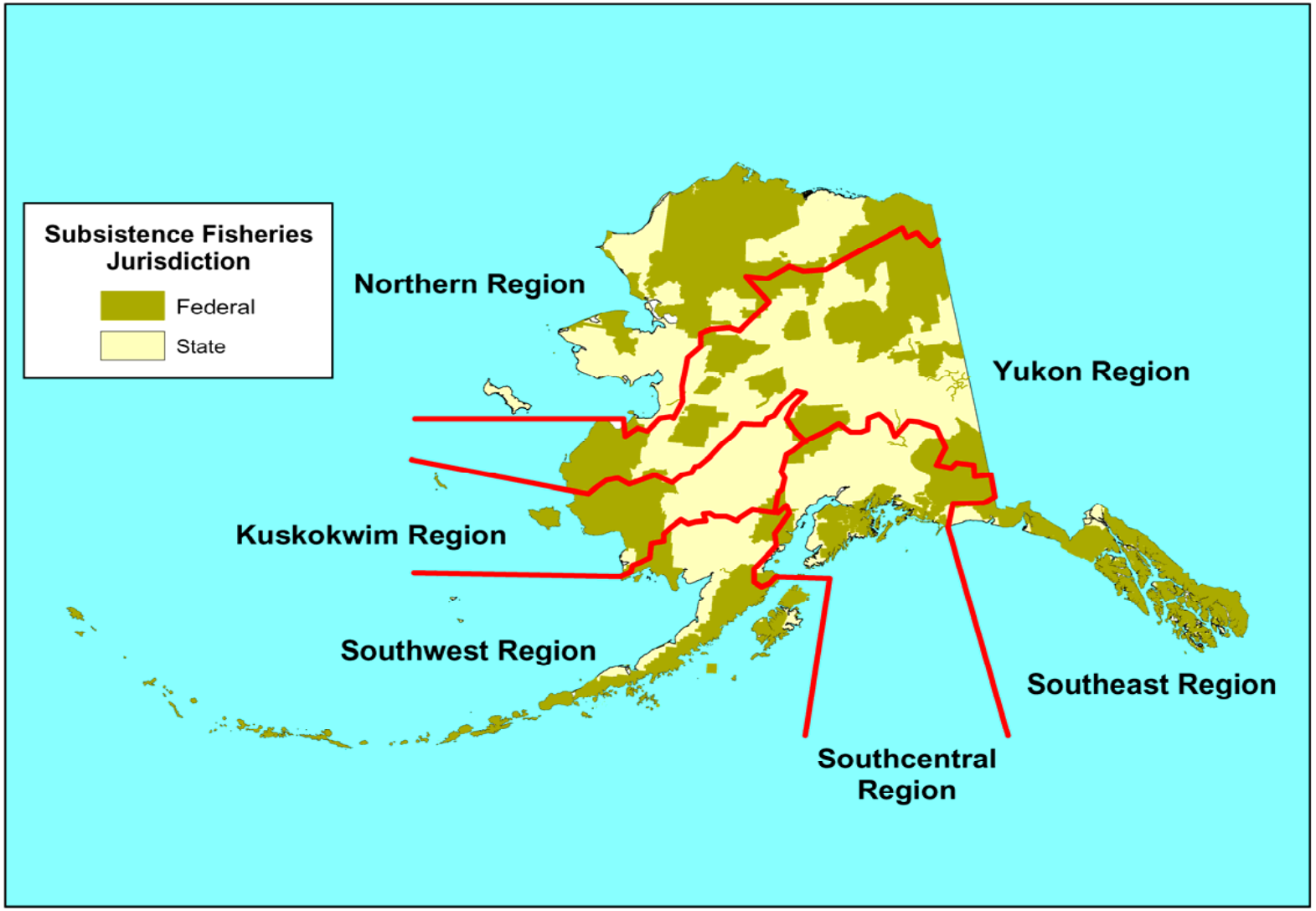
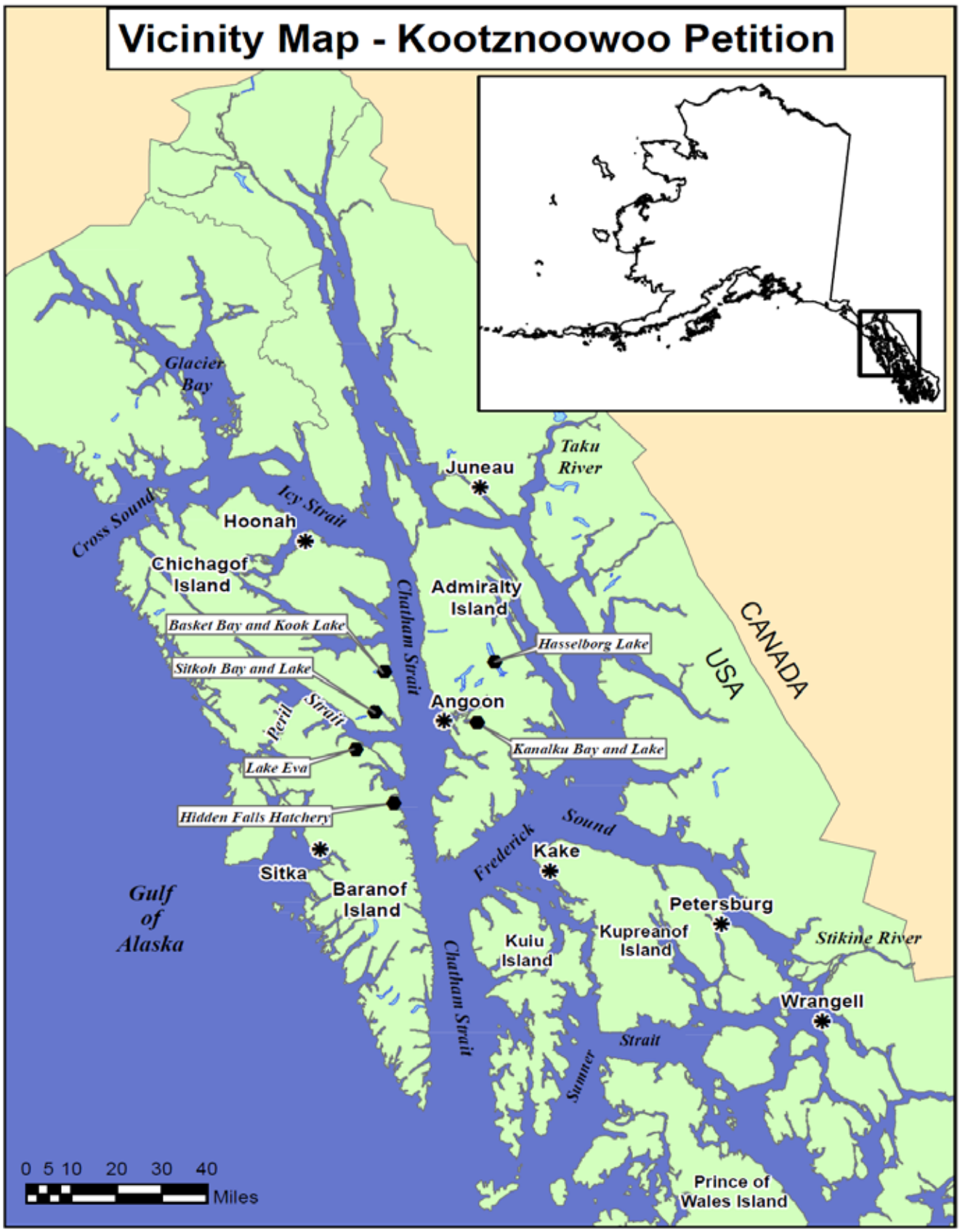
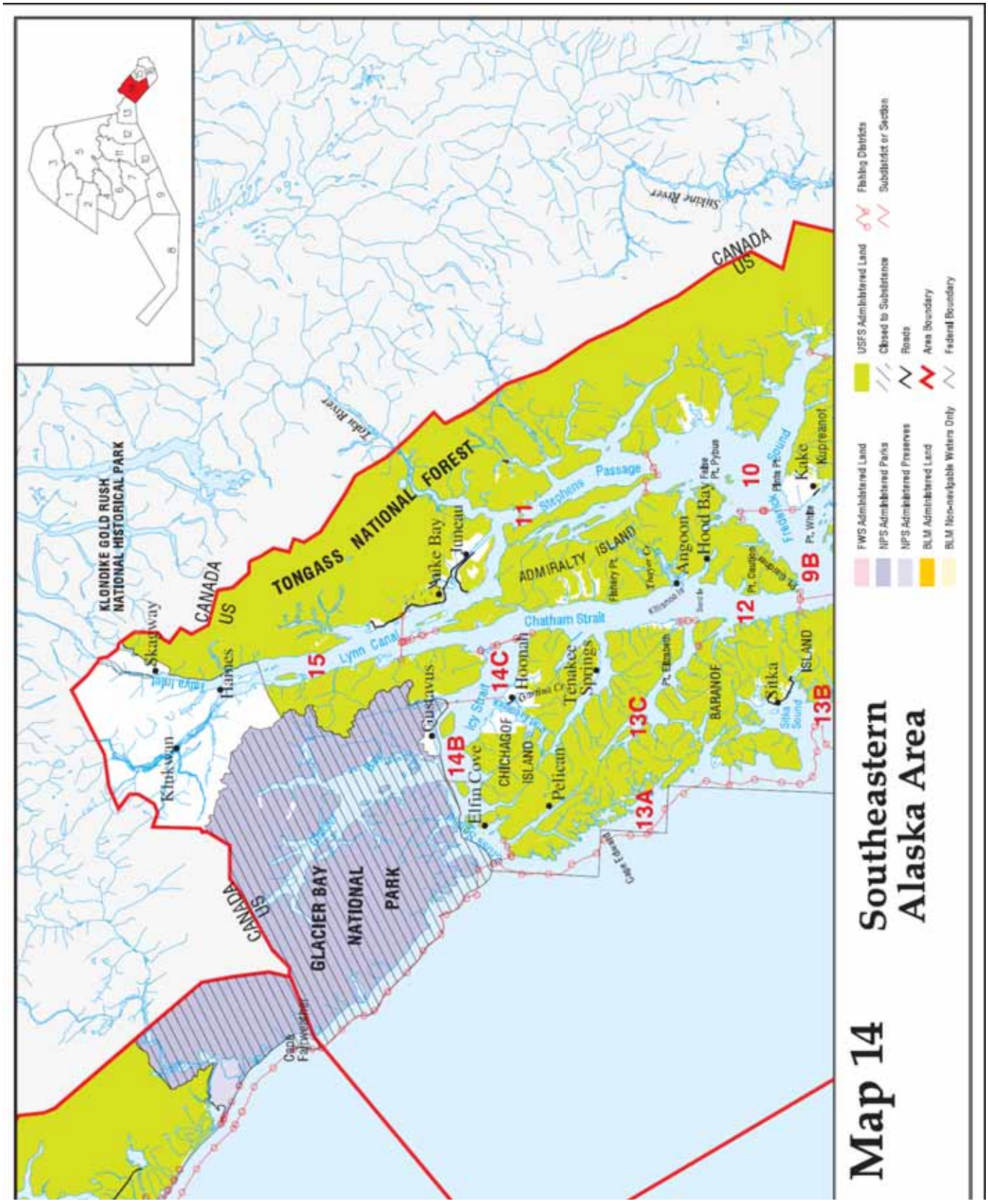


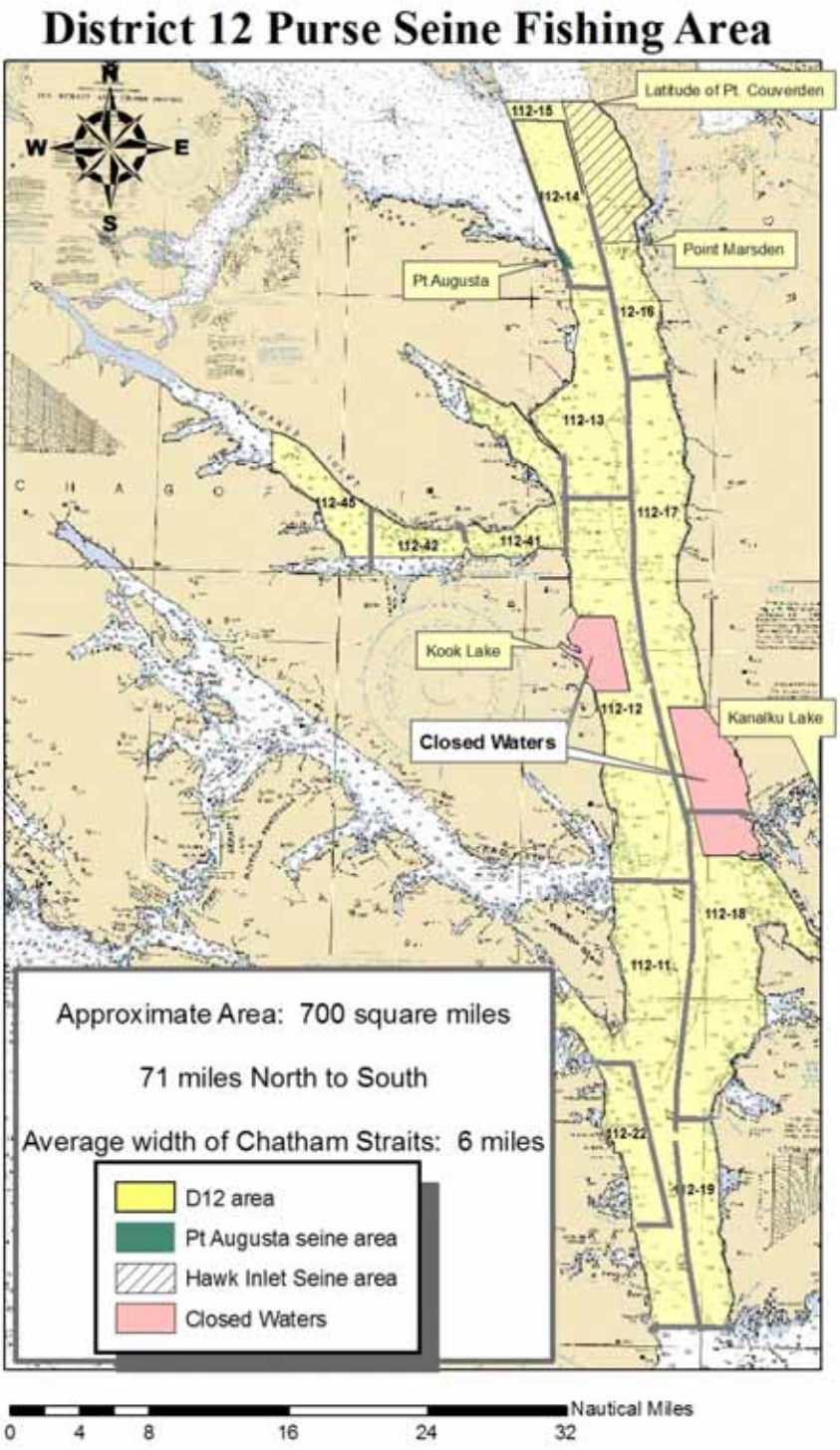
Map 1. Federal public lands in Alaska (shaded) and fishery management areas.



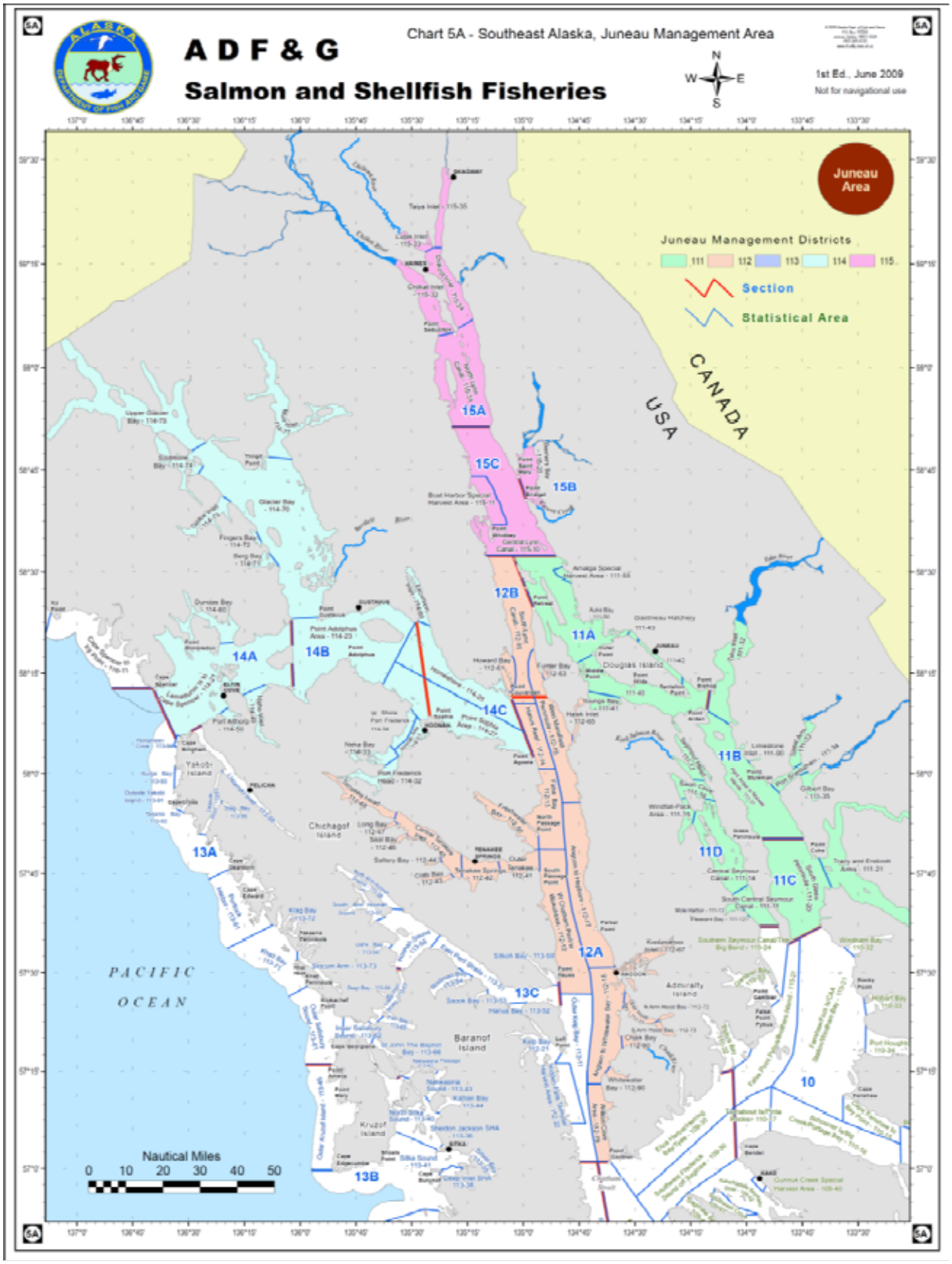
Map 2. Northern Southeast Alaska showing place names.



Map 3. Northern Southeast Alaska district boundaries and place names.



Map 4. District 12 purse seine fishing statistical areas in Northern Southeast Alaska from Geiger and ADF&G staff (2007). Both closed water areas shown can be established under emergency order authority each season.



Map 5. Juneau Management Area, State salmon and shellfish management districts, Southeast Alaska (ADF&G 2012)

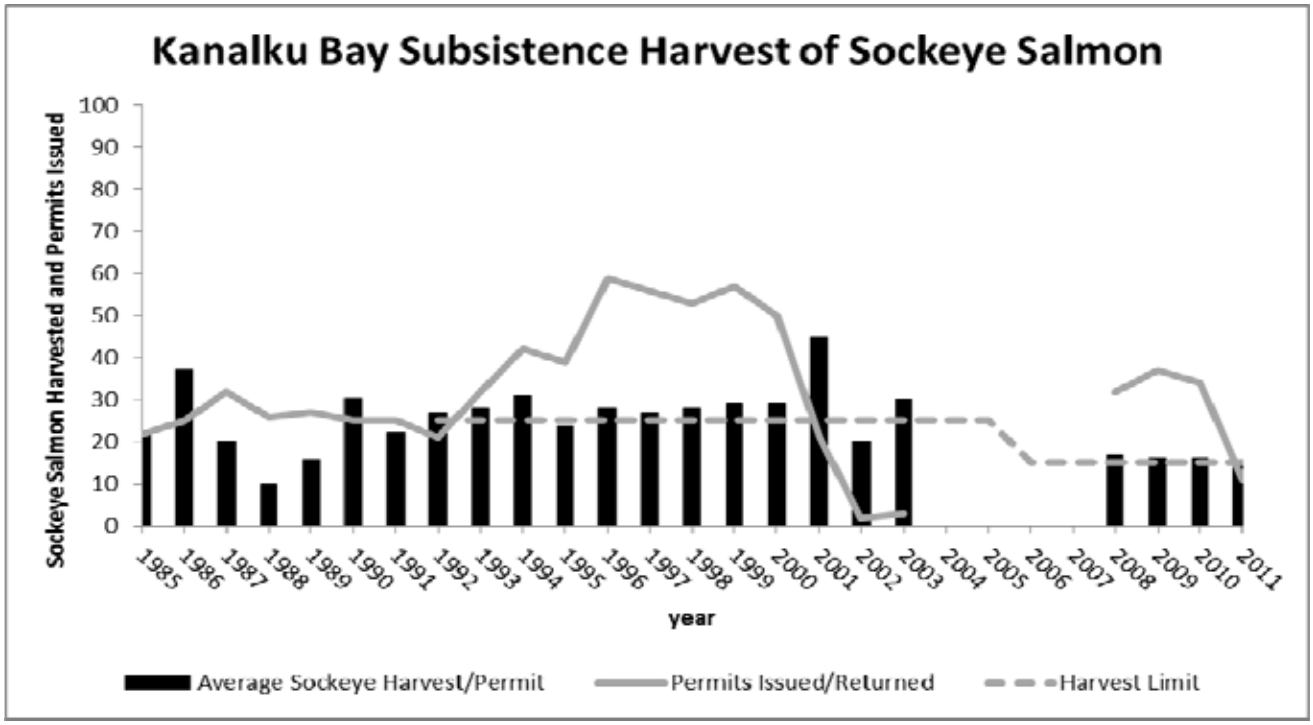
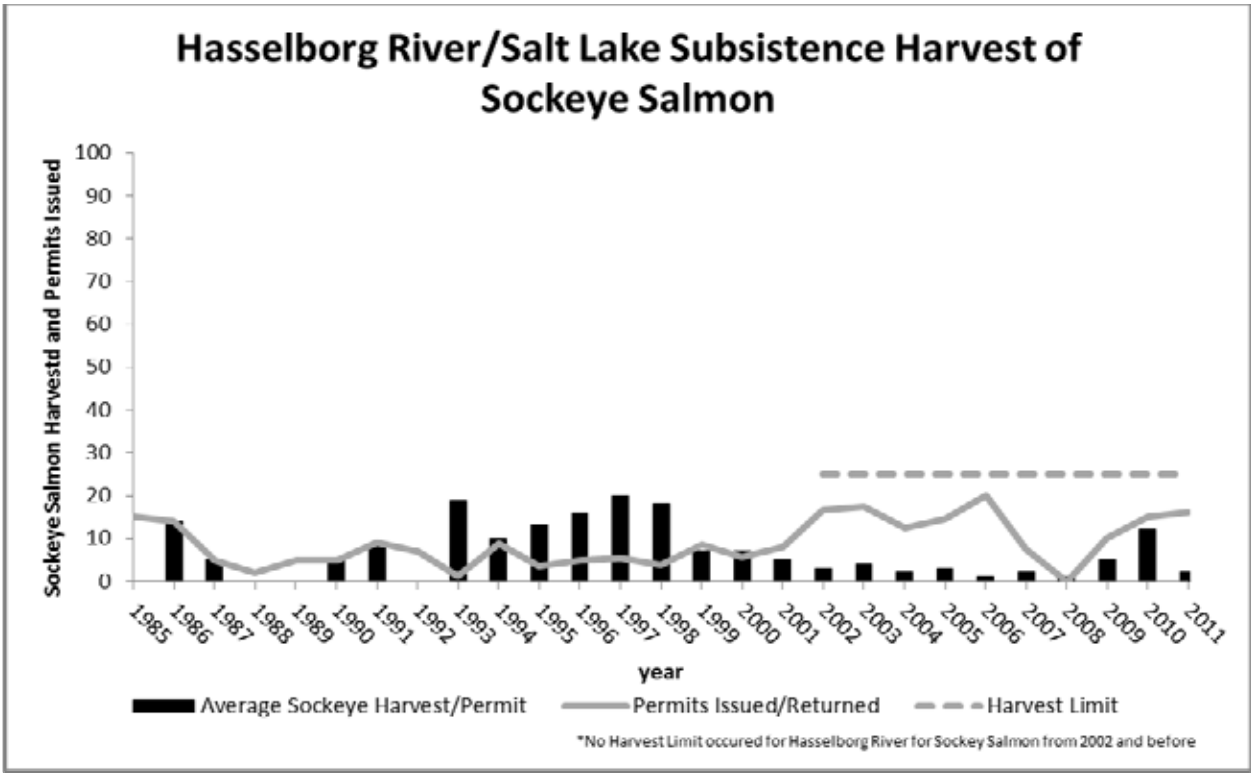


Figure 1A. Subsistence harvests of sockeye salmon, Kanalku Bay system, 1985-2011. Data from Yuhas (2011 and 2012).



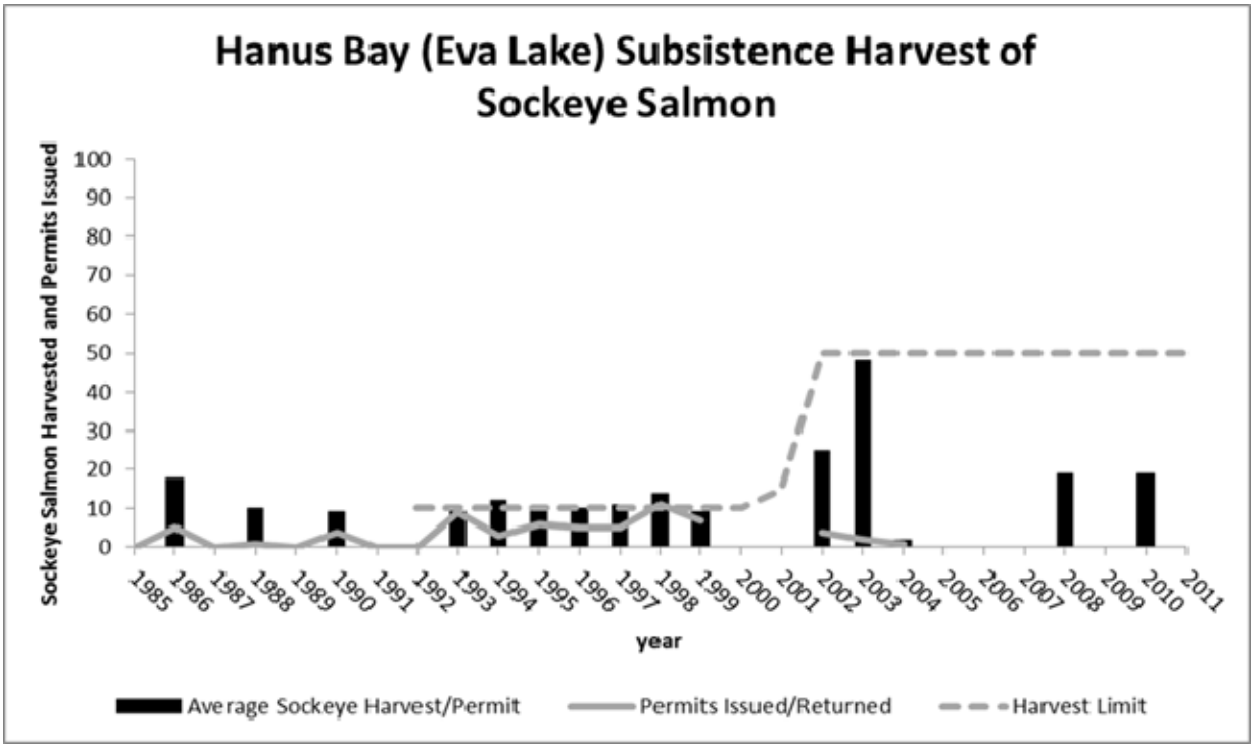


Figure 1B. Subsistence harvests of sockeye salmon, Hasselborg River/Salt Lake and Hanus Bay (Eva Lake) systems, 1985-2011. Data from Yuhas (2011 and 2012).

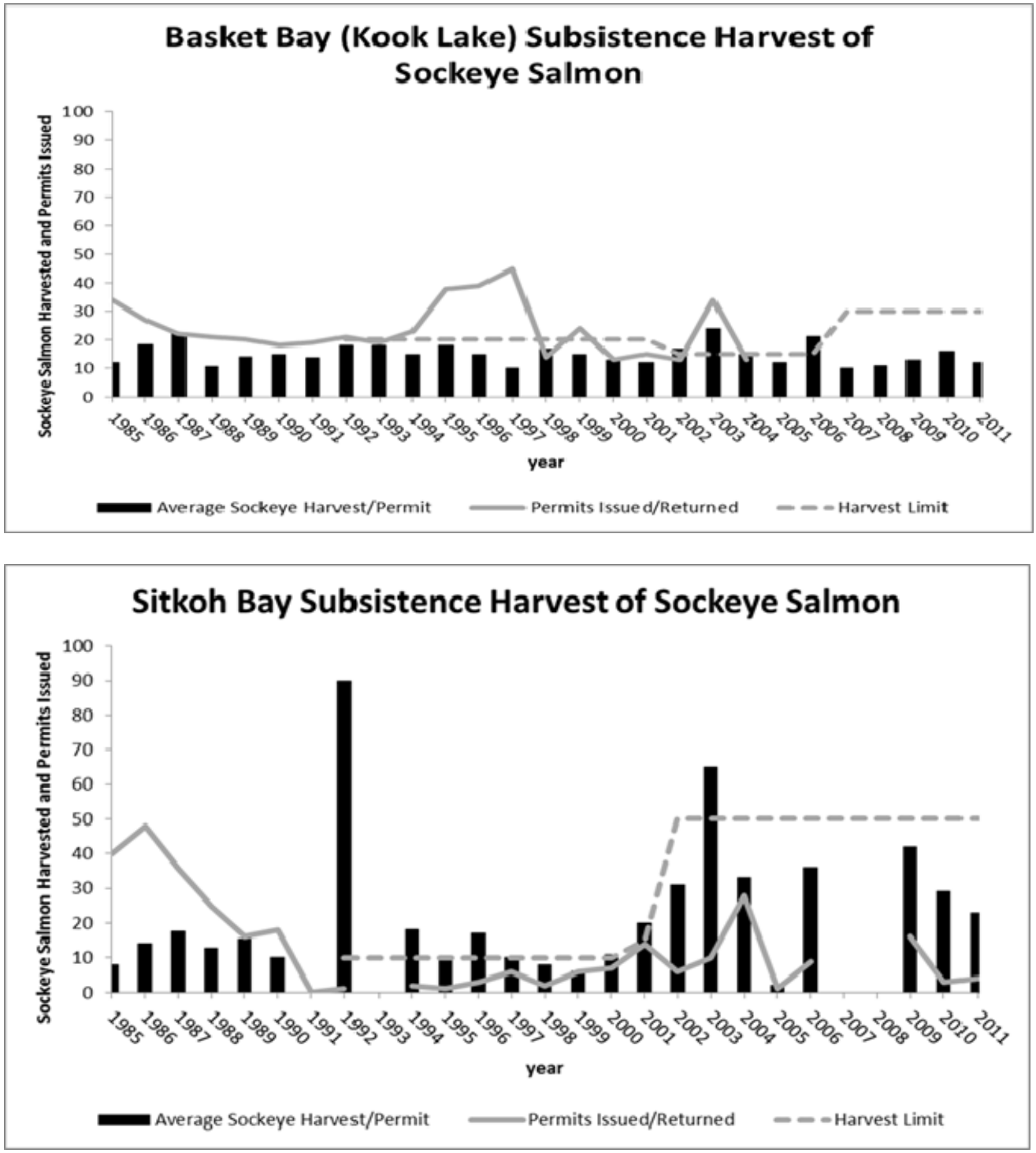
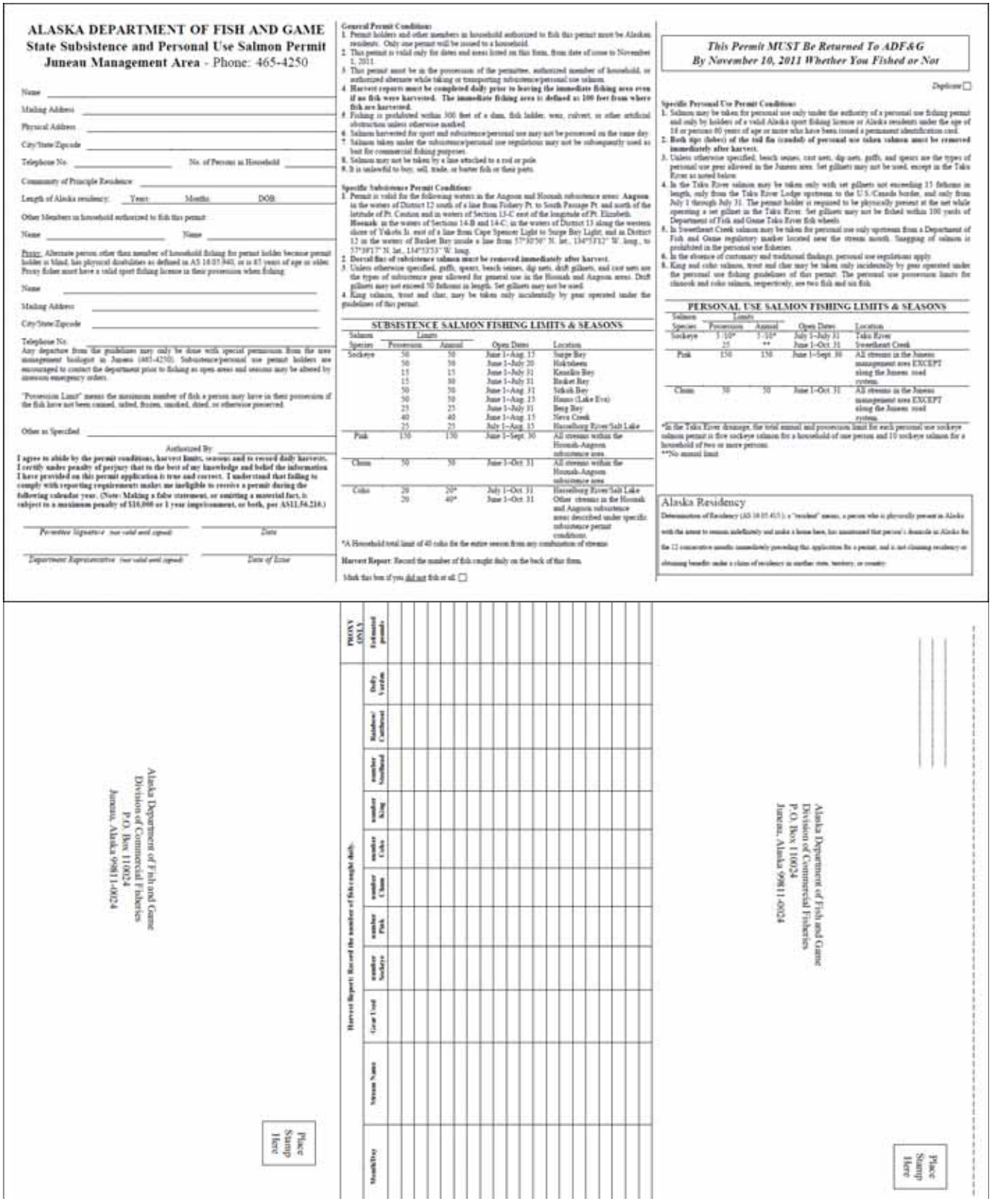


Figure 1C. Subsistence harvests of sockeye salmon, Basket Bay (Kook Lake) and Sitkoh Bay system, 1985-2011. Data from Yuhas (2011 and 2012).



ALASKA DEPARTMENT OF FISH AND GAME
State Subsistence and Personal Use Salmon Permit
Juneau Management Area - Phone: 465-4250

Name
Mailing Address
Physical Address
City/State/Zipcode
Telephone No. No. of Persons in Household
Community of Principle Residence
Length of Alaska residency: Years Months DOB
Other Members in household authorized to fish this permit:
Name Name

Proxy: Alternate person other than member of household fishing for permit holder because permit holder is blind, has physical disabilities as defined in AS 16.05.940, or is 65 years of age or older. Proxy fisher must have a valid sport fishing license in their possession when fishing.

Name
Mailing Address
City/State/Zipcode
Telephone No.

Any departure from the guidelines may only be done with special permission from the area management biologist in Juneau (465-4250). Subsistence/personal use permit holders are encouraged to contact the department prior to fishing as open areas and seasons may be altered by unseen emergency orders.

"Possession Limit" means the maximum number of fish a person may have in their possession if the fish have not been canned, salted, frozen, smoked, dried, or otherwise preserved.

Other as Specified
Authorized By:

I agree to abide by the permit conditions, harvest limits, seasons and to record daily harvests. I certify under penalty of perjury that to the best of my knowledge and belief the information I have provided on this permit application is true and correct. I understand that failing to comply with reporting requirements makes me ineligible to receive a permit during the following calendar year. (Note: Making a false statement, or omitting a material fact, is subject to a maximum penalty of $10,000 or 1 year imprisonment, or both, per AS11.56.210.)

Permittee Signature (not valid until signed) Date

Department Representative (not valid until signed) Date of Issue

General Permit Conditions:
1. Permit holders and other members in household authorized to fish this permit must be Alaskan residents. Only one permit will be issued to a household.
2. This permit is valid only for dates and areas listed on this form, from date of issue to November 1, 2011.
3. This permit must be in the possession of the permittee, authorized member of household, or authorized alternate while taking or transporting subsistence/personal use salmon.
4. Harvest reports must be completed daily prior to leaving the immediate fishing area even if no fish were harvested. The immediate fishing area is defined as 100 feet from where fish are harvested.
5. Fishing is prohibited within 300 feet of a dam, fish ladder, weir, culvert, or other artificial obstruction unless otherwise marked.
6. Salmon harvested for sport and subsistence/personal use may not be possessed on the same day.
7. Salmon taken under the subsistence/personal use regulations may not be subsequently used as bait for commercial fishing purposes.
8. Salmon may not be taken by a line attached to a rod or pole.
9. It is unlawful to buy, sell, trade, or barter fish or their parts.

Specific Subsistence Permit Conditions:
1. Permit is valid for the following waters in the Angoon and Hoonah subsistence areas: Angoon: in the waters of District 12 south of a line from Fishery Pt. to South Passage Pt. and north of the latitude of Pt. Coulton and in waters of Section 13-C east of the longitude of Pt. Elizabeth.
Hoonah: in the waters of Sections 14-B and 14-C; in the waters of District 13 along the western shore of Yakobi Is. east of a line from Cape Spencer Light to Surge Bay Light; and in District 12 in the waters of Basket Bay inside a line from 57°30'50" N. lat., 134°53'12" W. long., to 57°39'17" N. lat., 134°53'53" W. long.
2. Dorsal fins of subsistence salmon must be removed immediately after harvest.
3. Unless otherwise specified, gaffs, spears, beach seines, dip nets, drift gillnets, and cast nets are the types of subsistence gear allowed for general use in the Hoonah and Angoon areas. Drift gillnets may not exceed 50 fathoms in length. Set gillnets may not be used.
4. King salmon, trout and char, may be taken only incidentally by gear operated under the guidelines of this permit.

SUBSISTENCE SALMON FISHING LIMITS & SEASONS

Salmon Species	Limits: Possession	Limits: Annual	Open Dates	Location
Sockeye	50	50	June 1-Aug. 15	Surge Bay
	50	50	June 1-July 20	Hoktaheen
	15	15	June 1-July 31	Kanalku Bay
	15	30	June 1-July 31	Basket Bay
	50	50	June 1-Aug. 31	Yakob Bay
	50	50	June 1-Aug. 15	Hanus (Lake Eva)
	25	25	June 1-July 31	Berg Bay
	40	40	June 1-Aug. 15	Neva Creek
	25	25	July 1-Aug. 15	Hasselborg River/Salt Lake
Pink	150	150	June 1-Sept. 30	All streams within the Hoonah-Angoon subsistence area
Chum	50	50	June 1-Oct. 31	All streams within the Hoonah-Angoon subsistence area
Coho	20	20*	July 1-Oct. 31	Hasselborg River/Salt Lake
	20	40*	June 1-Oct. 31	Other streams in the Hoonah and Angoon subsistence areas; described under specific subsistence permit conditions.

*A Household total limit of 40 coho for the entire season from any combination of streams.

Harvest Report: Record the number of fish caught daily on the back of this form.

Mark this box if you did not fish at all.

This Permit MUST Be Returned To ADF&G By November 10, 2011 Whether You Fished or Not

Duplicate

Specific Personal Use Permit Conditions:
1. Salmon may be taken for personal use only under the authority of a personal use fishing permit and only by holders of a valid Alaska sport fishing license or Alaska resident under the age of 18 or persons 60 years of age or more who have been issued a permanent identification card.
2. Both tips (lobes) of the tail fin (caudal) of personal use taken salmon must be removed immediately after harvest.
3. Unless otherwise specified, beach seines, cast nets, dip nets, gaffs, and spears are the types of personal use gear allowed in the Juneau area. Set gillnets may not be used, except in the Taku River as noted below.
4. In the Taku River salmon may be taken only with set gillnets not exceeding 35 fathoms in length, only from the Taku River Lodge upstream to the U.S./Canada border, and only from July 1 through July 31. The permit holder is required to be physically present at the net while operating a set gillnet in the Taku River. Set gillnets may not be fished within 100 yards of Department of Fish and Game Taku River fish wheels.
5. In Sweetheart Creek salmon may be taken for personal use only upstream from a Department of Fish and Game regulatory marker located near the stream mouth. Snagging of salmon is prohibited in the personal use fisheries.
6. In the absence of customary and traditional findings, personal use regulations apply.
7. King and coho salmon, trout and char may be taken only incidentally by gear operated under the personal use fishing guidelines of this permit. The personal use possession limits for chinook and coho salmon, respectively, are two fish and six fish.

PERSONAL USE SALMON FISHING LIMITS & SEASONS

Salmon Species	Limits: Possession	Limits: Annual	Open Dates	Location
Sockeye	3/10*	3/10*	July 1-July 31	Taku River
	25	**	June 1-Oct. 31	Sweetheart Creek
Pink	150	150	June 1-Sept. 30	All streams in the Juneau management area EXCEPT along the Juneau road system.
Chum	50	50	June 1-Oct. 31	All streams in the Juneau management area EXCEPT along the Juneau road system.

*In the Taku River drainage, the total annual and possession limit for each personal use sockeye salmon permit is five sockeye salmon for a household of one person and 10 sockeye salmon for a household of two or more persons.
**No annual limit

Alaska Residency

Determination of Residency (AS 16.05.415), a "resident" means, a person who is physically present in Alaska with the intent to remain indefinitely and make a home here, has maintained that person's domicile in Alaska for the 12 consecutive months immediately preceding the application for a permit, and is not claiming residency or obtaining benefits under a claim of residency in another state, territory, or country.

Alaska Department of Fish and Game
Division of Commercial Fisheries
P.O. Box 110024
Juneau, Alaska 99811-0024

Place Stamp Here

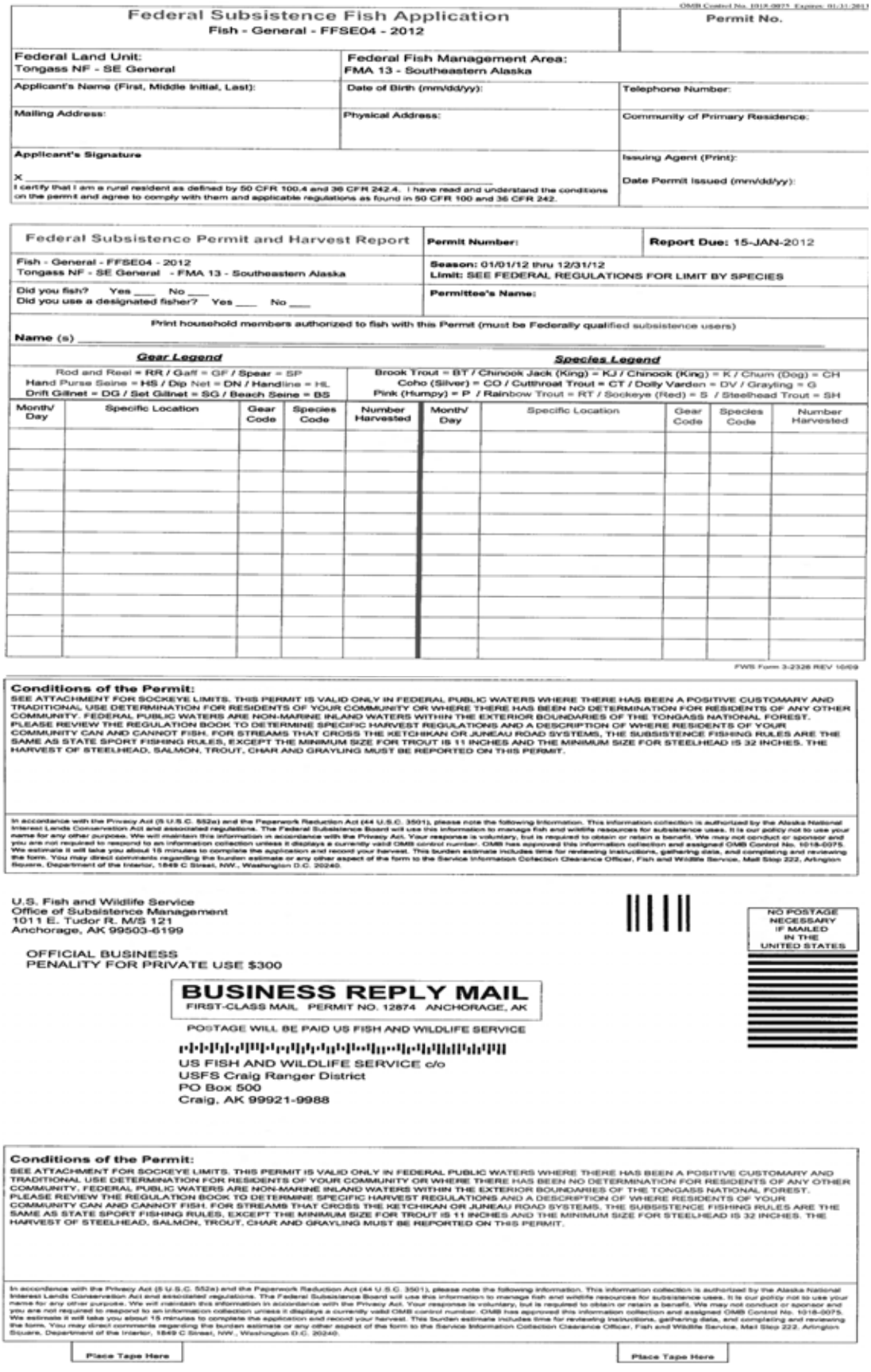
Harvest Report: Record the number of fish caught daily.

Month/Day	Stream Name	Gear Used	number Sockeye	number Pink	number Chum	number Coho	number King	number Steelhead	Rainbow/ Cutthroat	Daily Yardage	PROXY ONLY: Estimated pounds

Alaska Department of Fish and Game
Division of Commercial Fisheries
P.O. Box 110024
Juneau, Alaska 99811-0024

Place Stamp Here

Figure 2. State of Alaska subsistence fishing permit for salmon.



Federal Subsistence Fish Application
Fish - General - FFSE04 - 2012

Permit No.

Federal Land Unit:
Tongass NF - SE General

Federal Fish Management Area:
FMA 13 - Southeastern Alaska

Applicant's Name (First, Middle Initial, Last):

Date of Birth (mm/dd/yy):

Telephone Number:

Mailing Address:

Physical Address:

Community of Primary Residence:

Applicant's Signature

X _____

I certify that I am a rural resident as defined by 50 CFR 100.4 and 36 CFR 242.4. I have read and understand the conditions on the permit and agree to comply with them and applicable regulations as found in 50 CFR 100 and 36 CFR 242.

Issuing Agent (Print):

Date Permit Issued (mm/dd/yy):

Federal Subsistence Permit and Harvest Report

Permit Number:

Report Due: 15-JAN-2012

Fish - General - FFSE04 - 2012
Tongass NF - SE General - FMA 13 - Southeastern Alaska

Season: 01/01/12 thru 12/31/12
Limit: SEE FEDERAL REGULATIONS FOR LIMIT BY SPECIES

Did you fish? Yes ___ No ___
Did you use a designated fisher? Yes ___ No ___

Permittee's Name:

Print household members authorized to fish with this Permit (must be Federally qualified subsistence users)

Name (s) _____

Gear Legend

Rod and Reel = RR / Gaff = GF / Spear = SP
Hand Purse Seine = HS / Dip Net = DN / Handline = HL
Drift Gillnet = DG / Set Gillnet = SG / Beach Seine = BS

Species Legend

Brook Trout = BT / Chinook Jack (King) = KJ / Chinook (King) = K / Chum (Dog) = CH
Coho (Silver) = CO / Cutthroat Trout = CT / Dolly Varden = DV / Grayling = G
Pink (Humpy) = P / Rainbow Trout = RT / Sockeye (Red) = S / Steelhead Trout = SH

Month/ Day	Specific Location	Gear Code	Species Code	Number Harvested	Month/ Day	Specific Location	Gear Code	Species Code	Number Harvested

FWS Form 3-2326 REV 10/09

Conditions of the Permit:
SEE ATTACHMENT FOR SOCKEYE LIMITS. THIS PERMIT IS VALID ONLY IN FEDERAL PUBLIC WATERS WHERE THERE HAS BEEN A POSITIVE CUSTOMARY AND TRADITIONAL USE DETERMINATION FOR RESIDENTS OF YOUR COMMUNITY OR WHERE THERE HAS BEEN NO DETERMINATION FOR RESIDENTS OF ANY OTHER COMMUNITY. FEDERAL PUBLIC WATERS ARE NON-MARINE INLAND WATERS WITHIN THE EXTERIOR BOUNDARIES OF THE TONGASS NATIONAL FOREST. PLEASE REVIEW THE REGULATION BOOK TO DETERMINE SPECIFIC HARVEST REGULATIONS AND A DESCRIPTION OF WHERE RESIDENTS OF YOUR COMMUNITY CAN AND CANNOT FISH. FOR STREAMS THAT CROSS THE KETCHIKAN OR JUNEAU ROAD SYSTEMS, THE SUBSISTENCE FISHING RULES ARE THE SAME AS STATE SPORT FISHING RULES, EXCEPT THE MINIMUM SIZE FOR TROUT IS 11 INCHES AND THE MINIMUM SIZE FOR STEELHEAD IS 32 INCHES. THE HARVEST OF STEELHEAD, SALMON, TROUT, CHAR AND GRAYLING MUST BE REPORTED ON THIS PERMIT.

In accordance with the Privacy Act (5 U.S.C. 552a) and the Paperwork Reduction Act (44 U.S.C. 3501), please note the following information. This information collection is authorized by the Alaska National Interest Lands Conservation Act and associated regulations. The Federal Subsistence Board will use this information to manage fish and wildlife resources for subsistence uses. It is our policy not to use your name for any other purpose. We will maintain this information in accordance with the Privacy Act. Your response is voluntary, but is required to obtain or retain a benefit. We may not conduct or sponsor and you are not required to respond to an information collection unless it displays a currently valid OMB control number. OMB has approved this information collection and assigned OMB Control No. 1018-0075. We estimate it will take you about 15 minutes to complete the application and record your harvest. This burden estimate includes time for reviewing instructions, gathering data, and completing and reviewing the form. You may direct comments regarding the burden estimate or any other aspect of the form to the Service Information Collection Clearance Officer, Fish and Wildlife Service, Mail Stop 222, Arlington Square, Department of the Interior, 1849 C Street, NW., Washington D.C. 20240.

U.S. Fish and Wildlife Service
Office of Subsistence Management
1011 E. Tudor R. M/S 121
Anchorage, AK 99503-6199

OFFICIAL BUSINESS
PENALITY FOR PRIVATE USE $300

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 12874 ANCHORAGE, AK

POSTAGE WILL BE PAID US FISH AND WILDLIFE SERVICE

US FISH AND WILDLIFE SERVICE c/o
USFS Craig Ranger District
PO Box 500
Craig, AK 99921-9988

Conditions of the Permit:
SEE ATTACHMENT FOR SOCKEYE LIMITS. THIS PERMIT IS VALID ONLY IN FEDERAL PUBLIC WATERS WHERE THERE HAS BEEN A POSITIVE CUSTOMARY AND TRADITIONAL USE DETERMINATION FOR RESIDENTS OF YOUR COMMUNITY OR WHERE THERE HAS BEEN NO DETERMINATION FOR RESIDENTS OF ANY OTHER COMMUNITY. FEDERAL PUBLIC WATERS ARE NON-MARINE INLAND WATERS WITHIN THE EXTERIOR BOUNDARIES OF THE TONGASS NATIONAL FOREST. PLEASE REVIEW THE REGULATION BOOK TO DETERMINE SPECIFIC HARVEST REGULATIONS AND A DESCRIPTION OF WHERE RESIDENTS OF YOUR COMMUNITY CAN AND CANNOT FISH. FOR STREAMS THAT CROSS THE KETCHIKAN OR JUNEAU ROAD SYSTEMS, THE SUBSISTENCE FISHING RULES ARE THE SAME AS STATE SPORT FISHING RULES, EXCEPT THE MINIMUM SIZE FOR TROUT IS 11 INCHES AND THE MINIMUM SIZE FOR STEELHEAD IS 32 INCHES. THE HARVEST OF STEELHEAD, SALMON, TROUT, CHAR AND GRAYLING MUST BE REPORTED ON THIS PERMIT.

In accordance with the Privacy Act (5 U.S.C. 552a) and the Paperwork Reduction Act (44 U.S.C. 3501), please note the following information. This information collection is authorized by the Alaska National Interest Lands Conservation Act and associated regulations. The Federal Subsistence Board will use this information to manage fish and wildlife resources for subsistence uses. It is our policy not to use your name for any other purpose. We will maintain this information in accordance with the Privacy Act. Your response is voluntary, but is required to obtain or retain a benefit. We may not conduct or sponsor and you are not required to respond to an information collection unless it displays a currently valid OMB control number. OMB has approved this information collection and assigned OMB Control No. 1018-0075. We estimate it will take you about 15 minutes to complete the application and record your harvest. This burden estimate includes time for reviewing instructions, gathering data, and completing and reviewing the form. You may direct comments regarding the burden estimate or any other aspect of the form to the Service Information Collection Clearance Officer, Fish and Wildlife Service, Mail Stop 222, Arlington Square, Department of the Interior, 1849 C Street, NW., Washington D.C. 20240.

Place Tape Here

Place Tape Here

Figure 3A. Federal subsistence fishing permit.

SUPPLEMENTAL INFORMATION FOR RESIDENTS OF ANGOON[1] ONLY

2011 FEDERAL SUBSISTENCE FISHING PERMIT

Federal Subsistence Sockeye Harvest Limits

Location	Daily Possession Limit	Annual Limit
Hasselborg River (Salt Lake)	25	25
Kanalku Creek (Kanalku Bay)	15	15
Kook Creek (Basket Bay)	15	30
Sitkoh Creek (Sitkoh Bay)	50	50
Eva (Peril Strait)	50	50
Neva (Excursion Inlet)	40	40

Federal harvest limits for sockeye salmon are the same as State personal use or subsistence harvest limits Allowable gear for salmon is gaff, spear, gillnets, seine, dip net, cast net, handline and rod and reel.

In areas where residents of Angoon are allowed to fish and there are no limits listed above, the daily limit is 10 and the annual limit is 20 sockeye salmon.

When bait is not allowed the minimum size limit for trout is 11 inches.

There are no harvest limits for pink or chum salmon.

Figure 3B. Federal subsistence fishing permit with supplemental information for Angoon.

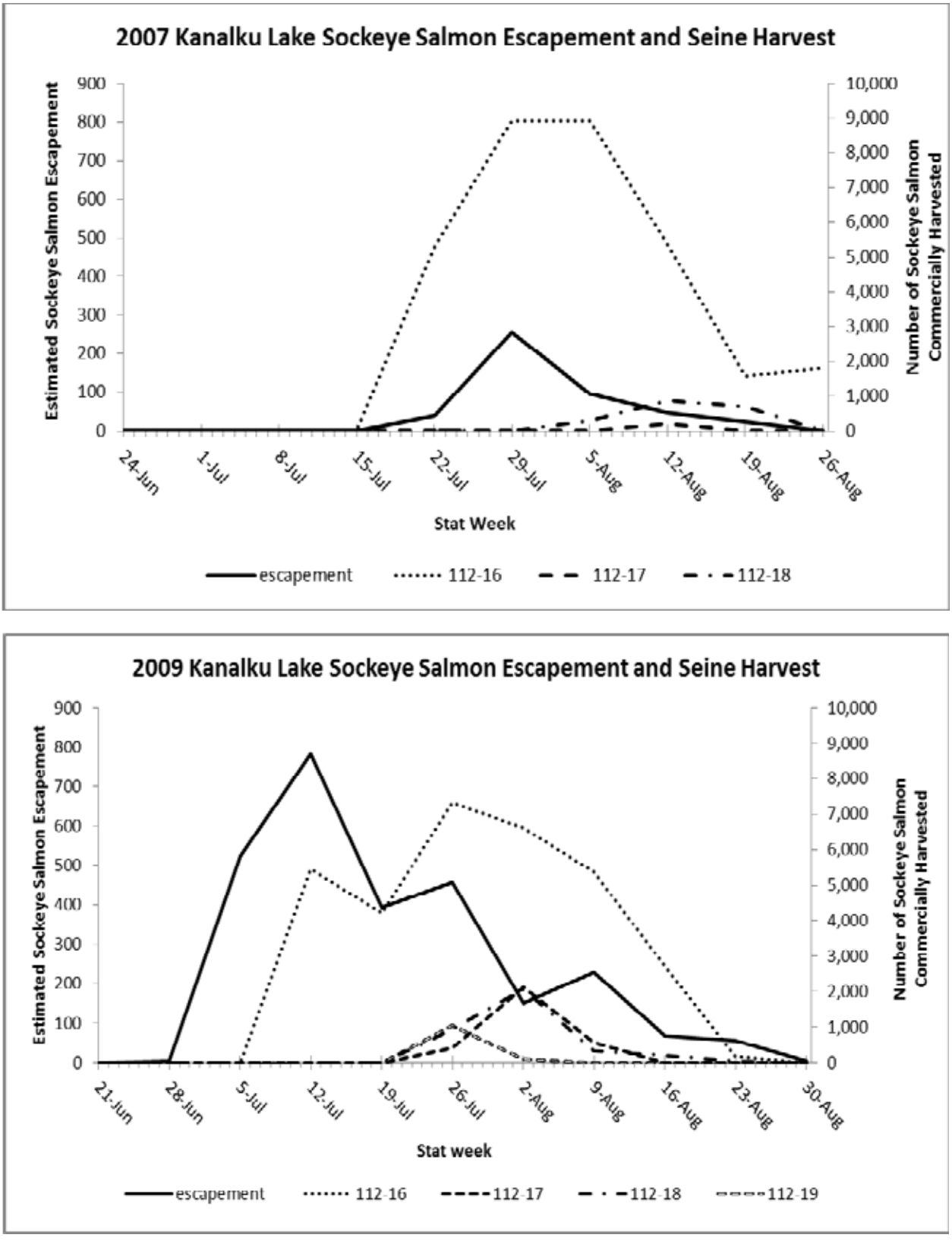
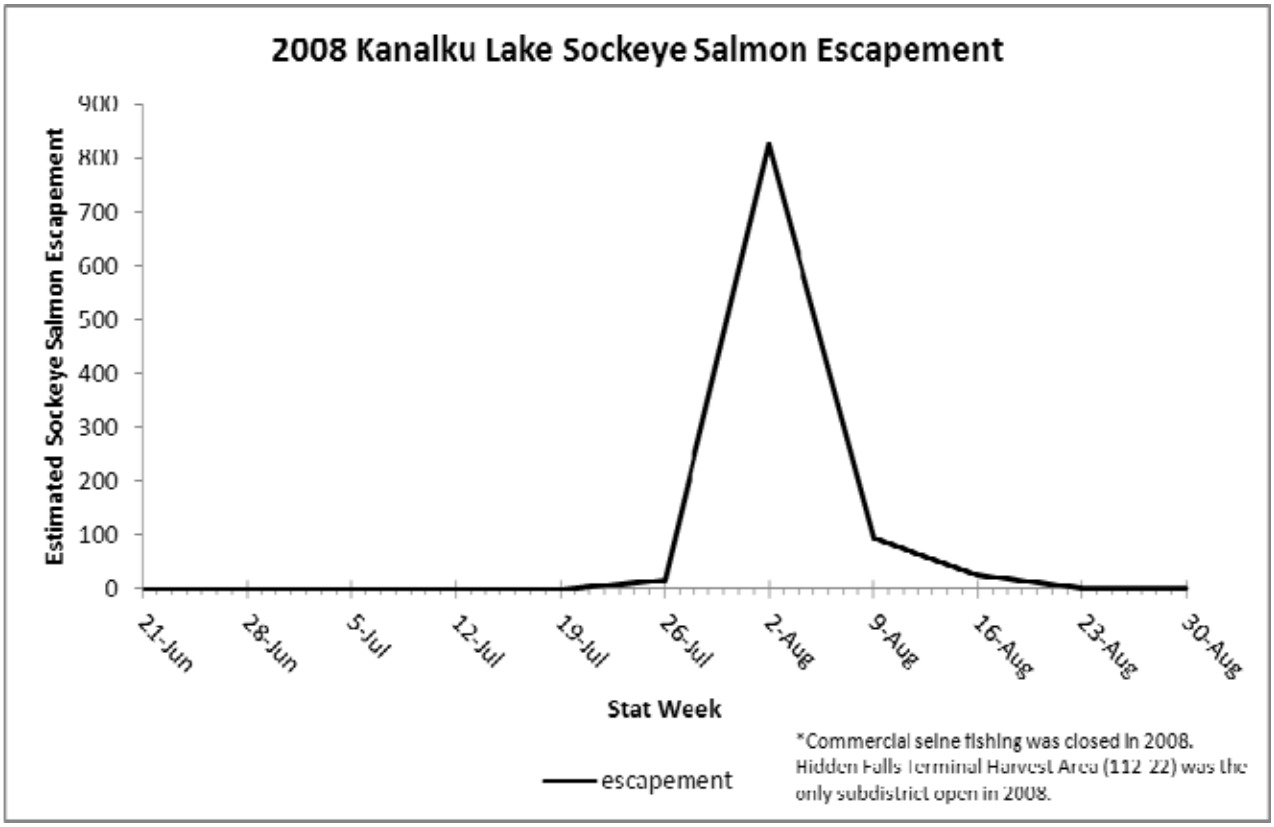


Figure 4A. Escapements of sockeye salmon into Kanalku Lake and commercial purse seine harvests in District 12 statistical areas, by statistical week, 2007 and 2009. Data from Yuhas (2011 and 2012).



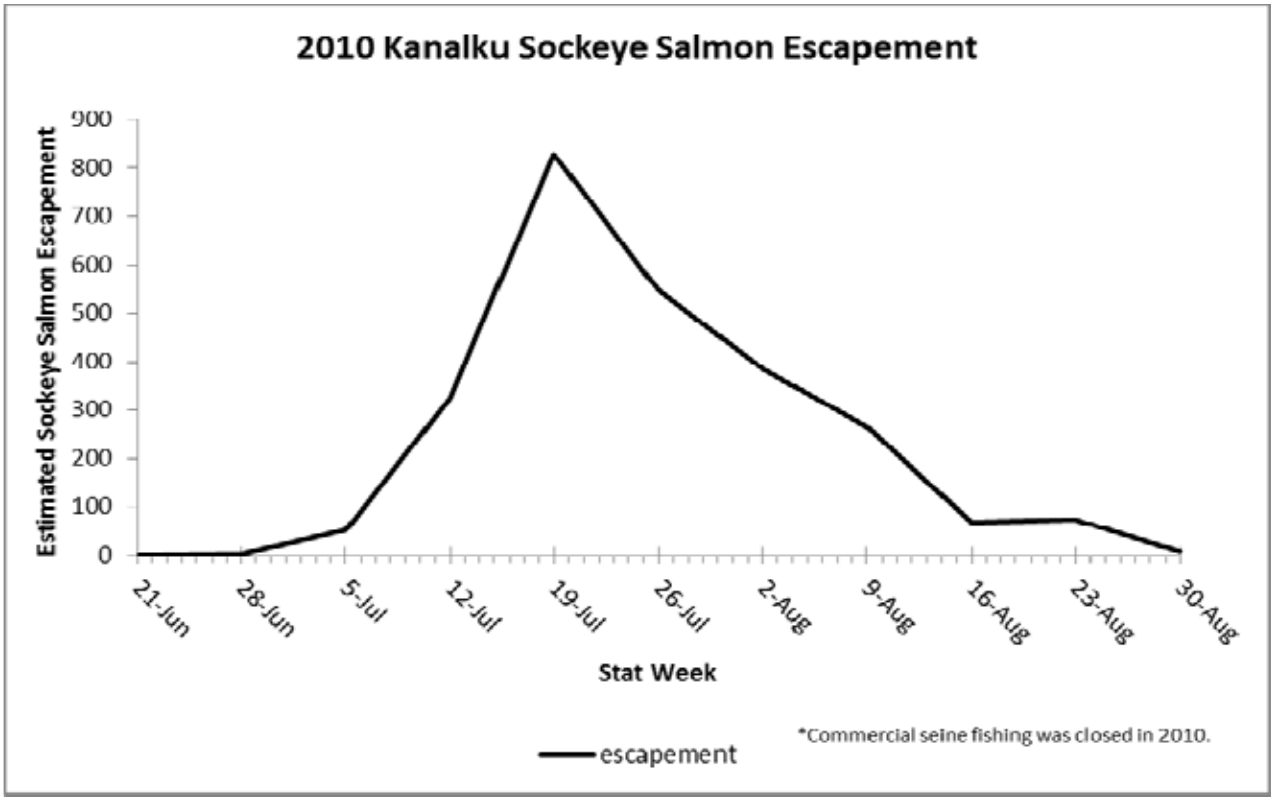


Figure 4B. Escapements of sockeye salmon into Kanalku Lake by statistical week in years with no commercial purse seine harvests in District 12, 2008 and 2010

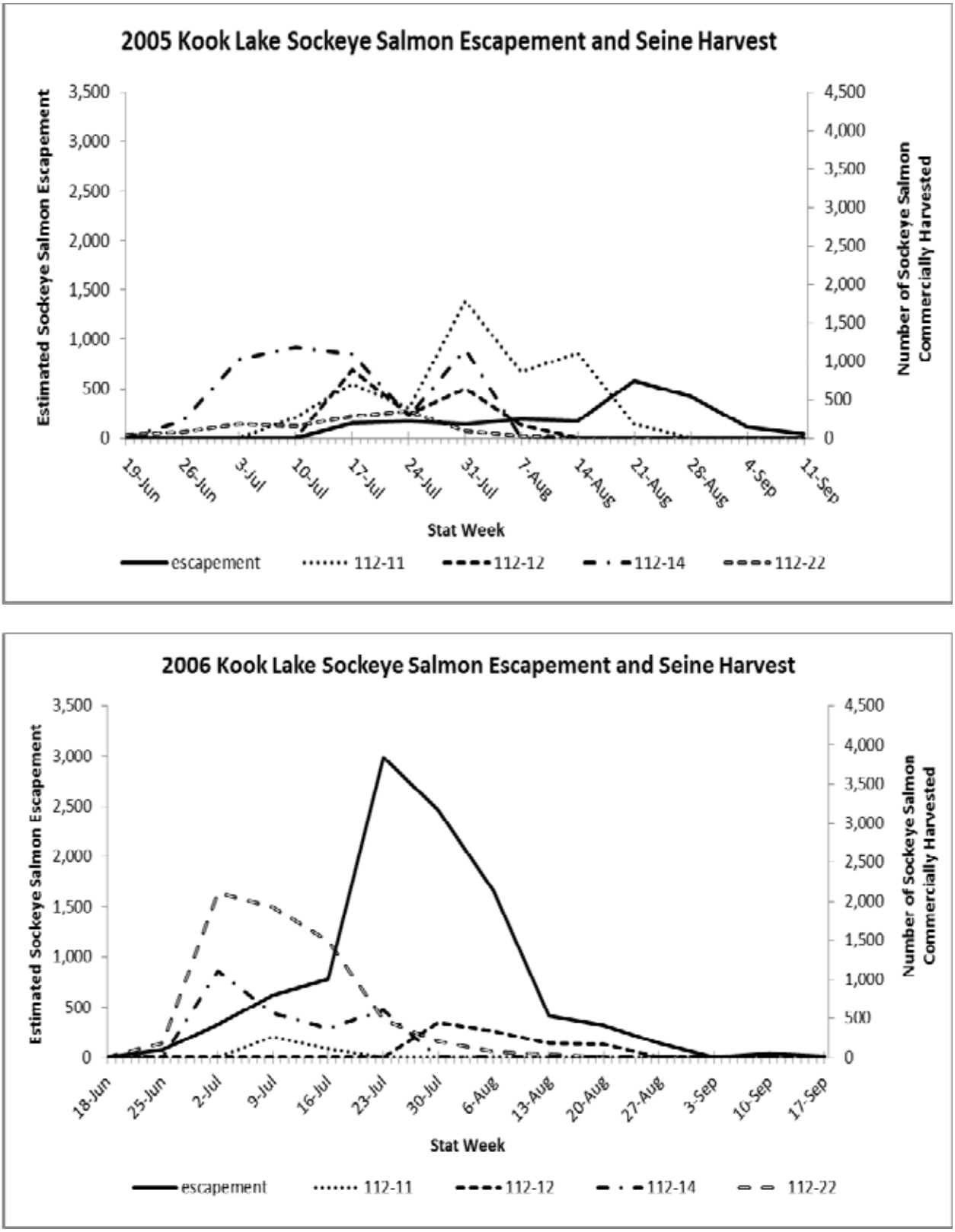


Figure 5A. Escapements of sockeye salmon into Kook Lake and commercial purse seine harvests in District 12 statistical areas, by statistical week, 2005 and 2006. Data from Yuhas (2011 and 2012).

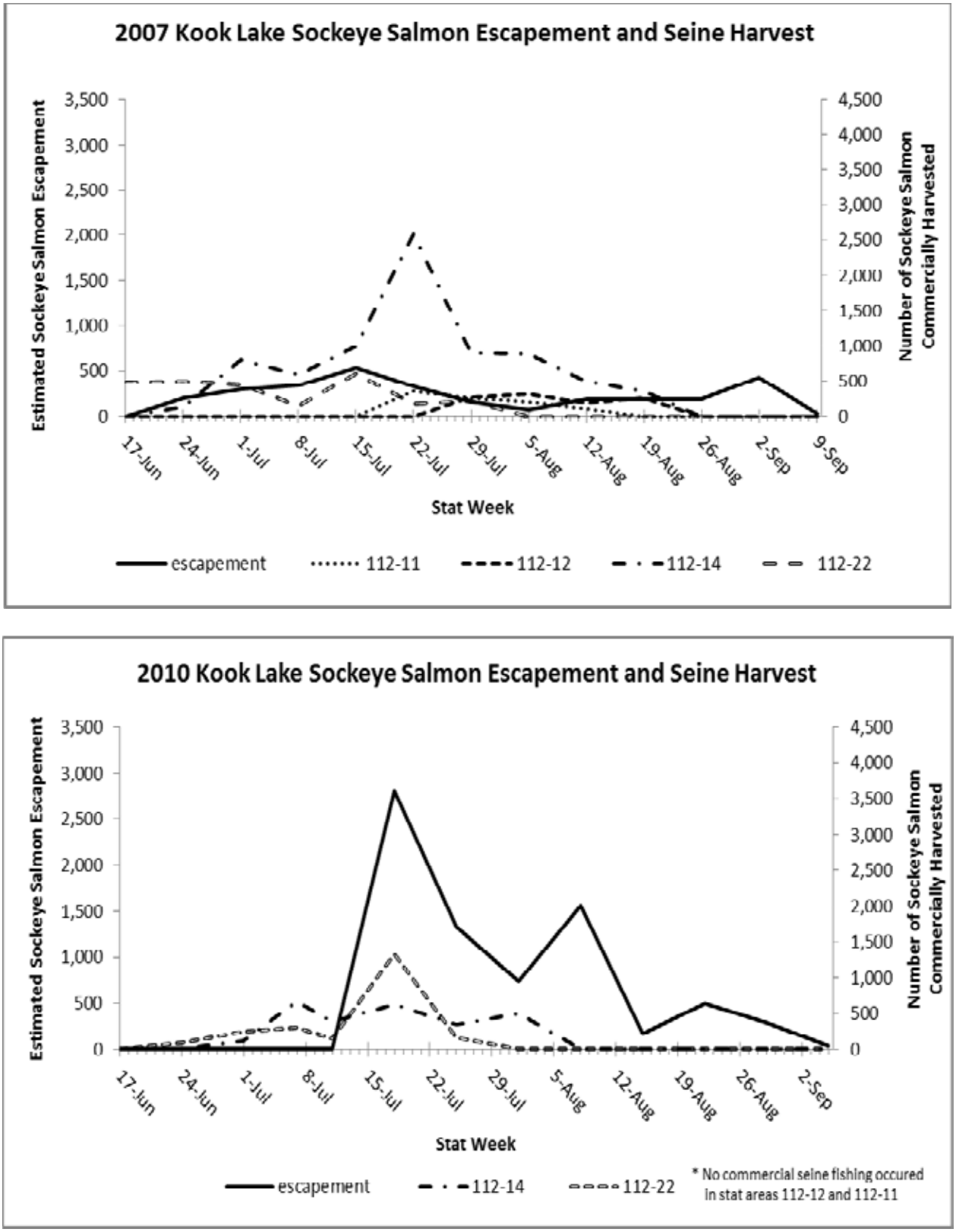


Figure 5B. Escapements of sockeye salmon into Kook Lake and commercial purse seine harvests in District 12 statistical areas, by statistical week, 2007 and 2010. Data from Yuhas (2011 and 2012).

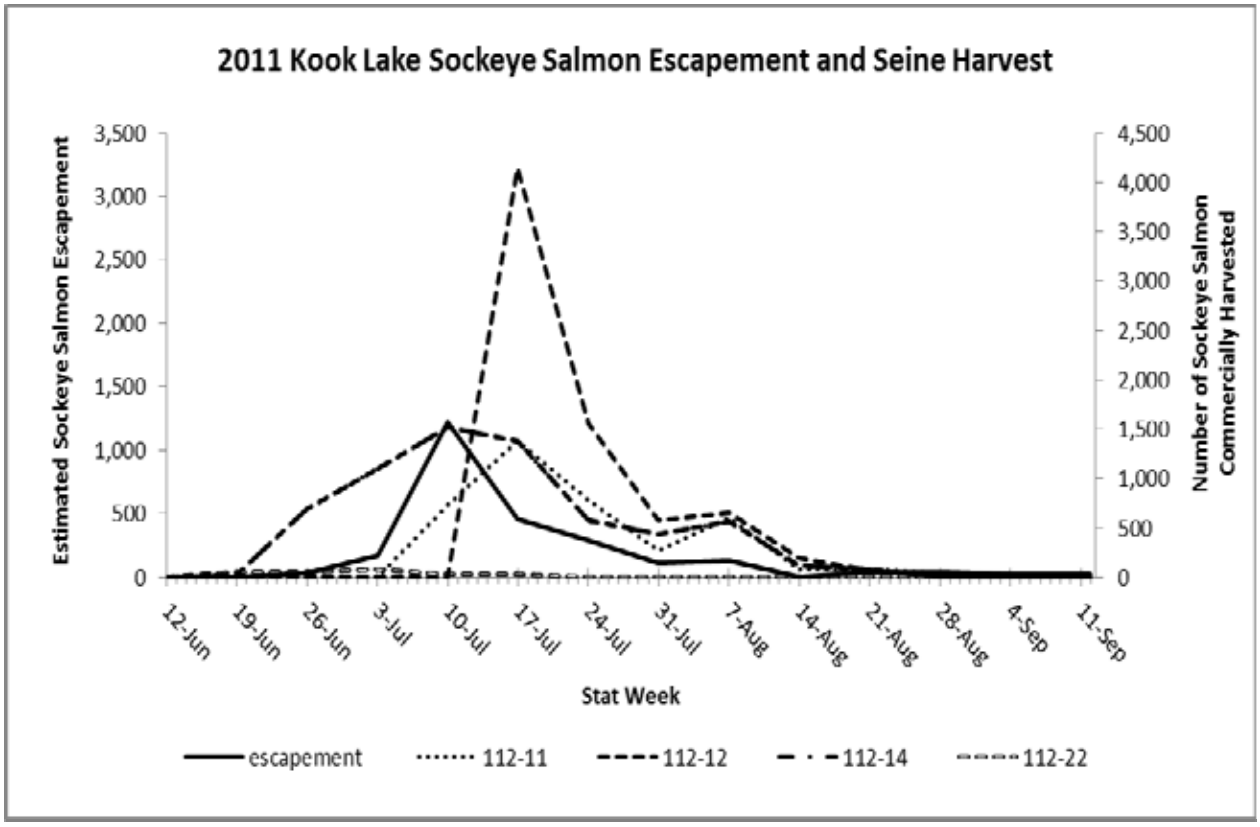


Figure 5C. Daily escapements of sockeye salmon into Kook Lake and commercial purse seine harvests in District 12 statistical areas, by statistical week, 2011. Data from Yuhas (2011 and 2012).

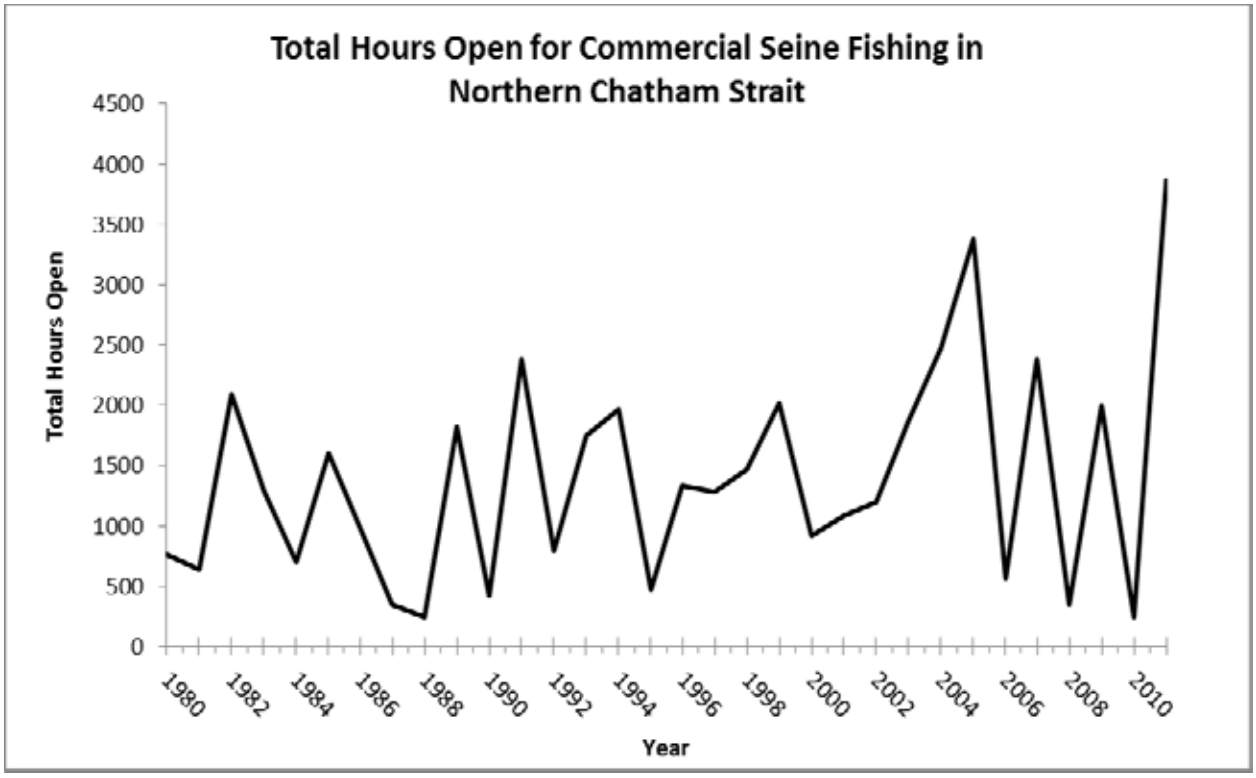


Figure 6. Total hours open for commercial seine fishing in Northern Chatham Strait, District 12, 1980-2011. Total hours calculated by summing hours open for statistical areas 112-11, 12, 13, 14, 16, 17, 18, 19, and 22 each year. Data from Yuhas (2011 and 2012).

Table 1. Northern Southeast Alaska annual commercial purse seine harvests in numbers by species, 1980-2011. Date from Davidson et. al (2012).

Year	Sockeye	Pink	Chum	Coho	Chinook
1980	27,569	902,071	415,511	12,378	512
1981	60,750	4,428,712	282,754	44,016	2,280
1982	67,140	10,718,372	162,007	108,952	3,643
1983	60,516	5,323,586	271,363	54,457	2,778
1984	53,308	4,161,231	1,473,603	48,703	1,808
1985	99,242	19,343,125	1,011,367	77,561	7,966
1986	18,583	933,928	947,510	17,786	1,384
1987	77,112	3,852,989	833,647	28,425	1,681
1988	13,323	1,299,946	653,809	24,973	1,151
1989	98,365	11,969,441	336,503	56,522	2,738
1990	38,502	4,082,182	603,299	43,382	1,707
1991	72,281	16,970,650	1,063,401	105,849	4,704
1992	108,331	12,568,844	1,948,819	162,953	2,786
1993	162,153	16,914,761	3,004,370	114,213	4,958
1994	181,038	31,389,894	4,781,593	467,296	10,317
1995	67,414	5,409,068	4,310,379	223,204	25,144
1996	111,604	9,564,130	6,246,728	137,603	21,995
1997	51,465	11,776,742	3,534,803	68,142	6,682
1998	107,675	16,702,595	4,800,326	161,419	7,998
1999	104,204	35,180,383	6,148,309	232,408	16,152
2000	73,008	7,323,135	6,232,888	62,307	19,283
2001	170,705	13,328,220	2,203,419	116,404	13,374
2002	54,488	20,793,646	2,057,813	219,569	12,235
2003	146,108	22,380,951	2,864,976	96,735	7,265
2004	323,489	23,070,456	4,098,981	166,735	9,586
2005	163,058	28,624,647	1,835,247	133,199	4,772
2006	67,697	7,548,334	3,810,988	46,870	6,314
2007	90,682	11,943,703	1,242,925	56,204	8,053
2008	5,631	1,974,550	2,332,622	17,846	8,104
2009	65,475	10,603,951	2,427,762	36,611	6,939
2010	29,484	9,157,767	1,921,639	46,565	7,010
2011	212,057	45,587,909	1,171,493	229,181	9,724

Table 2. Hidden Falls Hatchery Terminal Harvest Area commercial harvests in numbers by species, 1990-2011. Date from Davidson et. al (2012).

Year	Sockeye	Pink	Chum	Coho	Chinook
1990	3,487	207,188	257,987	773	179
1991	No commercial harvest				
1992	8,235	450,867	734,129	1,943	1,159
1993	15,940	1,979,613	1,471,182	8,016	2,447
1994	13,081	1,479,866	2,842,059	11,738	4,492
1995	9,049	284,234	3,213,002	20,908	22,223
1996	9,160	335,538	3,375,359	4,991	19,989
1997	3,090	450,001	1,376,980	2,491	5,791
1998	5,428	751,632	1,851,116	11,964	6,259
1999	6,811	1,417,199	2,338,575	18,151	13,650
2000	7,391	225,173	2,742,107	1,761	18,450
2001	8,556	455,412	1,098,670	5,463	12,186
2002	3,095	336,382	1,225,544	11,972	9,791
2003	2,659	524,819	1,357,104	920	4,377
2004	6,225	1,339,387	1,156,394	11,457	4,180
2005	1,170	383,367	250,077	1,392	1,281
2006	6,924	537,646	1,710,387	3,416	4,584
2007	2,572	315,050	502,248	1,258	5,255
2008	1,316	32,939	1,474,776	7,427	5,271
2009	2,665	643,969	1,742,298	787	3,446
2010	2,290	97,815	649,691	2,630	2,905
2011	111	29,463	81,187	1,082	2,662

Table 3. Annual subsistence sockeye salmon harvests by Angoon residents based on returned permits and household surveys, 1985-2011. Expanded permit harvest estimates were based on permits issued and not returned, but no adjustments were made to account for under-reporting. Permit data from Geiger and ADF&G staff (2007) and Yuhas (2011 personal communication). Dashes (--) indicate data not available.

	Number Harvested	
	Permits	
Year	Reported	Expanded
1985	732	--
1986	1,057	--
1987	646	--
1988	226	--
1989	429	--
1990	1,032	--
1991	696	--
1992	789	--
1993	901	--
1994	1,300	--
1995	936	--
1996	1,408	2,793
1997	1,495	2,349
1998	1,554	2,725
1999	1,620	2,180
2000	1,344	2,158
2001	1,147	2,225
2002	751	1,178
2003	1,496	--
2004	1,479	--
2005	261	--
2006	658	--
2007	56	--
2008	637	--
2009	--	--
2010	--	--
2011	--	--

Table 4. Number of sockeye salmon harvested in subsistence fisheries in northern Chatham Strait, 1985-2011, based on reported data from Alaska Department of Fish and Game permits. Dashes (--) indicate data not available. Reported harvests are for all State permits issued; not only those issued to Angoon residents. Data from Yuhas (2011 personal communication) and Geiger and ADF&G staff (2007).

	Location						
Year	Kanalku Bay	Kanalku Lake Creek	Kook Creek-Inlet	Kook Lake Outlet	Sitkoh Lake Creek	Hasselborg River	Hanus Bay-Lake Eva
1985	473	--	--	450	313	0	--
1986	931	--		1,427	677	60	88
1987	645	--		1,233	636	45	--
1988	258	--		316	322	0	10
1989	425	--		493	248	0	--
1990	762	--		477	181	25	36
1991	421	135	--	406	0	50	--
1992	548	23--	--	575	90	0	--
1993	901	----		475	0	25	80
1994	1,282	----		348	36	87	36
1995	936	----		387	10	45	59
1996	1,627	----		302	50	78	50
1997	1,538	--		187	60	110	53
1998	1,482	--		327	16	67	158
1999	1,641	25--	110	308	36	60	60
2000	1,418	25--	36	216	75	40	--
2001	926	20--	4	274	276	40	--
2002	14	25--	--	645	184	50	99
2003	90	----		941	647	70	95
2004	60	----	15	676	1,020	25	2
2005	40	--	--	169	275	44	--
2006	--	51	--	492	322	20	--
2007	--	--	--	136	--		--
2008	553	155	--	172	--		97
2009	600	--35		170	676	50	--
2010	556	--		553	88	180	118
2011	160	--		162	91	32	--

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Table 5. State subsistence fishing open dates and household limits for locations in the Juneau Permit Area used by Angoon residents, 1992-2022. Data from Yuhas (2011). N/C = No change.

	Juneau Permit Area									
	Kanalku Bay		Basket Bay		Sitkoh Bay		Hanus Bay (Lake Eva)		Hasselborg River/Salt Lake	
Year	Open Dates	Limits	Open Dates	Limits	Open Dates	Limits	Open Dates	Limits	Open Dates	Limits
1992-2003	June 1-July 31	25 (25)	June 1-July 31	15 (15)	June 1-Aug. 31	50 (50)	June 1-Aug. 31	50 (50)	July 1-31	25 (25)
2004-2005	N/C	N/C	N/C	N/C	N/C	N/C	June 1-Aug. 15	50 (50)	N/C	N/C
2006	July 20-Aug. 15	15 (15)	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
2007-2009	June 1-July 31	15 (15)	June 1-July 31	30 (15)	N/C	N/C	N/C	N/C	N/C	N/C
2010-2011	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	July 1-Aug. 15	25 (25)

Table 6. Estimated numbers of sockeye salmon entering Kanalku, Kook, and Sitkoh Lake systems to spawn, Northern Southeast Alaska, 1994-2011. Dashes (--) indicates estimates not made; N/A/ indicates data not yet available.

	Number of Sockeye Salmon		
Year	Kanalku Lake	Kook Lake	Sitkoh Lake
1982	--	--	7,200[l]
1994	--	1,800[a]	--
1995	--	5,800[a]	--
1996	--	--	16,300[a]
1997	--	--	6,000[a]
1998	--	--	6,600[a]
1999	--	--	10,500[a]
2000	--	--	17,000[a]
2001	240[a]	380[a]	14,100[a]
2002	1,600[a]	3,600[a]	11,900[a]
2003	280[a]	--	8,700[a]
2004	1,250[b]	--	3,700[b]
2005	1,100[c]	1,194[j]	13,400[c]
2006	1,300[d]	10,165[j]	--
2007	630[e]	2,958[j]	--
2008	1,200[f]	--	--
2009	2,644[g]	--	--
2010	2,970[h]	6,565[j]	15,324[m]
2011	700[i]	2,702[k]	3,374[n]

*a*Conitz and Cartwright (2005)
*b*Conitz and Cartwright (2007)
*c*Burril and Conitz (2007)
*d*Conitz and Burril (2008)
*e*Vinzant, Host, Conitz (2009)
*f*Vinzant, Conitz, and Bednarski (2010)
*g*Vinzant and Bednarski (2010)
*h*Vinzant, Bednarski, and Heinl (2011)
*i*Bednarski (2011) – preliminary estimate
*j*Van Alen and Mahara (2011b)
*k*Van Alen and Mahara (2011c)
*l*Geiger and ADF&G staff (2007)
*m*Van Alen and Mahara (2011d)
*n*Van Alen and Mahara (2011a)