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MIGRATORY PATTERNS AND TIMING OF STIKINE RIVER COHO SALMON (Oncorhynchus kisutch) BASED ON CODED-WIRE TAGGING STUDIES, 1978-1982

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ABSTRACT

A coded-wire tagging study was conducted by the Alaska Department of Fish and Game during 1978-1982 to determine the spatial and temporal distribution of returning Stikine River coho salmon (*Oncorhynchus kisutch*) and their harvest rate by Southeastern Alaska fisheries. Coho salmon smolts and rearing juveniles were minnow-trapped and tagged on the main Stikine River and four lower tributaries during 1978 and 1979. Tagged adults returned over a 4-year period from 1979 through 1982. A total of 97 coded-wire tagged Stikine River coho salmon was recovered from area-specific commercial catches. The catch locations ranged from the Queen Charlotte Islands (B.C. Area 1, Subarea 1) to the outer Fairweather Grounds (District 157). The most important harvest area for tagged Stikine River stocks was along the outer coast of northern Southeastern Alaska where an estimated 49.0% of the total marine harvest of tagged fish was taken. The second most important harvest area was lower Chatham Strait (District 109) where an estimated 22.3% of the total marine harvest occurred. The data indicated that Stikine River stocks contributed a greater average percentage to coho salmon catches from Lower Chatham Strait (District 109) compared with other major troll fishing areas. An estimated 89.3% of the total marine harvest of tagged Stikine River fish was attributed to troll gear while purse seine and drift gillnet fisheries accounted for 5.2% and 5.5%, respectively. However, the proportion harvested by drift gillnet fisheries in Districts 106 and 108 may have been underestimated due to a combination of low sampling effort and a small number of returning tagged fish. Stikine River coho salmon were available to the troll fishery from at least as early as the last week of June through early September. During 1979, the central half of the migration of tagged Stikine River coho salmon in the troll fishery in northern Southeastern Alaska occurred between the last week of July and mid-August while the midpoint (median date) occurred on approximately 5 August. The average midpoints of the coho salmon migration in the District 108 drift gillnet fishery and the Canadian fishery on the lower Stikine River were approximately 30 August and 10 September, respectively. Because of the broad spatial and temporal distribution of returning Stikine River coho salmon, specific management for Stikine River stocks by area and time restrictions in the troll fishery is not feasible. The burden of providing for escapement specifically to the Stikine River must fall primarily on fisheries near the mouth of the river and the in-river Canadian fishery. A region-wide troll closure centered during the first half of August appears to be the most effective management action for allowing more Stikine River coho salmon to escape to inside waters.

KEY WORDS: coho salmon, Stikine River, coded-wire tagging, migration patterns, migratory timing, troll fishery, Southeastern Alaska.

INTRODUCTION

The Stikine River is one of the most important coho salmon (*Oncorhynchus kisutch*) producing systems in Southeastern Alaska. The main Stikine is a large, silty river which originates in northwestern British Columbia and enters saltwater in central Southeastern Alaska near the junction of several inland waterways (Figure 1). There is very little available quantitative information on the magnitude of escapements to the river, the distribution of spawning and rearing habitat within the system, or its contribution to the commercial fisheries. During 1935-1982, the District 108 drift gillnet fishery near the mouth of the Stikine River harvested an average of 36,670 coho salmon annually. A comparison of recent catches with the harvest during previous years indicates a declining trend since the 1940's (Appendix Table 1). The average annual harvest has decreased by approximately three-fourths from 60,767 during the 1940's to 14,700 during the 1970's. An in-river gillnet fishery initiated in 1979 on the Canadian portion of the river has accounted for coho salmon harvests ranging from 2,675 to 15,944 fish annually.

An increase in effort and changing fishing patterns in mixed stock troll fisheries has given rise to concern by fishery managers that many coho salmon stocks originating in inside waters are being increasingly subjected to less manageable fishing effort. In order to gain a better understanding of the migration routes, migratory timing, and harvest levels of Stikine River coho salmon in Southeastern Alaska fisheries, a coded-wire tagging study was conducted by the Alaska Department of Fish and Game (ADF&G) during 1978-1982. Similar studies conducted for several other wild coho salmon stocks in Southeastern Alaska have demonstrated coded-wire tagging and recovery as an effective technique for obtaining information on stock migrations and harvest rates (Shaul et al. 1983).

METHODS AND MATERIALS

Smolt and Juvenile Marking

Coho salmon smolts and rearing juveniles were minnow trapped and coded-wire tagged on the main Stikine River, and in lower tributaries, during 1978 and 1979 (Figure 2). Wire-mesh minnow traps, baited with borax-preserved salmon roe, were placed in suitable appearing habitat such as under overhanging banks, around fallen trees, and in weedy areas. While trapping along the main river, a total of 80 traps was checked and reset once during each 24-hour period. For capturing rearing juveniles in side tributaries, 40 traps were set and checked at 2-hour intervals four times daily. The traps were moved frequently to maintain the highest possible catch rates. The minnow trapping method for capturing coho salmon is described in detail by Gray et al. (1983). Minnow trapping along the main river was conducted from a river boat while 3 m and 4 m long inflatable rafts equipped with small outboard motors were used to trap in side tributaries.

Fork length measurements and 10-20 scales each were taken from a random sample of approximately 50 rearing fish to determine the minimum size of age 1+ and greater juveniles. Fish under that size were primarily 0+ fry and were released immediately after capture while larger fish were held in pens until a total of 1-3 thousand was captured. However, fish were not held for a period longer than

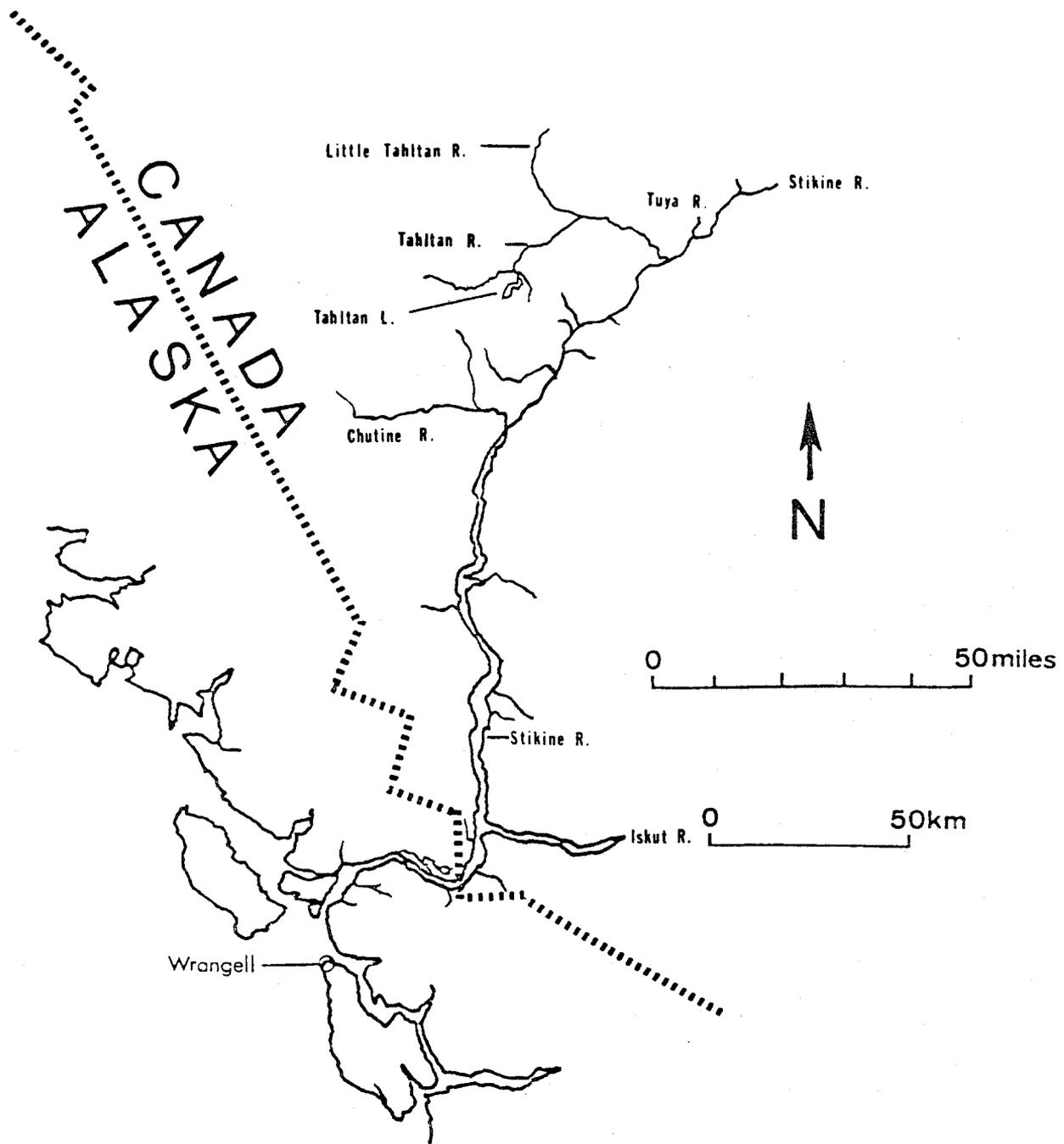


Figure 1. Map of the Stikine River drainage showing the portion accessible to salmon. (Based on information in ADF&G 1957.)

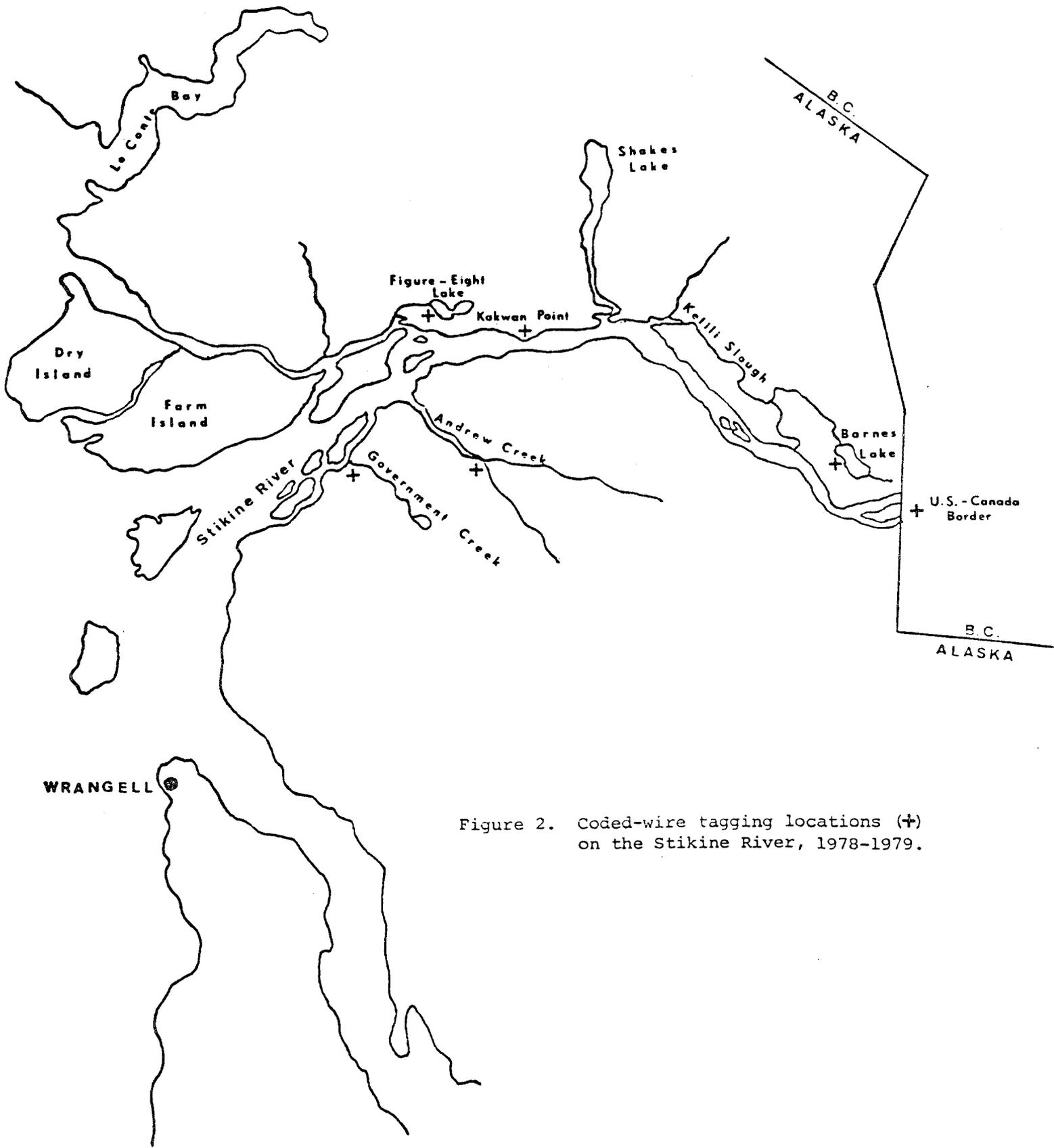


Figure 2. Coded-wire tagging locations (+) on the Stikine River, 1978-1979.

5 days before being tagged and released. A detailed description of the coded-wire tagging technique under remote field conditions is found in Koerner (1977). Full length binary coded-wire tags were used and the adipose fins on all tagged fish were removed with clippers in order to provide for external recognition. Scales were mounted between 2 cm x 8 cm sheets of clear plastic and were aged in the field using a 0.7-3.0 power microscope.

Tag Recovery

Coded-wire tags were recovered from commercial catches during 1979-1982 and from the escapement to Barnes Lake during 1980 and 1981.

Fishery Sampling:

Commercial catch sampling for coded-wire tagged coho salmon was conducted by the Micro-wire Tag Recovery Project which had samplers stationed at fish processors and buying stations located throughout Southeastern Alaska. The samplers watched for adipose clipped coho salmon during offloading and sorting operations. Skippers of fishing vessels and tenders were interviewed to determine fishing areas. The heads of all adipose clipped fish were sent to the ADF&G office in Sitka for removal and decoding of tags. Tag recoveries were sorted by code, date, area of recovery, and gear type.

Tag recoveries from random fishery samples were expanded to total catch by area and week. Area strata used in the expansions were PMFC (Pacific Marine Fisheries Commission) area groupings of Southeastern Alaska regulatory districts (Appendix Table 2) while statistical weeks used corresponded to the time periods shown in Appendix Table 3. The total catch, number of fish sampled, and sample percentage by PMFC area and statistical week during 1979-1981 are shown in Appendix Tables 4-6.

The Department of Fisheries and Oceans of Canada sampled coho salmon catches landed at British Columbia ports.

Barnes Lake Weir:

A 3 m high vertical aluminum picket and channel weir was installed on the outlet stream of Barnes Lake during the adult coho salmon migration period in 1980 and 1981. The purpose of the weir was to enumerate the escapement to Barnes Lake and to determine the number of tagged fish in the escapement. An upstream trap was installed to capture returning fish and examine them for missing adipose fins. During 1981, all adult coho salmon that were released upstream from the weir were marked with numbered Peterson-disc tags in order to obtain a mark-recapture estimate of the escapement in the event that the weir did not remain fish-tight throughout the season.

RESULTS

Coded-wire tagging of Stikine River coho salmon smolts and rearing juveniles was conducted during 1978-1979 while tagged adult coho salmon returned over a 4-year period during 1979-1982.

Smolt and Juvenile Marking

A total of 49,353 coho salmon smolts and rearing juveniles was minnow trapped and coded-wire tagged on the main Stikine River and in lower tributaries including 34,049 in 1978 and 15,304 in 1979. Numbers of fish captured and tagged by location and year are shown in Table 1. The following is a summary of the trapping and tagging results.

Main Stikine River:

During April-May 1978, 14,712 smolts and juveniles were trapped and tagged on the main Stikine River, including 3,785 near the U.S./Canada border and 10,927 near Kakwan Point (Table 1 and Figure 2). Their bright coloration, dark fins, and lack of parr marks indicated that many of these fish were outmigrating smolts that were expected to return in 1979. Fish which showed typical smolt markings ranged in fork length from 90 mm to 160 mm and averaged approximately 110 mm while fish which displayed markings typical of rearing juveniles ranged from 65 mm to 90 mm and averaged approximately 70 mm.

Trapping along with the main river was generally poor with catches averaging three juvenile coho salmon per trap. Catches were highest around log jams and undercut banks, and in sloughs joining the main river.

Barnes Lake:

Barnes Lake is a shallow, weed-filled lake located near the U.S./Canada border (Figure 2). It is approximately 40 ha in size and drains into the main Stikine River through Ketili slough. Based on extensive minnow trapping efforts in tributaries of the lower Stikine River, Barnes Lake was the most important coho salmon rearing area on the U.S. portion of the river.

During 1978, a total of 14,061 rearing juveniles was captured and tagged at Barnes Lake between 7 June and 7 July. These fish ranged in size from 55 mm to 125 mm fork length and averaged approximately 70 mm. Catches were excellent in the lake and inlet stream. Overall, catches averaged approximately 20 juvenile coho salmon per trap and ranged as high as 60 per trap.

In 1979, minnow trapping and tagging was conducted at Barnes Lake during 26 May - 8 June and during 7-20 July. Trapping success was very poor during the first period when the temperature of the lake averaged 11°C. However, catches increased dramatically during the second period after the water temperature had increased to 18°C. A total of only 771 fish, of which 527 exhibited typical smolt markings, was tagged during May-June while 9,779 rearing juveniles were captured and tagged during July. Fish which exhibited typical smolt coloration ranged in length from 90 mm to 130 mm and averaged approximately 110 mm while fish exhibiting coloration typical of rearing juveniles ranged from 60 mm to 120 mm and averaged approximately 75 mm.

Government Creek:

Government Creek is a small tributary that enters the lower Stikine River from the south side. The lower 2.5 km section of the creek is clear with little current and has undercut banks which provide good rearing habitat for young coho salmon.

Table 1. Summary of coded-wire tagging of Stikine River coho salmon, 1978-1979.

Year	Location	Code	Number Tagged
1978	Main Stikine (U.S./B.C. Border)	4-17-18	1,669
		4-17-19	<u>2,116</u>
		Total	3,785
	Main Stikine (Kakwan Point)	4-06-16	162
		4-16-31	2,461
		4-16-32	2,529
		4-16-34	2,598
		4-16-35	2,086
		4-16-38	<u>1,091</u>
	Total	10,927	
	Barnes Lake	4-07-16	6,048
		4-08-16	5,808
		4-09-16	<u>2,205</u>
		Total	14,061
	Government Creek	4-10-16	3,327
Figure-Eight Lake	4-17-15	1,949	
1979	Barnes Lake	4-19-47	6,245
		4-19-48	3,778
		4-19-50	<u>527</u>
	Total	10,550	
	Andrew Creek	4-19-51	2,713
Figure-Eight Lake	4-19-52	2,041	

A total of 3,327 juvenile coho salmon was captured and tagged at Government Creek during 11-20 July 1978. Catches were initially good but had diminished to less than one juvenile per trap by the end of the trapping period. The fish that were tagged ranged in length from 60 mm to 110 mm and averaged approximately 75 mm. A total of eight previously tagged juveniles was captured in the stream. These fish had entered Government Creek from the main Stikine River after the first tagged fish were released into the system in late April.

Figure-Eight Lake:

Figure-Eight Lake drains into the lower Stikine River from the north. The lake consists of two interconnecting shallow basins totaling approximately 25 ha in surface area. The lake is situated such that glacial water from the main river enters both basins during periods of high water. The habitat is relatively barren of cover for rearing fish with only a few scattered weed patches.

A total of 1,949 rearing juvenile coho salmon was captured and tagged at Figure-Eight Lake during 21-26 July 1978. The fish ranged in length from 58 mm to 105 mm and averaged approximately 70 mm. Catches averaged less than two juveniles per trap. Coded-wire tags were detected in a total of 13 fish which had entered Figure-Eight Lake from the main Stikine River since trapping began in late April.

During 1979, a total of 2,041 juvenile coho salmon was captured and tagged at Figure-Eight Lake during three time periods from 27 June through 26 July. Catches averaged less than two juveniles per trap. The tagged fish ranged in length from 60 mm to 125 mm and averaged approximately 70 mm.

Andrew Creek:

Andrew Creek is a large tributary that enters the lower Stikine River from the north. Rearing habitat in the stream is limited mainly to a few side sloughs and channels along the lower section. The main stream is cold and clear with a relatively fast current in the upper portion.

Minnow trapping and tagging of juvenile coho salmon was conducted at Andrew Creek during 12-24 June 1979. Catch rates were low and had fallen to less than one juvenile per trap by the end of the trapping period. A total of 2,713 fish was tagged and released. They ranged in size from 60 mm to 85 mm and averaged approximately 70 mm.

Other Tributaries:

Brief surveys were conducted on other readily accessible tributaries on the U.S. side of the border in an attempt to find concentrations of rearing fish for tagging. These included the Kikahe River, North Arm Creek, Guerin Slough, portions of Ketili Slough, and other sloughs along the main Stikine River. Insufficient numbers of juveniles for tagging were found in all of these areas although good spawning habitat was found along the Kikahe River where fall survey counts have revealed up to 450 adults.

Tag Recoveries from Commercial Fisheries

A total of 96 coded-wire tagged Stikine River coho salmon was recovered from area-specific commercial catch samples in Southeastern Alaska while only one was recovered from British Columbia coastal fisheries (Bailey et al. 1983). Of the total number of tags recovered, 83 were from random fishery samples (Appendix Table 7) while 14 were select (non-random) recoveries (Appendix Table 8). Of the 82 random recoveries from Southeastern Alaska, expansion factors could be generated for 59 using the nine PMFC areas as sampling strata. The remaining random recoveries were from mixed catches from two or more PMFC areas. Appendix Figures 1-4 show the regulatory districts and subdistricts used in reporting the harvest locations of tag recoveries in Southeastern Alaska.

Of the total number of tags recovered from commercial catches, the greatest number were reported for 1979 when 62 were recovered. All of the 1979 tag recoveries were from fish marked as smolts on the main Stikine River in 1978. Only 17 Stikine River tags were recovered from commercial fisheries during 1980, while another 17 were recovered in 1981. One coded-wire tagged coho salmon which had been tagged at Barnes Lake in 1979 was recovered from commercial catches in 1982.

The number of fishery recoveries, estimated contribution to the commercial fisheries, and the estimated percentage harvested for each release group is shown in Table 2. The estimated harvest of fish tagged on the main Stikine River, both at the U.S./Canada border and at Kakwan Point, totaled 186.6. The percentage of those release groups which was harvested by commercial fisheries was estimated at 1.27%. The estimated harvest of fish tagged at Barnes Lake amounted to only 35.9 for the 1978 release group and 85.5 for the 1979 release group. Low recovery rates and estimated harvests were also found for fish released at Government Creek, Figure-Eight Lake, and Andrew Creek. No tags were recovered from fish tagged at Andrew Creek, while only two were recovered from fish tagged at Government Creek and four were recovered from tagging at Figure-Eight Lake. Overall, the estimated percentage harvested of coho salmon tagged as predominantly age 1+ rearing juveniles on lower tributaries of the Stikine River was only 0.45%.

Barnes Lake Weir

Severe flooding conditions during 1980 and again in 1981 made it impossible to obtain a total escapement count of adult coho salmon that migrated into Barnes Lake. A total of 567 adults and 20 jacks (age .0) were counted during 1980 before the weir washed out on 2 October. Of these totals, 17 adults and 3 jacks had missing adipose fins.

Although the weir remained in place during 1981, the water surface level rose above the tops of the pickets during 9-15 September and a flow reversal occurred, resulting in an intrusion of silty Stikine River water into the lake. A total of 124 adult coho salmon was counted through the weir of which 122 were Peterson-disc tagged and released. A total of 346 adult coho salmon was counted during a spawning ground survey of the inlet stream to the lake on 28 October. Based on the tagged-untagged ratio of fish in the stream, the total adult coho salmon escapement to Barnes Lake was estimated at 1,071 with an approximate 95% confidence interval ranging from 418 to 3,392 (Shaul et al. 1983). Of a total of 333 fish examined at the weir and in the inlet stream during 1981, 11 (3.3%) had

Table 2. Area-specific fishery recoveries and estimated harvest of coho salmon coded-wire tagged at six locations on the lower Stikine River, 1978-1979.

Location	Year Tagged	Number Tagged	Recovery Year	Number of Recoveries	Expanded Recoveries	Estimated Percentage Harvested
Main Stikine (U.S./B.C. Border)	1978	3,785	1979	17	51.4	1.36
Main Stikine (Kakwan Point)	1978	10,927	1979 1980	45 1	126.7 8.5	1.16 0.08
Main Stikine (Total) ¹	1978	14,712	1979 1980	62 1	178.1 8.5	1.21 0.06
Barnes Lake	1978 1979	14,061 10,550	1980 1980 1981 1982	7 4 14 1	35.9 24.3 59.0 2.2	0.26 0.23 0.56 0.02
Government Creek	1978	3,327	1980	2	11.0	0.33
Figure-Eight Lake	1978 1979	1,949 2,041	1980 1981	1 3	9.3 13.3	0.48 0.65
Andrew Creek	1979	2,713	1981	0	-	-

¹ Does not include two coho salmon that were reported as juvenile chinook salmon when they were tagged near the mouth of the Iskut River during March-April 1978 (code: 4-17-17)(Kissner 1982) and were recovered in 1980 (see Appendix Tables 7 and 8).

missing adipose fins. Examination of the heads from these fish showed that 10 contained tags implanted at Barnes Lake in 1979, while one contained no tag.

Fishery Contribution of Barnes Lake

The contribution to the commercial fisheries by the Barnes Lake coho salmon stock can be estimated by multiplying the estimated harvest of coded-wire tagged fish (Table 2) by the observed tagged-untagged ratio of the escapement. The total contribution by Barnes Lake to the commercial fisheries was estimated at 2,008 fish for 1980 and 1,965 for 1981.

Harvest by Gear Type

The estimated percentage of the total 1979-1982 marine harvest of tagged Stikine River coho salmon taken by the various gear types was 89.3% for troll gear, 5.2% for purse seine gear, and 5.5% for drift gillnet gear. The percentage attributed to troll gear by year was estimated at 92.8% in 1979, 89.0% in 1980, and 83.8% in 1981. The percentage of the total harvest of coded-wire tagged Stikine River coho salmon taken by net gear may have been under-estimated because of low and somewhat spotty sampling effort for coded-wire tags in catches from central inside districts (106-108) (Appendix Tables 4-6). Also drift gillnet effort in those districts was restricted during 1979-1981 in comparison with historical levels because of poor coho salmon returns and the need to allow for an in-river harvest by the Canadian fishery.

Migration Patterns and Harvest by Area

A representation of the migration patterns of returning Stikine River coho salmon is shown in Figure 3. Since the figure is based primarily on coded-wire tag recoveries which do not provide directional movement information it is somewhat subjective. Also, the spatial distribution of tag recoveries was affected by the distribution of fishing effort.

The estimated 1979-1982 area distribution of the harvest by troll gear and all gear types combined for coded-wire tagged Stikine River stocks is shown in Tables 3 and 4. The data shows that returning Stikine River coho salmon were characterized by very diverse migration patterns as evidenced by tag recoveries from most offshore, outer coastal, and intermediate areas from the west coast of the Queen Charlotte Islands (B.C. Area 1, Subarea 1) to the outer Fairweather Grounds (District 157). An estimated 61.9% of the total troll harvest and 57.3% of the total marine harvest of tagged Stikine River fish occurred in outer coastal and offshore waters. Their total contribution to fisheries appears to have been highest in central outside districts (113, 154) where an estimated average of 44.2% of the troll harvest (Table 3) and 39.5% of the total marine harvest (Table 4) occurred. Also important were waters north of Cape Spencer where an estimated 10.7% of the troll harvest and 9.5% of the total marine harvest of tagged fish was taken. Stikine River stocks appeared to be less prevalent in southern outside districts (103, 104, 152) where only five tags were recovered and only 6.1% of the estimated troll harvest and 7.5% of the marine harvest occurred. All four district-specific recoveries in the southern outside area were reported from District 104.

The estimated contribution of coded-wire tagged Stikine River coho salmon to the Southeastern Alaska commercial coho salmon harvest by area during 1979-1981 is

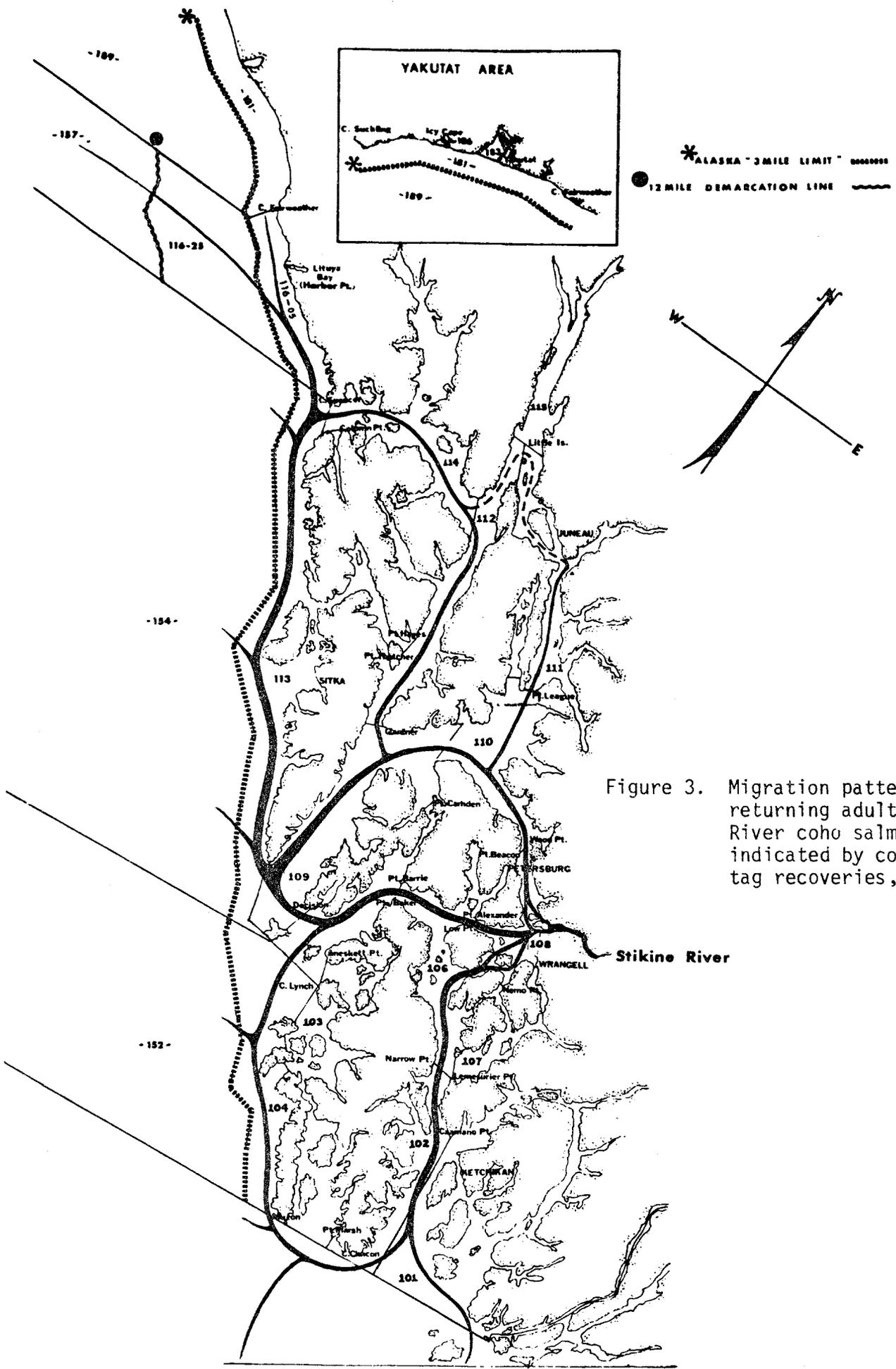


Figure 3. Migration patterns of returning adult Stikine River coho salmon as indicated by coded-wire tag recoveries, 1979-1982.

Table 3. Estimated area distribution of the troll harvest of coded-wire tagged Stikine River coho salmon, 1979-1982.

Year	Northern Outside 116,157,181,189	Central Outside 113,154	Southern Outside 103,104,152	Central Intermediate 112,114	Southern Intermediate 105,109,110	Stephens Passage 111	Central Inside 106-108	Southern Inside 101,102	British Columbia 1-5	Total
1979	8.1 ¹⁽²⁾ ₃ ² 4.9%	95.8(16) 58.0%	17.4(2) 10.5%	6.5(2) 3.9%	33.0(2) 20.0%	2.8(1) 1.7%	1.6(1) 1.0%	-	-	165.2(26) 100%
1980	21.3(3) 23.9%	25.0(5) 28.1%	-	-	24.8(3) 27.9%	-	-	15.2(2) 17.1%	2.7(1) 3.0%	89.0(14) 100%
1981	4.2(1) 6.9%	18.5(4) 30.5%	1.8(1) 3.0%	7.8(2) 12.9%	26.5(5) 43.7%	-	-	1.8(1) 3.0%	-	60.6(14) 100%
1982	-	-	-	-	-	-	-	-	-	-
Total	33.6(6) 10.7%	139.3(25) 44.2%	19.2(3) 6.1%	14.3(4) 4.5%	84.3(10) 26.8% ⁴	2.8(1) 0.9%	1.6(1) 0.5%	17.0(3) 5.4%	2.7(1) 0.9%	314.8(54) 100%

¹ Fishery recoveries expanded to total catch.

² Number of tags recovered from random fishery samples in parentheses.

³ Percent of total.

⁴ 25.0% harvested in District 109.

Table 4. Estimated area distribution of the marine harvest of coded-wire tagged Stikine River coho salmon, 1979-1982 (includes all gear types).

Year	Northern Outside 116,157,181,189	Central Outside 113,154	Southern Outside 103,104,152	Central Intermediate 112,114	Southern Intermediate 105,109,110	Stephens Passage 111	Central Inside 106-108	Southern Inside 101,102	British Columbia 1-5	Total
1979	8.1 ¹ (2) 4.5%	95.8(16) 53.8%	17.4(2) 9.8%	6.5(2) 3.7%	33.0(2) 18.5%	7.7(2) 4.3%	9.6(2) 5.4%	-	-	178.1(28) 100%
1980	21.3(3) 21.3%	25.0(5) 25.0%	-	-	24.8(3) 24.8%	-	-	26.2(3) 26.2%	2.7(1) 2.7%	100.0(15) 100%
1981	4.2(1) 5.8%	18.5(4) 25.6%	9.2(2) 12.7%	7.8(2) 10.8%	26.5(5) 36.7%	-	-	6.1(2) 8.4%	-	72.3(16) 100%
1982	-	-	-	-	-	-	2.2(1) 100%	-	-	2.2(1) 100%
Total	33.6(6) 9.5%	139.3(25) 39.5%	26.6(4) 7.5%	14.3(4) 4.1%	84.3(10) 23.9%	7.7(2) 2.2%	11.8(3) 3.3%	32.3(5) 9.2%	2.7(1) 0.8%	352.6(60) 100%

¹ Fishery recoveries expanded to total catch.

² Number of tags recovered from random fishery samples in parentheses.

³ Percent of total.

⁴ 22.3% harvested in District 109.

shown in Table 5. Of the major troll fishing areas shown, tagged Stikine River stocks appeared to have comprised the highest average proportion of the catch from lower Chatham Strait (District 109) where tagged fish represented more than 1 in 4,000 fish landed during 1979-1981. The apparent relatively high contribution of Stikine River coho salmon to catches in that district indicated that a large proportion of the return probably entered inside waters through lower Chatham Strait. An estimated 25.0% of the total troll harvest and 22.3% of the total marine harvest of tagged Stikine River coho salmon was taken in District 109.

No tagged Stikine River coho salmon were recovered in District 110, while one was recovered in District 105 and four were reported in Districts 106-108. Five Stikine River tags were recovered from catches reported specifically from Districts 112 and 114. Two tags were reported from catches in Stephens Passage (District 111) during 1979. One of those was harvested with drift gillnet gear north of the Midway Islands while the other was taken with troll gear in the southern part of the district.

An estimated 5.4% of the troll harvest and 9.2% of the total marine harvest of tagged Stikine River coho salmon was taken in southern inside districts (101, 102). A total of six tags was recovered in those districts, ranging from Tree Point northward to the northwestern entrance of Behm Canal.

Migratory Timing

Coded-wire tagged Stikine River coho salmon were found in catches landed as early as the last week of June (week 26) and as late as mid-September (week 38). Tags were recovered from troll catches landed as early as the last week of June (week 26) until as late as the first week of September (week 36), and from purse seine landings from the last week of July (week 31) through the last week of August (week 35). The earliest tag recovery from drift gillnet catches was harvested at Tree Point (District 101-11) during late June (week 26) while the latest drift gillnet recovery was harvested in District 108 near the mouth of the Stikine River in mid-September (week 38).

Because of the small sample size, it was impossible to develop meaningful time-density distribution determinations for the harvest and migratory passage of coded-wire tagged Stikine River coho salmon in most areas and recovery years from existing data. However, a relatively large number of tagged fish were recovered from catches taken near the boundaries of Districts 113, 114, and 116 in 1979. This was probably due, in large part, to heavily concentrated troll effort near Cape Spencer and Cross Sound (Appendix Figure 1). By pooling 1979 recoveries from District 114 and outside waters north of Cape Ommaney (Appendix Figures 1 and 2) it was possible to approximate the time-density distribution of tagged fish harvested by the troll fishery based on 41 recoveries. Since these recoveries were from fish that were captured and tagged as outmigrating smolts along the lower Stikine River, they were thought to represent nearly all of the contributing stocks in the system. It should be noted that the time-density distributions derived from these recoveries are based on the date when the fish were landed. Since the average trip length for troll vessels in 1979 was approximately 4-6 days (Funk 1981), the time when fish were caught would have preceded the time when they were landed by an average of 2-3 days.

Table 5. Estimated contribution of coded-wire tagged Stikine River coho salmon to the Southeastern Alaska commercial coho salmon harvest by area, 1979-1981¹.

Area	Year	Number of Tag Recoveries From Random Fishery Samples	Tag Recoveries Expanded to Total Catch	Commercial Catch	Ratio of Tagged/Untagged Coho Salmon in Commercial Catch
Outside North of Cape Spencer	1979	2	8.1	123,539	1:15,252
	1980	3	21.3	70,975	1: 3,332
	1981	1	4.2	98,205	1:23,382
Districts 113,154	1979	16	95.8	325,052	1: 3,393
	1980	5	25.0	225,483	1: 9,019
	1981	4	18.5	249,437	1:13,483
Districts 103,104,152	1979	2	17.4	345,923	1:19,881
	1980	0	-	342,549	--
	1981	2	9.2	394,944	1:42,929
Districts 112,114	1979	2	6.5	36,707	1:5,647
	1980	0	-	39,801	--
	1981	2	7.8	130,527	1:18,646
District 109	1979	2	29.6	108,923	1:3,680
	1980	3	23.8	64,556	1:2,712
	1981	4	20.9	77,587	1:3,712
Districts 105-106	1979	2	9.6	62,226	1:6,482
	1980	0	-	38,709	--
	1981	1	5.7	72,536	1:12,726
Districts 101,102	1979	0	-	130,825	--
	1980	3	26.2	161,927	1:6,180
	1981	2	6.1	121,430	1:19,907

¹ Other districts not shown due to low sample sizes.

The 1979 time-density distribution of the harvest of tagged Stikine River coho salmon by the troll fishery in northern Southeastern Alaska is shown in comparison with the timing of the harvest of the overall mixture of available stocks in Figure 4. While the overall coho salmon harvest was distributed from mid-June (week 25) until the troll season was closed on 7 September, Stikine River coho salmon were present in the catch from at least as early as the second week of July (week 28) through the end of the season. The estimated midpoint (median date) of the harvest of Stikine River stocks occurred on approximately 2 August while the central half occurred during 23 July - 15 August (weeks 30-33). The midpoint of the harvest of all stocks available in the fishing area occurred on approximately 11 August (week 32) while the central half occurred during 29 July - 23 August (weeks 31-34). Overall, the harvest timing of Stikine River stocks appeared to have preceded the harvest timing of the overall mixture of available stocks by approximately 1 week.

In order to more accurately represent the actual availability of Stikine River stocks over time, the harvest distribution was also expressed with respect to fishing effort as "average catch-per-boat-day". In this case, the estimated total catch of tagged fish by week was divided by the number of boats which landed fish and the number of days open to fishing. Effort data was adjusted according to the relative harvesting efficiency of power troll and hand troll gear so that total effort was expressed in power troll units. The period of peak abundance of Stikine River stocks and the overall mixture of available stocks appeared to have occurred in mid-August (week 33) (Figure 5). The central half of the time-density distribution of CPUE for Stikine River stocks occurred during 23 July - 16 August (weeks 30-33) while the midpoint occurred on approximately 5 August (week 32). The time-density distribution of CPUE for the overall mixture of available stocks was somewhat truncated since the season was closed on 7 September before overall coho salmon abundance in the major troll fishing area had declined to near zero. The midpoint (median date) of abundance of the overall stock mixture occurred on 13 August (week 33) or later while the central half of the run occurred at least as late as 30 July - 23 August (weeks 31-34). In summary, the time-density distributions of catch and abundance (approximated by CPUE) shown in Figures 4 and 5 indicate that the migratory timing of Stikine River coho salmon stocks in the troll fishery in northern Southeastern Alaska preceded the timing of the overall mixture of stocks by approximately 1 week.

The 1979 time-density distribution of CPUE for tagged Stikine River coho salmon in the troll fishery in northern Southeastern Alaska was compared with historical average time-density distributions of coho salmon abundance in the District 108 drift gillnet fishery and the Canadian gillnet fishery on the lower Stikine River (Figure 6). The average distribution of abundance with respect to time was approximated by calculating the average weekly proportion of CPUE (average catch-per-boat-day). Appendix Table 9 lists 1963-1983 CPUE data for the District 108 drift gillnet fishery while similar data for the lower Stikine River fishery is shown in Appendix Table 10. It was necessary to limit the analysis to only those years when fishing was conducted during each weekly period throughout most of the coho salmon migration period. Years which met that criterion for the District 108 drift gillnet fishery included 1963-1966, 1968, 1970, and 1972 when fishing was conducted during mid-June (week 25) through mid-September (week 38) or later. Years when fishing occurred on the lower Stikine River upstream from the international border during each weekly period from the second week of July (week 28)

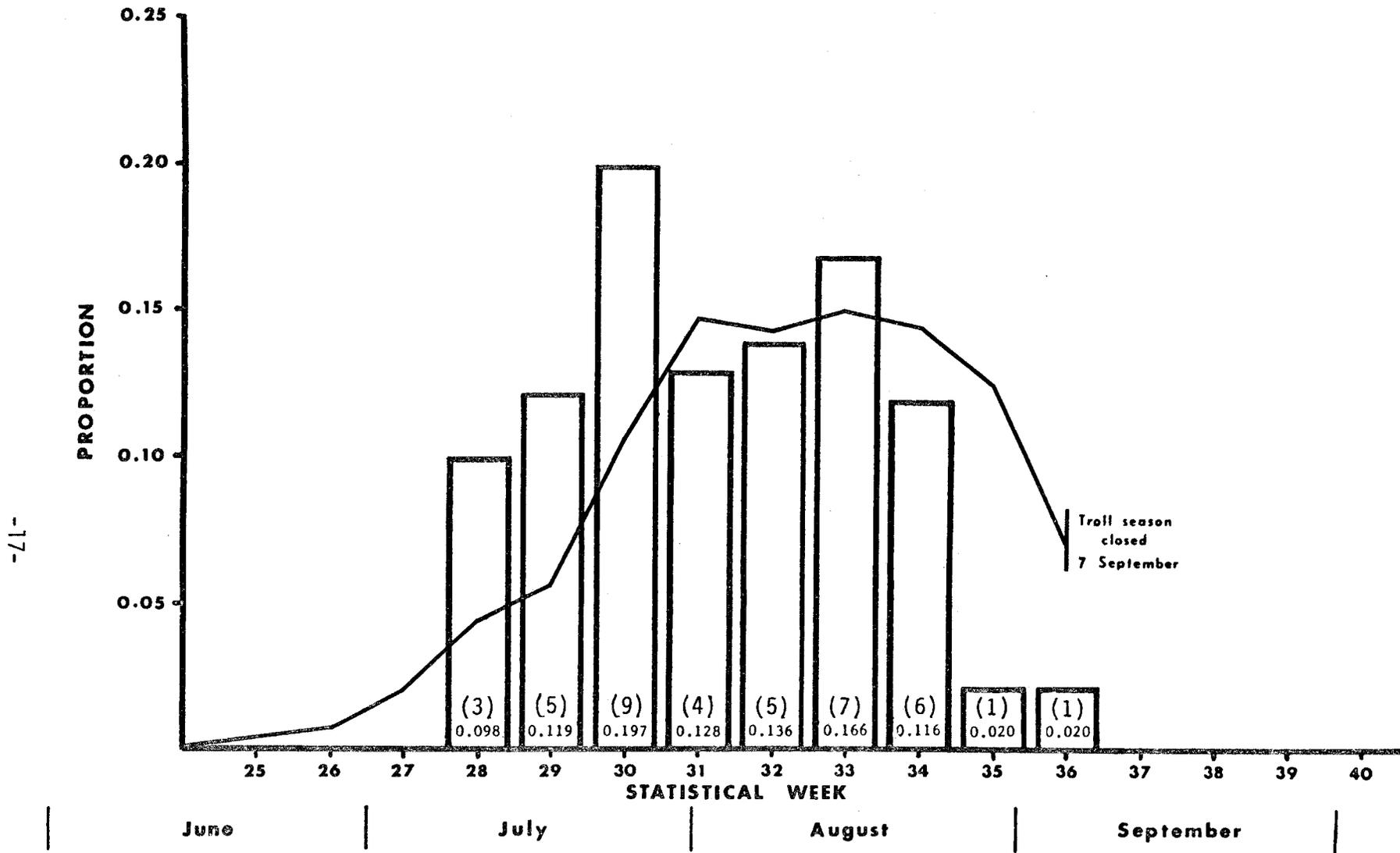


Figure 4. Weekly proportion of the total coho salmon catch (line graph) and the estimated catch of coded-wire tagged Stikine River coho salmon (bar graph) ($n=41$) by troll gear in Icy Strait and outside waters north of Cape Ommaney, 1979. The number of tags recovered by week is shown in parentheses while the proportion of the total catch represented by each bar is shown under the number of recoveries.

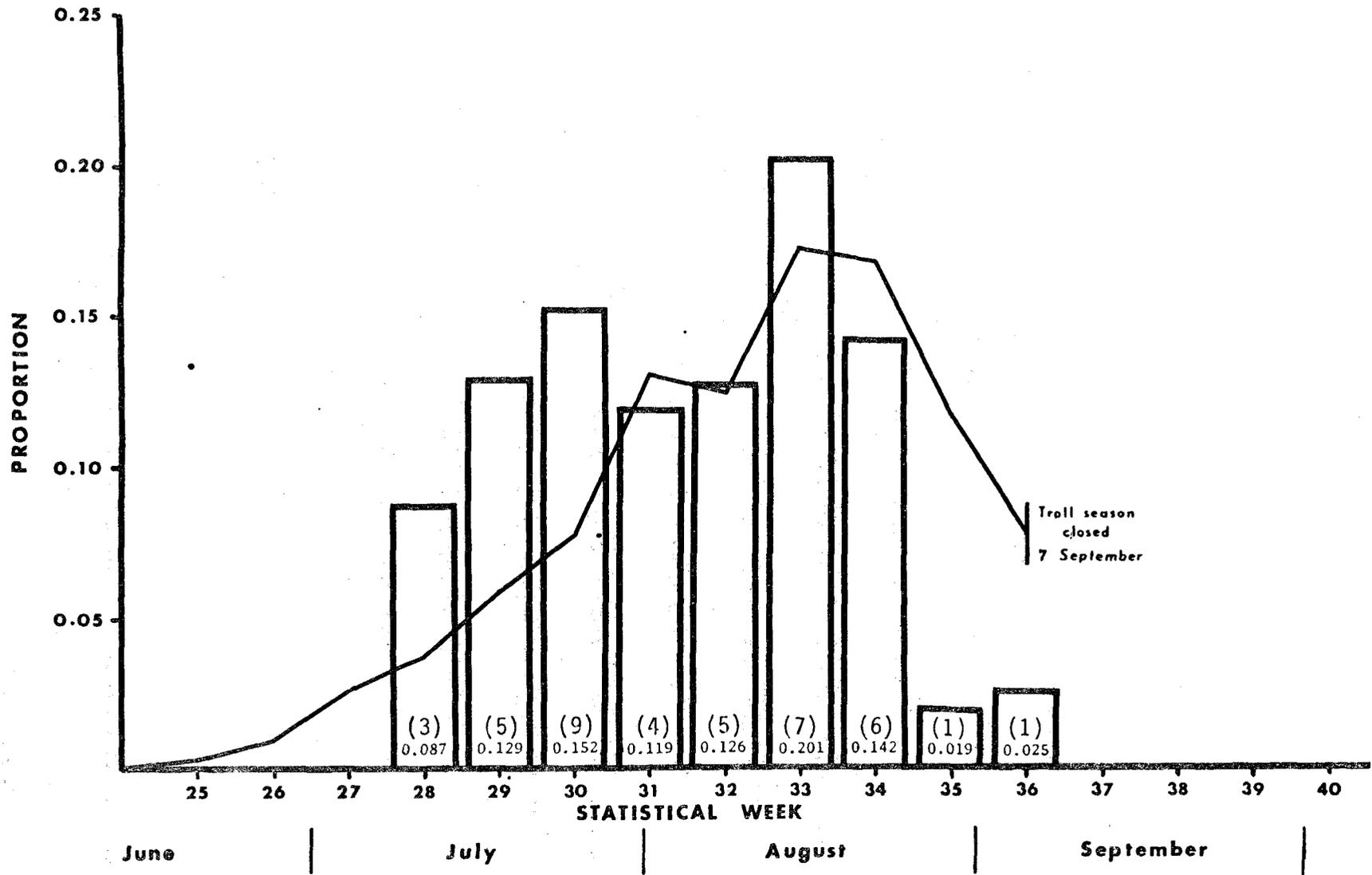


Figure 5. Weekly proportion of coho salmon CPUE (line graph) and estimated CPUE of coded-wire tagged Stikine River coho salmon (bar graph) (n=41) in the troll fishery in Icy Strait and outside waters north of Cape Ommaney, 1979. The number of tags recovered by week is shown in parentheses while the CPUE proportion represented by each bar is shown under the number of recoveries.

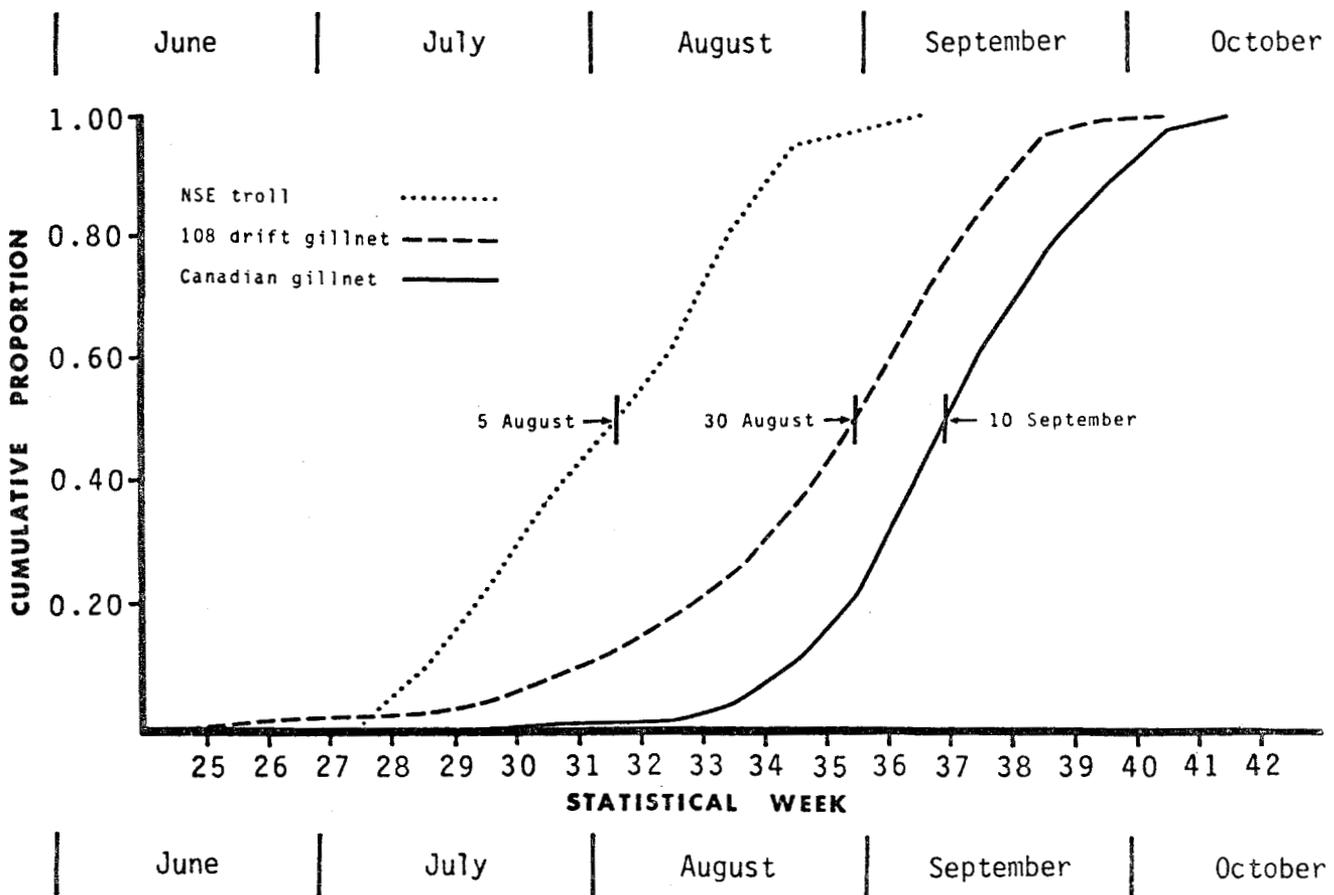
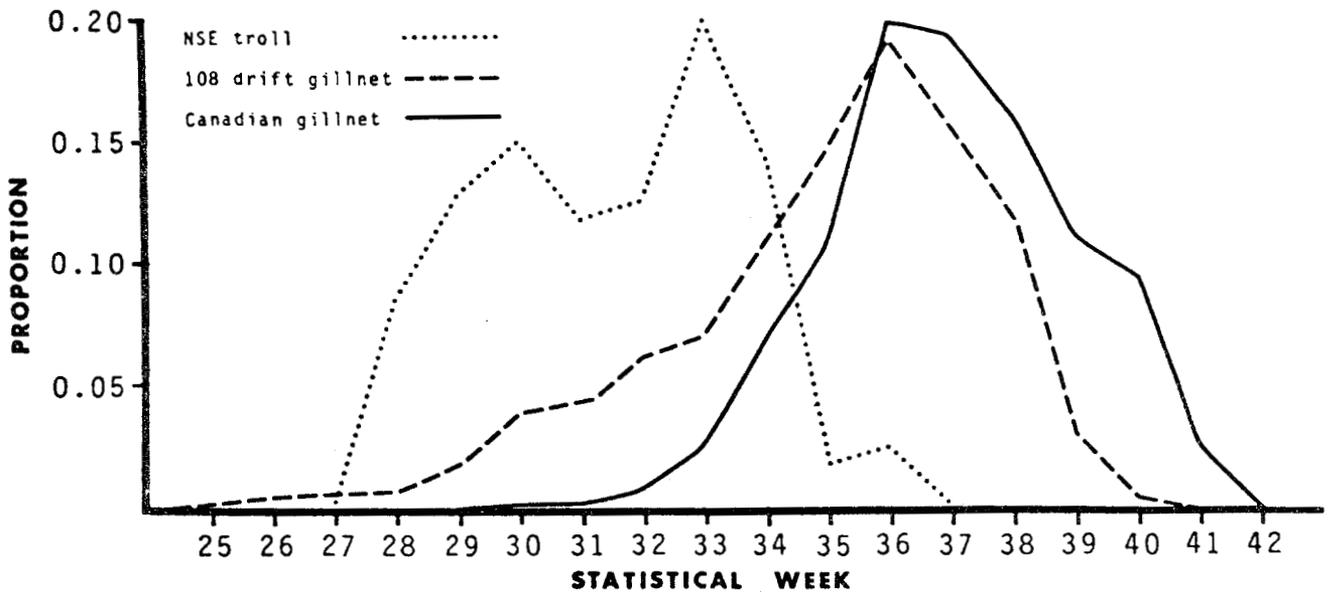


Figure 6. Estimated average weekly proportion and cumulative proportion of CPUE of coded-wire tagged Stikine River coho salmon in the troll fishery in northern Southeastern Alaska (1979) compared with coho salmon CPUE in the District 108 drift gillnet fishery (1963-1966, 1968, 1970, 1972) and the Canadian fishery on the lower Stikine River (1965, 1980, 1982-1983). The average midpoint (median date) of migration in each fishery is shown on the cumulative proportion curves.

until the beginning of October (week 40) included 1965, 1980, 1982, and 1983. Data from the 1965 Canadian experimental fishery on the lower Stikine River is given in Crouter and Tood (1965) while data on in-river catches and effort during 1980-1983 was provided by the Department of Fisheries and Oceans, Vancouver, B.C. Actual dates of migration through terminal fisheries were probably slightly later than the estimates because effort during the sample years was consistent throughout the early part of the run when fishermen were still targeting on other salmon species, but usually ceased (or the season was closed) before the coho salmon run had completely passed.

The time-density distribution of CPUE in the District 108 drift gillnet fishery (Figure 6) indicates that, on the average, the central half of the run was available for harvest during 17 August - 9 September (weeks 34-37) while the midpoint (median date) of migration occurred on 30 August. During the 7 years included in the analysis, the midpoint varied between 25 August and 5 September. Based on 1979 tag recovery data, Stikine River coho salmon stocks passed through the major troll fishing areas in northern Southeastern Alaska approximately 25 days before their average time of migration through the terminal area drift gillnet fishery near the mouth of the Stikine River.

The time-density distribution of CPUE for the lower Stikine River fishery indicates that, on the average, the central half of the coho salmon migration through the Canadian fishery occurred during 1-20 September (weeks 36-38) while the midpoint occurred on 10 September (week 37). During the 4 years included in the analysis, the midpoint varied from 5 September to 12 September. The average midpoint of the run in the Canadian fishery followed the average midpoint of the run in District 108 by 11 days.

A test fishery has been conducted at Kakwan Point (Figure 2) on the lower Stikine River by ADF&G since 1977 to obtain an in-season index of escapement abundance (Timothy 1982). While it has provided a useful index of sockeye salmon abundance, this fishery has usually been discontinued well before the end of the coho salmon run and therefore, it was impossible to develop complete time-density distributions from the resulting data.

Although tagged Stikine River coho salmon apparently contributed a greater average percentage to catches from District 109 compared with other major troll fishing areas, the small number of recoveries from that district precluded the development of a meaningful time-density distribution. Eleven tags were recovered from catches in District 109, with the earliest occurring during the first week of July (week 27) and latest during the last week of August (week 35).

DISCUSSION

Extensive minnow trapping effort along the lower Stikine River and in tributaries on the U.S. side of the border failed to reveal many large concentrations of rearing juvenile coho salmon. The only major concentration of rearing fish was found in Barnes Lake while some tributaries, including Andrew Creek and the Kikahe River, appeared to have extensive spawning habitat, but only limited rearing habitat.

Extreme fluctuations in water level and seasonal variations in temperature, coupled with generally shallow rearing areas, create very dynamic conditions for juvenile fish rearing along the lower Stikine River. Large increases in the water level in the mainstem cause infiltration of cold, silty water into important side tributary rearing areas while periods of low precipitation and freezing probably make some of those areas uninhabitable for fish during the winter. Low oxygen levels caused by high water temperatures and decaying plant matter may also limit the suitability of the more shallow, stagnant backwater areas during the summer months. Given the dynamic nature of the rearing habitat, it would seem that the timely response of young coho salmon to environmental changes is critical to their survival. Response mechanisms must be well-tuned in order to allow rearing fish to seek out adequate food resources for growth with a diminished risk of being stranded in areas of unsuitable temperatures or dissolved oxygen levels. Movement of juvenile coho salmon from the glacial mainstem into peripheral rearing areas during the spring and early summer was confirmed from recoveries of tagged juveniles which had migrated from the main river into Government Creek and Figure-Eight Lake. However, the objective of capturing and marking as many fish as possible precluded allocating resources toward further studies of the seasonal distribution and movements of juvenile coho salmon and the impetus for their migrations. A better understanding of the ecology of coho salmon in large mainland systems such as the Stikine River is needed in order to assess the impacts of hydro-electric projects, road building, timber harvesting, enhancement projects, and various fishery management strategies.

The number of recoveries from tagging at all locations on the Stikine River was disappointing compared with the results of other wild coho salmon coded-wire tagging studies conducted in Southeastern Alaska (Shaul et al. 1983). Survival rates to maturity of predominantly age 1+ juvenile coho salmon for eight individual studies at Chilkat Lake, Chilkoot Lake, Speel Lake, and the Berners River were estimated to range from 3.2% to 5.4% with an average value of 4.5%. The survival rate of wild coho salmon smolts that outmigrated from Auke Lake in 1976, 1977, 1979, and 1980 was estimated to range from 10.2% to 17.9% with an average value of 13.0%. Based on estimates from those experiments and extreme values which should encompass all reasonably expected harvest rates from 20% to 80%, the percentage harvested for juveniles tagged on side tributaries of the lower Stikine River would have fallen within the range of 0.64% to 4.32% compared with the estimate of 0.45%. The percentage harvested for smolts tagged on the main river should have been within the range of 2.04% to 14.32% which is higher than the estimate of 1.27%.

It is uncertain why the estimated harvest of tagged Stikine River coho salmon was lower than expected. Factors which could have been responsible include inadequate sampling effort, high tag loss rates, low harvest rates, and low survival rates. Sampling effort was spotty and inconsistent in some southern areas and central inside districts, but that factor alone would not likely have accounted for such a large difference. Although tag loss could have been a problem for one or more release groups, it is unlikely that tag loss would have been consistently high for tagging conducted by different individuals over a 2-year period. Harvest rates for Stikine River coho salmon stocks have not been reliably estimated. However, based on the proximity of the river to fishing effort and what is known about the migration patterns of returning adults, it is unlikely that the harvest rate of Stikine River stocks would have been as low as 20%. It

also seems unlikely that survival of smolts and juveniles would have been consistently low for this sample system over a 3-year period. However, evidence of below average coho salmon returns to the Stikine River during 1979-1981 based on drift gillnet fishery performance (Appendix Table 9) suggests that poor survival may have been a factor contributing to the low number of returning tagged fish.

One of the primary objectives of the study was to determine the relative amount of fishing pressure on Stikine River coho salmon stocks by obtaining a harvest rate estimate for the Barnes Lake stock. However, several factors prevented that objective from being fulfilled. Most important of those was a failure to obtain a precise count or estimate of the escapement to Barnes Lake because of extreme increases in flow at the outlet. The combination of an apparently low percentage of marked fish in catches and low sampling effort in central inside districts presented another problem. Finally, it is possible that fry and/or age 1+ juvenile coho salmon from other tributaries of the Stikine River enter Barnes Lake to rear. Therefore, some proportion of the total number of escaping adults which had been tagged at Barnes Lake might have entered other tributaries where they would not have been enumerated. It should be emphasized that this is speculative as there is very little available information on seasonal movements of juvenile coho salmon in large Alaskan and Canadian rivers. Because of the problems of extreme high water conditions at Barnes Lake and possible immigration of juveniles from other tributaries, it is not recommended that future efforts be directed at estimating the harvest rate of returning Stikine River coho salmon. Other small, isolated systems or hatchery facilities in Districts 106-108 could provide more suitable sites for conducting harvest rate studies of central inside area stocks.

It was possible to characterize the catch distribution and migratory timing of Stikine River coho salmon stocks in major troll fishing areas. The results indicated that Stikine River stocks were available in all major fishing areas of Southeastern Alaska except Lynn Canal. The major harvest area for Stikine River stocks was in outside waters north of Cape Ommaney. However, on the average, Stikine River stocks appeared to comprise the highest proportion of the catch from District 109 compared with other important troll fishing areas.

Due to the low number of tags recovered in catches from districts near the Stikine River, it was not possible to determine which corridors were traveled by the majority of returning fish. The low recovery rate in Districts 105-108 and 110 was probably due to a combination of a low percentage of marked fish, low sampling effort, and restricted fishing effort, particularly in the drift gillnet fisheries.

During 1979, 48 Stikine River tags were recovered from catches in Districts 113, 114, 116, and 154 out of a total of 62 recoveries from throughout Southeastern Alaska. This indicates that troll vessels which were concentrated near the boundaries of those areas off Cape Spencer intercepted a large number of Stikine River coho salmon. It is not clear what proportion of returning Stikine River fish which passed through the area near Cape Spencer entered inside waters through Icy Strait as opposed to migrating southward past Sitka and around Cape Ommaney. Only five Stikine River tags were recovered in Districts 112 and 114 during four recovery years, and none were reported specifically from Icy and Upper Chatham Straits. The low recovery rate in those districts may have been partly a result of reduced fishing effort compared with prior years because of troll fishery

restrictions. Hoffman (1982) found Districts 114 and 112 to be a major migratory pathway for pink salmon returns to District 108. Also, two Stikine River chinook salmon have been reported from Icy Strait (Paul Kissner, ADF&G, personal communication). Stikine River tags were recovered from coho salmon catches reported from various locations in Districts 101 and 102 ranging from Tree Point to the northwestern entrance of Behm Canal. Therefore, circumstantial evidence suggests that a segment of the return migrates northward through Clarence Strait.

While the distribution of coded-wire tag recoveries indicates that a portion of the coho salmon return to the Stikine River probably migrates through each major passageway to inside waters, catch patterns at different locations within District 108 indicate that the majority of the return enters District 108 from Sumner and upper Clarence Straits (District 106) while fewer fish enter from Frederick Sound (District 110) (Randy Timothy, ADF&G, personal communication). This question has an important bearing on the amount of fishing pressure operating on Stikine River stocks because more extensive gillnet and troll fisheries are conducted in District 106 compared with District 110 where only minor troll effort and no gillnet effort occurs.

Stikine River coho salmon stocks have a broad timing distribution in major troll fishing areas and are available throughout the period of significant coho salmon catches along the outer coast. The results indicated that during 1979 the central half of the run and the period of peak catches of Stikine River coho salmon in major troll fishing areas in northern Southeastern occurred during the last week of July through mid-August. The timing distribution of Stikine River stocks followed a pattern that was approximately a week earlier than the total coho salmon harvest. The abundance of Stikine River stocks appeared to decline more sharply than overall coho salmon abundance, probably because of the presence of late returns to systems in northern districts. Results of pigment marking and coded-wire tagging studies have indicated that coho salmon returning to the Chilkat and Berners River are most abundant in northern outside districts during late August and early September (weeks 34-36) (Gray et al. 1978; Shaul et al. 1983). Local Yakutat area stocks may also contribute significantly to late season troll catches in northern outside waters, especially north of Cape Fairweather.

The estimated migratory timing distribution of Stikine River coho salmon in the troll fishery in northern Southeastern Alaska was based on recoveries of fish that were tagged as outmigrating smolts along the lower river during a 5-week period in April-May 1978. Therefore, the fish were expected to represent a composite of stocks which spawned and reared upstream from the tagging locations. However, while determination of the migratory timing characteristics of the various individual stocks within the system was beyond the scope of this study, it is important in managing the fisheries to recognize that significant differences may exist in the migratory timing of stocks which spawn in different tributaries (i.e. upper river vs. lower river, glacial vs. non-glacial, etc.).

The long time lag, approximately 25 days, between the time-density distribution of abundance of Stikine River coho salmon stocks in major troll fishing areas and their timing in the District 108 drift gillnet fishery makes it difficult to assess escapement to the terminal fishery area in time to make management decisions for the troll fishery. The distance traveled during this period would require an average migration rate of approximately 11-17 km/day which is considerably slower

than estimated high seas migration rates of age .1 coho salmon reported by Godfrey et al. (1975) as having ranged from 17.7 km/day to 68.4 km/day (\bar{x} = 30.0 km/day). The average midpoint (median date) of the coho salmon run in District 108 preceded the average midpoint of abundance in the lower Stikine River Canadian fishery by approximately 11 days. This time difference suggests an average migration rate through the lower river of only 5-7 km/day, assuming that stocks that spawn in Alaska tributaries have the same overall timing distribution in District 108 as those that spawn in B.C. tributaries. That assumption may not be correct.

Because of the extremely broad spatial and timing distribution of returning Stikine River coho salmon, and the high percentage of the total harvest that occurs in outside waters, managing the troll fishery specifically for Stikine River stocks is not feasible. In-season troll fishery management decisions should continue to be based on a broad series of indicators of which the apparent abundance of coho salmon arriving near the mouth of the Stikine River is only one. This is necessary because, as coded-wire tagging studies have shown, coho salmon catches in the outer coastal troll fishery, including Cross Sound and lower Chatham Strait, are comprised of a large base of stocks originating from northern Southeastern Alaska to southern British Columbia to which the Stikine River contributes but a small fraction. Therefore, the primary burden of providing for spawning escapements to the Stikine River must fall on fisheries near and within the system.

SUMMARY

- 1) The troll fishery accounted for the greatest proportion of the harvest of returning Stikine River coho salmon during 1979, 1980, and 1981. An estimated 89.3% of the total marine harvest of tagged Stikine River fish was attributed to troll gear while purse seine and drift gillnet fisheries accounted for 5.2% and 5.5%, respectively. However, the proportion harvested by drift gillnet gear in Districts 106 and 108 may have been underestimated because of low sampling effort. Also, drift gillnet effort in those districts was restricted during 1979-1981 in comparison with historical levels because of poor coho salmon returns and the need to allow for an in-river harvest by the Canadian fishery.
- 2) An estimated 57.3% of the total marine harvest of tagged Stikine River coho salmon occurred in outer coastal and offshore waters. The most important harvest area for Stikine River coho salmon stocks during 1979, 1980, and 1981 was in outside waters north of Cape Ommaney where an estimated 49.0% of the total marine harvest of tagged fish occurred. Fewer Stikine River coho salmon were harvested in southern outside waters (Districts 103, 104, 152) where only 7.5% of the estimated total marine harvest of tagged fish was taken. The second most important harvest area was in Districts 105, 109, and 110 where an estimated 23.9% of the total harvest was taken. The most important of those districts was District 109 where an estimated 22.3% of the total harvest occurred. Southern inside districts (101, 102) were also important, and accounted for 9.2%. Small numbers of tagged fish were also harvested in Districts 112 and 114, Stephens Passage (District 111), and central inside districts (106-108).

- 3) The data indicated that Stikine River stocks contributed a greater average percentage to coho salmon catches from lower Chatham Strait (District 109) compared with other major troll fishing areas.
- 4) Stikine River coho salmon were available to the troll fishery from at least as early as the last week of June (week 26) through early September (week 36). During 1979, the central half of the migration of Stikine River stocks in the areas of most intensive troll fishing effort in northern Southeastern Alaska occurred during the last week of July through mid-August while the mid-point occurred on approximately 5 August. The migration of Stikine River stocks through those areas preceded the timing of the overall mixture of available stocks by approximately 1 week. The availability of Stikine River stocks appeared to have declined more sharply toward the end of the season than the overall abundance of coho salmon. This was probably due primarily to the passage of distinctively late returning stocks originating in northern districts, particularly Lynn Canal.
- 5) There was a time lag of approximately 25 days between the migration of Stikine River coho salmon stocks through the troll fishery in northern Southeastern Alaska in 1979, and the average timing distribution of the coho salmon migration through District 108 near the mouth of the Stikine River. Historically, the approximate average midpoint (median date) of the coho salmon migration in District 108 has occurred on 30 August while the average midpoint of abundance in the Canadian fishery on the lower Stikine River has occurred on approximately 10 September.
- 6) Because of the broad spatial and temporal distribution of returning Stikine River coho salmon, specific management for Stikine River stocks by area and time restrictions in the troll fishery is not feasible. A region-wide troll closure centered during the first half of August appears to be the most effective management option for allowing more Stikine River coho salmon to escape to inside waters. Adjustments in fishing effort in saltwater and inriver terminal area fisheries should be made as necessary to insure adequate spawning escapement of all temporal segments of the run.

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APPENDICES

Appendix Table 1. Coho salmon harvest by drift gillnet gear, District 108, 1935-1983.

Year	Coho Salmon	Year	Coho Salmon	Year	Coho Salmon
1935	88,335	1952	41,073	1969	5,791
1936	No Data	1953	51,582	1970	18,403
1937	No Data	1954	66,605	1971	14,876
1938	78,480	1955	48,949	1972	38,520
1939	68,477	1956	34,775	1973	5,831
1940	18,426	1957	39,967	1974	16,021
1941	125,658	1958	45,248	1975	No Catch
1942	111,956	1959	47,974	1976	6,056
1943	45,677	1960	27,479	1977	14,405
1944	38,822	1961	36,858	1978	32,650
1945	73,806	1962	38,386	1979	234
1946	68,386	1963	11,697	1980	2,946
1947	No Data	1964	29,388	1981	1,406
1948	34,873	1965	8,301	1982	20,261
1949	29,295	1966	16,493	1983	15,484 ¹
1950	23,923	1967	6,747		
1951	78,696	1968	36,407		

Average (1935-1982) = 36,670

Decade Averages

<u>Years</u>	<u>Coho Salmon</u>
1940-1949	60,767
1950-1959	47,879
1960-1969	21,755
1970-1979	14,700

¹ 1983 data is preliminary.

Appendix Table 2. Pacific Marine Fisheries Commission (PMFC) area groupings of Southeastern Alaska regulatory districts.

PMFC Area	Regulatory Districts
NOUT Northern Outside	116, 157, 181, 183, 186, 189
COUT Central Outside	113, 154
SOUT Southern Outside	103, 104, 152
SIN Southern Inside	101, 102, 150
SNTR Southern Intermediate	105, 109, 110
CIN Central Inside	106, 107, 108
STEP Stephens Passage	111
CNTR Central Intermediate	112, 114
LYNN Lynn Canal	115

Appendix Table 3. Statistical weeks used in recording and compiling Southeastern Alaska commercial fisheries catch data.

STAT WEEK	YEAR/DATE 1978	YEAR/DATE 1979	YEAR/DATE 1980	YEAR/DATE 1981	YEAR/DATE 1982	YEAR/DATE 1983	YEAR/DATE 1984	YEAR/DATE 1985
1	0101 - 0107	0101 - 0106	0101 - 0105	0101 - 0103	0101 - 0102	0101 - 0101	0101 - 0107	0101 - 0105
2	0108 - 0114	0107 - 0113	0106 - 0112	0104 - 0110	0103 - 0109	0102 - 0108	0108 - 0114	0106 - 0112
3	0115 - 0121	0114 - 0120	0113 - 0119	0111 - 0117	0110 - 0116	0109 - 0115	0115 - 0121	0113 - 0119
4	0122 - 0128	0121 - 0127	0120 - 0126	0118 - 0124	0117 - 0123	0116 - 0122	0122 - 0128	0120 - 0126
5	0129 - 0204	0128 - 0203	0127 - 0202	0125 - 0131	0124 - 0130	0123 - 0129	0129 - 0204	0127 - 0202
6	0205 - 0211	0204 - 0210	0203 - 0209	0201 - 0207	0131 - 0206	0130 - 0205	0205 - 0211	0203 - 0209
7	0212 - 0218	0211 - 0217	0210 - 0216	0208 - 0214	0207 - 0213	0206 - 0212	0212 - 0218	0210 - 0216
8	0219 - 0225	0218 - 0224	0217 - 0223	0215 - 0221	0214 - 0220	0213 - 0219	0219 - 0225	0217 - 0223
9	0226 - 0304	0225 - 0303	0224 - 0301	0222 - 0228	0221 - 0227	0220 - 0226	0226 - 0303	0224 - 0302
10	0305 - 0311	0304 - 0310	0302 - 0308	0301 - 0307	0228 - 0306	0227 - 0305	0304 - 0310	0303 - 0309
11	0312 - 0318	0311 - 0317	0309 - 0315	0308 - 0314	0307 - 0313	0306 - 0312	0311 - 0317	0310 - 0316
12	0319 - 0325	0318 - 0324	0316 - 0322	0315 - 0321	0314 - 0320	0313 - 0319	0318 - 0324	0317 - 0323
13	0326 - 0401	0325 - 0331	0323 - 0329	0322 - 0328	0321 - 0327	0320 - 0326	0325 - 0331	0324 - 0330
14	0402 - 0408	0401 - 0407	0330 - 0405	0329 - 0404	0328 - 0403	0327 - 0402	0401 - 0407	0331 - 0406
15	0409 - 0415	0408 - 0414	0406 - 0412	0405 - 0411	0404 - 0410	0403 - 0409	0408 - 0414	0407 - 0413
16	0416 - 0422	0415 - 0421	0413 - 0419	0412 - 0418	0411 - 0417	0410 - 0416	0415 - 0421	0414 - 0420
17	0423 - 0429	0422 - 0428	0420 - 0426	0419 - 0425	0418 - 0424	0417 - 0423	0422 - 0428	0421 - 0427
18	0430 - 0506	0429 - 0505	0427 - 0503	0426 - 0502	0425 - 0501	0424 - 0430	0429 - 0505	0423 - 0504
19	0507 - 0513	0506 - 0512	0504 - 0510	0503 - 0509	0502 - 0508	0501 - 0507	0506 - 0512	0505 - 0511
20	0514 - 0520	0513 - 0519	0511 - 0517	0510 - 0516	0509 - 0515	0508 - 0514	0513 - 0519	0512 - 0518
21	0521 - 0527	0520 - 0526	0518 - 0524	0517 - 0523	0516 - 0522	0515 - 0521	0520 - 0526	0519 - 0525
22	0528 - 0603	0527 - 0602	0525 - 0531	0524 - 0530	0523 - 0529	0522 - 0528	0527 - 0602	0526 - 0601
23	0604 - 0610	0603 - 0609	0601 - 0607	0531 - 0606	0530 - 0605	0529 - 0604	0603 - 0609	0602 - 0608
24	0611 - 0617	0610 - 0616	0608 - 0614	0607 - 0613	0606 - 0612	0605 - 0611	0610 - 0616	0609 - 0615
25	0618 - 0624	0617 - 0623	0615 - 0621	0614 - 0620	0613 - 0619	0612 - 0618	0617 - 0623	0616 - 0622
26	0625 - 0701	0624 - 0630	0622 - 0628	0621 - 0627	0620 - 0626	0619 - 0625	0624 - 0630	0623 - 0629
27	0702 - 0708	0701 - 0707	0629 - 0705	0628 - 0704	0627 - 0703	0626 - 0702	0701 - 0707	0630 - 0706
28	0709 - 0715	0708 - 0714	0706 - 0712	0705 - 0711	0704 - 0710	0703 - 0709	0708 - 0714	0707 - 0713
29	0716 - 0722	0715 - 0721	0713 - 0719	0712 - 0718	0711 - 0717	0710 - 0716	0715 - 0721	0714 - 0720
30	0723 - 0729	0722 - 0728	0720 - 0726	0719 - 0725	0718 - 0724	0717 - 0723	0722 - 0728	0721 - 0727
31	0730 - 0805	0729 - 0804	0727 - 0802	0726 - 0801	0725 - 0731	0724 - 0730	0729 - 0804	0728 - 0803
32	0806 - 0812	0805 - 0811	0803 - 0809	0802 - 0808	0801 - 0807	0731 - 0806	0805 - 0811	0804 - 0810
33	0813 - 0819	0812 - 0818	0810 - 0816	0809 - 0815	0808 - 0814	0807 - 0813	0812 - 0818	0811 - 0817
34	0820 - 0826	0819 - 0825	0817 - 0823	0816 - 0822	0815 - 0821	0814 - 0820	0819 - 0825	0818 - 0824
35	0827 - 0902	0826 - 0901	0824 - 0830	0823 - 0829	0822 - 0828	0821 - 0827	0826 - 0901	0825 - 0831
36	0903 - 0909	0902 - 0908	0831 - 0906	0830 - 0905	0829 - 0904	0828 - 0903	0902 - 0908	0901 - 0907
37	0910 - 0916	0909 - 0915	0907 - 0913	0906 - 0912	0905 - 0911	0904 - 0910	0909 - 0915	0908 - 0914
38	0917 - 0923	0916 - 0922	0914 - 0920	0913 - 0919	0912 - 0918	0911 - 0917	0916 - 0922	0915 - 0921
39	0924 - 0930	0923 - 0929	0921 - 0927	0920 - 0926	0919 - 0925	0918 - 0924	0923 - 0929	0922 - 0928
40	1001 - 1007	0930 - 1006	0928 - 1004	0927 - 1003	0926 - 1002	0925 - 1001	0930 - 1006	0929 - 1005
41	1008 - 1014	1007 - 1013	1005 - 1011	1004 - 1010	1003 - 1009	1002 - 1008	1007 - 1013	1006 - 1012
42	1015 - 1021	1014 - 1020	1012 - 1018	1011 - 1017	1010 - 1016	1009 - 1015	1014 - 1020	1013 - 1019

Appendix Table 4. Southeastern Alaska commercial coho salmon harvest and coded-wire tag sample size by PMFC area, 1979.

week	nout	cout	sout	sin	sntr	cin	step	cntr	lynn	unkn	total	
24	46	94	471	0	7	3	0	11	0	0	632	catch
	0	14	71	0	0	0	0	0	0	0	85	sample
	0	15	15	0	0	0	0	0	0	0	13	percent
25	115	1067	1443	892	98	99	17	55	21	0	3607	catch
	49	263	711	0	37	15	23	2	5	0	1105	sample
	43	25	49	0	38	15	135	4	24	0	29	percent
26	100	2832	3718	907	529	104	22	343	103	0	8658	catch
	120	798	1393	0	51	29	19	67	0	0	2477	sample
	120	28	37	0	10	28	86	20	0	0	29	percent
27	503	8082	22726	1412	1563	379	45	374	27	0	35111	catch
	23	1497	332	239	95	85	102	16	0	0	2389	sample
	5	19	1	17	6	22	227	4	0	0	7	percent
28	1898	15997	52393	3639	8542	674	330	2847	277	0	86797	catch
	189	2609	6929	82	1468	142	72	661	30	0	12382	sample
	10	16	13	2	20	16	22	23	11	0	14	percent
29	3786	20894	64159	17819	8732	2456	410	2459	119	0	120834	catch
	133	5754	13184	2985	676	78	299	142	59	0	23310	sample
	4	28	21	17	8	3	73	6	50	0	19	percent
30	4036	39437	46193	16478	19172	2960	159	9437	335	0	138207	catch
	832	7623	4786	1598	816	41	124	1699	150	0	17671	sample
	21	19	10	10	4	1	78	18	45	0	13	percent
31	18820	47291	52062	12303	23452	3044	594	3809	113	0	161488	catch
	2787	6989	4163	2058	1726	343	213	550	265	0	19094	sample
	15	15	8	17	7	11	36	14	235	0	12	percent
32	14406	47969	40962	29518	23541	7683	1502	4879	460	0	170920	catch
	2240	8846	5573	2083	654	368	255	1532	139	0	21690	sample
	16	18	14	7	3	5	17	31	30	0	13	percent
33	7899	61493	39472	18288	23346	12057	1751	2712	614	0	167612	catch
	3075	10000	3573	689	1417	24	1069	54	75	0	19976	sample
	39	16	9	4	6	0	61	2	12	0	12	percent
34	26033	41149	13828	10956	9325	10624	3196	1539	1146	0	117796	catch
	8219	4005	670	339	1410	723	1008	125	326	0	17025	sample
	32	10	6	3	15	7	32	8	28	0	14	percent
35	27317	27206	6244	7858	8515	3157	2099	3262	3781	0	89439	catch
	8723	5321	663	1982	787	1955	1032	1212	769	0	22438	sample
	32	20	11	25	9	62	49	37	20	0	25	percent
36	13940	11238	2252	6516	3868	2306	4500	4849	9145	0	58614	catch
	1813	3324	387	3068	482	288	2520	2252	2873	0	17007	sample
	13	30	17	47	12	12	56	46	31	0	29	percent
37	2542	293	0	4259	0	12	3440	1	7221	0	17768	catch
	0	340	0	754	1410	0	704	2071	2431	0	7710	sample
	0	116	0	18	0	0	20	207100	34	0	43	percent
38	2098	8	0	0	0	763	451	0	4351	0	7671	catch
	0	0	0	0	0	339	376	0	1881	0	2596	sample
	0	0	0	0	0	44	83	0	43	0	34	percent
39	0	2	0	0	0	2476	0	0	0	0	2478	catch
	0	0	0	0	0	612	0	0	0	0	612	sample
	0	0	0	0	0	25	0	0	0	0	25	percent
40	0	0	0	0	0	303	0	120	0	0	423	catch
	0	0	0	0	0	0	0	62	0	0	62	sample
	0	0	0	0	0	0	0	52	0	0	15	percent
total	123539	325052	345923	130825	130690	55193	18516	36707	27713	0	1194158	catch
	28203	57457	42635	15877	11231	5042	7816	10453	8997	0	187711	sample
	23	18	12	12	9	9	42	28	32	0	16	percent

Appendix Table 5. Southeastern Alaska commercial coho salmon harvest and coded-wire tag sample size by PMFC area, 1980.

week	nout	cout	sout	cin	cntr	cia	step	cntr	lynn	uaka	total	
24	1	0	9	111	0	0	0	0	0	0	121	catch
	0	0	0	18	0	0	0	0	0	0	18	sample
	0	0	0	16	0	0	0	0	0	0	15	percent
25	34	930	2607	3016	96	136	9	45	11	0	6884	catch
	2	106	347	481	0	5	14	0	0	0	955	sample
	6	11	13	16	0	4	156	0	0	0	14	percent
26	121	6210	8855	4590	870	506	41	521	48	0	21762	catch
	7	804	2537	864	726	19	21	6	0	0	4984	sample
	6	13	29	19	83	4	51	1	0	0	23	percent
27	1140	17117	19119	11123	6869	731	175	507	6	0	56787	catch
	177	2369	3350	3216	1017	34	45	1	0	0	10209	sample
	16	14	18	29	15	5	26	0	0	0	18	percent
28	1613	33277	74701	8284	10698	1535	433	1791	135	0	132467	catch
	380	3948	4311	3079	6046	43	143	131	6	0	18087	sample
	24	12	6	37	57	3	33	7	4	0	14	percent
29	2447	11510	36038	14638	4880	2698	1069	666	102	0	74048	catch
	27	3528	3133	2395	2243	1	302	790	0	0	12419	sample
	1	31	9	16	46	0	28	119	0	0	17	percent
30	178	7029	23942	2404	2386	3406	1033	973	15	0	41366	catch
	0	56	103	0	1169	84	141	266	0	0	1819	sample
	0	1	0	0	49	2	14	27	0	0	4	percent
31	2159	30995	48257	12397	7938	4140	877	2255	127	0	109145	catch
	0	4738	1206	3884	2827	78	294	714	20	0	13761	sample
	0	15	2	31	36	2	34	32	16	0	13	percent
32	7242	23901	57729	18273	17769	979	3523	4018	215	0	133649	catch
	165	6294	3940	1314	6564	0	1592	51	13	0	19933	sample
	2	26	7	7	37	0	45	1	6	0	15	percent
33	14663	41620	31782	20925	10077	2181	4212	2894	456	0	128810	catch
	2277	6447	1327	653	4639	294	192	174	26	0	16029	sample
	16	15	4	3	46	13	5	6	6	0	12	percent
34	8903	19529	24781	24512	7376	5172	2579	7666	1924	0	102442	catch
	1042	6277	1193	2938	843	594	1101	1171	337	0	15496	sample
	12	32	5	12	11	11	43	15	18	0	15	percent
35	14033	18626	12328	16974	7407	5633	8198	3274	4652	0	91125	catch
	718	5101	704	1541	799	97	2152	294	125	0	11531	sample
	5	27	6	9	11	2	26	9	3	0	13	percent
36	6762	8140	1830	17999	2792	3049	8320	8779	4938	0	62609	catch
	921	1436	48	4246	1266	23	1205	269	30	0	9444	sample
	14	18	3	24	45	1	14	3	1	0	15	percent
37	5645	4929	438	3877	1165	1724	8963	3378	8349	0	38468	catch
	155	1009	82	1478	128	21	1732	634	241	0	5480	sample
	3	20	19	38	11	1	19	19	3	0	14	percent
38	4334	1647	133	2715	498	553	2702	2906	3525	0	19013	catch
	0	95	0	14	73	2	22	240	0	0	446	sample
	0	6	0	1	15	0	1	8	0	0	2	percent
39	1700	23	0	56	37	12	941	125	5002	0	7896	catch
	0	4	0	0	3	5	23	264	337	0	636	sample
	0	17	0	0	8	42	2	211	7	0	8	percent
40	0	0	0	0	0	0	0	3	0	0	3	catch
	0	0	0	0	0	0	0	0	0	0	0	sample
	0	0	0	0	0	0	0	0	0	0	0	percent
total	70975	225483	342549	161927	80858	32455	43075	39801	29505	0	1026628	catch
	5871	42212	22281	26121	28343	1300	9002	5005	1135	0	141270	sample
	8	19	7	16	35	4	21	13	4	0	14	percent

Appendix Table 6. Southeastern Alaska commercial coho salmon harvest and coded-wire tag sample size by PMFC area, 1981.

week	nout	cout	sout	sin	sntr	cin	step	cntr	lynn	uakn	total	
24	0	0	2	7	0	0	0	0	0	0	9	catch
	0	0	0	0	0	0	0	0	0	0	0	sample
	0	0	0	0	0	0	0	0	0	0	0	percent
25	41	401	3530	307	56	101	4	31	572	0	5043	catch
	0	41	166	94	15	14	2	0	1	0	333	sample
	0	10	5	31	27	14	50	0	0	0	7	percent
26	152	1045	9425	1670	113	501	49	150	39	0	13160	catch
	7	255	175	391	43	12	15	4	7	0	909	sample
	5	24	2	23	38	2	31	3	10	0	7	percent
27	73	35	1741	1173	0	492	257	9	79	0	3859	catch
	0	3	363	49	1694	0	34	0	0	0	2143	sample
	0	9	21	4	0	0	13	0	0	0	56	percent
28	1377	6953	40791	1959	11014	689	211	1325	733	0	65052	catch
	1	420	5127	72	3129	21	293	177	0	0	9240	sample
	0	6	13	4	28	3	139	13	0	0	14	percent
29	3177	20557	46146	6345	17190	2103	986	3641	400	0	100561	catch
	874	3578	615	1673	2029	0	224	109	0	0	9222	sample
	20	17	1	26	16	0	23	3	0	0	10	percent
30	4266	34665	52572	14051	10207	4050	643	3941	250	0	132653	catch
	345	7699	5687	6022	2402	703	142	642	27	0	23759	sample
	8	22	11	43	14	17	22	16	11	0	18	percent
31	17498	54714	93686	22016	20561	4250	1027	8687	77	0	212520	catch
	1522	11314	11278	8916	1971	1073	540	2234	0	0	30056	sample
	9	21	13	40	10	25	53	26	0	0	10	percent
32	14127	50250	65622	22376	10000	3427	481	15147	452	0	109890	catch
	3338	5950	15637	4703	3822	1013	197	706	21	0	35467	sample
	24	12	24	21	21	30	41	5	5	0	19	percent
33	8520	27460	30189	13257	12134	11200	1650	7762	443	0	112703	catch
	1967	6736	5253	7490	4204	606	780	903	0	0	27947	sample
	23	25	17	56	35	5	40	12	0	0	25	percent
34	415	7109	19584	4640	1014	3034	2323	21413	1310	0	61730	catch
	0	0	5279	1655	0	49	890	1657	30	0	9576	sample
	0	0	27	36	0	2	39	8	3	0	16	percent
35	14931	23832	16726	8921	10664	3004	7893	29463	4494	0	120128	catch
	2140	3764	4944	5055	699	0	570	5106	9	0	22295	sample
	14	16	30	57	6	0	7	17	0	0	19	percent
36	19296	15432	16239	9102	12311	4903	0144	23134	13932	0	122573	catch
	4520	2420	8941	3822	2178	0	2502	2867	936	0	20106	sample
	23	16	55	42	10	0	31	12	7	0	23	percent
37	6660	4206	2713	7471	552	4	2197	9701	2973	0	36477	catch
	1255	397	605	4004	0	0	476	204	1513	0	8454	sample
	19	7	22	54	0	0	22	2	51	0	23	percent
38	6765	2241	20	4103	0	0	0	4680	79	0	17000	catch
	1112	165	2	1710	0	0	0	0	304	0	3301	sample
	16	7	10	42	0	0	0	0	305	0	10	percent
39	907	449	67	1304	0	0	0	1433	0	0	4162	catch
	0	87	0	471	0	0	0	15	69	0	642	sample
	0	19	6	36	0	0	0	1	0	0	15	percent
40	0	0	0	2720	0	0	0	0	0	0	2720	catch
	0	0	0	0	0	0	0	0	0	0	0	sample
	0	0	0	0	0	0	0	0	0	0	0	percent
total	90205	249437	394944	121430	122032	37926	25867	130527	25049	0	1207025	catch
	17101	42827	64072	46216	23076	3491	6297	14624	2925	0	221031	sample
	17	17	16	38	19	9	26	11	11	0	10	percent

Appendix Table 7. Recoveries of coded-wire tagged Stikine River coho salmon from random fishery samples, 1979-1982.

Year	District ¹	Gear	Statistical Week	Tag Code	Expansion
1979	116-05	troll	30	4-16-31	4.9
	116-25	troll	34	4-17-19	3.2
	113-S	troll	28	4-17-18	6.1
	113-S	troll	29	4-16-32	3.6
	113-P	troll	29	4-16-34	3.6
	113-P	troll	29	4-16-35	3.6
	113-P	troll	30	4-16-31	5.2
	113-S	troll	30	4-16-31	5.2
	113-S	troll	30	4-16-32	5.2
	113-S	troll	31	4-16-31	6.8
	154-P	troll	31	4-16-31	6.8
	113-91	troll	32	4-16-35	5.4
	154-S	troll	32	4-17-18	5.4
	154-P	troll	33	4-17-19	6.1
	154-P	troll	33	4-16-31	6.1
	154-S	troll	33	4-16-34	6.1
	154-S	troll	34	4-16-31	10.3
	113-94	troll	34	4-17-18	10.3
	114	troll	28	4-16-35	4.3
	114	troll	36	4-17-18	2.2
	113,114,116	troll	28	4-17-18	-
	113,114,116	troll	29	4-17-19	-
	113,114,116	troll	29	4-16-35	-
	113,114,116	troll	30	4-16-32	-
	113,114,116	troll	30	4-16-34	-
	113,114,116	troll	30	4-16-35	-
	113,114,116	troll	30	4-16-35	-
	113,114,116	troll	30	4-16-35	-
	113,114,116	troll	30	4-16-35	-
	113,114,116	troll	31	4-17-18	-
	113,114,116	troll	31	4-16-35	-
	113,114,116	troll	32	4-17-18	-
	113,114,116	troll	32	4-16-32	-
	113,114,116	troll	32	4-16-35	-
	113,114,116	troll	33	4-17-18	-
	113,114,116	troll	33	4-17-18	-
	113,114,116	troll	33	4-16-31	-
	113,114,116	troll	33	4-16-35	-
	113,114,116	troll	34	4-16-31	-
	113,114,116	troll	34	4-16-31	-
	113,114,116	troll	34	4-16-35	-
	113,114,116	troll	35	4-17-19	-
	109	troll	27	4-16-35	16.5
	109	troll	33	4-17-18	16.5
	104	troll	29	4-16-34	4.9
	104-40	troll	31	4-16-32	12.5

Appendix Table 7. Recoveries of coded-wire tagged Stikine River coho salmon from random fishery samples, 1979-1982 (continued).

Year	District	Gear	Statistical Week	Tag Code	Expansion
	111	troll	31	4-16-35	2.8
	111	gillnet	37	4-16-31	4.9
	106	troll	35	4-17-18	1.6
	106	gillnet	36	4-16-31	8.0
1980	157	troll	33	4-07-16	6.4
	116-25	troll	33	4-19-50	6.4
	116-11	troll	34	4-16-34	8.5
	154-S	troll	27	4-10-16	7.2
	113-91	troll	32	4-10-16	3.8
	113-S	troll	32	4-08-16	3.8
	154-S	troll	33	4-08-16	6.5
	113-91	troll	35	4-08-16	3.7
	113,116	troll	28	4-08-16	-
	109-10	troll	27	4-08-16	6.8
	109	troll	34	4-08-16	8.7
	109	troll	35	4-17-15	9.3
	101-90	seine	35	4-17-17	11.0
	101	troll	35	4-19-48	11.0
	101-25	troll	36	4-19-48	4.2
	B.C. Area 1 (subarea 1)	troll	26	4-19-50	2.7
1981	116-25	troll	32	4-19-52	4.2
	113-91	troll	31	4-19-47	4.8
	113-P	troll	31	4-19-48	4.8
	113-P	troll	31	4-19-52	4.8
	113-S	troll	33	4-19-47	4.1
	114	troll	31	4-19-48	3.9
	113,114,116	troll	35	4-19-48	-
	109-10	troll	28	4-19-47	3.5
	109	troll	29	4-19-48	6.1
	109	troll	31	4-19-47	5.6
	109	troll	31	4-19-47	5.6
	105	troll	36	4-19-48	5.7
	104-10	seine	31	4-19-47	7.4
	104	troll	36	4-19-47	1.8
	112	troll	31	4-19-48	3.9
	101-11	gillnet	26	4-19-52	4.3
	101	troll	33	4-19-47	1.8
1982	108-40	gillnet	38	4-19-48	2.2

¹ P - landed in Pelican; S - landed in Sitka.

Appendix Table 8. Select (non-random) recoveries of coded-wire tagged Stikine River coho salmon, 1979-1980.

Year	District ¹	Gear	Statistical Week	Tag Code
1979	116-05	troll	32	4-16-31
	113-P	troll	30	4-16-34
	114-21	troll	30	4-16-32
	113,114,116	troll	31	4-17-18
	113,114,116	troll	33	4-16-32
	113,114,116	troll	35	4-16-31
	113,114,116	troll	36	4-06-16
	109-10	troll	33	4-16-31
	109-10	troll	33	4-17-19
	109,113	troll	31	4-16-35
	103,104,152	troll	32	4-16-31
	106	troll	35	4-16-34
	102	seine	32	4-16-35
	1980	103,104,152	seine	34

¹ P - landed in Pelican; S - landed in Sitka

Appendix Table 9. Coho salmon CPUE (average catch-per-boat-day) in the District 108 drift gillnet fishery, 1963-1983.

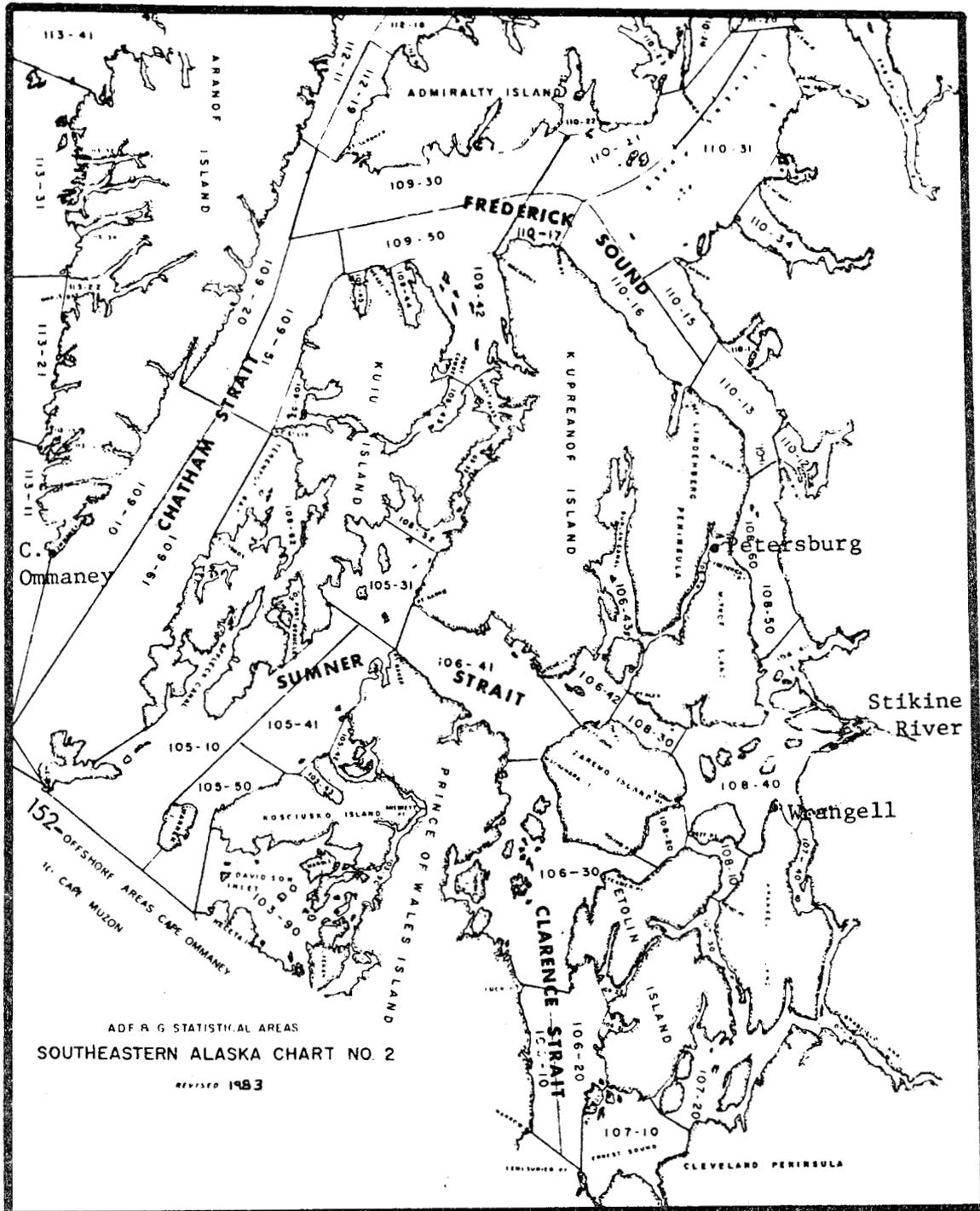
Year	STATISTICAL WEEK															
	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1963	0.27	0.29	0.15	0.50	0.65	3.37	6.83	5.05	7.00	12.43	15.64	29.76	28.11	13.58	-	-
1964	0.00	1.78	2.45	2.27	2.35	12.37	7.67	20.25	20.64	23.21	33.43	29.54	22.43	18.75	-	-
1965	0.01	0.04	0.70	0.63	1.91	25.95	18.80	40.50	44.17	73.28	74.33	101.94	23.46	28.13	42.83	-
1966	0.03	0.32	0.72	2.17	3.83	3.60	4.28	13.11	9.83	28.26	33.83	65.79	65.23	60.85	12.40	7.75
1967	0.05	0.07	0.78	2.30	2.47	3.86	5.83	3.22	31.50	-	27.53	40.69	40.03	7.06	-	-
1968	0.52	1.45	2.58	2.81	13.94	13.15	7.59	11.06	19.36	20.08	16.37	46.32	63.41	40.9 ^e	6.56	-
1969	0.07	0.40	0.44	0.29	1.00	3.27	7.28	7.58	22.11	-	63.66	63.50	-	-	-	-
1970	0.18	0.56	0.98	0.85	3.41	6.23	17.60	26.04	18.18	37.44	75.81	51.58	45.88	24.07	-	-
1971	0.05	0.06	0.16	2.17	3.13	1.90	7.68	12.11	15.57	136.33	80.85	66.97	71.67	4.33	-	-
1972	0.22	2.89	7.91	3.86	12.33	22.79	30.36	19.07	36.86	50.23	78.80	97.46	40.41	77.03	30.94	-
1973	0.39	2.02	5.10	7.96	8.83	10.71	4.30	-	-	-	-	44.39	-	-	-	-
1974	0.80	-	-	-	-	-	-	-	61.50	29.04	74.63	151.87	116.13	55.70	-	-
1975	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1976	-	-	-	-	-	-	-	-	-	-	-	56.50	128.80	57.00	41.67	-
1977	-	0.39	0.98	0.83	4.50	-	-	-	-	-	-	315.07	112.16	58.91	153.20	-
1978	-	-	-	-	-	-	-	-	-	168.79	106.21	107.93	56.68	44.97	21.00	-
1979	-	-	-	-	-	4.61	3.09	-	-	-	-	-	-	-	-	-
1980	0.06	0.05	0.41	0.81	1.61	8.66	-	-	42.44	55.13	58.96	34.75	4.75	-	-	-
1981	0.43	0.39	-	1.73	-	-	-	-	-	61.56	38.92	32.40	-	-	-	-
1982	0.13	0.17	0.09	0.96	-	-	-	-	67.83	35.59	95.95	112.13	68.26	44.22	-	-
1983 ¹	-	-	-	-	-	-	-	-	-	17.00	132.50	213.10	74.51	91.82	31.77	33.75
Average	0.21	0.73	1.68	2.01	4.61	9.27	10.11	15.80	30.54	53.46	62.96	87.46	60.12	41.82	42.55	20.75

¹ 1983 data is preliminary.

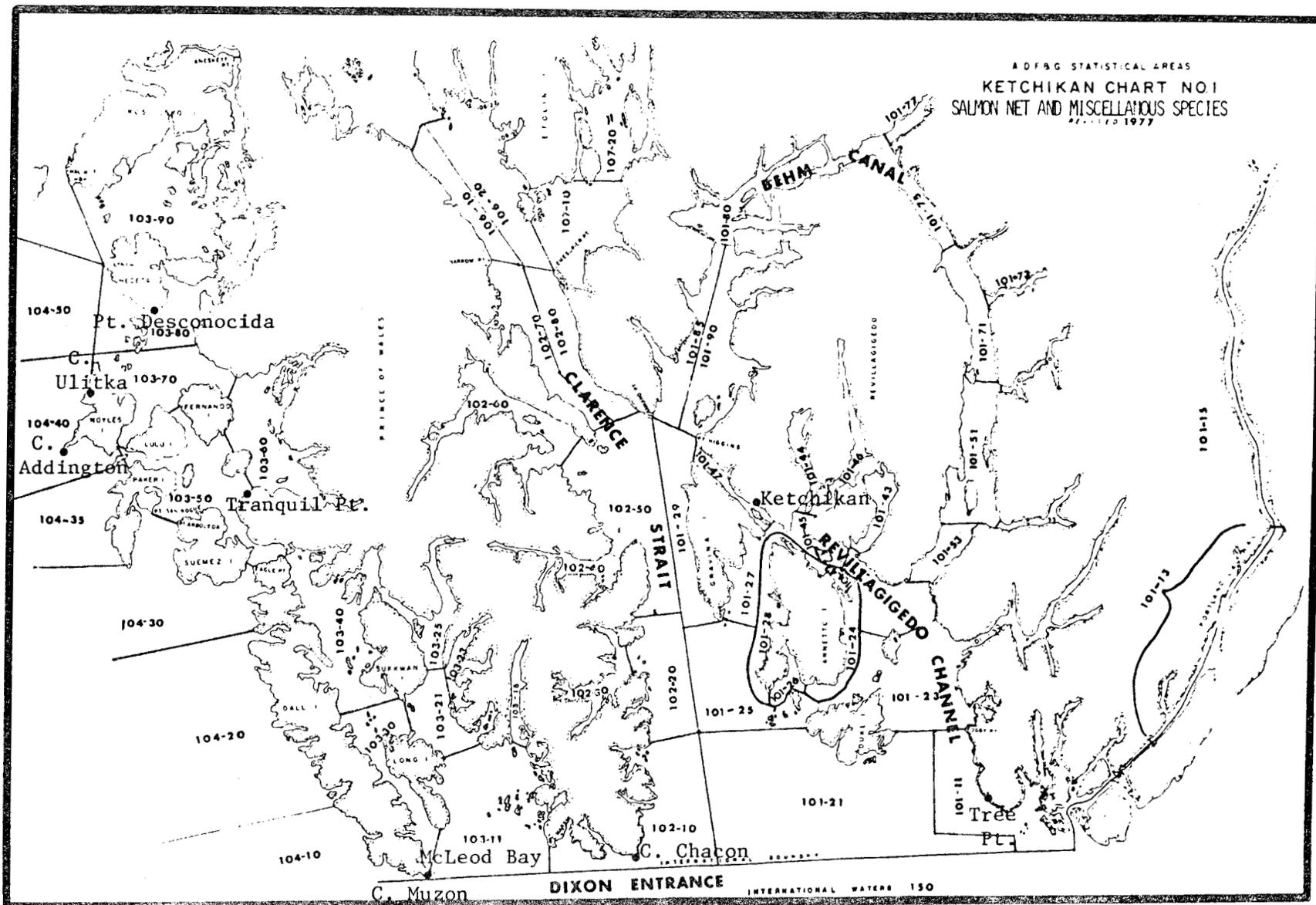
Appendix Table 10. Coho salmon CPUE (average catch-per-boat-day) in the lower Stikine River fishery, 1965, 1980-1983¹.

Year	STATISTICAL WEEK													
	28	29	30	31	32	33	34	35	36	37	38	39	40	41
1965	0.00	0.00	0.14	0.14	1.00	3.57	4.86	8.21	28.86	26.29	21.93	9.79	4.00	-
1980	0.00	0.00	0.00	0.08	0.70	2.49	11.00	23.17	37.69	26.59	13.02	12.02	4.79	-
1981	0.00	0.00	0.01	0.07	2.28	3.93	12.07	13.08	49.62	16.22	12.67	-	-	-
1982	0.02	0.03	0.13	0.43	1.88	6.00	23.17	25.80	37.92	28.48	32.33	30.78	47.93	19.53
1983	0.00	0.00	0.06	0.17	1.56	5.33	12.56	20.38	26.42	49.25	48.23	31.44	27.15	5.42
Average	0.00	0.01	0.07	0.18	1.48	4.26	12.73	18.73	36.10	29.37	25.64	21.01	20.97	12.48

¹ 1965 data is from Crouter and Todd (1965); data for 1980-1983 was provided by the Department of Fisheries and Oceans, Vancouver, B.C.

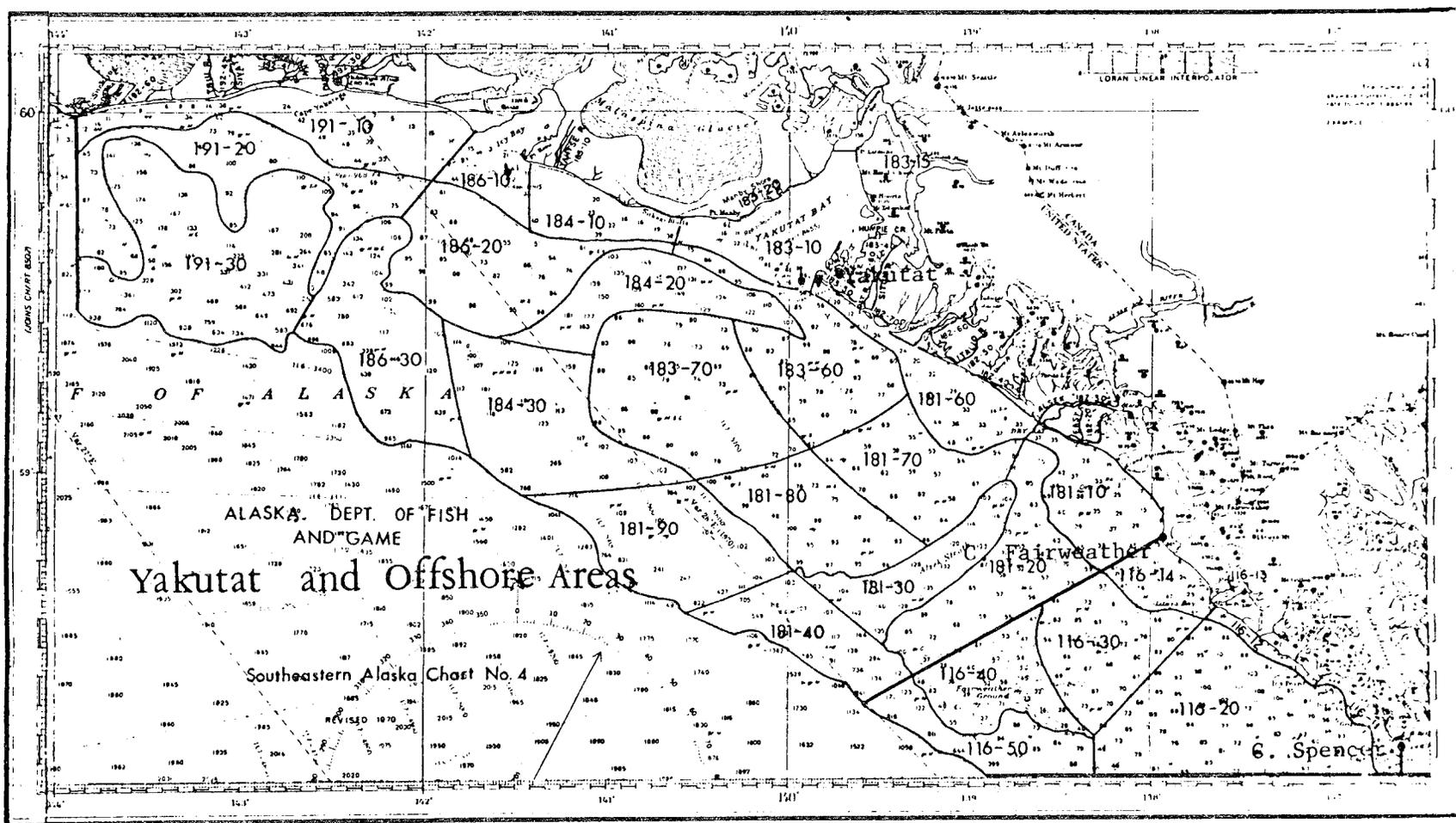


Appendix Figure 2. Central Southeastern Alaska statistical areas.



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Appendix Figure 3. Southern Southeastern Alaska statistical areas.



Appendix Figure 4. Yakutat and northern offshore statistical areas.

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