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Abundance, Age, Sex, and Size of Coho Salmon Catches and Escapements in Southeast Alaska in 1986

by

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State of Alaska

Steve Cowper, Governor

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ABSTRACT

Commercial troll, purse seine, drift gill net, and trap fishermen harvested a total of 3,133,586 coho salmon (*Oncorhynchus kisutch* Walbaum) from Southeast Alaska waters in 1986 (excluding set gill net catches and escapements in District 182, 183, 185 and 192 near Yakutat). The hand and power troll catch of 2,095,677 coho represented 62.9% of the total harvest, and the majority, 75.5%, were caught in outside waters. Purse seine fishermen harvested 588,594 fish and drift gill net fishermen harvested 447,860 fish. The total commercial, sport and subsistence harvest was 3,333,732 coho salmon. Terminal private hatchery cost recovery fisheries harvested 143,947 fish, and the Annette Island Fishery Reserve fish traps harvested 1,455 fish. Smaller harvests were taken in ocean sport fisheries (51,892 fish) and by Canadian commercial gill net fishermen on the Stikine River (2,278 fish) and Taku River (1,783 fish), and by Alaskan subsistence fishermen (246 fish).

We found small differences in the age and size composition of coho salmon commercially harvested by gear type, area, and time. Fish aged 1.1 and 2.1 dominated the catches in all areas and fisheries; however, fish aged 3.1 and 4.1 made up a greater portion of the troll harvest in the Southern portion of the region. The growth of fish in-season was evident by increasing average lengths of coho salmon in successive samples. Fish aged 3.1 tended to have a larger average length than fish aged 2.1 and 1.1.

Fish aged 1.1 dominated samples from the three hatcheries. Escapements to the 14 wild stocks sampled were comprised of fish aged 1.1, 2.1, 3.1 and 4.1. The mean date of fish passage through weirs which were operated to count coho salmon ranged from 11 September to 5 October. There were 66 coho systems surveyed with >25 coho counted; these varied from a low count of 27 to a high of 3,309.

KEY WORDS: Catch allocation, age composition, migratory timing, coho salmon, *Oncorhynchus kisutch*, fishery synopsis, smolt, catch and escapement, Southeast Alaska

INTRODUCTION

Coho salmon (*Oncorhynchus kisutch* Walbaum) are important to the commercial, sport, and subsistence fisheries in Southeast Alaska. Annual commercial harvests between 1960-85 have averaged approximately 1.1 million (ADF&G 1987), and 1977-85 sport harvests have averaged 46 thousand fish (Mills 1987). Most coho salmon are harvested in mixed stock fisheries. With most originating from approximately 3,000 coho salmon-producing streams in the region. Hatchery-produced coho are a major component of the run in several areas with 10 hatcheries contributing from Southeast Alaska. Coded microwire tag data reveals that non-Alaskan fish are also intercepted (K. Crandall, Alaska Department of Fish and Game, Juneau, personnel communication). Most originate from rivers or hatcheries in northern British Columbia. However, some originate from as far south as Oregon.

Southeast Alaska consists of the coastal waters and inland drainages from Cape Suckling on the north to Dixon Entrance on the south (Figure 1). In this report we exclude the Yakutat Area inshore set net fisheries in Districts 182, 183, 185, and 192 (Pahlke and Riffe 1988). The region is divided into 18 coastal districts (Districts 101 through 116, 181 and 191) and five offshore districts (Districts 152, 154, 156, 157, and 189). Sport fishing occurs throughout the region but is generally concentrated near the communities. Subsistence fishing for coho has been only permitted in the Chilkat River adjacent to the Klukwan Reserve, in the Salt Lake/Hasselborg Creek area in Kootznahoo Inlet near Angoon, Basket Bay near Tenakee, and in the Taku River. Coho were also harvested in waters adjacent (terminal) to hatchery/release sites by the common property and/or by the hatchery corporations for cost recovery.

Reliable information on the abundance and age, sex, and size composition of coho salmon catches and escapements is essential to management of this valuable resource. This information has several uses important to management including: assessment of run timing and run strength, estimation of stock compositions (based on age or scale pattern differences), evaluation of brood year returns and exploitation rates, evaluation of the distribution and magnitude of escapements, evaluation of escapement goals, and forecasting returns. Size data is useful for monitoring growth parameters, environmental variability, and gear selectivity. Migratory timing data can be used to identify interannual shifts in run timing and in-season prediction of run strength. This baseline biological data is needed for development of management plans which maximize production and harvest of coho in the region.

Our objective was to document the available data regarding the magnitudes and the composition by age, sex, and size of catches and escapements of coho salmon in Southeast Alaska during 1986. We also present age and length composition data for coho salmon smolts in two systems. This report is intended to serve as a data base document, hence interpretation and discussion of the data is limited. However, we do present migratory timing statistics for some escapements and compare historical age composition estimates. Data pertaining to the transboundary river stocks was collected in cooperation with the Canadian Department of Fisheries and Oceans (CDFO). Detailed data on age, sex, and length compositions of troll, seine, and gill net catches can be found in Wood and Van Alen (1989) along with daily weir counts.

This report compliments prior reports on the abundance, age, sex, and size composition of coho salmon catches and escapements in Southeast Alaska in 1981 (McGregor and Van Alen 1987), 1982 (Mesiar 1984), 1983 (Van Alen and Wood 1986), 1984 (Wood and Van Alen 1987a), and 1985 (Wood and Van Alen 1987b). Gray, Koerner, and Marriott (1981) summarized Southeast Alaska coho salmon age, length, and weight data collected in 1969 and 1970. Detailed information on coho catches and escapements in the Yakutat Area in 1986 were reported in Pahlke and Riffe (1988). A complete summary of regulations affecting the 1986 salmon fisheries of Southeast Alaska may be found in ADF&G (1986). Alaska Department of Fish and Game (ADF&G) reports to the Alaska Board of Fisheries summarize the 1986 troll and net fishing seasons (ADF&G 1987).

METHODS

Data were collected through a number of different sources. These included different divisions within ADF&G and the Canadian Department of Fisheries and Oceans.

Data Collection

Harvest Statistics

Commercial catch data for Southeast Alaska, (number and total weight of coho salmon sold by gear type, district and week) were compiled by the Division of Commercial Fisheries, ADF&G. These data were based on computer tabulations of individual sales slips (fish tickets) as of 13 February 1987 for troll and 6 February 1987 for purse seine and gill net fisheries. Because of the possibility that all embedded data entry or recording errors have not been corrected, later summaries may differ slightly from those used in this report. Such errors were believed to be too small to be of consequence to our analysis of commercial catches by gear type, area, or time.

The average weights of troll-caught fish were based on dressed (gilled and gutted) fish. The seine and gill net fisheries landed both dressed and round fish.

Canadian commercial fishery catch statistics for the Stikine and Taku Rivers were provided by the Canadian Department of Fisheries and Oceans, Whitehorse staff, Yukon Territory. Subsistence catch information was tabulated from subsistence use permits returned to ADF&G. All subsistence permits were not returned, so the reported subsistence catch totals listed in this report underestimated the total subsistence harvest from the region. Alaskan sport catch was obtained from Mills (1987). His estimates were based on a mailout questionnaire survey of randomly selected residents holding sport fishing licenses.

Catches are reported by statistical week which begin at 00:01 AM each Sunday and end at midnight each Saturday. Weeks are sequentially numbered beginning with the first week of the year.

Escapement Counts

Several methods were used to obtain estimates of spawning escapements. Counts were made from airplanes, helicopter and boats, foot surveys, and at weirs. Multiple surveys were made on several streams, but only the peak counts for streams with 25 or more coho salmon enumerated were reported. The mean date of migration and associated migratory timing statistics were calculated for coho salmon passing through weirs using methods described by Mundy (1984).

Weirs were operated to count adult coho salmon on their up-stream spawning migration into 13 streams. Weirs were operated by ADF&G on 10 of these systems (Hugh Smith Lake, Karta River, Salmon Bay Lake, Crystal Creek, Falls Lake, Yehring Creek, Snettisham hatchery, Salmon Lake, Redoubt Lake and Ford Arm Lake, by CDFO on two systems (Little Tatsamenie and Hackett Lakes), and by the National Marine Fisheries Service on Auke Creek. Only the Hugh Smith Lake, Salmon Bay Lake, Falls Lake, Little Tatsamenie Lake, Hackett Lake, Auke Creek, Salmon Lake, and Ford Arm Lake weirs were operated throughout the duration of the coho runs. Counts from the other systems were less than the actual escapement since weir operations were curtailed prior to the end of the run.

Counts for one-ocean (age-.1) fish, "non-jacks", are reported separately from those for zero-ocean (age-.0) fish, "jacks". Fish less than or equal to approximately 450 mm total length were classified as jacks.

Poor weather conditions normally occur when the coho enter the majority of the systems in Southeast Alaska. This and the large number of small coho spawning systems makes escapement sampling difficult and costly. We present this data in hope that it generally represents the abundance, and age and size compositions, of coho escapements to lake, stream, or river systems or to broad geographical areas.

Age, Sex, and Length

Troll, seine, and gill net catches of coho salmon were sampled by department employees stationed at the Southeast Alaska ports of Ketchikan, Craig, Klawock, Wrangell, Petersburg, Sitka, Pelican, Juneau, Hoonah, Excursion Inlet, and Yakutat. Sampling was also conducted at several smaller buying stations, aboard tenders and aboard troll vessels participating in the chinook salmon mortality assessment program (Davis et al. 1986). Sampling was conducted on fish landed from individual boats and tenders for both the net and troll fisheries.

Three scales were obtained from the preferred area (INPFC 1963) on the left side of each fish, mounted on gum cards, and impressions made in cellulose acetate cards (Clutter and Whitesel 1956). Age was determined by visual examination of scale impressions under moderate (40 - 75X) magnification. Ages were reported in European notation (numerals preceding the decimal point refer to the number of freshwater annuli, numerals following the decimal refer to the number of marine annuli, and the total age is the sum of these two numbers plus one).

Lengths were measured from mid-eye to fork-of-tail to the nearest half-centimeter from a minimum of 10% of the fish sampled for scales. Coho caught in Canadian test fisheries were measured from the post orbital to hyperal plate (POH). The POH length was corrected to mid-eye to fork-of-tail (MEF) length using the

following equation: MEF = 1.027 * POH + 59.230mm (Pahlke 1989). Sex was determined by examination of external dimorphic maturation characteristics. The accuracy of our sex determinations was untested. The absence of obvious secondary sexual characteristics in ocean bright fish precluded making accurate sex determinations for troll-caught fish which were dressed prior to delivery.

Difficulties were encountered in representatively sampling the commercial troll catch because sampling occurred at processing facilities where fish were usually sorted by size (usually: smalls = $\leq$7lb, mediums = 7 to 10lb, and larges = $\geq$10lb) and by quality (two grades into different bins). To avoid obtaining biased samples when the entire delivery could not be sampled, fish were taken and sampled from each size and grading bin in proportion to abundance or a predetermined frequency for that particular bin. Similar difficulties were experienced in sampling seine and gill net landings. Throughout the season the cold storages made changes in weight and grading to match market demands.

Coho smolt data was obtained by the Sport Fish coho research staff at Salmon Lake (Schmidt 1986 and 1987) and by the FRED Division, Lake Enrichment Project staff at Redoubt Lake. Coho smolts were captured in fry traps set in the outlets of both lakes.

Analysis Strata

Several factors were used in the development of sampling strata for age, sex and length data: (1) the logistic and cost considerations and tradeoffs required to obtain samples over such a broad geographic region, (2) the need to separate principle gear types (troll, seine, gill net, and sport) and examine each data for temporal trends, and (3) the need to maintain a one-in-ten chance that the estimate of the age composition of each strata did not exceed $\pm$5% of the true value. We used the equations of Cochran (1977), corrected for finite population size as appropriate (Appendix A.1) and assumed the presence of three age classes to compute the desired sample size for each time/area strata.

Troll

Only one district could be reported on a fish ticket for each troll landing, but trollers often fish more than one district between landings. For example, a popular troll fishing area is Cross Sound, and boats fishing in this area may actually fish in Districts 113, 114, and 116. Although catch data were reported by district, we suggest cautious use of this data because of the cross-district reporting problem. Based upon the results of skipper interviews conducted for coded-wire tag recovery and fishery performance there were four areas identified for Southeast Alaska in which only minor cross-area reporting occurs, and catches were more meaningfully aggregated into these four areas. The four "quadrant" areas (Figure 1) are: (1) Northwest composed of Districts 113, 114, 116, 154, 156, 157, 181, 189 and 191; (2) Southwest composed of Districts 103, 104, and 152; (3) Northeast composed of Districts 109, 110, 111, 112, and 115; and (4) Southeast composed of District 101, 102, 105, 106, 107, and 108. Catches by hand and power troll gear were combined for analysis of age, sex, and size data.

Age composition of coho salmon catches in each area were estimated using the sample age proportions. Whenever sample sizes permitted, the data were stratified over time into sampling periods by area. Since the age composition of coho catches can change throughout the migratory season, the grouping of samples into sample periods was a compromise between obtaining the number of samples necessary to obtain a reasonably precise age composition and reducing the bias inherent in grouping the sample periods. Standard error of the percent of fish caught sampled by period for each age class were calculated by standard binomial formulas (see Van Alen et al. 1987). The age composition and associated standard error of the total commercial catch by area were calculated by weighing the estimated sample age distribution and its standard error for each sampling period by the total commercial catch reported during that same sample period. Mean length and its standard error from the sampled coho salmon were calculated for each area, period, and age class. Average weights were determined by dividing the total reported poundage landed by the total reported catch for each district and gear group.

Seine, Gill Net, Trap, and Canadian Inriver Gill Net

Sampling of coho harvested by seine and gill net gear was intended to accurately describe the age composition of the season's catch by gear type and district. Weekly samples were generally obtained from each open district. However, sample sizes, particularly for seine and gill net fisheries, resulted in age composition estimates with a precision less than desired. In most districts the seine and gill net fleets harvest coho salmon incidentally to other salmon species; hence, individual vessel landings and season total catches were low. The low abundance of coho salmon in the catches, and the tendency for vessel owners to market them separately, made it difficult to access the catch for sampling. The principal reason for small sample size, however, was low sampling effort. Catch data for these net fisheries was considered reasonably accurate by district and statistical week. Some deliveries included catches from more than one district and week. However, during the peak of the pink salmon run, most districts were open, and little time separated the weekly openings, particularly in the seine fishery.

Escapement

The high cost associated with access to coho spawning grounds and the comparative scarcity of fish negatively impacted the precise characterization of age, sex, and length composition of most of the 2,000+ coho spawning populations in the Southeast Region. We present the available data for all sampled escapements detailed by location, sex, and age. The reader is cautioned that sample sizes are often too small to accurately characterize the age, sex, or length composition of each escapement.

RESULTS

Harvest Statistics

Fishery Overview

Coho salmon were commercially harvested by troll fishermen in all districts; by seine fishermen in Districts 101 to 107, 109, and 112 to 114 and by drift gill net fishermen in Districts 101, 102, 106, 108, 111, and 115. Coho salmon were also commercially harvested by purse seine, drift gill net, and troll gear in Annette Island Fishery Reserve waters within 3,000 feet of Annette Island's shore, District 101 (Subdistricts 24, 26, 28, and 42) and in the floating fish traps in Subdistrict 28. Coho salmon were also commercially caught in the Canadian gill net fishery on the lower Taku and Stikine Rivers.

The 1986 harvest of over 3.3 million coho salmon was the largest on record. This record harvest was driven by a record troll catch of 2.1 million coho salmon, considerably more than the 1980 to 1985 average of 1.1 million. The above average seine and gill net effort needed to harvest the record pink salmon (*O. gorbuscha*) runs in southern Southeast Alaska also contributed to the high coho catch. The Southeast Alaska hatcheries provided 0.5 million coho salmon to the total harvest (ADF&G 1987).

The troll fishery was open to the harvest of coho salmon from 20 June through 20 September, except for a 10-day closed period from 11 to 20 August, and an area closure from Cape Cross to Cape Fairweather and including the Cross Sound area from 30 July to 20 August. In addition, selected near-shore areas in the Northwest area were closed to protect chinook salmon (*O. tshawytscha*) during the non-retention periods for this species which occurred during the time of 16 July to 20 August and 27 August to 20 September. Trollers targeted almost exclusively on coho salmon, following the 16 July and 26 August chinook closures.

Numbers and Landed Weight

A total of 3,333,732 coho salmon were harvested in commercial, private hatchery cost recovery, sport, and subsistence fisheries in 1986 (Table 1). Most (94.1%) were harvested in the ocean by commercial gear followed by cost recovery harvests (4.3%) and ocean sport harvests (1.6%). Smaller catches of <0.1% were reported by the Canadian inriver gill net fisheries on the Stikine River and Taku River, and <0.1% by domestic subsistence fisheries. Trollers harvested 66.9% of the fish caught by U.S. commercial fishermen, smaller catches were made by seiners (18.8%), gill-netters (14.3%), and trap operators (<0.1% gear; Table 2). Commercial harvests totaled 10.6 million kg, (23.4 million pounds), (Table 3). The average weight of all coho salmon commercially caught was 3.4 kg (7.5 lb), averaging from 3.1 kg (6.7 lb) for trap, to 3.3 kg (7.2 lb) for troll, 3.4 kg (7.5 lb) for seine and 4.1 kg, (8.9 lb) for gill net gear (Table 4). The average weight in 1986 was smaller than in 1984 and 1985 but heavier than in 1983 (NSC).

Troll. The troll fishery harvested 2,095,677 coho salmon (Table 5) with 52.4% of the catch or 1,098,292 fish coming from District 113. The second and third highest catches of 238,225 and 163,179 came from Districts 104 and 109. Peak

catches came in the fourth week (6-12 July) for District 113, in the fifth week (13-19 July) for District 109, and in the sixth week (20-26 July) for District 104. The overall peak troll catches came in the week of 13 to 19 July. The outside districts (Districts 104, 113, 116, 152, 154, 156, 157, 181, 189, and 191) accounted for 75.5% of the total catch. In comparison, 69.3% of the fish were harvested in outside waters in 1985.

The first nine weeks of the fishery accounted for 64.7% of the total troll catch. The peak catches previously seen in August, just prior to the troll closure, did not materialize (Table 5; Figures 2 and 3). This may be a result of year-to-year changes in management which make comparisons difficult. For the past 6 years the department has had different starting dates for the troll fishery (Figure 4). The 1986 catch exceeded the 1976-85 average catch by 1.1 million fish (Figure 5). The average weight of coho salmon increased almost 1.4 kg (3.1 lb) during the troll season (Tables 6 and 7).

Seine. The purse seine catch of 588,594 fish (Table 8) occurred primarily in Districts 104 and 101 where 273,253 and 152,561, of the catches were taken. Catches were highest in Districts 104 and 113 in early August; District 112 in mid August; Districts 102, 103, 106, and 109 in late August; and District 101 in early September. Overall, seine catches peaked during the fourth week of August (August 24-30). The 1986 purse seine catches of coho salmon exceeded the 1976-85 average catch by 321 thousand fish (Figure 5). Approximately 2.0 million kgs (4.4 million pounds) of coho salmon were harvested (Table 9) at an average weight of 3.4 kg (7.5 lb) per fish (Table 10).

Gill Net. The gill net catch was 447,860 fish (Table 11). Districts 101 and 106 accounted for 71.6% of the harvest with District 115 accounting for another 18.3%. Catches peaked in District 111 in late August, District 106 in early September, Districts 108 and 115 in mid September, and District 101 in late September. Overall, the catches peaked in late August. The average weight of coho salmon caught by gill net gear increased approximately 2.3 kg (5.0 lb) through the season. The fishing of nets with larger mesh sizes late in the season (fall gear) probably decreased the interception of smaller fish, making evaluation of average weight from this fishery difficult. The 1986 gill net catch exceeded the 1976-85 average annual harvest by 267 thousand fish (Figure 5). There was a total of 1.9 million kgs (4.0 millions pounds) harvested in the gill net fishery (Table 11).

Trap. The four fish traps operating in the Annette Island Indian Fishery Reserve caught 1,455 fish (Table 12). Catches were highest in the first and last weeks of the fishery. The 1986 catch was the smallest since 1977.

Terminal Private Hatchery Cost Recovery. A total of 143,947 coho salmon were harvested to meet private facility cost recovery needs. These fisheries were conducted in three terminal areas: 42,160 fish from Neets Bay, 30,798 fish from Whitman Lake, and 70,989 fish from Tamgas Harbor.

Sport. Sport fishermen harvested 51,892 coho salmon from marine waters in 1986. Most were harvested in the Ketchikan (21,191 fish or 40.8%) and Juneau (12,959 fish or 25.0%) areas (see Mills 1987).

Subsistence. The reported subsistence coho catch was 246 fish (Table 13). The reported catches by system were less than the actual take since not all permits were returned.

Canadian Inriver Gill Net. The Canadian inriver commercial gill net fishery catches were 2,278 fish on the Stikine River and 1,783 fish on the Taku River (Table 14). Catches peaked on the Taku River in the last week of August (24 to 30 August) and on the Stikine River in the last week of the fishery (31 August to 2 September). However, the daily catch-per-boat was still increasing on the Stikine River when the fishery ended in the first week of September.

Age, Sex, and Length Data and Historical Comparison

Age and length statistics are presented further on in the report by area and period for the troll fishery, by district for the seine and gill net fisheries, and by river for the Canadian transboundary river fisheries. Terminal hatchery cost recovery, trap, sport, and subsistence catches were not sampled. The age composition data was compared for selected Southeast Alaska fisheries in 1986 with data from previous years (Gray et al. 1981; Mesiar 1984; Van Alen and Wood 1986; Wood and Van Alen 1987a, 1987b, Wood and Van Alen 1989). There were significant differences (Z-test with α =0.05) in age compositions between years 1969, 1970, 1982, 1983, 1984, 1985, and 1986 (Table 15; Figure 6; Appendix Tables A.2.-A.5). These changes in age compositions might be related to annular fluctuations in average winter (November to February) air temperatures (Figure 7). Sexes are presented for all fish sampled from escapements and partially for seine and gill net catches (see Wood and Van Alen 1989) but not for troll caught fish.

Troll. Fish aged 1.1 and 2.1 dominated the troll catches in all areas (Table 16, Figure 8). Age compositions were similar in all areas with age-1.1 fish comprising about 58% of the harvest and age-2.1 fish comprising about 36% of the harvest. Fish aged 3.1 and 4.1 made up a greater portion of the troll harvest in the Southern portion of the region than in the years 1982 to 1985. Coho harvested in 1969 and 1970 tended to smolt at an older age than those harvested in 1981 to 1985. There was a substantial increase (NSC, non-statistical comparison), compared to 1984 in fish aged 3.1 and 4.1 in the northern areas (+11.2%) and in the southern areas (+8.4%). In-season growth of fish was evident in all areas as in past years (Table 17; Figure 9). The average weight of coho salmon in 1986 was equal to the 1985 poundage (NSC) but less than the 1984 level by almost 0.9 kg (2 lb), though still slightly larger than the 1983 average weight (Figure 10).

Seine. Fish aged 1.1 and 2.1 also dominated seine fishery catches, (Table 18; Figure 11). In the southern districts (Districts 101 to 107) 46.4% were aged 2.1

compared to 42.8% being age 1.1, and in the northern districts (Districts 109-114) 47.5% were aged 2.1 with only 35.4% being age 1.1. Fish aged 3.1 and 4.1 represented 8.8% of the catch in the southern districts and 9.1% of the catch in the northern districts. In the southern districts this is an increase in age for 3.1 and 4.1 of 3.9% and in the northern districts of 6.1% from 1982-85 age composition. This shift may be attributed to the colder rearing conditions for the age-3. and-4. fish. Fish aged 1.1 tended to have the smallest average length (NSC; Table 19). There was a lower proportion of fish aged 1.1 in the harvests in 1986 compared to years 1983 to 1985 (Figure 11).

Gill Net. Fish aged 1.1 and 2.1 were the dominant age classes in the gill net fishery, and represented more than 96.0% of the catches in all districts (Table 20; Figure 12). Fish aged 2.2, 3.1, and 4.1 made up 5.7% of the total catch for all districts. Fish aged 2.1 and 3.1 were usually longer than fish aged 1.1 (Table 21).

From 1983 through 1986 fish aged 3.1 comprised 0.6%, 1.0%, 3.3%, and 4.7% of the harvest, respectively, and there were no age-4.1 fish sampled in 1983 and 1984. In 1985 and 1986 the harvest of age 4.1 fish was 0.2% and 0.5% (Figure 12). Fish aged 1.1 comprised a smaller proportion of the catch in 4 of 5 districts in 1986 compared to 1985. The district with more than 50% fish aged 1.1 changed from District 111 in 1985 to District 101 in 1986, which may be attributed to the large returns to the hatcheries in the district. Compared to the catches in 1985, the fish in 1986 were older in all districts, except District 101.

Canadian Inriver Gill Net. Coho harvested in the Canadian fishery on the Taku River were evenly split between fish aged 1.1 and 2.1, with each age group comprising 49.5% of the catch (Table 22). The data from the test fishery on the Stikine River shows that age 1.1 (77.6%) was the dominant age class (Table 22).

Escapement Statistics

Selected Southeast Alaska coho escapements were surveyed to obtain estimates of abundance, timing and age, sex, and length composition. Detailed survey data are available from ADF&G (Division of Commercial Fisheries, P.O. Box 20, Douglas, AK. 99824-0020).

Numbers of Fish

Peak escapement counts and weir counts for the 66 systems with counts of 25 or more fish show that coho salmon spawn in numerous coastal and island drainages throughout the region (Table 23). Peak coho escapement counts were under 500 fish in 47 of these systems. The largest wild stock escapement count was 2,733 fish in the Hackett River, a tributary in the Canadian portion of the Taku River.

Coho counts averaged 1,336 fish past the 9 weirs in place to monitor escapements of this species. Comparing escapements for Auke Lake, Berners River, Salmon Lake, and Hugh Smith Lake, all of which have been monitored in recent years, the 1986 escapement averaged 1,008 fish compared to the 1974 to 1985 average of 2,067 fish (Table 24).

The mean date of migration for coho salmon returning to the systems weired specifically for enumeration of this species was usually late September, but ranged for non-jacks from 11 September in Falls Lake to 5 October in Hugh Smith Lake (Table 19). Jacks averaged 3 d earlier migration than the non-jacks. There was little difference in the mean date of migration among inside coastal systems and outside coastal systems, and 80% of each escapement passed through most weirs over a 1- to 2-month period. The weirs in place for coho escapement did not span the entire time of migration, only the major portions of the runs.

Age, Sex, and Length

Age, sex, and length information was obtained from the escapements to 14 wild and 3 hatchery runs (Tables 26 and 27). Fish aged 1.1 and 2.1 dominated the escapements in most systems; however, age-3.1 fish exceeded 20% of the sample at Hugh Smith Lake, Salmon Bay Lake, Salmon Lake, and Ford Arm Lake. There was a higher proportion of older fish and jacks in the escapements than in the harvests.

All coho salmon returning to Southeast hatcheries in 1986 were age 0. and age 1. at time of release. Since some returning adults were age 2. and age 3. these fish either (1) held over in fresh water for an additional winter (or winters), (2) were wild stock fish in the samples, or (3) were not accurately aged. The more probable reason would be that wild stock coho to strayed into the hatchery area.

Age compositions varied between systems and years (Table 28; Figure 13). Coho in the sampled escapements have tended to smolt at an older age (NSC) in the last few years. The changes in age composition does not appear to be related to geographical differences. In 1986 approximately 50% of the smolts sampled from Salmon Lake and 34% from Redoubt Lake were aged 3.0 (Tables 29 and 30) as compared to the average for the last 2 years (1985-1986) of 37.9% for Salmon Lake and 17.7% for Redoubt Lake for the years 1982-1986. The 1985 smolt ages from Salmon Lake, showed that age 2.0 were the dominate outmigrating age class, but the dominate returning adult age class from the 1985 outmigration was age 3.1. This could have been caused by the low sample rate on returning adults (263 fish), or smolts that were older at outmigration survived better in the marine environment (Tables 28 and 29). The Redoubt Lake age data shows very close matches on smolt ages versus returning adult ages (Tables 28 and 30).

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Table 1. Harvest of coho salmon in Southeast Alaska, 1986.

Fishery	Number	Percent
Ocean Commercial		
Troll	2,095,677	62.9
(Hand = 331,363)		
(Power = 1,764,314)		
Seine	588,594	17.7
Gill net	447,860	13.4
Trap	1,455	<0.1
Subtotal	3,133,586	94.1
Terminal Private Facility	143,947	4.3
Ocean Sport	51,892	1.6
Subsistence	246	<0.1
Canadian Transboundry		
Taku Commercial	1,783	<0.1
Stikine Commercial	2,278	<0.1
Subtotal	4,061	0.1
Total	3,333,732	100.0

Table 2. Commercial harvest in numbers of coho salmon in Southeast Alaska by gear type and district, 1986.

	Numbers of Coho Salmon				
District	Troll	Purse Seine	Gill net	Trap	Total
101	85,512	152,561	115,905	1,455	355,433
102	27,298	61,934	304		89,536
103	85,951	75,503			161,454
104	238,225	273,253			511,478
105	35,856	1,108			36,964
106	32,056	5,013	204,700		241,769
107	2,558	1,416			3,974
108	232		14,437		14,669
109	163,179	7,798			170,977
110	2,390				2,390
111	281		30,411		30,692
112	10,963	8,668			19,631
113	1,098,292	788			1,099,080
114	66,492	552			67,044
115	121		82,103		82,224
116	67,676				67,676
152	7,613				7,613
154	24,482				24,482
156	9,947				9,947
157	11,187				11,187
181	87,871				87,871
189	37,487				37,487
191	8				8
Total	2,095,677	588,594	447,860	1,455	3,133,586
Percent	66.9	18.8	14.3	0.0	100.0

Table 3. Commercial harvest in weight of coho salmon in Southeast Alaska by gear type and district, 1986.

	Weight (lb)				
District	Troll	Purse Seine	Gill net	Trap	Total
101	561,170	1,192,770	998,292	9,716	2,761,948
102	189,865	434,934	2,268		627,067
103	580,178	595,171			1,175,349
104	1,712,568	1,994,446			3,707,014
105	255,977	7,757			263,734
106	263,892	33,716	1,785,484		2,083,092
107	17,085	9,358			26,443
108	1,571		124,050		125,621
109	1,089,499	55,523			1,145,022
110	18,282				18,282
111	2,365		294,701		297,066
112	81,451	59,507			140,958
113	7,829,513	5,489			7,835,002
114	509,167	4,065			513,232
115	1,022		788,121		789,143
116	512,104				512,104
152	52,267				52,267
154	163,502				163,502
156	71,850				71,850
157	78,551				78,551
181	709,517				709,517
189	297,987				297,987
191	61				61
Total-lb	14,999,444	4,392,736	3,992,916	9,716	23,394,812
kg	6,803,703	1,992,532	1,811,175	4,408	10,611,818

Table 4. Average weight of commercially harvested coho salmon in Southeast Alaska by gear type and district, 1986.

	Average Weight (lb)				
District	Troll	Purse Seine	Gill net	Trap	Total
101	6.6	7.8	8.6	6.7	7.8
102	7.0	7.0	7.5		7.0
103	6.8	7.9			7.3
104	7.2	7.3			7.2
105	7.1	7.0			7.1
106	8.2	6.7	8.7		8.6
107	6.7	6.6			6.7
108	6.8		8.6		8.6
109	6.7	7.1			6.7
110	7.6				7.6
111	8.4		9.7		9.7
112	7.4	6.9			7.2
113	7.1	7.0			7.1
114	7.7	7.4			7.7
115	8.4		9.6		9.6
116	7.6				7.6
152	6.9				6.9
154	6.7				6.7
156	7.2				7.2
157	7.0				7.0
181	8.1				8.1
189	7.9				7.9
191	7.6				7.6
Total-lb	7.2	7.5	8.9	6.7	7.5
kg	3.3	3.4	4.1	3.1	3.4

Table 5. Troll harvest of coho salmon in Southeast Alaska by district and statistical week, 1986.

Date	Catch by District (numbers of fish)											
	101	102	103	104	105	106	107	108	109	110	111	112
20-Jun - 21-Jun	5		44	251	95		10		303	1		6
22-Jun - 28-Jun	216	482	1,326	3,995	798	38	74		2,812	37	5	35
29-Jun - 05-Jul	1,547	1,345	2,257	5,383	592	111	166		4,277	43		150
06-Jul - 12-Jul	6,378	5,117	4,977	10,808	1,331	496	189		31,390	555		461
13-Jul - 19-Jul	6,616	5,286	10,892	28,706	1,388	846	73	133	35,523	639		62
20-Jul - 26-Jul	4,638	2,063	14,843	57,903	8,274	384	363		25,807	48		111
27-Jul - 02-Aug	7,480	1,972	17,951	28,717	8,554	1,195	799	33	26,153	18	7	1,346
03-Aug - 09-Aug	14,519	2,231	12,968	22,453	4,330	852	180		16,882	5		1,624
10-Aug - 10-Aug	9,705	1,289	4,166	18,896	2,729	1,038	59		5,632	4	24	348
21-Aug - 23-Aug	338	282	2,799	8,556	176	1,619	97		2,315	52		1,206
24-Aug - 30-Aug	8,807	2,776	7,725	37,160	4,049	8,265	215	18	8,091	640	87	1,980
31-Aug - 06-Sep	7,770	2,732	3,021	13,508	2,907	9,238	159	39	2,187	63	8	1,318
07-Sep - 13-Sep	10,030	1,199	2,063	1,815	217	4,802	114		1,217	234	67	1,151
14-Sep - 20-Sep	6,589	503	887	74	406	3,149	60	9	590	51	83	1,112
21-Sep - 27-Sep	874	21	32		10	23						53
Total	85,512	27,298	85,951	238,225	35,856	32,056	2,558	232	163,179	2,390	281	10,963
Percent	4.1	1.3	4.1	11.4	1.7	1.5	0.1	0.0	7.8	0.1	0.0	0.5

Date	Catch by District (number of fish)											
	113	114	115	116	152	154	156	157	181	189	191	Total
20-Jun - 21-Jun	847	24		7								1,593
22-Jun - 28-Jun	25,536	556	1	307	7		1	99				36,325
29-Jun - 05-Jul	67,939	743	3	1,053		3	192	1,496		30		87,330
06-Jul - 12-Jul	222,354	5,892		6,441		3,578	187	3,801				303,955
13-Jul - 19-Jul	199,799	7,886	25	7,662	454	10,812		1,934	509	167		319,412
20-Jul - 26-Jul	135,384	8,399		11,387	5,917	2,274	8,276	130	4,040			290,241
27-Jul - 02-Aug	133,570	8,677		8,543	625	3,388	592		12,024	8,912		270,556
03-Aug - 09-Aug	81,385	5,511		3,991	610	923			14,673	7,877		191,014
10-Aug - 10-Aug	58,423	2,918		1,588		3,027		2,160	9,250	5,534		126,790
21-Aug - 23-Aug	33,732	4,250	7	1,486					1,974			58,889
24-Aug - 30-Aug	91,811	11,085		12,328		200	492	404	24,435	3,752		224,320
31-Aug - 06-Sep	32,049	5,609		9,869				240	13,537	6,826		111,080
07-Sep - 13-Sep	14,468	3,585	83	2,359		240	207	923	6,228	3,574		54,576
14-Sep - 20-Sep	881	1,029	2	655		37			1,201	815		18,133
21-Sep - 27-Sep	114	328									8	1,463
Total	1,098,292	66,492	121	67,676	7,613	24,482	9,947	11,187	87,871	37,487	8	2,095,677
Percent	52.4	3.2	0.0	3.2	0.4	1.2	0.5	0.5	4.2	1.8	0.0	100.0

Table 6. Troll harvest in weight of coho salmon in Southeast Alaska by district and statistical week, 1986.

	Weight by District (lb)											
Date	101	102	103	104	105	106	107	108	109	110	111	112
20-Jun - 21-Jun	28		201	1,378	459		41		1,852	9		44
22-Jun - 28-Jun	1,367	2,961	7,054	21,695	3,917	160	352		16,167	193	28	213
29-Jun - 05-Jul	8,488	7,323	12,067	30,982	3,760	549	788		26,621	249		909
06-Jul - 12-Jul	35,861	31,548	29,541	68,255	8,060	2,787	940		201,798	4,530		3,028
13-Jul - 19-Jul	40,877	33,944	70,692	187,946	11,144	5,349	418	807	230,444	3,998		437
20-Jul - 26-Jul	28,611	14,150	95,189	389,487	56,765	2,034	1,964		168,223	317		822
27-Jul - 02-Aug	46,139	12,189	120,237	204,857	57,580	7,615	5,809	256	176,370	127	53	9,744
03-Aug - 09-Aug	90,731	14,623	90,549	162,796	30,857	5,624	1,195		118,809	58		12,464
10-Aug - 10-Aug	59,603	9,688	28,377	134,473	20,275	7,604	347		39,651	32	252	2,611
21-Aug - 23-Aug	2,256	2,190	20,411	71,221	1,481	12,836	720		17,851	429		8,779
24-Aug - 30-Aug	58,600	21,759	59,401	308,222	32,961	68,630	1,688	143	61,503	5,513	735	15,008
31-Aug - 06-Sep	58,036	24,448	22,899	114,630	22,854	79,187	1,402	293	16,975	486	58	9,998
07-Sep - 13-Sep	72,318	10,417	16,198	15,935	2,050	42,470	903		8,957	1,989	499	8,411
14-Sep - 20-Sep	50,144	4,399	7,131	691	3,721	28,845	518	72	4,278	352	740	8,503
21-Sep - 27-Sep	8,111	226	231		93	202						480
Total-lb	561,170	189,865	580,178	1,712,568	255,977	263,892	17,085	1,571	1,089,499	18,282	2,365	81,451
kg	254,545	86,123	263,167	776,816	116,111	119,701	7,750	713	494,194	8,293	1,073	36,946

	Weight by District (lb)											
Date	113	114	115	116	152	154	156	157	181	189	191	Total
20-Jun - 21-Jun	5,102	143		39								9,296
22-Jun - 28-Jun	160,480	3,067	6	1,748	42		9	520				219,979
29-Jun - 05-Jul	429,372	4,283	25	6,375		23	1,348	9,500		178		542,840
06-Jul - 12-Jul	1,423,275	38,462		41,229		23,561	1,134	23,509				1,937,518
13-Jul - 19-Jul	1,320,711	52,438	150	49,592	3,200	69,014		13,264	3,364	1,053		2,098,842
20-Jul - 26-Jul	954,351	60,602		82,414	40,199	15,430	59,028	987	30,966			2,001,539
27-Jul - 02-Aug	956,597	62,445		63,864	4,112	23,547	4,417		90,189	65,314		1,911,461
03-Aug - 09-Aug	601,934	41,364		28,316	4,714	6,516			114,548	62,726		1,387,824
10-Aug - 10-Aug	438,675	22,882		10,908		20,766		17,047	70,165	42,487		925,843
21-Aug - 23-Aug	288,981	34,041	59	11,716					15,998			488,969
24-Aug - 30-Aug	804,630	93,499		102,992		1,881	3,933	3,511	208,342	32,089		1,885,040
31-Aug - 06-Sep	302,465	50,956		84,891				2,138	113,990	57,507		963,213
07-Sep - 13-Sep	134,120	32,498	766	21,812		2,377	1,981	8,075	52,431	30,499		464,706
14-Sep - 20-Sep	7,878	9,757	16	6,208		387			9,524	6,134		149,298
21-Sep - 27-Sep	942	2,730									61	13,076
Total-lb	7,829,513	509,167	1,022	512,104	52,267	163,502	71,850	78,551	709,517	297,987	61	14,999,444
kg	3,551,444	230,957	464	232,289	23,709	74,164	32,591	35,631	321,835	135,166	28	6,803,704

Table 7. Average weight of the troll harvest of coho salmon in Southeast Alaska by district and statistical week, 1986.

	Average Weight by District (lb)											
Date	101	102	103	104	105	106	107	108	109	110	111	112
20-Jun - 21-Jun	5.6		4.6	5.5	4.8		4.1		6.1	9.0		7.3
22-Jun - 28-Jun	6.3	6.1	5.3	5.4	4.9	4.2	4.8		5.7	5.2	5.6	6.1
29-Jun - 05-Jul	5.5	5.4	5.3	5.8	6.4	4.9	4.7		6.2	5.8		6.1
06-Jul - 12-Jul	5.6	6.2	5.9	6.3	6.1	5.6	5.0		6.4	8.2		6.6
13-Jul - 19-Jul	6.2	6.4	6.5	6.5	8.0	6.3	5.7	6.1	6.5	6.3		7.0
20-Jul - 26-Jul	6.2	6.9	6.4	6.7	6.9	5.3			6.5	6.6		7.4
27-Jul - 02-Aug	6.2	6.2	6.7	7.1	6.7	6.4	7.3	7.8	6.7	7.1		7.2
03-Aug - 09-Aug	6.2	6.6	7.0	7.3	7.1	6.6	6.6		7.0	11.6		7.7
10-Aug - 10-Aug	6.1	7.5	6.8	7.1	7.4	7.3	5.9		7.0	8.0	10.5	7.5
21-Aug - 23-Aug	6.7	7.8	7.3	8.3	8.4	7.9	7.4		7.7	8.3		7.3
24-Aug - 30-Aug	6.7	7.8	7.7	8.3	8.1	8.3	7.9		7.6	8.6	8.4	7.6
31-Aug - 06-Sep	7.5	8.9	7.6	8.5	7.9	8.6	8.8	7.5	7.8	7.7	7.3	7.6
07-Sep - 13-Sep	7.2	8.7	7.9	8.8	9.4	8.8	7.9		7.4	8.5	7.4	7.3
14-Sep - 20-Sep	7.6	8.7	8.0	9.3	9.2	9.2	8.6	8.0	7.3	6.9	8.9	7.6
21-Sep - 27-Sep	9.3	10.8	7.2		9.3	8.8						9.1
lb	6.6	7.0	6.8	7.2	7.1	8.2	6.7	6.8	6.7	7.6	8.4	7.4
kg	3.0	3.2	3.1	3.3	3.3	3.8	3.1	3.1	3.1	3.5	3.9	3.4

	Average Weight by District (lb)											
Date	113	114	115	116	152	154	156	157	181	189	191	Total
20-Jun - 21-Jun	6.0	6.0		5.6								5.8
22-Jun - 28-Jun	6.3	5.5	6.0	5.7	6.0		9.0	5.3				6.1
29-Jun - 05-Jul	6.3	5.8	8.3	6.1		7.7	7.0	6.4		5.9		6.2
06-Jul - 12-Jul	6.4	6.5		6.4		6.6	6.1	6.2				6.4
13-Jul - 19-Jul	6.6	6.6	6.0	6.5	7.0	6.4		6.9	6.6			6.6
20-Jul - 26-Jul	7.0	7.2		7.2	6.8	6.8	7.1	7.6	7.7			6.9
27-Jul - 02-Aug	7.2	7.2		7.5	6.6	7.0	7.5		7.5	7.3		7.1
03-Aug - 09-Aug	7.4	7.5		7.1		7.1			7.8	8.0		7.3
10-Aug - 10-Aug	7.5	7.8		6.9		6.9		7.9	7.6	7.7		7.3
21-Aug - 23-Aug	8.6	8.0	8.4	7.9					8.1			8.3
24-Aug - 30-Aug	8.8	8.4		8.4		9.4	8.0		8.5	8.6		8.4
31-Aug - 06-Sep	9.4	9.1		8.6				8.9	8.4	8.4		8.7
07-Sep - 13-Sep	9.3	9.1	9.2	9.2		9.9	9.6	8.7	8.4	8.5		8.5
14-Sep - 20-Sep	8.9	9.5	8.0	9.5		10.5			7.9	7.5		8.2
21-Sep - 27-Sep	8.3	8.3									7.6	8.9
lb	7.1	7.7	8.4	7.6	6.9	6.7	7.2	7.0	8.1	7.9	7.6	7.2
kg	3.3	3.5	3.9	3.5	3.2	3.1	3.3	3.2	3.7	3.6	3.5	3.3

Table 8. Purse seine harvest of coho salmon in Southeast Alaska in numbers, by district and statistical week, 1986.

Week	Date	Catch by District (numbers of fish) 101	102	103	104	105	106
27	29-Jun - 05-Jul						
28	06-Jul - 12-Jul	1,406			7,441		
29	13-Jul - 19-Jul	1,721	1,345		11,265		
30	20-Jul - 26-Jul	3,416	3,201		30,882		
31	27-Jul - 02-Aug	7,577	5,397		43,637		
32	03-Aug - 09-Aug	8,908	8,379	420	57,471	101	
33	10-Aug - 16-Aug	13,045	11,354	10,447	33,477	574	2,347
34	17-Aug - 23-Aug	20,534	2,545	18,298	30,999		
35	24-Aug - 30-Aug	33,921	16,764	25,942	44,224	433	2,666
36	31-Aug - 06-Sep	40,956	10,362	6,387	13,857		
37	07-Sep - 13-Sep	578		5,585			
38	14-Sep - 20-Sep	9,913	1,306	4,329			
39	21-Sep - 27-Sep	5,968	129	3,556			
40	28-Sep - 04-Oct	4,618	1,109	539			
41	05-Oct - 11-Oct		43				
	Total	152,561	61,934	75,503	273,253	1,108	5,013
	Percent	25.9	10.5	12.8	46.4	0.2	0.9

Week	Date	Catch by District (numbers of fish) 107	109	112	113	114	Total
27	29-Jun - 05-Jul			33			33
28	06-Jul - 12-Jul			454		58	9,359
29	13-Jul - 19-Jul			948		62	15,341
30	20-Jul - 26-Jul			1,145	182[a]		38,826
31	27-Jul - 02-Aug			1,468	38		58,117
32	03-Aug - 09-Aug		1,945	1,421	239		78,884
33	10-Aug - 16-Aug	1,416	1,083	3,032	102		76,877
34	17-Aug - 23-Aug				136		72,512
35	24-Aug - 30-Aug		4,770	167	91	429	129,407
36	31-Aug - 06-Sep						71,562
37	07-Sep - 13-Sep						6,163
38	14-Sep - 20-Sep						15,548
39	21-Sep - 27-Sep						9,653
40	28-Sep - 04-Oct					3	6,269
41	05-Oct - 11-Oct						43
	Total	1,416	7,798	8,668	788	552	588,594
	Percent	0.2	1.3	1.5	0.1	0.1	100.0

[a] Includes 20 fish from week 29 when fishery was closed.

Table 9. Purse seine harvest of coho salmon in Southeast Alaska on weight by district and statistical week, 1986.

Week	Date	Weight by District (lb) 101	102	103	104	105	106
27	29-Jun - 05-Jul						
28	06-Jul - 12-Jul	8,954			45,157		
29	13-Jul - 19-Jul	10,111	9,285		69,245		
30	20-Jul - 26-Jul	20,508	20,066		197,869		
31	27-Jul - 02-Aug	45,824	33,204		299,101		
32	03-Aug - 09-Aug	59,439	55,967	2,516	409,334	637	
33	10-Aug - 16-Aug	93,490	78,565	77,821	255,369	4,239	15,302
34	17-Aug - 23-Aug	146,799	18,020	137,500	250,668		
35	24-Aug - 30-Aug	271,078	119,794	204,765	357,328	2,881	18,414
36	31-Aug - 06-Sep	327,200	77,274	51,281	110,375		
37	07-Sep - 13-Sep	5,765		48,054			
38	14-Sep - 20-Sep	91,445	10,994	36,877			
39	21-Sep - 27-Sep	59,933	1,099	31,444			
40	28-Sep - 04-Oct	52,224	9,918	4,913			
41	05-Oct - 11-Oct		453				
	Total-lb	1,192,770	434,639	595,171	1,994,446	7,757	33,716
	kg	541,037	197,151	269,968	904,675	3,519	15,294

Week	Date	Weight by District (lb) 107	109	112	113	114	Total
27	29-Jun - 05-Jul			194			194
28	06-Jul - 12-Jul			2,874		357	57,342
29	13-Jul - 19-Jul			6,669		372	95,682
30	20-Jul - 26-Jul			7,692	1,244[a]		247,379
31	27-Jul - 02-Aug			9,674	279		388,082
32	03-Aug - 09-Aug		12,123	9,487	1,634		551,137
33	10-Aug - 16-Aug	9,358	7,181	21,227	672		563,224
34	17-Aug - 23-Aug				1,032		554,019
35	24-Aug - 30-Aug		36,219	1,240	628	3,306	1,015,653
36	31-Aug - 06-Sep						566,130
37	07-Sep - 13-Sep						53,819
38	14-Sep - 20-Sep						139,316
39	21-Sep - 27-Sep						92,476
40	28-Sep - 04-Oct					30	67,085
41	05-Oct - 11-Oct						453
	Total-lb	9,358	55,523	59,057	5,489	4,065	4,391,991
	kg	4,245	25,185	26,788	2,490	1,844	1,992,194

[a] Includes 136 pounds from week 29 when fishery was closed.

Table 10. Average weight of the purse seine harvest of coho salmon in Southeast Alaska, by district and statistical week, 1986.

		Average Weight by District (lb)					
Week	Date	101	102	103	104	105	106
27	29-Jun - 05-Jul						
28	06-Jul - 12-Jul	6.4			6.1		
29	13-Jul - 19-Jul	5.9	6.9		6.1		
30	20-Jul - 26-Jul	6.0	6.3		6.4		
31	27-Jul - 02-Aug	6.0	6.2		6.9		
32	03-Aug - 09-Aug	6.7	6.7	6.0	7.1	6.3	
33	10-Aug - 16-Aug	7.2	6.9	7.4	7.6	7.4	
34	17-Aug - 23-Aug	7.1	7.1	7.5	8.1		
35	24-Aug - 30-Aug	8.0	7.1	7.9	8.1	6.7	6.9
36	31-Aug - 06-Sep	8.0	7.5	8.0	8.0		
37	07-Sep - 13-Sep	10.0		8.6			
38	14-Sep - 20-Sep	9.2	8.4	8.5			
39	21-Sep - 27-Sep	10.0	8.5	8.8			
40	28-Sep - 04-Oct	11.3	8.9	9.1			
41	05-Oct - 11-Oct		10.5				
	Total-lb	7.8	7.0	7.9	7.3	7.0	6.7
	kg	3.6	3.2	3.6	3.4	3.2	3.1

		Average Weight by District (lb)					
Week	Date	107	109	112	113	114	Total
27	29-Jun - 05-Jul			5.9			5.9
28	06-Jul - 12-Jul			6.3		6.2	6.1
29	13-Jul - 19-Jul			7.0		6.0	6.2
30	20-Jul - 26-Jul			6.7	6.8		6.4
31	27-Jul - 02-Aug			6.6	7.3		6.7
32	03-Aug - 09-Aug		6.2	6.7	6.8		7.0
33	10-Aug - 16-Aug	6.6	6.6	7.0	6.6		7.3
34	17-Aug - 23-Aug				7.6		7.6
35	24-Aug - 30-Aug		7.6	7.4	6.9	7.7	7.8
36	31-Aug - 06-Sep						7.9
37	07-Sep - 13-Sep						8.7
38	14-Sep - 20-Sep						9.0
39	21-Sep - 27-Sep						9.6
40	28-Sep - 04-Oct					10.0	10.7
41	05-Oct - 11-Oct						10.5
	Total-lb	6.6	7.1	6.8	7.0	7.4	7.5
	kg	3.0	3.3	3.1	3.2	3.4	3.4

Table 11. Gill net harvest of coho salmon in Southeastern Alaska by statistical week, weight, and average weight, 1986.

		Catch by District (numbers of fish)						
Week	Date	101	102	106	108	111	115	Total
25	15-Jun - 21-Jun	325		830	7		1	1,163
26	22-Jun - 28-Jun	851		1,448	2	5		2,306
27	29-Jun - 05-Jul	1,246		2,415		16	38	3,715
28	06-Jul - 12-Jul	1,570				170	26	1,766
29	13-Jul - 19-Jul	4,616		2,979		213	12	7,820
30	20-Jul - 26-Jul	3,945		5,108	36	478	5	9,572
31	27-Jul - 02-Aug	4,446		16,154	133	1,281	20	22,034
32	03-Aug - 09-Aug	5,707	5	15,198	271	1,512	492	23,185
33	10-Aug - 16-Aug	4,444	290	17,937	858	3,214	1,118	27,861
34	17-Aug - 23-Aug	9,001	9	23,772	2,620	2,190	6,000	43,592
35	24-Aug - 30-Aug	15,269		36,047	2,256	8,914	6,628	69,114
36	31-Aug - 06-Sep	16,488		44,334	3,061	4,961	15,317	84,161
37	07-Sep - 13-Sep	18,567		23,048	3,883	4,172	19,219	68,889
38	14-Sep - 20-Sep	19,321		14,204	754	3,285	18,951	56,515
39	21-Sep - 27-Sep	10,109		1,226	326		8,151	19,812
40	28-Sep - 04-Oct				111		5,488	5,599
41	05-Oct - 11-Oct				119		637	756
	Total	115,905	304	204,700	14,437	30,411	82,103	447,860
	Percent	25.9	0.1	45.7	3.2	6.8	18.3	100.0

		Weight by District (lb)						
Week	Date	101	102	106	108	111	115	Total
25	15-Jun - 21-Jun	1,751		4,634	39		7	6,431
26	22-Jun - 28-Jun	4,534		7,883	8	32		12,457
27	29-Jun - 05-Jul	6,999		13,432		103	298	20,832
28	06-Jul - 12-Jul	9,235				1,208	202	10,645
29	13-Jul - 19-Jul	28,249		17,227		1,365	102	46,943
30	20-Jul - 26-Jul	25,970		31,125	205	3,810	47	61,157
31	27-Jul - 02-Aug	30,882		115,683	977	10,022	150	157,714
32	03-Aug - 09-Aug	41,497	28	114,868	2,166	10,999	3,835	173,393
33	10-Aug - 16-Aug	33,561	2,186	137,916	6,444	26,318	8,941	215,366
34	17-Aug - 23-Aug	69,480	54	186,081	20,250	19,260	48,157	343,282
35	24-Aug - 30-Aug	128,527		329,688	19,182	86,083	59,933	623,413
36	31-Aug - 06-Sep	151,338		431,237	25,658	53,260	137,828	799,321
37	07-Sep - 13-Sep	178,754		231,600	36,542	46,172	185,004	678,072
38	14-Sep - 20-Sep	186,375		150,638	6,803	36,069	191,700	571,585
39	21-Sep - 27-Sep	101,140		13,472	3,592		85,065	203,269
40	28-Sep - 04-Oct				994		60,072	61,066
41	05-Oct - 11-Oct				1,190		6,780	7,970
	Total-lb	998,292	2,268	1,785,484	124,050	294,701	788,121	3,992,916
	kg	452,822	1,029	809,891	56,269	133,676	357,490	1,811,175

		Average Weight by District (lb)						
Week	Date	101	102	106	108	111	115	Total
25	15-Jun - 21-Jun	5.4		5.6	5.6		7.0	5.5
26	22-Jun - 28-Jun	5.3		5.4	4.0	6.4		5.4
27	29-Jun - 05-Jul	5.6		5.6		6.4	7.8	5.6
28	06-Jul - 12-Jul	5.9				7.1	7.8	6.0
29	13-Jul - 19-Jul	6.1		5.8		6.4	8.5	6.0
30	20-Jul - 26-Jul	6.6		6.1	5.7	8.0	9.4	6.4
31	27-Jul - 02-Aug	6.9		7.2	7.3	7.8	7.5	7.2
32	03-Aug - 09-Aug	7.3	5.6	7.6	8.0	7.3	7.8	7.5
33	10-Aug - 16-Aug	7.6	7.5	7.7	7.5	8.2	8.0	7.7
34	17-Aug - 23-Aug	7.7	6.0	7.8	7.7	8.8	8.0	7.9
35	24-Aug - 30-Aug	8.4		9.1	8.5	9.7	9.0	9.0
36	31-Aug - 06-Sep	9.2		9.7	8.4	10.7	9.0	9.5
37	07-Sep - 13-Sep	9.6		10.0	9.4	11.1	9.6	9.8
38	14-Sep - 20-Sep	9.6		10.6	9.0	11.0	10.1	10.1
39	21-Sep - 27-Sep	10.0		11.0	11.0		10.4	10.3
40	28-Sep - 04-Oct				9.0		10.9	10.9
41	05-Oct - 11-Oct				10.0		10.6	10.5
	Total-lb	8.6	7.5	8.7	8.6	9.7	9.6	8.9
	kg	3.9	3.4	4.0	3.9	4.4	4.4	4.1

Table 12. Trap harvest of coho salmon on the Annette Island Indian Reserve, Southeast Alaska, District 101-28, in numbers, weight, (pounds), and average weight, 1986.

Week	Date	Total Catch (Numbers)	Total Weight (lb)	Average Weight (lb)
28	06-Jul - 12-Jul	230	1,173	5.1
29	13-Jul - 29-Jul	243	1,174	4.8
30	20-Jul - 26-Jul	188	980	5.2
31	27-Jul - 02-Aug	97	565	5.8
32	03-Aug - 09 Aug	17	111	6.5
33	10-Aug - 16-Aug	70	441	6.3
34	17-Aug - 23-Aug	223	1,179	5.3
35	24-Aug - 30 Aug	207	1,783	8.6
36	31-Aug - 06 Sep	180	1,710	9.5
	Total-lb	1,455	9,116	6.3
			4,135kg	2.9kg

Table 13. Subsistence harvest of coho salmon by system in Southeast Alaska, 1986. Not all permits issued were returned, reported harvest may be less than actual harvest.

Stream Number	System	Reported Harvest
111-32-032	Taku River	35
112-12-035	Basket Bay	1
112-67-035	Salt Lake/Hasselborg	160
112-67-058	Salt Lake	25
115-32-032	Chilkat River	25
Total		246

Table 14. Canadian in-river harvest of coho salmon from the Taku and Stikine Rivers, 1986.

Date	Statistical Week	Taku River				Stikine River			
		Catch	Days Fished	Boats	Catch per Boat/Day	Catch	Days Fished	Boats	Catch per Boat/Day
29-Jun - 05-Jul	26	0	0	0	0.0	0	1	15	0.0
06-Jul - 12-Jul	27	0	1	7	0.0	0	2	19	0.0
13-Jul - 19-Jul	28	0	3	8	0.0	0	2	20	0.0
20-Jul - 26-Jul	29	18	3	10	0.6	0	1.5	20	0.0
27-Jul - 02-Aug	30	153	3	11	4.6	0	1	20	0.0
03-Aug - 09-Aug	31	308	2	10	15.4	13	2	19	0.3
10-Aug - 16-Aug	32	202	1	10	20.2	46	1	17	2.7
17-Aug - 23-Aug	33	158	1	8	19.8	217	1	15	14.5
24-Aug - 30-Aug	34	620	2	7	44.3	784	1	13	60.3
31-Aug - 06-Sep	35	324	1	2	162.0	1,218	1	13	93.7
Total		1,783	16	148	12.0	2,278	14	239	10

Table 15. Coho salmon age composition for years 1969, 1979, 1982, 1983, 1984, 1985, and 1986 for selected Southeast Alaska troll and gill net fisheries.

Gear	District	Year	Sample Size	Percent by Age Class 1.1	2.1	3.1	4.1	Mean Freshwater Age
Troll	104	1969	868	26.7	64.4	8.9		1.82
		1970	473	16.7	70.4	11.8	1.1	1.97
		1982[a]	160	59.4	40.0	0.6		1.41
		1983[a]	981	68.1	31.0	0.8	0.1	1.33
		1984[a]	1,698	65.8	33.9	0.3		1.35
		1985[a]	1,660	52.3	43.8	3.8	0.1	1.52
		1986[a]	1,199	57.8	35.2	3.3	0.5	1.49
Troll	114	1969	449	28.3	62.8	8.9		1.81
		1970	424	17.5	70.3	11.6	0.7	1.96
		1982	444	48.7	49.8	1.6		1.53
		1983	1,432	44.2	53.8	2.0		1.58
		1984	1,581	50.7	49.0	0.3		1.50
		1985	1,623	43.1	50.2	6.3	0.4	1.54
		1986	501	43.2	52.3	4.3	0.1	1.60
Gill net	108	1969	373	42.6	54.2	2.9	0.3	1.61
		1970	220	12.7	72.2	14.6		2.02
		1982	215	37.7	58.6	3.7		1.66
		1983	65	29.2	70.8			1.71
		1984	70	52.9	47.1			1.47
		1985	127	40.2	52.0	7.1	0.8	1.69
		1986	72	48.6	47.2	4.2		1.56
Gill net	111	1969	247	32.0	65.2	2.8		1.71
		1970	255	30.2	62.8	6.7	0.3	1.77
		1982	508	42.3	55.1	2.6		1.60
		1983	578	51.8	47.9	0.3		1.49
		1984	568	49.7	50.0	0.3		1.51
		1985	569	50.1	46.9	3.0		1.53
		1986	527	43.5	52.9	2.3		1.58

[a] Age composition for the Southern Outside area (Districts 103, 104 and 152) troll harvest.

Table 16. Age composition of the Southeast Alaska troll fishery harvest of coho salmon by area and period, 1986.

	Brood Year and Age Class							
	1983		1982		1981	1980	1979	
	1.1	2.0	1.2	2.1	3.1	4.1	5.1	Total
Northwest								
Statistical Weeks 25 - 29 (June 20 - July 19)								
Sample Number	401			199	33	11		644
Percent	62.3			30.9	5.1	1.7		100.0
Std. Error	1.9			1.8	0.9	0.5		
Number Caught	354,832			176,089	29,201	9,734		569,855
Statistical Weeks 30 - 31 (July 20 - August 2)								
Sample Number	380			250	39	2		671
Percent	56.6			37.3	5.8	0.3		100.0
Std. Error	1.9			1.9	0.9	0.2		
Number Caught	195,718			128,762	20,087	1,030		345,596
Statistical Weeks 32 - 33 (August 3 - 16)								
Sample Number	527			304	57	2		890
Percent	59.2			34.2	6.4	0.2		100.0
Std. Error	1.6			1.6	0.8	0.2		
Number Caught	116,805			67,379	12,634	443		197,260
Statistical Weeks 34 - 39 (August 17 - Sept. 27)								
Sample Number	498	1		429	32	2		962
Percent	51.8	0.1		44.6	3.3	0.2		100.0
Std. Error	1.6			1.6	0.6	0.1		
Number Caught	150,503	302		129,650	9,671	604		290,731
Combined Periods (Percentages are weighted by period catches)								
Sample Number	1,806	1		1,182	161	17		3,167
Percent	58.3	<0.1		35.8	5.1	0.8		100.0
Std. Error	1.0			1.0	0.4	0.2		
Number Caught	817,857	302		501,879	71,592	11,811		1,403,442
Southwest								
Statistical Weeks 25 - 30 (June 20 - July 26)								
Sample Number	312			211	46	3		572
Percent	54.5			36.9	8.0	0.5		100.0
Std. Error	2.1			2.0	1.1	0.3		
Number Caught	80,598			54,507	11,883	775		147,763
Statistical Weeks 31 - 39 (July 27 - Sept. 20)								
Sample Number	379			221	21	6		627
Percent	60.4			35.2	3.3	1.0		100.0
Std. Error	2.0			1.9	0.7	0.4		
Number Caught	111,237			64,864	6,164	1,761		184,026
Combined Periods (Percentages are weighted by period catches)								
Sample Number	691			432	67	9		1,199
Percent	57.8			36.0	5.4	0.8		100.0
Std. Error	1.4			1.4	0.6	0.3		
Number Caught	191,835			119,371	18,047	2,536		331,789

-Continued-

Table 16. (page 2 of 2)

	Brood Year and Age Class							
	1983		1982		1981	1980	1979	
	1.1	2.0	1.2	2.1	3.1	4.1	5.1	Total
Northeast								
Statistical Weeks 25 - 39	(June 20 - Sept. 20)							
Sample Number	363		1	228	29	6	1	628
Percent	57.8		0.2	36.3	4.6	1.0	0.2	100.0
Std. Error	2.0			1.9	0.8	0.4		
Number Caught	102,272		282	64,237	8,171	1,690	282	176,934
Southeast								
Statistical Weeks 25 - 32	(June 20 - August 9)							
Sample Number	435			231	31	2	2	701
Percent	62.1			33.0	4.4	0.3	0.3	100.0
Std. Error	1.8			1.8	0.8	0.2	0.2	
Number Caught	56,593			30,053	4,033	260	260	91,199
Statistical Weeks 33 - 39	(August 10 - Sept. 20)							
Sample Number	403			250	35	7		695
Percent	58.0			36.0	5.0	1.0		100.0
Std. Error	1.9			1.8	0.8	0.4		
Number Caught	53,528			33,206	4,649	930		92,313
Combined Periods (Percentages are weighted by period catches)								
Sample Number	838			481	66	9	2	1,396
Percent	60.0			34.5	4.7	0.6	0.1	100.0
Std. Error	1.3			1.3	0.6	0.2	0.1	
Number Caught	110,121			63,259	8,682	1,190	260	183,512

Table 17. Average length (mm) and standard error of coho salmon caught in the Southeast Alaska troll fishery by area, statistical week, and age class, 1986.

	Brood Year and Age Class					
	1983	1982	1982	1981	1980	1979
	1.1	1.2	2.1	3.1	4.1	5.1
Northwest						
Statistical Weeks 25 - 29			(June 20 - July 19)			
Avg. Length	615.8		621.4	606.1	665.0	
Std. Error	3.7		4.9	11.7	16.1	
Sample Size	128		76	13	3	
Statistical Weeks 30 - 31			(July 20 - August 2)			
Avg. Length	622.5		619.8	643.2		
Std. Error	3.9		4.4	9.2		
Sample Size	171		124	24		
Statistical Weeks 32 - 33			(August 3 - 16)			
Avg. Length	634.1		638.9	658.6	655.0	
Std. Error	3.9		4.0	6.9	25.0	
Sample Size	194		147	21	2	
Statistical Weeks 34 - 39			(August 17 - Sept. 20)			
Avg. Length	678.0		657.8	654.4	667.5	
Std. Error	2.9		3.4	31.4	7.5	
Sample Size	216		191	9	2	
Combined Periods (Unweighted)						
Avg. Length	641.4		638.7	642.3	662.9	
Std. Error	2.0		2.1	6.4	8.6	
Sample Size	709		538	67	7	
Southwest						
Statistical Weeks 25 - 30			(June 20 - July 26)			
Avg. Length	595.4		590.0	631.0		
Std. Error	9.6		8.6	15.4		
Sample Size	35		22	5		

-Continued-

Table 17. (page 2 of 2)

	Brood Year and Age Class					
	1983	1982	1982	1981	1980	1979
	1.1	1.2	2.1	3.1	4.1	5.1
Southwest						
Statistical Weeks 31 - 39			(July 27 - Sept. 20)			
Avg. Length	637.5		642.1	642.5		
Std. Error	9.3		8.6	7.5		
Sample Size	28		17	2		
Combined Periods (Unweighted)						
Avg. Length	614.1		612.7	634.3		
Std. Error	7.2		7.4	11.0		
Sample Size	63		39	7		
Northeast						
Statistical Weeks 25 - 39			(June 20 - Sept. 20)			
Avg. Length	601.9	745.0	602.3	622.4	650.0	635.0
Std. Error	2.6		3.6	7.6	6.8	
Sample Size	332	1	199	25	6	1
Southeast						
Statistical Weeks 25 - 32			(June 20 - August 9)			
Avg. Length	591.0		598.2	622.5		
Std. Error	5.9		5.9	14.3		
Sample Size	75		48	6		
Statistical Weeks 33 - 39			(August 10 - Sept. 20)			
Avg. Length	633.5		631.0	622.7	688.3	
Std. Error	5.0		5.9	12.2	33.3	
Sample Size	142		111	13	3	
Combined Periods (Unweighted)						
Avg. Length	618.8		621.1	622.6	688.3	
Std. Error	4.1		4.6	9.3	33.3	
Sample Size	217		159	19	3	

Table 18. Age composition of the Southeast Alaska purse seine harvest of coho salmon by district, 1986.

	Brood Year and Age Class							
	1984	1983	1982		1981	1980		
	1.0	1.1	2.1	3.0	3.1	4.1	3.2	Total
District 101 - Statistical Weeks 28 - 35 (July 6 - August 30)								
Sample Number	119	93			20			232
Percent	51.3	40.1			8.6			100.0
Std. Error	3.3	3.2			1.8			
Number	78,253	61,156			13,152			152,561
District 102 - Statistical Weeks 31 - 36 (July 27 - Sept. 6)								
Sample Number	38	43			6			87
Percent	43.7	49.4			6.9			100.0
Std. Error	5.3	5.4			2.7			
Number	27,052	30,611			4,271			61,934
District 103 - Statistical Weeks 33 - 34 (August 10 - 23)								
Sample Number	23	46			10			79
Percent	29.1	58.2			12.7			100.0
Std. Error	5.1	5.6			3.8			
Number	21,982	43,964			9,557			75,503
District 104 - Statistical Weeks 29 - 35 (July 13 - August 30)								
Sample Number	126	110			16		1	253
Percent	49.8	43.5			6.3		0.4	100.0
Std. Error	3.1	3.1			1.5			
Number	136,086	118,806			17,281		1,080	273,253
District 107 - Statistical Week 33 (August 10 - 16)								
Sample Number	41	41			14	4		100
Percent	41.0	41.0			14.0	4.0		100.0
Std. Error	4.9	4.9			3.5	2.0		
Number	581	581			198	57		1,416
District 109 - Statistical Weeks 32 - 35 (August 3 - 30)								
Sample Number	34	40		1	13	1		89
Percent	38.2	44.9		1.1	14.6	1.1		100.0
Std. Error	5.2	5.3			3.8			
Number	2,979	3,505		88	1,139	88		7,798
District 112 - Statistical Weeks 31 - 33 (July 27 - August 16)								
Sample Number	46	39			3			88
Percent	52.3	44.3			3.4			100.0
Std. Error	5.4	5.3			1.9			
Number	4,531	3,842			296			8,668

-Continued-

Table 18. (page 2 of 2)

	Brood Year and Age Class							
	1984	1983	1982		1981	1980		
	1.0	1.1	2.1	3.0	3.1	4.1	3.2	Total
District 113 - Statistical Weeks 31 - 35 (July 27 - August 30)								
Sample Number	1	26	26		19	5		77
Percent	1.3	33.8	33.8		24.7	6.5		100.0
Std. Error		5.4	5.4		4.9	2.8		
Number	10	266	266		194	51		788
District 114 - Statistical Weeks 35 - 36 (August 24 - Sept. 6)								
Sample Number		8	32		5	1		46
Percent		17.4	69.6		10.9	2.2		100.0
Std. Error		5.7	6.9		4.6			
Number		75	298		47	9		429

Table 19. Average length (mm) and standard error of coho salmon caught in the Southeast Alaska purse seine fishery by district and age class, 1986.

	Brood Year and Age Class					
	1984	1983	1982		1981	1980
	1.0	1.1	2.1	3.0	3.1	4.1
District 101 - Statistical Weeks			28 - 35	(July 6 - August 30)		
Avg. Length		586.8	621.6		675.0	
Std. Error		16.9	12.1			
Sample Size		11	16		1	
District 102 - Statistical Weeks			31 - 36	(July 27 - Sept. 6)		
Avg. Length		627.9	642.5			
Std. Error		18.1	7.5			
Sample Size		7	2			
District 103 - Statistical Weeks			33 - 34	(August 10 - 16)		
Avg. Length		590.5	597.8		638.3	
Std. Error		21.7	14.7		18.9	
Sample Size		10	18		6	
District 104 - Statistical Weeks			29 - 35	(July 13 - August 30)		
Avg. Length		589.4	620.3		605.0	
Std. Error		12.2	9.1		55.0	
Sample Size		33	20		2	
District 107 - Statistical Week			33	(August 10 - 16)		
Avg. Length		575.7	572.8		611.4	636.3
Std. Error		12.0	11.1		15.8	38.1
Sample Size		41	41		14	4
District 109 - Statistical Weeks			32 - 35	(August 3 - 30)		
Avg. Length		583.2	579.1		620.0	
Std. Error		17.1	16.3		13.8	
Sample Size		17	16		9	
District 112 - Statistical Weeks			31 - 33	(July 27 - August 16)		
Avg. Length		582.7	611.6		555.0	
Std. Error		9.5	9.0			
Sample Size		33	24		1	
District 113 - Statistical Weeks			31 - 35	(July 27 - August 30)		
Avg. Length	340.0	581.3	620.0		662.5	
Std. Error		42.8	10.1		36.6	
Sample Size	1	4	9		8	
District 114 - Statistical Week			35	(August 24 - 30)		
Avg. Length		586.7	644.4		587.5	
Std. Error		23.3	11.0		57.5	
Sample Size		3	18		2	

Table 20. Age composition of the Southeast Alaska gill net fishery by district, 1986.

	Brood Year and Age Class						
	1983	1982		1981		1980	
	1.1	1.2	2.1	2.2	3.1	4.1	Total
District 101 - Statistical Weeks 27 - 38 (June 29 - Sept. 20)							
Sample Number	163		142		16	3	324
Percent	50.3		43.8		4.9	0.9	100.0
Std. Error	2.8		2.8		1.2	0.5	
Number	58,310		50,798		5,724	1,073	115,905
District 106 - Statistical Weeks 26 - 39 (June 22 - Sept. 27)							
Sample Number	228		204		42	7	481
Percent	47.4		47.2		8.7	1.5	100.0
Std. Error	2.3		5.9		1.3	1.2	
Number	97,030		86,817		17,874	2,979	204,700
District 108 - Statistical Week 35 (August 24 - 30)							
Sample Number	35		34		3		72
Percent	48.6		47.2		4.2		100.0
Std. Error	5.9		5.9		2.4		
Number	7,018		6,817		602		14,437
District 111 - Statistical Weeks 29 - 38 (July 13 - Sept. 20)							
Sample Number	229	1	279	6	12		592
Percent	43.5	0.2	52.9	1.1	3.0		100.0
Std. Error	2.2		2.2	0.5	0.9		
Number	13,215	58	16,100	346	692		30,411
District 115 - Statistical Week 32 - 38 (August 3 - Sept. 20)							
Sample Number	159		196		11		366
Percent	43.4		53.6		3.0		100.0
Std. Error	2.6		2.6		0.9		
Number	35,668		43,968		2,468		82,103

Table 21. Average length (mm) and standard error of coho salmon caught in the Southeast Alaska gill net fishery by district and age class, 1986.

	Brood Year and Age Class					
	1983	1982		1981		1980
	1.1	1.2	2.1	2.2	3.1	4.1
District 101 - Statistical Weeks 27 - 38 (June 29 - Sept. 20)						
Avg. Length	621.7		642.2		605.0	
Std. Error	10.7		9.9			
Sample Size	18		16		1	
District 106 - Statistical Weeks 26 - 39 (June 22 - Sept. 27)						
Avg. Length	607.7		614.1		625.2	595.0
Std. Error	4.7		7.9		5.8	18.0
Sample Size	202		169		32	5
District 108 - Statistical Week 35 (August 24 - 30)						
Avg. Length	615.1		631.8		645.0	
Std. Error	5.2		7.0		30.6	
Sample Size	35		34		3	
District 111 - Statistical Weeks 29 - 38 (July 13 - Sept. 20)						
Avg. Length	633.2	650.0	660.9	657.5	638.3	
Std. Error	5.6		4.2	22.4	16.4	
Sample Size	111	1	138	6	6	
District 115 - Statistical Week 32 - 38 (August 3 - Sept. 20)						
Avg. Length	647.8		635.3		675.0	
Std. Error	8.9		11.7			
Sample Size	47		48		1	

Table 22. Age composition and average length (mm) of coho salmon caught in the Canadian gill net fishery on the Taku River and the test fishery on the Stikine River, 1986.

	Brood Year and Age Class			
	1983	1982	1981	
	1.1	2.1	3.1	Total
Taku River - Statistical Weeks	34	- 35		(August 17 - 30)
Male				
Sample Size	32	34	1	67
Percent	32.3	34.3	1.0	67.7
Std. Error	4.7	4.8		4.7
Number	576	612	18	1,207
Ave. Length	595.3	600.3	680.0	
Std. Error	17.7	16.7		
Sample Size	32	34	1	
Female				
Sample Size	17	15		32
Percent	17.2	15.2		32.3
Std. Error	3.8	3.6		4.7
Number	306	270		576
Ave. Length	615.9	623.3		
Std. Error	14.9	14.2		
Sample Size	17	15		
All Fish				
Sample Size	49	49	1	99
Percent	49.5	49.5	1.0	100.0
Std. Error	14.9	14.2		
Number	882	882	18	1,783
Ave. Length	602.4	607.3	680.0	
Std. Error	12.6	12.4		
Sample Size	49	49	1	

-Continued-

Table 22. (page 2 of 2)

	Brood Year and Age Class			
	1983	1982	1981	
	1.1	2.1	3.1	Total
Sitkine River - Test				
Male				
Sample Size	81	22		103
Percent	44.3	12.0		56.3
Std. Error				
Ave. Length	519.3	569.7		
Std. Dev.	66.7	70.8		
Std. Error	2.9	3.0		
Sample Size	81	22		
Female				
Sample Size	61	19		80
Percent	33.3	10.4		43.7
Std. Error				
Ave. Length	616.9	632.3		
Std. Dev.	49.9	61.4		
Std Error	2.0	2.4		
Sample Size	61	19		
All fish				
Sample Size	142	41		183
Percent	77.6	22.4		

Table 23. Peak escapement estimates for coho salmon in Southeast Alaska, 1986.

Stream Number	Stream Name	Count	Method[a]	Date[b]	Organization
101-11-079	Fillmore Creek - Hugh Smith Lake	1,764[c]	(W)	10/28	ADF&G[d]
101-41-025	Lucky Cove	50	(F)	8/12	ADF&G
101-45-038	Salt Chuck - George Inlet	103	(A)	7/18	ADF&G
101-47-015	Ward Creek	865	(F)	10/30	ADF&G
101-80-052	Margarita Creek	1,200	(F)	10/25	ADF&G
101-80-068	Wolverine Creek	27	(F)	9/23	ADF&G
102-40-060	Lagoon Creek	34	(F)	9/20	ADF&G
102-60-038	Dog Salmon Creek	30	(F)	9/19	ADF&G
102-60-082	Harris River	453	(F)	9/18	ADF&G
102-60-087	Karta River	304	(F)	9/18	ADF&G
102-70-058	Thorne River	66	(F)	9/17	ADF&G
103-40-013	Soda Creek	450	(F)	9/11	ADF&G
103-60-031	Blackbear Creek - Big Salt Lake	57	(F)	9/09	ADF&G
103-90-030	Staney Creek	1,114	(F)	9/06	ADF&G
103-90-042	Shaheen Creek	202	(F)	9/07	ADF&G
106-22-006	Flat Creek - Mossman Inlet	94	(F)	9/17	ADF&G
106-22-008	Mossman Creek - East Head	107	(F)	9/17	ADF&G
106-30-072	Mable Creek - Whale Pass	36	(F)	9/18	ADF&G
106-30-080	108 Creek - Whale Pass	400[e]	(W)	9/01	ADF&G
106-30-085	Exchange Cove Creek	72	(F)	9/19	ADF&G
106-41-010	Salmon Bay Creek	1,063	(W)	10/22	ADF&G
106-44-031	Crystal Creek	3,309[f]	(W)	11/06	ADF&G
107-10-030	Black Bear Creek	85	(F)	9/16	ADF&G
107-40-049	Harding River	50	(B)	8/20	ADF&G
108-40-010	North Arm Creek	95	(H)	10/31	ADF&G
108-40-013	Shakes Slough	55	(H)	10/31	ADF&G
108-40-014	Ketili Creek - Barnes	400	(H)	10/31	ADF&G
108-40-016	Kikahe River	290	(H)	10/31	ADF&G
108-40-018	Shuktusa Branch	70	(H)	10/31	ADF&G
108-40-020	Andrews Creek	320	(H)	10/31	ADF&G
108-40-13A	West of Hot Springs	110	(H)	10/31	ADF&G
109-10-006	Sashin Creek	47	(W)	9/28	ADF&G
109-20-013	Falls Creek - Baranof Island	76	(W)	10/14	USFS [g]
111-32-038	Sockeye Creek - Taku River	183	(H)	10/31	ADF&G
111-32-046	Moose Creek - Taku River	50	(H)	10/31	ADF&G
111-32-056	Fish Creek - Taku River	65	(H)	10/31	ADF&G
111-32-066	Yehring Creek - Taku River	2,099	(W)	10/26	ADF&G

-Continued-

Table 23. (page 2 of 2)

Stream Number	Stream Name	Count	Method[a]	Date[b]	Organization
111-32-068	Johnson Creek - Taku River	70	(A)	9/17	ADF&G
111-32-203	Wilms Creek - Taku - Canada	1,330	(H)	10/31	ADF&G
111-32-255	Tatsamenie River - Taku - Canada	80	(W)	10/01	CDFO [h]
111-32-260	Hackett River - Taku - Canada	2,733	(W)	10/09	CDFO
111-32-270	Nahlin River - Taku - Canada	324[i]	(H)	9/18	ADF&G
111-32-275	Tseta Creek - Taku - Canada	96	(H)	9/19	ADF&G
111-32-280	Dudidontu River - Taku - Canada	798[j]	(H)	9/18	ADF&G
111-33-000	Snettisham Hatchery	1,096	(W)	12/05	ADF&G
111-35-007	Cresent Lake	54	(F)	10/10	ADF&G
111-50-010	Peterson Creek - Favor Cove	363	(F)	10/13	ADF&G
111-50-042	Auke Creek	540[k]	(W)	10/30	ADF&G
111-50-052	Montana Creek	60	(F)	10/20	ADF&G
111-50-056	Steep Creek	250	(F)	10/23	ADF&G
111-50-057	Mendenhall Ponds	52	(F)	10/30	ADF&G
111-50-062	Jordon Creek	163	(F)	10/13	ADF&G
111-50-075	Peterson Creek - Douglas Island	44	(F)	10/14	ADF&G
112-12-025	Kook Lake Outlet	53	(F)	9/03	ADF&G
112-67-035	Hasselborg River	1,110	(A)	8/26	ADF&G
112-80-028	Chaik Bay Creek	50	(A)	10/30	ADF&G
113-41-005	Stream on Kruzoff Island	245	(A)	9/26	USFS
113-41-015	Starrigaven Creek	57	(F)	10/10	ADF&G
113-41-019	Indian River - Sitka	93	(F)	10/27	SJC [l]
113-41-032	Salmon Lake Stream - Baranof	837[m]	(W)	10/15	ADF&G
113-41-043	Redoubt Lake	801	(W)	8/28	ADF&G
113-43-002	Nakwasina River	275	(F)	10/28	ADF&G
113-73-003	Ford Arm Lake	1,556	(W)	10/27	ADF&G
113-81-011	Black River	312	(H)	10/10	ADF&G
115-20-010	Berners River	1,800	(A)	9/28	ADF&G
115-32-034	Chilkat Lake - East Side	635	(W)	11/15	ADF&G

[a] Abbreviations for types of surveys are as follows: (A) aerial-fixed wing, (B) boat, (F) foot, (H) helicopter, and (W) weir. Only those surveys in which more than 25 coho salmon were counted, includes jacks.
[b] Date of survey or last day of weir operation.
[c] Mark recapture estimate, 95% C.I. = 1,335 to 2,193.
[d] Alaska Department of Fish and Game.
[e] Weir pulled before coho migration completed.
[f] Hatchery escapement.
[g] United States Forest Service.
[h] Canadian Department of Fisheries and Oceans.
[i] Includes 6 coho in Kawdy Creek.
[j] Includes 24 coho in Kukuchuya Creek.
[k] Count includes 453 wild adults and 97 wild jacks.
[l] Sheldon Jackson College.
[m] Mark recapture estimate.

Table 24. Coho salmon escapements to index systems in Southeast Alaska, 1977 through 1986.

System	1986 Escapement	Past Escapements	
		Year	No. of Non-Jacks
Auke Lake	540	1977	908
		1978	683
		1979	596
		1980	698
		1981	644
		1982	447
		1983	694
		1984	651
		1985	942
		Average	696
Berners River	1,752	1974	4,121
		1975	4,342
		1976	1,820
		1978	3,108
		1979	3,460
		1982	7,505
		1983	9,840
		1984	2,825
		1985	6,179
		Average	4,802
Ford Arm Lake	1,556	1982	2,662
		1983	1,944
		1985	2,325
		Average	2,310
Salmon Lake	837	1983	403
		1984	1,514
		1985	1,388
		Average	1,102
Hugh Smith Lake	903	1982	2,144
		1983	1,490
		1984	1,367
		1985	903
		Average	1,667

Table 25. Run timing of coho salmon through weirs in Southeast Alaska, 1986.

System	Dates of Operation	Cummulative Percent Past Weir a/			Mean Date b/	Variance c/
		10%	50%	90%		
Hugh Smith Lake	16 Jun - 28 Oct	26 Sep	06 Oct	18 Oct	05 Oct	123.2
Hugh Smith Lake Jacks	16 Jun - 28 Oct	23 Sep	26 Sep	01 Oct	27 Sep	12.9
Salmon Bay - West d/	21 Jun - 02 Oct	01 Sep	22 Sep	23 Sep	20 Sep	59.4
Salmon Bay Jacks - West d/	21 Jun - 02 Oct	31 Aug	21 Sep	23 Sep	15 Sep	129.7
Salmon Bay - East	21 Jun - 14 Oct	07 Oct	23 Sep	29 Sep	22 Sep	79.7
Salmon Bay Jacks - East	21 Jun - 14 Oct	02 Sep	23 Sep	27 Sep	20 Sep	93.3
Salmon Bay - Combined	21 Jun - 14 Oct	06 Sep	23 Sep	29 Sep	22 Sep	78.3
Salmon Bay Jacks - Combined	21 Jun - 14 Oct	01 Sep	23 Sep	25 Sep	19 Sep	105.0
Falls Lake	19 Aug - 13 Oct	27 Aug	07 Sep	24 Sep	11 Sep	165.8
Little Tatsamenie Lake - Canada	03 Aug - 01 Oct	01 Sep	24 Sep	29 Sep	19 Sep	120.4
Hackett River - Canada	03 Aug - 10 Oct	04 Sep	19 Sep	28 Sep	17 Sep	93.1
Auke Creek Planted	26 Aug - 17 Oct	24 Sep	03 Oct	06 Oct	02 Oct	40.8
Auke Creek Jacks Planted	26 Aug - 17 Oct	30 Aug	20 Sep	23 Sep	18 Sep	110.3
Auke Creek Wild	26 Aug - 17 Oct	23 Sep	01 Oct	05 Oct	09 Sep	28.6
Auke Creek Jacks Wild	26 Aug - 17 Oct	05 Sep	23 Sep	26 Sep	19 Sep	85.3
Salmon Lake	17 Aug - 15 Oct	23 Sep	02 Oct	04 Oct	02 Oct	48.7
Salmon Lake Jacks	17 Aug - 15 Oct	16 Sep	23 Sep	02 Oct	24 Sep	30.8
Ford Arm Lake	15 Aug - 27 Oct	23 Aug	21 Sep	05 Oct	16 Sep	376.8
Ford Arm Lake Jacks	15 Aug - 27 Oct	31 Aug	21 Sep	02 Oct	17 Sep	130.5

a/ Dates were interpolated when necessary.
b/ Rounded to the nearest calandar date.
c/ Days squared.
d/ Weir washed out on 02 October 1986; not replaced.

Table 26. Age composition of coho salmon in escapements to Southeast Alaska, 1986.

	Brood Year and Age Class								
	1984	1983		1982		1981		1980	
	1.0	1.1	2.0	2.1	3.0	3.1	4.0	4.1	Total
Hugh Smith Lake - Weir									
Stream # 101-30-075									
Male									
Sample Size	21	2		101	2	47		7	180
Percent	4.8	0.5		23.0	0.5	10.7		1.6	40.9
Std. Error	1.0	0.3		2.0	0.3	1.5		0.6	2.3
Female									
Sample Size	24			138		88		10	260
Percent	5.5			31.4		20.0		2.3	59.1
Std. Error	1.1			2.2		1.9		0.7	2.3
All Fish									
Sample Size	46	2		239	2	135		18	442
Percent	10.4	0.5		54.1	0.5	30.5		4.1	100.0
Std. Error	1.5	0.3		2.4	0.3	2.2		0.9	
Karta River - Weir									
Stream # 102-60-087									
Male									
Sample Size	24			52		6			82
Percent	23.3			50.5		5.8			79.6
Std. Error	4.2			5.0		2.3			4.0
Female									
Sample Size	15			4		2			21
Percent	14.6			3.9		1.9			20.4
Std. Error	3.5			1.9		1.4			4.0
All Fish									
Sample Size	43			60		9			112
Percent	38.4			53.6		8.0			100.0
Std. Error	4.6			4.7		2.6			
Klawock Hatchery- Weir									
Stream # 103-60-047									
Male									
Sample Size	9			10					19
Percent	29.0			32.3					61.3
Std. Error	8.3			8.5					8.9
Female									
Sample Size	4			8					12
Percent	12.9			25.8					38.7
Std. Error	6.1			8.0					8.9
All Fish									
Sample Size	13			18					31
Percent	41.9			58.1					100.0
Std. Error	9.0			9.0					
Salmon Bay Lake - Weir - East Side									
Stream # 106-41-010									
Male									
Sample Size	23	3		77	3	33	1	8	148
Percent	7.5	1.0		25.2	1.0	10.8	0.3	2.6	48.5
Std. Error	1.5	0.6		2.5	0.6	1.8		0.9	2.9
Female									
Sample Size	18			86		43		10	157
Percent	5.9			28.2		14.1		3.3	51.5
Std. Error	1.4			2.6		2.0		1.0	2.9
All Fish									
Sample Size	41	3		163	3	76	1	18	305
Percent	13.4	1.0		53.4	1.0	24.9	0.3	5.9	100.0
Std. Error	2.0	0.6		2.9	0.6	2.5		1.4	

-Continued-

Table 26. (page 2 of 5)

	Brood Year and Age Class								
	1984	1983		1982		1981		1980	
	1.0	1.1	2.0	2.1	3.0	3.1	4.0	4.1	Total
Salmon Bay Lake - Weir - West Side									
Stream # 106-41-010									
Male									
Sample Size		7		11		1			19
Percent		17.5		27.5		2.5			47.5
Std. Error		6.1		7.1					8.0
Female									
Sample Size		5		16					21
Percent		12.5		40.0					52.5
Std. Error		5.3		7.8					8.0
All Fish									
Sample Size		12		27		1			40
Percent		30.0		67.5		2.5			100.0
Std. Error		7.3		7.5					
Crystal Lake Hatchery - Weir									
Stream # 106-44-031									
Male									
Sample Size		55		3					58
Percent		48.2		2.6					50.9
Std. Error		4.7		1.5					4.7
Female									
Sample Size		54		2					56
Percent		47.4		1.8					49.1
Std. Error		4.7		1.2					4.7
All Fish									
Sample Size		109		5					114
Percent		95.6		4.4					100.0
Std. Error		1.9		1.9					
Black Bear Creek - Weir									
Stream # 107-10-030									
Male									
Sample Size		9		5					14
Percent		60.0		33.3					93.3
Std. Error		13.1		12.6					6.7
Female									
Sample Size		1							1
Percent		6.7							6.7
Std. Error									
All Fish									
Sample Size		10		5					15
Percent		66.7		33.3					100.0
Std. Error		12.6		12.6					
Taku River - Fishwheel									
Stream # 111-32-032									
Male									
Sample Size	6	114	4	148		4		1	277
Percent	1.3	24.0	0.8	31.2		0.8		0.2	58.3
Std. Error	0.5	2.0	0.4	2.1		0.4			2.3
Female									
Sample Size	3	87		99		8		1	198
Percent	0.6	18.3		20.8		1.7		0.2	41.7
Std. Error	0.4	1.8		1.9		0.6			2.3
All Fish									
Sample Size	9	201	4	247		12		2	475
Percent	1.9	42.3	0.8	52.0		2.5		0.4	100.0
Std. Error	0.6	2.3	0.4	2.3		0.7		0.3	

-Continued-

Table 26. (page 3 of 5)

	Brood Year and Age Class								
	1984	1983		1982		1981		1980	
	1.0	1.1	2.0	2.1	3.0	3.1	4.0	4.1	Total
Yehring Creek - Weir									
Stream # 111-32-066									
Male									
Sample Size		43	2	157	1	6			209
Percent		14.7	0.7	53.6	0.3	2.0			71.3
Std. Error		2.1	0.5	2.9		0.8			2.6
Female									
Sample Size		13		71					84
Percent		4.4		24.2					28.7
Std. Error		1.2		2.5					2.6
All Fish									
Sample Size		58	2	229	1	6			296
Percent		19.6	0.7	77.4	0.3	2.0			100.0
Std. Error		2.3	0.5	2.4		0.8			
Hackett River - Weir (Canada)									
Stream # 111-32-260									
Male									
Sample Size		35		40		4			79
Percent		27.1		31.0		3.1			61.2
Std. Error		3.9		4.1		1.5			4.3
Female									
Sample Size		18		32					50
Percent		14.0		24.8					38.8
Std. Error		3.1		3.8					4.3
All Fish									
Sample Size		59		78		5			142
Percent		41.5		54.9		3.5			100.0
Std. Error		4.2		4.2		1.6			
Snettisham Hatchery - Weir									
Stream # 111-33-000									
Male									
Sample Size		137		3					140
Percent		36.7		0.8					37.5
Std. Error		2.5		0.5					2.5
Female									
Sample Size		206		25		2			233
Percent		55.2		6.7		0.5			62.5
Std. Error		2.6		1.3		0.4			2.5
All Fish									
Sample Size		343		28		2			373
Percent		92.0		7.5		0.5			100.0
Std. Error		1.4		1.4		0.4			
Auke Lake - Weir									
Stream # 111-50-042									
Male									
Sample Size	1	14	13	74	14	22	1	2	141
Percent	0.4	6.0	5.6	31.6	6.0	9.4	0.4	0.9	60.3
Std. Error		1.6	1.5	3.0	1.6	1.9		0.6	3.2
Female									
Sample Size		8		67		17		1	93
Percent		3.4		28.6		7.3		0.4	39.7
Std. Error		1.2		3.0		1.7		0.4	3.2
All Fish									
Sample Size	1	22	13	141	14	39	1	3	234
Percent	0.4	9.4	5.6	60.3	6.0	16.7	0.4	1.3	100.0
Std. Error		1.9	1.5	3.2	1.6	2.4		0.7	

-Continued-

Table 26. (page 4 of 5)

	Brood Year and Age Class								
	1984	1983		1982		1981		1980	
	1.0	1.1	2.0	2.1	3.0	3.1	4.0	4.1	Total
Steep Creek - Eggtake									
Stream # 111-50-056									
Male									
Sample Size		5		13		2			20
Percent		12.5		32.5		5.0			50.0
Std. Error		5.3		7.5		3.5			8.0
Female									
Sample Size		8		9		3			20
Percent		20.0		22.5		7.5			50.0
Std. Error		6.4		6.7		4.2			8.0
All Fish									
Sample Size		13		22		5			40
Percent		32.5		55.0		12.5			100.0
Std. Error		7.5		8.0		5.3			
Salmon Lake - Weir									
Stream # 113-41-032									
Male									
Sample Size			5	28	31	62	16	27	169
Percent			1.9	10.6	11.8	23.6	6.1	10.3	64.3
Std. Error			0.8	1.9	2.0	2.6	1.5	1.9	3.0
Female									
Sample Size		1		25		49		19	94
Percent		0.4		9.5		18.6		7.2	35.7
Std. Error				1.8		2.4		1.6	3.0
All Fish									
Sample Size		1	5	53	31	111	16	46	263
Percent		0.4	1.9	20.2	11.8	42.2	6.1	17.5	100.0
Std. Error			0.8	2.5	2.0	3.1	1.5	2.3	
Redoubt Lake - Weir									
Stream # 113-41-043									
Male									
Sample Size		20		57		3			80
Percent		20.8		59.4		3.1			83.3
Std. Error		4.2		5.0		1.8			3.8
Female									
Sample Size		3		11		1		1	16
Percent		3.1		11.5		1.0		1.0	16.7
Std. Error		1.8		3.3		3.8			
All Fish									
Sample Size		23		68		4		1	96
Percent		24.0		70.8		4.2		1.0	100.0
Std. Error		4.4		4.7		2.1			
Ford Arm Lake - Weir									
Stream # 113-73-033									
Male									
Sample Size	1	24	20	122	34	50	1	4	256
Percent	0.2	4.9	4.1	25.2	7.0	10.3	0.2	0.8	52.8
Std. Error		1.0	0.9	2.0	1.2	1.4		0.4	2.3
Female									
Sample Size		27	2	131	1	62		6	229
Percent		5.6	0.4	27.0	0.2	12.8		1.2	47.2
Std. Error		1.0	0.3	2.0		1.5		0.5	2.3
All Fish									
Sample Size	1	51	22	254	35	112	1	10	486
Percent	0.2	10.5	4.5	52.3	7.2	23.0	0.2	2.1	100.0
Std. Error		1.4	0.9	2.3	1.2	1.9		0.6	

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Table 26. (page 5 of 5)

	Brood Year and Age Class								
	1984	1983		1982		1981		1980	
	1.0	1.1	2.0	2.1	3.0	3.1	4.0	4.1	Total
Berners River - Carcass									
Stream # 115-20-010									
Male									
Sample Size	41			113		12			166
Percent	14.7			40.5		4.3			59.5
Std. Error	2.1			2.9		1.2			2.9
Female									
Sample Size	19			85		9			113
Percent	6.8			30.5		3.2			40.5
Std. Error	1.5			2.8		1.1			2.9
All Fish									
Sample Size	60			198		21			279
Percent	21.5			71.0		7.5			100.0
Std. Error	2.5			2.7		1.6			

Table 27. Average length (mm) and standard error, by sex, and age of coho salmon sampled from escapements in Southeast Alaska, 1986.

	Brood Year and Age Class							
	1984	1983		1982		1981		1980
	1.0	1.1	2.0	2.1	3.0	3.1	4.0	4.1
Hugh Smith Lake - Weir								
Stream # 101-30-075								
Male								
Avg. Length		658.1	340.0	685.2	345.0	667.8		689.3
Std. Error		18.5		6.2	35.0	12.2		19.1
Sample Size		21	2	100	2	46		7
Female								
Avg. Length		645.2		675.2		684.2		679.6
Std. Error		10.4		3.3		3.8		8.9
Sample Size		24		137		85		10
All Fish								
Avg. Length		651.2	340.0	679.4	345.0	678.4		686.2
Std. Error		10.2		3.2	35.0	5.0		9.0
Sample Size		45	2	237	2	131		18
Karta River - Weir								
Stream # 102-60-087								
Male								
Avg. Length		602.7		600.5		602.5		
Std. Error		7.7		6.4		13.3		
Sample Size		24		52		6		
Female								
Avg. Length		565.0		607.5		632.5		
Std. Error		13.5		11.8		2.5		
Sample Size		15		4		2		
All Fish								
Avg. Length		588.2		601.0		610.0		
Std. Error		7.5		6.0		10.9		
Sample Size		39		56		8		
Klawock Hatchery - Weir								
Stream # 103-60-047								
Male								
Avg. Length		600.0		588.0				
Std. Error		27.4		17.2				
Sample Size		9		10				
Female								
Avg. Length		672.5		661.3				
Std. Error		11.1		10.1				
Sample Size		4		8				
All Fish								
Avg. Length		622.3		620.6				
Std. Error		21.2		13.6				
Sample Size		13		18				

-Continued-

Table 27. (page 2 of 6)

	Brood Year and Age Class						
	1984	1983		1982		1981		1980
	1.0	1.1	2.0	2.1	3.0	3.1	4.0	4.1
Salmon Bay Lake - Weir - Eastside								
Stream # 106-41-010								
Male								
Avg. Length		579.6	380.0	589.2	373.3	628.9	370.0	607.5
Std. Error		15.1	20.2	9.2	14.2	13.2		27.7
Sample Size		23	3	77	3	33	1	8
Female								
Avg. Length		635.8		643.0		640.3		668.5
Std. Error		14.5		6.0		9.8		12.8
Sample Size		18		86		43		10
All Fish								
Avg. Length		604.3	380.0	617.5	373.3	635.4	370.0	641.4
Std. Error		11.4	20.2	5.8	14.2	7.9		15.6
Sample Size		41	3	163	3	76	1	18
Salmon Bay Lake - Weir - Westside								
Stream # 106-41-010								
Male								
Avg. Length		568.1		534.1		685.0		
Std. Error		19.3		31.3				
Sample Size		7		11		1		
Female								
Avg. Length		543.0		606.9				
Std. Error		27.7		10.9				
Sample Size		5		16				
All Fish								
Avg. Length		557.7		577.2		685.0		
Std. Error		15.8		15.6				
Sample Size		12		27		1		
Crystal Lake Hatchery - Weir								
Stream # 106-44-031								
Male								
Avg. Length		609.7		613.3				
Std. Error		6.0		16.4				
Sample Size		55		3				
Female								
Avg. Length		618.2		672.5				
Std. Error		5.4		2.5				
Sample Size		54		2				
All Fish								
Avg. Length		613.9		637.0				
Std. Error		4.0		17.1				
Sample Size		109		5				

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Table 27. (page 3 of 6)

	Brood Year and Age Class							
	1984	1983		1982		1981		1980
	1.0	1.1	2.0	2.1	3.0	3.1	4.0	4.1
Black Bear Creek - Weir								
Stream # 107-30-010								
Male								
Avg. Length		620.0		658.0				
Std. Error		19.0		30.0				
Sample Size		9		5				
Female								
Avg. Length		570.0						
Std. Error								
Sample Size		1						
All Fish								
Avg. Length		615.0		658.0				
Std. Error		17.7		30.0				
Sample Size		10		5				
Taku River - Fishwheel								
Stream # 111-32-032								
Male								
Avg. Length	356.7	591.5	415.0	608.2		592.5		710.0
Std. Error	19.4	7.7	18.6	6.6		51.4		
Sample Size	6	113	4	143		4		1
Female								
Avg. Length	411.7	583.0		574.5		619.4		570.0
Std. Error	12.0	8.4		8.2		15.9		
Sample Size	3	87		95		8		1
All Fish								
Avg. Length	375.0	587.8	415.0	594.7		610.4		640.0
Std. Error	15.9	5.7	18.6	5.2		19.0		70.0
Sample Size	9	200	4	238		12		2
Yehring Creek - Weir								
Stream # 111-32-066								
Male								
Avg. Length		584.1	398.5	592.9		509.5		
Std. Error		15.6	1.5	7.4		30.6		
Sample Size		43	2	157		6		
Female								
Avg. Length		627.5		625.7				
Std. Error		14.5		8.3				
Sample Size		13		71				
All Fish								
Avg. Length		591.8	398.5	602.4		509.5		
Std. Error		12.7	1.5	5.8		30.6		
Sample Size		57	2	229		6		

-Continued-

Table 27. (page 4 of 6)

	Brood Year and Age Class							
	1984	1983		1982		1981		1980
	1.0	1.1	2.0	2.1	3.0	3.1	4.0	4.1
Hackett River - Weir (Canada)								
Stream # 111-32-260								
Male								
Avg. Length		549.7		556.2		532.5		
Std. Error		12.0		11.3		15.1		
Sample Size		35		40		4		
Female								
Avg. Length		519.6		547.7				
Std. Error		16.3		9.2				
Sample Size		18		32				
All Fish								
Avg. Length		539.5		552.4		532.5		
Std. Error		9.8		7.4		15.1		
Sample Size		53		72		4		
Snettisham Hatchery - Weir								
Stream # 111-33-000								
Male								
Avg. Length		588.7		630.0				
Std. Error		5.1		30.1				
Sample Size		137		3				
Female								
Avg. Length		626.6		658.2		667.5		
Std. Error		2.9		9.0		12.5		
Sample Size		206		25		2		
All Fish								
Avg. Length		611.4		655.2		667.5		
Std. Error		2.9		8.6		12.5		
Sample Size		343		28		2		
Auke Lake - Weir								
Stream # 111-50-042								
Male								
Avg. Length	320.0	633.9	304.6	641.7	320.7	649.8	305.0	615.0
Std. Error		16.1	5.0	6.6	5.1	10.8		55.0
Sample Size	1	14	13	74	14	22	1	2
Female								
Avg. Length		630.6		629.9		635.9		640.0
Std. Error		9.8		6.0		9.1		
Sample Size		8		67		17		1
All Fish								
Avg. Length	320.0	632.7	304.6	636.1	320.7	643.7	305.0	623.3
Std. Error		10.7	5.0	4.5	5.1	7.3		32.8
Sample Size	1	22	13	141	14	39	1	3

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Table 27. (page 5 of 6)

	Brood Year and Age Class							
	1984	1983		1982		1981		1980
	1.0	1.1	2.0	2.1	3.0	3.1	4.0	4.1
Steep Creek - Eggtake								
Stream # 111-50-056								
Male								
Avg. Length		674.0		663.8		602.5		
Std. Error		13.4		7.7		42.5		
Sample Size		5		13		2		
Female								
Avg. Length		632.5		668.3		683.3		
Std. Error		15.6		9.5		10.1		
Sample Size		8		9		3		
All Fish								
Avg. Length		648.5		665.7		651.0		
Std. Error		12.0		5.8		24.6		
Sample Size		13		22		5		
Salmon Lake - Weir								
Stream # 113-41-032								
Male								
Avg. Length			340.4	606.2	346.3	590.5	367.2	607.7
Std. Error			13.4	16.4	4.0	13.5	9.2	20.7
Sample Size			5	28	31	62	16	27
Female								
Avg. Length		532.0		649.0		662.7		655.7
Std. Error				9.2		6.1		10.8
Sample Size		1		25		49		19
All Fish								
Avg. Length		532.0	340.4	626.4	346.3	622.4	367.2	627.5
Std. Error			13.4	10.0	4.0	8.7	9.2	13.3
Sample Size		1	5	53	31	111	16	46
Redoubt Lake - Weir								
Stream # 113-41-043								
Male								
Avg. Length		537.4		552.1		641.7		
Std. Error		20.9		12.4		25.2		
Sample Size		20		57		3		
Female								
Avg. Length		628.3		610.2		570.0		626.0
Std. Error		8.3		16.2				
Sample Size		3		11		1		1
All Fish								
Avg. Length		549.3		561.5		623.8		626.0
Std. Error		19.3		11.0		25.3		
Sample Size		23		68		4		1

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Table 27. (page 6 of 6)

	Brood Year and Age Class							
	1984	1983		1982		1981		1980
	1.0	1.1	2.0	2.1	3.0	3.1	4.0	4.1
Ford Arm Lake - Weir								
Stream # 113-73-003								
Male								
Avg. Length	374.0	619.7	402.5	634.6	399.4	655.6	382.0	636.5
Std. Error		14.6	22.0	6.9	12.3	12.8		59.2
Sample Size	1	24	20	122	34	50	1	4
Female								
Avg. Length		626.0	601.0	653.7	435.0	655.6		704.8
Std. Error		11.3	73.0	4.0		8.7		8.8
Sample Size		27	2	131	1	62		6
All Fish								
Avg. Length	374.0	623.0	420.5	644.7	400.5	655.6	382.0	677.5
Std. Error		9.0	24.0	4.0	12.0	7.5		24.9
Sample Size	1	51	22	254	35	112	1	10
Berners River - Carcass								
Stream # 115-20-010								
Male								
Avg. Length		635.4		682.2		698.3		
Std. Error		13.6		7.9		18.9		
Sample Size		41		113		12		
Female								
Avg. Length		714.7		711.0		708.3		
Std. Error		12.6		6.9		26.7		
Sample Size		19		85		9		
All Fish								
Avg. Length		660.5		694.5		702.6		
Std. Error		11.2		5.5		15.3		
Sample Size		60		198		21		

Table 28. Comparison of coho salmon age composition from 1982 to 1986 for selected Southeast Alaska escapements *.

System	Stream Number	Year	Sample Size	Percent by Age Class												Mean Freshwater Age
				1.0	1.1	2.0	2.1	3.0	3.1	4.0	4.1	5.0	4.2	5.1	6.0	
Hugh Smith Lake	101-30-075	1982	355		34.6	2.0	60.9		2.5							1.68
		1983	490	1.0	37.6	4.1	53.0	0.4	3.9							1.66
		1984	777		22.6	1.3	73.1		3.0							1.80
		1985	538		11.9	1.3	47.0	1.5	34.9	0.4	3.0					2.13
		1986	442		10.4	0.3	54.1	0.5	30.5		0.9					2.29
Falls Lake	109-20-013	1982	85		36.5		58.8		4.7							1.68
		1983	125		16.0		84.0									1.84
		1984	126		31.7	1.6	63.5		3.2							1.71
		1985	23		13.0		73.9		13.0							2.00
		1986	0													
Taku River	111-32-032	1982	0													
		1983	123		59.3		40.7									1.41
		1984	630	0.2	43.0	0.3	56.0		0.5							1.57
		1985	826		44.3	0.1	51.2		3.9		0.4	0.1				1.61
		1986	475	1.9	42.3	0.8	52		2.5		0.4					1.59
Auke Lake	111-50-042	1982	160		38.9		51.7		9.4							1.70
		1983	374		30.2	0.3	66.0		3.5							1.73
		1984	494	0.6	7.5	19.2	66.0	2.6	4.0							1.99
		1985	146		4.1		47.3		39.7		8.2					2.51
		1986	263	0.4	9.4	5.6	60.3	6	16.7	0.4	1.3					2.26
Salmon Lake	113-41-032	1982														
		1983	148		8.1	13.5	61.6	4.7	11.5		0.7					2.11
		1984	457	1.3	16.8	31.3	46.4	2.0	2.0		2.0					1.85
		1985	35			2.9	2.9	25.7	11.4	42.9	2.9	11.4				3.34
		1986	263		0.4	1.9	20.2	11.8	42.2	6.1	17.5					3.01
Redoubt Lake	113-41-043	1982	66		45.5		51.5	1.5	1.5							1.60
		1983	446		24.7	2.9	71.5	0.2	0.7							1.77
		1984	474	1.5	16.9	11.8	67.1		2.7							1.84
		1985	45		33.3		44.4		22.2							1.69
		1986	96		24.0		70.8		4.2		1.0					
Ford Arm Lake	113-73-003	1982	365		31.8	0.3	66.6		1.4							1.70
		1983	371		10.8	8.4	67.1	4.0	9.4	0.3						1.95
		1984	0													
		1985	496	0.6	3.0	0.4	22.6	3.0	39.9	7.1	16.9	3.6		2.6	0.2	3.10
		1986	486	0.2	10.5	4.5	52.3	7.2	23.0	0.2	2.1					2.24
Berners River	115-20-010	1982	336	0.3	60.1		39.0		0.6							1.40
		1983	632		39.4		60.4		0.2							1.61
		1984	0													
		1985	359		33.7		59.6		6.1		0.6					1.74
		1986	279		21.5		71.0		7.5							1.86

* Age composition are for fish sampled, not for total escapement.

Table 29. Age composition and average length of outmigrating coho salmon smolt from Salmon Lake, (Stream No. 113-41-032), 1985 and 1986.

	Age Class						
	1.0	2.0	3.0	4.0	5.0	6.0	Total
1985							
Sampling Dates: April 28 to May 28							
Brood Year	1984	1983	1982	1981	1980	1979	
Sample Number	8	125	61	34	11	1	240
Percent	2.0	52.1	25.4	14.2	4.6	.4	100.0
Std. Error	1.2	3.2	2.8	2.3	1.4		
Avg. Length(mm)	83.9	96.6	111.3	133.1	152.0	143.0	
Std. Error	6.4	0.8	1.7	3.3	3.7		
1986							
Sampling Dates: April 21 to May 23							
Brood Year	1985	1984	1983	1982	1981		
Sample Number	7	66	179	93	11		356
Percent	2.0	18.5	50.3	26.1	3.1		100.0
Std. Error	0.7	2.1	2.7	2.3	0.9		
Avg. Length(mm)	95.0	109.3	130.4	141.6	144.8		
Std. Error	2.1	1.7	1.0	1.0	1.9		

Table 30. Age composition and average length of outmigrating coho salmon smolt from Redoubt Lake (Stream No. 113-41-042), 1982 to 1986.

	Age Class				
	1.0	2.0	3.0	4.0	Total
1982 [a]					
Brood Year	1980	1979	1978	1977	
Percent	8.7	71.1	16.3	1.2	
Avg. Length (mm)	82.5	99.8	123.4	133.0	
Number Sampled	19	154	36	3	212
1983					
Brood Year	1981	1980	1979		
Percent	7.0	79.1	13.9		
Avg. Length (mm)	85.3	93.6	113.4		
Number Sampled	10	108	19		137
1984					
Brood Year	1982	1981			
Percent	55.9	44.1			
Avg. Length (mm)	76.0	101.3			
Number Sampled	20	15			35
1985					
Brood Year	1983	1982	1981		
Percent	20.0	74.1	5.9		
Avg. Length (mm)	91.3	104.9	118.6		
Number Sampled	19	70	6		95
1986					
Brood Year	1984	1983	1982	1981	
Percent	13.2	50.9	33.8	2.1	
Avg. Length (mm)	85.7	108.3	130.9	151.0	
Number Sampled	44	170	113	7	334

[a] Scales collected were of poor quality causing differences in ageing.

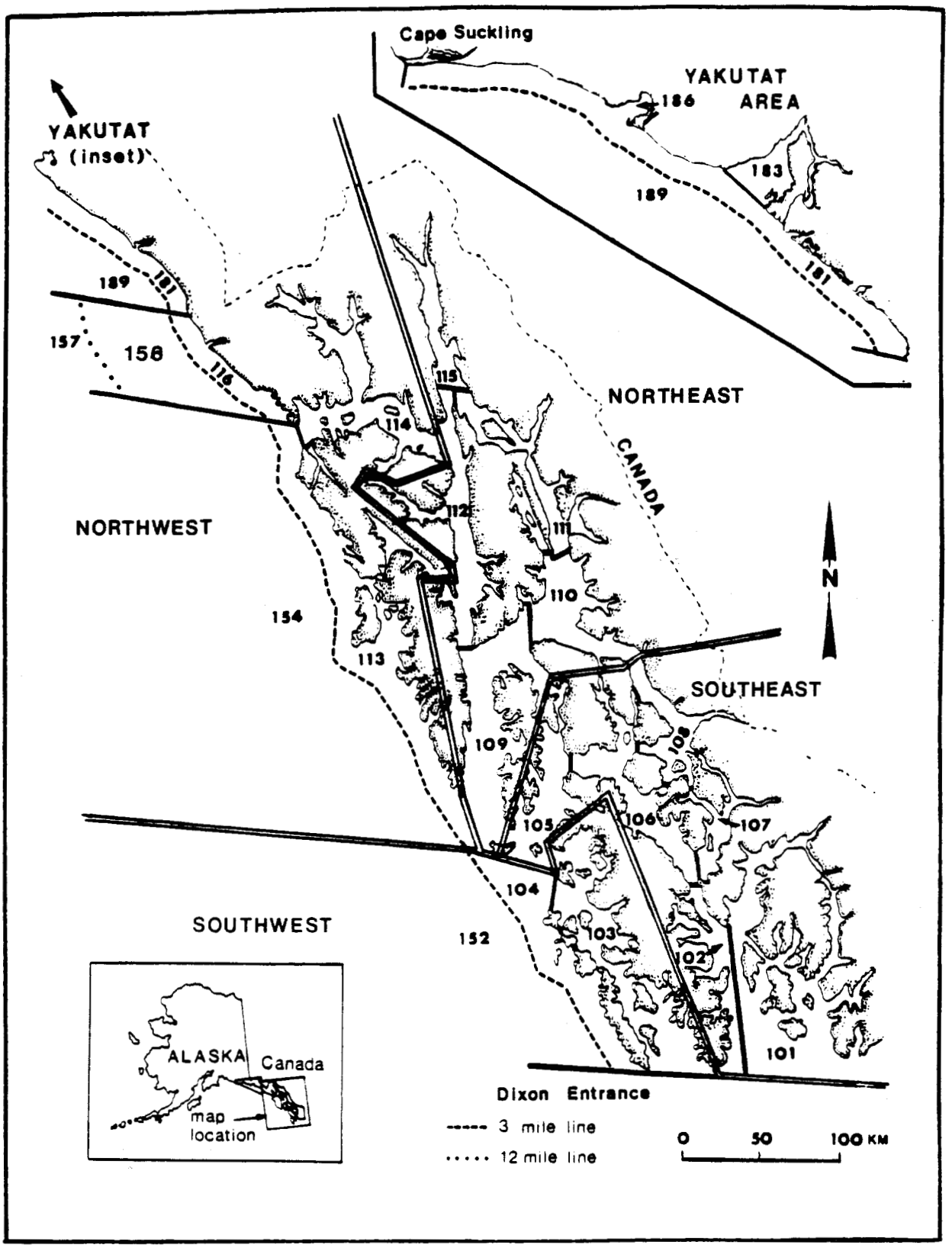

Figure 1. Map of Southeast Alaska showing the statistical fishing districts and four areas used for analysis of the troll data.

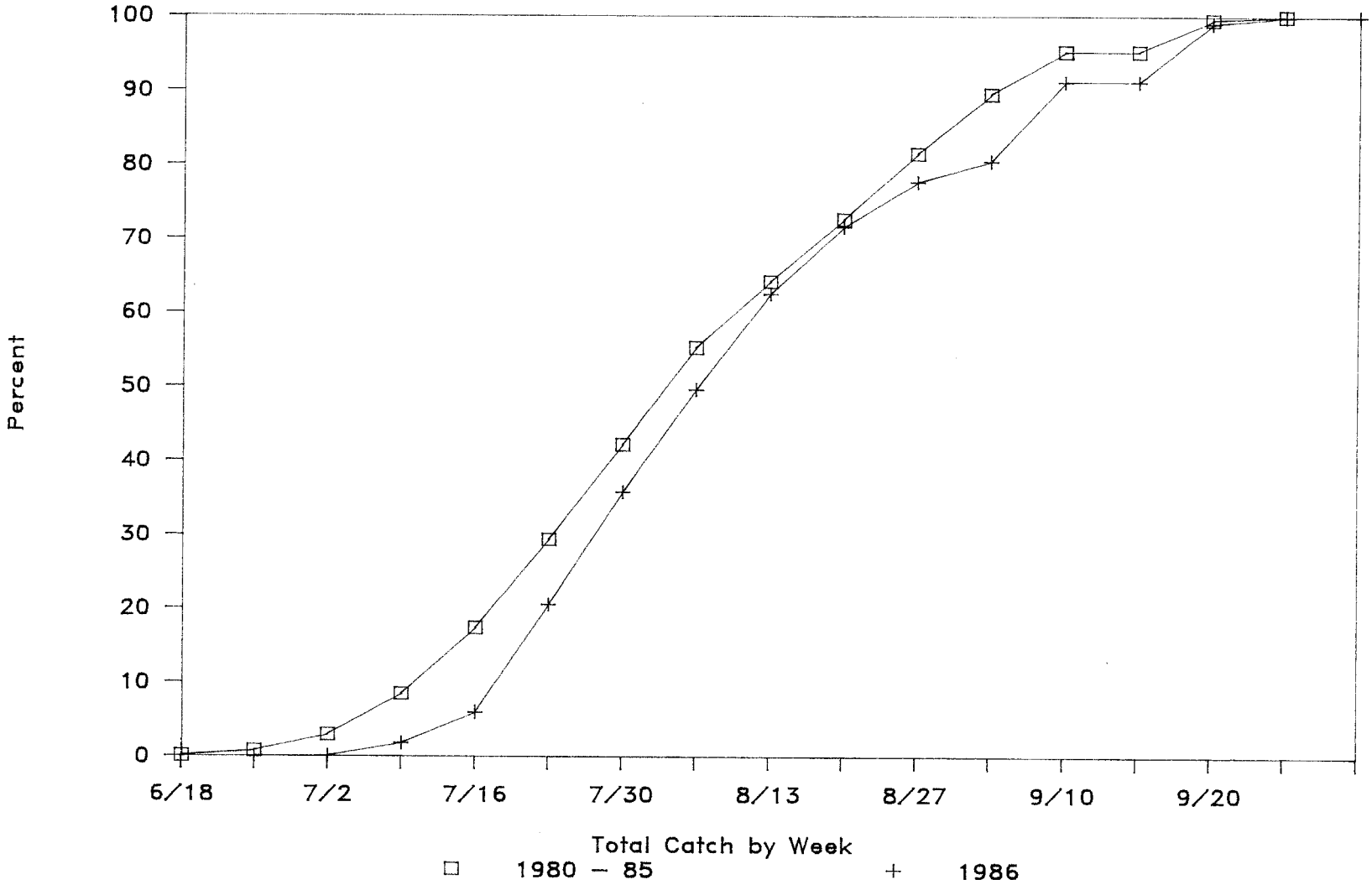

Figure 2. Percentage of total troll harvest by week in Southeast Alaska, 1986, compared to the 1982 through 1985 average.

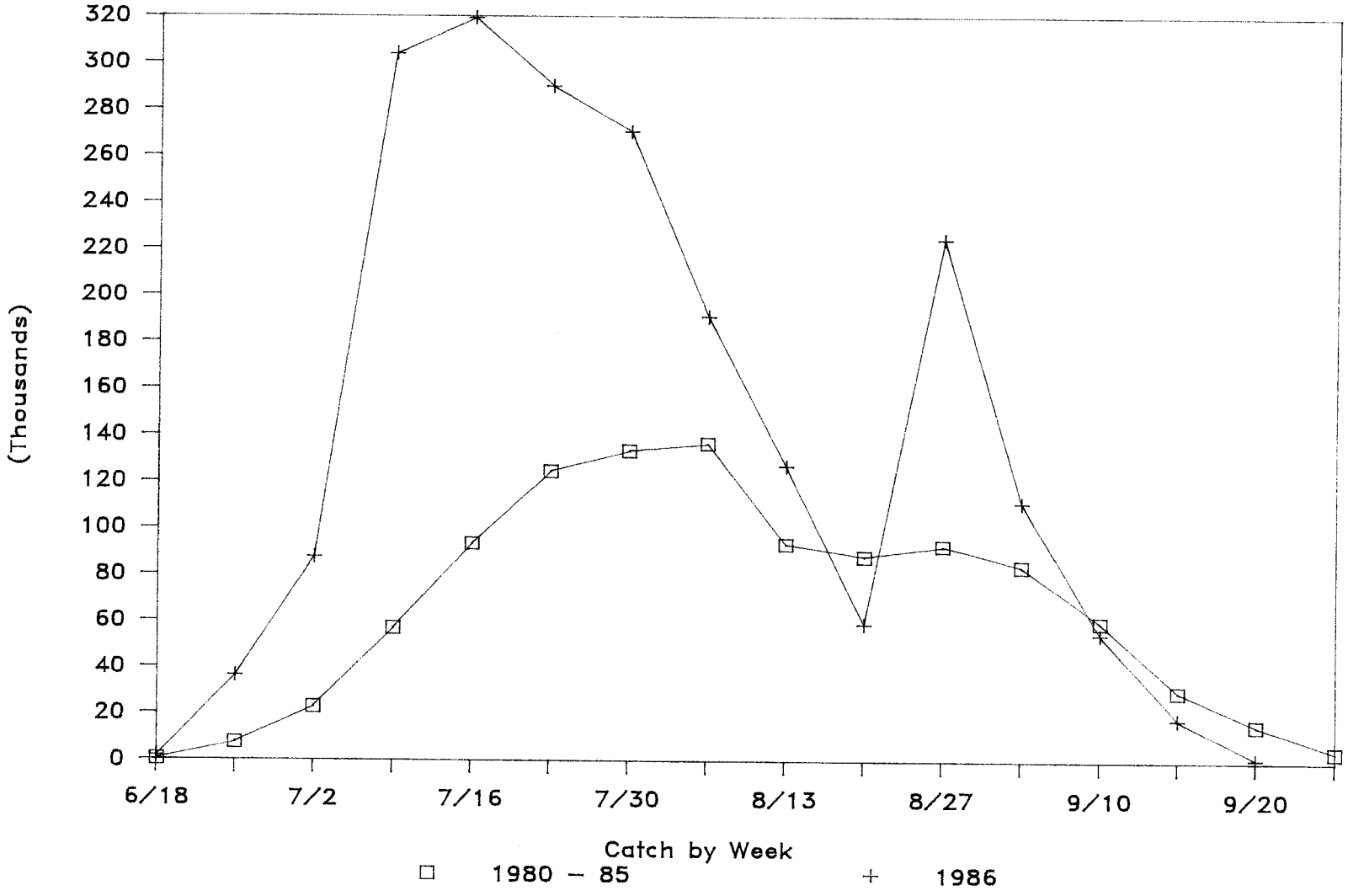

Figure 3. The 1986 troll harvest of coho salmon in Southeast Alaska by week, compared to the 1982 through 1985 average catch by week.

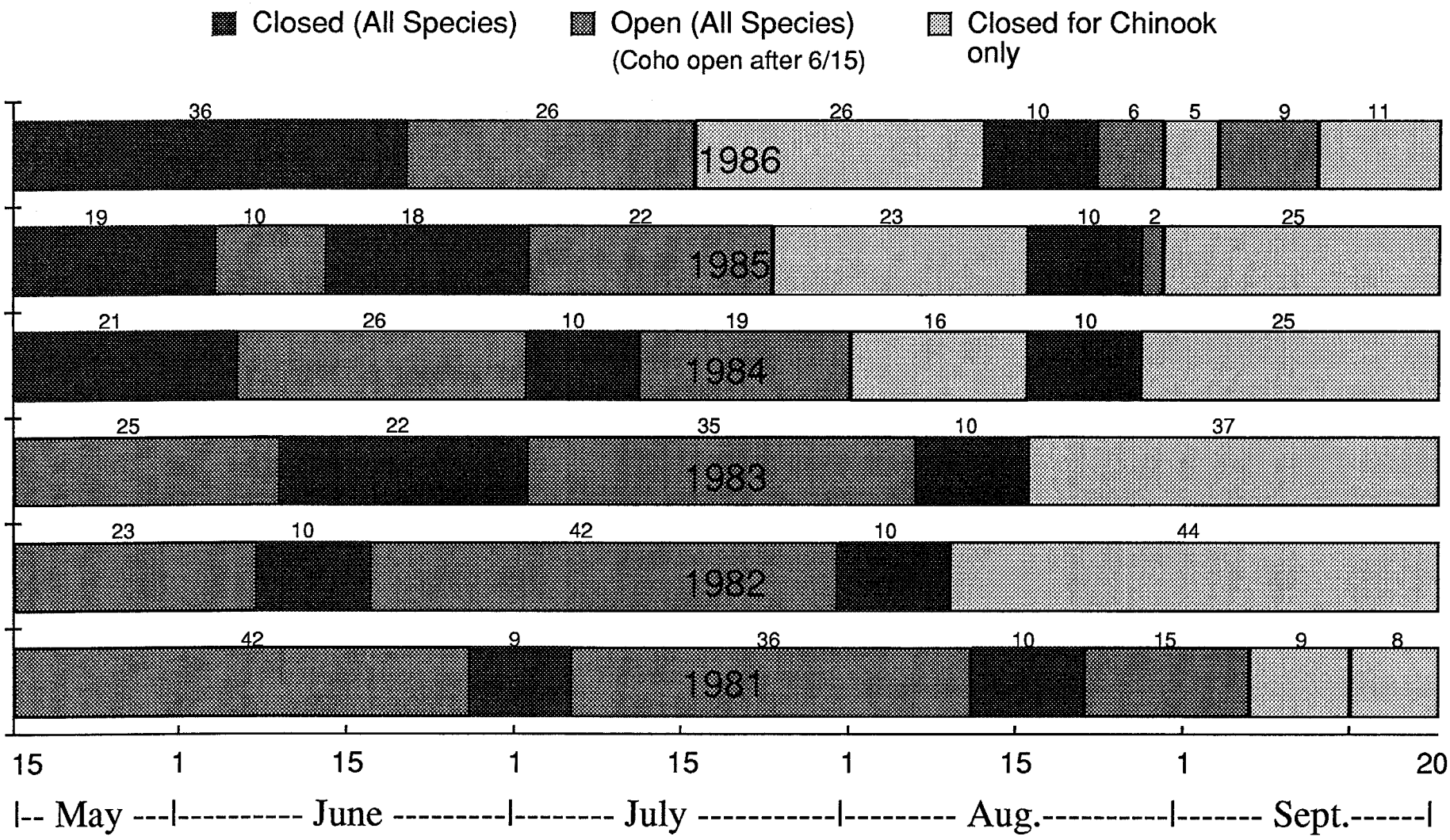

Figure 4. Regional troll fishery openings in Southeast Alaska; 1981 to 1986.

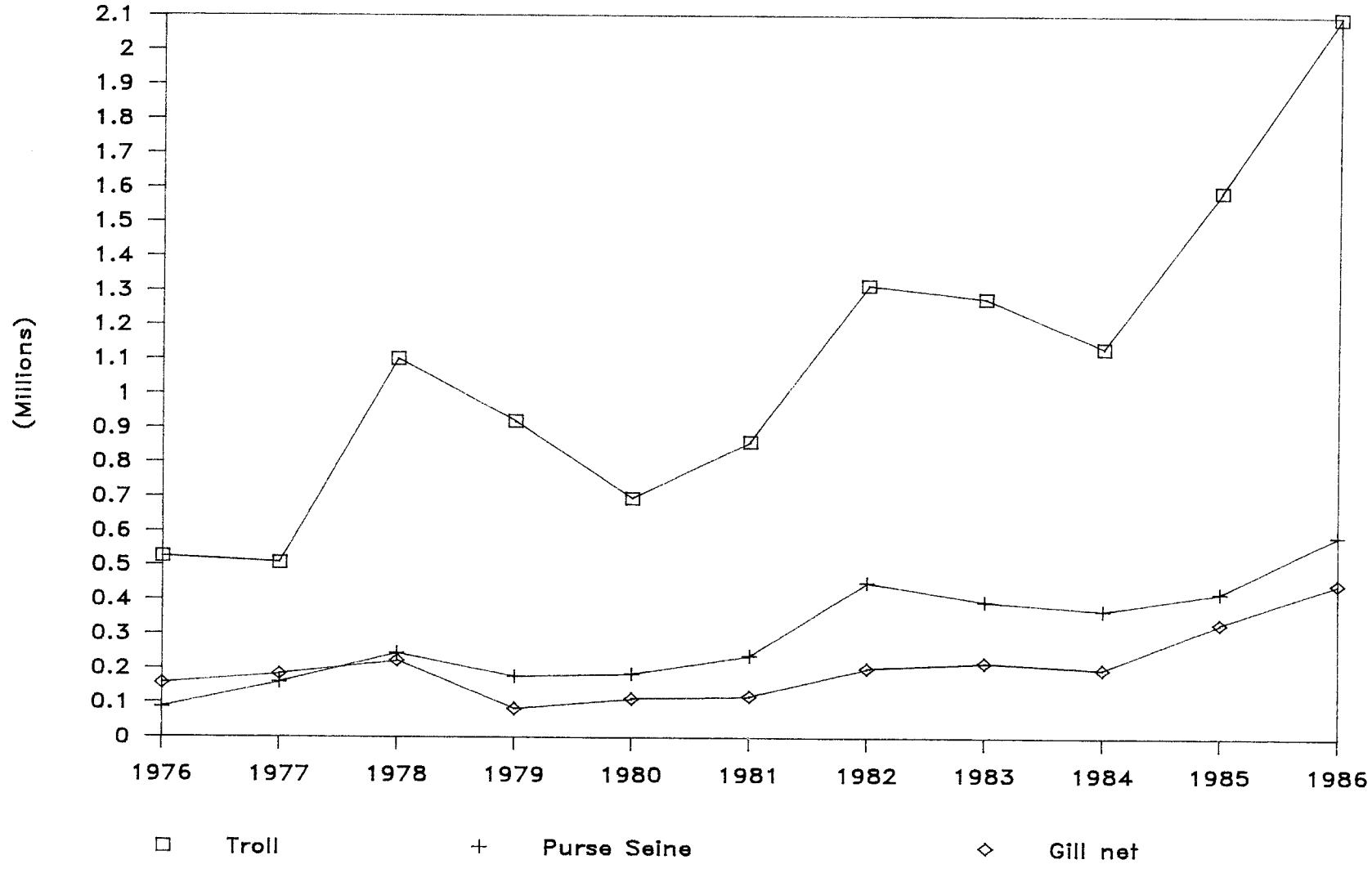

Figure 5. Catch of coho salmon in Southeast Alaska in the troll, purse seine and gill net fisheries.

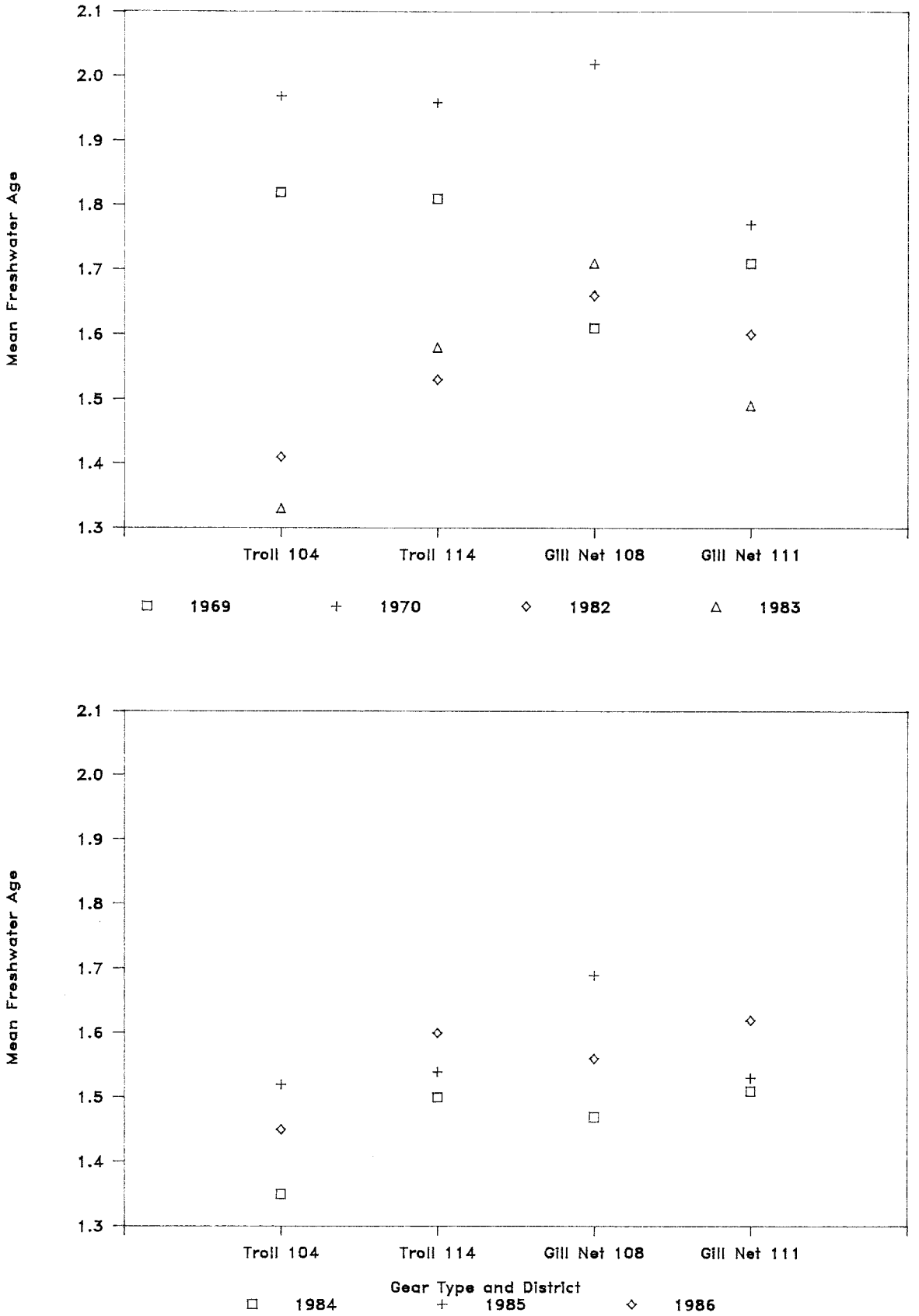

Figure 6. Mean freshwater age of coho salmon harvested in selected Southeast Alaska troll and gill net fisheries for the years 1969 - 70 and 1982 - 86.

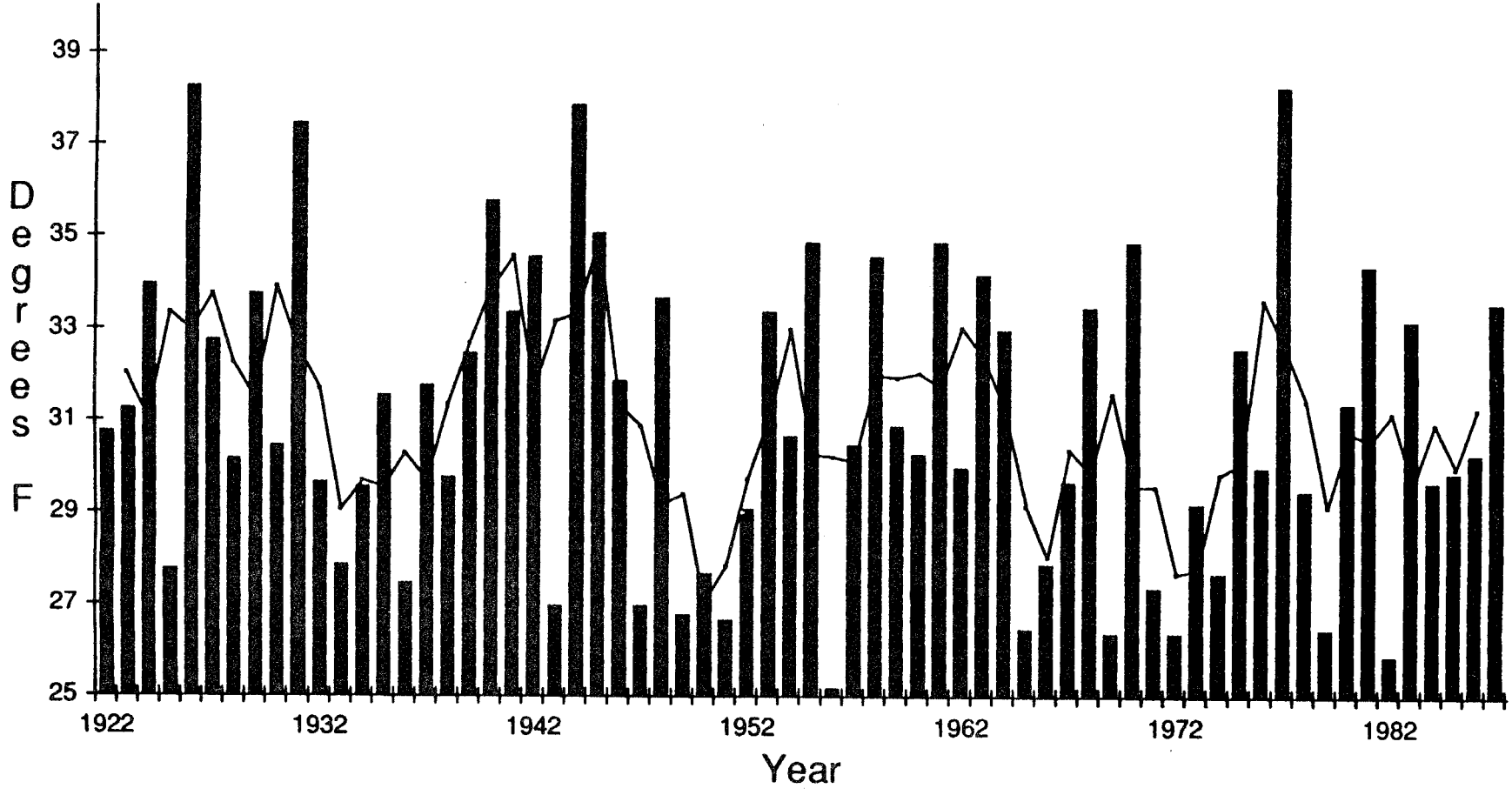

Figure 7. Average winter (November to February) air temperatures with three-year moving average (line) in Juneau, Alaska from 1922 to 1987. (NOAA, National Climate Data Center, Nashville, N.C. 28801)

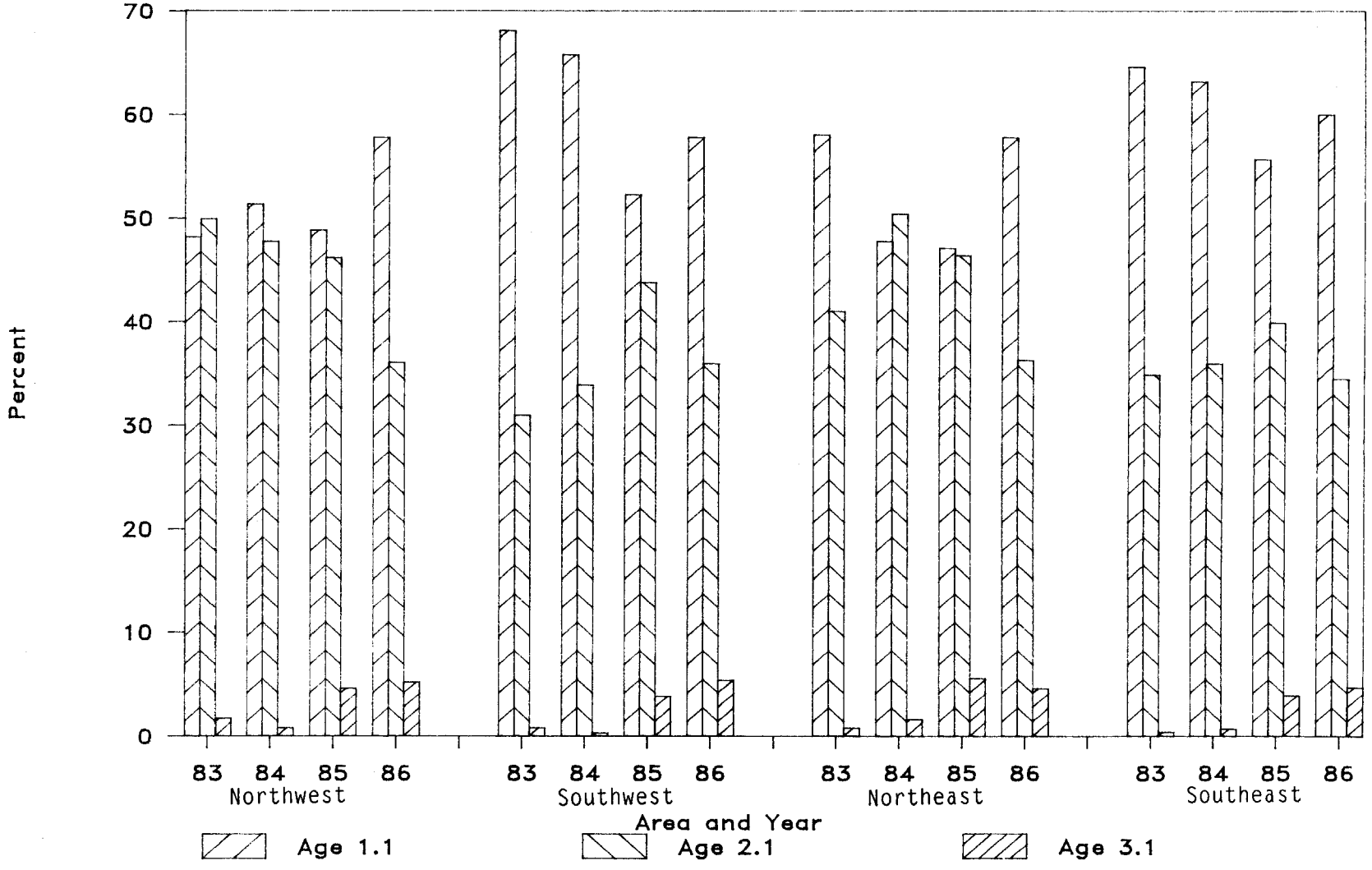

Figure 8. Age composition of the Southeast Alaska troll harvest of coho salmon by area from 1982 to 1986.

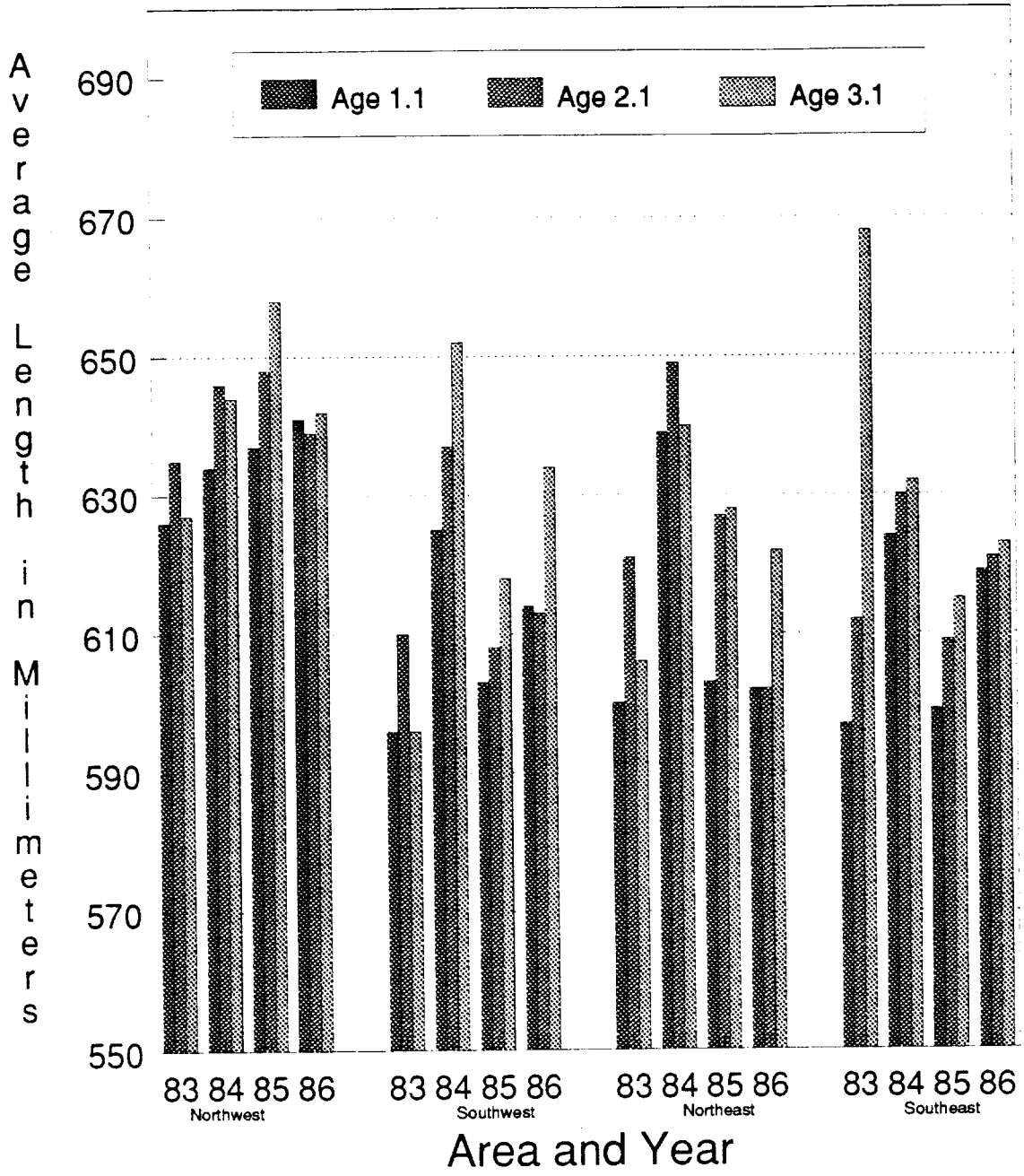

Figure 9. Average length at age for coho salmon harvested in the Southeast Alaska troll fishery by area in 1983, 1984, 1985, and 1986.

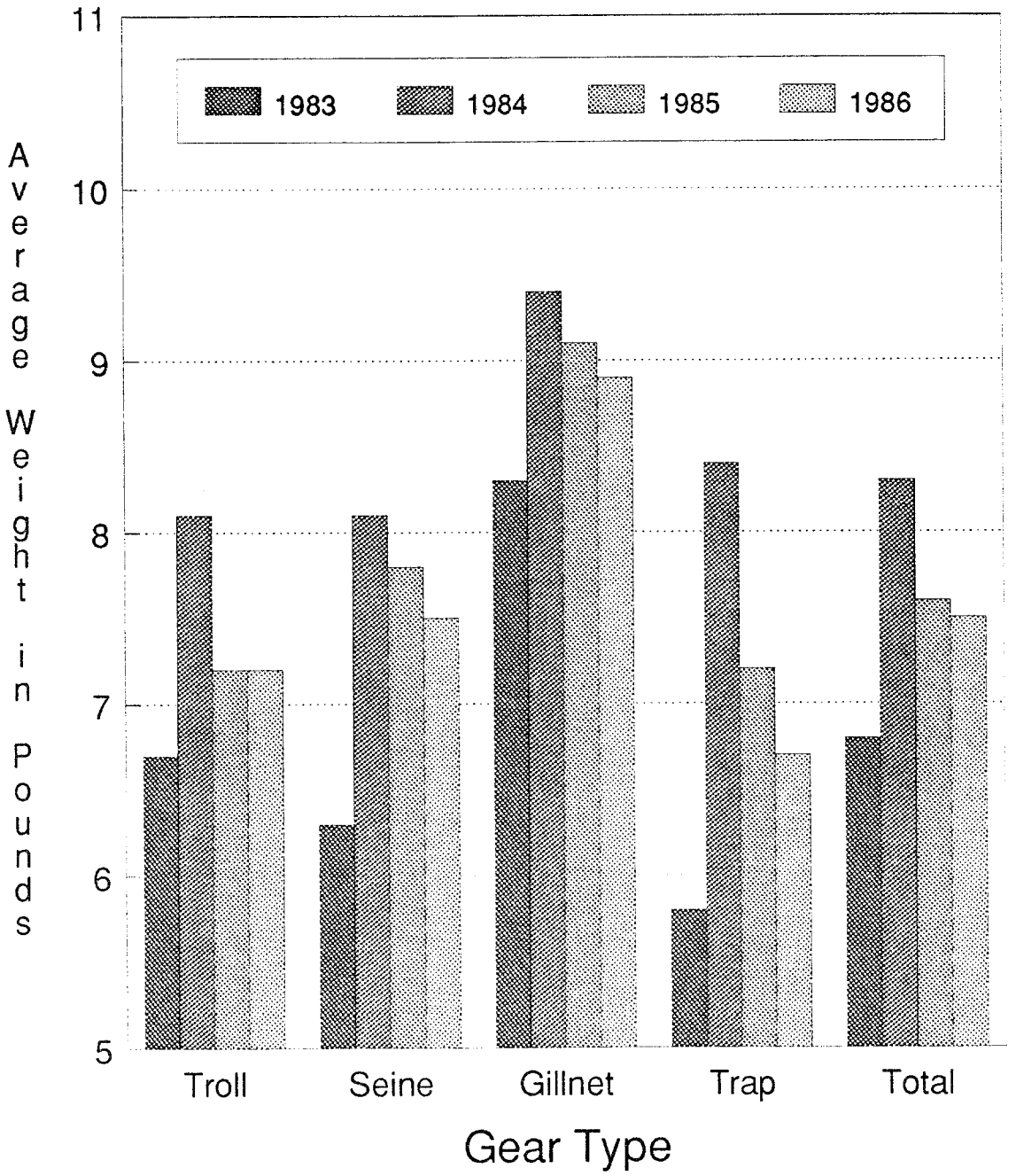

Figure 10. Average weight of coho salmon harvested in the Southeast Alaska troll, purse seine, gill net and trap fisheries from 1983 to 1986.

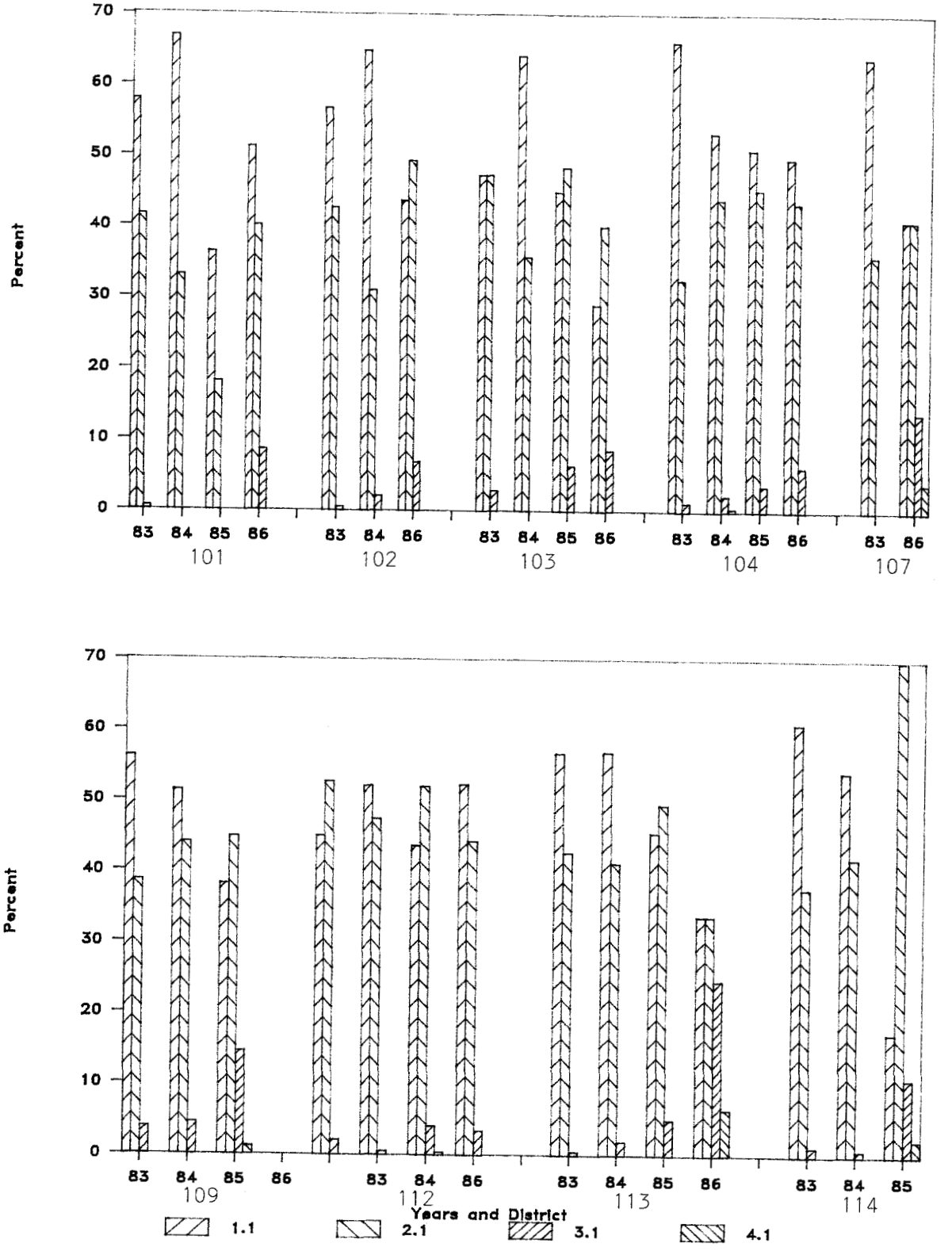

Figure 11. Age composition of the Southeast Alaska purse seine harvest of coho salmon by district, 1983 through 1986.

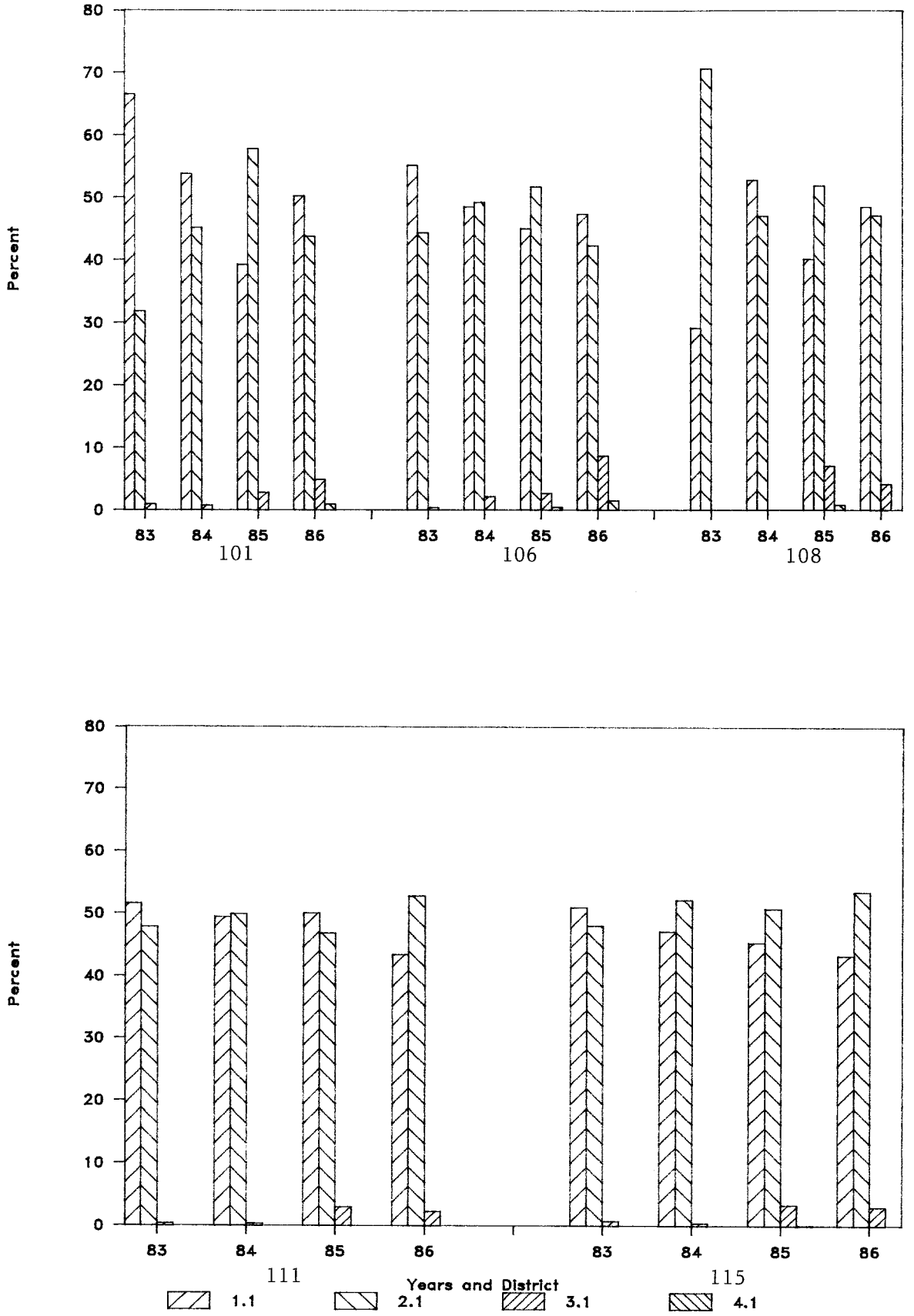

Figure 12. Age composition of the Southeast Alaska gill net harvest of coho salmon by district, 1983 through 1986.

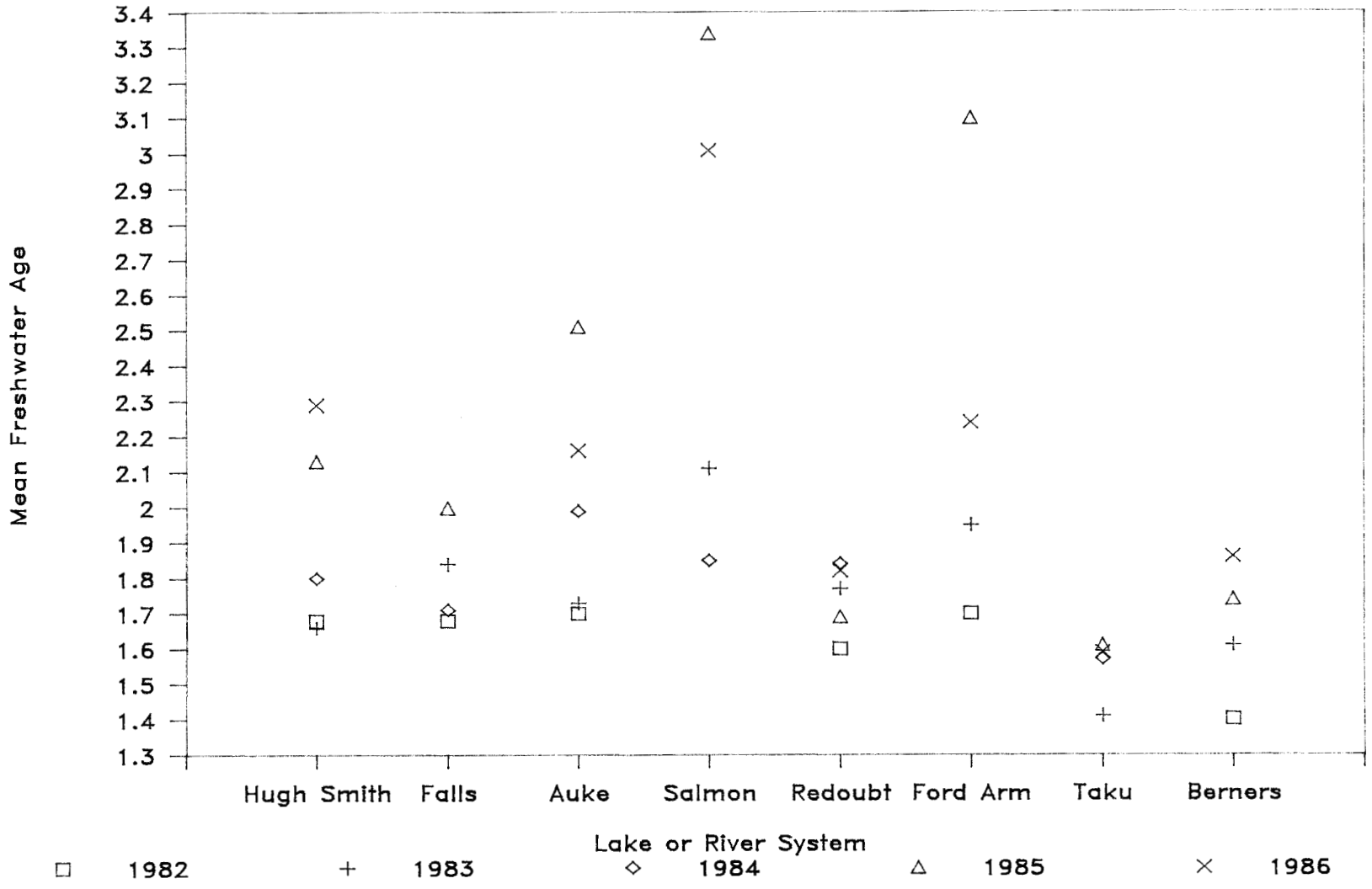

Figure 13. Mean freshwater age of coho salmon sampled from escapements to selected Southeast Alaska lakes and rivers for the years 1982 through 1986.

APPENDICES

Appendix A.1. Sample size needed to describe the age composition of a two, three, four, five, six, or seven-age class population of increasing size with a precision of ± 5% and a probability of 0.10.

Population Size	Sample Size Needed With The Following Number of Groups[a]					
	2	3	4	5	6	7
500	218	238	251	261	267	273
1,000	278	312	334	352	364	376
1,500	307	349	376	399	414	429
2,000	323	370	401	427	445	462
2,500	334	384	418	446	466	485
3,000	341	394	430	460	481	501
3,500	347	402	439	470	492	513
4,000	351	408	446	478	501	523
4,500	355	412	452	485	508	530
5,000	358	416	456	490	513	537
6,000	362	422	463	498	522	546
7,000	365	426	468	504	529	554
8,000	367	430	472	509	534	559
9,000	369	432	476	512	538	563
10,000	371	434	478	515	541	567
15,000	375	441	486	524	551	578
20,000	378	444	490	529	556	583
25,000	379	446	492	531	559	587
30,000	380	447	494	533	561	589
35,000	381	448	495	535	563	591
40,000	381	449	496	536	564	592
45,000	382	449	496	537	565	593
50,000	382	450	497	537	566	594
60,000	383	451	498	538	567	595
70,000	383	451	498	539	567	596
80,000	383	451	499	539	568	597
90,000	383	452	499	540	568	597
100,000	384	452	499	540	569	597
infinite	385	454	502	543	572	601

[a] Based on Cochran (1977) using the following formula:

$$n' = \frac{n_o}{1 + \frac{(n_o - 1)}{N}}$$

Where: n' = adjusted sample size
n_o = sample size needed for an infinitely large population
N = population size

Appendix A.2. Test for significant changes in the age composition mean freshwater age of coho salmon in the District 104 troll fishery for selected years.

Years Compared	Age Class 1.1	2.1	3.1	4.1	Mean Freshwater Age
1969 , 1970	S**	S*		S*	S**
1969 , 1982	S**	S**	S**		S**
1969 , 1983	S**	S**	S**		S**
1969 , 1984	S**	S**	S**		S**
1969 , 1985	S**	S**	S**		S**
1969 , 1986	S**	S**	S**	S	S**
1970 , 1982	S**	S**	S**		S**
1970 , 1983	S**	S**	S**	S*	S**
1970 , 1984	S**	S**	S**	S**	S**
1970 , 1985	S**	S**	S**	S**	S**
1970 , 1986	S**	S**	S**		S**
1982 , 1983	S*	S*			S**
1982 , 1984					S**
1982 , 1985			S		S**
1982 , 1986					S**
1983 , 1984					
1983 , 1985	S**	S**	S**		S**
1983 , 1986	S**	S*	S**		S**
1984 , 1985	S**	S**	S**		S**
1984 , 1986	S**		S**	S*	S**
1985 , 1986	S**	S**			

S = significant at aplha = 0.10
S* = significant at alpha = 0.05
S** = significant at alpha = 0.01

Appendix A.3. Standard errors of the estimates of the difference in age composition and mean freshwater age of coho salmon in the District 104 troll fishry for selected years.

Years Compared	Age Class				Mean Freshwater Age
	1.1	2.1	3.1	4.1	
1969 , 1970	2.412	2.697	1.708	0.348	0.033
1969 , 1982	4.007	4.204	2.278		0.044
1969 , 1983	2.329	2.325	0.976	0.108	0.025
1969 , 1984	2.084	2.072	0.734		0.023
1969 , 1985	2.077	2.094	0.958	0.118	0.024
1969 , 1986	2.216	2.225	1.030	0.240	0.027
1970 , 1982	4.083	4.422	2.618	0.810	0.048
1970 , 1983	2.798	2.777	1.148	0.359	0.031
1970 , 1984	2.586	2.565	0.859	0.249	0.029
1970 , 1985	2.590	2.606	1.196	0.298	0.030
1970 , 1986	2.707	2.702	1.263	0.439	0.032
1982 , 1983	4.013	3.985	0.754	0.252	0.043
1982 , 1984	3.938	3.930	0.469		0.042
1982 , 1985	4.132	4.103	1.525	0.274	0.042
1982 , 1986	4.154	4.034	1.440	0.558	0.044
1983 , 1984	1.891	1.884	0.279	0.077	0.020
1983 , 1985	1.987	1.965	0.651	0.136	0.021
1983 , 1986	2.085	2.029	0.632	0.244	0.024
1984 , 1985	1.697	1.682	0.486	0.084	0.018
1984 , 1986	1.826	1.793	0.466	0.171	0.022
1985 , 1986	1.887	1.858	0.706	0.200	0.023

Appendix A.4. Test for significant changes in the age composition mean freshwater age of coho salmon in the District 114 troll fishery for selected years.

Years Compared	Age Class 1.1	2.1	3.1	4.1	Mean Freshwater Age
1969 , 1970	S**	S*			S**
1969 , 1982	S**	S**	S**		S**
1969 , 1983	S**	S**	S**		S**
1969 , 1984	S**	S**	S		S**
1969 , 1985	S**	S**	S**		S**
1969 , 1986	S**	S**	S**		S**
1970 , 1982	S**	S**	S**		S**
1970 , 1983	S**	S**	S**	S*	S**
1970 , 1984	S**	S**	S**	S**	S**
1970 , 1985	S**	S**	S**		S**
1970 , 1986	S**	S**	S**		S**
1982 , 1983					S
1982 , 1984			S**		
1982 , 1985	S*		S**		
1982 , 1986			S*		S
1983 , 1984	S**	S*	S**		S**
1983 , 1985		S	S**	S	S
1983 , 1986			S**		
1984 , 1985	S**		S**	S*	S*
1984 , 1986	S**		S**		S**
1985 , 1986					S*

S = significant at alpha = 0.10
S* = significant at alpha = 0.05
S** = significant at alpha = 0.01

Appendix A.5. Standard error of the estimates of the difference in age composition and mean freshwater age of coho salmon in the District 114 troll fishery for selected years.

Years Compared	Age Class				Mean Freshwater Age
	1.1	2.1	3.1	4.1	
1969 , 1970	2.851	3.198	2.049	0.396	0.039
1969 , 1982	3.255	3.320	1.494		0.037
1969 , 1983	2.654	2.685	1.017		0.031
1969 , 1984	2.664	2.672	0.787		0.030
1969 , 1985	2.611	2.662	1.347	0.287	0.031
1969 , 1986	3.121	3.215	1.605	0.211	0.038
1970 , 1982	3.203	3.329	1.668	0.399	0.037
1970 , 1983	2.685	2.733	1.109	0.222	0.031
1970 , 1984	2.713	2.728	0.885	0.211	0.030
1970 , 1985	2.645	2.717	1.426	0.361	0.031
1970 , 1986	3.061	3.225	1.757	0.433	0.038
1982 , 1983	2.702	2.712	0.745		0.029
1982 , 1984	2.685	2.685	0.412		0.028
1982 , 1985	2.661	2.678	1.197	0.288	0.029
1982 , 1986	3.247	3.258	1.124	0.212	0.036
1983 , 1984	1.822	1.823	0.383		0.019
1983 , 1985	1.798	1.811	0.734	0.161	0.021
1983 , 1986	2.576	2.589	0.832	0.118	0.030
1984 , 1985	1.763	1.767	0.635	0.153	0.020
1984 , 1986	2.563	2.563	0.58	0.112	0.029
1985 , 1986	2.531	2.555	1.198	0.293	0.030

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