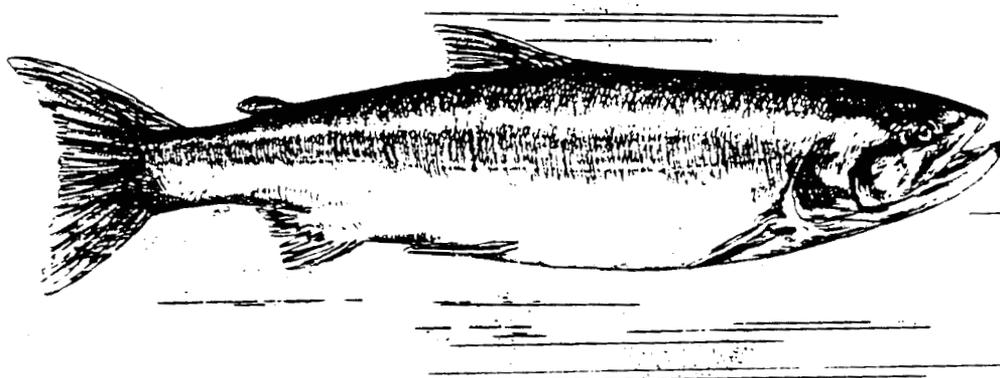


ALASKA DEPARTMENT OF FISH AND GAME

FINFISH

Report to the Board of Fisheries



REGIONAL INFORMATION REPORT NO. 1J90-02

*ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES
JUNEAU, ALASKA*

FEBRUARY 1990

REPORT TO THE BOARD OF FISHERIES

1989 REGION I FINFISH FISHERIES



Edited By

Paul R. Larson

Regional Information Report No.¹ 1J90-2

Alaska Department of Fish and Game
Division of Commercial Fisheries
Juneau, Alaska

February 1990

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REPORT TO THE BOARD OF FISHERIES
INTRODUCTION TO 1989 FINFISH FISHERIES



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Alaska Department of Fish and Game
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INTRODUCTION

This report describes the commercial, personal use and subsistence finfish fisheries that occurred during 1989 within the Southeast Region (Region I) of the Commercial Fisheries Division, Alaska Department of Fish and Game. The purpose of this report is to provide the Alaska Board of Fisheries with a review of the 1989 Region I finfish fisheries. A discussion of how the season progressed in each fishery is included. Preliminary finfish landings are presented and compared to historical production from the region.

Southeast Alaska finfish fisheries harvest all five species of Pacific salmon, herring and various groundfish species. The report consists of five sections, each covering distinct fisheries: 1) Southeast salmon, except troll; 2) Yakutat set net; 3) troll; 4) bottomfish; and 5) herring. Since the salmon fisheries are considered in three separate reports, an regional overview for that fishery is presented in this section.

Preliminary estimates indicate that the 1989 or 1988/89 Region 1 seasonal finfish landings from state managed fisheries (not including halibut or federally managed groundfish fisheries) were worth at least \$138.7 million to the fishermen. This value consisted of about \$130.4 million for salmon, \$3.5 million for herring, and \$4.8 million for groundfish.

Description of the Southeast Region

The Southeast Region consists of waters of Alaska between Cape Suckling on the north and Dixon Entrance on the south (Figure 1). The region is divided into two herring and salmon net registration areas. Area A, the Southeast Alaska area, extends from Dixon Entrance to Cape Fairweather; Area D, the Yakutat area, extends from Cape Fairweather to Cape Suckling. The Yakutat Area is divided into two districts by regulation. The Yakutat District extends from Cape Fairweather to Icy Cape and the Yakataga District continues westward from Icy Cape to Cape Suckling (Figure 2). The Southeast Alaska Area is divided into 17 regulatory districts - Districts 1 through 16 and the Dixon Entrance District (Figure 3). Some of the districts are further divided into regulatory sections.

For management of groundfish fisheries, the entire region is considered as a single registration area - the Eastern Gulf of Alaska. The area actually extends west of Cape Suckling to include the outside waters to 140° W. longitude. The region is further divided into several groundfish management areas (see groundfish section of this report for more details).

For management and administrative purposes the region is divided into five management areas with area offices at Ketchikan, Petersburg, Sitka, Juneau and Haines (Figure 1). Additionally, a department office is maintained in Wrangell, for the Petersburg area, and in Yakutat, for the Juneau area.

Fisheries Management Organization

Management of the Region I commercial and subsistence finfish fisheries is accomplished via coordination of specific area management biologists and overall regional management biologists. There are five area management biologists in Region I corresponding to the five area management offices. Each of the area biologists is primarily responsible for the management of the commercial salmon net, herring and subsistence fisheries in their respective management areas. Management of the groundfish and salmon troll fisheries is accomplished by overall regional management biologists. Because of the movement of fish and fishermen between the various management areas, a closely coordinated regional management approach is needed for all fisheries.

SALMON FISHERIES

Commercial utilization of the Southeast Alaska salmon resources began in the late 1870's. Until the early 1900's, sockeye salmon were the primary species harvested. Pink salmon began to dominate the catch in the early 1900's and, in recent years, pinks have annually comprised 75-90% of the total Southeast Alaska salmon catch. The relative order of production (in numbers of fish) from highest to lowest is usually pink, chum, coho, sockeye and king salmon.

The Southeast salmon harvests peaked in the late 1930's and early 1940's and declined to historic low levels in the 1950's and early 1960's. During the mid to late 1960's improved catches occurred, but in the early 1970's another decline in the production was experienced. The recent trend has been for increased production levels. The consecutive 30-year, high annual total commercial harvest of salmon occurred in Southeast Alaska from 1915 through 1944, when the average annual harvest was approximately 39 million fish. The most recent 5-year average harvest (1985-89) was approximately 43 million salmon.

Fishery Characteristics

Salmon are commercially harvested in the Southeast Area (Area A) with purse seines, drift gill nets, floating fish traps, and hatchery cost recovery; in the Yakutat area (Area D) with set nets; and, in both areas with hand and power troll gear. The salmon net fisheries are confined to state waters, however, the troll fishery operates in both state waters and federal waters of the Exclusive Economic Zone (EEZ). The floating fish traps are restricted to the Annette Islands Fishery Reserve established by Presidential Proclamation in 1916.

Southeast Alaska salmon fisheries are extremely complex due to the mixed stock and mixed species nature of the returns and the existence of several distinct gear groups harvesting the same stocks of salmon. The Southeast Region contains over 2,000 salmon streams with various productivity levels, and it is difficult to apply stock specific fisheries management according to the run strength of individual returns. Additionally, some salmon harvested in the Region originate from other states and Canada. Often, a fishery targeting on a specific salmon species incurs major incidental catches of other species.

Fishery Participation

According to preliminary Commercial Fisheries Entry Commission information a total of 408 purse seine, 467 drift gill net, 165 set gill net, 932 power troll, and 1,555 hand troll permits were renewed and could have fished in 1989 (Table 1). A total of 2,523 permits including 368 purse seine, 467 drift gill net, 160 set gill net, 841 power troll and 687 hand troll reported salmon landings. The four fish traps that are authorized on the Annette Island Reserve also reported landings.

Salmon Harvest

The 1989 Southeast Alaska region's commercial harvest by all gear types, including hatchery cost recovery, totaled approximately 66 million fish (Tables 2 and 3). It was the second highest salmon harvest on record for the region and represented a major increase in production following two years of reduced salmon production. The harvest was considerably above the expected 26.5 million fish, primarily due to a better than expected return of pink salmon. A vast majority of the harvest was a result of natural salmon returns. Returns of hatchery produced salmon were generally below expected levels.

The harvest of approximately 59.5 million pink salmon, the second highest harvest on record, accounted for 90% of the 1989 salmon catch. Region-wide sockeye salmon landings of about 2.1 million

fish were the highest reported since Alaska statehood in 1960, and higher than any other year since 1939. The commercial take of approximately 1.9 million chum salmon was the lowest in the region since 1983 and represented a sharp decline in the production level experienced in recent years. Regionwide coho salmon landings of about 2.2 million fish were the second highest reported since statehood and, like pink salmon, represented an increase over the landings of the previous two years. The 1989 commercial catch of chinook salmon was approximately 284,000, fish including those fish caught in the winter troll fishery from October 1, 1988 through April 14, 1989.

Harvest by Gear Type

The 1989 salmon catch by gear type and species is shown in Tables 4-9. Salmon landed by purse seine gear accounted for 84.2% of the total salmon catch. This was followed by drift gill net at 8.2%, troll at 5.3%, set gill net at 0.9%, trap and miscellaneous at 0.8%, and hatchery cost recovery at 0.7%. Troll gear accounted for 83% of the region's landings of chinook salmon and 65% of the coho salmon harvest. Purse seine fisheries took 90% of the pink, 56% of the chum, and 39% of the region's sockeye salmon harvest. Drift gill net gear accounted for 44% of the sockeye, 31% of the chum, 12% of the coho and 6% of the pink salmon harvest. The set gill net landings of sockeye and coho salmon represented 16% and 8% of the regional harvest of these species, respectively. The trap catch of pink salmon was less than 1% of the Region 1 pink salmon landings. Approximately 7% of the chinook and 9% of the chum salmon harvest was taken for cost recovery purposes at private hatcheries.

Ex-Vessel Value

The ex-vessel value of the 1989 Southeast Alaska regional commercial salmon harvest was estimated to be at least \$130 million (Table 10). This estimate is considered conservative as it is based on the price reported on fish tickets. The estimate does not include any price adjustments not reported nor does it account for those situations where no price information is reported. The actual ex-vessel value may be from 10% to 20% higher, which will not be known until final processor reports are received and analyzed.

The regional, all gear harvest of pink salmon was valued (\$78.1 million). This was followed by sockeye (\$21.8 million), coho (\$12.6 million), chinook (\$9.2 million), and chum salmon (\$8.5 million). The ex-vessel value was highest for purse seine gear (\$83.0 million); followed by drift gill net (\$21.5 million), troll (\$19.7 million), set gill net (\$4.2 million), private hatchery (\$1.1 million) and trap (\$0.7 million).

GROUNDFISH FISHERIES

The harvest of groundfish in state managed fisheries totaled approximately 6,900,000 lbs landed weight during the 1989 season. The ex-vessel value of the catch was nearly \$ 4,800,000. The total 1989 groundfish harvest decreased by 17% and the value decreased by 31% compared to the 1988 levels. Most of the decrease resulted from declines in rockfish, sablefish, and flatfish harvests and a substantial decline in the ex-vessel value of sablefish. The inside water blackcod fishing seasons were short and intensive, extending for five days in the southern area and one day in the northern area. Three of the five Southeast management areas were closed to demersal shelf rockfish fishing during portions of the 1988-89 season when the spring seasonal harvest objectives were reached. This was the first year that rockfish were managed with a split season. The 15% portion of the annual harvest objective reserved for the summer season was not taken in any of the management areas.

HERRING FISHERIES

The total region 1988/1989 seasonal commercial herring harvest was 16,152 tons, up slightly from 15,279 tons during the 1987/1988 and the highest regional harvest since 1964. The total ex-vessel value of 1988/88 season herring harvest was approximately \$3,529,000. The sac-roe harvest totaled about 12,970 tons for an estimated ex-vessel value of \$2,671,000. The catch of 3,125 tons of herring in the winter bait fishery was worth an estimated \$812,000 to the fishermen. Two fresh bait pounds operated and the reported harvest of 66 tons had an ex-vessel value of approximately \$46,000. The sac roe fishery was open in Kah Shakes, Seymour Canal and Sitka Sound areas, while the Lynn Canal sac roe fishing area remained closed due to poor stock conditions. The winter bait season was opened in Lisianski Inlet, Tenakee Inlet, Meares Passage/Boca de Finas. Two fresh bait pounds operated in Sitka Sound. Approximately 12,600 pounds of roe-on-kelp product was estimated to have been taken for subsistence utilization. No macrocystis kelp was reported harvested for transport to Prince William Sound for use in herring roe-on-kelp pounds as in past years.

Table 1. Number of Limited Entry and Interim Use Permits issued and fished of the Southeast Alaska and Yakutat salmon fisheries, 1975-1989.

NUMBER OF PERMITS

Year	Purse Seine		Drift Gill Net		Set Gill Net		Hand Troll		Power Troll	
	Issued	Fished	Issued	Fished	Issued	Fished	Issued	Fished	Issued	Fished
1975	444	293	497	457	215	141	2,087	1,092	1,044	758
1976	416	282	483	442	159	133	2,082	1,235	976	746
1977	414	326	474	446	159	143	2,951	1,834	968	758
1978	420	379	490	485	164	155	3,921	2,624	976	823
1979	418	319	491	459	167	155	3,700	2,204	978	829
1980	417	333	489	450	167	158	2,436	1,667	974	849
1981	418	364	487	454	167	158	2,048	1,147	970	800
1982	421	373	485	444	164	147	1,908	1,067	968	814
1983	421	340	480	438	165	145	2,150	951	968	826
1984	422	386	481	445	164	140	2,147	859	963	801
1985	420	366	484	452	164	148	2,031	892	962	833
1986	415	372	488	463	163	156	1,783	795	953	824
1987	411	385	482	468	160	155	1,682	765	944	830
1988	415	396	483	471	163	160	1,566	776	944	848
Average 1975-1988										
	419	351	485	455	167	150	2,321	1,279	971	810
Preliminary 1989										
	408	368	467	467	165	160	1,555	687	932	841

8.1
1.8

Table 2. Southeast Alaska Region annual total commercial salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	301,344	533,118	681,604	2,712,146	932,430	5,160,642
1961	220,397	682,292	833,609	11,459,298	2,447,384	15,642,980
1962	196,650	727,437	1,156,277	11,255,790	1,837,010	15,173,164
1963	257,706	675,750	1,265,328	19,115,942	1,472,131	22,786,857
1964	357,139	919,124	1,586,258	18,580,259	1,927,834	23,370,614
1965	337,109	1,076,998	1,543,807	10,879,097	1,466,256	15,303,267
1966	308,042	1,046,075	1,218,827	20,350,917	3,227,402	26,151,263
1967	300,938	966,398	864,250	3,109,343	1,806,940	7,047,869
1968	331,511	826,195	1,539,686	25,077,871	2,636,207	30,411,470
1969	314,238	806,129	597,240	4,868,797	559,123	7,145,527
1970	322,348	664,093	759,489	10,651,997	2,442,987	14,840,914
1971	333,901	621,735	914,106	9,344,611	1,945,006	13,159,359
1972	286,735	913,690	1,508,936	12,398,846	2,940,728	18,048,935
1973	343,834	1,011,595	835,837	6,455,488	1,832,215	10,478,969
1974	344,371	687,302	1,276,529	4,889,856	1,775,279	8,973,337
1975	300,707	247,891	427,357	4,026,520	690,438	5,692,913
1976	241,762	597,125	823,667	5,329,598	1,078,147	8,070,299
1977	285,178	1,085,239	1,035,543	13,843,520	750,630	17,000,110
1978	401,424	788,319	1,712,416	21,243,375	868,963	25,014,497
1979	367,620	1,073,885	1,284,635	10,977,908	888,276	14,592,324
1980	323,296	1,120,416	1,136,685	14,478,306	1,651,407	18,710,110
1981	271,858	1,079,478	1,406,414	18,965,178	849,776	22,572,704
1982	300,431	1,493,335	2,130,763	24,248,666	1,351,567	29,524,762
1983	292,444	1,568,868	1,989,112	37,511,248	1,195,604	42,557,276
1984	270,414	1,220,033	1,897,650	24,702,626	4,063,698	32,154,421
1985	257,970	1,862,769	2,580,598	52,062,739	3,267,427	60,031,503
1986	264,998	1,441,440	3,327,037	46,178,060	3,355,137	54,566,672
1987	288,864	1,377,697	1,541,154	10,281,145	2,721,474	16,210,334
1988	244,540	1,459,565	1,046,518	11,190,372	3,535,439	17,476,434
Average 1960 to 1988	298,889	985,310	1,342,115	16,075,501	1,914,376	20,616,191
Preliminary 1989	284,655	2,124,775	2,187,307	59,451,061	1,939,639	65,987,437

Table 3. Southeast Alaska region commercial salmon catches in numbers by gear and fishery, 1989.

Fishery	Numbers of Salmon					Total
	Chinook	Sockeye	Coho	Pink	Chum	
Total Seine	17,629	837,013	332,501	53,262,942	1,090,629	55,540,714
Southern	14,891	738,703	276,306	41,296,825	754,184	43,080,909
Northern	2,738	98,310	56,195	11,966,117	336,445	12,459,805
Drift Gill Net	9,978	927,192	255,124	3,592,886	593,910	5,379,090
Set Gill Net	798	329,461	176,705	57,174	16,233	580,371
Total Troll	235,731	20,199	1,415,511	1,770,681	68,992	3,511,114
Hand Troll	28,781	2,441	220,254	301,431	6,578	559,485
Power Troll	206,950	17,758	1,195,257	1,469,250	62,414	2,951,629
Trap	328	2,730	477	496,262	482	500,279
Cost Recovery	18,803	711	3,438	243,493	166,131	432,576
Miscellaneous	1,388	7,469	3,551	27,623	3,262	43,293
Southern Totals	85,447	1,130,791	812,137	45,759,598	1,254,486	49,042,459
Northern Totals	192,932	664,200	1,064,389	13,630,761	668,670	16,220,952
Yakutat Totals	6,276	329,784	310,781	60,702	16,483	724,026
Region Totals	284,655	2,124,775	2,187,307	59,451,061	1,939,639	65,987,437

Table 4. Southeast Alaska region annual commercial total salmon catches by gear in numbers and (percent), 1960 to 1989. (ADF&G 12/1/89)

Year	Seine	Drift Gill Net	Set Gill Net	Trap & Troll	Private Misc.	Hatchery	Total
1960	3,789,373 (73%)	432,438 (8%)	177,916 (3%)	707,570 (14%)	53,345 (1%)	0 (0%)	5,160,642 (100%)
1961	13,779,073 (88%)	766,804 (5%)	288,253 (2%)	627,467 (4%)	181,383 (1%)	0 (0%)	15,642,980 (100%)
1962	12,394,256 (82%)	1,010,200 (7%)	274,139 (2%)	896,277 (6%)	598,292 (4%)	0 (0%)	15,173,164 (100%)
1963	20,123,579 (88%)	1,232,700 (5%)	283,814 (1%)	1,051,912 (5%)	94,852 (0%)	0 (0%)	22,786,857 (100%)
1964	20,066,975 (86%)	1,431,389 (6%)	302,962 (1%)	1,188,373 (5%)	380,915 (2%)	0 (0%)	23,370,614 (100%)
1965	12,491,186 (82%)	1,426,018 (9%)	252,443 (2%)	1,094,147 (7%)	39,473 (0%)	0 (0%)	15,303,267 (100%)
1966	22,710,676 (87%)	1,658,535 (6%)	257,968 (1%)	880,209 (3%)	643,875 (2%)	0 (0%)	26,151,263 (100%)
1967	5,151,489 (73%)	880,264 (12%)	222,423 (3%)	782,935 (11%)	10,758 (0%)	0 (0%)	7,047,869 (100%)
1968	27,324,284 (90%)	1,433,156 (5%)	189,474 (1%)	1,213,591 (4%)	250,965 (1%)	0 (0%)	30,411,470 (100%)
1969	5,100,506 (71%)	1,018,730 (14%)	230,493 (3%)	764,932 (11%)	30,866 (0%)	0 (0%)	7,145,527 (100%)
1970	12,174,408 (82%)	1,756,875 (12%)	154,837 (1%)	646,033 (4%)	108,761 (1%)	0 (0%)	14,840,914 (100%)
1971	10,495,932 (80%)	1,593,806 (12%)	253,530 (2%)	815,810 (6%)	281 (0%)	0 (0%)	13,159,359 (100%)
1972	14,271,468 (79%)	1,937,570 (11%)	190,757 (1%)	1,213,718 (7%)	435,422 (2%)	0 (0%)	18,048,935 (100%)
1973	7,316,094 (70%)	1,926,658 (18%)	198,351 (2%)	994,200 (9%)	43,666 (0%)	0 (0%)	10,478,969 (100%)
1974	5,583,200 (62%)	1,569,982 (17%)	170,616 (2%)	1,444,016 (16%)	205,523 (2%)	0 (0%)	8,973,337 (100%)
1975	3,926,380 (69%)	867,832 (15%)	196,691 (3%)	582,276 (10%)	117,034 (2%)	2,700 (0%)	5,692,913 (100%)
1976	5,025,146 (62%)	1,373,943 (17%)	219,987 (3%)	955,305 (12%)	494,052 (6%)	1,866 (0%)	8,070,299 (100%)
1977	12,437,911 (73%)	2,611,944 (15%)	364,310 (2%)	1,077,270 (6%)	416,216 (2%)	92,459 (1%)	17,000,110 (100%)
1978	20,107,855 (80%)	1,757,927 (7%)	307,849 (1%)	2,122,965 (8%)	717,901 (3%)	(0%)	25,014,497 (100%)
1979	10,025,866 (69%)	1,966,257 (13%)	424,693 (3%)	1,917,987 (13%)	222,073 (2%)	35,448 (0%)	14,592,324 (100%)
1980	14,075,848 (75%)	2,426,454 (13%)	443,749 (2%)	1,291,613 (7%)	472,446 (3%)	(0%)	18,710,110 (100%)
1981	17,729,234 (79%)	2,353,827 (10%)	428,265 (2%)	1,708,060 (8%)	215,569 (1%)	137,749 (1%)	22,572,704 (100%)
1982	24,281,349 (82%)	2,215,198 (8%)	379,009 (1%)	2,082,882 (7%)	556,054 (2%)	10,270 (0%)	29,524,762 (100%)
1983	36,451,801 (86%)	2,785,297 (7%)	271,607 (1%)	2,079,340 (5%)	826,053 (2%)	143,178 (0%)	42,557,276 (100%)
1984	24,873,000 (77%)	3,638,078 (11%)	337,963 (1%)	1,978,731 (6%)	694,309 (2%)	632,340 (2%)	32,154,421 (100%)
1985	50,822,033 (85%)	4,708,584 (8%)	468,138 (1%)	2,851,514 (5%)	574,591 (1%)	606,643 (1%)	60,031,503 (100%)
1986	47,067,287 (86%)	3,850,768 (7%)	263,772 (0%)	2,605,515 (5%)	500,619 (1%)	278,711 (1%)	54,566,672 (100%)
1987	8,762,947 (54%)	3,399,468 (21%)	413,923 (3%)	1,819,705 (11%)	165,598 (1%)	1,651,351 (10%)	16,212,991 (100%)
1988	11,564,873 (66%)	3,060,699 (18%)	518,378 (3%)	1,329,149 (8%)	100,858 (1%)	910,407 (5%)	17,475,242 (100%)
Average 1960 to 1988	16,549,104 (80%)	1,968,669 (10%)	292,631 (1%)	1,335,293 (6%)	315,578 (2%)	155,280 (1%)	20,616,241 (100%)
Preliminary 1989	55,540,714 (84%)	5,379,090 (8%)	580,371 (1%)	3,511,114 (5%)	543,572 (1%)	432,576 (1%)	65,987,437 (100%)

Table 5. Southeast Alaska region annual commercial total chinook salmon catches by gear in numbers and (percent), 1960 to 1989. (ADF&G 12/1/89)

Year	Seine	Drift Gill Net	Set Gill Net	Trap & Troll	Private Misc.	Hatchery	Total
1960	6,509 (2%)	11,523 (4%)	908 (0%)	282,404 (94%)	0 (0%)	0 (0%)	301,344 (100%)
1961	4,134 (2%)	9,440 (4%)	2,534 (1%)	204,289 (93%)	0 (0%)	0 (0%)	220,397 (100%)
1962	10,145 (5%)	10,161 (5%)	2,747 (1%)	173,597 (88%)	0 (0%)	0 (0%)	196,650 (100%)
1963	6,659 (3%)	6,427 (2%)	941 (0%)	243,679 (95%)	0 (0%)	0 (0%)	257,706 (100%)
1964	16,819 (5%)	9,371 (3%)	1,488 (0%)	329,461 (92%)	0 (0%)	0 (0%)	357,139 (100%)
1965	14,992 (4%)	11,892 (4%)	1,323 (0%)	308,902 (92%)	0 (0%)	0 (0%)	337,109 (100%)
1966	11,877 (4%)	12,527 (4%)	1,555 (1%)	282,083 (92%)	0 (0%)	0 (0%)	308,042 (100%)
1967	9,054 (3%)	16,464 (5%)	742 (0%)	274,678 (91%)	0 (0%)	0 (0%)	300,938 (100%)
1968	13,335 (4%)	12,902 (4%)	697 (0%)	304,455 (92%)	122 (0%)	0 (0%)	331,511 (100%)
1969	6,776 (2%)	15,407 (5%)	1,887 (1%)	290,168 (92%)	0 (0%)	0 (0%)	314,238 (100%)
1970	5,959 (2%)	9,460 (3%)	2,272 (1%)	304,602 (94%)	0 (0%)	0 (0%)	322,348 (100%)
1971	4,799 (1%)	15,718 (5%)	1,945 (1%)	311,439 (93%)	0 (0%)	0 (0%)	333,901 (100%)
1972	16,800 (6%)	25,142 (9%)	2,376 (1%)	242,282 (84%)	135 (0%)	0 (0%)	286,735 (100%)
1973	8,751 (3%)	24,471 (7%)	2,733 (1%)	307,807 (90%)	25 (0%)	0 (0%)	343,834 (100%)
1974	6,759 (2%)	15,590 (5%)	2,214 (1%)	319,793 (93%)	15 (0%)	0 (0%)	344,371 (100%)
1975	2,056 (1%)	9,082 (3%)	2,224 (1%)	287,342 (96%)	3 (0%)	0 (0%)	300,707 (100%)
1976	1,426 (1%)	7,222 (3%)	1,830 (1%)	231,239 (96%)	45 (0%)	0 (0%)	241,762 (100%)
1977	5,243 (2%)	5,600 (2%)	2,549 (1%)	271,735 (95%)	51 (0%)	0 (0%)	285,178 (100%)
1978	13,998 (3%)	8,302 (2%)	3,057 (1%)	375,433 (94%)	135 (0%)	0 (0%)	401,424 (100%)
1979	10,079 (3%)	13,828 (4%)	4,299 (1%)	338,319 (92%)	250 (0%)	0 (0%)	367,620 (100%)
1980	12,507 (4%)	5,642 (2%)	2,800 (1%)	301,597 (93%)	139 (0%)	0 (0%)	323,296 (100%)
1981	10,268 (4%)	6,494 (2%)	2,069 (1%)	252,193 (93%)	86 (0%)	0 (0%)	271,858 (100%)
1982	31,375 (10%)	16,252 (5%)	1,456 (0%)	249,873 (83%)	553 (0%)	0 (0%)	300,431 (100%)
1983	13,581 (5%)	4,885 (2%)	976 (0%)	272,802 (93%)	194 (0%)	0 (0%)	292,444 (100%)
1984	20,769 (8%)	10,424 (4%)	1,062 (0%)	235,623 (87%)	182 (0%)	937 (0%)	270,414 (100%)
1985	23,147 (9%)	10,701 (4%)	1,231 (0%)	218,759 (85%)	366 (0%)	2,658 (1%)	257,970 (100%)
1986	13,311 (5%)	8,560 (3%)	1,425 (1%)	239,210 (90%)	0 (0%)	1,279 (0%)	264,998 (100%)
1987	6,297 (2%)	8,957 (3%)	2,072 (1%)	268,891 (93%)	928 (0%)	2,376 (1%)	289,511 (100%)
1988	12,151 (5%)	9,376 (4%)	893 (0%)	210,934 (86%)	1,147 (0%)	10,049 (4%)	244,508 (100%)
Average 1960 to 1988							
	11,020 (4%)	11,442 (4%)	1,873 (1%)	273,572 (92%)	151 (0%)	597 (0%)	298,910 (100%)
Preliminary 1989							
	17,629 (6%)	13,778 (5%)	8,039 (3%)	22,891 (8%)	698 (0%)	18,803 (7%)	275,639 (100%)

Table 6. Southeast Alaska region annual commercial total sockeye salmon catches by gear in numbers and (percent), 1960 to 1989. (ADF&G 12/1/89)

Year	Seine	Drift Gill Net	Set Gill Net	Trap & Troll	Private Misc.	Hatchery	Total
1960	358,697 (67%)	127,058 (24%)	44,671 (8%)	939 (0%)	1,753 (0%)	0 (0%)	533,118 (100%)
1961	418,952 (61%)	169,724 (25%)	82,403 (12%)	1,264 (0%)	9,949 (1%)	0 (0%)	682,292 (100%)
1962	411,748 (57%)	233,082 (32%)	73,937 (10%)	1,181 (0%)	7,489 (1%)	0 (0%)	727,437 (100%)
1963	422,633 (63%)	194,420 (29%)	52,517 (8%)	2,014 (0%)	4,166 (1%)	0 (0%)	675,750 (100%)
1964	570,666 (62%)	246,250 (27%)	90,175 (10%)	1,004 (0%)	11,029 (1%)	0 (0%)	919,124 (100%)
1965	672,015 (62%)	279,349 (26%)	120,417 (11%)	1,872 (0%)	3,345 (0%)	0 (0%)	1,076,998 (100%)
1966	480,519 (46%)	334,702 (32%)	185,360 (18%)	679 (0%)	44,815 (4%)	0 (0%)	1,046,075 (100%)
1967	600,628 (62%)	274,038 (28%)	88,431 (9%)	157 (0%)	3,144 (0%)	0 (0%)	966,398 (100%)
1968	494,998 (60%)	245,875 (30%)	80,776 (10%)	574 (0%)	3,972 (0%)	0 (0%)	826,195 (100%)
1969	338,233 (42%)	348,343 (43%)	117,725 (15%)	858 (0%)	970 (0%)	0 (0%)	806,129 (100%)
1970	307,821 (46%)	240,700 (36%)	112,169 (17%)	477 (0%)	2,926 (0%)	0 (0%)	664,093 (100%)
1971	162,823 (26%)	328,774 (53%)	129,206 (21%)	932 (0%)	0 (0%)	0 (0%)	621,735 (100%)
1972	323,965 (35%)	449,019 (49%)	131,484 (14%)	1,083 (0%)	8,139 (1%)	0 (0%)	913,690 (100%)
1973	348,679 (34%)	532,164 (53%)	128,412 (13%)	1,222 (0%)	1,118 (0%)	0 (0%)	1,011,595 (100%)
1974	235,934 (34%)	363,731 (53%)	82,413 (12%)	2,609 (0%)	2,615 (0%)	0 (0%)	687,302 (100%)
1975	61,878 (25%)	108,334 (44%)	73,260 (30%)	1,098 (0%)	3,321 (1%)	0 (0%)	247,891 (100%)
1976	135,823 (23%)	322,984 (54%)	130,176 (22%)	1,266 (0%)	6,876 (1%)	0 (0%)	597,125 (100%)
1977	329,396 (30%)	550,360 (51%)	185,391 (17%)	5,783 (1%)	14,309 (1%)	0 (0%)	1,085,239 (100%)
1978	274,238 (35%)	374,424 (47%)	130,681 (17%)	2,804 (0%)	6,172 (1%)	0 (0%)	788,319 (100%)
1979	397,448 (37%)	488,394 (45%)	165,069 (15%)	7,018 (1%)	15,956 (1%)	0 (0%)	1,073,885 (100%)
1980	527,310 (47%)	422,425 (38%)	159,152 (14%)	2,866 (0%)	8,663 (1%)	0 (0%)	1,120,416 (100%)
1981	444,699 (41%)	466,090 (43%)	149,573 (14%)	7,470 (1%)	11,645 (1%)	1 (0%)	1,079,478 (100%)
1982	463,236 (31%)	790,775 (53%)	212,368 (14%)	2,339 (0%)	24,616 (2%)	1 (0%)	1,493,335 (100%)
1983	794,300 (51%)	607,986 (39%)	152,541 (10%)	7,968 (1%)	6,072 (0%)	1 (0%)	1,568,868 (100%)
1984	470,165 (39%)	616,836 (51%)	102,545 (8%)	10,538 (1%)	19,942 (2%)	7 (0%)	1,220,033 (100%)
1985	720,992 (39%)	882,011 (47%)	234,886 (13%)	7,755 (0%)	17,107 (1%)	18 (0%)	1,862,769 (100%)
1986	591,883 (41%)	686,464 (48%)	150,619 (10%)	6,887 (0%)	5,581 (0%)	6 (0%)	1,441,440 (100%)
1987	311,240 (23%)	784,214 (57%)	259,979 (19%)	9,727 (1%)	11,425 (1%)	1,122 (0%)	1,377,707 (100%)
1988	655,611 (45%)	626,645 (43%)	162,168 (11%)	9,305 (1%)	4,807 (0%)	1,703 (0%)	1,459,787 (100%)
Average 1960 to 1988	425,053 (43%)	417,075 (42%)	130,638 (13%)	3,438 (0%)	9,032 (1%)	99 (0%)	985,318 (100%)
Preliminary 1989	837,013 (39%)	927,192 (44%)	329,461 (16%)	20,199 (1%)	10,199 (0%)	711 (0%)	2,124,775 (100%)

Table 7. Southeast Alaska region annual commercial total coho salmon catches by gear in numbers and (percent), 1960 to 1989. (ADF&G 12/1/89)

Year	Seine	Drift Gill Net	Set Gill Net	Trap & Troll	Private Misc.	Hatchery	Total
1960	125,871 (18%)	37,986 (6%)	119,149 (17%)	396,211 (58%)	2,387 (0%)	0 (0%)	681,604 (100%)
1961	246,524 (30%)	52,743 (6%)	128,670 (15%)	399,932 (48%)	5,740 (1%)	0 (0%)	833,609 (100%)
1962	239,382 (21%)	98,404 (9%)	170,776 (15%)	643,740 (56%)	3,975 (0%)	0 (0%)	1,156,277 (100%)
1963	316,491 (25%)	112,776 (9%)	141,365 (11%)	693,050 (55%)	1,646 (0%)	0 (0%)	1,265,328 (100%)
1964	506,505 (32%)	172,411 (11%)	169,780 (11%)	730,766 (46%)	6,796 (0%)	0 (0%)	1,586,258 (100%)
1965	557,005 (36%)	166,452 (11%)	122,207 (8%)	695,887 (45%)	2,256 (0%)	0 (0%)	1,543,807 (100%)
1966	452,057 (37%)	155,922 (13%)	66,252 (5%)	528,621 (43%)	15,975 (1%)	0 (0%)	1,218,827 (100%)
1967	188,965 (22%)	134,029 (16%)	97,211 (11%)	443,677 (51%)	368 (0%)	0 (0%)	864,250 (100%)
1968	463,553 (30%)	202,965 (13%)	92,005 (6%)	779,500 (51%)	1,663 (0%)	0 (0%)	1,539,686 (100%)
1969	110,415 (18%)	65,704 (11%)	32,262 (5%)	388,459 (65%)	400 (0%)	0 (0%)	597,240 (100%)
1970	295,683 (39%)	163,901 (22%)	29,748 (4%)	267,647 (35%)	2,510 (0%)	0 (0%)	759,489 (100%)
1971	326,264 (36%)	159,143 (17%)	37,420 (4%)	391,279 (43%)	0 (0%)	0 (0%)	914,106 (100%)
1972	391,204 (26%)	275,393 (18%)	45,704 (3%)	791,947 (52%)	4,688 (0%)	0 (0%)	1,508,936 (100%)
1973	129,593 (16%)	124,349 (15%)	41,213 (5%)	540,125 (65%)	557 (0%)	0 (0%)	835,837 (100%)
1974	166,687 (13%)	186,532 (15%)	77,556 (6%)	844,748 (66%)	1,006 (0%)	0 (0%)	1,276,529 (100%)
1975	70,201 (16%)	102,321 (24%)	37,403 (9%)	214,170 (50%)	562 (0%)	2,700 (1%)	427,357 (100%)
1976	87,604 (11%)	156,469 (19%)	51,743 (6%)	524,762 (64%)	1,223 (0%)	1,866 (0%)	823,667 (100%)
1977	160,519 (16%)	182,090 (18%)	92,214 (9%)	506,887 (49%)	93,833 (9%)	0 (0%)	1,035,543 (100%)
1978	245,074 (14%)	223,321 (13%)	137,408 (8%)	1,100,902 (64%)	5,711 (0%)	0 (0%)	1,712,416 (100%)
1979	176,593 (14%)	83,048 (6%)	95,873 (7%)	918,845 (72%)	4,383 (0%)	5,893 (0%)	1,284,635 (100%)
1980	194,250 (17%)	112,609 (10%)	119,648 (11%)	707,360 (62%)	2,818 (0%)	0 (0%)	1,136,685 (100%)
1981	286,010 (20%)	118,868 (8%)	132,127 (9%)	862,177 (61%)	2,229 (0%)	5,003 (0%)	1,406,414 (100%)
1982	449,459 (21%)	201,468 (9%)	148,994 (7%)	1,321,546 (62%)	7,146 (0%)	2,150 (0%)	2,130,763 (100%)
1983	399,279 (20%)	218,109 (11%)	81,517 (4%)	1,279,518 (64%)	6,469 (0%)	4,220 (0%)	1,989,112 (100%)
1984	370,098 (20%)	199,308 (11%)	182,256 (10%)	1,131,936 (60%)	7,216 (0%)	6,836 (0%)	1,897,650 (100%)
1985	431,791 (17%)	332,818 (13%)	203,193 (8%)	1,603,110 (62%)	7,031 (0%)	2,655 (0%)	2,580,598 (100%)
1986	588,683 (18%)	448,768 (13%)	87,871 (3%)	2,126,159 (64%)	2,746 (0%)	72,810 (2%)	3,327,037 (100%)
1987	131,458 (9%)	189,171 (12%)	124,406 (8%)	1,041,175 (67%)	4,675 (0%)	52,234 (3%)	1,543,119 (100%)
1988	155,576 (15%)	165,072 (16%)	205,866 (20%)	500,308 (48%)	3,269 (0%)	16,437 (2%)	1,045,096 (100%)
Average 1960 to 1988	284,924 (21%)	166,971 (12%)	105,925 (8%)	771,533 (57%)	6,872 (1%)	5,959 (0%)	1,342,134 (100%)
Preliminary 1989	332,501 (15%)	255,124 (12%)	176,705 (8%)	1,415,511 (65%)	4,028 (0%)	3,438 (0%)	2,187,307 (100%)

Table 8. Southeast Alaska region annual commercial total pink salmon catches by gear in numbers and (percent), 1960 to 1989. (ADF&G 12/1/89)

Year	Seine	Drift Gill Net	Set Gill Net	Trap & Troll	Private Misc.	Hatchery	Total
1960	2,572,279 (95%)	55,984 (2%)	12,911 (0%)	25,563 (1%)	45,409 (2%)	0 (0%)	2,712,146 (100%)
1961	10,936,344 (95%)	282,997 (2%)	63,608 (1%)	19,303 (0%)	157,046 (1%)	0 (0%)	11,459,298 (100%)
1962	10,139,595 (90%)	435,132 (4%)	26,063 (0%)	75,083 (1%)	579,917 (5%)	0 (0%)	11,255,790 (100%)
1963	18,189,644 (95%)	653,826 (3%)	78,697 (0%)	106,939 (1%)	86,836 (0%)	0 (0%)	19,115,942 (100%)
1964	17,310,850 (93%)	753,312 (4%)	40,038 (0%)	124,566 (1%)	351,493 (2%)	0 (0%)	18,580,259 (100%)
1965	10,061,603 (92%)	698,339 (6%)	4,402 (0%)	81,127 (1%)	33,626 (0%)	0 (0%)	10,879,097 (100%)
1966	18,919,555 (93%)	790,314 (4%)	1,405 (0%)	63,623 (0%)	576,020 (3%)	0 (0%)	20,350,917 (100%)
1967	2,807,783 (90%)	205,683 (7%)	31,580 (1%)	57,372 (2%)	6,925 (0%)	0 (0%)	3,109,343 (100%)
1968	24,099,793 (96%)	607,653 (2%)	2,130 (0%)	126,271 (1%)	242,024 (1%)	0 (0%)	25,077,871 (100%)
1969	4,312,402 (89%)	379,738 (8%)	63,692 (1%)	83,727 (2%)	29,238 (1%)	0 (0%)	4,868,797 (100%)
1970	9,628,111 (90%)	848,376 (8%)	3,555 (0%)	70,072 (1%)	101,883 (1%)	0 (0%)	10,651,997 (100%)
1971	8,505,647 (91%)	654,434 (7%)	79,973 (1%)	104,557 (1%)	0 (0%)	0 (0%)	9,344,611 (100%)
1972	11,370,064 (92%)	443,866 (4%)	2,903 (0%)	166,771 (1%)	415,242 (3%)	0 (0%)	12,398,846 (100%)
1973	5,609,519 (87%)	652,692 (10%)	16,998 (0%)	134,586 (2%)	41,693 (1%)	0 (0%)	6,455,488 (100%)
1974	4,174,219 (85%)	339,292 (7%)	4,248 (0%)	263,044 (5%)	109,053 (2%)	0 (0%)	4,889,856 (100%)
1975	3,410,938 (85%)	350,440 (9%)	80,043 (2%)	76,882 (2%)	108,217 (3%)	0 (0%)	4,026,520 (100%)
1976	4,287,516 (80%)	384,003 (7%)	28,492 (1%)	193,786 (4%)	435,801 (8%)	0 (0%)	5,329,598 (100%)
1977	11,600,431 (84%)	1,500,378 (11%)	75,504 (1%)	281,244 (2%)	293,504 (2%)	92,459 (1%)	13,843,520 (100%)
1978	19,044,766 (90%)	846,559 (4%)	30,522 (0%)	617,633 (3%)	703,895 (3%)	0 (0%)	21,243,375 (100%)
1979	9,000,060 (82%)	968,154 (9%)	152,053 (1%)	629,144 (6%)	198,942 (2%)	29,555 (0%)	10,977,908 (100%)
1980	12,314,942 (85%)	1,297,098 (9%)	141,998 (1%)	267,589 (2%)	456,679 (3%)	0 (0%)	14,478,306 (100%)
1981	16,453,340 (87%)	1,468,673 (8%)	133,863 (1%)	577,256 (3%)	199,302 (1%)	132,744 (1%)	18,965,178 (100%)
1982	22,475,115 (93%)	731,314 (3%)	9,886 (0%)	503,425 (2%)	521,580 (2%)	7,346 (0%)	24,248,666 (100%)
1983	34,634,877 (92%)	1,420,575 (4%)	25,378 (0%)	498,503 (1%)	811,227 (2%)	120,688 (0%)	37,511,248 (100%)
1984	21,572,952 (87%)	1,708,234 (7%)	19,870 (0%)	572,599 (2%)	657,615 (3%)	171,356 (1%)	24,702,626 (100%)
1985	47,786,490 (92%)	2,278,565 (4%)	16,362 (0%)	968,958 (2%)	541,415 (1%)	470,949 (1%)	52,062,739 (100%)
1986	43,659,255 (95%)	1,794,754 (4%)	7,248 (0%)	181,902 (0%)	487,440 (1%)	47,461 (0%)	46,178,060 (100%)
1987	7,059,881 (69%)	1,582,860 (15%)	124,406 (1%)	487,069 (5%)	140,510 (1%)	997,915 (10%)	10,281,145 (100%)
1988	9,270,087 (83%)	1,043,217 (9%)	120,204 (1%)	520,203 (5%)	84,168 (1%)	159,507 (1%)	11,192,866 (100%)
Average 1960 to 1988							
	14,524,416 (90%)	868,154 (5%)	48,208 (0%)	271,683 (2%)	290,231 (2%)	76,896 (0%)	16,075,587 (100%)
Preliminary 1989							
	53,262,942 (90%)	3,592,886 (6%)	57,174 (0%)	1,770,681 (3%)	523,885 (1%)	243,493 (0%)	59,451,061 (100%)

Table 9. Southeast Alaska region annual commercial total chum salmon catches by gear in numbers and (percent), 1960 to 1989. (ADF&G 12/1/89)

Year	Seine	Drift Gill Net	Set Gill Net	Trap & Troll	Private Misc.	Hatchery	Total
1960	726,017 (78%)	199,887 (21%)	277 (0%)	2,453 (0%)	3,796 (0%)	0 (0%)	932,430 (100%)
1961	2,173,119 (89%)	251,900 (10%)	11,038 (0%)	2,679 (0%)	8,648 (0%)	0 (0%)	2,447,384 (100%)
1962	1,593,386 (87%)	233,421 (13%)	616 (0%)	2,676 (0%)	6,911 (0%)	0 (0%)	1,837,010 (100%)
1963	1,188,152 (81%)	265,251 (18%)	10,294 (1%)	6,230 (0%)	2,204 (0%)	0 (0%)	1,472,131 (100%)
1964	1,662,135 (86%)	250,045 (13%)	1,481 (0%)	2,576 (0%)	11,597 (1%)	0 (0%)	1,927,834 (100%)
1965	1,185,571 (81%)	269,986 (18%)	4,094 (0%)	6,359 (0%)	246 (0%)	0 (0%)	1,466,256 (100%)
1966	2,846,668 (88%)	365,070 (11%)	3,396 (0%)	5,203 (0%)	7,065 (0%)	0 (0%)	3,227,402 (100%)
1967	1,545,059 (86%)	250,050 (14%)	4,459 (0%)	7,051 (0%)	321 (0%)	0 (0%)	1,806,940 (100%)
1968	2,252,605 (85%)	363,761 (14%)	13,866 (1%)	2,791 (0%)	3,184 (0%)	0 (0%)	2,636,207 (100%)
1969	332,680 (60%)	209,538 (37%)	14,927 (3%)	1,720 (0%)	258 (0%)	0 (0%)	559,123 (100%)
1970	1,936,834 (79%)	494,438 (20%)	7,093 (0%)	3,235 (0%)	1,387 (0%)	0 (0%)	2,442,987 (100%)
1971	1,496,399 (77%)	435,737 (22%)	4,986 (0%)	7,603 (0%)	281 (0%)	0 (0%)	1,945,006 (100%)
1972	2,169,435 (74%)	744,150 (25%)	8,290 (0%)	11,635 (0%)	7,218 (0%)	0 (0%)	2,940,728 (100%)
1973	1,219,552 (67%)	592,982 (32%)	8,995 (0%)	10,460 (1%)	226 (0%)	0 (0%)	1,832,215 (100%)
1974	999,601 (56%)	664,837 (37%)	4,185 (0%)	13,822 (1%)	92,834 (5%)	0 (0%)	1,775,279 (100%)
1975	381,307 (55%)	297,655 (43%)	3,761 (1%)	2,784 (0%)	4,931 (1%)	0 (0%)	690,438 (100%)
1976	512,777 (48%)	503,265 (47%)	7,746 (1%)	4,252 (0%)	50,107 (5%)	0 (0%)	1,078,147 (100%)
1977	342,322 (46%)	373,516 (50%)	8,652 (1%)	11,621 (2%)	14,519 (2%)	0 (0%)	750,630 (100%)
1978	529,779 (61%)	305,321 (35%)	6,181 (1%)	26,193 (3%)	1,489 (0%)	0 (0%)	868,963 (100%)
1979	441,686 (50%)	412,833 (46%)	7,399 (1%)	24,661 (3%)	1,697 (0%)	0 (0%)	888,276 (100%)
1980	1,026,839 (62%)	588,680 (36%)	20,151 (1%)	12,201 (1%)	3,536 (0%)	0 (0%)	1,651,407 (100%)
1981	534,917 (63%)	293,702 (35%)	10,633 (1%)	8,964 (1%)	1,559 (0%)	1 (0%)	849,776 (100%)
1982	862,164 (64%)	475,389 (35%)	6,305 (0%)	5,699 (0%)	1,237 (0%)	773 (0%)	1,351,567 (100%)
1983	609,764 (51%)	533,742 (45%)	11,195 (1%)	20,549 (2%)	2,085 (0%)	18,269 (2%)	1,195,604 (100%)
1984	2,439,016 (60%)	1,103,276 (27%)	32,230 (1%)	28,035 (1%)	7,937 (0%)	453,204 (11%)	4,063,698 (100%)
1985	1,859,613 (57%)	1,204,489 (37%)	12,466 (0%)	52,932 (2%)	7,564 (0%)	130,363 (4%)	3,267,427 (100%)
1986	2,214,155 (66%)	912,222 (27%)	16,609 (0%)	51,357 (2%)	3,639 (0%)	157,155 (5%)	3,355,137 (100%)
1987	1,254,071 (46%)	834,266 (31%)	14,555 (1%)	12,843 (0%)	8,070 (0%)	597,704 (22%)	2,721,509 (100%)
1988	1,471,448 (42%)	1,216,389 (34%)	29,247 (1%)	88,399 (3%)	7,467 (0%)	722,711 (20%)	3,532,985 (100%)
Average 1960 to 1988	1,303,692 (68%)	505,028 (26%)	9,832 (1%)	15,068 (1%)	9,035 (0%)	71,730 (4%)	1,914,293 (100%)
Preliminary 1989	1,090,629 (56%)	593,910 (31%)	16,233 (1%)	68,992 (4%)	3,744 (0%)	166,131 (9%)	1,939,639 (100%)

Table 10.

Southeast Alaska region salmon ex-vessel value, catch, average weight, and price paid per pound by gear and species, 1989.

Fishery	Chinook	Sockeye	Coho	Pink	Chum	Total
----- Ex-vessel Value in Dollars -----						
Purse Seine	301,391	8,152,925	1,478,964	68,815,721	4,438,564	83,138,565
Drift Gill Net	134,851	10,413,015	1,666,802	5,992,934	3,332,191	21,539,793
Troll	8,524,834	186,566	8,399,642	2,352,704	266,557	19,730,304
Set Gill Net	13,847	3,032,886	972,973	84,949	66,451	4,171,107
Trap	3,568	29,141	1,951	650,599	2,556	687,814
Private Hatchery	353,797	6,588	19,809	243,055	513,444	1,136,694
Total	9,332,288	21,821,122	12,540,141	78,139,962	8,570,764	130,404,277
----- Catch in Numbers of Salmon -----						
Purse Seine (>28 inches)	13,168	837,013	332,501	53,262,942	1,090,629	55,536,353
Purse Seine (<21 inches)	4,461	NA	NA	NA	NA	4,461
Drift Gill Net	9,978	927,192	255,124	3,592,886	593,910	5,379,090
Troll	235,731	20,199	1,415,511	1,770,681	68,992	3,511,114
Set Gill Net	798	329,461	176,705	57,174	16,233	580,371
Trap	328	2,730	477	496,262	482	500,279
Private Hatchery	18,803	711	3,438	243,493	166,131	432,576
Total	283,267	2,117,306	2,183,756	59,423,438	1,936,377	65,944,144
----- Average Weight In Pounds -----						
Purse Seine (>28 inches)	19.9	6.1	7.0	3.4	9.4	NA
Purse Seine (<21 inches)	4.6	NA	NA	NA	NA	NA
Drift Gill Net	12.0	6.9	8.3	4.2	10.4	NA
Troll	19.9	5.4	6.5	3.1	7.4	NA
Set Gill Net	14.5	6.2	8.7	4.4	9.5	NA
Trap	11.5	6.6	6.4	3.5	12.3	NA
Private Hatchery	22.4	5.9	5.8	3.2	9.1	NA
----- Average Ex-vessel Price Paid Per Pound -----						
Purse Seine (>28 inches)	1.14	1.61	0.64	0.38	0.43	NA
Purse Seine (<21 inches)	0.16	NA	NA	NA	NA	NA
Drift Gill Net	1.13	1.63	0.79	0.40	0.54	NA
Troll	1.82	1.72	0.92	0.43	0.52	NA
Set Gill Net	1.20	1.48	0.63	0.34	0.43	NA
Trap	0.95	1.61	0.64	0.38	0.43	NA
Private Hatchery	0.84	1.56	0.99	0.31	0.34	NA

Note: The ex-vessel price per pound is based on the average price shown on fish tickets and does not include any subsequent price adjustments and are considered conservative estimates. The price paid per pound for trap gear was assumed to be the same as paid for purse seine gear.

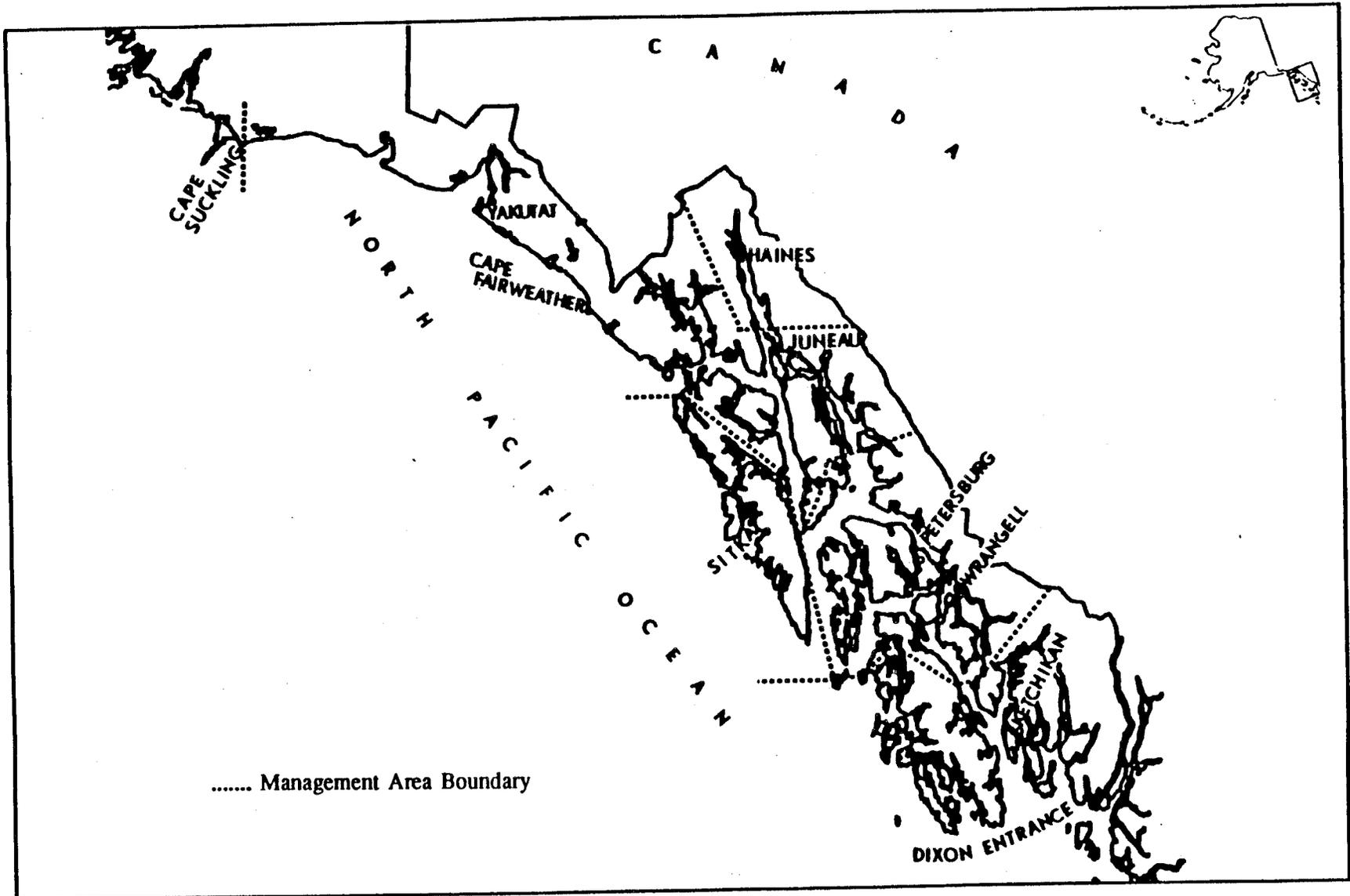


Figure 1. Map of Region 1 (Southeast Alaska and Yakutat) showing management area boundaries.

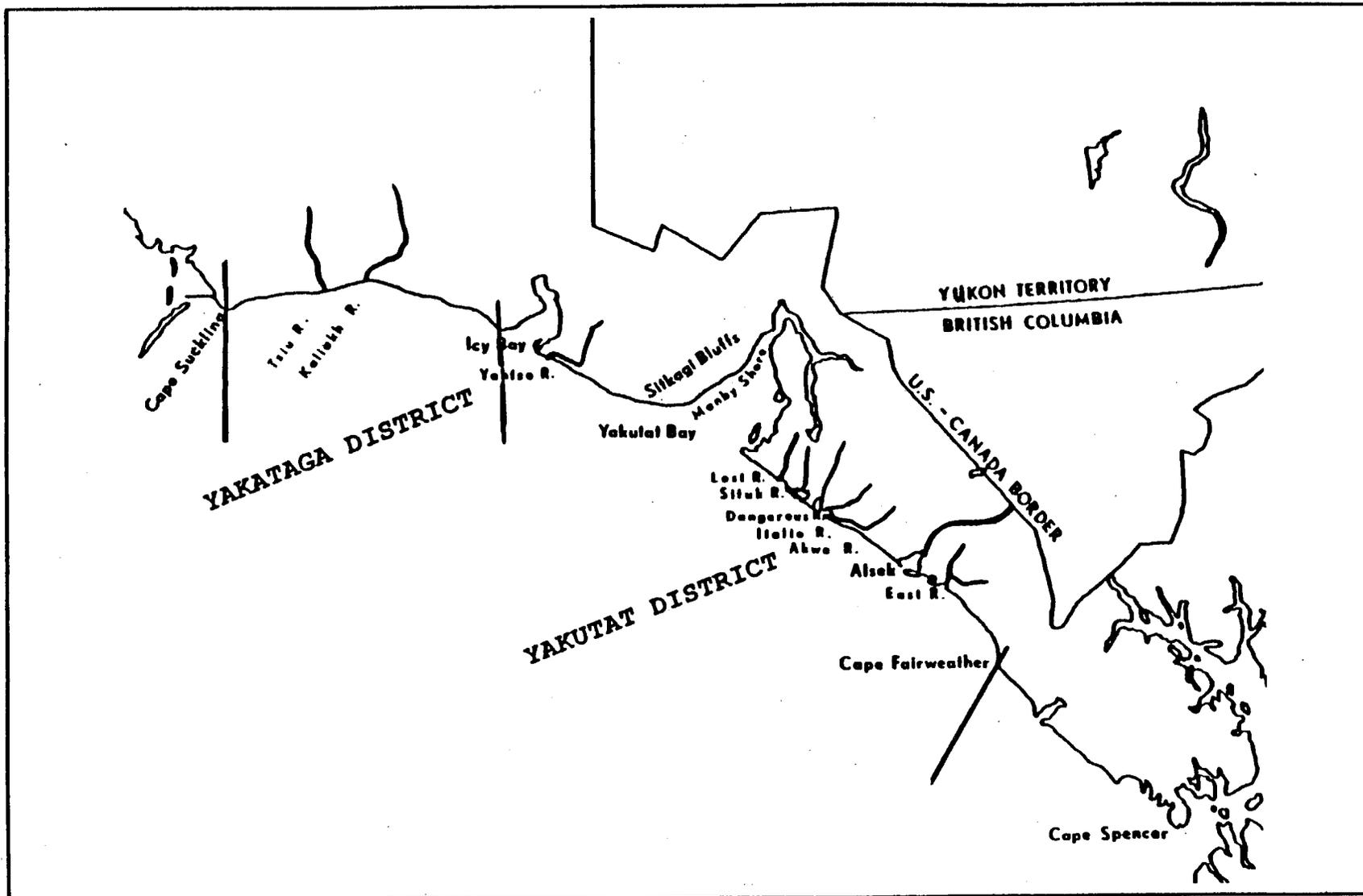


Figure 2. Map of Yakutat area showing Yakataga and Yakutat Districts.

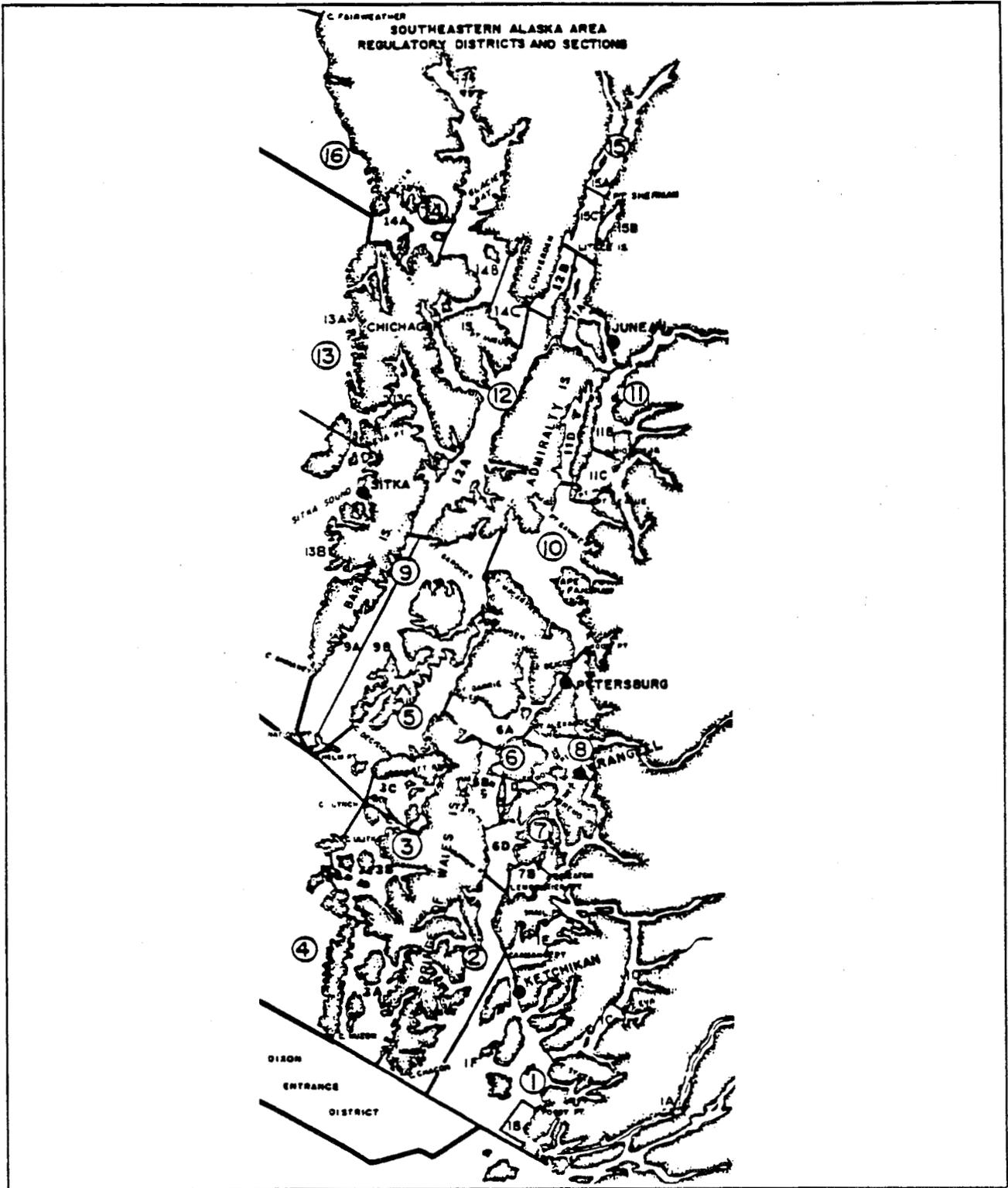


Figure 3. Map of Southeast Alaska showing regulatory areas and districts.

REPORT TO THE BOARD OF FISHERIES
1989 SOUTHEAST ALASKA-YAKUTAT SALMON NET FISHERIES



By

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Alaska Department of Fish and Game
Division of Commercial Fisheries
Juneau, Alaska

February 1990

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ABSTRACT

The 1989 Southeast Alaska commercial salmon purse seine, drift gill net, hatchery cost recovery, subsistence and personal use fisheries are reviewed. The management of these fisheries is described and the 1989 salmon landings are compared to historical information. Overall purse seine landings totaled approximately 55.5 million salmon, the highest on record. Over 95% of the purse seine harvest were pink salmon, which returned considerably stronger than forecasted in both the northern and southern seine areas. Drift gill net gear landings totaled approximately 5.4 million salmon, and were the highest on record. Pink salmon dominated the gill net catch, representing about 67% of the total gill net salmon catch. The gill net landings of sockeye salmon were also the highest on record. The catches of chum salmon were below average in both the seine and gill net fisheries. The returns of hatchery produced salmon were, with few exceptions, well below expected levels. The salmon subsistence and new personal use fisheries are reviewed. The 1989 combined subsistence and personal use salmon harvest was very similar to the reported harvest from the subsistence fishery in recent years. The implementation of new subsistence and personal use regulations is discussed.

INTRODUCTION

This chapter describes the commercial salmon purse seine and drift gill net, and the salmon subsistence and personal use fisheries that occurred during 1989 within the Southeast Alaska portion of Region 1 of the Commercial Fisheries Division, Alaska Department of Fish and Game. A discussion of how the 1989 season progressed in each fishery is included and the preliminary landings are presented and compared to historical production.

An overview of the regional salmon fisheries and description of the region is available in the previous chapter of this report (Introduction to the 1989 Finfish Fisheries). A review of the Region 1 troll and Yakutat set gill net fisheries are presented in subsequent chapters of this report.

SALMON PURSE SEINE FISHERY

Regulations allow purse seine fishing in Districts 1 (Sections 1-C, 1-D, 1-E, and 1-F only), 2, 3 (Sections 3-A, 3-B and 3-C), 4, 5, 6, 7, 9 (Sections 9-A and 9-B), 10, 11 (Sections 11-A and 11-D only), 12 (Sections 12-A and 12-B), 13 (Sections 13-A, 13-B and 13-C), and 14 (Sections 14-A, 14-B and 14-C). In addition to these general areas, regulations allow purse seining in the Nakat Inlet, Carroll Inlet, Neets Bay, Eastern Passage, and Hidden Falls terminal hatchery fishing areas. The terminal hatchery seine fisheries are discussed in a later section of this chapter; this section will discuss the general purse fishery. Although the above general areas are specified for seining, regulations mandate the specific open areas and fishing periods to be established by department emergency order.

The purse seine fishery normally accounts for 70% to 90% of the commercial salmon harvest in the region. Pink salmon are the major target species. Other salmon species are important to purse seine fishermen, but most sockeye, chum and coho salmon catches are taken incidental to the pink salmon fishery. Management of the purse seine fishery is, therefore, based largely on pink salmon stock conditions.

The Southeast Alaska Area pink salmon stocks show a distinct separation between northern and southern portions of the region. For purposes of forecasting, catch tabulation, and management, Districts 1 through 8 are grouped as the southern unit and Districts 9 through 16 as the northern unit (Figure 1). Tagging studies have demonstrated that there is little intermingling of these stocks in the purse seine fishing areas. Independent management strategies are employed in each area; however, as both the northern and southern portions are included in the same registration area, purse seine fishermen are free to move between the areas.

Management of the purse fishery is based primarily on pink salmon run strength. The inseason assessment of pink salmon run strength is determined from spawning escapement information obtained from aerial surveys of sanctuary areas and streams. Fishery performance information is used to gauge general pink salmon availability and run strength.

The 1989 general purse seining season extended from July 2 through October 5 (Table 1). It consisted of the summer season through August 30 followed by the fall season. Overall purse seine landings totaled approximately 55.5 million salmon during the 1989 season, the highest on record. The catch consisted of 95.9% pink, 2.2% chum, 1.5% sockeye, 0.6% coho, and less than 0.1% chinook salmon (Tables 2 and 3). The catch represented a dramatic increase over the reduced purse landings of the previous two seasons.

Non-Retention of Chinook Salmon

A seasonal catch quota of 11,400 chinook salmon, 28 inches or larger, is specified for the purse seine fishery. The 28 inch size is the same as the chinook salmon legal size limit in the troll fishery. The Alaska Board of Fisheries adopted the catch quota as part of an overall allocation scheme among commercial users considering chinook salmon quotas imposed by the U.S./Canada Pacific Salmon Treaty. Similar catch quotas are specified for the drift and set gill net commercial fisheries.

The regulations further prohibit seiners from selling, but not possession of, chinook salmon within a size range of greater than 21 inches and less than 28 inches. Chinook salmon less than 21 inches (approximately 5 pounds or less) may be sold, however, they do not count against the catch limit.

The primary management approach to maintain the catch limit was to implement non-retention periods for the large chinook salmon. This approach included non-retention early in the season when the total salmon catch rate was low. This was designed to allow for more efficient release of large chinook salmon and to minimize the impact of incidental mortality. Retention of larger chinook salmon would be permitted as long as possible during the period when catch rates for other species was high. Once the quota was obtained, non-retention would once again be required.

During the 1989 general seine season, which extended from July 2 through August 30, retention of 28 inch and larger chinook was allowed during 3 of the 12 open periods (9 of a total of 28 open days). The non-retention period included the first 9 open days of the season, through July 30. Retention was allowed from July 31 through August 1, August 8 through 11, and from August 27 through 30. Non-retention was necessary between these dates to allow tabulation of chinook salmon landings.

The retention of large chinook salmon was allowed during seining at the Carroll Inlet and the Hidden Falls terminal hatchery areas. There, Alaskan hatchery-produced chinook salmon, which do not count

against the overall Treaty catch limit, were anticipated to contribute to the catch. Additionally, a very intensive fishery was anticipated at Hidden Falls, making it difficult to effectively release large chinook salmon. Additionally, retention was allowed during the entire fall seining season.

The 1989 purse seine catch of chinook salmon totaled approximately 17,600 fish. Of this total, approximately 13,100 were reported as being in a size range of 28 inches or larger, the size specified to be counted against the 11,400 catch limit. In addition to this, approximately 3,000, of the catch of larger chinook salmon were determined to be produced by Alaskan hatcheries and did not count toward the catch quota. When both the catch of small chinook and hatchery-produced chinook salmon are considered, the 1989 seasonal seine catch was actually below the catch quota.

Northern Southeast Purse Seine Fishery

Northern Southeast Alaska consists of regulatory Districts 9 through 16. Purse seine fishing is allowed by regulation in Districts 9 through 14. The fishery is primarily managed for harvesting pink salmon during the summer and chum salmon during the fall season. A minor sockeye salmon directed seine fishery occurs during the summer season in the vicinity of Redfish Bay and Necker Bay, along the outer coast of Baranof Island, in District 13. Additionally, the harvesting of summer chum salmon is a major concern during the pink salmon season; this may include distinct chum salmon seining in some locations, particularly during the early portions of the summer season.

The summer seining season is separated into distinct inside and outside water fisheries. The inside areas include Districts 9, 10, 11, 12, and 14 and Section 13-C. The outside area consists of the waters of Sections 13-A and 13-B, situated along the outer coasts of Baranof Island and Chichagof Island. Independent management actions are taken in each area, as very little intermingling of the indigenous salmon stocks occurs in the current purse seining areas.

The inside water seine fisheries harvests two major pink salmon stock groups. These being 1) those which enter through Icy Strait and disperse locally and throughout Chatham Strait, Tenakee Inlet, Peril Strait, Frederick Sound, Stephens Passage, Lynn Canal, and Seymour Canal; and 2), those which enter through lower Chatham Strait and disperse locally and into portions of Frederick Sound. Although some intermingling of the two stock groups occurs in the seine fishing areas, distinct and independent management for each group is possible. The Icy Strait stock group consists of early, middle and late run returns, while the lower Chatham Strait stock group consists primarily of late returning pink salmon stocks. The Icy Strait group has considerable more pink salmon production potential than the lower Chatham Strait or the outside water stock groups.

The 1989 pre-season forecast indicated a total natural stock northern area pink salmon return of approximately 10.5 million fish. The return was expected to allow for a commercial harvest of about

5.9 million pink salmon. Good returns were expected to all districts, with the exception of District 14 where poor returns were forecasted.

The 1989 northern districts' overall commercial pink salmon harvest totaled approximately 13.6 million fish, the purse seine fishery accounted for about 88% (approximately 12 million pink salmon) of the total. The northern area harvest was 2.6 times the average harvest (approximately 4.5 million pink salmon) realized since 1960 (Table 4).

The northern area summer pink salmon seining season extended from July 3 through September 1 and included a total of 28 days of fishing (Table 1). Virtually all of the harvest occurred in the inside fishing areas, which includes Districts 9, 10, 11, 12, 14 and Section 13-C. The seine fisheries which occur along the outside coasts of Baranof Island and Chichagof Island, Sections 13-A and 13-B, produced limited catches. Very strong early run pink salmon returns occurred to northern inside water seining areas. These early run returns produced most of the 1989 harvest.

The initial open seining period, of 15 hours duration on July 2, was conducted in the major terminal early run areas (Tenakee Inlet in District 12, Stephens Passage in District 10, and Seymour Canal in District 11) to provide an assessment of early run strength. The opening produced low landings of pink salmon. However, a similar opening during the second week of the season showed improved availability of pink salmon.

Beginning with the third week of the season good return strength became evident. To harvest the strong early runs, the areas open to seining were increased to include mixed stock fishing areas in upper Chatham Strait, in District 12, and Frederick Sound in District 9. Seining was not allowed in Seymour Canal, a major early run area, beyond the initial week of the season; however, these returns received heavy harvesting in Districts 9, 10 and 12, as they migrated to their terminal area. Intensive seine fishing was allowed on early pink salmon returns from mid-July through mid-August in both terminal and mixed stock fishing areas.

Good middle and late run pink salmon returns also developed to the Frederick Sound portion of Section 9-B, the northern portions of Section 9-A, District 12, and Peril Strait in Section 13-C. These returns supported intensive purse seine fishing from mid-July through late August. Beginning in early August, seining effort declined in the northern areas, as the major portion of the fleet concentrated their efforts in the southern seining areas, where better fishing was occurring. The declining effort allowed for the establishment of long and frequent seining periods, in the northern seining areas, through August.

Pink salmon stocks located in the lower Chatham Strait portions of Section 9-B did not support productive seining. Limited fishing did occur for harvesting Tebenkof Bay pink salmon stocks, however, the total catch was small. Section 9-A seining was limited to the northern portions of the area, as the only harvestable pink salmon returns were to Red Bluff Bay. Seining efforts were very light in this section, which allowed seining to continue in the area from mid-July through late August.

The pink salmon returns to Sections 13-A and 13-B, along the outer coast of Baranof Island and Chichagof, supported limited seine fishing. The best returns developed to Slocum Arm, which was open for considerable seining; however, fishing efforts were minimal and pink salmon catches were correspondingly low. During late July, a high abundance of pink salmon was evident in Salisbury Sound. The area was open for seining for two periods. However, it quickly became apparent that the observed fish were not local stocks and no more directed pink salmon seining was permitted in this area.

Icy Strait (District 14) pink salmon returns were generally weak. No seining was allowed in the western portion of the district, in the vicinity of Mud Bay, Idaho Inlet, and Port Arthrop. The best returns developed to the local streams along the Whitestone Harbor shoreline, in Section 14-C. Pink salmon seining was allowed in that area for three open periods in late July.

During mid-August, good availability of pink salmon was observed along the "Home Shore", located in the northern portion of inner Icy Strait, near Excursion Inlet. This is a highly mixed stock fishing area, with a potential to intercept significant numbers of sockeye and chum salmon destined of the northern gill net fisheries in Districts 11 and 15. The current management policy, developed in consultation with the Board of Fisheries, as part of the northern area corridor management approach, does not allow general mixed stock seining along the "Home Shore". To provide an opportunity to harvest an identified local pink salmon surplus, a six hour open seining period was allowed along a small portion of the shore where the local abundance was available. Only three vessels participated in the fishery, however, and low catches of salmon occurred.

The Board of Fisheries approved new regulations authorizing purse seining, during July, in the waters of District 12 north of the latitude of Point Marsden (along the "Hawk Inlet shore"). Seining in this area was prohibited by the old regulations until August 1. This restriction was primarily designed to reduce the harvest of sockeye salmon destined for the northern drift gill net fishing areas in Districts 11 and 15. The Board approved the change to allow directed harvest opportunities during July for north bound pink salmon in upper Chatham Strait. The primary target was the pink salmon return to the Taku River, which had recorded pink salmon spawning escapements well in excess of the established goal during recent odd years. A sockeye catch quota of 15,000 fish was specified for the area during July.

The special July Hawk Inlet shore fishery was open for three days of seining, which consisted of a one day period on July 9 and a two day period on July 16-17. Approximately 684,700 salmon were harvested, including 649,800 pink, 18,800 chum, 14,700 sockeye, 1,200 coho, and 150 chinook. The fishery was intensely monitored to ensure accurate catch tabulation. Department staff boarded many vessels to sample the catch during the fishery. The landing records of vessels observed fishing the area were tracked to confirm correct catch reporting. This process verified that the reported catch was correct.

The realized sockeye salmon catch was very close to the 15,000 catch quota. The decision to allow the special openings were based on the current in-season information, which indicated that the Taku River pink salmon spawning escapements were developing well and a surplus of that stock was available to support the Hawk Inlet shore fishery. The primary indicators were the high counts of pink salmon being recorded at Department fish wheels located at Canyon Island, in the lower reaches of the Taku River, and high pink salmon catch rates occurring in the Taku/Snettisham gill net fishery. Additionally, a good abundance of pink salmon was indicated to be passing along the Hawk Inlet shore by test fishing and aerial observations.

After the July special fishery, only one additional day of seining was allowed along the Hawk Inlet shore, this being on August 1. That opening was designed to harvest north migrating pink salmon destined for upper Stephens Passage and Lynn Canal. However, after the opening it became apparent that those pink salmon returns could not sustain further directed fishing and no additional seining was allowed along the Hawk Inlet shore. Additional seining in Chatham Strait was restricted to south of the latitude of Point Marsden for harvesting south migrating pink salmon.

The waters of upper Chatham Strait, along the shoreline of the Chilkat Peninsula, and in the immediate vicinity of Point Howard, were open for four seining periods (July 20, 23-24, 27-28 and July 31- August 1). This area is actually north of Point Marsden in District 12; however, it is on the opposite shoreline. The area was open to provide harvest opportunities for local pink salmon stocks returning to the southern portions of Lynn Canal, which were observed to be in good abundance. However, no seine effort was reported in the area.

A small sockeye salmon fishery has historically occurred in the waters of Necker Bay and Redfish Bay, located along the outside coast of Baranof Island in District 13. During 1989, Necker Bay was open for one seining period and Redfish bay was open for two periods; both areas being open in late July. No seining effort was reported at Redfish Bay, and only one boat reported landings from Necker Bay.

Northern Southeast Alaska Chum Salmon Fishery

Directed purse seine fishing occurs in the northern area for both summer and fall chum salmon stocks. A majority the summer chum salmon harvest is generally taken incidental to the pink salmon fishery, however, specific summer chum salmon seining periods occur in some years depending on local abundances.

The primary summer chum salmon fishing areas are in Tebenkof Bay, in District 9, Farragut Bay in District 10, Tenakee Inlet in District 12, Whale Bay, Solcum Bay, and Portlock Harbor along the outer coastal waters of District 13, and Frederick Sound, in District 14. Poor returns developed in 1989 and directed summer chum salmon fishing occurred only in Port Frederick and Slocum Arm. Catches of chum salmon were low in both areas.

Fall chum salmon seining historically occurs in Port Camden, Security Bay, and Tebenkof Bay in District 9, Chaik Bay and Hood Bay in District 12, Nakwasina Sound in District 13 and Excursion Inlet in District 14. The 1989 northern area return of fall chum salmon was poor. Only Port Camden was open during the 1989 season, and low catches were reported.

Northern Southeast Alaska Pink Salmon Escapements

The large number of spawning streams in Southeast Alaska makes it impossible to complete a total count of pink salmon spawning escapements. Instead, a spawning escapement index is developed each year and index escapement goals have been established for each of the major districts. The escapement index is based on the summation of peak seasonal pink salmon spawning counts in a large number of streams. The index can be used to compare yearly variations in pink salmon spawning escapements.

The Northern Southeast Alaska pink salmon spawning escapement goal has been set at 4.8 million fish. The 1989 escapement index totaled approximately 4.6 million pink salmon (Table 5). The overall district spawning escapement goals were achieved in Districts 9, 10, 11, and 12. The spawning escapement index was less than half of the goal in District 14 and approximately two-thirds of goal in District 13. Good spawning escapements were apparent in the Section 13-C, Peril Strait, and portions of District 13, while escapements were poor in Sections 13-A and 13-B, the outer coastal waters of the district.

Southern Southeast Alaska Purse Seine Fishery

The southern area seine fishery occurs in Districts 1 through 7. As in the northern area, the fishery is driven primarily by pink salmon stock abundance. However directed sockeye salmon seining occurs in District 4, during the early portions of the summer season, and a distinct fall chum salmon season occurs in portions of Districts 2, 3 and 5.

A harvest of approximately 13.6 million pink salmon was anticipated for the southern fishing districts in 1989, most of which to be taken by seine gear. The return developed considerably stronger than expected, and was, in fact, one of the largest returns ever observed in the southern areas. This was a surprise, as the pink salmon returns of the previous two years were considerable below forecasted levels.

Approximately 41 million pink salmon were harvested in the southern area's purse seine fishery (Tables 2 and 6). It was the second highest harvest ever reported for the fishery. The general southern area summer seining season extended from July 2 through August 30 for 28 days of seining (Table 1). The

fall season consisted of 12 days of open fishing during the period from September 13 through October 5. Additionally, special seine opening occurred in several terminal hatchery areas through the season. These are discussed in the hatchery section of this chapter.

District 4: Noyes Island Purse Seine Fishery

Existing regulations mandate management of the District 4 purse seine fishery according to the provisions of the U.S./Canada Pacific Salmon Treaty. For 1989, the pre-season management plan specified that the district would be managed in a manner that would result in a maximum total catch of 120,000 sockeye salmon prior to July 29 (i.e., prior to statistical week 31). The 120,000 sockeye salmon catch level was agreed to as continuation of the 1985 - 1988 Treaty agreement which called for a total harvest, prior to statistical week 31, of 480,000 sockeye over those four years. Any 1989 overages or shortages were to be considered in the negotiations of the next District 4 agreement.

Due to a different alignment of statistical weeks, the 1989 Treaty management period extended for four weeks as compared to three weeks for the first four years of the Treaty. This meant that the allowable catch of sockeye salmon needed to extend over an additional week. The 1989 management approach was to limit the early season fishing time in order to ensure that enough sockeye salmon remained to be taken to allow an opening during the last week of the Treaty period when a high abundance of pink salmon was expected.

During the first two weeks of the Treaty period (July 2-15) the weekly fishing periods were limited to one day (15 hours) each week, the same as was established for other seining areas. A sockeye salmon catch of approximately 8,700 fish occurred during the first week, and 48,300 fish during the second week.

During the third week of the season, good pink salmon returns to the inside seining areas were apparent. To harvest the surplus pink salmon, a two day period (39 hours) was set for Sunday and Monday of the third week of the season. It then became necessary to fish differential seining periods in District 4 and the inside seine fisheries. A one day period (15 hours) was allowed in District 4. This was needed to prevent an early attainment of the District 4 sockeye salmon catch limit. Additionally, the District 4 opening was delayed until Monday, the day after the opening in the inside waters. The delayed opening was designed to further discourage fishing effort in the district. The district was not open during the second seining period, of one day duration, permitted that week for harvesting pink salmon in the inside areas. Approximately 31,300 sockeye salmon were caught by 81 purse seine vessels that fished the area during the third week of the season. A very good catch of pink salmon was also evident in the district.

A cumulative catch of approximately 88,000 sockeye salmon had occurred through the first three weeks of the four week Treaty period. The cumulative catch was about 32,000 fish below the four week catch

goal of 120,000 fish. For the final week of the Treaty management period, seining was limited to two days (39 hours) in District 4, while four days of seining were allowed in the inside areas. Approximately 68,700 sockeye salmon were harvested by 91 seine vessels during the final open fishing period. A catch of approximately 1.1 million pink salmon were also taken, the largest harvest of pink salmon during any previous comparable time period. A total of 157,000 sockeye salmon were taken during the Treaty period for an average of 37,000 fish.

A very productive pink salmon seining season was evident following the four week sockeye salmon management period. The pink salmon returns in southern Southeast Alaska were much stronger than predicted. Accordingly, the amount of fishing time in District 4 was greater than in the past two years. A total of twenty four days were fished in the district for the season, five days prior to statistical week 31 and nineteen days after the Treaty period. Effort levels were generally lower than recent years in the district. This was, in part, due to the strength of the pink salmon returns to the northern districts and the very good fishing in the inside southern districts.

The total pink salmon harvest in District 4 was about 13 million fish. This represented the third largest annual harvest of pink salmon in the district. The harvest represented approximately 31.5% of the total southern Southeast purse seine harvest. The seasonal harvest of sockeye salmon was 516,069. This also represents the third largest District 4 harvest of sockeye since statehood. About 70% were harvested incidental to the directed harvest of pink salmon after the Treaty period.

Southern Southeast Alaska Inside Summer Purse Seine Fishery

With the exception of a minor sockeye salmon opening in Section 1-E, the Southern Southeast Alaska inside seine fishery was managed for pink salmon. The summer season extended from July 2 through August 30. It consisted of 12 open seine periods for a total of 28 days of fishing (Table 1). Seining was allowed in all the established seining districts for at least one period. The largest harvest was taken from District 1 (12.9 million salmon); followed by Districts 2 (9.2 million), 3 (3.7 million), 7 (1.2 million), and 6 (0.6 million). District 5 was open for one seining period, however, no harvest was reported from that district.

The initial open period was limited to 15 hours duration and was restricted to the southeastern portions of District 1. This was followed by a one day opening during the second week in the same portions of District 1 and the southernmost portions of District 2. Both salmon catches and fishing effort were low for the first two weeks of the season. However, by the third week, the incoming return strength dramatically increased, and corresponding to this, both effort and catch levels increased.

The pink salmon catch rates remained at record levels from the third week to the end of the summer season. Extensive open areas and lengthy seining periods were maintained to utilize the large pink salmon return. The strength of the return caught the department and the fishing industry by surprise.

Initially, industry processing lagged until the industry could gear up to handle the large daily harvests. This was complicated by a Canadian labor strike which limited shipments of fish for processing at nearby Canadian processing plants for almost two weeks. Large shipments of pink salmon were transported to processing plants in other portions of the state. However, the industry was quick to gear up and a successful season followed.

Strong pink salmon returns were apparent to all districts with the exception of District 5. Extensive areas were opened to allow maximum utilization of the return. All segments of the return, early, middle and late runs, produced significant harvests. For the first time in many years, the waters of Section 7-A, and the Anan Creek fishery in Ernest Sound was open, and large catches were reported.

A special seine fishery was allowed in the immediate vicinity of Yes Bay, in Section 1-E, for harvesting sockeye salmon returns to McDonald Lake. In recent years, good sockeye salmon spawning escapements have been apparent at McDonald Lake, and a good return was expected in 1989. Test fishing was conducted in the area to evaluate the impact of the fishery on local pink salmon stocks. During the late July to early August time period, it became apparent that local pink salmon escapements were good and a good availability of McDonald Lake sockeye salmon was indicated. The area was open for a six hour seining period on August 14. The opening occurred during the start of a two day general seining period in nearby portions of District 1. A total of four seine boats were observed fishing the area. The reported harvest of sockeye salmon was approximately 5,500 fish. The McDonald Lake sockeye salmon spawning escapement was estimated to be approximately 78,000 fish, which is considered to be at the escapement goal level.

Southern Southeast Alaska Chum Salmon Fishery

Directed purse seine fisheries for harvesting natural fall chum salmon returns were limited to District 2 in 1989. Additional fall season seining occurred in Nakat Inlet in District 1, Klawock Inlet in District 3, and Eastern Passage in District 7 for harvesting hatchery returns; these fisheries are discussed later in the hatchery section of this report.

The District 2 fall seining season consisted of 12 days of open fishing during the period from September 13 through October 5 (Table 1). Although fall chum returns to the region were well below expected levels, returns of wild stock chum to the Cholmondeley Sound area were fairly strong.

The fall season began on September 13 for a twelve hour period. Both the harvest and the escapement of chum salmon into the primary District 2 spawning streams, Disappearance Creek and Lagoon Creek, were initially below desired levels. Due to the low escapement levels, the fishery was not re-opened the following week. However, escapement surveys during the week of September 17 showed improving escapements and good signs of chum salmon were evident in Cholmondeley Sound. The fishery was

re-opened on September 22 for 36 hours. Although the harvest of chum salmon was low, with only 3,200 fish being harvested by 12 seine boats, escapement levels continued to improve.

The fishery was reopened on September 27 and remained open until October 5 through a series of extensions. During the final two weeks of the fishery, approximately 47,000 chum salmon were harvested. The total harvest fall chum salmon harvest was approximately 56,000 fish. Escapements into Disappearance Creek, Lagoon Creek, and smaller Cholmondeley Sound chum salmon streams were at, or above goal levels.

Southern Southeast Alaska Pink Salmon Escapements

As in the northern area, a pink salmon spawning index is developed annually for the southern districts. The 1989 overall southern area pink salmon spawning escapement index was approximately 8.6 million fish (Table 7). The overall escapement index was above the area's index goal of 6.0 million pink salmon. Overall spawning escapement goals were obtained in all districts except District 5.

DRIFT GILL NET FISHERIES

In 1989, drift gill net fishing was allowed by regulation in Districts 1 (Sections 1-A and 1-B only), 6 (Sections 6-A, 6-B, 6-C, and 6-D), 8, (Sections 8-A and 8-B), 11 (Sections 11-A and 11-C only), and 15 (Sections 15-A, 15-B, and 15-C), the Neets Bay terminal hatchery area, the Carroll Inlet terminal hatchery area, the Nakat Inlet terminal hatchery area, and the Eastern Passage terminal hatchery area. Effective in 1989, no gill net fishing was allowed in the Lower Clarence Strait area, as new Board regulations eliminated this as gill net area. The gill net fisheries which occurred in the hatchery terminal areas are discussed in the next section of this report; this section will concentrate on the general drift gill net fishing season.

The 1989 general drift gill net season extended for 14 weeks from June 18 through September 18 (Table 8). Although the above general areas are specified for gillnetting, regulations mandate the specific open areas and fishing periods to be established by emergency order. In 1989, the gill net opening were allowed in each of the general areas (Figure 2). The drift gill net fleet moves between the areas. The salmon species, run timing, management problems and information used to manage the fisheries are quite variable among the areas and each area is discussed separately.

Overall, drift gill net gear took approximately 5.4 million salmon during the 1989 season, the highest harvest ever reported (Tables 9 and 10). The catch consisted of approximately 3,593,000 pink (66.8%),

927,000 sockeye (17.2%), 594,000 chum (11.0%), 255,000 coho (4.7%), and 10,000 chinook salmon (0.2%).

Chinook Salmon Harvest

Regulations specify a drift gill net catch quota of 7,600 chinook salmon. The board adopted this catch limit as an allocation measure to ensure that all user groups share in the reduced chinook salmon catch limit specified by the U.S./Canada Pacific Salmon Treaty. The Board indicated in-season management measures for maintaining the catch levels should be the continuation of early season area closures for the protection of maturing fish and night time fishing restrictions to minimize the harvest of immature ("feeder") chinook salmon.

The 1989 drift gill net landings of chinook salmon totaled approximately 10,000 fish. Preliminary estimates indicate that approximately 4,000 of these chinook salmon were fish produced by Alaskan hatcheries that don't count against the catch quota. These were taken in both the general gill net and special terminal area gill net fisheries. This made the drift gill net harvest of non-Alaskan hatchery produced chinook salmon to be approximately 6,000 fish.

Early season area closures adjacent to the Stikine River, Taku River and Chilkat River were maintained, as in recent years, to minimize the incidental harvest of mature chinook salmon while harvesting sockeye salmon. No night time closures were necessary to minimize the incidental drift gill net take of "feeder" chinook salmon as was necessary during the previous two seasons.

District 1: Tree Point/Portland Canal Drift Gill Net Fishery

The Tree Point/Portland Canal drift gill net fishery encompasses the waters of Sections 1-A and 1-B, in District 1 (Figure 2). Management is based on harvesting primarily sockeye salmon and, secondarily, summer chum in the early part of the season, pink salmon in the middle, and chum and coho salmon at the end of the season.

Management of the fishery is addressed by the U.S./Canada Pacific Salmon Treaty. This is because major salmon stocks harvested in the fishery are of Canadian origin, primarily Nass River and Skeena River sockeye salmon. The Treaty specifies maintaining an annual average sockeye salmon catch level of 130,000 fish and for ensuring conservation of Portland Canal chum salmon stocks. State of Alaska commercial fishing regulations mandate the Department to manage the fishery consistent with the treaty.

The fishery was open for a total of 51 days of gillnetting extending from June 18 through September 19 (Table 8). Approximately 1.8 million salmon were harvested, the highest ever reported (Table 11).

The sockeye salmon management period extended for the first three weeks of the season from June 18 through July 8. During these openings, and all subsequent openings, the Portland Canal portions of the area (Section 1-A) were closed north of the latitude of Akeku Point. This closure was to protect chum salmon stocks returning to streams in Portland Canal. This conservative chum salmon management approach was agreed to under the provisions of the Treaty.

The season began with an initial four day open period. During the next two weeks the fishing time was reduced to three and two days respectively. The reduced fishing time was a result of low returns of sockeye salmon to Hugh Smith Lake, located in Boca de Quadra, and to the Nass River, located in northern British Columbia. Additionally, chum salmon escapements to Portland Canal, Boca de Quadra, and Smeaton Bay spawning streams were below average. Catches of sockeye and chum salmon were generally lower than average during the sockeye salmon season. Effort levels were also below average by as many as twenty boats per week.

Despite a relatively slow start, the seasonal catch of sockeye salmon totaled approximately 145,000 fish. This is 15,000 sockeye above the average harvest level of 130,000 sockeye salmon allowed under the Treaty. However, that level is viewed as an average over a series of years with some years expected to be higher and other years to be lower. The average annual harvest of sockeye at Tree Point, since the inception of the Treaty in 1985, has been approximately 137,400 fish. Approximately 73% of the 1989 sockeye salmon harvest occurred after the sockeye salmon management period. Sockeye salmon spawning escapements were well below desired levels at Hugh Smith Lake, and to the Nass River.

The District 1 Pink Salmon Management Plan was initiated by regulation on July 9. The harvest of pink salmon through the sockeye salmon season was very low. However, beginning the second week of the pink salmon season, the harvest of pink salmon increased dramatically and continued high for the remainder of the season.

The pink salmon directed management period extended for eight weeks from July 9 through September 2. It consisted of an initial two day weekly period followed by seven weekly periods of five days each. The weekly fishing periods were set according to the District 1 Pink Salmon Management Plan, an allocation plan which, by regulation, sets the gill net open periods according to District 1 purse seine fishing time when both gear types are concurrently harvesting the same stocks of pink salmon.

A record number of pink salmon were harvested in 1989. For three weeks (from July 16 through August 5) over 200,000 pink salmon were harvested per week. The fishery had previously experienced catches of over 200,000 pink salmon in a single week only twice in its history.

Fishing periods over the final three weeks of the season, the fall chum and coho salmon management period, were maintained at two days per week due to the below average catch of coho salmon. While chum salmon catches were above average the influx of Nakat Inlet enhanced fall chum salmon accounted for as much as 65% of the total harvest over the last three weeks of the fishery.

District 6 and 8: Prince of Wales and Stikine Drift Gill Net Fishery

The Prince of Wales and Stikine drift gill net fisheries occur in adjoining waters of regulatory Districts 6 and 8 (Figure 2). The District 6 drift gill net area includes Section 6-A, in Sumner Strait, and Sections 6-B, 6-C, and 6-D, in Clarence Strait. The District 8 fishery consists of Section 8-A, waters south of the Stikine River flats, and Section 8-B, waters north of the Stikine River flats.

The management of these fisheries is interrelated due to their close proximity and to the salmon migration patterns which expose some major salmon stocks to harvest in both fisheries. Management is based on harvesting sockeye salmon in the early part of the season, pink salmon in the middle, and coho salmon at the end of the season.

Management of both fisheries is addressed by the U.S./Canada Pacific Salmon Treaty. This is because salmon stocks of Stikine River origin, a major transboundary river extending into Canada, are available for harvest in both districts. The Treaty specifies a sharing arrangement for Stikine River sockeye and coho salmon stocks; State of Alaska commercial fishing regulations mandate the Department to manage the fisheries consistent with the Treaty. For sockeye salmon, the Treaty specified a 1989 sharing arrangement for both countries based on a preseason forecast and an in-season run timing model. Additionally, the Canadian Stikine River fishery is allowed 4,000 coho salmon annually. The Canadian fishery is discussed later in this chapter.

Historical seasonal and preliminary 1989 salmon landings for both fisheries are shown in Tables 12 and 13. The 1989 seasonal salmon catches were generally above average. The general gillnetting season extended from June 18 through September 18 in District 6 and from June 18 through September 5 in District 8 (Table 8). The District 6 drift gill net fishery was open for a total 34 days, which is above the average fishing time of 29 days allowed during the past ten years. District 8 was open for a total of 29 days; also above the recent 10-year average of 14 days.

The management of both districts was primarily based on the harvest of sockeye salmon for the first 7 weeks of the season, extending for June 18 through August 5. The sockeye salmon fisheries were managed in accordance an in-season model, developed by the Transboundary River Technical Committee, to meet the mandated Stikine River sharing agreements of the Treaty. Preseason expectations were for a below average sockeye salmon return to the Stikine River, and an average return to the local Alaskan sockeye salmon systems. The Districts 6 and 8 harvest of approximately 191,700 and 10,500 sockeye

salmon, respectively, were both above the recent 10 year average harvest levels. When compared to the long term average annual harvest, 1960 to 1988, the District 6 sockeye harvest was slightly over twice that average harvest while, in contrast, the District 8 harvest was 25% below that average harvest.

During the initial two weeks of the season, the weekly gillnetting periods were limited to two days per week in both districts. This was in response to the below average return of sockeye salmon expected to Tahltan Lake, located in the Canadian portion of the Stikine River drainage as specified by the sockeye salmon management model. By the end of the second week, the Stikine River in-season model demonstrated that a poor Tahltan Lake sockeye salmon return was indeed developing. In response to this, the District 8 fishery was not open during the third week of the season. Gillnetting continued in District 6, as the relative percentage of sockeye salmon of Stikine River origin was demonstrated to be low in that district.

By the fourth week of the season, as the Tahltan Lake sockeye salmon return declined, the in-season model indicated that a good return of the mainstem spawning sockeye salmon stock was entering the Stikine River. The District 8 fishery was then re-opened. The return of the mainstem sockeye stock continued strong throughout the remainder of the sockeye salmon season. Additionally, good catches of other sockeye salmon stocks were apparent in the District 6 fishery. Three day weekly gillnetting periods were maintained in both districts from the fourth week of the season through the remainder of the sockeye salmon management period, which continued through August 5.

Closures were necessary from mid-July through late August, along the eastern shore of Prince of Wales Island in District 6, to provide additional protection for the local sockeye salmon stock entering the Salmon Bay system. Additionally, portions of Frederick Sound in District 8 were closed, during the same time period, to provide increased sanctuary areas for local sockeye salmon stocks returning to Petersburg Creek and summer chum salmon returning to Muddy River.

Preliminary scale estimates indicate about 14,500 (7.5%) of the sockeye harvest in District 6 and about 5,500 (54%) in District 8 were of Stikine origin. Sockeye escapements to the Stikine River were varied. At Tahltan Lake, the major spawning lake in the Stikine River drainage, the escapement enumeration weir count of about 8,300 sockeye salmon is well below the 1979 to 1988 average of approximately 24,000 fish. Preliminary post-season estimates of escapements to other Stikine River spawning areas indicated sockeye salmon escapements of approximately 53,000 fish, which is considered above average. Based on foot and aerial surveys, the sockeye salmon spawning escapements to local areas within Districts 6 and 8 appeared near average.

Both fisheries were managed for harvesting pink salmon for three weeks, from August 7 through 26. During the last four weeks of the sockeye salmon season, the weekly District 6 incidental landings of pink salmon were the highest on record. The catches continued high through the pink salmon season, which allowed for three day weekly gillnetting periods. However, due to lagging pink salmon spawning escapement rates, portions of Section 6-B along the eastern side of Prince of Wales Island were closed

to gillnetting during the entire pink salmon season. The total season District 6 pink salmon catch of approximately 1.1 million fish was the highest ever reported in the district. Approximately 58% of the pink salmon catch occurred during the sockeye salmon season. The District 8 pink salmon returns were not as strong as in District 6, however, relatively low fishing effort allowed the district to also remain open for three day weekly gillnetting periods during the entire pink salmon season.

The management emphasis changed from pink to coho salmon during the last week of August (beginning August 27). The coho salmon season extended for four weeks through September 18. District 6 fishery was open two days a week followed by a one-day opening in the final week. The District 8 fishery closed after two weeks on September 5, having been open two days a week.

Approximately 66% of the District 6 seasonal coho salmon catch actually occurred prior to the directed fishing period. Total weekly coho salmon catches were above average in both districts, however, the catches per unit of effort (CPUE) ranged from below average to average.

The District 6 seasonal take of approximately 92,000 coho salmon was almost twice the recent ten year average harvest while the seasonal take of approximately 6,600 coho salmon in District 8 was below the recent average annual harvest. Aerial surveys indicated an above average coho salmon spawning escapement in the Stikine River drainage. Surveys to local spawning streams demonstrated varied escapement levels.

District 11: Taku/Snettisham Drift Gill Net Fishery

The Taku/Snettisham gill net fishery encompasses the waters of Section 11-B including Taku Inlet, Port Snettisham, and Stephens Passage south to the latitude of Midway Island, and Section 11-C including the waters of Stephens Passage south of the latitude of Midway Island and north of a line from Point League to Point Hugh (Figure 2). The fishery targets on sockeye and pink salmon early in the season and fall chum and coho salmon late in the season.

Management of fishery is included in the U.S./Canadian Pacific Salmon Treaty and existing regulations mandate the area to be managed consistent with the treaty. This is because salmon of Taku River origin, a major transboundary river extending into Canada, contribute most of the salmon harvested in the district. The treaty mandates the fishery to be managed for Taku River spawning escapement needs plus an annual Canadian harvest of 18% of the total allowable harvest of sockeye salmon originating in the Canadian portion of the Taku River. The Treaty also allows a Canadian harvest of 3,000 coho salmon.

The fishery was opened, for weekly fishing periods from June 18 to September 18 for a total of 41 fishing days (Table 8). This was 22% above the average annual fishing time allowed from 1979 to

1988. The total season catch of approximately 345,000 salmon was above the average annual harvest since 1960 (Table 14).

Sockeye salmon management prevailed for the first nine weeks of the season, extending from June 18 through August 19. Weekly 3-day gill net openings were allowed for the entire sockeye salmon season. This was possible due to an above average sockeye salmon return, coupled with moderate fishing efforts. The District 11 sockeye salmon catch of approximately 74, 000 fish was above the average take since statehood of about 57,000 fish.

Based on results from the Canyon Island mark-recapture program and scale pattern analysis of the district's catches, the total Taku River sockeye return was approximately 182,000 fish. The District 11 fishery caught about 72,000 Taku River sockeye or about 80% of the total harvest of these stocks while the Canadian inriver fishery caught 18,000 or 20% of the total harvest. The total sockeye spawning escapement to the Taku River was estimated at about 92,000 fish, which was above escapement goal range of 71,000 to 80,000 sockeye salmon. In addition to Taku River sockeye salmon, the District 11 fishery harvested an estimated 2,400 sockeye salmon returning to Speel and Crescent Lakes in Port Snettisham. This represented only about 3% of the total district sockeye salmon catch, and was considerably less than the 1984-88 average contribution of about 25%.

Despite a total closure of Port Snettisham from June 18 to August 19 and major portions of Stephens Passage from July 9 to July 29 the combined Speel and Crescent Lakes' sockeye escapement of 12,600 was less than half of the escapement target of 32,000 sockeye salmon (10,000 for Speel Lake plus 22,000 for Crescent Lake). The Speel Lake weir count of about 11,000 sockeye salmon is 65% above the 1984-88 average of approximately 6,600 fish, while the Crescent Lake count of about 1,100 sockeye salmon is 80% below the average weir count for the same period.

Pink salmon is the major incidental species taken during the sockeye salmon season. The catch is composed mostly of Taku River pink salmon stocks early in the season, up to mid-July, and local Stephens Passage pink salmon stocks late in the season, during late July and early August. Additionally, Section 11-C is specifically open to harvest lower Stephens Passage, Seymour Canal, and Frederick Sound pink salmon stocks.

The seasonal catch of pink salmon totaled about 181,000 fish, which is below the recent odd year average harvest for the district. Pink salmon landings were very high during early July, when Taku River pink salmon stocks dominate the incoming run. However, catches were lower during late July and early August when local Stephens Passage returns dominate the incoming run. This was due in part to a closure of traditionally productive pink salmon areas in Stephens Passage, designed to provide protection to chum salmon returning to Snettisham Hatchery. Section 11-C was open weekly from July 16 to August 11 for a total of 12 days to harvest surplus pink salmon returns destined for streams in lower Stephens Passage and Seymour Canal.

The incidental catch of summer chum salmon was below average. To reduce the harvest of Snettisham Hatchery chum salmon returns portions of Stephens Passage along the mainland shoreline from Circle Point to Midway Island were closed during the peak migrational timing of the hatchery stock from July 9-29. While such a closure should have also protected local wild stock chum salmon returns to Stephens Passage and Port Snettisham natural summer chum escapements were extremely poor. The return to the Port Snettisham Hatchery of 25,000 chum salmon was considerably less than the projected return of 100,000.

The fall chum salmon management period extended for five weeks, from August 20 through the seasonal closure of the district on September 18. The season consisted of ten days of gillnetting, including an initial three day period, followed by two, two day periods and then by two, one day weekly periods. Fall chum salmon landing were well below average for the entire season. In response to the poor Taku River fall chum salmon returns weekly fishing time was reduced. The Taku Inlet portions of the district were closed inside a line from Cooper to Greeley Points beginning September 10.

Despite the reduced fall season fishing opportunities the seasonal catch of coho salmon (approximately 52,000 fish) was over the twice the 1960 to 1988 average coho salmon catch. A very good District 11 local return of coho salmon was apparent in 1989. Weekly coho catch rates were high during the entire fall season, including record high weekly coho catches during the first two weeks of the fall season. Coho salmon spawning escapements were excellent in the Taku River.

The fishery harvested about 1,800 chinook salmon in 1989. This is 25% below the average chinook harvest for the 1979 to 1988 period. The fishing area in Taku Inlet above Jaw Point was closed during the first three weeks of the season to protect mature Taku River chinook salmon. Chinook salmon escapements were very good in the Taku River.

District 15: Lynn Canal Drift Gill Net Fishery

The Lynn Canal drift gill net fishery occurs in the waters of District 15. It consists of Section 15-A (upper Lynn Canal), Section 15-C (lower Lynn Canal), and Section 15-B (Berners Bay) (Figure 2). The fishery targets on sockeye salmon during the summer and chum and coho salmon during the fall season.

The total 1989 salmon harvest for the Lynn Canal drift gill net fishery was about 765,000 salmon. (Table 15). The area was open to gillnetting for weekly periods from June 18 through September 18 for a total of 36 days (Table 8).

The largest District 15 sockeye salmon harvest on record, about 475,000 fish, was landed this season. The sockeye salmon directed management period encompassed the first ten weeks of the season from June 18 through August 26.

The Lynn Canal fishery opened by regulation on June 18 with a normal three day fishing period. Waters of Section 15-A were opened south of the latitude of Talsani Island (rather than Seduction Point) during initial weeks as a conservation measure to protect depressed Chilkat River chinook salmon stocks. During the second fishing period the waters of Chilkoot Inlet north of Mud Bay Point and Lutak Inlet, up to the White Rock were opened for three days in response to good catches and escapement rates. Area closures to protect Chilkat River chinook salmon remained in effect through the second week in July. However, during the following week the waters of Chilkat Inlet were opened to the latitude of Glacier Point for three fishing days due to the sharply increasing abundance of Chilkat Lake sockeye salmon in both the escapement and harvest. Chilkoot Lake sockeye abundance continued at record strength throughout July. Lutak Inlet was opened to the mouth of Chilkoot River during the first three weeks in July and a sanctuary area above the White Rock was enacted during the last week in July.

The waters of Section 15-C remained open for two day periods throughout July followed by a 3-day opening the first week of August in order to allow harvest of surplus Chilkat Lake and Chilkoot Lake sockeye salmon stocks in as broad an area as possible. Accordingly, Chilkat Inlet was also opened to the normal markers during the last two periods in July and to the mouth of the Chilkat River through the third week in August.

The late portion of the Chilkoot Lake sockeye return declined earlier than normal. In order to increase escapement levels Lutak Inlet was closed during the first period in August. In the next week Chilkoot Inlet was closed north of Mud Bay Point and then in the subsequent week closed north of Seduction Point. Continued lagging escapement prompted the expansion of closed areas to give maximum protection to the late segment of the Chilkoot Lake return. Fishing area was limited to waters of the district west of a line from Sullivan Rock light to Eldred Rock to Talsani Island to Seduction Point during the last week in August and first week in September to conserve Chilkoot Lake sockeye salmon while targeting Chilkat Lake sockeye salmon stocks.

The peak weekly harvest of about 78,000 sockeye salmon occurred during a three day opening from July 30 through August 2. The season total harvest of Chilkoot Lake sockeye salmon was about 293,000 salmon compared to some 156,000 sockeye salmon of Chilkat Lake origin. Escapement through the Chilkoot Lake weir totaled 54,848 sockeye, short of the 60,000 lower end of the escapement goal range. Escapement through Chilkat weir totaled 140,512 sockeye, the largest on record and greatly exceeding the 50-70,000 goal range. Due to the extreme lag between the time the fish enter the river and the time they pass the weir an in-river survey method is needed to more accurately assess the inseason escapement of Chilkat River sockeye salmon in order to better achieve desired escapement goal levels.

Landings of summer pink and chum salmon were considerably below recent yearly catches with about 111,000 pink and 29,000 summer chum salmon harvested. Section 15-B (Berners Bay) was opened during the first week of the season in order to assess the early season availability of local stocks. A large sanctuary area north of the latitude of Point St. Mary remained closed to allow adequate

escapement. Following a subsequent two day opening in Berners Bay the next week, Section 15-B was closed for the remainder of the season. Section 15-C was opened during the first week in July in order to target local summer chum and pink stocks.

The 1989 fall chum salmon season extended for the last four weeks of the season from August 27 through September 18. The season total chum salmon harvest was approximately 125,000 fish, the third lowest in the past ten years. Indications of a weak fall chum return were apparent early in the season. At the same time, coho salmon abundance appeared to be above average early in the season. The total coho salmon catch of about 51,000 was fourth lowest in ten years but reflected the limited openings for chum salmon conservation rather than coho abundance. Chilkat Inlet was closed north of the Glacier Point line during the last week in August through the second week in September in order to ensure adequate chum salmon spawning escapement. Fishing time was initially limited to two day openings then reduced to one day periods during the last two weeks of the season. The final one day opening of the season was held beginning on September 17 with all of Chilkat Inlet closed. Lynn Canal was not reopened following this period due to extremely poor escapement survey results.

All waters of Section 15-C were opened for a two day period during the first week of September to test the strength of incoming chum and coho runs. The section was opened for one day during the following week in order to conserve chum salmon. On the final opening of the season, September 17-18, the area was opened only north of the latitude of Bridget Point in order to provide access to coho salmon returns. Peak effort in Section 15-C occurred during the first period in September with 86 vessels participating.

Peak weekly harvests of chum and coho salmon occurred during the first week of September with approximately 48,000 chum and 16,000 coho salmon landed during the two day opening. Fall season fishing effort peaked the following week with 194 vessels, down considerably from recent years.

Coho salmon escapement was well above average throughout Lynn Canal index systems. Berners River in lower Lynn Canal had a peak survey count of 7,580 spawners. Chilkat River coho escapement surveys indicated good distribution in most areas. Tahini River had a survey count of 895 coho, the best recorded for this system. Chilkat Lake weir recorded 1,200 coho and Chilkoot Lake weir recorded a record 3,820 spawners.

Chum salmon escapement was uniformly poor throughout the Chilkat River drainage. Klehini River early chum spawning areas were particularly low in numbers of spawners observed. A peak chum escapement count of about 47,500 chum spawners was recorded in mainstem Chilkat River spawning areas. This count is below recent year surveys and is considered well below desired escapement levels. However, a late November survey count of 33,000 chum spawners was normal for that time period, indicating that the early season closure enabled adequate escapement of late run spawners.

HATCHERY HARVEST

Both state and privately operated hatcheries contributed salmon to the 1989 commercial catch. Hatchery contributions included chinook, coho, pink and chum salmon. At the present time sockeye salmon enhancement production is very limited within the region. Catch information is available for the hatchery production taken in terminal area common property fisheries and for hatchery cost recovery purposes. With the exception of chinook and coho, and some limited instances for chum salmon, reliable information is not available for the harvest of hatchery produced salmon in the general common property fisheries.

General Common Property Harvest

The contribution of Alaskan hatchery produced salmon to the general common property commercial fisheries cannot be accurately estimated. This is because, with the exception of chinook and coho salmon, not all production lots are tagged.

From a management standpoint, the availability of hatchery fish is of most concern in those mixed stock fisheries where fishery performance information is relied upon for inseason management. During 1989, intensified monitoring for the ratio of hatchery to natural stocks in the catch was accomplished for inseason management of troll chinook salmon and the Section 1-B drift gill net fisheries. A discussion of the chinook salmon hatchery harvest is presented in the troll chapter of this report.

The Southern Southeast Regional Aquaculture Association's (SSRRA) Nakat Inlet release site is the immediate vicinity of the Tree Point drift gill net fishery. Large returns of chum were expected and special catch sampling efforts were conducted to estimate the contribution of hatchery produced chum salmon. This enabled the fishery to continue to be managed on the abundance of natural chum salmon stocks. Preliminary estimates indicate a total contribution of approximately 126,000 chum salmon or 42% of the total chum harvest in that fishery.

Common Property Terminal Harvesting

Common property fisheries were allowed for directed harvesting of hatchery returns in: 1) terminal areas adjacent to State operated facilities at Klawock Inlet in District 3, and Crystal Lake in District 6; 2) privately operated enhancement facilities at Nakat Inlet, Carroll Inlet and Neets Bay in District 1, Eastern Passage in District 7, Hidden Falls in District 12 and Medvejie Creek in District 13; and 3), the fe-

derally operated facility at Little Port Walter. The terminal fisheries with troll gear for harvesting chinook and coho salmon returns to the Nakat Inlet, Carroll Inlet, Neets Bay, Klawock Lake, Crystal Lake, Little Port Walter, and Medvejie Creek enhancement facilities are discussed in the troll chapter of this report. This section will concentrate on net fisheries.

The terminal hatchery fisheries using net gear harvested approximately 225,000 salmon (Table 16). Most of the chinook (approximately 4,300 fish), coho (approximately 4,100 fish), and chum salmon (approximately 95,800 fish) harvested were of hatchery origin. Virtually the entire terminal area catch of about 119,000 pink salmon were of non-hatchery origin and are considered incidental catches. Additionally, some 1,100 sockeye salmon of non-hatchery origin were also harvested.

Five terminal hatchery areas supported purse seine fisheries in 1989 - Nakat Inlet, Carroll Inlet, Klawock Inlet, Eastern Passage and Hidden Falls. The harvest in these seine fisheries totaled approximately 206,000 salmon, the vast majority of which were chum salmon.

The Hidden Falls hatchery was operated, for the second consecutive season, by the Northern Southeast Regional Aquaculture Association under a contract with the State. The contract allowed the aquaculture association to conduct cost recovery harvesting to finance hatchery operations. Common property seine fishing was allowed to harvest salmon returns surplus to facility cost recovery and brood stock needs. The 1989 common property fishing season was limited to a single open period, of 15 hours duration on July 2. The harvest of chum salmon totaled approximately 24,000 fish. An additional unknown quantity of chum salmon were harvested during the general seining season, which can not be quantified due to the lack of adequate tagging of the releases.

For the fourth consecutive season, directed seine fisheries were authorized for harvesting fish returning to the State operated Klawock Lake Hatchery. In 1989, the openings were designed to allow seine harvest opportunities for hatchery produced coho salmon. In previous seasons, the opening were primary directed at hatchery produced chum salmon, however, few chum salmon were expected in 1989 as the hatchery has stopped releasing that species. The terminal area was open for two seining periods (September 23-23 and 27-28), however, no catch was reported as no seiners participated in the fisheries.

New regulations authorized common property seine and drift gill net fisheries for the SSRRA's release sites at Nakat Inlet, Carroll Inlet, and Eastern Passage. During 1988, salmon were harvested from these areas under a special contract arrangement with SSRRA. The existing regulations also provide for terminal area fishing at SSRRA's Neets Bay terminal areas, however, no common property net fishing was authorized in 1989. All the salmon returns to Nakat Inlet, Carroll Inlet, and Eastern Passage were designated for common property harvesting. The association established a pre-season rotational fishing schedule consistent with the approved management plans for each area. The seine fisheries consisted of a series of 12 hour open periods while gill net opening were of 24 hours duration each; the overall season extended from June 25 through October 13 (Tables 1 and 8).

During 1989, hatchery produced chum and coho salmon were expected to SSRAA enhancement sites at Nakat Inlet, chinook salmon to Carroll Inlet, and chinook, chum and coho salmon to Eastern Passage. The directed harvest of the directed hatchery species, which includes only those species released in the areas, totaled approximately 101,300 salmon, including about 84,600 salmon by seine gear and about 16,700 salmon by gill net gear (Table 16).

Common property fisheries with drift gill net gear were also authorized in the Crystal Lake terminal fishing areas in Blind Slough in District 8 for harvesting hatchery produced chinook salmon and in Wrangell Narrows in Districts 6 for harvesting hatchery produced coho salmon. The Blind Slough terminal area was open for three fishing periods, from June 11 through July 5 (Table 8). Low fishing efforts were reported and the reported catch of chinook salmon totaled less than 100 fish. The Wrangell Narrows terminal area was open for three periods between September 4 and 18 (Table 8) for harvesting coho salmon. Fishing effort was light and approximately 1,400 coho salmon were harvested. All fishing in Wrangell Narrows was limited to the hours of daylight to minimize conflicts between fishing vessels and other vessels traveling Wrangell Narrows.

Cost Recovery Harvesting

Harvesting of salmon for cost recovery was reported at 9 different locations during 1989. Salmon landings totaled approximately 433,000 fish (Tables 17 and 18). The harvest consisted predominantly of pink (243,000), chum (166,000), coho (3,400) and chinook (18,800) salmon.

CANADIAN TRANSBOUNDARY RIVER FISHERIES

Gill net fisheries again occurred in the Canadian portions of the Taku River and Stikine River during the 1989 season. Seasonal salmon landings totaled approximately 31,000 salmon in the Stikine River fishery and 23,000 from the Taku River (Tables 19 and 20).

The Canadians have had a low level subsistence fishery on the upper Stikine River for many years. In 1979 they initiated directed commercial fisheries on both the Stikine and Taku Rivers. The Stikine River fishery had been a predominately set gill net operation until 1986 when a drift gill net fishery developed, while in the Taku River both set gill net and drift gill net fisheries have occurred in the past. These fisheries are primarily conducted in the main stems of the rivers and fishermen fish out of outboard skiffs. Both fisheries are included as part of the U.S./Canada Pacific Salmon Treaty which currently provides a sharing arrangement through 1992.

The Taku River sharing agreement establishes specific limits for sockeye and coho salmon. Chinook, pink, and chum salmon are allowed to be taken by Canada only incidentally during the inriver fishery for sockeye and coho salmon. Canada is allowed to harvest 18% of the Total Allowable Catch (TAC) of Taku River sockeye and 3,000 coho salmon.

The 1989 Canadian Taku River fishery, which occurs a short distance above the border, began on June 26 and fished weekly through the week beginning August 20. The fishery harvested 18,545 sockeye and 2,876 coho salmon. Incidental catches amounted to 1,034 chinook (including 139 jacks), 695 pink, and 42 chum salmon. The catch of sockeye salmon was above the average (14,910) of the past ten years. The total number of boat-days was slightly below average; 271 boat-days in 1989 compared to the 1979 to 1988 average of 283 boat-days. Based on the desired escapement range of 71,000 to 80,000 sockeye salmon and the preliminary run estimate, the Canadian fishery took 16-19% of the 1989 total allowable catch of Taku River sockeye, while the U.S. District 11 gill net fishery accounted for 63-68% of the TAC.

For Stikine River salmon, the Pacific Salmon Treaty stipulates that sockeye catches are to be dependent upon the size of the run as estimated in a manner agreed upon by the Transboundary Technical Committee. The Canadian entitlement to sockeye salmon, for Indian food fisheries and commercial fisheries combined, increases in a step-wise manner from a minimum of 4,000 fish to a maximum of 30,000 fish depending on the projected size of the sockeye run. Canada is also entitled to catch a maximum of 4,000 coho salmon annually.

Prior to the 1989 season, the Transboundary Technical Committee developed a management plan and a run forecast model to implement the new Annex provisions. As required by the Annex, a pre-season forecast of the Stikine River sockeye salmon return was made to guide the initial fishing patterns of U.S. and Canadian fisheries. Beginning the first week of July, in-season forecasts of total run size and TAC, based on catch-per-unit-effort data and the Stikine management model, were used to assist in determining weekly fishing plans.

The 1989 Stikine River Canadian fisheries were similar to recent years. There were three distinct fisheries. The lower river fishery, which occurs just across the border, accounts for the major portion of the harvest. Twenty fishermen participated in the lower Stikine River commercial fishery throughout the season with an average of 13 fishermen present each week. Weekly periods were allowed from the last week of June through the third week of September. This fishery concentrates on sockeye and coho salmon, however, most of the total Canadian catch of pink and chum salmon and steelhead trout are taken in the lower River fishery. The other two fisheries, one commercial and the other an Indian food fish fishery, occur out of Telegraph Creek. The upper river commercial fishery was fished by 1 to 4 units during weekly open periods from late June through the middle of August and harvested small numbers of chinook and sockeye salmon. A food fishery was fished for seven days a week from June 11 through August 12. The fishery took about 1,200 chinook and 2,400 sockeye salmon and small numbers of coho salmon.

The 1989 Stikine River sockeye salmon run was estimated to be about 95,700 fish of which some 42,300 were harvested in various fisheries and 53,400 escaped to spawn. The Canadian fisheries accounted for a harvest of approximately 20,000 sockeye salmon.

ANNETTE ISLAND FISHERIES

The Annette Island Fishery Reserve was established by Presidential Proclamation in 1916. It provides for a zone out to 3,000 feet offshore of Annette Island wherein the Reserve Indians have exclusive fishing rights. Salmon are harvested by seine, gill net and troll gear. Also four floating fish traps are allowed to fish in specific areas on the west side of the Island. The 1989 trap catch totaled approximately 599,000 salmon; the drift gill net catch 930,000 salmon; and, the seine 1,260,000 salmon. It was the highest harvest ever reported from the reserve for both seine and gill net gear types. Comparative harvest information for the Annette Island fisheries is depicted in Tables 21, 22 and 23.

SUBSISTENCE AND PERSONAL SALMON FISHERIES

The Board of Fisheries adopted customary and traditional use findings and established personal use salmon fisheries for Southeast Alaska and Yakutat salmon fisheries during the spring of 1989. The enabling regulations dramatically changed the management of both fisheries.

The customary and traditional use findings led to the establishment of communities where domiciled individuals were designated as having customary and traditional subsistence privileges. Additionally specific areas were established where the communities could subsistence fish. Prior to this, all Alaskan residents were allowed to participate in the subsistence fishery.

The subsistence communities established were Yakutat, Klukwan, Haines, Hoonah, Angoon, Sitka, Kake, Kasaan, Saxman, Klawock, Craig, and Hydaburg. The areas that the communities encompassed were described by regulation. The subsistence priority was applied to all salmon species (chinook, sockeye, coho, pink and chum salmon) for Yakutat. However, in Southeast Alaska, the harvest of chinook and coho salmon, except for Angoon, was considered as an incidental harvested species. A directed coho salmon subsistence fishery was continued in Mitchell Bay, for residents of Angoon, as was allowed under the previous regulations. The subsistence priority for the residents of the Sitka area was limited to sockeye salmon.

A set of personal use salmon fishing regulations was established that allowed Alaskan residents, not considered subsistence users, to continue to harvest salmon for personal consumption. With few exceptions, the personal use regulations allowed virtually the same activities as the subsistence regulations. This was done to ensure salmon could continue to be taken for personal consumption as was previously accomplished prior to the subsistence findings. The personal use regulations would also allow subsistence users the opportunity to take salmon throughout the region, in addition to their designated areas.

A combined total of 3,086 salmon subsistence and personal use fishing permits were issued in the Southeast Alaska portion of the region in 1989. This included a total of 1,629 subsistence and 1,457 personal use permits (Table 24). The reported salmon harvest totaled approximately 31,600 fish (including 18,900 in the subsistence fishery and 12,700 in the personal use fishery), which was similar to the reported subsistence take of recent years (Table 24). The catch is expected to increase slightly as more permits are returned.

The new 1989 regulations included provisions for a personal use fishery on the Taku River, near Juneau. In recent years, the Taku River had been closed to subsistence fishing. The fishery was established to allow a directed sockeye salmon harvest area for the residents of Juneau. A total of 76 permits reported fishing in the Taku River and approximately 560 sockeye salmon were reported harvested.

A combined subsistence and personal use harvest of approximately 4,900 salmon (including approximately 4,700 in the subsistence fishery and 200 in the personal use fishery) has been reported from the Yakutat portion of the region through the preparation date of this report (Table 25). The 1989 combined harvest was similar to the subsistence harvest reported from the Yakutat Area in recent years. A total of 117 subsistence and 36 personal use permits were issued.

Table 1. Southeast Alaska commercial purse seine fishing time in hours open per day by area, 1989.

Stat. Week	Date	Day/Week	District or Section														Terminal Hatchery Area														
			1-C	1-D	1-E	1-F	2	3-A	3-B	3-C	4	5	6-C	6-D	7-A	7-B	9-A	9-B	10	11-D	12	13-A	13-B	13-C	14-B	14-C	Hawk Inlet	Carroll Inlet	Eastern Passage	Hidden Falls	
26	25-Jun-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	26-Jun-89	Mon.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	27-Jun-89	Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	12	-	
	28-Jun-89	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	29-Jun-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	30-Jun-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	01-Jul-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
27	02-Jul-89	Sun.	-	-	-	15	-	-	-	-	15	-	-	-	-	-	-	-	15	15	15	15	-	-	15	-	-	-	-	15	
	03-Jul-89	Mon.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	12	-	
	04-Jul-89	Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05-Jul-89	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	06-Jul-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	07-Jul-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	08-Jul-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	
28	09-Jul-89	Sun.	-	-	-	15	15	-	-	-	15	-	-	-	-	-	-	-	15	-	15	15	-	15	15	-	-	-	-	-	
	10-Jul-89	Mon.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	
	11-Jul-89	Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	12-Jul-89	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	13-Jul-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	
	14-Jul-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	15-Jul-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	
29	16-Jul-89	Sun.	-	-	-	18	18	-	-	-	-	-	-	-	-	-	-	-	18	-	18	-	-	18	-	-	-	-	-	-	
	17-Jul-89	Mon.	-	-	-	21	21	-	-	-	15	-	-	-	-	-	-	-	21	-	21	-	-	21	-	-	-	-	-	-	
	18-Jul-89	Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	
	19-Jul-89	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	20-Jul-89	Thurs.	-	-	-	15	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	21-Jul-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	15	15	-	15	15	15	15	-	15	12	-	-	
	22-Jul-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
30	23-Jul-89	Sun.	-	-	-	18	18	-	-	-	18	-	-	-	-	-	-	18	18	18	-	18	18	18	-	-	18	-	-	12	-
	24-Jul-89	Mon.	-	-	-	21	21	-	-	-	21	-	-	-	-	-	-	21	21	21	-	21	21	21	-	-	21	-	-	-	-
	25-Jul-89	Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	26-Jul-89	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-Jul-89	Thurs.	18	-	-	18	18	18	-	-	-	-	-	18	-	-	-	18	18	18	-	18	18	18	-	-	18	-	-	-	-
	28-Jul-89	Fri.	21	-	-	21	21	21	-	-	-	-	-	21	-	-	-	21	21	21	-	21	21	21	-	-	21	-	-	12	-
	29-Jul-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	30-Jul-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	31-Jul-89	Mon.	18	-	-	18	18	18	18	-	-	-	-	-	-	-	-	18	18	18	-	18	18	-	-	-	12	-	-	-	-
	01-Aug-89	Tues.	21	-	-	21	21	21	21	-	-	-	-	-	-	-	-	21	21	21	-	21	21	-	-	-	-	-	-	-	-
	02-Aug-89	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
	03-Aug-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	04-Aug-89	Fri.	18	-	-	18	18	18	18	18	-	-	-	-	-	-	-	18	18	18	-	18	-	-	-	-	12	-	-	-	-
	05-Aug-89	Sat.	24	-	-	24	24	24	24	24	-	-	-	-	-	-	-	24	24	24	-	24	-	-	-	-	-	-	-	-	-
32	06-Aug-89	Sun.	21	-	-	21	21	21	21	21	-	-	-	-	-	-	-	21	21	21	-	21	-	-	-	-	-	-	-	-	-
	07-Aug-89	Mon.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
	08-Aug-89	Tues.	18	-	-	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	-	18	18	-	-	-	12	-	-	-	-
	09-Aug-89	Wed.	24	-	-	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	-	24	24	-	-	-	-	-	-	-	-
	10-Aug-89	Thurs.	21	-	-	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	-	21	21	-	-	-	-	-	-	-	-
	11-Aug-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
	12-Aug-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	13-Aug-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-89	Mon.	18	18	6	18	18	18	18	18	-	-	-	-	18	18	18	-	-	-	-	18	18	-	-	-	6	12	-	-	-
	15-Aug-89	Tues.	24	24	-	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	-	24	24	-	-	-	-	-	-	-	-
	16-Aug-89	Wed.	24	24	-	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	-	24	24	-	-	-	-	-	-	-	-

--Continued--

2.32

Table 1. (page 3 of 3.)

Stat. Week	Date	Day/Week	District or Section																				Terminal Hatchery Area								
			1-C	1-D	1-B	1-F	2	3-A	3-B	3-C	4	5	6-C	6-D	7-A	7-B	9-A	9-B	10	11-D	12	13-A	13-B	13-C	14-B	14-C	Hawk Inlet	Carrol Inlet	Eastern Passage	Hidden Falls	
41	08-Oct-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	09-Oct-89	Mon.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10-Oct-89	Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11-Oct-89	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
	12-Oct-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	14-Oct-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	15-Oct-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-89	Mon.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17-Oct-89	Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Oct-89	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Oct-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	20-Oct-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21-Oct-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

2.34

Table 2. Southeast Alaska annual commercial purse seine salmon catches in numbers by species. (ADF&G 12/01/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	6,509	358,697	125,871	2,572,279	726,017	3,789,373
1961	4,134	418,952	246,524	10,936,344	2,173,119	13,779,073
1962	10,145	411,748	239,382	10,139,595	1,593,386	12,394,256
1963	6,659	422,633	316,491	18,189,644	1,188,152	20,123,579
1964	16,819	570,666	506,505	17,310,850	1,662,135	20,066,975
1965	14,992	672,015	557,005	10,061,603	1,185,571	12,491,186
1966	11,877	480,519	452,057	18,919,555	2,846,668	22,710,676
1967	9,054	600,628	188,965	2,807,783	1,545,059	5,151,489
1968	13,335	494,998	463,553	24,099,793	2,252,605	27,324,284
1969	6,776	338,233	110,415	4,312,402	332,680	5,100,506
1970	5,959	307,821	295,683	9,628,111	1,936,834	12,174,408
1971	4,799	162,823	326,264	8,505,647	1,496,399	10,495,932
1972	16,800	323,965	391,204	11,370,064	2,169,435	14,271,468
1973	8,751	348,679	129,593	5,609,519	1,219,552	7,316,094
1974	6,759	235,934	166,687	4,174,219	999,601	5,583,200
1975	2,056	61,878	70,201	3,410,938	381,307	3,926,380
1976	1,426	135,823	87,604	4,287,516	512,777	5,025,146
1977	5,243	329,396	160,519	11,600,431	342,322	12,437,911
1978	13,998	274,238	245,074	19,044,766	529,779	20,107,855
1979	10,079	397,448	176,593	9,000,060	441,686	10,025,866
1980	12,507	527,310	194,250	12,314,942	1,026,839	14,075,848
1981	10,268	444,699	286,010	16,453,340	534,917	17,729,234
1982	31,375	463,236	449,459	22,475,115	862,164	24,281,349
1983	13,581	794,300	399,279	34,634,877	609,764	36,451,801
1984	20,769	470,165	370,098	21,572,952	2,439,016	24,873,000
1985	23,147	720,992	431,791	47,786,490	1,859,613	50,822,033
1986	13,311	591,883	588,683	43,659,255	2,214,155	47,067,287
1987	6,297	311,240	131,458	7,059,881	1,254,071	8,762,947
1988	12,151	655,611	155,576	9,270,087	1,471,448	11,564,873
Average 1960 to 1988	11,020	416,819	289,544	14,712,070	1,297,701	16,727,153
1989 Preliminary	17,629	837,013	332,501	53,262,942	1,090,629	55,540,714

Table 3. Southeast Alaska commercial purse seine salmon catches by area, 1989. (ADF&G 12/1/89)

District	Chinook	Sockeye	Coho	Pink	Chum	Total
District 1 (General)	630	117,732	30,690	12,592,062	201,944	12,943,058
Annette Island	73	14,542	2,127	1,231,281	12,216	1,260,239
Carrol Inlet (Terminal)	1,852	1	0	29	2,675	4,557
Nakat Inlet (Terminal)	4	367	921	100,514	57,943	159,749
District 2	787	57,640	52,167	8,968,147	193,333	9,272,074
District 3	392	21,487	24,369	3,651,164	50,591	3,748,003
District 4	10,723	516,069	158,720	13,010,578	210,639	13,906,729
District 5	0	0	0	0	0	0
District 6	183	3,917	3,049	579,878	3,750	590,777
District 7	96	6,947	4,263	1,163,172	21,088	1,195,566
Eastern Passage (Terminal)	151	1	0	0	5	157
District 9	220	12,585	17,209	2,413,436	70,177	2,513,627
District 10	1,543	21,283	9,729	2,447,109	36,570	2,516,234
District 11	0	0	0	0	0	0
District 12	378	47,960	22,171	5,382,152	136,878	5,589,539
Hidden Falls (Terminal)	224	479	53	17,299	23,572	41,627
District 13	253	9,859	3,710	1,139,083	39,347	1,192,252
District 14	120	6,144	3,323	567,038	29,901	606,526
Southern Subtotals	14,891	738,703	276,306	41,296,825	754,184	43,080,909
Northern Subtotals	2,738	98,310	56,195	11,966,117	336,445	12,459,805
Total Southeast	17,629	837,013	332,501	53,262,942	1,090,629	55,540,714

Table 4. Northern Southeast Alaska annual commercial purse seine salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	1,377	193,185	40,578	1,208,645	344,005	1,787,790
1961	2,738	306,490	98,626	7,545,647	1,276,238	9,229,739
1962	3,308	190,704	44,844	450,906	779,813	1,469,575
1963	3,992	241,483	146,899	13,772,188	697,716	14,862,278
1964	6,155	259,808	179,568	7,184,778	615,968	8,246,277
1965	6,451	353,618	243,509	5,106,087	949,074	6,658,739
1966	6,071	273,071	170,354	4,720,620	2,277,117	7,447,233
1967	2,349	213,594	120,294	2,358,831	1,317,519	4,012,587
1968	4,665	336,407	208,564	9,729,290	1,167,207	11,446,133
1969	4,173	270,034	87,731	3,453,139	297,203	4,112,280
1970	3,686	236,663	165,940	4,972,826	1,408,347	6,787,462
1971	2,595	113,699	127,703	2,911,913	866,044	4,021,954
1972	5,998	157,942	155,628	3,026,945	1,394,570	4,741,083
1973	4,059	181,604	56,225	1,741,261	634,047	2,617,196
1974	1,559	66,858	27,415	514,119	440,342	1,050,293
1975	108	5,471	2,185	585,294	66,959	660,017
1976	12	19,126	1,744	80,775	55,005	156,662
1977	233	17,674	20,194	2,064,103	30,357	2,132,561
1978	501	36,641	9,101	2,398,505	39,990	2,484,738
1979	797	36,311	19,990	3,198,769	226,125	3,481,992
1980	512	39,640	12,918	899,599	415,620	1,368,289
1981	2,280	61,068	58,571	4,414,338	287,626	4,823,883
1982	3,643	79,881	135,346	10,765,882	163,980	11,148,732
1983	2,796	64,137	57,828	5,329,149	295,765	5,749,675
1984	1,790	57,763	48,850	4,194,752	1,442,639	5,745,794
1985	8,008	99,150	77,584	19,380,794	1,012,230	20,577,766
1986	1,379	18,601	17,798	942,755	947,936	1,928,469
1987	1,689	77,238	28,492	3,858,922	834,947	4,801,288
1988	1,140	13,317	24,970	1,296,253	654,049	1,989,729
Average 1960 to 1988	2,962	143,138	84,446	4,528,958	724,442	5,483,946
1989 Preliminary	2,738	98,310	56,195	11,966,117	336,445	12,459,805

Table 5. Northern Southeast Alaska pink salmon spawning escapement index by district and year, 1960-89.

Year	Numbers of Fish by District						Total	
	109	110	111	112	113	114		115
1960	116,507	252,795	339,325	192,005	365,565	128,931	19,901	1,415,029
1961	498,854	375,900	509,674	514,959	711,835	215,163	72,360	2,898,745
1962	477,778	418,935	291,439	194,470	345,306	196,235	23,490	1,947,653
1963	559,013	312,425	436,413	844,901	1,324,275	549,286	25,650	4,051,963
1964	697,437	491,220	400,373	470,200	528,878	125,771	10,800	2,724,679
1965	683,357	232,678	334,797	472,466	768,328	406,669	0	2,898,295
1966	765,244	538,500	513,337	653,384	529,276	109,546	2,700	3,111,987
1967	471,457	191,072	267,042	349,630	577,923	179,435	15,255	2,051,814
1968	718,267	959,076	482,537	584,713	311,786	155,089	47,250	3,258,718
1969	420,114	283,770	241,640	508,418	769,483	255,344	22,897	2,501,666
1970	491,311	517,940	448,846	684,195	377,718	164,774	54,170	2,738,954
1971	555,957	570,967	306,401	608,459	595,204	392,115	0	3,029,103
1972	462,039	682,925	615,721	576,093	345,027	193,944	0	2,875,749
1973	313,785	282,138	292,015	531,615	600,917	258,157	71,550	2,350,177
1974	306,462	268,351	450,401	359,819	441,701	123,090	0	1,949,824
1975	217,402	71,953	164,472	307,099	669,543	146,830	29,750	1,607,049
1976	227,903	159,380	114,706	263,201	520,796	125,810	40,026	1,451,822
1977	556,224	242,095	362,642	713,589	2,082,431	237,325	66,018	4,260,324
1978	469,916	410,637	217,561	1,010,622	908,571	194,070	108	3,211,485
1979	841,178	724,625	530,391	845,687	1,995,662	239,716	71,988	5,249,247
1980	484,317	393,710	345,074	646,560	610,970	227,954	82,270	2,790,855
1981	427,685	365,731	309,955	782,212	1,960,006	234,140	80,896	4,160,625
1982	775,041	585,750	760,621	863,620	1,158,118	196,607	75,656	4,415,413
1983	586,231	352,289	826,972	841,402	1,916,572	261,587	62,536	4,847,589
1984	733,166	403,018	494,078	509,311	1,597,270	213,129	70,365	4,020,337
1985	1,199,765	1,050,671	1,854,021	1,378,927	2,780,432	575,430	312,192	9,151,438
1986	743,556	265,591	258,034	810,716	760,569	170,350	3,810	3,012,626
1987	600,852	1,079,983	985,536	653,830	948,355	160,508	82,902	4,511,966
1988	624,615	462,360	378,993	783,568	576,384	195,269	66,069	3,087,258
1989	806,969	986,840	630,227	787,499	1,074,203	203,654	66,204	4,555,596
Goal	600,000	1,000,000	500,000	600,000	1,600,000	500,000	-	4,800,000

Table 6. Southern Southeast Alaska annual commercial purse seine salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	5,132	165,512	85,293	1,363,634	382,012	2,001,583
1961	1,396	112,462	147,898	3,390,697	896,881	4,549,334
1962	6,837	221,044	194,538	9,688,689	813,573	10,924,681
1963	2,667	181,150	169,592	4,417,456	490,436	5,261,301
1964	10,664	310,858	326,937	10,126,072	1,046,167	11,820,698
1965	8,541	318,397	313,496	4,955,516	236,497	5,832,447
1966	5,806	207,448	281,703	14,198,935	569,551	15,263,443
1967	6,705	387,034	68,671	448,952	227,540	1,138,902
1968	8,670	158,591	254,989	14,370,503	1,085,398	15,878,151
1969	2,603	68,199	22,684	859,263	35,477	988,226
1970	2,273	71,158	129,743	4,655,285	528,487	5,386,946
1971	2,204	49,124	198,561	5,593,734	630,355	6,473,978
1972	10,802	166,023	235,576	8,343,119	774,865	9,530,385
1973	4,692	167,075	73,368	3,868,258	585,505	4,698,898
1974	5,200	169,076	139,272	3,660,100	559,259	4,532,907
1975	1,948	56,407	68,016	2,825,644	314,348	3,266,363
1976	1,414	116,697	85,860	4,206,741	457,772	4,868,484
1977	5,010	311,722	140,325	9,536,328	311,965	10,305,350
1978	13,497	237,597	235,973	16,646,261	489,789	17,623,117
1979	9,282	361,137	156,603	5,801,291	215,561	6,543,874
1980	11,995	487,670	181,332	11,415,343	611,219	12,707,559
1981	7,988	383,631	227,439	12,039,002	247,291	12,905,351
1982	27,732	383,355	314,113	11,709,233	698,184	13,132,617
1983	10,785	730,163	341,451	29,305,728	313,999	30,702,126
1984	18,979	412,402	321,248	17,378,200	996,377	19,127,206
1985	15,139	621,842	354,207	28,405,696	847,383	30,244,267
1986	11,932	573,282	570,885	42,716,500	1,266,219	45,138,818
1987	4,608	234,002	102,966	3,200,959	419,124	3,961,659
1988	11,011	642,294	130,606	7,973,834	817,399	9,575,144
Average 1960 to 1988	8,018	273,681	205,098	10,183,112	573,258	11,243,167
1989 Preliminary	14,891	738,703	276,306	41,296,825	754,184	43,080,909

Table 7. Southern Southeast Alaska pink salmon spawning escapement index by district and year, 1960-89.

Year	Numbers of Fish by District						Total	
	101	102	103	105	106	107		108
1960	708,015	210,776	928,350	128,130	56,897	220,709	26,000	2,278,877
1961	624,066	169,081	677,952	222,576	419,087	164,625	80,900	2,358,287
1962	1,220,747	355,825	1,273,828	432,122	475,448	412,600	37,400	4,207,970
1963	1,065,132	272,480	1,122,225	353,524	330,600	465,280	110,500	3,719,741
1964	1,273,469	532,704	1,253,950	460,280	623,686	422,914	108,023	4,675,026
1965	687,106	279,820	1,078,362	540,801	433,942	268,300	21,930	3,310,261
1966	1,496,930	605,411	1,315,405	473,500	591,281	474,615	0	4,957,142
1967	556,015	90,331	382,864	347,394	150,304	144,176	51,000	1,722,084
1968	1,798,261	544,322	1,173,255	436,738	364,133	368,574	71,273	4,756,556
1969	722,138	327,031	408,917	184,801	173,184	163,670	42,756	2,022,497
1970	1,495,419	264,761	1,464,042	198,850	220,157	324,870	58,530	4,026,629
1971	1,346,439	649,546	1,623,181	353,834	377,042	462,301	29,234	4,841,577
1972	1,651,100	358,658	915,956	240,402	220,455	415,655	71,674	3,873,900
1973	911,847	512,260	853,001	251,198	350,372	375,972	42,075	3,296,725
1974	1,293,850	480,440	1,155,955	161,720	207,082	305,616	25,075	3,629,738
1975	1,439,667	661,073	1,449,408	255,655	339,385	443,442	11,534	4,600,164
1976	1,523,782	697,460	1,556,397	124,189	635,516	672,165	7,616	5,217,125
1977	2,252,755	690,351	1,616,768	220,954	333,598	933,815	32,322	6,080,563
1978	2,157,453	562,729	1,747,662	259,804	259,935	420,893	13,263	5,421,739
1979	1,062,770	675,036	1,672,719	395,428	357,687	455,013	75,008	4,693,661
1980	2,398,373	680,194	2,731,575	125,106	146,225	342,100	16,729	6,440,302
1981	1,916,713	641,621	2,656,622	351,536	214,014	263,045	28,011	6,071,562
1982	2,269,047	650,240	2,098,555	229,903	320,910	443,616	69,674	6,081,945
1983	3,133,933	1,163,000	3,374,247	478,011	272,154	351,676	16,612	8,789,633
1984	3,771,246	956,239	3,334,059	230,431	271,418	388,923	22,823	8,975,139
1985	3,854,308	1,167,087	4,791,491	686,955	889,369	976,802	80,906	12,446,918
1986	4,528,205	1,761,475	5,841,107	676,983	839,410	689,810	27,199	14,364,189
1987	2,293,793	571,112	1,998,696	147,109	230,286	342,798	77,577	5,661,371
1988	1,567,236	585,567	1,509,234	142,848	250,548	285,023	46,724	4,387,180
1989	2,859,467	883,842	2,954,216	356,542	614,587	861,758	105,516	8,635,928
Goal	2,000,000	600,000	1,700,000	500,000	600,000	600,000	-	6,000,000

Table 8. Southeast Alaska commercial drift gill net fishing time by area and hours open per day, 1989.

Stat. Week	Date	Day/Week	District or Section													Terminal Hatchery Area					
			1-A	1-B	6-A	6-B	6-C	6-D	8-A	8-B	11-B	11-C	15-A	15-B	15-C	Carrol Inlet	Noets Bay	Nakat Inlet	Eastern Passage	Wrangell Narrows	Blind Slough
24	11-Jun-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Jun-89	Mon.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	13-Jun-89	Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
	14-Jun-89	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	15-Jun-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jun-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17-Jun-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	18-Jun-89	Sun.	12	-	12	12	12	12	12	12	-	12	12	-	-	-	-	-	-	-	12
	19-Jun-89	Mon.	24	-	24	24	24	24	24	24	-	24	24	-	-	-	-	-	-	-	24
	20-Jun-89	Tues.	24	-	12	12	12	12	12	12	-	24	12	-	-	-	-	-	-	-	24
	21-Jun-89	Wed.	24	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	24
	22-Jun-89	Thurs.	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	23-Jun-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Jun-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	25-Jun-89	Sun.	12	-	12	12	12	12	12	12	-	12	12	-	12	-	-	12	-	-	12
	26-Jun-89	Mon.	24	-	24	24	24	24	24	24	-	24	24	-	12	-	-	12	-	-	24
	27-Jun-89	Tues.	24	-	12	12	12	12	12	12	-	24	12	-	-	-	-	-	-	-	24
	28-Jun-89	Wed.	12	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	24
	29-Jun-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	30-Jun-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	01-Jul-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	02-Jul-89	Sun.	12	-	12	12	12	12	-	-	12	12	12	-	12	-	-	-	-	-	12
	03-Jul-89	Mon.	24	-	24	24	24	24	-	-	24	24	24	-	24	-	-	-	-	-	24
	04-Jul-89	Tues.	24	-	12	12	12	12	-	-	24	24	24	-	12	-	-	-	-	-	24
	05-Jul-89	Wed.	12	-	-	-	-	-	-	-	12	12	12	-	-	-	-	-	-	-	24
	06-Jul-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	07-Jul-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	08-Jul-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	09-Jul-89	Sun.	12	-	12	12	12	12	12	12	12	12	12	-	12	-	-	-	-	-	-
	10-Jul-89	Mon.	24	-	24	24	24	24	24	24	24	24	24	-	24	-	-	12	-	-	-
	11-Jul-89	Tues.	12	-	24	24	24	24	24	24	24	24	24	-	12	-	-	12	-	-	-
	12-Jul-89	Wed.	-	-	24	24	24	24	24	24	12	12	12	-	-	-	-	12	-	-	-
	13-Jul-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	14-Jul-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Jul-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	16-Jul-89	Sun.	12	-	12	12	12	12	12	12	12	12	12	-	12	-	-	12	-	-	-
	17-Jul-89	Mon.	24	-	24	24	24	24	24	24	24	24	24	-	24	-	-	12	-	-	-
	18-Jul-89	Tues.	24	-	24	24	24	24	24	24	24	24	24	-	12	-	-	-	-	-	-
	19-Jul-89	Wed.	24	-	12	12	12	12	12	12	12	12	12	-	-	-	-	-	-	-	-
	20-Jul-89	Thurs.	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21-Jul-89	Fri.	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	22-Jul-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	23-Jul-89	Sun.	12	-	12	12	12	12	12	12	12	12	12	-	12	-	-	12	-	-	-
	24-Jul-89	Mon.	24	-	24	24	24	24	24	24	24	24	24	-	12	-	-	-	-	-	-
	25-Jul-89	Tues.	24	-	24	24	24	24	24	24	24	24	24	-	-	-	-	12	-	-	-
	26-Jul-89	Wed.	24	-	12	12	12	12	12	12	12	24	12	-	-	-	-	12	-	-	-
	27-Jul-89	Thurs.	24	-	-	-	-	-	-	-	-	24	-	-	-	-	-	12	-	-	-
	28-Jul-89	Fri.	12	-	-	-	-	-	-	-	-	12	-	-	-	-	-	12	-	-	-
	29-Jul-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	30-Jul-89	Sun.	12	-	12	12	12	-	12	12	12	12	12	-	12	-	-	12	-	-	-
	31-Jul-89	Mon.	24	-	24	24	24	-	24	24	24	24	24	-	24	-	-	12	-	-	-
	01-Aug-89	Tues.	24	-	24	24	24	-	24	24	24	24	24	-	24	-	-	12	-	-	-
	02-Aug-89	Wed.	24	-	12	12	12	-	12	12	12	24	12	-	12	-	-	12	-	-	-

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Table 8. (page 2 of 3.)

Stat. Week	Date	Day/Week	District or Section											Terminal Hatchery Area							
			1-A	1-B	6-A	6-B	6-C	6-D	8-A	8-B	11-B	11-C	15-A	15-B	15-C	Carrol Inlet	Noets Bay	Nakat Inlet	Eastern Passage	Wrangell Narrows	Blind Slough
31	03-Aug-89	Thurs.	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	04-Aug-89	Fri.	12	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	12	-	-
	05-Aug-89	Sat.	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	12	-	-
32	06-Aug-89	Sun.	12	-	12	12	12	-	12	12	-	-	-	-	-	-	-	12	-	-	-
	07-Aug-89	Mon.	24	-	24	24	24	-	24	24	12	12	12	-	12	-	-	12	-	-	-
	08-Aug-89	Tues.	24	-	24	24	24	-	24	24	24	24	24	-	24	-	-	-	-	-	-
	09-Aug-89	Wed.	24	-	12	12	12	-	12	12	24	24	24	-	24	-	-	-	12	-	-
	10-Aug-89	Thurs.	24	-	-	-	-	-	-	-	12	24	12	-	-	-	-	-	12	-	-
	11-Aug-89	Fri.	12	-	-	-	-	-	-	-	12	24	12	-	12	-	-	-	12	-	-
	12-Aug-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
33	13-Aug-89	Sun.	12	-	12	12	12	-	12	12	12	12	12	-	-	-	-	-	-	-	-
	14-Aug-89	Mon.	24	-	24	24	24	-	24	24	24	24	24	-	-	-	-	-	12	-	-
	15-Aug-89	Tues.	24	-	24	24	24	-	24	24	24	24	24	-	-	-	-	-	12	-	-
	16-Aug-89	Wed.	24	-	12	12	12	-	12	12	12	12	12	-	-	-	-	12	-	-	-
	17-Aug-89	Thurs.	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	18-Aug-89	Fri.	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	19-Aug-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
34	20-Aug-89	Sun.	12	-	12	12	12	-	12	12	12	-	12	-	-	-	-	-	12	-	-
	21-Aug-89	Mon.	24	-	24	24	24	-	24	24	24	-	24	-	-	-	-	12	-	-	-
	22-Aug-89	Tues.	24	-	24	24	24	-	24	24	24	-	24	-	-	-	-	12	-	-	-
	23-Aug-89	Wed.	24	-	12	12	12	-	12	12	12	-	12	-	-	-	-	-	-	-	-
	24-Aug-89	Thurs.	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	25-Aug-89	Fri.	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	26-Aug-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
35	27-Aug-89	Sun.	12	-	12	12	12	-	12	12	12	-	12	-	-	-	-	12	-	-	-
	28-Aug-89	Mon.	24	-	24	24	24	-	24	24	24	-	24	-	-	-	-	-	12	-	-
	29-Aug-89	Tues.	24	-	12	12	12	-	12	12	12	-	12	-	-	-	-	-	12	-	-
	30-Aug-89	Wed.	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	31-Aug-89	Thurs.	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	01-Sep-89	Fri.	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	02-Sep-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	03-Sep-89	Sun.	12	-	12	12	12	-	12	12	12	-	12	-	12	-	-	-	12	-	-
	04-Sep-89	Mon.	24	-	24	24	24	-	24	24	24	-	24	-	24	-	-	-	12	-	15
	05-Sep-89	Tues.	12	-	12	12	12	-	12	12	12	-	12	-	12	-	-	-	12	-	15
	06-Sep-89	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	07-Sep-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	08-Sep-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	09-Sep-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
37	10-Sep-89	Sun.	12	-	12	12	12	12	-	-	12	-	12	-	12	-	-	-	12	-	-
	11-Sep-89	Mon.	24	-	24	24	24	24	-	-	12	-	12	-	12	-	-	-	12	-	15
	12-Sep-89	Tues.	12	-	12	12	12	12	-	-	-	-	-	-	-	-	-	-	-	15	-
	13-Sep-89	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	14-Sep-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	15-Sep-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	16-Sep-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
38	17-Sep-89	Sun.	12	-	12	12	12	12	-	-	12	-	12	-	12	-	-	-	-	-	-
	18-Sep-89	Mon.	24	-	12	12	12	12	-	-	12	-	12	-	12	-	-	-	12	-	15
	19-Sep-89	Tues.	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	20-Sep-89	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21-Sep-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	22-Sep-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	23-Sep-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-

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Table 8. (page 3 of 3.)

Stat. Week	Date	Day/Week	District or Section													Terminal Hatchery Area				
			1-A	1-B	6-A	6-B	6-C	6-D	8-A	8-B	11-B	11-C	15-A	15-B	15-C	Carrol Inlet	Noets Bay	Nakat Inlet	Eastern Passage	Wrangell Narrows
39	24-Sep-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	25-Sep-89	Mon.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	26-Sep-89	Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	27-Sep-89	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28-Sep-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
	29-Sep-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
	30-Sep-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
40	01-Oct-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	02-Oct-89	Mon.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	03-Oct-89	Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
	04-Oct-89	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
	05-Oct-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	06-Oct-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	07-Oct-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	08-Oct-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
	09-Oct-89	Mon.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
	10-Oct-89	Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	11-Oct-89	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	12-Oct-89	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
	14-Oct-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-

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Table 9. Southeast Alaska commercial drift gill net salmon catches in number by species, 1989. (ADF&G 12/1/89)

Fishery	Chinook	Sockeye	Coho	Pink	Chum	Total
Tree Point (District 1)	1,808	144,936	31,931	1,347,847	298,152	1,824,674
Nakat Inlet Terminal	13	273	388	2,072	10,205	12,951
Carroll Inlet Terminal	194	1	0	0	297	492
Annette Island	369	33,194	21,266	823,081	52,717	930,627
Prince of Wales (District 6)	1,536	192,734	92,386	1,101,194	67,351	1,455,201
Wrangell Narrows Terminal	0	0	1,392	2	0	1,394
Eastern Passage Terminal	1,866	16	1,393	17	1,165	4,457
Stikine (District 8)	308	10,085	4,261	27,640	3,375	45,669
Blind Slough Terminal	78	0	0	0	0	78
Taku/Snettisham (District 11)	1,811	74,019	51,800	180,597	36,977	345,204
Lynn Canal (District 15)	1,995	471,934	50,307	110,436	123,671	758,343
Total	9,978	927,192	255,124	3,592,886	593,910	5,379,090

Table 10. Southeast Alaska annual commercial drift gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	11,523	127,058	37,986	55,984	199,887	432,438
1961	9,440	169,724	52,743	282,997	251,900	766,804
1962	10,161	233,082	98,404	435,132	233,421	1,010,200
1963	6,427	194,420	112,776	653,826	265,251	1,232,700
1964	9,371	246,250	172,411	753,312	250,045	1,431,389
1965	11,892	279,349	166,452	698,339	269,986	1,426,018
1966	12,527	334,702	155,922	790,314	365,070	1,658,535
1967	16,464	274,038	134,029	205,683	250,050	880,264
1968	12,902	245,875	202,965	607,653	363,761	1,433,156
1969	15,407	348,343	65,704	379,738	209,538	1,018,730
1970	9,460	240,700	163,901	848,376	494,438	1,756,875
1971	15,718	328,774	159,143	654,434	435,737	1,593,806
1972	25,142	449,019	275,393	443,866	744,150	1,937,570
1973	24,471	532,164	124,349	652,692	592,982	1,926,658
1974	15,590	363,731	186,532	339,292	664,837	1,569,982
1975	9,082	108,334	102,321	350,440	297,655	867,832
1976	7,222	322,984	156,469	384,003	503,265	1,373,943
1977	5,600	550,360	182,090	1,500,378	373,516	2,611,944
1978	8,302	374,424	223,321	846,559	305,321	1,757,927
1979	13,828	488,394	83,048	968,154	412,833	1,966,257
1980	5,642	422,425	112,609	1,297,098	588,680	2,426,454
1981	6,494	466,090	118,868	1,468,673	293,702	2,353,827
1982	16,252	790,775	201,468	731,314	475,389	2,215,198
1983	4,885	607,986	218,109	1,420,575	533,742	2,785,297
1984	10,424	616,836	199,308	1,708,234	1,103,276	3,638,078
1985	10,701	882,011	332,818	2,278,565	1,204,489	4,708,584
1986	8,560	686,464	448,768	1,794,754	912,222	3,850,768
1987	8,957	784,214	189,171	1,582,860	834,266	3,399,468
1988	9,376	626,645	165,072	1,043,217	1,216,389	3,060,699
Average 1960 to 1988	11,442	417,075	166,971	868,154	479,622	1,943,263
1989 Preliminary	9,978	927,192	255,124	3,592,886	593,910	5,379,090

Table 11. Southeast Alaska annual Portland Canal/Tree Point (District 1) commercial drift gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	1,214	14,281	4,312	19,823	98,971	138,601
1961	907	35,269	4,067	91,803	35,635	167,681
1962	1,498	41,174	12,110	155,690	36,578	247,050
1963	508	22,037	3,110	93,651	41,642	160,948
1964	1,098	47,070	15,707	162,476	79,156	305,507
1965	1,079	53,566	10,675	60,772	21,753	147,845
1966	642	66,063	9,362	275,634	32,818	384,519
1967	2,186	74,071	3,112	82,312	29,017	190,698
1968	587	66,535	16,404	249,421	93,341	426,288
1969	744	89,752	3,304	87,831	20,604	202,235
1970	340	52,765	16,425	516,105	68,097	653,732
1971	778	116,101	5,170	67,013	31,087	220,149
1972	1,296	134,533	35,695	178,387	156,767	506,678
1973	1,008	159,764	18,459	269,749	109,997	558,977
1974	776	113,299	21,327	166,637	81,770	383,809
1975	1,961	25,352	12,155	123,753	30,341	193,562
1976	1,807	117,965	16,275	210,061	36,262	382,370
1977	1,182	192,728	12,173	769,841	84,321	1,060,245
1978	2,591	153,409	47,797	531,879	116,731	852,407
1979	3,654	88,957	6,427	72,687	60,564	232,289
1980	1,531	108,766	19,995	675,466	155,118	960,876
1981	1,415	105,478	18,353	426,918	38,337	590,501
1982	3,967	190,575	28,201	347,252	84,559	654,554
1983	1,094	136,006	41,671	772,342	139,713	1,090,826
1984	1,494	88,226	35,417	717,003	227,658	1,069,798
1985	2,788	172,820	51,043	691,147	233,917	1,151,715
1986	1,033	145,631	61,592	906,309	272,495	1,387,060
1987	1,785	107,503	36,654	583,145	157,983	887,070
1988	1,802	116,092	16,823	229,711	499,921	864,349
Average 1960 to 1988						
	1,475	97,786	20,132	328,787	106,040	554,219
1989 Preliminary						
	1,808	144,936	31,931	1,347,847	298,152	1,824,674

Table 12. Southeast Alaska annual Prince of Wales (District 6) commercial drift gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	46	10,354	336	1,246	502	12,484
1961	416	20,614	14,934	124,236	64,479	224,679
1962	1,308	47,033	42,276	256,620	59,119	406,356
1963	1,560	80,767	52,103	514,596	90,103	739,129
1964	2,082	76,541	64,654	443,086	44,218	630,581
1965	1,802	87,749	75,728	625,848	27,658	818,785
1966	1,665	89,847	62,823	400,932	40,756	596,023
1967	1,318	86,385	17,670	91,609	26,370	223,352
1968	1,316	64,671	67,151	169,107	61,366	363,611
1969	1,036	70,343	10,748	197,100	10,906	290,133
1970	785	42,778	35,470	94,892	32,231	206,156
1971	1,336	53,202	48,085	527,975	37,680	668,278
1972	2,573	101,338	93,427	89,467	72,382	359,187
1973	1,931	71,995	38,447	303,621	87,729	503,723
1974	2,038	57,242	45,714	104,337	50,303	259,634
1975	2,587	32,051	30,962	203,015	23,968	292,583
1976	384	15,481	19,126	139,439	6,868	181,298
1977	671	67,023	8,401	419,107	13,300	508,502
1978	2,682	41,574	55,578	224,715	16,545	341,094
1979	2,720	66,373	28,083	648,212	35,507	780,895
1980	580	107,418	16,580	45,560	26,269	196,407
1981	1,565	182,905	22,611	435,268	34,571	676,920
1982	1,648	193,360	31,671	25,484	18,615	270,778
1983	567	48,942	62,430	208,167	20,144	340,250
1984	892	91,653	41,359	343,255	70,258	547,417
1985	1,690	264,987	91,220	584,946	69,661	1,012,504
1986	1,704	145,709	194,912	308,484	82,289	733,098
1987	836	136,427	34,534	243,482	42,025	457,304
1988	1,104	92,529	13,103	69,499	69,620	245,855
Average 1960 to 1988	1,408	84,389	45,522	270,459	42,601	444,380
1989 Preliminary	1,536	192,734	92,386	1,101,194	67,351	1,455,201

Table 13. Southeast Alaska annual Stikine River (District 8) commercial drift gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	7,824	13,639	27,480	5,584	8,189	62,716
1961	7,243	21,557	36,858	52,295	12,535	130,488
1962	7,491	27,514	38,399	36,375	20,306	130,085
1963	1,431	9,979	11,612	10,198	11,024	44,244
1964	2,911	20,299	29,388	114,555	10,771	177,924
1965	3,106	21,419	8,301	4,729	2,480	40,035
1966	4,516	36,710	16,493	61,908	17,730	137,357
1967	6,372	29,226	6,747	4,713	5,955	53,013
1968	4,604	14,594	36,407	91,028	14,537	161,170
1969	5,023	19,210	5,823	11,884	2,312	44,252
1970	3,207	15,120	18,403	20,523	12,305	69,558
1971	3,717	18,143	14,876	21,806	4,665	63,207
1972	9,332	51,734	38,520	17,153	17,363	134,102
1973	9,254	21,387	5,837	6,585	6,680	49,743
1974	8,199	2,428	16,021	4,188	2,107	32,943
1975	1,534	0	0	0	1	1,535
1976	1,123	18	6,056	722	124	8,043
1977	1,443	48,374	14,405	16,253	4,233	84,708
1978	531	56	32,650	1,157	1,001	35,395
1979	91	2,158	234	13,478	1,064	17,025
1980	631	14,053	2,946	7,224	6,910	31,764
1981	283	8,833	1,403	1,466	3,594	15,579
1982	1,033	6,886	19,971	16,988	741	45,619
1983	47	178	15,484	4,171	675	20,555
1984	14	1,290	5,141	4,960	1,892	13,297
1985	20	1,060	1,926	5,325	1,892	10,223
1986	102	4,185	7,439	4,901	5,928	22,555
1987	149	1,620	1,015	3,331	949	7,064
1988	206	1,246	12	144	3,109	4,717
<hr/>						
Average 1960 to 1988	3,153	14,238	14,477	18,746	6,244	56,859
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1989 Preliminary	308	10,085	4,261	27,640	3,375	45,669

Table 14. Southeast Alaska annual Taku/Snettisham (District 11) commercial drift gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	8,810	42,819	22,374	33,155	41,852	149,010
1961	7,434	45,981	15,486	41,455	24,433	134,789
1962	5,931	36,745	15,661	17,280	20,635	96,252
1963	2,652	24,119	10,855	21,692	20,114	79,432
1964	2,509	34,140	29,315	26,593	12,853	105,410
1965	4,170	27,569	32,667	2,768	11,533	78,707
1966	4,829	33,925	26,065	23,833	35,133	123,785
1967	5,417	17,735	40,391	12,372	22,834	98,749
1968	4,904	19,501	39,103	67,365	21,890	152,763
1969	6,986	41,169	10,802	73,927	15,049	147,933
1970	3,357	50,922	44,960	197,017	110,390	406,646
1971	6,958	66,181	41,830	31,484	91,145	237,598
1972	10,955	80,404	49,780	144,339	147,957	433,435
1973	9,799	85,317	35,453	58,186	109,245	298,000
1974	2,905	38,676	38,661	57,732	86,687	224,661
1975	2,182	32,513	1,185	9,567	2,678	48,125
1976	1,757	61,749	41,729	14,962	81,803	202,000
1977	1,068	70,097	54,917	88,578	61,102	275,762
1978	1,926	55,398	31,944	51,385	36,254	176,907
1979	3,702	122,376	16,192	152,410	61,200	355,880
1980	2,422	123,117	41,515	295,553	192,750	655,357
1981	1,720	49,765	26,803	255,029	76,092	409,409
1982	3,057	83,479	29,072	109,385	37,310	262,303
1983	888	31,627	21,443	66,080	15,188	135,226
1984	1,773	77,233	33,836	145,949	86,741	345,532
1985	2,651	88,192	55,597	311,248	106,720	564,408
1986	2,606	73,061	30,512	16,568	58,792	181,539
1987	2,076	75,212	35,219	363,439	121,660	597,606
1988	1,778	38,918	44,966	157,803	139,730	383,195
Average 1960 to 1988	4,042	56,136	31,667	98,178	63,785	253,808
1989 Preliminary	1,811	74,019	51,800	180,597	36,977	345,204

Table 15. Southeast Alaska annual Lynn Canal (District 15) commercial drift gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	1,453	59,604	10,964	1,760	58,562	132,343
1961	683	67,860	18,256	25,503	127,350	239,652
1962	806	103,696	24,436	2,041	115,036	246,015
1963	276	57,518	35,096	13,689	102,368	208,947
1964	771	68,200	33,347	6,602	103,047	211,967
1965	1,735	89,046	39,081	4,222	206,562	340,646
1966	868	108,087	40,794	6,008	235,172	390,929
1967	1,171	66,621	66,109	14,677	165,874	314,452
1968	1,489	80,004	43,262	7,803	169,615	302,173
1969	1,618	127,869	35,027	8,996	160,667	334,177
1970	1,771	79,115	48,643	19,839	271,415	420,783
1971	2,929	75,147	49,182	6,156	271,160	404,574
1972	986	81,010	57,971	14,520	349,681	504,168
1973	2,479	193,701	26,153	14,551	279,331	516,215
1974	1,672	152,086	64,809	6,398	443,970	668,935
1975	816	18,338	57,543	3,255	238,782	318,734
1976	2,142	127,089	71,984	4,429	375,033	580,677
1977	1,214	160,079	91,426	130,860	201,634	585,213
1978	536	108,480	53,165	3,811	118,428	284,420
1979	3,572	192,974	27,015	28,763	242,832	495,156
1980	440	53,085	28,845	81,832	168,870	333,072
1981	1,300	93,410	44,546	137,676	116,882	393,814
1982	5,945	273,538	72,247	69,128	306,350	727,208
1983	2,119	369,311	69,223	157,781	340,622	939,056
1984	6,207	334,566	68,210	76,499	643,678	1,129,160
1985	3,260	304,005	98,355	239,080	699,024	1,343,724
1986	2,772	289,889	82,121	38,115	381,382	794,279
1987	3,223	415,881	53,630	165,748	392,938	1,031,420
1988	1,257	351,876	81,537	208,423	377,768	1,020,861
Average 1960 to 1988	1,914	155,244	51,482	51,661	264,277	524,578
1989 Preliminary	1,995	471,934	50,307	110,436	123,671	758,343

Table 16.

Southeast Alaska commercial common property terminal hatchery area salmon catches by gear and area, 1989. (ADF&G 12/1/99)

Terminal	Chinook	Numbers of Salmon			Pink	Chum	Total
		Sockeye	Coho				
Purse Seine Gear							
Carroll Inlet	1,852	1	0	29	2,675	4,557	
Nakat Inlet	4	367	921	100,514	57,943	159,749	
Klawock Inlet	0	0	0	0	0	0	
Eastern Passage	151	1	0	0	5	157	
Hidden Falls	224	479	53	17,299	23,572	41,627	
Total Purse Seine	2,231	848	974	117,842	84,195	206,090	
Drift Gill Net Gear							
Carroll Inlet	194	1	0	0	297	492	
Nakat Inlet	13	273	388	2,072	10,205	12,951	
Wrangell Narrows	0	0	1,392	2	0	1,394	
Eastern Passage	1,866	16	1,393	17	1,165	4,457	
Blind Slough	78	0	0	0	0	78	
Total Gill Net	2,151	290	3,173	2,091	11,667	19,372	
Total Terminal	4,382	1,138	4,147	119,933	95,862	225,462	

Table 17. Southeast Alaska Region 1 annual private hatchery cost recovery salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	0	0	0	0	0	0
1961	0	0	0	0	0	0
1962	0	0	0	0	0	0
1963	0	0	0	0	0	0
1964	0	0	0	0	0	0
1965	0	0	0	0	0	0
1966	0	0	0	0	0	0
1967	0	0	0	0	0	0
1968	0	0	0	0	0	0
1969	0	0	0	0	0	0
1970	0	0	0	0	0	0
1971	0	0	0	0	0	0
1972	0	0	0	0	0	0
1973	0	0	0	0	0	0
1974	0	0	0	0	0	0
1975	0	0	2,700	0	0	2,700
1976	0	0	1,866	0	0	1,866
1977	0	0	0	92,459	0	92,459
1978	0	0	0	0	0	0
1979	0	0	5,893	29,555	0	35,448
1980	0	0	0	0	0	0
1981	0	1	5,003	132,744	1	137,749
1982	0	1	2,150	7,346	773	10,270
1983	0	1	4,220	120,688	18,269	143,178
1984	937	7	6,836	171,356	453,204	632,340
1985	2,658	18	2,655	470,949	130,363	606,643
1986	1,279	6	72,810	47,461	157,155	278,711
1987	2,376	1,122	52,234	997,915	597,704	1,651,351
1988	10,049	1,703	16,437	159,507	722,711	910,407
Average 1975 to 1988	1,236	204	12,343	159,284	148,584	321,652
1989 Preliminary	18,803	711	3,438	243,493	166,131	432,576

Table 18. Southeast Alaska Region 1 annual private hatchery cost recovery salmon catches by area in numbers by species, 1989. (ADF&G 12/1/89)

Area	Chinook	Sockeye	Coho	Pink	Chum	Total
Herring Bay	1,030	658	241	41,422	1,007	44,358
Neets Bay	17,547	0	126	616	54,547	72,836
Burnett Inlet	0	5	0	135,476	334	135,815
Kake	2	3	3	24,339	5,993	30,340
Port Armstrong	164	6	0	10,405	5	10,580
Kowee Creek	0	0	0	3,239	117	3,356
Sheep Creek	0	0	0	16,189	7,075	23,264
Deep Inlet	1	1	0	49	66,322	66,373
Paterson Bay	0	1	3,050	274	14	3,339
Sheldon Jackson	0	0	0	1,037	14	1,051
Hidden Falls	59	37	18	10,447	30,703	41,264
Total	18,803	711	3,438	243,493	166,131	432,576

Table 19. Canadian commercial and food fisheries salmon catches in the Stikine River, 1972-1989.

Year	Numbers of Salmon					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1972	0	230	0	0	0	230
1973	200	3,678	0	0	0	3,878
1974	0	3,500	0	0	0	3,500
1975	1,202	2,252	55	0	0	3,509
1976	1,160	3,644	25	0	0	4,829
1977	162	6,310	32	0	0	6,504
1978	500	5,000	0	0	0	5,500
1979	1,625	13,534	10,720	1,994	424	28,297
1980	2,231	20,919	6,669	756	771	31,346
1981	1,558	27,624	2,675	3,857	1,128	36,842
1982	2,387	20,540	15,944	1,842	722	41,435
1983	2,063	21,120	6,173	1,120	304	30,780
1984	702	5,327	1	62	0	6,092
1985	1,296	25,464	2,175	2,356	536	31,827
1986	2,911	17,434	2,280	108	307	23,040
1987	2,645	9,615	5,731	647	459	19,097
1988	2,805	15,291	2,117	418	733	21,364
Average 1972-1988	1,290	11,637	3,280	796	291	17,294
1989 Preliminary	2,958	20,032	6,098	825	674	30,587

Table 20. Canadian commercial fisheries salmon catches in the Taku River, 1979-1989.

Year	Numbers of Salmon					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1979	97	13,578	6,006	13,661	15,474	48,816
1980	225	22,602	6,405	26,821	18,516	74,569
1981	159	10,922	3,607	10,771	5,591	31,050
1982	54	3,144	51	202	3	3,454
1983	556	17,056	8,390	1,874	1,760	29,636
1984	515	27,242	5,357	6,964	2,492	42,570
1985	350	14,244	1,770	3,373	136	19,873
1986	352	14,739	1,783	58	110	17,042
1987	233	13,554	5,599	6,250	2,270	27,906
1988	741	12,014	3,123	1,030	733	17,641
Average 1979-1988	328	14,910	4,209	7,100	4,709	31,256
1989 Preliminary	1,034	18,545	2,876	695	42	23,192

Table 21. Southeast Alaska Region 1 annual commercial trap salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Numbers of Salmon						Total
	Chinook	Sockeye	Coho	Pink	Chum		
1960	0	1,753	2,387	45,409	3,796	53,345	
1961	0	9,949	5,740	157,046	8,648	181,383	
1962	0	7,489	3,975	579,917	6,911	598,292	
1963	0	4,166	1,646	86,836	2,204	94,852	
1964	0	11,029	6,796	351,493	11,597	380,915	
1965	0	3,345	2,256	33,626	246	39,473	
1966	0	44,815	15,975	576,020	7,065	643,875	
1967	0	3,144	368	6,925	321	10,758	
1968	122	3,972	1,663	242,024	3,184	250,965	
1969	0	970	400	29,238	258	30,866	
1970	0	2,926	2,499	101,883	1,387	108,695	
1971	0	0	0	0	0	0	
1972	135	8,139	4,688	415,242	4,518	432,722	
1973	25	1,118	324	41,692	226	43,385	
1974	15	2,615	1,006	109,053	375	113,064	
1975	3	621	562	108,217	1,108	110,511	
1976	45	5,010	1,223	435,801	2,838	444,917	
1977	51	14,309	1,374	293,504	2,617	311,855	
1978	135	6,071	4,371	702,157	1,344	714,078	
1979	250	15,478	3,684	189,580	1,260	210,252	
1980	139	8,095	2,005	449,292	1,013	460,544	
1981	86	11,467	1,647	194,206	1,199	208,605	
1982	553	24,412	4,576	517,637	898	548,076	
1983	194	4,854	6,270	802,700	1,776	815,794	
1984	182	16,474	5,595	649,458	6,284	677,993	
1985	366	10,903	3,540	522,679	1,563	539,051	
1986	0	3,068	1,410	458,860	1,788	465,126	
1987	0	6,098	734	83,087	937	90,856	
1988	94	2,051	87	34,312	383	36,927	
Average 1960 to 1988							
	83	8,081	2,993	283,376	2,612	297,144	
1989 Preliminary							
	328	2,730	477	496,262	482	500,279	

Table 22. Annette Island annual commercial drift gill net salmon catch in number by species, 1975 to 1989 (ADF&G 12/1/89).

Year	Numbers of Salmon					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1975	2	80	476	10,850	1,885	13,293
1976	9	682	1,299	14,390	3,175	19,555
1977	22	12,059	768	75,739	8,926	97,514
1978	36	15,507	2,187	33,612	16,362	67,704
1979	89	15,556	1,726	52,604	11,666	81,641
1980	38	15,986	2,728	191,463	38,763	248,978
1981	211	25,699	5,152	212,316	24,226	267,604
1982	569	42,819	6,660	162,537	27,376	239,961
1983	170	21,922	7,858	212,034	17,400	259,384
1984	39	23,665	8,201	404,010	71,458	507,373
1985	292	50,881	23,217	406,164	75,597	556,151
1986	98	27,920	52,839	512,270	96,755	689,882
1987	527	47,469	24,033	223,337	86,782	382,148
1988	579	26,555	7,138	364,426	115,380	514,078
Average 1975 to 1988	192	23,343	10,306	205,411	42,554	281,805
1989 Preliminary	369	33,194	21,266	823,081	52,717	930,627

Table 23. Annette Island annual commercial purse seine salmon catch in number by species, 1977 to 1989 (ADF&G 12/1/89)

Year	Numbers of Salmon					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1977	1	1,430	9,984	205,834	3,665	220,914
1978	26	2,041	2,113	499,675	7,899	511,754
1979	0	311	239	66,050	3,511	70,111
1980	3	1,853	912	464,336	17,272	484,376
1981	4	1,316	5,740	240,523	4,735	252,318
1982	18	2,476	3,079	419,195	13,670	438,438
1983	3	6,148	3,341	1,001,650	5,017	1,016,159
1984	15	9,500	14,703	502,474	27,046	553,738
1985	47	6,073	3,911	488,423	9,128	507,582
1986	19	5,040	20,285	851,282	13,802	890,428
1987	5	618	9,204	28,584	17,991	56,402
1988	5	2,373	1,431	491,507	11,503	506,819
Average 1977 to 1988	12	3,265	6,245	438,294	11,270	459,087
1989 Preliminary	73	14,542	2,127	1,231,281	12,216	1,260,239

Table 24. Southeast Alaska reported subsistence and personal use salmon harvest by species and number of permits issued, 1961-1989.

Year	Number of Permits	Chinook	Sockeye	Coho	Pink	Chum	Total
1961	554						14,826
1962	309						7,067
1963	696						6,514
1964	642						9,525
1965	665						10,303
1966	2,372						15,384
1967	632	6	7,238	489	482	4,059	12,274
1968	815	62	8,382	624	1,328	4,260	14,656
1969	774	9	6,305	70	1,771	3,180	11,335
1970	788	13	10,751	0	2,246	2,415	15,425
1971	1,067	0	9,598	0	3,648	6,123	19,369
1972	936	10	9,098	0	1,253	3,970	14,331
1973	1,031	6	7,584	63	2,675	6,799	17,127
1974	1,042	6	7,822	61	2,690	6,819	17,398
1975	944	0	9,454	96	11,428	5,277	26,255
1976	1,166	0	9,625	9	1,590	3,594	14,818
1977	888	0	6,484	68	1,963	3,007	11,522
1978	1,490	0	10,662	57	4,832	3,150	18,701
1979	1,611	0	17,078	60	5,585	4,001	26,724
1980	3,612	40	21,586	10	1,439	3,741	26,816
1981	2,751	1	20,268	129	6,065	4,512	30,975
1982	2,956	8	32,117	99	4,239	3,717	40,180
1983	2,763	38	15,877	211	1,859	2,559	20,544
1984	2,996	55	19,204	721	2,560	2,502	25,042
1985	3,199	17	25,060	363	2,074	2,815	30,329
1986	3,489	28	20,662	277	912	2,722	24,601
1987	2,712	34	25,232	113	1,503	3,706	30,588
1988	2,842	94	15,514	118	51	2,801	18,578
<hr/>							
Average 1961-1988	1,634	19	14,346	165	2,827	3,897	21,254
<hr/>							
1989 Preliminary							
Subsistence	1,629	15	15,157	236	1,042	2,445	18,895
Personal Use	1,457	200	9,171	292	2,749	334	12,746
Combined	3,086	215	24,328	528	3,791	2,779	31,641

Table 25. Yakutat Area reported subsistence and personal use salmon harvest by species and number of permits issued, 1975-1989.

Year	Number of Permits	Chinook	Sockeye	Coho	Pink	Chum	Total
1975	18	27	510	40	0	0	577
1976	35	83	1,060	55	0	0	1,198
1977	45	92	1,242	781	0	0	2,115
1978	127	59	870	912	0	0	1,841
1979	73	238	525	720	0	0	1,483
1980	68	284	961	982	0	0	2,227
1981	88	167	952	1,701	0	0	2,820
1982	71	198	1,645	2,180	0	0	4,023
1983	N/A	188	1,175	360	0	0	1,723
1984	88	233	890	572	0	0	1,695
1985	46	230	1,003	59	0	0	1,292
1986	170	301	2,357	586	0	0	3,244
1987	120	372	3,598	883	0	0	4,853
1988	111	196	2,119	176	46	2	2,539
Average 1975-1988	76	191	1,351	715	3	0	2,259
1989 Preliminary							
Subsistence	117	326	3,252	849	220	49	4,696
Personal Use	36	4	167	17	1	2	191
Combined	153	330	3,419	866	221	51	4,887

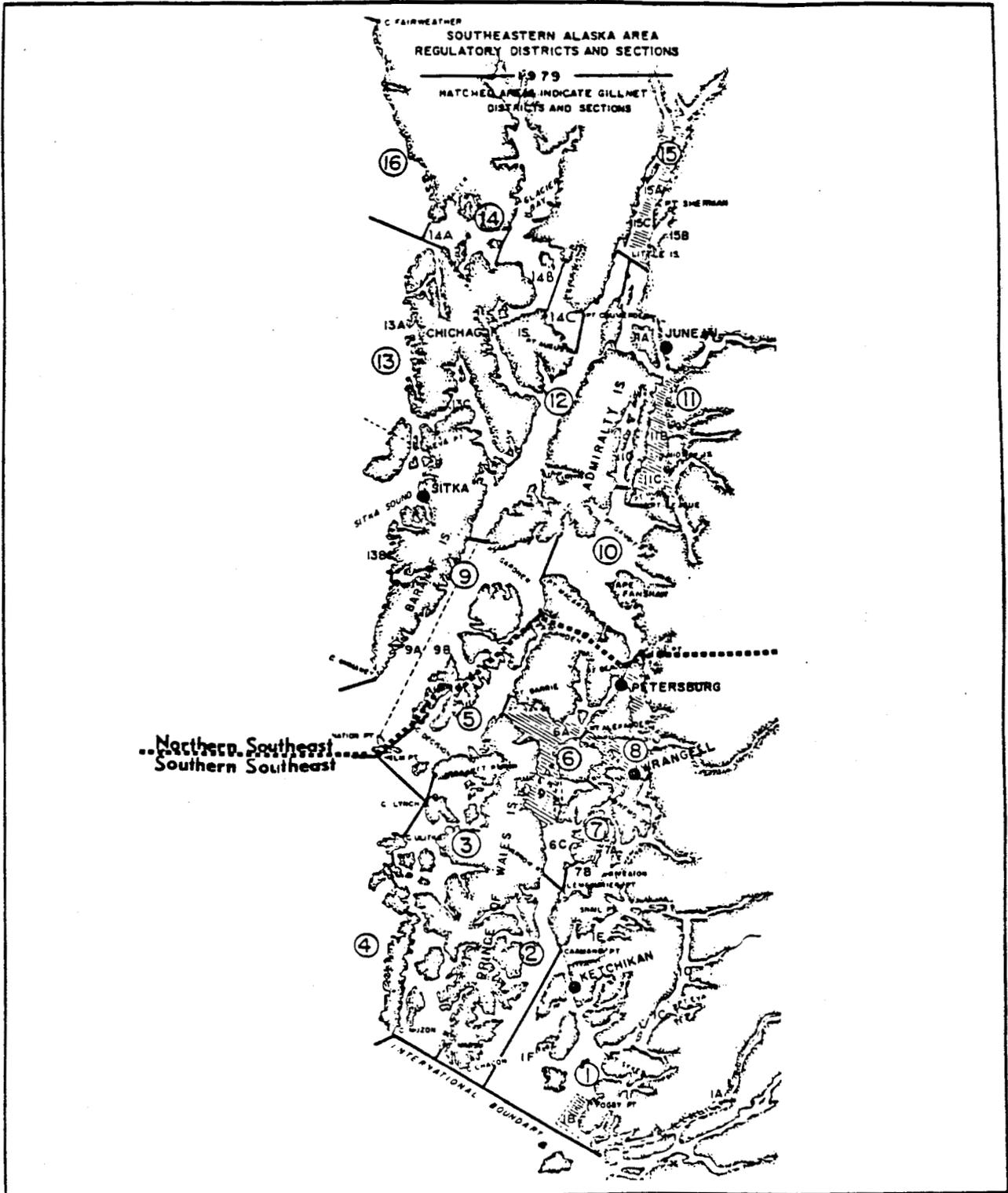


Figure 1. Map showing northern and southern portions of Southeast Alaska.

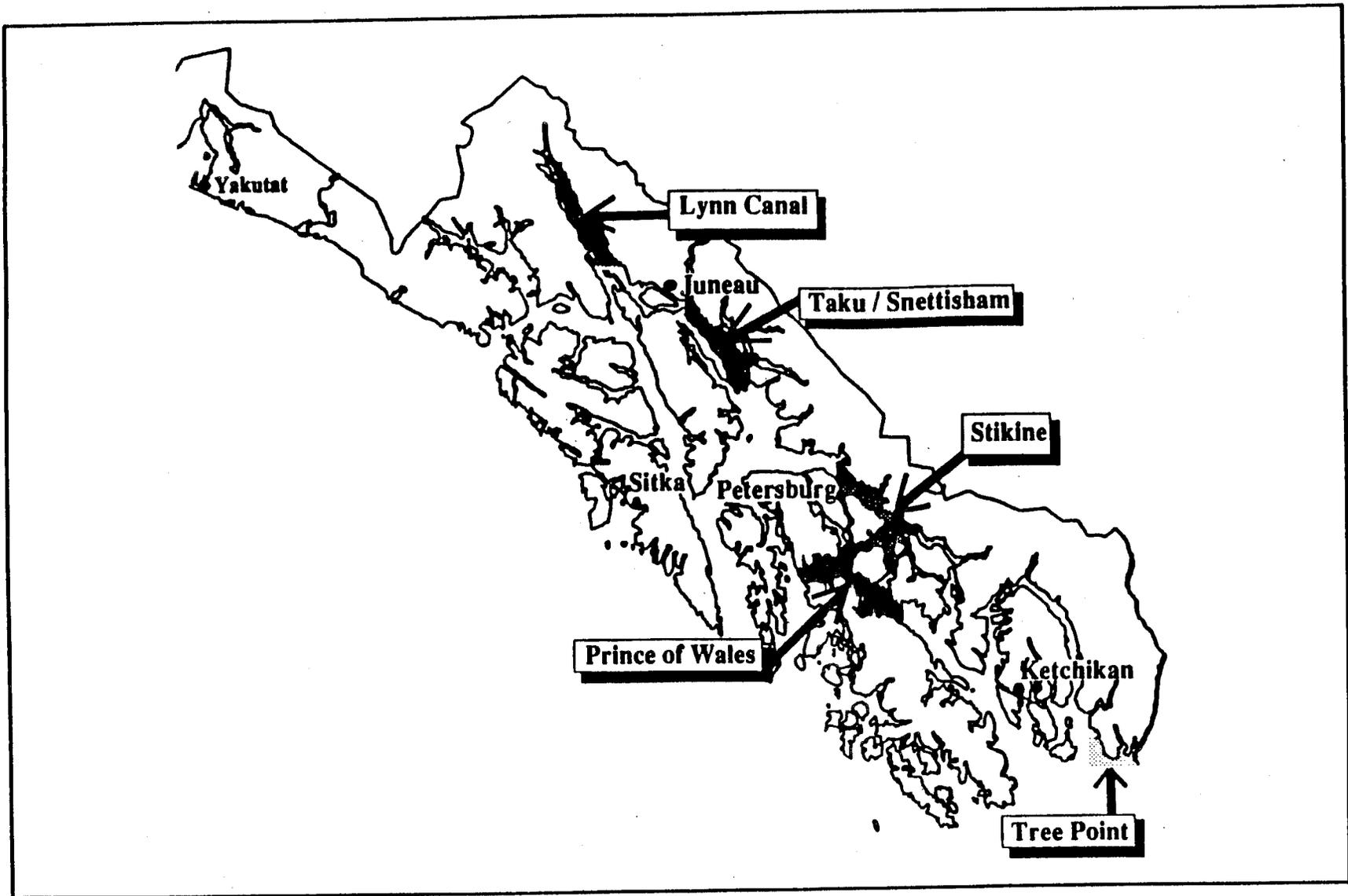


Figure 2. Map showing general drift gill net fishing in Southeast Alaska.

REPORT TO THE BOARD OF FISHERIES
1989 SOUTHEAST ALASKA-YAKUTAT SALMON TROLL FISHERY



By

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and
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Alaska Department of Fish and Game
Division of Commercial Fisheries
Juneau, Alaska

February 1990

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ABSTRACT

A total of 3,482,700¹ salmon of all species were caught in the 1989 Southeast Alaska troll fishery. The catch included 235,800 chinook, 1,410,900 coho, 1,748,700 pink, 67,800 chum and 19,500 sockeye, landed by 848 power troll and 776 hand troll permits. This was the highest total catch of salmon since statehood and possibly since the inception of the fishery. Of this, 555,500 were taken by hand troll gear and 2,927,200 by power troll gear. The Alaskan chinook hatchery contribution to the troll fishery was 15,365, approximately 3,370 less than the record contribution in 1988. Only 51,000 coho produced by Alaskan hatcheries were harvested by the troll fleet. Chinook escapements were good in Southeast but declined slightly from 1988. Coho escapements were generally good, particularly in the northern mainland systems.

¹ Catches are preliminary through February 20, 1990.

INTRODUCTION

This report describes the fishery management actions by the Alaska Department of Fish and Game (ADF&G) and reports preliminary catches by the troll fleet for the 1989 Southeast Alaska troll season. Data on stock status, escapement and hatchery contribution of species important to the troll fishery are also presented. A discussion of current management problems and results of studies on net marked fish are also included.

DESCRIPTION OF THE TROLL FISHERY

The commercial troll fishery in Southeast Alaska and Yakutat (Region I) occurs in State of Alaska waters and in the Federal Exclusive Economic Zone (EEZ) east of the longitude of Cape Suckling (Figure 1). The EEZ waters are those more than 3 miles west of the surf line. All other waters of Alaska are closed to commercial trolling.

The commercial troll fishery harvests primarily chinook and coho salmon. Other species of salmon harvested by trollers are normally considered incidental, although targeting of pink and chum salmon has increased in recent years. The troll fishery normally harvests about 90% of the chinook salmon and 50-75% of the coho salmon taken in Southeast Alaska commercial fisheries. The troll fleet also harvests halibut, ling cod and rockfish. Harvest of these species is currently limited by time, area and size restrictions.

Commercial trolling for chinook salmon occurs in 2 seasons; winter season (October 1 to April 15) and summer (April 16 to September 30). The summer season is divided into 4 fisheries: 1) June experimental fishery; 2) hatchery access fishery; 3) terminal fishery; and 4) general summer fishery. The first 3 are designed to maximize the catch of Alaska origin hatchery chinook. The season for coho salmon is from June 15 to September 20. There are no seasonal restrictions for other species of salmon.

The commercial troll fleet is comprised of 2 types of gear; hand troll and power troll. Vessels using hand troll gear are limited to 2 lines on hand-operated gurdies or 4 sport fishing poles. Although more numerous, they take a smaller portion of the catch. Vessels using power troll gear are generally larger than those using hand troll gear. They are limited to 4 lines on power operated gurdies except within the EEZ north of the latitude of Cape Spencer where 6 lines may be used.

STOCK DESCRIPTION AND STATUS

Only chinook and coho salmon are discussed. Stock status of other salmon species can be found in other reports.

Chinook Salmon Stocks

Native chinook salmon stocks occur throughout Southeast Alaska and Yakutat. Chinook salmon stocks occur primarily in the large mainland rivers and their tributaries. The most important are the Alsek, Taku, Stikine, and the Behm Canal rivers including the Unuk, Chickamin, Blossom and Keta Rivers. In total, 34 rivers in the region are known to produce runs of chinook salmon. The three major systems: the Alsek, Taku and Stikine rivers, are also "transboundary" rivers, originating in Canada and flowing to the sea through Alaska. Shared ownership and coordinated management of the transboundary stocks are addressed by the Pacific Salmon Commission (PSC) under the terms of the U.S./Canada Pacific Salmon Treaty.

Southeast Alaska chinook salmon stocks are all "spring type" entering spawning streams during spring and early summer months. After emergence the following spring, the majority of fry remain in freshwater rearing areas for at least one year, migrating seaward the next spring. For most Southeast Alaska origin chinook, ocean residency may last 2, 3, or 4 years. Several age classes of mature spawners and immature chinook salmon are harvested by trollers during the fishing season.

Current information indicates that the majority of chinook salmon harvested in the Region 1 troll fishery are produced from spawning streams and hatcheries in the Pacific Northwest and Canada. This information is based on scale pattern analysis, coded wire tagging studies and general productivity considerations. Management of intermingling chinook salmon stocks is coordinated through the PSC.

Historical Catches of Chinook Salmon

Chinook salmon catches in Southeast Alaska are depressed from historical production levels (Figure 2). Annual commercial catches during the past ten years have averaged about 280,000 fish. This has been primarily due to harvest ceilings by the North Pacific Fishery Management Council (NPFMC) through 1985, and the Alaska Board of Fisheries (Board) and PSC since then rather than decreasing abundance. This is considerably lower than levels produced between 1920 and 1950 when catches averaged 540,000 fish. The harvest ceiling was implemented both as part of a 15-year rebuilding program for Southeast Alaska chinook stocks, and as part of coastwide conservation actions taken for depressed non-Alaskan

chinook stocks which contribute to the Southeast Alaska fisheries. The decline in abundance has been primarily the result of (1) depressed natural chinook stocks both in Southeast Alaska and coastwide due to over-fishing, and (2) loss of freshwater spawning and rearing habitat, particularly in the Pacific Northwest where construction of dams on the Columbia River has drastically reduced salmon production.

Coho Salmon Stocks

Coho salmon occur in more than 2,000 streams in Southeast Alaska. Spawning takes place during the fall and early winter months. Most coho salmon rear in freshwater for two years and all spend no more than 1 winter in the ocean before returning. Most are of a single age class (4 year fish), and are caught in the year of spawning. Coho harvested by trollers are primarily of Alaska origin.

Historical Catches of Coho Salmon

The highest average decade all gear catch of coho salmon occurred during the 1940's (Figure 3). This was followed by a continuous decline in average catch during the next 3 decades with a low decade average of 1.0 million coho occurring during the 1970's. During the 1980's, the average all gear commercial coho salmon catch was 1.9 million coho. This nearly equals the decade high of 2.0 million yearly average of the 1940's. It is also an increase of 83% over the 1970's decade average of 1.0 million coho. This increase is thought to be primarily the result of the unusually mild winters experienced in recent years and a result of better spawning escapement levels realized since more conservative management was implemented beginning in 1980.

SUMMARY OF 1989 SEASON

A total of 3,482,700 salmon of all species were harvested by the troll fleet (Table 1). Of this, 555,500 were taken by hand troll gear (Table 2), and 2,927,200 were taken by power troll gear (Table 3). The total catch was the highest since statehood and possibly since the inception of the fishery. Previously, only 5 years have exceeded a catch of 2,000,000.

Fishing Effort

The Alaska Commercial Fisheries Entry Commission (CFEC) currently issues 940 power troll permits and 2,150 hand troll permits. In 1989, preliminary estimates indicate that 848 power troll gear units and 776 hand troll gear units were actually fished. Hand troll gear permit holders accounted for about 12% of the 1989 chinook troll catch and about 16% of the coho troll catch.

The number of power troll permits fished annually since limited entry was introduced in 1975 has remained relatively constant, ranging between 736 and 849 permits. However, hand troll permits have fluctuated from approximately 1,100 actively fished permits in 1975 to a high of 2,624 in 1978. Limited entry was introduced in 1980 and since then the actively fished number has declined to less than 900 in 1984-1989. The large number of hand troll permits fished during the late 1970's was thought to be partly the result of persons participating in the fishery to allow them to qualify for permits when the hand troll fishery was eventually placed under limited entry.

Chinook Salmon Fishery

The 1989 troll chinook fishery was managed to (1) comply with provisions of the Pacific Salmon Treaty regarding chinook catch ceilings and minimization of incidental mortalities, (2) continue the Southeast Alaska natural chinook rebuilding program, and (3) provide maximum harvest of Alaska hatchery chinook salmon.

Compliance with the Pacific Salmon Treaty dictates that (1) the all gear commercial and recreational base catch ceiling is 263,000 chinook excluding catches of new or post Treaty Alaskan hatchery chinook (hatchery addon), and (2) a management range of $\pm 7.5\%$ for accumulation of overages and shortages beginning in 1987. Alaska had a shortage of 5,900 chinook going into the 1989 season.

The Alaska hatchery addon is calculated from coded wire tag recovery data. The addon is reduced by 5,000 fish (estimated hatchery production prior to the Treaty) and a risk factor adjustment that accounts for variability in estimates of harvest calculated for each year. For 1989, the risk factor was 2,300.

In 1989, the all gear catch was approximately 288,000 chinook salmon. The commercial catch was 260,000 (90.3%), and a recreational harvest of 28,000 (9.7%) was projected (Table 4). A hatchery harvest of 27,900 was calculated (20,600 addon). The total commercial harvest of chinook in the general summer fishery included a troll harvest of 235,800, a purse seine harvest of 11,200 chinook greater than 5 lbs and 4,500 less than 5 lbs, a drift gill net harvest of 7,800, and a set gill net harvest of 800. In addition, purse seine gear harvested 2,200 chinook, while drift net gear also harvested 2,200 chinook in

terminal area fisheries. Traps on Annette harvested 200 chinook. Comparative all gear commercial and recreational chinook salmon catches since 1965 are shown in Table 5.

Since implementation of the Treaty, troll chinook catches have remained steady (Figure 4). The troll chinook catch of 235,800 was about 4,800 (2.1%) chinook greater than the 1988 catch of 231,000 fish. Compared to the 1980-88 average commercial troll catch of 247,000 chinook salmon, the 1989 catch was less by about 16,000 (6.5%) fish.

Winter Season

The 1989 winter season was conducted from October 1, 1988 through April 14, 1989. Beginning and ending dates of the winter season have been the same since 1981. As in previous years, fishing during the 1988/89 winter season was restricted to those areas of Southeast Alaska lying inside (east of) the surfline, portions of District 16 north of Cape Spencer, and the waters of Yakutat Bay. All outer coastal areas, including the EEZ, were closed during the winter fishery.

Approximately 34,300 (14.5%) of the total 1989 troll chinook catch were harvested during the 1988-89 winter season (Table 6, Figure 5). This was 26,100 below the catch of 60,400 taken in the 1987/88 winter fishery. The lower catch was due primarily due to weather and other factors, not low abundance. The winter troll catch is included in the all-gear catch ceiling; however, no specific catch limits exist for the winter fishery.

June Experimental Fisheries

In 1989, experimental troll fisheries were conducted several days each week during June in near-terminal and terminal hatchery areas. The purpose of all except the Cross Sound fisheries is to increase the take of Alaska origin hatchery chinook. These areas were adjacent to the Crystal Lake (ADF&G), Little Port Walter (National Marine Fisheries Service, NMFS), Neets Bay, Carroll Inlet and Whitman Lake (Southern Southeast Regional Aquaculture Association, SSRAA), and Medvejie (Northern Southeast Aquaculture Association, NSRAA). The Carroll Inlet fishery was open for continuous trolling between June 5 and June 29. The Wrangell Narrow fishery was open only on June 12. Both are terminal fisheries. The openings in other areas were considered mixed stock experimental fisheries and were open only during specified weekly periods to evaluate the presence of hatchery produced fish in relation to natural stocks.

Several hundred boats participated in 1989 experimental fisheries, harvesting about 2,100 chinook salmon (Table 7). The highest catches were at the Little Port Walter facility followed by Neets Bay. Catches in Statistical Week 24 were slightly higher than in week 26. Approximately 140 chinook salmon were also harvested in an experimental troll fishery conducted in the Cross Sound area (District 114) designed

to determine the feasibility of harvesting pink and chum salmon during the early part of the season with troll gear. The Cross Sound experimental fishery also harvested 21,500 pinks, 1,100 chums, 700 sockeye, and 500 coho salmon.

Hatchery Access Fisheries

The Board passed a new regulation to conduct hatchery access fisheries during June of 1989. These fisheries, conducted on alternate weeks with the experimental fisheries, opened most of the inside waters of Southeast Alaska to trolling for three days each week in which there was not an experimental fishery. The purpose of these fisheries was to compare the Alaska hatchery harvest in the limited area of the experimental fisheries to the Alaska hatchery harvest in expanded areas of the hatchery access fisheries. Chinook harvest in the hatchery access fisheries totaled about 14,200 for the first period and 17,000 for the second period (Table 8). The highest catches were in District 109 (9,500) followed by District 113 (5,500) and District 114 (3,400).

General Summer Season

The summer season troll target harvest is set by subtracting the winter and June harvests and the expected net fishery and recreational totals from the 263,000 ceiling. In 1989, this left a total of 154,200 chinook available for the summer harvest, exclusive of hatchery add-on, as follows.

Ceiling	263,000
Winter harvest	34,300
June harvest	31,200
Expected Net harvest	20,000
Expected Recreational harvest	22,000
Summer Target	155,500

Opening of the 1989 general summer trolling season by regulation was again delayed until July 1. This reduces the duration of the chinook salmon non-retention which occurs after the allowable chinook catch has been taken. The summer chinook season was open only until July 13 when projections indicated that the target catch level had been reached. The actual catch was 167,200 chinook, including the hatchery add-on. The 13 day season was one day longer than the 1988 season of 12 days (Table 9, Figure 6). The short 1989 season was primarily due to a high catch rate of 12,900 chinook salmon per day (Figure 7 and Table 10). This is only slightly less than 1988. The increased chinook catch rates appear to be due both to increased chinook abundance and accumulation of fish during the long spring and early summer closures. The summer chinook season was also shortened several days by the June experimental and hatchery access fisheries.

Chinook salmon non-retention was implemented on July 14 and continued to the end of the summer season on September 20. Several outer coastal areas of high chinook salmon abundance were closed to all fishing to reduce chinook salmon hook and release mortality (Table 11). In the 1989, chinook salmon non-retention was limited to 58 days.

Chinook salmon non-retention was monitored by ADF&G onboard observers when the troll fishery remained open to fishing for other species. Results will be reported later.

Coho Salmon Fishery

General regulatory dates for the troll coho salmon season are June 15 through September 20. The major portion of the coho catch normally occurs from mid-July through early September. Troll coho catches generally peak between late July and mid-August, while catches in inside gill net fisheries peak approximately one month later near mid-September. Migrations into spawning streams generally peak about mid-October (Figure 8). During recent years, a higher proportion of the troll catch has occurred earlier in the season. Early chinook closures and subsequent increases in coho targeting have contributed to this pattern. However, it also appears that other factors such as run timing or effort location may have contributed to this shift in effort.

Southeast Alaska coho salmon fisheries are managed on assessed in-season run strength, and are regulated to achieve conservation objectives and allocation policies established by the Board. Harvest ceilings as is the chinook fishery are not used.

During the 1970's, troll effort and coho catch increased in the outer coastal areas. In 1980, the Board specified a 10-day closure during the coho season to maintain the historical allocation balance to inside fisheries. In addition, this allows coho to segregate into more distinct stock units to facilitate assessment of run strength. The 10-day closure has been implemented each year since 1980.

In 1989 coho returns to Southeast Alaska improved significantly over the 1988 returns. The 1989 troll harvest of about 1.4 million cohos was nearly 300% above the 1988 harvest of about 500,000. By comparison, the 1971-80 average troll harvest was 654,000 and the 1980-85 average troll harvest was 1.1 million coho. (Figure 9).

Opening of the general coho season in 1989 was delayed to correspond to the opening of the chinook season on July 1. However, coho caught beginning June 15 in the experimental and hatchery fisheries could be retained. Historically, less than 5% of the troll catch occurred between June 15 and July 1. Many of these fish are probably caught in the experimental or hatchery access fisheries and in the general summer fishery, as most of these fish remain in the area to feed. Following the closure of

trolling for chinook on July 13, trollers were allowed to continue fishing for cohos after offloading any chinook aboard. Catches of coho by period are shown in Figure 10 and Table 12.

By regulation, trolling for all species closed on September 20. The Klawock terminal harvest area was open beginning September 21 through October 1. However, as in the previous two years, there was no effort.

The 1989 coho salmon management plan provided for a 7 to 14 day closure in late July if an assessment of run strength indicated a total all gear harvest of less than 1.5 million (80% of the 1980 to 88 average catch). The assessment, using fishery performance data collected by the department, indicated a large run and an early conservation closure was not warranted.

A ten day closure was implemented for the troll fishery on August 14. The closure was to address allocation of coho catches between the outside troll fishery and the inside troll, net, and recreational fisheries as directed by the Board and to provide adequate numbers of coho to meet spawning requirements.

During it's spring 1989 meeting the Board established an allocation guideline of 61% of the commercial coho harvest for the troll fleet. In 1989, the troll fleet accounted for 65% of the total commercial harvest of set gill net, drift gill net, purse seine net and troll gear.

Other Species

A good deal of the record troll catch was due to the large harvest of pink and chum salmon. A near record pink salmon harvest in Southeast was reflected in a troll pink salmon harvest in 1989 of 1,746,700. This was 85% higher than the previous high in 1985 and 248% higher than the 1980 to 1988 average of 508,614. The chum harvest of 67,800 was second only to 1988. The sockeye harvest of 19,500 was almost double the previous high of 1984.

EEZ Catches

In 1989 approximately 19% (45,370) of the chinook catch and 5% (68,260) of the coho catch by the troll fishery was reported taken in the EEZ. The EEZ is composed of Districts 150, 152, 154, 156, 157 and 189.

ALASKA HATCHERY PRODUCTION

State, Federal and private hatcheries produce both chinook and coho salmon caught by the troll fleet. Hatchery produced chinook salmon began appearing in significant numbers in troll catches in 1980 when an estimated 5,877 were harvested. Alaska hatchery contributions peaked in 1988 when an estimated 19,135 or 8% were taken in the troll fishery (Figure 11). An estimated total of 15,365 were taken in the 1989 troll fishery.

Contributions to the winter troll fishery from the Alaska hatcheries, which increased in recent years, declined in 1989. The peak occurred in 1988 with 8,201 chinook. In 1989, approximately 4,710 chinook, or 13.7%, of the winter troll chinook catch originated from Alaska hatcheries (Table 13).

In the experimental fisheries, 41% (854) were produced by Alaska hatcheries. Hatchery access fisheries produced 4,575 Alaska hatchery chinook for 14.7% of the catch. Alaska hatcheries contributed an estimated 5,224 chinook salmon or 3.1% of the 1989 summer troll chinook salmon catch.

Nearly 90% of the summer troll harvest of Alaska hatchery chinook salmon was produced by four hatcheries: Neets Bay (29.9%), Crystal Lake (28.3%), Carroll Inlet (14.7%), and Whitman Lake (7.9%).

Hatchery contribution of coho salmon to the commercial troll fishery has been decreasing in recent years. Hatchery coho first appeared in the troll catch in 1980. A peak total contribution in number and percent of total catch (268,000 and 13%, respectively) occurred in 1986 (Figure 12). A decline began in 1987 and by 1989, the hatchery contribution was less than 4% (51,000 fish). These recent declines in hatchery coho production appear to be due to reduced marine survival as hatchery releases have remained relatively constant.

ESCAPEMENTS

1989 Chinook Salmon Escapements

The estimated total escapement of age 1.3 and 1.4 chinook salmon for all Southeast Alaska and transboundary rivers in 1989 was 54,100 fish (Table 14). This was 11% or 6,400 fish less than in 1988 and only 84% of the management escapement goal of 64,000 chinook salmon. Still, the 1989 escapement represented an increase of approximately 109% or 28,100 chinook salmon compared to the 1975-1980 base period average of 26,000 chinook salmon, and an increase of 38% or 15,000 chinook salmon compared to the 1981-1985 average of 39,100 chinook salmon (Table 15, Figure 13).

Although escapements of chinook salmon declined overall from 1988, increases were observed in several systems. Chinook salmon escapements were very strong in the Taku River, where the 1989 escapement of 15,500 chinook salmon was the second largest observed since 1975, and 15% above the 1988 escapement of 13,400 fish. The increase in escapements to the Taku River occurred in spite of increased harvests in the U.S. recreational and the Canadian in-river commercial net fisheries. In the Chilkat River, chinook salmon escapements increased from 780 fish in 1988 to 1,400 fish in 1989, an increase of 74% or 580 fish. However, chinook salmon escapements to the Chilkat River were still 32% below the management escapement goal of 2,000 fish. Escapements of chinook salmon also increased in the Alsek River (+24%), Andrew Creek (+13%), Keta River (+101%), the Chickamin River (+1%), and the King Salmon River (+16%).

Chinook salmon escapements declined in only four of the 11 index systems. The largest decline occurred in the Stikine River where the 1989 escapement of 18,900 chinook salmon was 35% (10,300 fish) below the 1988 record escapement of 29,200 fish. Still, the 1989 escapement to the Stikine River was 203% (12,600 fish) higher than the 1975-1980 base period average of 6,200 fish and 40% higher than the management escapement goal of 13,440 fish. Escapements of chinook salmon also declined in 1989 compared to 1988 in the Unuk River (-34%), Blossom River (-10%), and Situk River (-28%).

A review of chinook salmon escapement goals and rebuilding progress is currently being conducted through the PSC. This review will include new information obtained since the rebuilding program was initiated in 1981.

1989 Coho Salmon Escapements

Only a small percentage of the coho salmon escapement in Southeast Alaska is enumerated or surveyed because of the extremely scattered distribution of stocks and difficult conditions for observing spawners during the late fall months. Information from recent years has indicated that coho salmon escapements are often highly variable between geographical areas of the region and between different types of systems (lakes, small-medium streams, large rivers).

In 1989 coho escapements were again mixed throughout the area. In general, escapements were strong to systems in the northern inside including the Taku, Berners, Chilkoot and Chilkat Rivers. Weaknesses in some systems were observed in northern central, outside and southern areas. Conversely, several streams in each area showed average or above average escapements.

CURRENT FISHERY MANAGEMENT PROBLEMS

In recent years several changes have occurred in the troll fishery that have affected management decisions and consequently the conduct of the fishery. First, chinook production from Southeast Alaska river systems has been depressed since the 1950's. In spite of restrictions of terminal area net fisheries, recreational fisheries bag limits, and inside troll fishery restrictions through the late 1970's, escapements did not improve substantially. Beginning in 1981, the Board adopted a fifteen year rebuilding program for Southeast Alaska's chinook salmon stocks. This has resulted in spring closures of the troll fishery when the availability of mature Alaska spawning fish is high. These closures were complimented by accompanying reductions in the overall level of harvest. Catch ceilings were used so that savings made early in the season would not merely be offset by harvest of immature fish later in the season. Since 1981, the troll fishery has been closed from April 15 through May 14. Additional spring closures have been implemented since 1982 in selected terminal migration corridors to provide extra protection as required for certain local stocks. Chinook salmon escapements to rivers in Southeast Alaska have generally improved as a result of these restrictions.

Second, escapements for many non-Alaskan chinook stocks that contribute to the Southeast Alaskan troll fishery are also currently below optimum levels. The exact contribution of these depressed natural stocks to the Alaskan troll fishery is not known, but it is significant. Management of chinook salmon is being coordinated on a coastwide basis by the PSC to rebuild depressed chinook stocks.

Third, troll fishing effort in outer coastal and offshore fishing areas increased during the 1970's which increased the mixed stock nature of the troll coho fishery. This has resulted in more of the harvest occurring early in the season before run strength can be fully assessed. The Board also recognized that the increase in landings from the coastal and offshore fishing areas reduced allocation of coho salmon to inside user groups. To address this problem, the Board provided for implementation of a 10-day regionwide troll closure, if necessary, to meet conservation and catch distribution objectives. A regionwide 10-day closure has been implemented for the troll fishery each year since 1980.

SPECIAL PROBLEMS

Hook and Release of Chinook Salmon During Chinook only Closures

After the troll quota for chinook had been reached in 1989, fishermen were allowed to continue fishing for other species of salmon. Chinook that were hooked were required to be returned to the water.

Trolling for chinook closed on July 14 in 1989 and did not reopen for the rest of the summer. During 1989 chinook non-retention occurred for 59 days. This was 12 days more than the 47 days in 1988.

To reduce the incidence of chinook hook and release during this period the ADF&G closed four areas along the outer coast, one area in Icy Straits, and the offshore area commonly known as the Fairweather Grounds (description of areas given in Table 11). The areas had previously been identified as areas of probably high chinook abundance. Fishermen were also encouraged to avoid fishing in areas where chinook abundance was found to be high and to utilize gear and techniques most selective for coho salmon.

Incidence of Scarred and Marked Salmon

Troll caught salmon were sampled during the 1988 summer season to monitor the incidence of scarred and marked salmon. Six categories of scar/mark types have been established and representative photographs of each type are used by samplers when recording incidence of scar/mark salmon. An extensive sampling program was conducted throughout the region in 1982 in response to concerns that many troll caught salmon exhibited scars and marks which could have been the result of previous encounters with high seas fishing gear. In recent years monitoring has generally been limited to sampling of landings made in Sitka from salmon harvested in outer coastal areas.

In 1989, approximately 83,000 troll caught salmon, including about 45,000 coho, were sampled for scar/mark incidence. Sampling was conducted July 2 through September 23, with most sampled salmon originating from northern and central outside trolling areas.

For coho sampled in 1989, an estimated 2.57% exhibited scars or marks of some type. This level was higher than that observed in previous years. In 1982, for example, sampling of approximately 96,000 coho from outer coastal areas resulted in an observed scar/mark incidence of 1.19%.

Of the six categories, categories 1-3 scar or mark patterns are considered to be representative of types which could have been caused by previous encounters with fishing gear (categories 4-6 generally represent predator or other miscellaneous type scars or marks). In 1989, 0.37% of the sampled coho exhibited type 1-3 scars or marks, compared to 0.66% for coho from outside areas in 1982.

While overall average scar/mark percentages were relatively low, percentages for individual landings varied substantially, and in some cases were much higher. For example, during the extensive sampling in 1982, category 1-3 percentages ranged as high as 33% for individual landings of cohos from outside areas.

Table 1. Southeast Alaska Region annual commercial all troll salmon catches in numbers by species by calendar year for 1960 to 1979 and by season (October 1 -September 30) for 1979/80 to 1988/89.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	282,404	939	396,211	25,563	2,453	707,570
1961	204,289	1,264	399,932	19,303	2,679	627,467
1962	173,597	1,181	643,740	75,083	2,676	896,277
1963	243,679	2,014	693,050	106,939	6,230	1,051,912
1964	329,461	1,004	730,766	124,566	2,576	1,188,373
1965	308,902	1,872	695,887	81,127	6,359	1,094,147
1966	282,083	679	528,621	63,623	5,203	880,209
1967	274,678	157	443,677	57,372	7,051	782,935
1968	304,455	574	779,500	126,271	2,791	1,213,591
1969	290,168	858	388,459	83,727	1,720	764,932
1970	304,602	477	267,647	70,072	3,235	646,033
1971	311,439	932	391,279	104,557	7,603	815,810
1972	242,282	1,083	791,947	166,771	11,635	1,213,718
1973	307,807	1,222	540,125	134,586	10,460	994,200
1974	319,793	2,609	844,748	263,044	13,822	1,444,016
1975	287,342	1,098	214,170	76,882	2,784	582,276
1976	231,239	1,266	524,762	193,786	4,252	955,305
1977	271,735	5,783	506,887	281,244	11,621	1,077,270
1978	375,433	2,804	1,100,902	617,633	26,193	2,122,965
1979	338,319	7,018	918,845	629,144	24,661	1,917,987
1979-1980	303,873	2,866	707,360	267,589	12,201	1,293,889
1980-1981	249,065	7,470	862,177	577,256	8,964	1,704,932
1981-1982	242,221	2,339	1,321,546	503,425	5,699	2,075,230
1982-1983	271,192	7,968	1,279,518	498,503	20,549	2,077,730
1983-1984	235,557	10,538	1,131,936	572,599	28,035	1,978,665
1984-1985	216,224	7,755	1,603,110	968,958	52,932	2,848,979
1985-1986	218,597	6,890	2,127,068	181,929	51,394	2,585,878
1986-1987	242,445	9,726	1,041,140	487,007	12,843	1,793,161
1987-1988	231,268	9,295	500,148	520,264	88,454	1,349,429
Average 1960 to 1988						
	272,212	3,437	771,557	271,684	15,072	1,333,962
PRELIMINARY 1988-1989						
	235,800	19,500	1,410,900	1,748,700	67,800	3,482,700

Table 2. Southeast Alaska Region annual commercial hand troll salmon catches in numbers by species by calendar year for 1960 to 1979 and by season (October 1 -September 30) for 1979/80 to 1988/89.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	NA	NA	NA	NA	NA	NA
1961	NA	NA	NA	NA	NA	NA
1962	NA	NA	NA	NA	NA	NA
1963	NA	NA	NA	NA	NA	NA
1964	NA	NA	NA	NA	NA	NA
1965	NA	NA	NA	NA	NA	NA
1966	NA	NA	NA	NA	NA	NA
1967	NA	NA	NA	NA	NA	NA
1968	NA	NA	NA	NA	NA	NA
1969	NA	NA	NA	NA	NA	NA
1970	NA	NA	NA	NA	NA	NA
1971	NA	NA	NA	NA	NA	NA
1972	NA	NA	NA	NA	NA	NA
1973	NA	NA	NA	NA	NA	NA
1974	NA	NA	NA	NA	NA	NA
1975	27,995	96	40,922	28,853	541	98,407
1976	26,294	516	88,733	44,054	2,061	161,658
1977	33,176	1,740	155,813	116,776	4,143	311,648
1978	54,383	1,155	378,927	243,469	9,573	687,507
1979	58,919	2,448	244,815	281,711	7,926	595,819
1979-1980	52,360	1,183	180,404	111,758	4,531	350,236
1980-1981	34,097	2,174	181,591	173,495	2,580	393,937
1981-1982	37,048	504	261,545	131,494	1,185	431,776
1982-1983	38,666	1,532	236,179	136,694	2,777	415,848
1983-1984	34,300	1,987	178,366	151,514	4,899	371,066
1984-1985	33,217	1,731	263,527	257,050	9,881	565,406
1985-1986	26,169	809	339,288	40,097	6,698	413,061
1986-1987	29,198	2,131	183,222	135,109	3,018	352,678
1987-1988	33,369	1,861	92,281	147,782	14,544	289,837
Average 1975 to 1988	37,085	1,385	210,256	142,467	4,601	396,081
PRELIMINARY 1988-1989	28,800	2,300	219,900	298,200	6,300	555,500

Table 3. Southeast Alaska Region annual commercial power troll salmon catches in numbers by species by calendar year for 1960 to 1979 and by season (October 1 -September 30) for 1979/80 to 1988/89.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	NA	NA	NA	NA	NA	NA
1961	NA	NA	NA	NA	NA	NA
1962	NA	NA	NA	NA	NA	NA
1963	NA	NA	NA	NA	NA	NA
1964	NA	NA	NA	NA	NA	NA
1965	NA	NA	NA	NA	NA	NA
1966	NA	NA	NA	NA	NA	NA
1967	NA	NA	NA	NA	NA	NA
1968	NA	NA	NA	NA	NA	NA
1969	NA	NA	NA	NA	NA	NA
1970	NA	NA	NA	NA	NA	NA
1971	NA	NA	NA	NA	NA	NA
1972	NA	NA	NA	NA	NA	NA
1973	NA	NA	NA	NA	NA	NA
1974	NA	NA	NA	NA	NA	NA
1975	259,347	1,002	173,248	48,029	2,243	483,869
1976	204,945	750	436,029	149,732	2,191	793,647
1977	238,559	4,043	351,074	164,468	7,478	765,622
1978	321,050	1,649	721,975	374,164	16,620	1,435,458
1979	279,400	4,570	674,030	347,433	16,735	1,322,168
1979-1980	251,513	1,683	526,956	155,831	7,670	943,653
1980-1981	214,968	5,296	680,586	403,761	6,384	1,310,995
1981-1982	205,173	1,835	1,060,001	371,931	4,514	1,643,454
1982-1983	232,526	6,436	1,043,339	361,809	17,772	1,661,882
1983-1984	201,257	8,551	953,570	421,085	23,136	1,607,599
1984-1985	183,007	6,024	1,339,583	711,908	43,051	2,283,573
1985-1986	192,428	6,081	1,787,780	141,832	44,696	2,172,817
1986-1987	213,247	7,595	857,918	351,898	9,825	1,440,483
1987-1988	197,899	7,434	407,867	372,482	73,910	1,059,592
Average 1975 to 1987	228,237	4,496	786,711	312,597	19,730	1,351,772
PRELIMINARY 1988-1989	207,000	17,200	1,191,000	1,450,500	61,500	2,927,200

Table 4. Estimated harvests of chinook salmon by commercial and recreational fisheries in southeast Alaska, 1989.

Fishery	Harvest	
	Number	Percent
Troll		
Winter (10/1/88-4/14/89)	34,300	11.9%
Special Hatchery Access (6/05-6/07;6/21-6/23)	31,200	10.8%
Experimental Hatchery (6/06-6/30)	2,100	0.7%
Terminal Hatchery (6/01-6/30)	1,000	0.3%
General Summer (7/01-7/13)	167,200	58.1%
	Subtotal	235,800
Net^{*/}		
Drift Gill Net	7,800	2.7%
Terminal Hatchery Drift Gill Net	2,200	0.8%
Set Gill Net	800	0.3%
Purse Seine (> 5 lb. only)	11,200	3.9%
Terminal Hatchery Purse Seine (> 5 lb. only)	2,200	0.7%
Trap (Annette Island)	200	0.1%
	Subtotal	24,200
	Commercial Fisheries Total	260,000
		90.3%
Recreational (Projected)	28,000	9.7%
	All Gear Totals	288,000
		100.0%
1989 Southeast Alaska all gear catch ceiling:		
	Base Catch	263,000
	Hatchery Addon	20,600
	Total	283,600
	Deviation from base catch ceiling	4,400
		1.7%
Preliminary 1989 Alaska hatchery addon computation:		
1. Estimated 1989 Alaska hatchery harvest	=	27,900
2. Less "old" (1984) hatchery harvest	=	5,000
3. Estimated "new" hatchery harvest in 1989	=	22,900
4. Less estimation error risk adjustment	=	2,300
5. Estimated 1989 Alaska hatchery addon	=	20,600

* Purse seine totals do not include 4,500 chinook salmon weighing less than five pounds; these small chinook salmon are excluded for Treaty catch accounting purposes. There is no minimum size limit in gill net fisheries.

Table 5. Annual Southeast Alaska commercial and recreational chinook salmon harvests and Alaska hatchery contributions, 1965-1989.

Year	Numbers of Fish (1,000's)			Recreational Fisheries ^{c/}	Total ^{d/}	Alaska Hatchery Harvest	Total Less AK Hatchery
	Troll ^{a/}	Commercial Fisheries Net ^{b/}	Subtotal				
1965	259	28	287	13	300		
1966	282	26	308	13	321		
1967	275	26	301	13	314		
1968	304	28	332	14	346		
1969	290	24	314	14	328		
<hr/>							
Ave. 1965-69	282	26	308	13	322		
1970	305	18	323	14	337		
1971	334	22	356	15	371		
1972	242	45	287	15	302		
1973	308	36	344	16	360		
1974	322	25	347	17	364		
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Ave. 1970-74	302	29	331	15	347		
1975	287	14	301	17	318		
1976	231	11	242	17	259		
1977	272	13	285	17	302		
1978	376	25	401	17	418		
1979	338	29	367	17	384		
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Ave. 1975-79	301	18	319	17	336		
1980	300	22	322	20	342	7	335
1981	248	20	268	21	289	2	287
1982	242	49	291	26	317	1	316
1983	271	20	291	22	313	2	311
1984	236	32	268	22	290	5	285
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Ave. 1980-84	259	29	288	22	310	3	307
1985	217	36	253	25	278	13	265
1986	236	22	258	21	279	16	263
1987	242	15	257	22	279	23	256
1988	231	22	253	26	279	31	248
1989	236	24	260	28	288	28	260
<hr/>							
Ave. 1985-89	232	24	256	24	281	22	258

^{a/} Troll catches prior to 1980 are reported by calendar year. From 1981 to 1989, catches are for the catch accounting year, Oct. 1 to Sept. 30.

^{b/} Purse seine chinook catches reported under net fisheries for 1986-89 do not include chinook less than five pounds reported on fish tickets.

^{c/} Estimates of recreational catches for 1965-76 based on 1977-80 average catch per capita data. Recreational catches for 1977 to 1989 based on Statewide Postal Harvest Surveys.

^{d/} Total reported catches do not include approximately 200 to 400 chinook harvested annually by native food fisheries in several rivers.

Table 6. Southeast Alaska winter troll fishery vessel landings and chinook salmon catches, and comparison with total season troll chinook catches, 1970-1989.

Year	Vessel Landings	Number of Chinook	Chinook Per Landing	Percent of Total	Total Season Catch
1970	1,085	7,400	6.8	2.4%	305,000
1971	668	4,300	6.4	1.3%	334,000
1972	434	5,700	13.1	2.4%	242,000
1973	593	7,900	13.3	2.6%	308,000
1974	804	8,300	10.3	2.6%	322,000
Ave. 70-74	717	6,720	10.0	2.2%	302,200
1975	691	9,300	13.5	3.2%	287,000
1976	825	10,500	12.7	4.5%	231,000
1977	1,054	8,300	7.9	3.1%	272,000
1978	807	7,400	9.2	2.0%	376,000
1979	878	5,200	5.9	1.5%	338,000
Ave. 75-79	851	8,140	9.8	2.9%	276,000
1980	927	7,600	8.2	2.5%	300,000
1981	1,104	9,700	8.8	3.9%	248,000
1982	1,385	12,600	9.1	5.2%	242,000
1983	2,455	31,100	12.7	11.5%	271,000
1984	3,300	33,000	10.0	14.0%	236,000
Ave. 80-84	1,834	18,800	9.8	7.4%	259,400
1985	2,200	22,500	10.2	10.4%	217,000
1986	2,200	23,000	10.5	9.7%	236,000
1987	2,379	28,400	11.9	11.7%	242,000
1988	4,409	60,400	13.7	26.1%	231,000
1989	3,757	34,300	9.1	14.5%	235,800
Ave. 85-89	2,989	33,720	11.1	14.5%	232,360

Note: Troll winter season dates are Oct. 1 through April 14. Total season catches for 1970-80 are for calendar year; catches for 1981-1989 are for the catch accounting year 10/1 to 9/30.

Table 7. Chinook salmon harvested in experimental and terminal troll fisheries in June, 1989.

Area	Dates Open	Stat Week	Harvest by Species					Total Salmon
			Chinook	Sockeye	Coho	Pink	Chum	
Revilla/Nichols (101-25/27/41/43/45)	6/12-13	24	113	0	0	0	0	113
	6/26-28	26	20	0	0	0	0	20
		Subtotal	133	0	0	0	0	133
Clarence Strait (101-29)	6/12-13	24	0	0	0	0	0	0
	6/26-28	26	157	5	40	3	5	210
		Subtotal	157	5	40	3	5	210
Clarence Strait (102-80)	6/12-13	24	2	0	0	0	0	2
	6/26-28	26	109	2	2	3	0	116
		Subtotal	111	2	2	3	0	118
Carroll Inlet (101-46)	6/11-6/29	24	475	0	2	0	0	477
		26	136	2	41	0	6	185
		Subtotal	611	2	43	0	6	662
West Behm (101-90)	6/12-13	24	0	0	0	0	0	0
	6/26-28	26	9	0	2	0	0	11
		Subtotal	9	0	2	0	0	11
Neets Bay (101-95)	6/01-6/29	24	725	0	5	0	0	730
		26	123	0	1	0	2	126
		Subtotal	848	0	6	0	2	856
Wrangell Narrows (106-44)	6/12	24	59	0	0	0	0	59
		Subtotal	59	0	0	0	0	59
Earl West Cove (107-45)	6/25-29	26	65	0	0	0	0	65
		Subtotal	65	0	0	0	0	65
Little Port (109-10)	6/12-13	24	57	0	0	0	0	57
	6/26-27	26	848	4	395	31	1	1,279
		Subtotal	905	4	395	31	1	1,336
Frederick Sound (110-16/17)	6/12	24	103	0	0	0	0	103
		Subtotal	103	0	0	0	0	103
Silver Bay (113-35)	6/12-13	24	51	0	0	0	0	51
	6/26-27	26	85	0	46	6	1	138
		Subtotal	136	0	46	6	1	189
Cross Sound (114-21)	6/12-13	24	130	156	0	422	498	1,206
	6/26-28	26	10	532	501	21,045	599	22,687
		Subtotal	140	688	501	21,467	1,097	23,893
All Areas		24	1,715	156	7	422	498	2,798
		26	1,562	545	1,028	21,088	614	24,837
		Total	3,277	701	1,035	21,510	1,112	27,635

Table 8. Chinook salmon harvested in 1989 Special Hatchery Access Fisheries.

Area	Week	Permits	Landings	Chinook	Coho	Pink	Chum	Sockeye
101	23	32	36	433	0	0	1	0
	25	36	36	1,184	3	454	13	0
	Subtotal	68	72	1,617	3	454	14	0
102	23	43	44	974	0	0	3	0
	25	20	20	527	89	1	3	1
	Subtotal	63	64	1,501	89	1	6	1
103	23	71	71	1,192	0	0	0	0
	25	77	78	1,959	2,274	164	6	13
	Subtotal	148	149	3,151	2,274	164	6	13
105	23	23	23	327	0	0	0	0
	25	11	13	544	346	78	0	3
	Subtotal	34	36	871	346	78	0	3
106	23	19	19	456	0	0	0	0
	25	50	70	728	89	41	3	6
	Subtotal	69	89	1,184	89	41	3	6
107	23	37	41	478	0	0	0	0
	25	25	36	309	18	2	1	0
	Subtotal	62	77	787	18	2	1	0
108	23	1	1	1	0	0	0	0
	25	1	1	4	0	0	0	0
	Subtotal	2	2	5	0	0	0	0
109	23	97	110	4,226	0	0	2	0
	25	148	163	5,306	1,803	583	25	46
	Subtotal	245	273	9,532	1,803	583	27	46
110	23	97	101	1,769	0	0	1	0
	25	47	49	706	17	2	5	1
	Subtotal	144	150	2,475	17	2	6	1
111	25	2	2	17	0	0	0	0
112	23	48	58	331	0	0	0	0
	25	55	79	464	28	13	5	3
	Subtotal	103	137	795	28	13	5	3
113	23	124	148	1,573	0	0	6	1
	25	168	207	3,948	257	28	8	8
	Subtotal	292	355	5,521	257	28	14	9
114	23	137	162	2,162	0	0	20	38
	25	79	170	1,266	1,088	12,692	914	478
	Subtotal	216	332	3,428	1,088	12,692	934	516
183	23	12	16	280	0	0	2	0
	25	8	8	58	0	0	0	0
	Subtotal	20	24	338	0	0	2	0
All	23	741	830	14,202	0	0	35	39
	25	725	930	17,003	6,012	14,058	983	559
	Total	1,466	1,760	31,205	6,012	14,058	1,018	598

Table 9. Number of days and dates the Southeast Alaska troll fishery was open to chinook salmon fishing during the summer season April 15 through September 30, 1978 to present.

Year	Open ^{a/} Days	Closed Days	Open Periods	Number of Days	Closed Periods	Number ^{b/} of Days
1979	169	0	Apr 15-Sept 30	169	None	
1979	169	0	Apr 15-Sept 30	169	None	
1980	149	20	Apr 15-July 14 July 25-Sept 20	91 58	July 15-July 24 Sept 21-Sept 30	10 ALL 10
1981	100	69	May 15-June 25 July 5-Aug 6 Aug 20-Sept 3 Sept 13-Sept 19	42 36 15 7	Apr 15-May 14 Jun 26-Jul 4 Aug 10-Aug 19 Sept 4-Sept 12 Sept 21-Sept 30	30 9 10 ALL 9 10
1982	65	104	May 15-June 8 June 17-Jul 28	23 42	Apr 15-May 14 June 7-June 16 July 29-Aug 7 Aug 8-Sept 30	30 10 10 ALL 54
1983	60	109	May 15-June 8 July 1-Aug 4	25 35	Apr 15-May 14 June 9-June 30 Aug 5-Aug 14 Aug 15-Sept 30	30 22 10 ALL 47
1984	45	124	June 5-June 30 July 11-July 29	26 19	Apr 15-June 4 July 1-July 10 July 30-Aug 14 Aug 15-Aug 24 Aug 25-Sept 30	51 10 16 10 ALL 37
1985	33.6	135.4	June 3-June 12 July 1-July 22 Aug 25-Aug 26 ^{c/}	10 22 1.6	Apr 15-June 2 June 13-June 30 July 23-Aug 14 Aug 15-Aug 24 Aug 26-Sept 30	49 18 23 10 ALL 25.4
1986	41	128	June 20-July 15 Aug 21-Aug 26 Sept 1-Sept 9	26 6 9	Apr 15-June 19 July 16-Aug 10 Aug 11-Aug 20 Aug 27-Aug 31 Sept 10-Sept 20 Sept 21-Sept 30	66 26 10 ALL 5 11 10 ALL
1987	23	146	June 20-July 12	23	Apr 15-June 19 July 13-Aug 2 Aug 3-Aug 12 Aug 13-Sept 20 Sept 21-Sept 30	65 21 10 ALL 39 10 ALL

--Continued--

Table 9. (page 2 of 2.)

Year	Open ^{a/} Days	Closed Days	Open Periods	Number of Days	Closed Periods	Number ^{b/} of Days
1988	12	157	July 1-July 12	12	Apr 15-June 30	76
					July 13-July 25	13
					July 26-Aug 4	10 ALL
					Aug 5-Aug 14	10
					Aug 15-Aug 24	10 ALL
					Aug 25-Aug 31	7
					Sept 1-Sept 3	3 ALL
					Sept 4-Sept 20	17
					Sept 21-Sept 30	10 ALL
					1989	13
July 14-Aug 13	31					
Aug 14-Aug 23	10 ALL					
Aug 24-Sept 20	28					
Sept 21-Sept 30	10 ALL					

^{a/} Number of days the major portion of Southeast Alaska was open to chinook salmon fishing.

^{b/} The closures designated "ALL" are regionwide for all species by troll gear.

^{c/} Trolling was open to all species for 39 hours, 12:01 a.m. August 25 to 3:00 p.m. August 26.

Table 10.

Southeast Alaska summer troll fishery chinook catch per fleet day, 1984-1989.

Year	Fishing Period	Number of Days	Chinook Catch	Number of Fish in Thousands Fish Per Fleet Day
1984	(Fishery closed April 15 - June 4, and July 1-9.)			
	JUN 5-30	26	130	5.0
	JUL 11-29	19	77	4.1
	COMBINED	45	207	4.6
1985	(Fishery closed April 15 - June 2, and June 13-30.)			
	JUN 3-12	10	66	6.6
	JUL 1-22	22	114	5.2
	COMBINED	32	180	5.6
1986	(Fishery closed April 15 - June 19 ^{a/})			
	JUN 20 - JUL 15	26	155	6.0
1987	(Fishery closed April 15 - June 19 ^{a/})			
	JUN 20 - JUL 12	23	209	9.1
1988	(Fishery closed April 15 - June 30 ^{a/})			
	JULY 1-12	12	162	13.5
1989	(Fishery closed April 15 - June 30 ^{b/})			
	JULY 1-13	13	167	12.9

^{a/} From 1986-1988 limited troll openings were allowed several days each week during June in a number of near-terminal hatchery areas.

^{b/} In 1989, troll fisheries were open from June 5-7 and from June 21-23 in most inside fishing districts to access Alaska hatchery chinook salmon. In addition, limited troll openings were allowed during several days in June in near-terminal hatchery areas.

Table 11. Descriptions of Southeast Alaska areas closed to trolling for species during the 1989 summer season after July 13 to reduce incidental hook and release of chinook during chinook only closures.

-
1. Waters off the west coast of Baranof Island between the latitude of Point Lauder and the latitude of Redfish Cape to a distance of one mile off the shore.
 2. Waters off the Kruzof Island shore from Shoals Point to Cape Edgecumbe and from Cape Edgecumbe north to cape Georgiana to a distance of one mile off the shore.
 3. Waters off the west coast of Yakobi Island between the latitude of Yakobi Rock and the latitude of Cape Cross to a distance of one mile from the main Yakobi Island shore.
 4. The waters of Palma Bay, Dixon Harbor, Torch Bay, Murk Bay and Graves Harbor will be closed east of a line beginning at the mouth of Kaknau Creek located approximately one mile northeast of Icy Point at 58°23'10" N. latitude, 137°04'27" W. longitude to Astrolabe Point to a point on the south shore of Dixon Harbor at 58°20' N. latitude, 136°51'10" W. longitude to Venisa Point to the westernmost tip of Polka Point.
 5. The outer banks of the Fairweather Grounds bounded by the following lines:

Loran C line 7960-Y-29800 on the north
Loran C line 7960-Y-29150 on the south
Loran C line 7960-X-14660 on the inshore side
Loran C line 7960-X-14400 on the seaward side
 6. That portion of Section 14-B in Icy Strait north of the latitude of Noon Point on Pleasant Island and east of 135°40' W. longitude. This closes the Icy Passage-Excursion Point area.
-

Table 12. Preliminary 1989 Southeast Alaska troll fishery chinook and coho salmon catches by period.

Period	Days	----- Thousands of Fish -----	
		Chinook	Coho
Winter Season			
October 1, 1988 - April 14, 1989	169	34.3	-
Summer Season			
April 15 - May 31	47	Closed	Closed
June 1 - June 30 ^{a/}	30	34.4	7.5
July 1 - July 13	13	167.1	128.9
July 14 - August 13	31	Closed	847.6
August 14 - August 23	10	Closed	Closed
August 24 - September 20	28	Closed	426.9
September 21 - September 30	10	Closed	Closed
Summer Season Subtotals		201.8	1,410.9
1989 Season Totals		235.8	1,410.9

^{a/} Special June Chinook Access fisheries open June 5-7 and June 21-23 in inside fishing districts only. Experimental hatchery openings were several days each week in six area near hatcheries; open for chinook June 6-14; open all species June 15-29.

Table 13. Hatchery chinook contribution in the troll fishery in 1989.

Year	Winter Season Hatchery Percent of			Experimental Season Hatchery Percent of			Hatchery Access Hatchery Percent of			General Summer Hatchery Percent of		
	Catch	Fish	Catch	Catch	Fish	Catch	Catch	Fish	Catch	Catch	Fish	Catch
1989	34,300	4,710	13.7	2,100	854	40.7	31,200	4,575	14.7	167,200	5,225	3.1

Table 14. Preliminary 1989 estimates of total escapements of chinook salmon to southeast Alaska and transboundary rivers (includes 3- and 4-ocean chinook only).¹

----- Index Systems -----						
System (Index Tributaries)	1989 Escap. Index	Survey Expans. Factor	Tribut. Expans. Factor	Est. Total Escap.	Categ. Expans. Factor	Est. Total Escap.
Major Category (Transboundary) Systems (3 total)						
Alsek (Klukshu)	2,456 (W)	1	1/.64	3,838 ²		
Taku (Nakina and Nahlin)	6,953 (A)	1/.75	1/.60	15,451		
Stikine (Little Tahltan)	4,715 (W)	1	1/.25	18,860		
Major Subtotals	14,124		38,149	1	38,149	
Medium Category Systems (9 total)						
Situk	637 (W)	1	1	637		
Chilkat (Big Boulder)	305 (F)	1/.80	1/.28	1,362 ³		
Andrew Creek	530 (F)	1/.625	1	848		
Behm Canal Systems						
Unuk	1,149 (A)	1/.625	1	1,838		
Chickamin	792 (A)	1/.625	1	1,267		
Blossom	344 (A)	1/.625	1	550		
Keta	1,155 (A)	1/.625	1	1,848		
Subtotals	3,440		5,504			
Medium Subtotals	4,912		8,351	9/7	10,736	
Minor Category Systems (22 total)						
King Salmon River	238 (W)	1	1	238 ⁴		
Minor Subtotals	238		238	22/1	5,236	
All Systems Totals	19,274		46,737		54,121	

KEY: (W) = weir count; (A) = aerial survey estimate; (F) = foot survey estimate.

¹ Total escapement estimates = (index escapements) x (expansion factors)

² Alsek escapement = weir count incl. some jacks - subs. catch unknown

³ Stonehouse Creek added to index in 1981

⁴ Does not include 40 fish used for ADF&G Snettisham egg take but does include 29 fish below weir when pulled.

Table 15. Preliminary estimates of total escapements of chinook salmon to escapement indicator systems and to southeast Alaska and transboundary (T) rivers, 1975-1989. Index escapements are expanded for survey counting rates and unsurveyed tributaries.

Year	Major Systems			Medium Systems						Minor Systems				Total				
	Alsek (T)	Taku (T)	Stikine (T)	Major Subt.	Siuuk	Chilkat (T)	Andrew	Unuk (T)	Chick-amin(T)	Blossom	Keta	Behm Subt.	Medium Unsurv.	Medium Subt.	King Salm.	Minor Unsurv.	Minor Subt.	All Systems
1975	4,214	4,609	4,480	13,303	1,888	187	416	1,469	588	234	325	2,616	1,459	6,566	53	1,113	1,166	21,035
1976	1,802	8,278	2,560	12,640	1,543	223	404	1,469	147	109	134	1,859	1,151	5,180	81	1,701	1,782	19,602
1977	4,522	10,000	5,120	19,642	1,732	223	456	1,558	363	179	368	2,468	1,394	6,273	168	3,528	3,696	29,611
1978	4,181	4,987	4,045	13,213	880	214	388	1,770	290	229	627	2,916	1,257	5,655	71	1,491	1,562	20,430
1979	6,678	6,593	7,462	20,733	1,400	214	327	922	224	86	682	1,914	1,101	4,956	89	1,869	1,958	27,647
1980	3,886	13,402	13,677	30,965	905	214	281	1,626	418	142	307	2,493	1,112	5,005	88	1,848	1,936	37,906
Average	4,214	7,978	6,224	18,416	1,391	213	379	1,469	338	163	407	2,378	1,246	5,606	92	1,925	2,017	26,039
1981	3,067	17,900	21,338	42,305	702	1,143	511	1,170	614	254	526	2,564	1,406	6,326	113	2,373	2,486	51,117
1982	3,077	8,398	18,112	29,587	434	799	635	2,162	1,015	552	1,206	4,935	1,944	8,747	286	6,006	6,292	44,626
1983	3,495	3,020	3,802	10,317	592	1,103	366	1,800	922	942	1,315	4,979	2,011	9,051	245	5,145	5,390	24,758
1984	2,456	6,307	8,282	17,045	1,726	1,487	355	2,939	1,763	813	976	6,491	2,874	12,933	250	5,250	5,500	35,478
1985	2,005	10,851	12,584	25,440	1,521	536	510	1,894	1,530	1,134	998	5,556	2,321	10,444	171	3,591	3,762	39,646
Average	2,820	9,295	12,824	24,939	995	1,014	475	1,993	1,169	739	1,004	4,905	2,111	9,500	213	4,473	4,686	39,125
1981-85 CHANGE FROM 1975-80																		
Number	(1,394)	1,317	6,600	6,523	(396)	801	97	524	830	576	597	2,527	865	3,894	121	2,548	2,669	13,086
Percent	-33%	17%	106%	35%	-28%	377%	26%	36%	245%	353%	147%	106%	69%	69%	132%	132%	132%	50%
Goals	5,000	25,556	13,440	43,996	2,100	2,009	750	2,880	1,440	1,280	800	6,400	3,217	14,476	250	5,250	5,500	63,971
AVERAGE PERCENT OF GOAL																		
1975-80	84%	31%	46%	42%	66%	11%	50%	51%	23%	13%	51%	37%	39%	39%	37%	37%	37%	41%
1981-85	56%	36%	95%	57%	47%	50%	63%	69%	81%	58%	126%	77%	66%	66%	85%	85%	85%	61%
PRELIMINARY ESCAPEMENTS																		
1986	4,073	12,178	11,572	27,823	2,067	129	1,131	3,402	2,683	2,045	1,104	9,234	3,589	16,150	245	5,145	5,390	49,363
1987	3,892	8,951	19,108	31,951	1,884	1,286	1,042	3,157	1,560	2,158	1,229	8,104	3,519	15,835	193	4,053	4,246	52,032
1988	3,105	13,411	29,168	45,684	885	781	752	2,794	1,258	614	920	5,586	2,287	10,291	206	4,326	4,532	60,507
1989	3,838	15,451	18,860	38,149	637	1,362	848	1,838	1,267	550	1,848	5,503	2,386	10,736	238	4,998	5,236	54,121
1989 CHANGE FROM 1988																		
Number	733	2,040	(10,308)	(7,535)	(248)	581	96	(956)	9	(64)	928	(83)	99	445	32	672	704	(6,386)
Percent	24%	15%	-35%	-16%	-28%	74%	13%	-34%	1%	-10%	101%	-1%	4%	4%	16%	16%	16%	-11%
AVERAGE PERCENT OF GOAL																		
1986-89	75%	49%	146%	82%	65%	44%	126%	97%	118%	105%	159%	111%	92%	92%	88%	88%	88%	84%

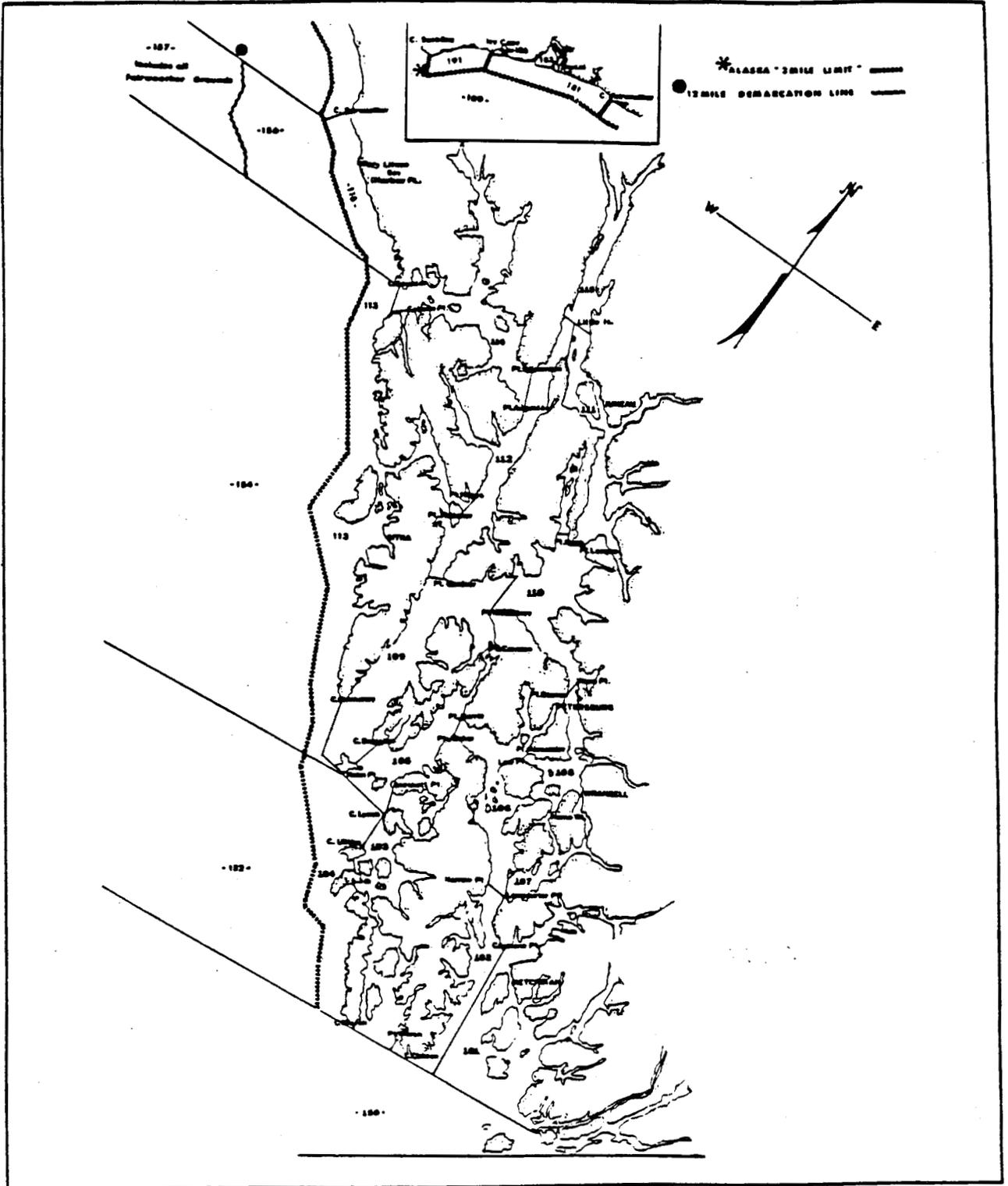


Figure 1. Commercial fishing statistical areas in Southeast Alaska. Fishing districts designated by last two digits of statistical area number.

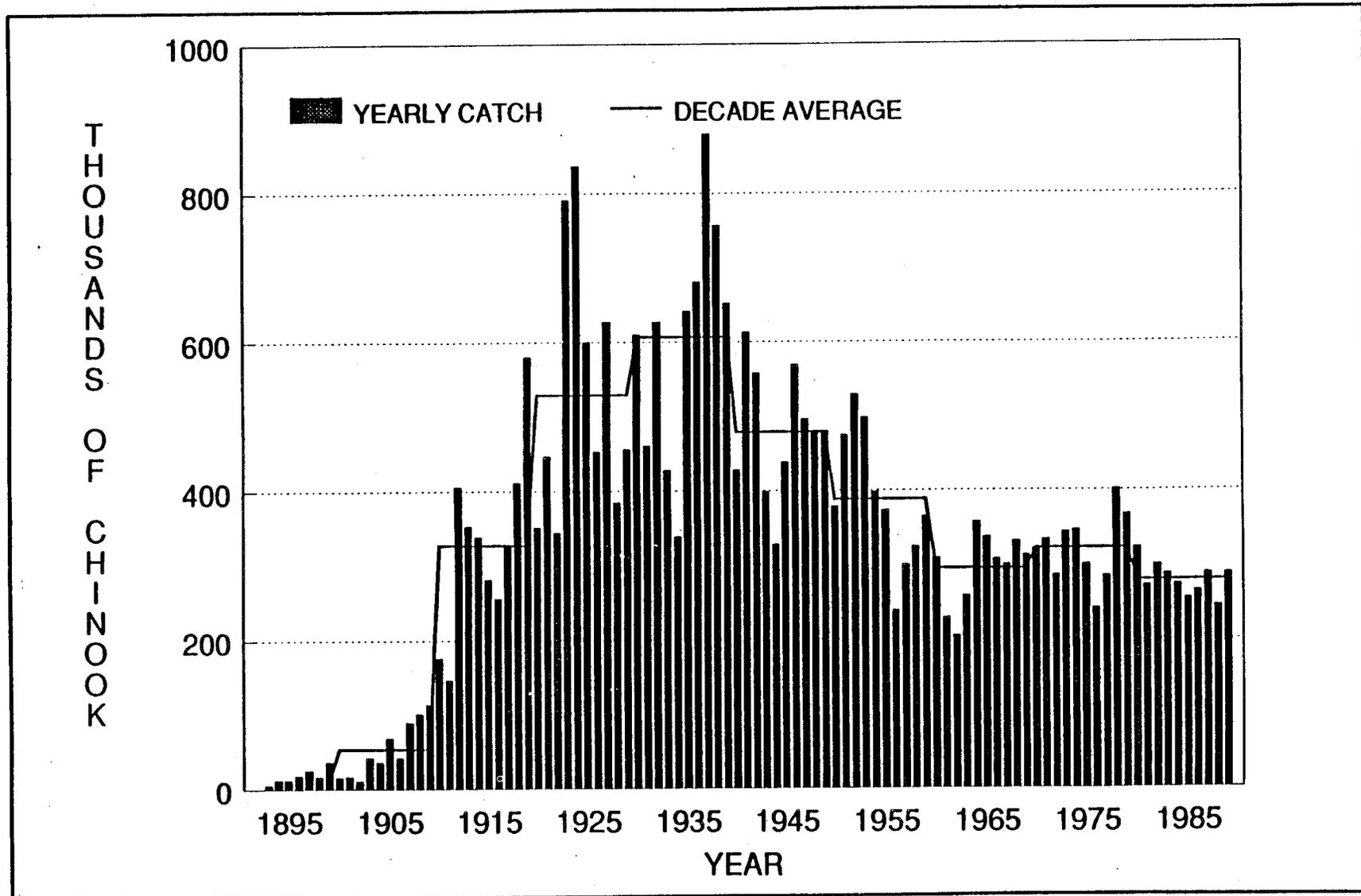


Figure 2. Commercial all gear catches of chinook salmon, 1890 to present.

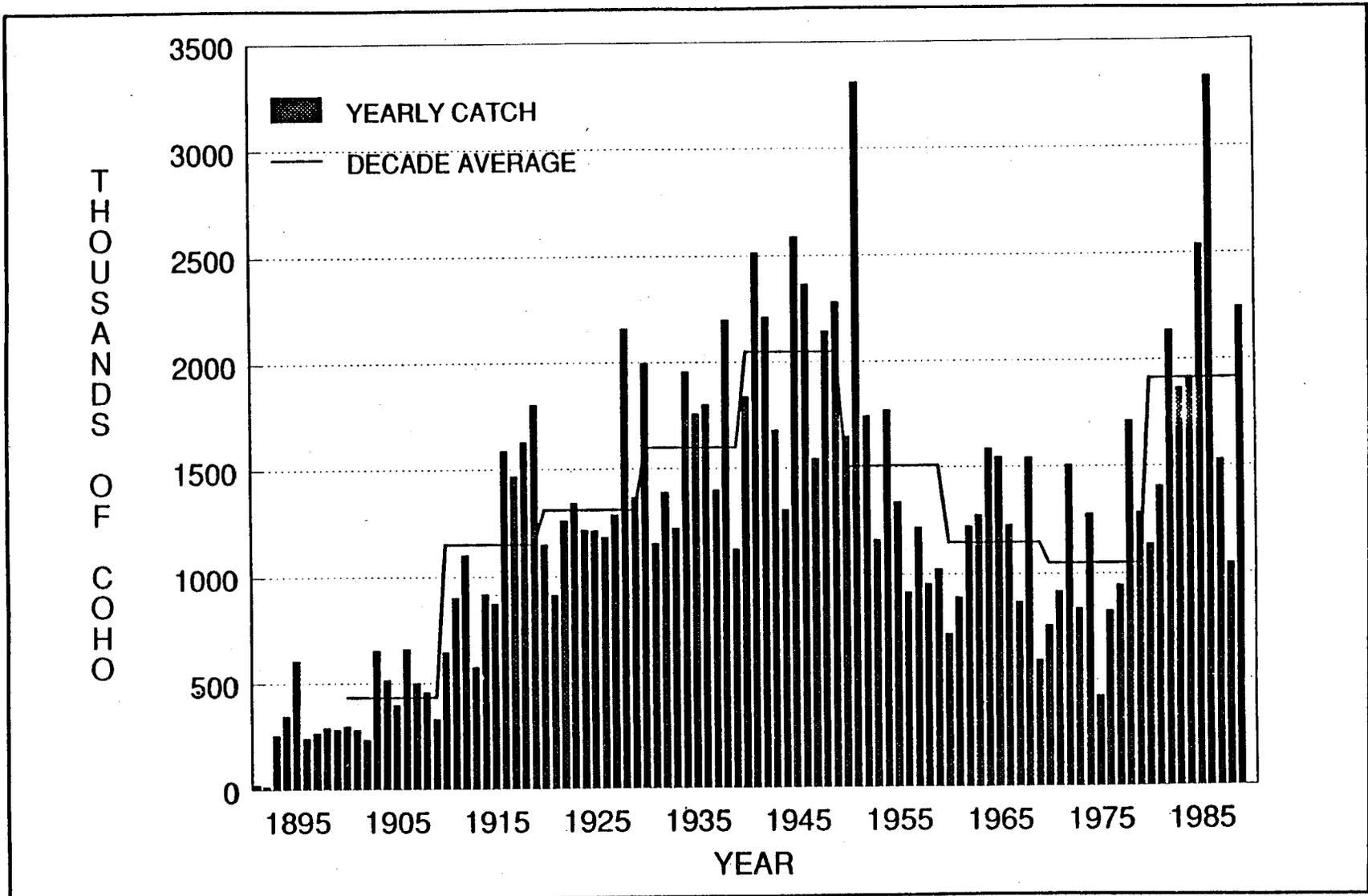


Figure 3. Commercial all gear catches of coho salmon, 1890 to present.

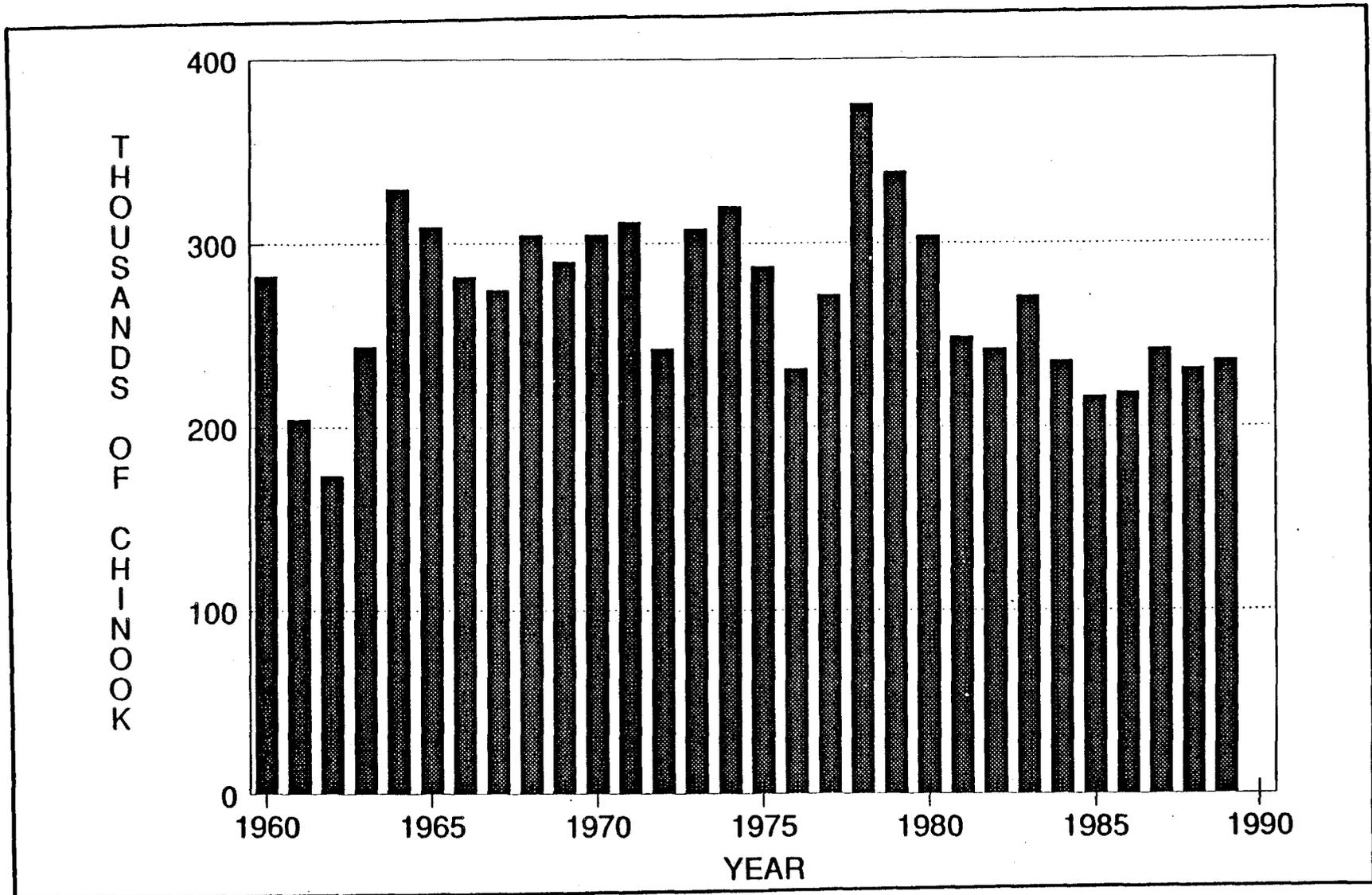


Figure 4. Chinook catches in the Southeast Alaska troll fishery, 1960 to present.

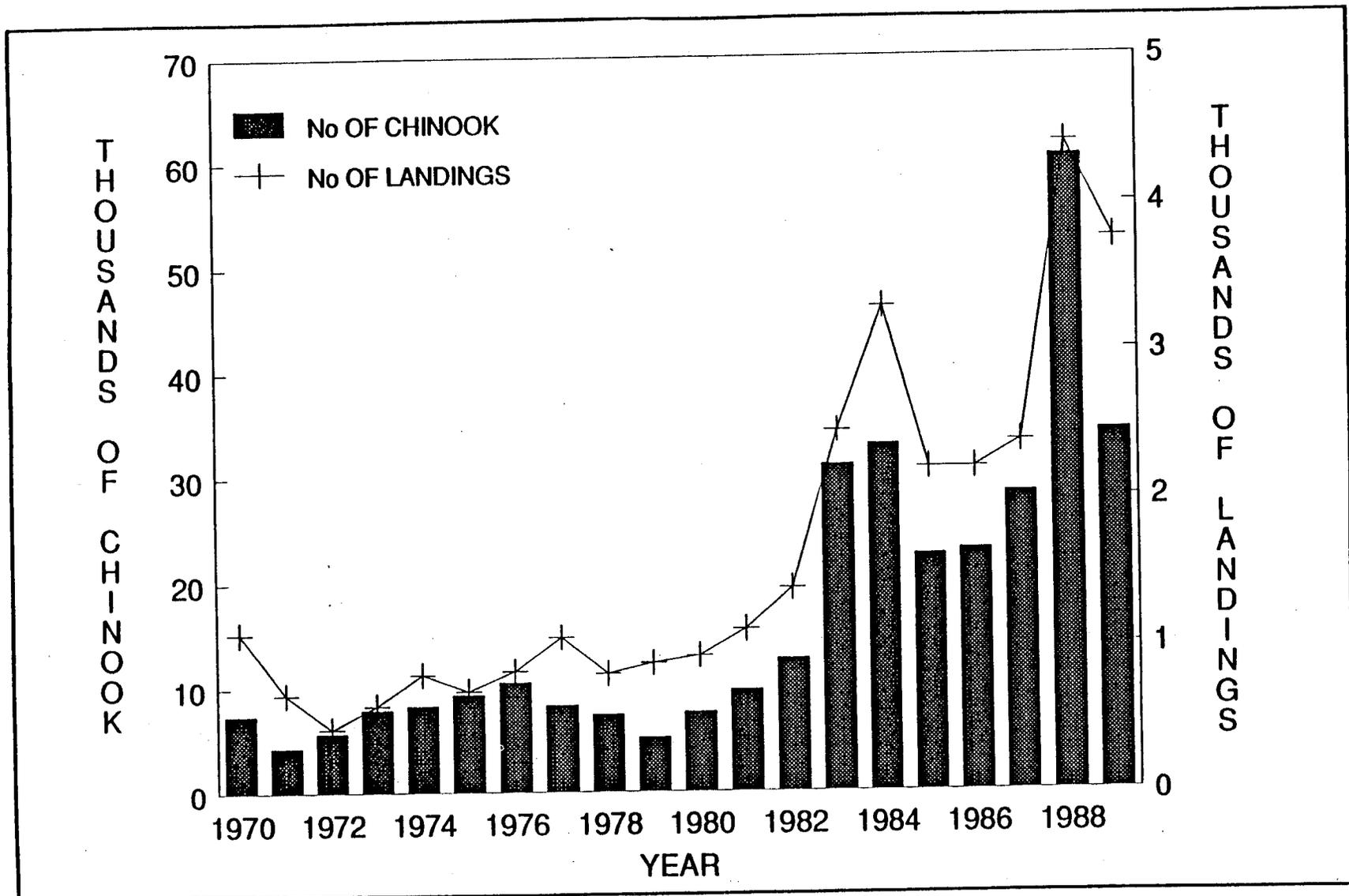


Figure 5. Southeast Alaska winter troll fishery yearly chinook catches and landings, 1970 to present.

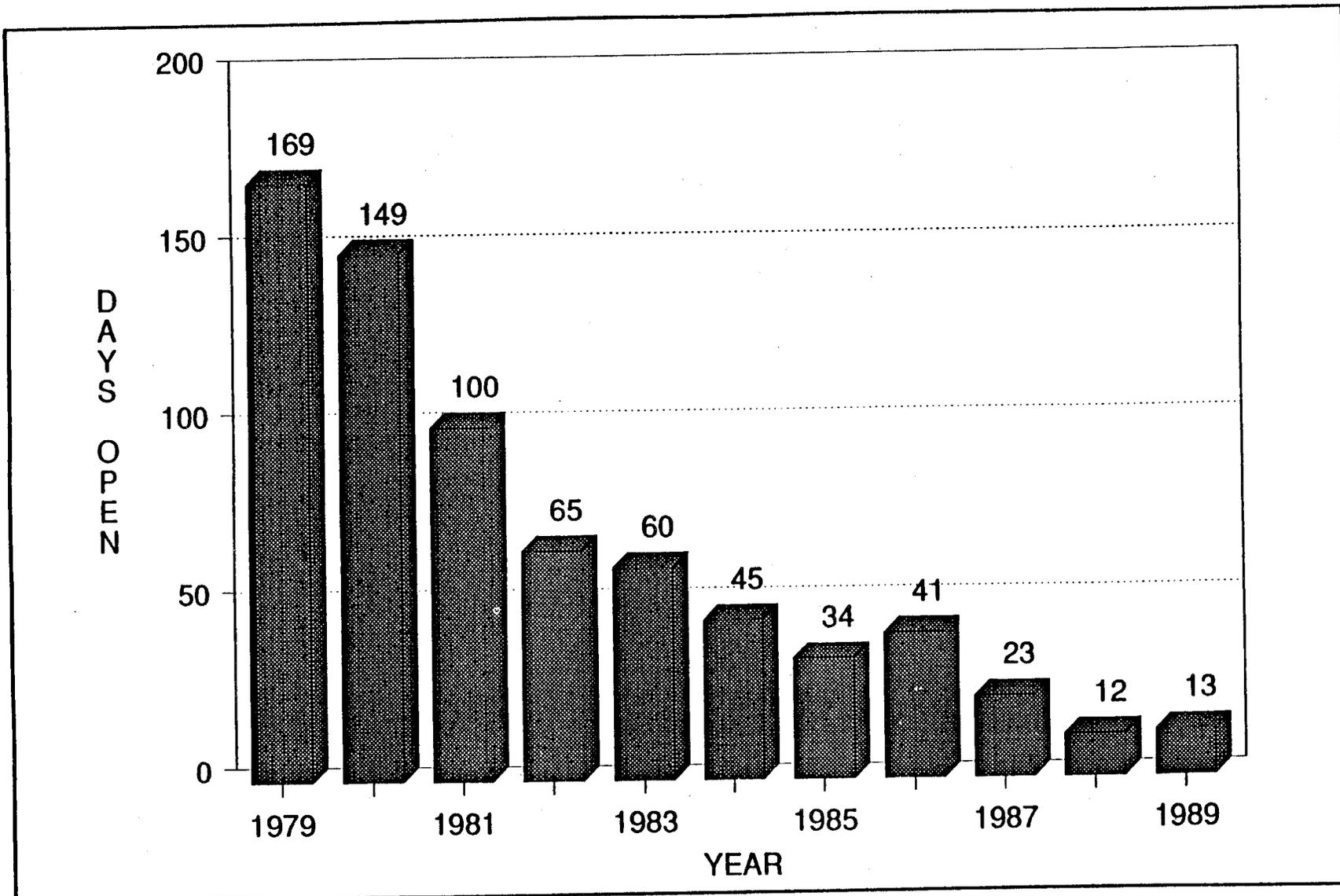


Figure 6. Number of days the general summer troll fishery has been open for chinook salmon, 1979 to present.

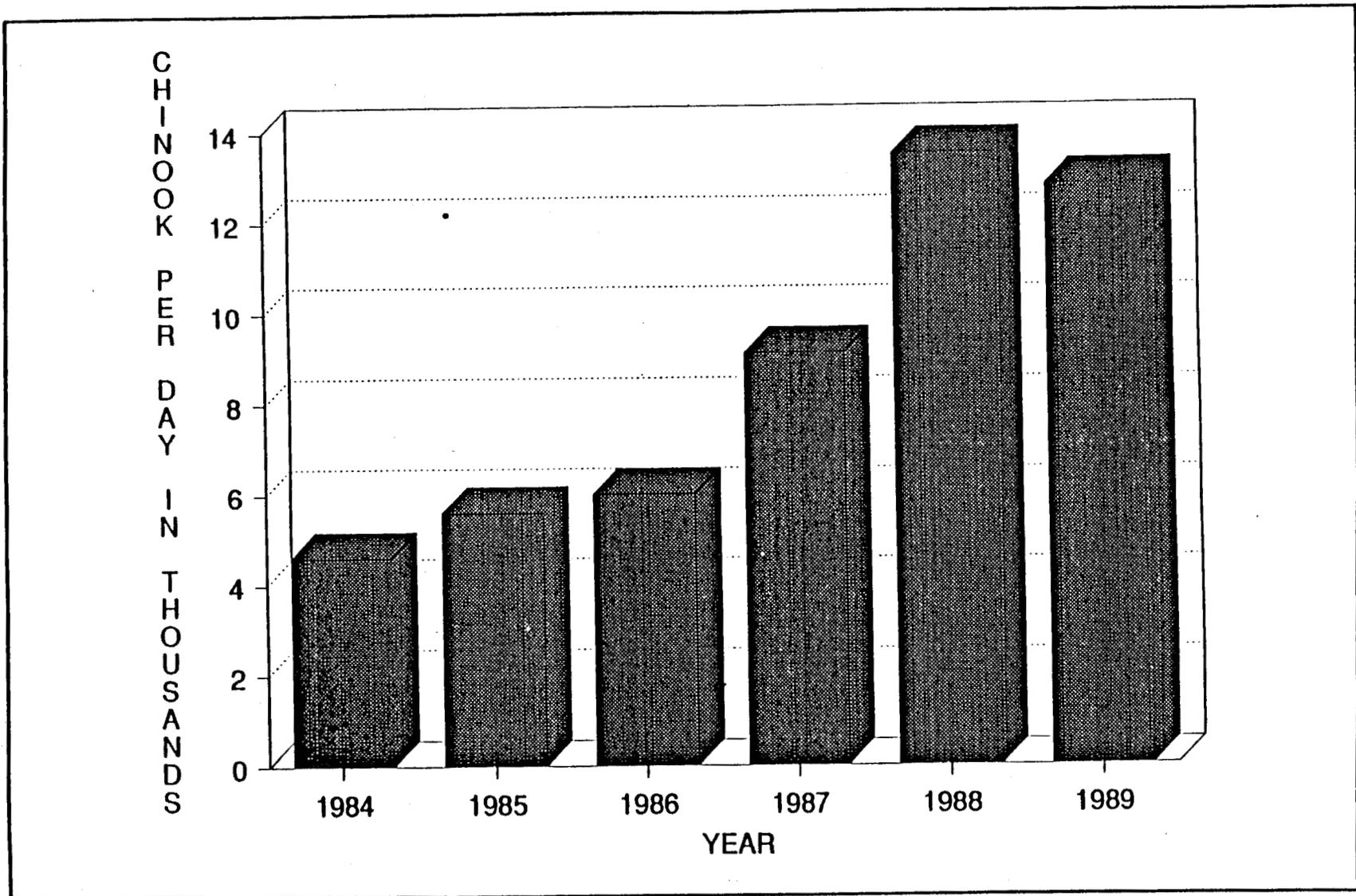


Figure 7. The number of chinook salmon caught per fleet day, 1984 to present.

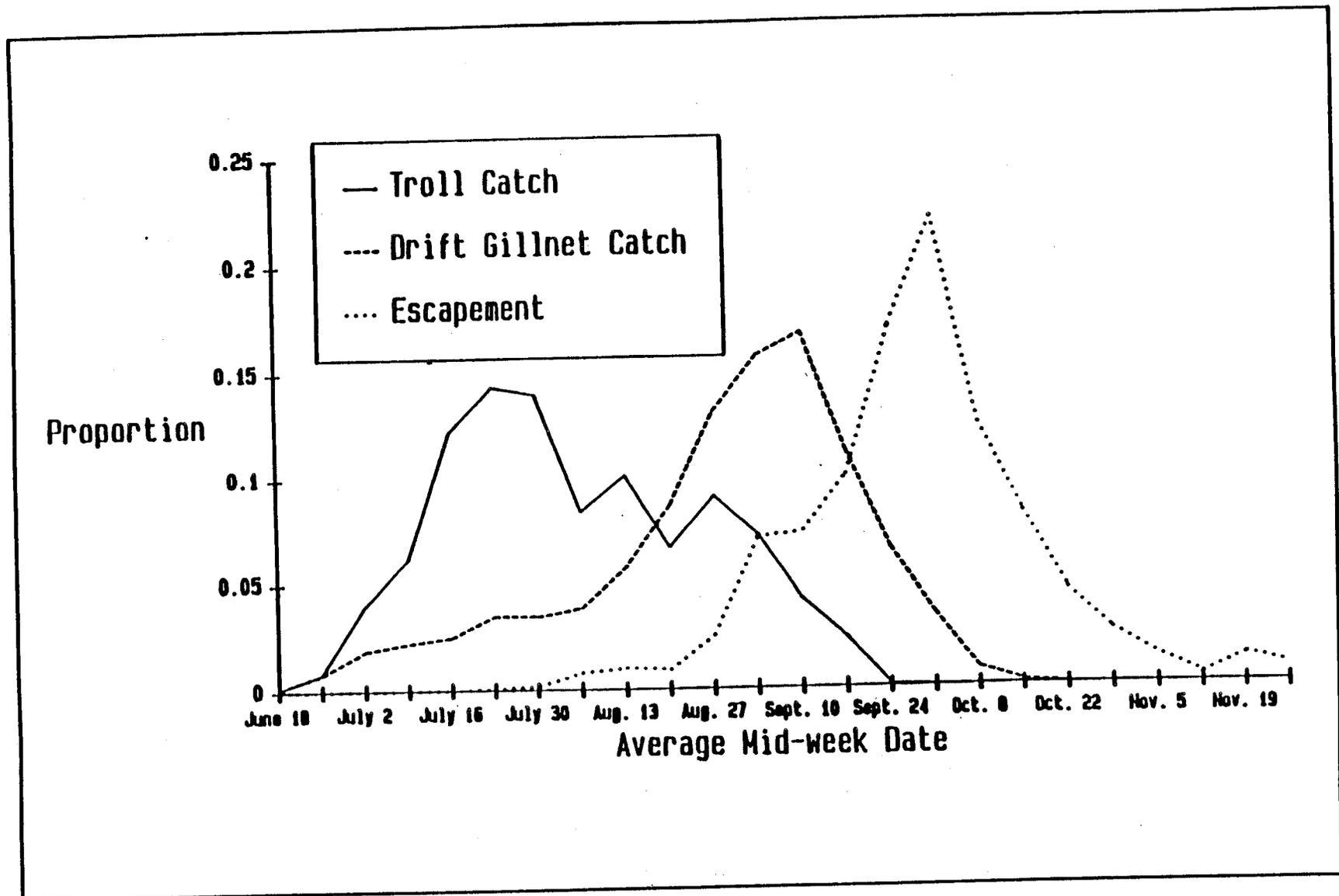


Figure 8. Average timing distribution of coho salmon in the Southeast Alaska troll and drift gill net fisheries and at selected weir sites, 1982 to 1985.

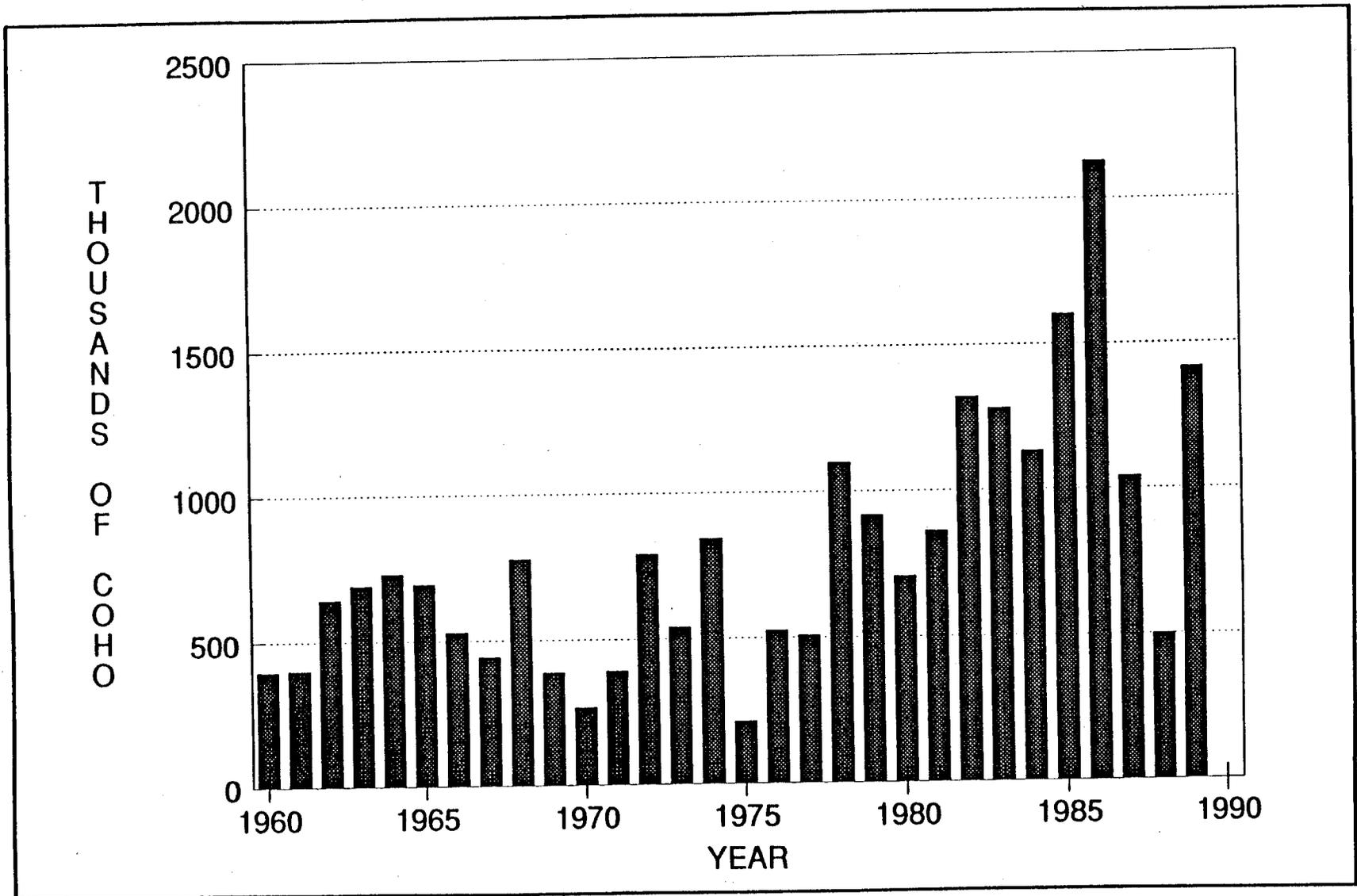


Figure 9. Southeast Alaska troll fishery coho salmon catches, 1960 to present.

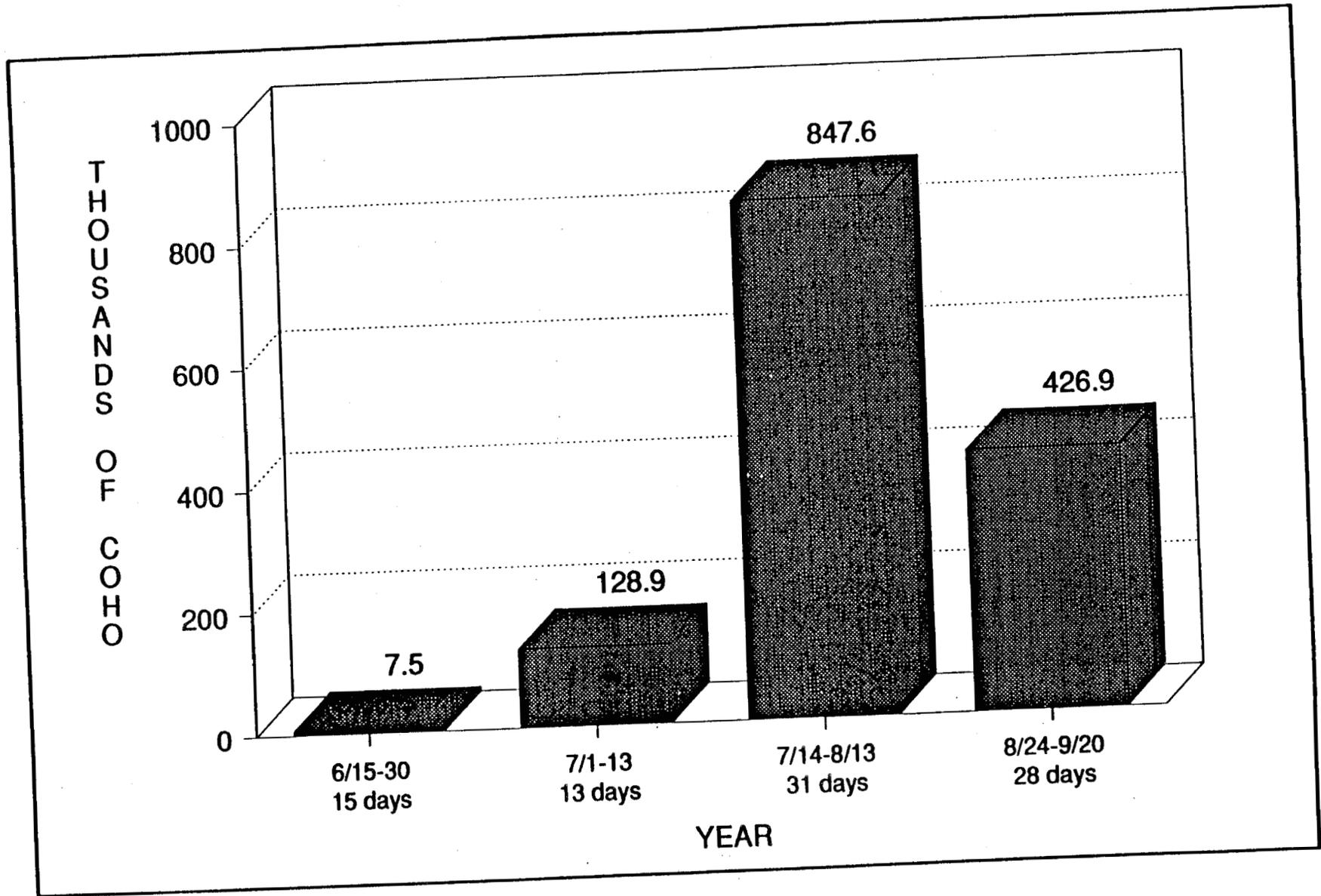


Figure 10. Southeast Alaska troll fishery coho catch by period, 1989.

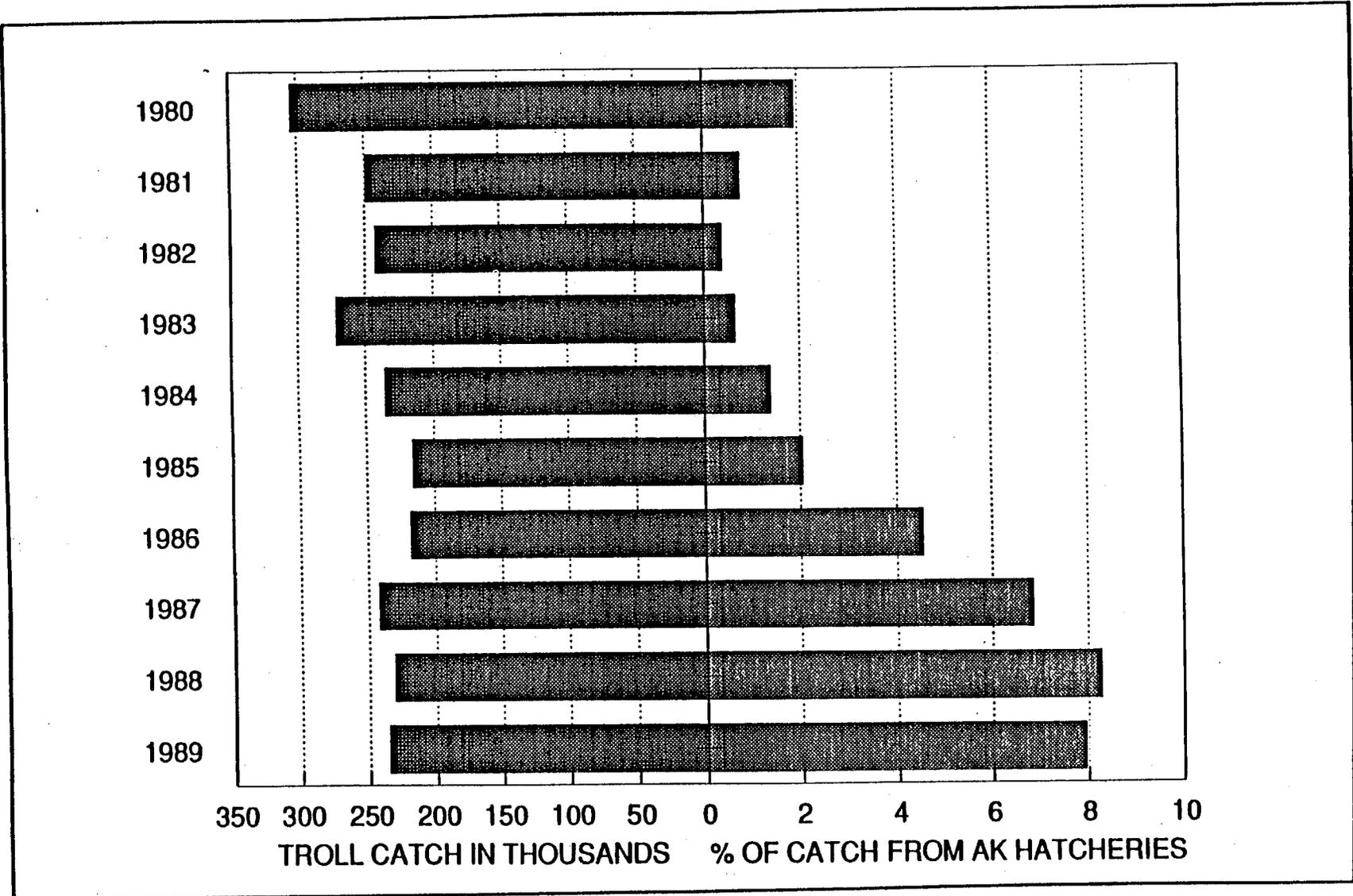


Figure 11. Hatchery chinook contributions to the troll fishery.

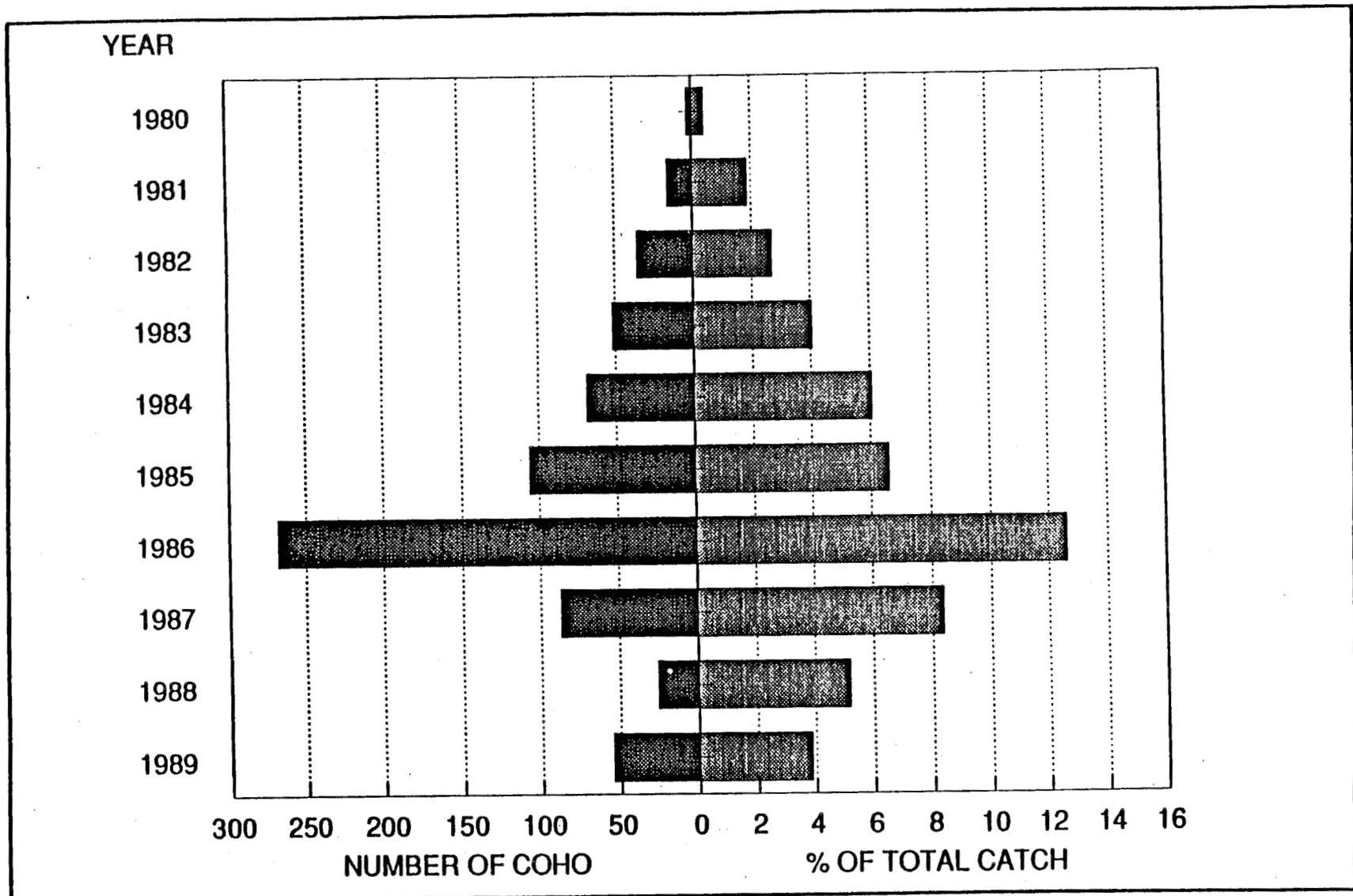


Figure 12. Hatchery coho contributions to the troll fishery, 1980 to present.

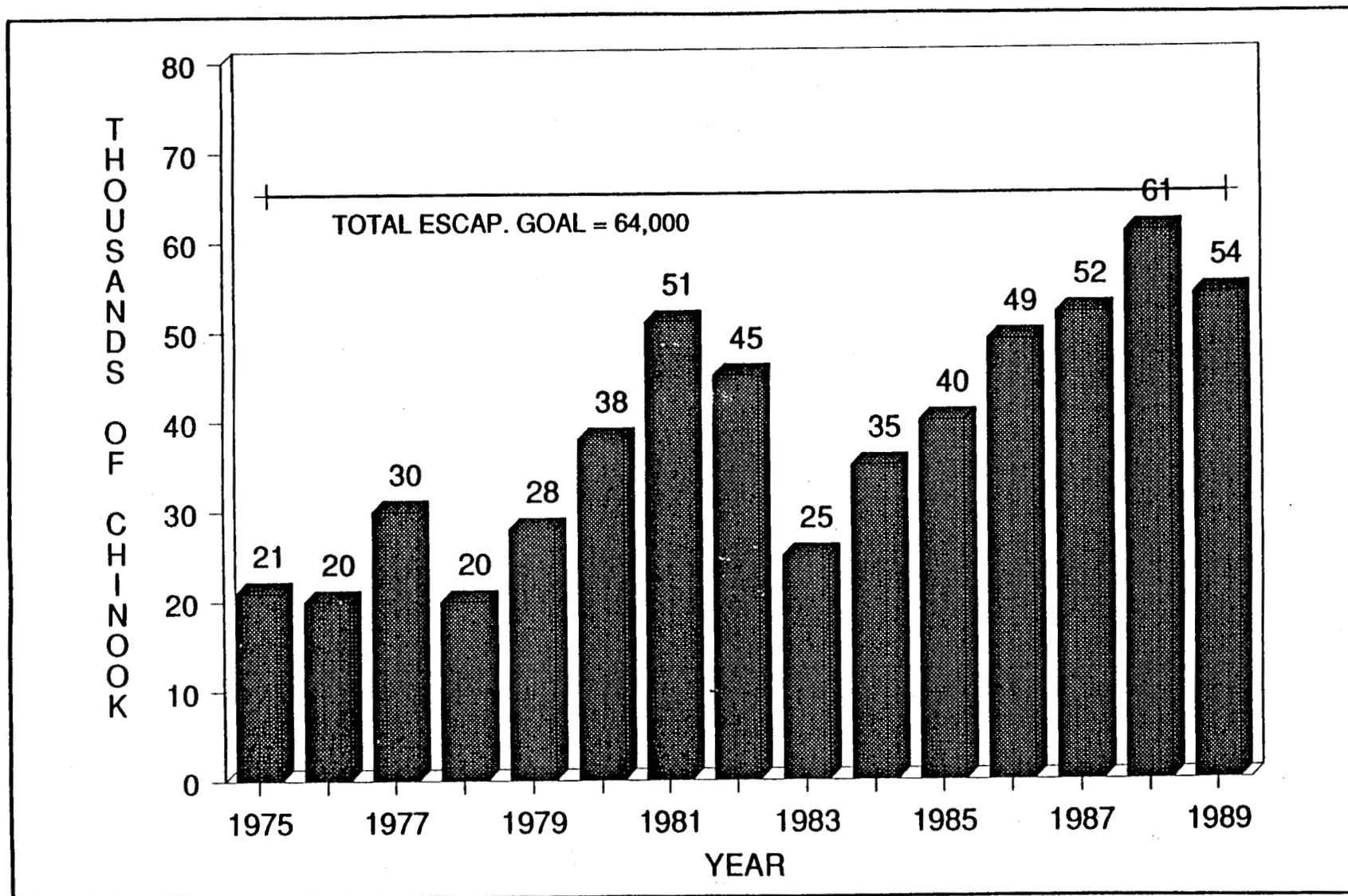


Figure 13. Estimated total natural chinook escapements to Southeast Alaska and transboundary rivers, 1975 to 1989.

REPORT TO THE BOARD OF FISHERIES

1989 SOUTHEAST ALASKA-YAKUTAT SALMON SET GILL NET FISHERY



By

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Alaska Department of Fish and Game
Division of Commercial Fisheries
Juneau, Alaska

February 1990

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ABSTRACT

The 1989 Yakutat set gill net fishery produced an all species harvest of 582,800 salmon; a level almost two times the average since 1960. It was worth about \$4,200,000 to the fishermen, the third highest value on record. Sockeye returns to most streams were strong and the 1989 harvest of 329,600 sockeye was the highest since 1960 and made up 57% of the total salmon harvest in the Yakutat area. The Situk River sockeye return per spawner ratio of 3.5:1 was much improved over recent year returns of 1.5:1. Coho salmon returns were very good. The coho harvest of 176,800 fish made up 30% of the total Yakutat set net catch and was well above average. The pink salmon harvest of 59,300 fish and the chum salmon harvest of 16,200 fish were average. Most of the pink salmon (43,000 fish) were caught in the Situk River incidental to the sockeye fishery. The East River contribution of 13,700 chum salmon accounted for 85% of the Yakutat area chum salmon harvest.

INTRODUCTION

The Yakutat area (Area D) encompasses the Alaska Panhandle south of Cape Suckling and north of Cape Fairweather and accounts for over 200 miles of coastline (Figure 1). The area is divided into two districts, the Yakataga District west of Icy Cape and the Yakutat District east of Icy Cape. Commercial fishing occurs in the various rivers along the Yakutat forelands and in the adjoining ocean waters. Salmon are harvested in the Yakutat area by set gill nets and troll gear. A separate Board of Fisheries Report is prepared for the Yakutat-Southeastern Alaska troll fisheries. This report will concentrate on the set gill net fishery.

Yakutat set gill net fisheries target primarily on sockeye salmon during the summer and coho salmon during the fall. The set gill net landings of chinook, pink, and chum are primarily incidental while fishing for the major target species. A directed fishery for pink salmon does occur in portions of Yakutat Bay and a substantial number of chums are taken from the East River during the fall.

Commercial fishing began in 1902 in the Yakutat area and was virtually unregulated until 1927. The area is presently producing below historically high levels, but current production is on an upward trend. The total set net catch in recent years (since 1970) has ranged from 167,000 (1970) to 583,000 (1989) fish with a value of \$1 million to \$9 million to the 166 Yakutat set net permit holders.

The Yakutat set net permits are not site specific and fishermen are free to fish any open area, although not more than one may be fished at a time. There are no formal forecasts for the Yakutat area salmon stocks. Seasonal expectations are derived from parent year catch, escapement, rearing conditions, and age structure information. The 1989 seasonal return of sockeye salmon was expected to be average to above average for most river systems. Returns of coho salmon were expected to be average to below average.

Opening dates and weekly fishing periods are specified, by regulation, for the various set gill net fisheries. However, these are altered by emergency order, as needed, based on in-season management of each river fishery. The in-season management is based on catch-per-unit-of-effort (CPUE) analysis of the commercial catch and, where possible, salmon escapement rates. The 1989 set gill net season extended from June 12 through October 5 (Table 1). During the 1989 season Yakutat Bay, the Alsek River, and the Dangerous River, opened on June 12 while other areas opened in late June.

The 1989 total set net harvest of about 583,000 salmon was the highest since 1941. The 1989 catch, valued at about \$4.2 million to the 164 active permittees, consisted primarily of sockeye and coho salmon. Annual salmon landings in the major Yakutat set net fisheries are listed in Tables 2 through 16.

SOCKEYE SALMON FISHERY

Sockeye salmon are the main target species in the Yakutat District. The total 1989 catch of approximately 330,000 fish was the highest since 1938. This harvest was a result of strong returns to the Situk and East Rivers, which together accounted for over 74% of the total sockeye catch. It was the highest sockeye harvest in the Situk since 1966 and the second highest harvest on record for the East River. All other rivers experienced average to below average catches. For the second year in a row, the Itilio River was not open to sockeye fishing.

Alsek River

The Alsek River fishery, located about 40 miles southeast of Yakutat, is accessible only by air or water, and is a transboundary river originating in Canada. The Alaskan fishery occurs throughout the lower 14 miles of the river including Dry Bay (a large braided channel area near the river mouth) and an adjacent surf and ocean fishing area.

The Klukshu River is the primary index system for sockeye and chinook salmon in the Alsek River drainage. Salmon escapement counts from the Klukshu River Weir (operated by the Canadian government) serve as an escapement index for the Alsek River system. An estimated 60% of the sockeye and 50% of the chinook spawn in this tributary. Escapement goals for the Canadian portion of the Alsek River drainage are not yet agreed upon by the United States and Canada. The current United States sockeye and chinook escapement goals in the Alsek River drainage are 33,000 sockeye and 7,200 chinook. The Klukshu River sockeye escapement goal is 20,000 fish.

Although no Alsek River salmon sharing agreement is in place with Canada, the rebuilding of these runs requires joint conservation efforts. Canadian sport and subsistence fisheries harvest both chinook and sockeye salmon and both have also been managed conservatively in recent years. Canadian subsistence fishing is restricted prior to August 15 and the Canadian subsistence harvest has been reduced in recent years. Sport fishing is restricted in the Dalton Post area to a 3.5 day weekly fishing period from June 1 through October 1, and the Klukshu River is closed to sport fishing from the lake to 1 kilometer downstream of the Haines Highway culvert. Bag limits have been reduced in recent years to two sockeye per day and four in possession, and one chinook and two in possession.

Alsek River fisheries management in Alaska is done through information on parent year escapement, inseason catch, and abundance modeling. Preseason expectations are based on the parent year escapement levels, but expectations are often shattered by inseason data. After the third week of fishing, the abundance model is utilized each week to predict the Klukshu Weir sockeye escapement. The

current catch, effort, and the historical cumulative proportion of the catch-to-date, is used to predict the Alsek escapement.

The 1989 Alsek River season opening on June 12 was a delay of one week from the date specified by regulation, the first Monday of June. This delayed opening date was implemented due to poor parent year escapements and the recent year's poor returns of early run sockeye and chinook salmon.

Alsek River fishing time started at one day per week but was extended to two days during the second week of fishing (Table 1). The weekly fishing period remained at two days through the remainder of the sockeye season. Inseason abundance model estimates predicted that the Klukshu River escapement goal would not be met, however fishing success indicated a fairly good abundance of sockeye moving upstream. A conservative two day a week fishing period was maintained in light of the conflicting information.

The total 1989 Alsek River sockeye salmon harvest of 13,500 fish was the second highest in five years (Table 4). Unfortunately, the harvest was still below the average catch level of approximately 21,000 sockeye salmon recorded since 1960. The Klukshu Lake spawning escapement goal of 20,000 sockeye was achieved, with an escapement of 21,300 sockeye after the Canadian subsistence and sport harvest of 2,200 fish. This escapement is nearly twice the 1984 parent year level of 12,700 fish. Sockeye escapements to the small U.S. tributaries were fair to poor.

The Alsek River surf and ocean fishing area was opened during the same periods as the inriver fishery. The surf and ocean fishing area includes the shoreline 3/4 mile in each direction from the river mouth out to the outermost bar where the surf breaks. Six permittees fished the Alsek surf and ocean fishery in 1989, during the first four weeks of the season with even more limited effort during the remainder of the season. The total Alsek surf and ocean sockeye catch was approximately 1,200 fish.

East River

The East River fishery is located about four road miles east of the Alsek River. The river originates from up-welling springs on the Dry Bay forelands and does not extend into Canada. It is joined four miles from its mouth by the Doame River which contributes primarily coho salmon and some early run sockeye salmon to the East River fishery. The adjacent ocean waters and lower two miles of the East River are usually open to fishing. The East River sockeye is the latest sockeye stock returning in the Yakutat area, peaking in early to mid-August when other area sockeye returns are ending. Most fishermen fishing this river also participate in other Yakutat area set net fisheries.

As per the new 1989 regulation, the East River fishery opened on the fourth Monday of June. The initial opening on June 26 was a one day weekly fishing period, and remained at one day for the

following week. Additional fishing time was allowed through August 19 when good escapement levels were observed (Table 1). The fishery operated four days per week for three consecutive weeks at the peak of the run. During the week of August 7, peak effort reached a record high level of 92 units; 56% of the active set net permits in the Yakutat area. The total 1989 East River sockeye harvest of 145,500 fish was the second highest on record (Table 5). Sockeye escapement was good with a peak aerial count of 30,000 fish.

The East River surf and ocean fishing areas were open during the same periods as the inriver fishery. Effort in the surf and ocean areas is increasing. The surf area was fished for 11 weeks during the 1989 season, from mid-July through late August, and accounts for 30% of the total 1989 East River sockeye harvest. Peak effort in the surf was 19 nets during the second week of August. The ocean area was fished for six weeks during the season, from mid-July through the first week in September, and accounted for 18% of the total East River catch. Peak effort in the ocean was 28 nets during the last week of July and the second week of August. The peak efforts in surf and ocean fisheries during 1989 were close to the record highs for these areas.

A new, legal, and more efficient method of fishing the surf areas on the ocean beaches in the Yakutat area uses a pulley system on the outer anchor which is set a low tide. This method of fishing does not require a boat. This technique is becoming more widespread each year. The pulley system is most common on the East River adjacent ocean beaches where competition for highly productive surf net sites at the river's mouth is high. The pulley system allows the fishermen to work their gear regardless of the surf conditions. This method of fishing has less dropouts, and results in better overall fish quality than traditional surf fishing techniques. During high tide, the lines out to the anchor create a hazard to boat traffic.

There is some concern among fishermen that the semi-permanent pulley fishing method is the first step on the road to establishing permanent fixed set gill net sites. Since the Yakutat set gill net fishery is not a registered site fishery, Fish and Wildlife Protection has determined that the pulley sites can be held from set to set and week to week as long as it is fished continually when the area is open. Fixed sites are contrary to the nature of Yakutat set gill net fishery since many of the rivers change course annually, and fisherman work many different areas and rivers during a fishing season.

Yakutat Bay

Two separate sockeye salmon fisheries occur in Yakutat Bay: the Manby Shore fishery along the northwest shore eastward of Pt. Manby, and the Yakutat Bay fishery along the southeast shore in, and around, Monti Bay. Both fisheries are mixed stock fisheries supported primarily by sockeye salmon bound for the Yakutat foreland systems south of Yakutat Bay. Early catches in Yakutat Bay are predominantly Situk River sockeye, while later catches are mostly East River sockeye.

The Monti Bay fishery opened on June 12 per regulation. The standard fishing time of 2.5 days was announced during the first week in anticipation of a fair to good return of Situk River sockeye. Early catches were slow but in the second week, because of sufficient escapement to the Situk River, fishing time was extended to 4.5 days (Table 1). The Situk sockeye run developed well and Yakutat Bay fishing time increased proportionally with Situk fishing time. The Yakutat Bay sockeye catch of 24,500 fish was the fifth highest catch on record (Table 6).

The Manby Shore ocean fishery opened per regulation on June 19 along with the opening on the Situk and Lost Rivers. At least 15 permits concentrated there for three of the five weeks it was fished. The peak effort during the season was 21 fishermen. Fishing time was established on the strength of the Situk River sockeye return. With good abundance of Situk River sockeye, extended fishing periods were allowed up to 4.5 days per week. The Manby Shore ocean total sockeye harvest of about 30,000 fish was a record high (Table 7). Manby Shore in-stream fisheries opened on June 26 and both inside and outside areas fished at that time. Inside effort was light as most fishermen fished the productive outside waters. The total combined 1989 Manby Shore catch of 33,000 sockeye was well above average, with the outside fishery taking 92% of the total.

Situk, Ahrnklin and Lost Rivers

The Situk-Ahrnklin River fishery, located seven miles from Yakutat by road, is historically the largest and most heavily fished in the Yakutat area. Fishing occurs in the large Situk-Ahrnklin Lagoon approximately four miles in length. A weir on the Situk River helps management determine escapement levels throughout the sockeye season. The present Situk River sockeye escapement goal is 45,000 to 55,000 fish.

The Lost River fishery, only two miles to the west, harvests some Situk River stocks as well as resident stocks. Weekly fishing periods on the Lost River often coincide with those of the Situk-Ahrnklin fishery.

The Situk-Ahrnklin and Lost River fisheries opened on June 19 as per regulation for a 2.5 day fishing period (Table 1). Good early catches and excellent weir escapement counts indicated a strong return and fishing time was extended to 4.5 days during the opening week. Escapement steadily improved and fishing time was increased until seven days per week was allowed during the fourth week of the season. Seven days a week fishing was not possible without an emergency regulation allowing commercial fishing to occur during the subsistence period on Saturday. An emergency regulation was adopted by the commissioner on July 13, 1989, which permitted commercial fishing on Saturday, and provided the staff emergency order authority to allow additional gear and less distance between nets on the Situk River.

The Situk River remained open with no weekly closures from July 10 through August 11. In spite of no closures, escapement continued to build which prompted a gear and time emergency order allowing Situk fishermen to use a second net effective July 23. The allowable gear increased from one 20 fathom net to two nets up to 20 fathoms each through August 11. Additional gear and unlimited fishing time still did not allow the full utilization of the 1989 Situk River sockeye return. The final Situk River Weir count of 84,000 sockeyes exceeded the upper escapement range limit of 55,000 fish. Most of the effort and additional gear was located in the ocean surf area since fishing success was higher there than in the lagoon. Limited scale analysis from sockeye caught in the Situk ocean surf area revealed major numbers (63%) of age 0.3, presumably East River sockeye. Situk River escapement rates did not slow much with most of the effort and gear concentrated in the ocean. In the future, such extended openings and gear allowances may be confined to the Situk-Ahrnklin Lagoon to focus the fishery on Situk stocks.

The total Situk River catch of 99,900 sockeye salmon catch was the highest sockeye catch since 1966 (Table 8). Effort was heavy, with a peak count of 94 fishermen (57% of the active permits) during the week of July 2. Sixty-three or more fishermen fished during six of the eight weeks of the season.

For the second year, the Situk Weir was placed within the lower two miles of the river which made it more useful for in-season management than the old nine mile site which required surveying the river below the weir. The daily escapement information, when coupled with weekly catch data, proved extremely valuable in managing the fishery.

The under-utilization of the 1989 Situk River sockeye return was partially due to the strong early showing of small two ocean, or four-year-old fish. Escapement reached 35,000 by the end of June, and it is estimated that 60-70% of these fish were two ocean fish. Many fishermen saw salmon swimming through their gear. The total return of sockeye to the Situk River of about 202,000 fish (including estimated portions of the Yakutat Bay, Lost River, and Manby Shore catches) yielded a return per spawner (R/S) of 3.5:1; the best survival since data was available beginning in 1981.

Initially, the Lost River open periods were the same as the Situk River, however, late season fishing time was reduced on the Lost River for conservation of Lost River sockeye stocks (Table 1). Lost River sockeye escapement built slowly and achieved good levels with a peak count on September 15 of 4,500. The total Lost River catch of 3,100 sockeye was below the average catch of 4,300 recorded since 1960 (Table 9).

Itallo River

The Itallo River is located about 15 miles east of the Situk River and is not connected to Yakutat by road. In December 1986, during heavy rains and stormy weather, the Itallo River diverted its course. At a point approximately 3 miles above its mouth, it changed direction and flowed east to join the

Akwe River near it's mouth. Since then, the open fishing areas on both rivers has been limited to areas above the junction to ensure more stock specific management. On the Italo River, the open area has been established by emergency order with markers placed 1/4 mile upstream from the new river confluence.

The Italo River fishery opens by emergency order when sockeye salmon escapements are building adequately. During 1989 the fishery remained closed throughout the run. Sockeye escapements were poor in Italo River, totaling approximately 2,000 fish, compared to an average of 9,000 fish. No more than 200 sockeye spawners were seen at any one time in Italo Lake. Parent year escapements were good and the reason for the poor return is unknown. Historical Italo River harvests are shown in Table 11.

Akwe River

The Akwe River supports a small fishery and is located between the Italo and Alsek Rivers. As described in the previous section, the change of course of the Italo River into the Akwe River created a need to change the open fishing area on the two rivers. To reduce fishing on mixed stocks, the Akwe River was closed downstream of a point 1/2 mile above the new confluence. A fishing area of about 3 miles in length was allowed on the Akwe River.

The Akwe River opened on June 26 as per regulation. The river was managed conservatively due to high effort levels and low water conditions. Fishing time was 1.5 days or less each week during the sockeye season (Table 1). Effort peaked at 16 fishermen on the Akwe River during early July and there were four weeks when 11 or more fishermen fished the river. Fishermen that normally fish the Italo River fished the Akwe River due to the closure of the Italo River. The 1989 Akwe River sockeye harvest of 8,700 fish was average (Table 12). Sockeye escapements appeared fair, although visibility is hampered by glacial water.

Yakataga District

Except for the Tsiu River and an area between Cape Yakataga and a point one half mile west of the Yahtse River, the Yakataga District opened on Wednesday, June 21, for the second year of an exploratory fishery for sockeye salmon. The area was open from Wednesday to Friday of each week during the entire season (Table 1). During 1988 no one fished the area, but in 1989 one landing was made. Some interest still exists to further explore the area for commercially viable sockeye runs.

PINK AND CHUM SALMON FISHERY

Humpback Creek, located in Yakutat Bay, supports the only directed pink salmon fishery in the Yakutat area. Pink salmon harvested in other rivers are incidentally taken during the sockeye salmon fishery. Pink salmon returns to the Yakutat area were very good in 1989, although the total set net pink harvest of 57,000 fish was only average (Table 2). The Situk River pink salmon catch of over 43,000 (Table 8) and the catch in Humpback Creek of over 6,000 pinks (Table 13) together accounted for 83% of the Yakutat area pink salmon harvest (Table 3). Pink salmon spawning escapements in both Humpback Creek and the Situk River were very good.

Chum salmon production is minimal in the Yakutat Area, and the East River accounts for most of the chums harvested. The total 1989 Yakutat set net harvest of over 16,000 was average. The East River catch of 14,000 accounted for 88% of the total Yakutat set gill net harvest (Table 3). East River chums are harvested during the fall fishing season along with coho salmon.

COHO SALMON FISHERY

Coho are harvested in the same rivers of the Yakutat District (Cape Fairweather to Icy Cape) that support sockeye salmon fisheries. Coho are the primary commercial species in the Yakataga District (Icy Cape to Cape Suckling). The department shifts to coho management in mid August when coho begin entering Yakutat area streams. The total Yakutat area coho catch has increased steadily in the past decade. The 1989 catch of almost 177,000 coho was 30% of the total Yakutat set gill net salmon harvest (Table 3). The year's set gill net coho harvest was approximately 1.7 times larger than the 1960 to 1988 average.

Yakataga District

The main fisheries in the Yakataga District are the coho fisheries on the Tsiu and Kaliakh Rivers. The fall fishing season opens by emergency order when escapements in the Tsiu-Tsivat Lagoon are building adequately. The Tsiu River opened on August 21, while the remainder of the district was opened earlier for the exploratory sockeye fishery (Table 1). The total coho catch of almost 84,000 fish was the second highest for the Yakataga district since 1951 and accounted for 47% of the total Yakutat area coho harvest (Table 3). Except for the Priest River, the area between Cape Yakataga and the Yahtse River remained closed during the coho season. This area supports small coho systems with little or no harvestable

surpluses. The Priest River, within this closure, was opened 2 days for two consecutive weeks to allow the harvest of a small surplus.

Of the total Yakutat District's coho catch, the Tsiu River harvest of 63,000 fish accounted for 75% of the total. The Tsiu River is a small clear water river just west of the Kaliakh River. The Tsiu was the major coho producer in the Yakutat area for 10 of the last 12 years. Fishing effort was less than normal in 1989 for a couple of reasons. First, the price of coho on the grounds was half the dock price in Yakutat and, secondly, the river changed its course this winter and cut out about two miles of fishing area. Expectations of intense competition for sets, and a poor ex-vessel coho price may have caused many fishermen to fish closer to home this year. A peak effort of 24 permittees fished during the opening week. After two weeks, escapement counts stayed ahead of schedule and additional fishing time was allowed. The total Tsiu River coho harvest of 63,000 fish was 64% above average and was the second highest catch in the last 10 years (Table 14). The final peak coho escapement counts revealed 26,000 fish in the Tsiu and 12,000 fish in the Tsvat River, a tributary to the Tsiu Lagoon.

The Kaliakh River is much larger and more difficult to fish than the Tsiu River. During 1989 effort was below average, but the total Kaliakh River catch of almost 17,000 coho was 52% above the recent 10-year average (Table 18). A peak effort of 11 fishermen fished the Kaliakh River during the first week of September. Only four permits fished the Kaliakh River exclusively, the rest fished the Tsiu River, then switched to the Kaliakh during the closed periods on the Tsiu. The observed peak escapement for the Kaliakh system was 1,000 fish. This was below average, but counts were hindered by turbidity and a good escapement was presumed.

The Tashalich and Kiklukh Rivers, two small streams west of the Tsiu River, also contributed coho to the district's harvest. The Kiklukh River has been fished sporadically by one to three permittees for a number of years. The Tashalich River was fished for the second year in a row. The total 1989 harvest from these two rivers was 4,100 coho.

Yakutat District

The Yakutat District coho harvest of approximately 93,000 fish was 13% above the recent 15-year average of 82,000 fish. Coho harvest occurred from west to east in the Yahtse, Yana, Manby Shore, Yakutat Bay, Lost, Situk, Dangerous, Italio, Akwe, Alsek, and East Rivers. Run strengths were average and fishing times were extended according to fisheries performance and available escapement data. The Situk River was the district's single most productive coho system. The year's catch of 39,000 fish on the Situk River accounted for 42% of the Yakutat District harvest. Peak effort level on the Situk River was 60 fishermen during the fall season. Several other rivers sustained coho catches slightly above historical levels. The one notable exception was the combined Manby Shore fisheries catch of 7,100 coho salmon. This was 28% below its recent 15-year average.

Escapement surveys indicated good numbers of coho spawners in most Yakutat District systems. While the Alsek River catches were slightly below average, the Canadian Klukshu River Weir escapement count of 2,000 was very good. Aerial counts of coho spawners in U.S. tributaries were average.

CHINOOK SALMON HARVEST

No directed chinook salmon commercial set net fishery currently occurs in the Yakutat area. The Alsek River is the only river that historically supported a directed chinook fishery and that stock is currently depressed. Chinook harvested by set nets in the Yakutat area are taken incidentally during the early weeks of the sockeye fisheries. Mature spawners were harvested during the 1989 season in Yakutat Bay and in the Alsek and Akwe Rivers. The Yakutat Bay fishery harvests mature spawners bound for Yakutat area rivers, and feeders of unknown origins. The 1960-88 average annual set net harvest of chinook in the Yakutat area was slightly over 2,000 fish. The 1989 harvest of 810 chinook was well below average (Table 2), and was also below the Yakutat set gill net harvest quota of 1,000 chinook established by the Board of Fisheries to comply with the U.S./Canada Salmon Treaty Chinook Annex.

The Situk River chinook return appeared very weak throughout the 1989 season. Escapement counts at the weir were very poor and it was doubtful if the Situk River chinook escapement goal of 1,200 spawners could be attained. Through a new regulation adopted by the Board of Fisheries last winter, a chinook "non-sale" season was created by emergency order on the Situk River and remained in effect through out the season. Fishermen were asked to work their gear frequently and release the live king salmon. Dead chinook could not be sold but could be kept for personal use. The chinook non-sale season worked successfully to increase the Situk River chinook escapement. About 51% of the large kings observed at the weir were net marked, and weekly interviews with commercial and subsistence fishermen indicated that 80-90% of the chinook caught were being released. The final escapement count was 652.

The harvest of 240 Alsek River chinook was well below the previous fifteen year average catch of 911 fish (Table 4). It was, however, an average catch for the past six years since the normal season opening date on the Alsek River has been delayed for chinook and early run sockeye conservation. For the fourth year in a row, a maximum gill net mesh size of six inches was implemented by emergency order during June and July to reduce the catch of chinook salmon. The total 1989 return of chinook to the Alsek River was below average. The Klukshu River escapement of 2,017 was below the goal of 3,600.

Table 1. Yakutat areas open to set gill net fishing by time and area, 1989.

Stat. Week	Date	Day	Yakutat District										Yakutat Bay			Yakutat District		
			Alsek River	East River	Akwe River	Itallo River	Dangerous River	Situk River	Lost River	Stream of Manby Shore	South 59°40'	North 59°40'	Yahtze River	Remainder District	Kaliakh River	Tsiu River	Remainder District	
24	12-Jun-89	Mon.	12	-	-	-	18	-	-	-	-	18	-	-	-	-	-	-
	13-Jun-89	Tues.	12	-	-	-	24	-	-	-	-	24	-	-	-	-	-	-
	14-Jun-89	Wed.	-	-	-	-	18	-	-	-	-	18	-	-	-	-	-	-
	15-Jun-89	Thurs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jun-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	25	19-Jun-89	Mon.	12	-	-	-	18	18	18	-	-	18	18	-	-	-	-
20-Jun-89		Tues.	24	-	-	-	24	24	24	-	-	24	24	-	-	-	-	-
21-Jun-89		Wed.	12	-	-	-	18	24	24	-	-	24	24	-	-	18	-	18
22-Jun-89		Thurs	-	-	-	-	-	24	24	-	-	24	24	-	-	24	-	24
23-Jun-89		Fri.	-	-	-	-	-	18	18	-	-	18	18	-	-	18	-	18
26		26-Jun-89	Mon.	12	12	18	-	18	18	18	18	18	18	18	-	18	-	-
	27-Jun-89	Tues.	24	12	18	-	24	24	24	24	24	24	24	-	24	-	-	-
	28-Jun-89	Wed.	12	-	-	-	18	24	24	24	24	24	24	-	18	18	-	18
	29-Jun-89	Thurs	-	-	-	-	-	24	24	18	24	24	18	-	-	24	-	24
	30-Jun-89	Fri.	-	-	-	-	-	18	18	-	-	18	-	-	-	18	-	18
	27	02-Jul-89	Sun.	-	-	-	-	-	18	18	-	-	18	-	-	-	-	-
03-Jul-89		Mon.	12	12	18	-	18	24	24	18	24	24	18	-	18	-	-	-
04-Jul-89		Tues.	24	12	18	-	24	24	24	24	24	24	24	-	24	-	-	-
05-Jul-89		Wed.	12	-	-	-	18	24	24	24	24	24	24	-	18	18	-	18
06-Jul-89		Thurs	-	-	-	-	-	24	24	18	24	24	24	-	-	24	-	24
07-Jul-89		Fri.	-	-	-	-	-	18	18	-	-	18	18	-	-	18	-	18
28		09-Jul-89	Sun.	-	-	-	-	-	18	18	-	-	18	-	-	-	-	-
	10-Jul-89	Mon.	12	12	18	-	18	24	24	18	24	24	18	-	18	-	-	-
	11-Jul-89	Tues.	24	24	18	-	24	24	24	24	24	24	24	-	24	-	-	-
	12-Jul-89	Wed.	12	12	-	-	18	24	24	24	24	24	24	-	18	18	-	18
	13-Jul-89	Thurs	-	-	-	-	-	24	24	18	24	24	24	-	-	24	-	24
	14-Jul-89	Fri.	-	-	-	-	-	24	18	-	-	18	18	-	-	18	-	18
	15-Jul-89	Sat.	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-
29	16-Jul-89	Sun.	-	-	-	-	-	24	-	-	-	18	-	-	-	-	-	-
	17-Jul-89	Mon.	12	12	18	-	18	24	18	18	24	24	18	-	18	-	-	-
	18-Jul-89	Tues.	24	24	18	-	24	24	24	24	24	24	24	-	24	-	-	-
	19-Jul-89	Wed.	12	24	-	-	18	24	18	18	24	24	24	-	18	18	-	18
	20-Jul-89	Thurs	-	12	-	-	-	24	-	-	24	24	24	-	-	24	-	24
	21-Jul-89	Fri.	-	-	-	-	-	24	-	-	24	24	18	-	-	18	-	18
	22-Jul-89	Sat.	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-
30	23-Jul-89	Sun.	-	-	-	-	-	24	-	-	-	18	-	-	-	-	-	-
	24-Jul-89	Mon.	12	12	12	-	18	24	18	18	24	24	18	-	18	-	-	-
	25-Jul-89	Tues.	24	24	-	-	24	24	24	24	24	24	24	-	24	-	-	-
	26-Jul-89	Wed.	12	24	-	-	18	24	18	18	18	18	18	-	18	18	-	18
	27-Jul-89	Thurs	-	12	-	-	-	24	-	-	-	-	-	-	-	24	-	24
	28-Jul-89	Fri.	-	-	-	-	-	24	-	-	-	-	-	-	-	18	-	18
29-Jul-89	Sat.	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	

4.15

--Continued--

Table 1. (page 2 of 3.)

Stat. Week	Date	Day	Yakutat District											Yakataga District				
			Alsek River	East River	Akwe River	Itallo River	Dangerous River	Situk River	Lost River	Stream of Manby Shore	Yakutat Bay		Yahtze River	Remainder District	Kaliakh River	Tsiu River	Remainder District	
											South 59°40"	North 59°40"						
31	30-Jul-89	Sun.	-	12	-	-	-	24	-	-	-	-	-	-	-	-	-	-
	31-Jul-89	Mon.	12	24	12	-	18	24	18	18	18	18	-	18	-	-	-	-
	01-Aug-89	Tues.	12	24	-	-	24	24	24	24	24	24	-	24	-	-	-	-
	02-Aug-89	Wed.	24	-	-	18	24	18	18	24	18	-	-	18	-	18	-	18
	03-Aug-89	Thurs	12	-	-	-	24	-	-	24	-	-	-	24	-	-	24	-
	04-Aug-89	Fri.	-	-	-	-	24	-	-	18	-	-	-	18	-	-	18	-
	05-Aug-89	Sat.	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-
32	06-Aug-89	Sun.	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-
	07-Aug-89	Mon.	12	12	12	-	12	24	12	12	12	12	-	12	15	-	-	15
	08-Aug-89	Tues.	12	24	12	-	24	24	24	24	24	24	-	24	24	-	-	24
	09-Aug-89	Wed.	-	24	-	-	24	24	24	24	24	24	-	24	24	-	-	24
	10-Aug-89	Thurs	-	24	-	-	12	24	12	12	24	12	-	12	9	-	-	9
	11-Aug-89	Fri.	-	12	-	-	-	12	-	-	24	-	-	-	-	-	-	-
	12-Aug-89	Sat.	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-
33	13-Aug-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-89	Mon.	12	12	12	-	12	12	12	12	12	12	12	12	15	-	-	15
	15-Aug-89	Tues.	12	24	24	-	24	24	24	24	24	24	24	24	24	-	-	24
	16-Aug-89	Wed.	-	24	12	-	24	24	24	24	24	24	24	24	24	-	-	24
	17-Aug-89	Thurs	-	24	-	-	12	12	12	12	24	12	12	12	9	-	-	9
	18-Aug-89	Fri.	-	12	-	-	-	-	-	-	24	-	-	-	-	-	-	-
	19-Aug-89	Sat.	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-
34	20-Aug-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21-Aug-89	Mon.	12	12	12	-	12	12	12	12	12	12	12	12	15	15	-	15
	22-Aug-89	Tues.	24	24	24	-	24	24	24	24	24	24	24	24	24	9	-	24
	23-Aug-89	Wed.	24	24	12	-	24	24	24	24	24	24	24	24	24	-	-	24
	24-Aug-89	Thurs	12	12	-	-	12	12	12	12	12	12	12	12	24	15	-	9
	25-Aug-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	9	9	-	-
	26-Aug-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	27-Aug-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28-Aug-89	Mon.	12	12	12	-	12	12	12	12	12	12	12	12	15	15	-	15
	29-Aug-89	Tues.	24	24	24	-	24	24	24	24	24	24	24	24	24	9	-	24
	30-Aug-89	Wed.	24	24	12	-	24	24	24	24	24	24	24	12	24	15	-	24
	31-Aug-89	Thurs	12	12	-	-	12	12	12	12	12	12	-	12	9	9	-	9
	01-Sep-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	02-Sep-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	03-Sep-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	04-Sep-89	Mon.	12	12	12	12	12	12	12	12	12	12	12	12	15	15	-	15
	05-Sep-89	Tues.	24	24	24	12	24	24	24	24	24	24	24	24	24	9	-	24
	06-Sep-89	Wed.	24	24	24	-	24	24	24	24	24	24	12	24	24	15	-	24
	07-Sep-89	Thurs	12	12	12	-	12	12	12	12	12	12	-	12	24	9	-	9
	08-Sep-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	9	15	-	-
	09-Sep-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-

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--Continued--

Table 1. (page 3 of 3.)

Stat. Week	Date	Day	Yakutat District								Yakataga District						
			Alsek River	East River	Akwe River	Itilio River	Dangerous River	Situk River	Lost River	Stream of Manby Shore	Yakutat Bay South 59°40"	Yakutat Bay North 59°40"	Yahtze River	Remainder District	Kaliakh River	Tsiu River	Remsinder District
37	10-Sep-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11-Sep-89	Mon.	12	12	12	-	12	12	12	12	12	12	12	12	15	15	15
	13-Sep-89	Wed.	24	24	24	-	24	24	24	24	24	24	24	24	24	15	24
	14-Sep-89	Thurs	12	12	12	-	-	24	24	24	24	12	12	12	24	9	9
	15-Sep-89	Fri.	-	-	-	-	-	12	12	-	12	-	-	-	18	18	-
	16-Sep-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	17-Sep-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-
	18-Sep-89	Mon.	12	12	12	-	12	12	12	12	12	12	12	12	15	9	15
	19-Sep-89	Tues.	24	24	24	-	24	24	24	24	24	24	24	24	24	15	24
	20-Sep-89	Wed.	24	24	24	-	24	24	24	24	24	24	24	24	24	9	24
	21-Sep-89	Thurs	12	12	12	-	12	24	24	12	24	12	12	12	24	15	9
	22-Sep-89	Fri.	-	-	-	-	-	12	12	-	12	-	-	-	9	9	-
	23-Sep-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	24-Sep-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-
	25-Sep-89	Mon.	12	12	12	12	12	12	12	12	12	12	12	12	15	9	15
	26-Sep-89	Tues.	24	24	24	24	24	24	24	24	24	24	24	24	24	15	24
	27-Sep-89	Wed.	24	24	12	12	24	24	24	12	24	24	24	24	24	9	24
	28-Sep-89	Thurs	24	12	-	-	12	12	12	-	12	12	12	12	9	15	9
	29-Sep-89	Fri.	12	-	-	-	-	-	-	-	-	-	-	-	-	9	-
	30-Sep-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	01-Oct-89	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	02-Oct-89	Mon.	12	12	12	12	12	12	12	12	12	12	12	12	15	15	15
	03-Oct-89	Tues.	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	04-Oct-89	Wed.	24	24	12	12	24	24	24	12	24	24	24	24	24	24	24
	05-Oct-89	Thurs	12	12	-	-	12	12	12	-	12	12	12	12	9	9	9
	06-Oct-89	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	07-Oct-89	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Table 2. Yakutat annual commercial set gill net salmon catches in numbers by species.
(ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	908	44,671	119,149	12,911	277	177,916
1961	2,534	82,403	128,670	63,608	11,038	288,253
1962	2,747	73,937	170,776	26,063	616	274,139
1963	941	52,517	141,365	78,697	10,294	283,814
1964	1,488	90,175	169,780	40,038	1,481	302,962
1965	1,323	120,417	122,207	4,402	4,094	252,443
1966	1,555	185,360	66,252	1,405	3,396	257,968
1967	742	88,431	97,211	31,580	4,459	222,423
1968	697	80,776	92,005	2,130	13,866	189,474
1969	1,887	117,725	32,262	63,692	14,927	230,493
1970	2,272	112,169	29,748	3,555	7,093	154,837
1971	1,945	129,206	37,420	79,973	4,986	253,530
1972	2,376	131,484	45,704	2,903	8,290	190,757
1973	2,733	128,412	41,213	16,998	8,995	198,351
1974	2,214	82,413	77,556	4,248	4,185	170,616
1975	2,224	73,260	37,403	80,043	3,761	196,691
1976	1,830	130,176	51,743	28,492	7,746	219,987
1977	2,549	185,391	92,214	75,504	8,652	364,310
1978	3,057	130,681	137,408	30,522	6,181	307,849
1979	4,299	165,069	95,873	152,053	7,399	424,693
1980	2,800	159,152	119,648	141,998	20,151	443,749
1981	2,069	149,573	132,127	133,863	10,633	428,265
1982	1,456	212,368	148,994	9,886	6,305	379,009
1983	976	152,541	81,517	25,378	11,195	271,607
1984	1,062	102,545	182,256	19,870	32,230	337,963
1985	1,231	234,886	203,193	16,362	12,466	468,138
1986	1,425	150,619	87,871	7,248	16,609	263,772
1987	2,072	259,979	124,406	12,910	14,555	413,922
1988	893	162,168	205,866	120,204	29,247	518,378
Average 1960 to 1988						
	1,873	130,638	105,925	44,363	9,832	292,631
1989 PRELIMINARY						
	798	329,461	176,705	57,174	16,233	580,371

Table 3. Yakutat 1989 commercial set gill net salmon catches by area in numbers by species. (ADF&G 12/1/89)

Area	Chinook	Sockeye	Coho	Pink	Chum	Total
Akwe River	192	8,653	10,096	491	313	19,745
Alsek River	228	13,513	5,972	2	1,031	20,746
East River	42	145,427	7,287	678	13,719	167,153
Kaliakh River	0	0	16,858	0	0	16,858
Tsiu River	0	41	62,939	2	0	62,982
Yahtse River	0	8	10,762	4	0	10,774
Lost River	15	3,090	5,737	816	20	9,678
Manby Shore	23	30,370	260	22	2	30,677
Situk River	1	99,932	39,318	42,974	833	183,058
Yakutat Bay	297	24,524	4,712	8,501	309	38,343
Manby Shore Steams	0	719	2,627	25	3	3,374
Humpy Creek	0	4	0	3,653	0	3,657
Miscellaneous	0	3,180	10,137	6	3	13,326
Total	798	329,461	176,705	57,174	16,233	580,371

Table 4. Yakutat annual commercial Alsek River set gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	0	0	0	0	0	0
1961	2,120	23,339	7,679	84	86	33,308
1962	0	0	0	0	0	0
1963	131	6,055	7,164	42	34	13,426
1964	591	14,127	9,760	144	367	24,989
1965	719	28,487	9,638	10	72	38,926
1966	934	29,091	2,688	22	240	32,975
1967	225	11,108	10,090	107	30	21,560
1968	215	26,918	10,586	82	240	38,041
1969	685	29,259	2,493	38	61	32,536
1970	1,128	22,654	2,188	6	26	26,002
1971	1,222	25,314	4,730	3	120	31,389
1972	1,827	18,717	7,296	37	280	28,157
1973	1,757	26,523	4,395	26	283	32,984
1974	1,162	16,747	7,046	13	107	25,075
1975	1,379	13,842	2,230	16	261	17,728
1976	512	19,741	4,883	0	368	25,504
1977	1,402	40,780	11,817	689	483	55,171
1978	2,441	50,580	13,913	59	233	67,226
1979	2,525	41,449	6,158	142	263	50,537
1980	1,382	25,589	7,863	21	1,005	35,860
1981	779	23,697	10,096	65	816	35,453
1982	532	27,389	6,534	6	358	34,819
1983	94	18,546	5,253	20	432	24,345
1984	60	14,326	7,868	24	1,610	23,888
1985	213	5,940	5,622	3	427	12,205
1986	478	24,791	1,344	13	462	27,088
1987	347	11,393	2,517	0	1,924	16,181
1988	223	6,286	4,986	7	907	12,409
Average 1960 to 1988						
	865	20,782	6,098	58	396	28,199
1989 PRELIMINARY						
	228	13,513	5,972	2	1,031	20,746

Table 5. Yakutat annual commercial East River set gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	525	16,502	5,932	53	109	23,121
1961	0	1,784	310	195	10,564	12,853
1962	2,278	14,475	8,362	93	133	25,341
1963	0	3,233	264	162	9,894	13,553
1964	0	853	5,122	1,081	665	7,721
1965	0	824	1,039	176	3,727	5,766
1966	1	2,863	1,061	45	2,908	6,878
1967	0	2,473	318	1	4,282	7,074
1968	1	3,798	3,482	484	12,967	20,732
1969	4	10,886	1,134	178	14,495	26,697
1970	9	21,673	3,325	296	7,010	32,313
1971	59	12,416	3,722	309	4,483	20,989
1972	10	9,575	1,685	0	7,774	19,044
1973	33	12,342	1,353	109	6,152	19,989
1974	129	14,520	3,231	109	3,231	21,220
1975	147	18,235	1,442	114	3,150	23,088
1976	156	29,726	1,280	136	6,416	37,714
1977	115	21,420	4,140	505	6,811	32,991
1978	61	30,922	7,635	200	5,363	44,181
1979	287	47,442	4,124	1,052	5,791	58,696
1980	76	48,366	2,456	557	18,255	69,710
1981	125	49,346	6,933	2,397	8,650	67,451
1982	84	98,837	2,578	493	4,731	106,723
1983	36	81,201	4,988	359	9,392	95,976
1984	121	39,353	10,924	839	22,354	73,591
1985	119	184,962	8,932	1,018	10,705	205,736
1986	111	74,972	2,823	348	14,317	92,571
1987	187	133,740	4,890	148	10,225	149,190
1988	40	61,483	20,148	2,628	24,453	108,752
Average 1960 to 1988	163	36,146	4,263	486	8,242	49,299
1989 PRELIMINARY	42	145,427	7,287	678	13,719	167,153

Table 6. Yakutat annual commercial Yakutat Bay set gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	24	2,521	1,801	7,302	12	11,660
1961	28	7,485	2,976	47,254	43	57,786
1962	99	5,472	6,068	11,255	15	22,909
1963	141	3,541	3,198	5,457	8	12,345
1964	115	7,716	6,796	22,160	62	36,849
1965	86	10,177	2,490	525	8	13,286
1966	43	9,903	1,861	202	25	12,034
1967	241	4,848	1,332	9,605	6	16,032
1968	31	10,526	1,281	169	14	12,021
1969	29	10,410	1,133	1,504	13	13,089
1970	119	11,596	99	660	15	12,489
1971	106	13,732	50	597	3	14,488
1972	115	15,488	258	492	15	16,368
1973	79	9,962	377	2,886	23	13,327
1974	64	5,187	1,326	455	12	7,044
1975	41	5,144	447	3,094	5	8,731
1976	69	9,977	1,179	1,639	55	12,919
1977	53	14,150	91	8,202	81	22,577
1978	108	5,399	635	6,618	9	12,769
1979	51	3,635	556	3,396	5	7,643
1980	164	9,341	2,063	16,150	79	27,797
1981	151	14,389	1,806	12,024	68	28,438
1982	419	24,852	3,991	3,688	269	33,219
1983	371	17,844	3,739	6,793	428	29,175
1984	145	9,213	3,381	2,139	1,010	15,888
1985	240	11,665	3,618	5,514	685	21,722
1986	211	21,724	3,060	5,234	680	30,909
1987	329	25,230	2,417	1,750	197	29,923
1988	196	14,210	3,086	7,792	627	25,911
Average 1960 to 1988						
	133	10,874	2,107	6,709	154	19,978
1989 PRELIMINARY						
	297	24,524	4,712	8,501	309	38,343

Table 7. Yakutat annual commercial Manby Shore Ocean and Streams set gill net salmon catches species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	0	0	0	0	0	0
1961	0	0	0	0	0	0
1962	0	0	0	0	0	0
1963	114	2,496	21,827	101	1	24,539
1964	0	35	26,638	0	0	26,673
1965	3	430	11,167	19	1	11,620
1966	0	0	0	0	0	0
1967	0	0	7,783	0	0	7,783
1968	0	7	7,638	3	0	7,648
1969	0	0	4,833	12	0	4,845
1970	0	1	3,190	1	0	3,192
1971	0	0	0	0	0	0
1972	0	0	2,953	0	0	2,953
1973	0	5	1,770	6	824	2,605
1974	2	64	2,199	6	232	2,503
1975	0	0	3,426	0	0	3,426
1976	0	0	11,906	10	0	11,916
1977	6	9,785	12,130	10	0	21,931
1978	2	3,149	9,277	126	1	12,555
1979	2	6,232	4,575	3	0	10,812
1980	54	10,620	8,611	65	2	19,352
1981	34	13,463	8,161	164	10	21,832
1982	26	18,657	10,544	35	101	29,363
1983	24	7,819	5,391	142	12	13,388
1984	45	6,093	17,594	1	8	23,741
1985	8	5,677	16,119	33	7	21,844
1986	0	5,013	4,080	3	5	9,101
1987	15	8,109	7,606	0	4	15,734
1988	13	9,785	7,248	17	1	17,064
Average 1960 to 1988						
	12	3,705	7,471	26	42	11,256
1989 PRELIMINARY						
	23	31,089	2,887	47	5	34,051

Table 8. Yakutat annual commercial Situk River set gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	312	18,888	25,613	3,701	78	48,592
1961	367	35,411	26,324	12,589	97	74,788
1962	337	43,426	53,502	12,273	325	109,863
1963	466	29,541	38,294	14,266	276	82,843
1964	706	55,729	43,079	13,431	135	113,080
1965	442	66,874	20,454	3,229	122	91,121
1966	411	126,452	15,963	952	145	143,923
1967	203	61,255	23,278	19,832	67	104,635
1968	312	29,249	19,149	518	273	49,501
1969	1,089	55,856	10,656	2,897	85	70,583
1970	927	46,249	11,879	1,142	16	60,213
1971	473	62,364	21,389	2,890	79	87,195
1972	303	80,405	17,848	966	87	99,609
1973	752	67,194	10,026	11,395	171	89,538
1974	791	42,228	32,968	3,263	16	79,266
1975	562	30,354	16,408	6,686	2	54,012
1976	1,002	60,678	15,664	6,939	171	84,454
1977	833	83,970	32,020	24,347	202	141,372
1978	382	31,363	32,057	7,294	53	71,149
1979	1,028	46,384	17,624	30,131	236	95,403
1980	969	32,357	21,935	32,823	76	88,160
1981	858	29,093	37,871	26,515	252	94,589
1982	248	29,751	27,549	4,482	140	62,170
1983	349	17,797	15,186	6,864	240	40,436
1984	512	7,401	47,511	12,446	844	68,714
1985	484	18,620	55,223	8,800	166	83,293
1986	202	7,617	14,760	1,503	120	24,202
1987	891	63,595	29,898	10,851	986	106,221
1988	299	52,108	61,689	15,323	886	130,305
Average 1960 to 1988						
	569	45,938	27,442	10,288	219	84,456
1989 PRELIMINARY						
	1	99,932	39,318	42,974	833	183,058

Table 9. Yakutat annual commercial Lost River set gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	46	3,800	9,546	1,187	2	14,581
1961	18	5,319	8,447	924	4	14,712
1962	32	4,744	10,783	679	20	16,258
1963	62	3,346	10,228	1,149	19	14,804
1964	64	6,868	12,197	2,166	20	21,315
1965	58	10,012	7,463	349	8	17,890
1966	12	9,374	2,605	103	5	12,099
1967	8	3,909	3,275	970	2	8,164
1968	44	6,145	6,958	59	12	13,218
1969	34	6,777	3,133	333	0	10,277
1970	50	6,550	2,401	160	8	9,169
1971	22	6,012	2,719	70	2	8,825
1972	19	4,076	3,627	35	6	7,763
1973	23	4,495	2,385	458	26	7,387
1974	18	1,948	4,300	280	4	6,550
1975	29	1,976	3,486	427	9	5,927
1976	42	4,607	3,786	783	15	9,233
1977	25	8,925	6,052	3,138	17	18,157
1978	21	3,831	6,360	789	7	11,008
1979	59	3,818	4,265	1,923	35	10,100
1980	42	3,880	6,813	2,035	12	12,782
1981	11	2,316	7,471	634	16	10,448
1982	12	4,980	9,366	719	14	15,091
1983	3	2,158	5,223	1,554	9	8,947
1984	22	726	10,717	1,864	96	13,425
1985	12	1,418	9,098	315	14	10,857
1986	6	491	2,489	80	9	3,075
1987	39	2,160	3,750	125	38	6,112
1988	22	2,316	5,905	478	41	8,762
Average 1960 to 1988	29	4,379	6,029	820	16	11,274
1989 PRELIMINARY	15	3,090	5,737	816	20	9,678

Table 10. Yakutat annual commercial Dangerous River set gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	0	0	0	0	0	0
1961	0	0	0	0	0	0
1962	0	0	0	0	0	0
1963	0	0	0	0	0	0
1964	0	0	0	0	0	0
1965	0	0	0	0	0	0
1966	0	0	0	0	0	0
1967	0	0	0	0	0	0
1968	0	264	0	0	0	264
1969	0	0	0	0	0	0
1970	0	0	0	0	0	0
1971	0	0	0	0	0	0
1972	0	0	0	0	0	0
1973	0	0	132	0	1	133
1974	0	0	0	0	0	0
1975	0	0	0	0	0	0
1976	0	0	0	0	0	0
1977	0	16	553	8	2	579
1978	0	29	1,144	15	5	1,193
1979	0	0	0	0	0	0
1980	0	0	0	0	0	0
1981	0	0	1,861	0	20	1,881
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	3	142	267	0	0	412
1985	7	557	17	16	0	597
1986	10	2,811	202	22	8	3,053
1987	4	2,433	0	0	0	2,437
1988	0	1,305	0	0	0	1,305
Average 1960 to 1988	1	261	144	2	1	409
1989 PRELIMINARY						0

Table 11. Yakutat annual commercial Itatio River set gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	0	839	4,336	18	34	5,227
1961	0	3,693	1,704	696	166	6,259
1962	1	1,375	7	12	6	1,401
1963	0	0	1,266	44	0	1,310
1964	0	0	0	0	0	0
1965	0	0	0	0	0	0
1966	0	0	0	0	0	0
1967	0	0	0	0	0	0
1968	0	593	3,866	161	106	4,726
1969	0	0	1,637	7	30	1,674
1970	0	88	150	5	0	243
1971	0	0	0	0	0	0
1972	0	0	940	9	0	949
1973	1	1,723	1,785	215	1,382	5,106
1974	2	99	5,460	49	487	6,097
1975	1	365	3,064	70	239	3,739
1976	2	1,239	4,553	344	410	6,548
1977	7	1,166	4,912	1,048	773	7,906
1978	4	1,012	8,130	218	385	9,749
1979	19	2,315	6,110	3,622	910	12,976
1980	3	302	6,927	366	524	8,122
1981	3	1,668	6,138	2,657	709	11,175
1982	6	2,931	6,940	287	610	10,774
1983	0	1,349	4,804	445	605	7,203
1984	1	7,543	9,213	1,490	5,592	23,839
1985	4	1,314	9,491	359	435	11,603
1986	21	4,010	1,856	0	903	6,790
1987	2	932	1,399	3	677	3,013
1988	0	5	1,920	6	15	1,946
Average 1960 to 1988	3	1,192	3,331	418	517	5,461
1989 PRELIMINARY						0

Table 12.

Yakutat annual commercial Akwe River set gill net salmon catches in numbers by species.
(ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	1	2,071	5,125	372	31	7,600
1961	0	5,206	13,359	1,844	78	20,487
1962	0	4,445	10,009	1,751	117	16,322
1963	27	4,276	6,913	10,152	51	21,419
1964	12	4,314	6,775	1,056	232	12,389
1965	15	3,611	2,703	83	156	6,568
1966	154	7,173	912	81	73	8,393
1967	65	4,496	2,014	244	72	6,891
1968	94	3,276	5,375	209	254	9,208
1969	45	4,384	601	372	239	5,641
1970	39	3,314	1,536	50	18	4,957
1971	62	9,310	4,656	24	0	14,052
1972	102	3,223	5,267	22	128	8,742
1973	88	6,132	4,670	164	125	11,179
1974	46	1,620	4,988	73	96	6,823
1975	65	3,177	3,160	773	83	7,258
1976	46	4,169	3,816	155	311	8,497
1977	108	4,936	10,299	630	272	16,245
1978	36	2,524	14,903	202	123	17,788
1979	116	7,055	10,223	2,372	139	19,905
1980	110	28,687	8,624	129	186	37,736
1981	108	15,467	6,691	918	64	23,248
1982	129	4,971	10,945	129	82	16,256
1983	99	5,822	5,290	152	74	11,437
1984	152	17,729	8,714	1,049	625	28,269
1985	144	4,676	4,429	94	27	9,370
1986	384	9,087	8,618	43	101	18,233
1987	257	12,175	7,119	33	501	20,085
1988	100	12,476	13,705	1,686	2,288	30,255
Average 1960 to 1988						
	90	6,890	6,601	857	226	14,664
1989 PRELIMINARY						
	192	8,653	10,096	491	313	19,745

Table 13. Yakutat annual commercial Humpy Creek set gill net salmon catches in numbers by species.
(ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	0	0	0	0	0	0
1961	0	0	0	0	0	0
1962	0	0	0	0	0	0
1963	0	29	327	47,324	11	47,691
1964	0	0	0	0	0	0
1965	0	0	0	0	0	0
1966	0	0	0	0	0	0
1967	0	0	1	821	0	822
1968	0	0	0	445	0	445
1969	1	153	913	58,351	4	59,422
1970	0	44	0	1,235	0	1,279
1971	1	58	154	76,080	299	76,592
1972	0	0	700	1,322	0	2,022
1973	0	36	8	1,738	6	1,788
1974	0	0	0	0	0	0
1975	0	167	296	68,863	12	69,338
1976	1	39	326	18,486	0	18,852
1977	0	240	59	36,922	11	37,232
1978	0	1	27	14,997	1	15,026
1979	210	6,723	599	109,412	17	116,961
1980	0	10	333	89,852	6	90,201
1981	0	134	373	88,389	28	88,924
1982	0	0	0	0	0	0
1983	0	5	130	9,047	3	9,185
1984	0	19	138	18	43	218
1985	0	55	0	210	0	265
1986	1	101	1	0	1	104
1987	0	0	0	0	0	0
1988	0	29	78	92,173	24	92,304
Average 1960 to 1988						
	7	270	154	24,679	16	25,127
1989 PRELIMINARY						
	0	4	0	3,653	0	3,657

Table 14. Yakutat annual commercial Tsiu River set gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	0	0	10,169	5	1	10,175
1961	0	0	0	0	0	0
1962	0	0	38,739	0	0	38,739
1963	0	0	19,771	0	0	19,771
1964	0	533	34,644	0	0	35,177
1965	0	1	41,357	8	0	41,366
1966	0	504	28,960	0	0	29,464
1967	0	342	34,899	0	0	35,241
1968	0	0	16,064	0	0	16,064
1969	0	0	3,144	0	0	3,144
1970	0	0	0	0	0	0
1971	0	0	0	0	0	0
1972	0	0	0	0	0	0
1973	0	0	8,803	1	0	8,804
1974	0	0	8,258	0	0	8,258
1975	0	0	0	0	0	0
1976	0	0	3,129	0	0	3,129
1977	0	0	5,691	0	0	5,691
1978	0	1,767	34,392	0	0	36,159
1979	2	16	32,621	0	3	32,642
1980	0	0	28,711	0	3	28,714
1981	0	0	30,109	0	0	30,109
1982	0	0	46,436	0	0	46,436
1983	0	0	20,119	0	0	20,119
1984	0	0	51,322	0	48	51,370
1985	0	0	63,922	0	0	63,922
1986	0	0	19,590	0	0	19,590
1987	0	0	35,297	0	0	35,297
1988	0	24	56,116	3	3	56,146
Average 1960 to 1988						
	0	110	23,181	1	2	23,294
1989 PRELIMINARY						
	0	41	62,939	2	0	62,982

Table 15. Yakutat annual commercial Kaliakh River set gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	0	0	51,622	271	10	51,903
1961	0	0	51,417	13	0	51,430
1962	0	0	23,443	0	0	23,443
1963	0	0	15,833	0	0	15,833
1964	0	0	24,769	0	0	24,769
1965	0	1	25,896	3	0	25,900
1966	0	0	12,202	0	0	12,202
1967	0	0	9,486	0	0	9,486
1968	0	0	5,799	0	0	5,799
1969	0	0	785	0	0	785
1970	0	0	0	0	0	0
1971	0	0	0	0	0	0
1972	0	0	0	0	0	0
1973	0	0	601	0	2	603
1974	0	0	1,101	0	0	1,101
1975	0	0	0	0	0	0
1976	0	0	1,221	0	0	1,221
1977	0	0	1,778	0	0	1,778
1978	0	0	5,507	0	0	5,507
1979	0	0	5,266	0	0	5,266
1980	0	0	8,725	0	0	8,725
1981	0	0	3,093	0	0	3,093
1982	0	0	16,443	46	0	16,489
1983	0	0	4,598	0	0	4,598
1984	0	0	13,081	0	0	13,081
1985	0	2	23,015	0	0	23,017
1986	1	2	10,770	0	1	10,774
1987	1	8	15,923	0	2	15,934
1988	0	2	8,867	0	0	8,869
Average 1960 to 1988						
	0	1	11,767	11	1	11,780
1989 PRELIMINARY						
	0	0	16,858	0	0	16,858

Table 16. Yakutat annual commercial Yahtse River set gill net salmon catches in numbers by species. (ADF&G 12/1/89)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	0	50	5,005	2	0	5,057
1961	1	166	16,454	9	0	16,630
1962	0	0	19,863	0	0	19,863
1963	0	0	16,280	0	0	16,280
1964	0	0	0	0	0	0
1965	0	0	0	0	0	0
1966	0	0	0	0	0	0
1967	0	0	4,735	0	0	4,735
1968	0	0	11,807	0	0	11,807
1969	0	0	1,800	0	0	1,800
1970	0	0	4,980	0	0	4,980
1971	0	0	0	0	0	0
1972	0	0	5,130	20	0	5,150
1973	0	0	4,908	0	0	4,908
1974	0	0	6,679	0	0	6,679
1975	0	0	3,444	0	0	3,444
1976	0	0	0	0	0	0
1977	0	3	2,672	5	0	2,680
1978	2	104	3,428	4	1	3,539
1979	0	0	3,752	0	0	3,752
1980	0	0	15,016	0	3	15,019
1981	0	0	11,524	100	0	11,624
1982	0	0	7,668	1	0	7,669
1983	0	0	6,796	2	0	6,798
1984	1	0	1,526	0	0	1,527
1985	0	0	3,707	0	0	3,707
1986	0	0	18,278	2	2	18,282
1987	0	204	12,688	0	1	12,893
1988	0	1	2,836	2	0	2,839
Average 1960 to 1988						
	0	18	6,585	5	0	6,609
1989 PRELIMINARY						
	0	8	10,762	4	0	10,774

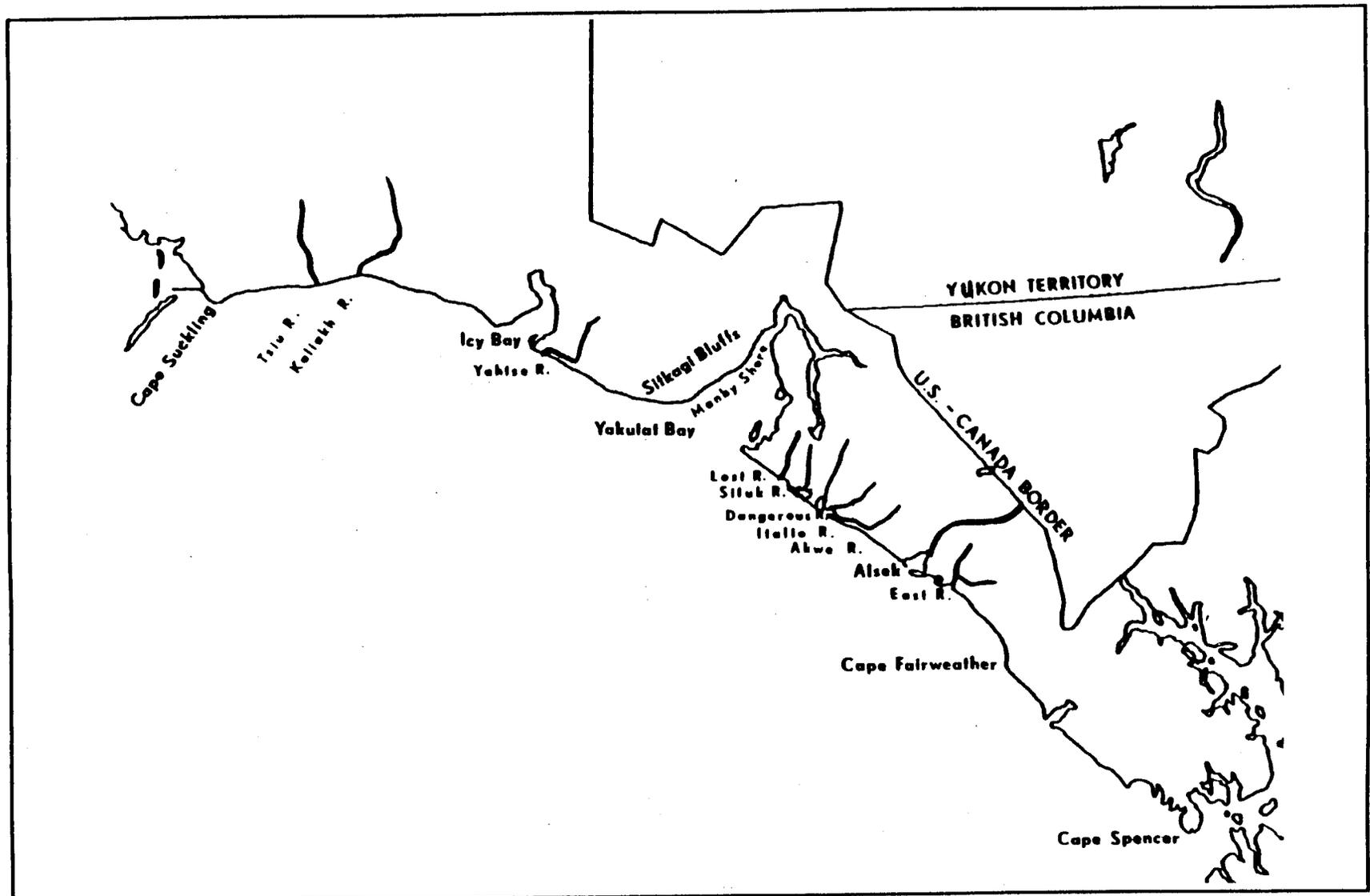


Figure 1. Yakutat Management Area (Cape Suckling to Cape Fairweather).

REPORT TO THE BOARD OF FISHERIES
1989 SOUTHEAST ALASKA-YAKUTAT HERRING FISHERIES



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and
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Division of Commercial Fisheries
Juneau, Alaska

February 1990

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ABSTRACT

The 1989/90 Southeast Alaska and Yakutat commercial, subsistence, and personal use herring fisheries are reviewed. The total region commercial herring harvest was 16,152 tons, up slightly from 15,279 tons during 1987/1988 and the highest regional harvest since 1964. The total ex-vessel value was approximately \$3,527,000. The sac roe harvest totaled about 12,970 tons for an estimated ex-vessel value of \$2,671,000. The catch of 3,116 tons of herring in the winter bait fishery was worth an estimated \$810,000 to the fishermen. Two fresh bait pounds operated and the reported harvest of 66 tons had an ex-vessel value of approximately \$46,000. The sac roe fishery was open in Kah Shakes, Seymour Canal and Sitka Sound areas, while the Lynn Canal sac roe fishing area remained closed due to poor stock conditions. The winter bait season was open in Lisianski Inlet, Tenakee Inlet, and Mearns Passage/Boca de Finas. Two fresh bait pounds operated in Sitka Sound. Approximately 12,600 pounds of spawn-on-kelp product was estimated to have been taken for subsistence utilization. No *Macrocystis* kelp was reported harvested for transport to Prince William Sound for use in herring spawn-on-kelp pounds.

INTRODUCTION

This report reviews the commercial, subsistence, and personal use herring fisheries that occurred in the Southeast Alaska Region during the 1988/89 season. The Southeast Alaska Region is a composite of two herring statistical areas. Area A, the Southeast Alaska Area, encompasses the waters of Alaska south of Cape Fairweather and north of the International Boundary at Dixon Entrance. Area D, the Yakutat Area, extends west from Cape Fairweather to Cape Suckling (Figure 1). Commercial winter bait, sac roe, fresh bait pound, and tray pack pound fisheries occur in the Southeast Alaska Area. Only a winter bait season is provided by regulation in the Yakutat Area. Subsistence and personal use herring harvesting occurs in both areas.

History of the Herring Fishery

Pacific herring stocks are found throughout the Southeast Alaska Region. These herring stocks vary greatly in size and productivity. In general, the stocks that spawn on the outer coastal areas are the more productive stocks while stocks that spawn in the inside waters are less productive. Southeast Alaska herring stocks have been commercially harvested since a salting operation was initiated the 1880's. From the 1890's to the mid-1960's the catch was used primarily to supply herring for reduction to meal and oil. The reduction fishery occurred on mixed stocks of feeding herring during the summer months. The reduction fishery production peaked during the 1920's and 1930's when annual harvests commonly exceeded 100,000 tons (Tables 1 and 2). The reduction industry was phased out in the mid-1960's do to a decline in the abundance of herring combined with the development of the Peruvian anchovy reduction industry.

Southeast Alaska herring stocks have historically supplied most of the bait for Alaskan commercial longline and crab fisheries. This harvest occurs during the fall and winter months, a time when bait quality is best, on discrete wintering schools in major bays and inlets. Most of the bait harvest is taken by purse seine gear. Relatively small quantities of herring are harvested with fresh bait pounds. The existing regulation provide for a tray pack bait fishery, designed to produce a sport and commercial troll bait product, however, no harvest has occurred for this purpose in recent years.

Currently, most of the annual herring harvest is taken in the spring sac roe fishery, which developed in the early 1970's. The sac roe fishery takes herring immediately prior to spawning when egg maturity is highest. A wild spawn-on-kelp fishery occurred during the 1960's, however, this fishery was phased out in the early 1970's. A new herring spawn-on-kelp pound fishery was approved by the Alaska Board of Fisheries to begin in the spring of 1990.

Subsistence herring products have traditionally included herring roe on kelp and herring roe on hemlock branches. Beginning in 1989, new regulations became effective establishing personal use herring fisheries for individuals domiciled in communities not qualified for subsistence fishing. Additionally, new regulations established provisions allowing commercial fishermen to harvest herring for their own bait. This activity was previously accomplished under the subsistence fishing regulations.

The commercial utilization of Southeast Alaska herring resources is very controversial. Although the subsistence and personal use harvest levels are a minor portion of the total annual take, these uses are considered important to local residents. The commercial harvesting is viewed by much of the public as having a great impact on the local availability of herring. Additionally, herring are a major forage fish; a high abundance is viewed as necessary to ensure an abundance of salmon and marine mammals.

Management Strategy

The management approach for Southeast Alaska herring fisheries is based on assessing populations to ensure that minimum spawning threshold levels are met prior to allowing a harvest. Distinct herring stock units are specified for harvesting in either the winter bait or spring sac roe fisheries. A major management concern is to minimize the harvesting of individual stocks in both major fisheries. Although some overlapping of stocks probably occurs, it is not believed that significant "double dipping" of individual herring stocks is occurring. The herring pound fishery utilizes some of the same stocks harvested in the winter bait and sac roe fisheries; however, the pound fishery harvest is small when compared to the winter bait or sac roe herring fishery harvest.

A "threshold level" is the minimum herring biomass needed to use historic documented spawning beaches to ensure sustained yield. Threshold levels have been established for each of the winter bait, sac roe, and spawn-on-kelp pound fishing stock units. Threshold levels are based on all available data and are evaluated by stock condition and performance over time. Current threshold levels vary from 4 to 15 million pounds for the major sac roe and winter bait and 2 million pounds for the spawn-on-kelp pound fishery (Table 3).

Herring stocks with a spawning biomass of less than 4 million pounds, of which there are many, are not considered for harvesting in either the Southeast Alaska winter bait or sac roe fisheries. Under the current approach for setting seasonal harvest limits, discussed later, herring stocks under 4 million pounds would allow for annual harvests of less than 200 tons of herring. The region's current management capability, combined with highly competitive nature of these fisheries, make it impossible to successfully manage the winter bait or sac roe fisheries for harvests of less than 200 tons. In the Yakutat Area, winter bait harvests of less than 200 tons are allowed, however, the Yakutat Area fishing effort has been low enough to manage for smaller harvests than in Southeast Alaska.

The annual harvest limits are based on a graduated scale that allows for higher harvest rates as the herring population increases relative to the threshold level. A graph depicting this harvest management strategy is shown in Figure 2. The scale provides for a uniform method for establishing harvest levels for each herring fishery. The approach allows for an annual harvest rate of between 10-20% of the mature herring if the established spawning threshold levels are satisfied. No harvesting is allowed until the threshold level is satisfied. When the estimate of the mature stock is at the threshold level a 10% harvest is allowed. The harvest rate increases 2% each time the estimated spawning biomass increases by an amount equal to the threshold level. The harvest rate reaches a maximum of 20% when the population is 6 times the threshold level.

The successful accomplishment of the management approach is dependent upon the determination of the size of the herring populations, the age and growth characteristics of these individual populations, and spawning success on a stock by stock basis. The herring biomass for both the Southeast Alaska winter bait and sac roe stocks is determined either from post spawning egg deposition diving surveys or from vessel hydro-acoustical surveys or a combination of both methods. In cases where spawning ground surveys are used the estimate includes only mature herring that spawned the previous season. It would not account for any mortality of the herring after the spawning occurred nor would it include any additional recruitment that may have been realized since the surveys were completed. For those instances where the population estimate is derived acoustically, only those herring that would be expected to contribute to the spawn are included in the estimate. This is determined by sampling the population with trawl gear and analyzing the age structure to include only the mature segment of the population. Age and growth information is obtained by sampling through test fishing, commercial harvest, department mid-water trawling and department sampling on the spawning grounds.

SEASON SUMMARY

The 1988-89 seasonal herring catch totalled approximately 32,304,000 pounds (16,152 tons) (Table 1). The year's catch was the largest reported since 1964, primarily due to a record sac roe herring harvest. The catch included 6,250,000 pounds (3,125 tons) of winter bait herring, 25,940,000 pounds (12,970 tons) of sac roe herring and 131,200 pounds (66 tons) of fresh bait from herring pounds. The total ex-vessel value was \$3,529,000, of which \$2,671,000 was for sac roe herring, \$812,000 for bait herring, and \$46,000 for fresh bait pound herring. A summary of the 1988-89 season's herring fisheries by area is presented in Table 4.

1988-89 Winter Food and Bait Fishery

Winter herring fishing is allowed by regulation in Districts and/or Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11-B, 11-C, 12, 13-A, 13-B (only south of the latitude of Aspid Cape), 13-C, 14, 15-A, and 16 in the Southeast Alaska Area and in the entire Yakutat Area. The general fishing season is specified to be from October 1 through February 28 in both areas. In the Southeast Alaska Area, regulations specify the actual open fishing periods to be established by emergency order.

Although the existing regulations specify purse seines, set gill nets, and trawls as legal allowable gear, only purse gear has been actively fished in recent years. Purse seines and trawls are not included in the limited entry system, while participation with set gill net gear is limited, in the Southeast Alaska Area, to holders of combined bait and sac roe entry permits.

Three distinct stocks were identified as having harvestable quantities of bait herring during the 1988-89 winter season: the stocks in Tenakee Inlet, Lisianski Inlet, and the Boca de Finas/Meares Passage areas (Figure 3). The areas were opened concurrently on January 9, 1989 at noon. The total harvest limit was set at 3,270 tons, which included 720 tons for Tenakee Inlet, 740 tons for Lisianski Inlet, and 1,810 tons for Boca de Finas/Meares Passage.

The herring schools in Tenakee Inlet were readily available to the 17 boats that fished the inlet. The fishery was initially open through 5:45 p.m. on January 9 at which time the season was closed as it was felt that the established harvest had been obtained. However, as more specific harvest information became available and it became apparent that the harvest was approximately 200 tons below the established limit, the fishery was reopened for a fixed 30 minute period to allow more harvest. The final tally for the fishery was 655 tons.

Eight boats fished Lisianski Inlet in Lisianski Strait south of Stag Bay. The fishery progressed slowly as processors imposed limits on the daily catch in order to maximize quality. The fishery closed on January 12 at 12:07 p.m. The total catch was 770 tons, 30 tons above the target quota of 740 tons.

Approximately 25 boats participated in the Meares Passage/Boca de Finas fishery. The fishery progressed slowly because of winter storms and because the herring remained deep and below net range. After 13 days of fishing, the fishery closed at 9:45 p.m. January 21. The total catch taken was 1,691 tons of which 1,472 tons was taken from Meares Passage and the remaining 219 tons was taken in Boca de Finas.

No vessels fished the Yakutat area during the 1988-89 season. The season was open from October 1, 1988 through February 28, 1989, the season specified by regulation. A 100 ton harvest limit was set for the area.

1989 Sac Roe Fishery

Four sac roe herring fishing areas are established by regulation. These consist of two exclusive purse seine (Sitka Sound and Lynn Canal) and two exclusive set gill net (Kah Shakes Cove and Seymour Canal) areas (Figure 4). Both gear types are under a limited entry system. Ninety-two permanent, and 30 interim use gill net permits, and 44 permanent and 7 interim use purse seine permits were issued for the 1989 season.

A historical record harvest of 12,970 tons of herring occurred during the 1988/1989 season. The harvest resulted from the Sitka Sound (11,831 tons) purse seine area, and the Seymour Canal (547 tons) and Kah Shakes (592 tons) gill net areas (Table 6).

A harvest limit of 11,700 tons was established for the Sitka herring purse seine fishery, the highest ever established for the fishery. It was based on a 20% harvest rate of the 1988 spawning biomass estimate of 117.3 million pounds. Spawning was observed earlier than normal and the fishery was placed on two hour notice effective 6:00 a.m., March 22. Test fishing indicated that for the 2nd year in a row, poor roe quality was present. The population consisted predominately of 5-year-old herring which were abnormally small. Quality was also plagued by a higher than normal preponderance of males in the population.

For the 2nd consecutive year, the fishermen decided on a non-competitive, cooperative fishery with the hopes of catching herring that would bring the highest possible price. A cooperative fishery had also occurred in 1979 when low prices were indicated by a large population of younger age herring. The fishermen collectively established a 230 ton share for each permit holder. The department did not take an active role in the formation of the cooperative fishery arrangement. The department's action was to open the season throughout Sitka Sound and monitor the fishery to ensure the seasonal catch limit was maintained. The fishery lasted a total of 9 days from March 31 to April 8. A record harvest of 11,831 tons was taken, surpassing the previous record take of 9,573 tons of herring. The overall roe percentage was estimated to be 9.5%, which was considered poor for the Sitka Sound fishery. The average price paid was only \$100/ton which was the lowest price ever for Sitka Sound sac roe herring. The price was a reflection of the low roe content of the harvest and small size of individual herring egg skeins. The total ex-vessel value was estimated to be \$1.18 million.

A preseason harvest level of 647 tons was set for the Kah Shakes gill net fishery. Spawning activity was observed earlier than normal and the fishery was placed on a two-hour notice effective at 6:00 a.m., March 20. As herring spawning activity was increasing quickly, the fishery was opened at 11:00 a.m. the same day. This is the earliest date the area has been open. The open fishing period extended until 7:00 p.m. that evening. When the catch information was tabulated, it was determined that the established harvest limit was not taken, as the catch rate was lower than anticipated. A second period was allowed

from 10:00 a.m. to 11:00 a.m. the next day, March 21, to take the remaining portion of the allowable seasonal harvest limit. A total of 88 permit holders participated in the fishery. The harvest totaled approximately 592 tons of herring. Roe percentages ranged from 7.2% to 17% per landing, with a majority of the herring falling between 11% to 12%. The estimated base price paid for a 10% roe product was \$1,000.00/ton. With \$110.00/ton being paid for every percentage point above the base price, the product was worth an average of \$1,300.00/ton. The total ex-vessel value of the fishery was estimated at approximately \$780,000.00.

The preseason harvest limit was set at 332 tons of herring for the Seymour Canal fishery. As an early herring spawn was expected, the area was placed on two-hour standby effective April 21, 1989. However, the spawning activity was delayed longer than expected, and the fishery was not open until April 28. The open period extended from 1:00 p.m. through 2:30 p.m. that day. A total of 104 permit holders fished and the harvest totaled approximately 547 tons of herring. The average roe content was estimated to be approximately 13%. The price paid was similar to the price paid in the Kah Shakes gill net fishery, making the Seymour Canal herring worth an average \$1,300.00/ton. The total ex-vessel value is estimated to be approximately \$708,000.00.

Hydroacoustic and spawning ground surveys failed to locate the minimum population threshold level in the Lynn Canal purse seine fishing area, therefore no fishing was allowed. This fishery has not been open since 1982.

1988-89 Herring Pound Fishery

There are two types of herring pound fisheries in Southeast Alaska: fresh bait pounds and tray pack bait pounds. The tray pack pound fishery was created in 1979 when the Board of Fisheries allocated a harvest up to 100 tons. Only limited catch occurred in the early 1980's, and in recent years there has been no participation.

The fresh bait pounds are allowed by regulation under a permit system in six areas, including Tee Harbor, Indian Cove, Farragut Bay, Scow Bay, Sitka Sound and Lisianski Inlet, all in the Southeast Alaska Area (Figure 5). Current regulations specify annual herring harvest quotas for these six areas: 100 tons each for Farragut Bay, Scow Bay and Sitka Sound, 60 tons each for Tee Harbor and Indian Cove, and 25 tons for Lisianski Inlet. The average annual catch for the past 7 years (since 1983) was 41 tons for all areas combined (Table 7). Only 2 permits were issued for pounds in 1989; both in Sitka Sound. The two operations harvested 66 tons.

Herring Roe-on-Kelp Subsistence Fishery

Harvesting of herring roe-on-kelp has traditionally occurred through the region. A subsistence permit is required in the Southeast Alaska portion of the region; no permit is required in the Yakutat Area. The Southeast Alaska fishery is regulated solely through the issuance of subsistence roe-on-kelp permits at local Fish and Game offices. These permits specify times, areas and amounts of roe-on-kelp allowed. Regulations set harvest limits at 32 pounds for individuals and 158 pounds for families. No annual possession limit is specified for individuals; additional permits are issued to permit holders if harvestable surpluses are available.

Subsistence roe-on-kelp harvest occurs in March and April near Craig, Hydaburg, Kah Shakes, and Sitka, where major herring spawning populations are found (Figure 6). *Macrocystis* is the preferred species of kelp used. In 1989, a combined total of 12,661 pounds of roe-on-kelp was harvested in these areas, which was down from 1987's record harvest of 23,865 pounds. The 1989 harvest in the Craig/Hydaburg area, however, was the second highest ever reported with 11,699 pounds (Table 8). Sitka experienced the lowest ever catch with only 962 pounds. This low catch was the result of poor spawn occurring on *Macrocystis* kelp.

Personal Use and Personal Bait Harvest Fisheries

The 1989 regulations established two new herring fisheries in the Southeast Alaska Region. First, a personal use fishery was established to allow Alaskan residents, not domiciled in designated subsistence communities to continue to harvest of herring for personal consumption. The personal use harvest does not have priority over other uses as does the subsistence harvest. However, in practice, the regulations allow herring personal use to continue the same as formerly allowed under the subsistence regulations. As with the subsistence fishery, harvest information is limited, as the personal use regulations require a permit only for the harvest of herring roe-on-kelp. The regulations did not become effective until after the 1989 spring roe-on-kelp season. Harvest information will not be available until the 1990 herring spawning season.

Second, the 1989 regulations established special provisions that allow commercial fishermen to harvest herring for their personal bait needs, but not for sale. Such allows fishermen the opportunity to continue harvesting their own bait as in the past under the subsistence regulations. For harvests over 5 tons, a permit is required to allow tabulation of harvest. At the time of preparation of this report, no permits had been issued.

1989-90 SEASON OUTLOOK

Current regulations allow for a winter bait fishery between October 1 and February 28 throughout southeast Alaska. The 1989-90 fishery opening will be delayed until mid to late January, 1990 to allow sufficient time for the department to assess the abundance of major winter herring stocks. Acoustical surveys will be conducted beginning November, 1989 in major known wintering areas. The data will be combined with other data available on spawn success to establish quotas and areas. Good spawn in Tenakee Inlet and the Craig winter fishing areas during the spring of 1989 indicates a winter fishery harvest slightly above the 1988-89 season level.

A sac roe harvest of 4,458 tons is anticipated during the spring of 1990. This projected harvest is down considerably from the record harvest of 12,970 tons taken in 1989. The vast majority of the 1990 catch will occur in the Sitka Sound seine fishery. Based on 1989 spawn deposition studies, target harvest levels will be established at 4,146 tons (15.25% harvest rate of 54 million pounds) for the Sitka Sound purse seine fishery and 312 tons (10.1% harvest rate of 6.2 million pounds) for the Seymour Canal gill net fishery. Spawn surveys conducted in the Lynn Canal purse seine area and the Kah Shakes gill net area indicate that required threshold level were not realized and no harvesting is planned in 1990.

MACROCYSTIS KELP FISHERY

Macrocystis kelp is currently harvested in Southeast Alaska and transported to Prince William Sound where it is used as a substrate for the commercial herring spawn-on-kelp fisheries. It is distributed along the outer coastal waters of Southeast Alaska with higher concentrations in the more southerly portion of the region near Craig. A permit must be obtained prior to harvest which specifies the area of harvest, amounts allowed, and cutting restrictions to maintain healthy Macrocystis beds. Permits are not issued in traditional herring spawning areas where kelp serves as an important substrate for herring eggs.

In 1989, no kelp was transported to Prince William Sound because the pound fishery did not open because of the Exxon oil spill. Increasing amounts of Macrocystis kelp harvested since 1985 are the result of annually increasing quotas for herring spawn-on-kelp in pounds in Prince William Sound. A summary of transported kelp harvests is shown in Table 9.

Table 1. Southeast Alaska herring catches in pounds x 1,000, 1900 through 1988.^{a/}

Year ^{b/}	Total Catch	Year	Total Catch	Year	Total Catch
1900	2,388	1935	116,310	1970	6,648
1901	2,500	1936	73,426	1971	8,414
1902	1,624	1937	100,668	1972	11,827
1903	2,988	1938	44,712	1973	12,536
1904	3,042	1939	40,056	1974	15,994
1905	2,618	1940	6,274	1975	16,195
1906	2,010	1941	12,460	1976	17,297
1907	2,764	1942	7,382	1977	12,106
1908	3,422	1943	12,470	1978	13,050
1909	2,150	1944	33,602	1979	18,408
1910	13,734	1945	48,252	1980	16,732
1911	24,114	1946	75,128	1981	17,260
1912	32,134	1947	83,658	1982	19,806
1913	26,992	1948	32,250	1983	18,162
1914	16,636	1949	28,558	1984	22,228
1915	13,928	1950	26,822	1985	19,584
1916	22,388	1951	21,304	1986	16,739
1917	24,890	1952	32,040	1987	30,558
1918	35,650	1953	24,870	1988	32,304
1919	21,924	1954	12,892		
1920	32,904	1955	22,736		
1921	12,024	1956	45,638		
1922	33,900	1957	49,490		
1923	42,480	1958	77,594		
1924	58,790	1959	99,732		
1925	115,564	1960	77,812		
1926	147,686	1961	49,418		
1927	90,620	1962	33,874		
1928	106,014	1963	31,212		
1929	157,498	1964	46,698		
1930	141,710	1965	24,318		
1931	89,714	1966	10,680		
1932	99,572	1967	6,050		
1933	123,176	1968	3,632		
1934	133,684	1969	7,364		

^{a/} Catches include fresh bait pound harvest.

^{b/} Catch includes total season, although referenced as only one year. Example: 1976 year includes 1976-77 season's catches.

Table 2. Southeast Alaska region annual herring catch in tons by fishery type, 1960 through 1988.

Year ^{a/}	Reduction	Winter Bait	Wild Roe-on-Kelp	Sac Roe	Pound	Total
1960	36,790	2,116	0	0	0	38,906
1961	22,869	1,840	0	0	0	24,709
1962	13,765	3,172	22	0	0	16,959
1963	13,539	2,064	100	0	0	15,703
1964	21,397	1,957	199	0	0	23,553
1965	10,062	2,094	234	0	0	12,390
1966	2,918	2,422	330	0	0	5,670
1967	0	3,025	189	0	0	3,214
1968	0	1,816	36	0	0	1,852
1969	0	2,644	0	0	0	2,644
1970	0	3,324	0	1,671	0	4,995
1971	0	2,045	0	1,822	0	3,867
1972	0	3,980	0	2,353	0	6,333
1973	0	4,255	0	1,981	0	6,236
1974	0	5,910	0	2,075	0	7,985
1975	0	5,688	0	2,254	0	7,942
1976	0	6,409	0	2,231	0	8,640
1977	0	4,042	0	2,029	0	6,071
1978	0	3,485	0	3,047	0	6,532
1979	0	2,717	0	6,500	0	9,217
1980	0	1,626	0	6,722	0	8,348
1981	0	1,530	0	7,193	0	8,723
1982	0	1,169	0	8,713	21	9,903
1982	0	620	0	8,411	50	9,081
1984	0	1,450	0	9,636	37	11,123
1985	0	2,442	0	7,319	31	9,792
1986	0	2,347	0	5,957	65	8,369
1987	0	4,016	0	11,246	17	15,279
1988	0	3,116	0	12,970	66	16,152

^{a/} Catch includes total season, although referenced as only one year. Example: 1988 year includes 1988-89 season's catches.

Table 3. Herring spawning threshold levels for major herring stocks in Southeast Alaska and Yakutat.

Area	Threshold Level (Millions of Pounds)
Hoonah Sound	2
Yakutat Bay	2
Deer Island	5
Anita Bay	5
Port Camden	5
Lisianski Inlet	5
Seymour Canal	6
Tenakee Inlet	6
Tongass Narrows and	
George and Carroll Inlets	7
Meares Passage/Boca de Finas	10
Kah Shakes	10
Lynn Canal	10
Sitka Sound	15

Table 4. Summary of 1988-1989 season herring fishery by area.

Winter Food & Bait Fishery

Opening Date	Closing Date	District	Area	Assessment (Million Pounds)	Quota (tons)	Harvest (tons)	Percent Harvest
1/09/89	1/09/89	12	Tenakee	12.0	720	655	11
1/09/89	1/14/89	3/4	Bocas De Finas/ Meares Passage	26.6	1,810	1,691	8
1/09/89	1/12/89	13	Lisianski	11.9	740	770	42
Total				50.5	3,270	3,116	

Sac Roe Fishery

Date	District	Area	Gear	Assessment (Millions Pounds)	Quota (tons)	Harvest (tons)	Percent Harvest	Roe Percent
3/31-4/8	13	Sitka	Purse Seine	117.3	11,700	11,831	30	9.45
3/20-3/21	1	Kah Shakes	Gill Net	12.3	647	592	15	11-12
4/28	11	Seymour	Gill Net	6.5	332	547	15	12.7
Total				136.1	12,697	12,970		

Table 5. Southeast Alaska winter food and bait herring harvest in pounds by fishing season and month 1971/72 through 1988/89.^{a/}

Year	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total
1971-72	12,000	12,200	716,000	551,000	583,400	560,200	1,655,600	4,090,400
1972-73	1,800	504,800	748,600	1,173,600	1,694,600	2,349,000	1,435,600	7,908,000
1973-74	197,600	1,783,400	2,790,000	1,438,400	1,838,600	3,595,800	68,000	11,711,800
1974-75	0	2,306,400	3,422,200	2,569,000	1,174,800	1,330,600	1,017,800	11,820,800
1975-76	0	2,871,800	3,650,800	812,000	1,558,000	2,153,800	329,800	11,376,200
1976-77	0	1,560,000	4,391,400	2,948,600	2,044,600	1,874,200	0	12,818,800
1977-78	0	2,898,800	1,597,200	730,600	1,078,000	1,780,000	0	6,644,600
1978-79	0	0	4,788,000	0	0	2,182,000	0	6,970,000
1979-80	0	3,262,000	0	2,176,000	0	0	0	5,434,000
1980-81	0	0	0	0	2,102,000	1,240,000	0	3,342,000
1981-82	0	0	180,000	0	2,800,000	80,000	0	3,060,000
1982-83	0	196,000	1,102,000	0	0	1,040,000	0	2,338,000
1983-84	0	0	0	0	0	1,240,000	0	1,240,000
1984-85	0	0	0	0	2,862,000	0	0	2,862,000
1985-86	0	0	0	0	4,884,000	0	0	4,884,000
1986-87	0	0	0	0	4,694,645	0	0	4,694,645
1987-88	0	0	0	0	8,032,000	0	0	8,032,000
1988-89	0	0	0	0	6,232,000	0	0	6,232,000

^{a/} These figures do not include herring bait pounds.

Table 6. Southeast Alaska sac roe herring harvest by area in tons, 1971-1989.

Year	Sitka Sound	Seymour Canal	Lynn Canal	Kah Shakes	Other Areas	All Areas
1971	748	35	688	0	220 ^{a/}	1,671
1972	602	495	524	0	201 ^{b/}	1,822
1973	597	506	798	0	452 ^{c/}	2,353
1974	681	904	396	0	0	1,981
1975	1,517	0	558	0	0	2,075
1976	800	195	630	426	203 ^{d/}	2,254
1977	0	485	926	820	0	2,231
1978	175	729	954	171	0	2,029
1979	2,250	269	0	528	0	3,047
1980	4,385	0	975	1,140	0	6,500
1981	3,506	615	761	1,840	0	6,722
1982	4,363	0	551	2,279	0	7,193
1983	5,463	0	0	3,250	0	8,713
1984	5,711	518	0	2,182	0	8,411
1985	7,475	0	0	2,161	0	9,636
1986	5,443	339	0	1,537	0	7,319
1987	4,216	302	0	1,439	0	5,957
1988	9,573	586	0	1,087	0	11,246
1989	11,831	547	0	592	0	12,970

^{a/} Washington Bay (76 tons), Lisianski Inlet (100 tons), and Yakutat Bay (44 tons).

^{b/} Lisianski Inlet.

^{c/} Yakutat Bay (158 tons), Helm Bay (194 tons), and Lisianski Inlet (100 tons).

^{d/} Helm Bay (26 tons), Chaik Bay (40 tons), Pybus Bay (22 tons), Gambier Bay (8 tons), and Kasaan Bay (107 tons).

Table 7. Fresh herring bait pound catches by area, 1983 through 1989.

Catch by Area in Tons							
Year	Scow Bay	Farragut Bay	Sitka Sound	Tee Harbor	Indian Cove	Lisianski ^{a/} Inlet	Total
1983	7	14	0	0	0		21
1984	3	12	35	0	0		50
1985	4	0	33	0	0		37
1986	0	5	26	0	0		31
1987	0	3	62	0	0		65
1988	0	0	17	0	0		17
1989	0	0	66	0	0	0	66
Seven-Year Average							
	2	5	34	0	0	0	41

^{a/} Pounds were allowed by regulation in Sitka Sound in 1983 and Lisianski Inlet in 1989.

Table 8. Herring spawn-on-kelp subsistence harvests, 1966 through 1989.

Year	Permits Issued	Permits Returned	Total Pounds Harvested ^M
<u>Craig/Klawock/Hydaburg</u>			
1966	145	86	5,200
1967	201	130	3,368
1968	130	95	2,260
1969	80	61	2,858
1970	103	60	3,213
1971	81	66	2,643
1972	102	44	4,250
1973	31	9	1,209
1974	159	39	3,087
1975	92	34	1,640
1976	54	12	1,728
1977	34	7	352
1978	109	83	3,521
1979	102	81	1,268
1980	309	189	3,721
1981	157	87	6,148
1982	187	81	5,485
1983	302	189	5,945
1984	261	159	4,972
1985	233	168	9,553
1986	241	142	5,565
1987	263	158	15,038
1988	191	124	6,354
1989	221	117	11,699
<u>Kah Shakes</u>			
1978	11	8	122
1979	16	6	0
1980	33	24	75
1981	6	5	12
1982	30	18	342
1983	33	24	103
1984	14	6	116
1985	19	10	0
1986	5	2	0
1987	5	4	0
1988	6	6	68
1989	10	9	0

--Continued--

Table 8. (page 2 of 2.)

Year	Permits Issued	Permits Returned	Total Pounds Harvested ^{*/}
<u>Sitka Area</u>			
1979	21	10	137
1980	19	13	145
1981	26	19	192
1982	36	25	886
1983	69	48	1,991
1984	50	40	1,281
1985	71	45	3,963
1986	90	82	3,929
1987	97	59	8,827
1988	127	77	6,146
1989	70	53	962

^{*/} Total harvest expanded from harvests reported on returned permits to include estimate of the non-reported harvest.

Table 9. *Macrocystis* kelp harvested and transported to Prince William Sound for the roe on kelp fishery.

Year	Tons of <i>Macrocystis</i> Kelp Transported
Prior to 1984	5-15 Annually
1984	61.0
1985	11.0
1986	16.0
1987	22.5
1988	38.3
1989 ^{a/}	0

^{a/} No transport of kelp occurred in 1989 to the Prince William Sound pound fishery because of the oil spill.

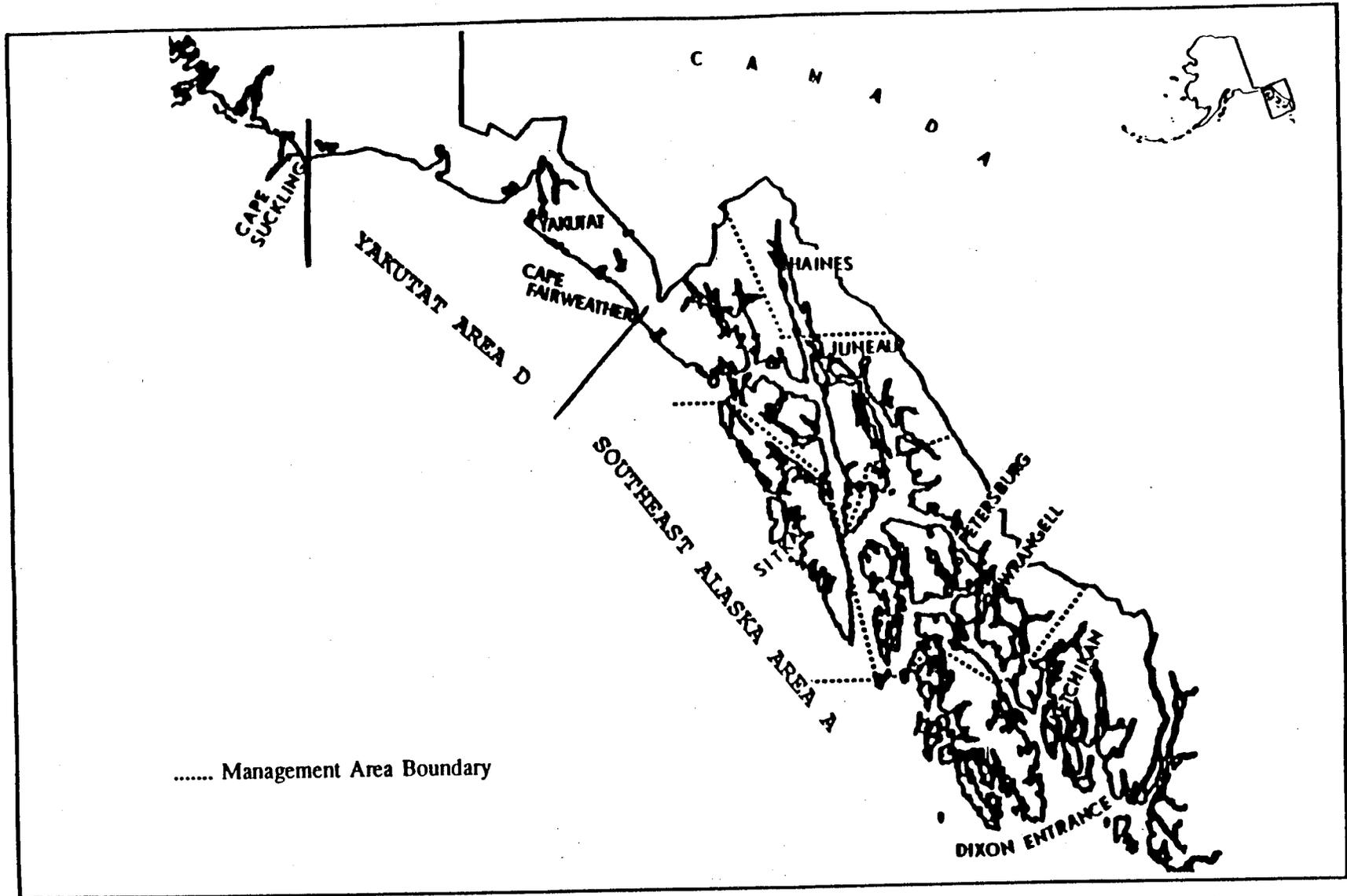


Figure 1. Southeast Alaska Region (Region 1) Herring Registration Areas (Southeast Alaska Area A and Yakutat Area D) and Management Area Boundaries.

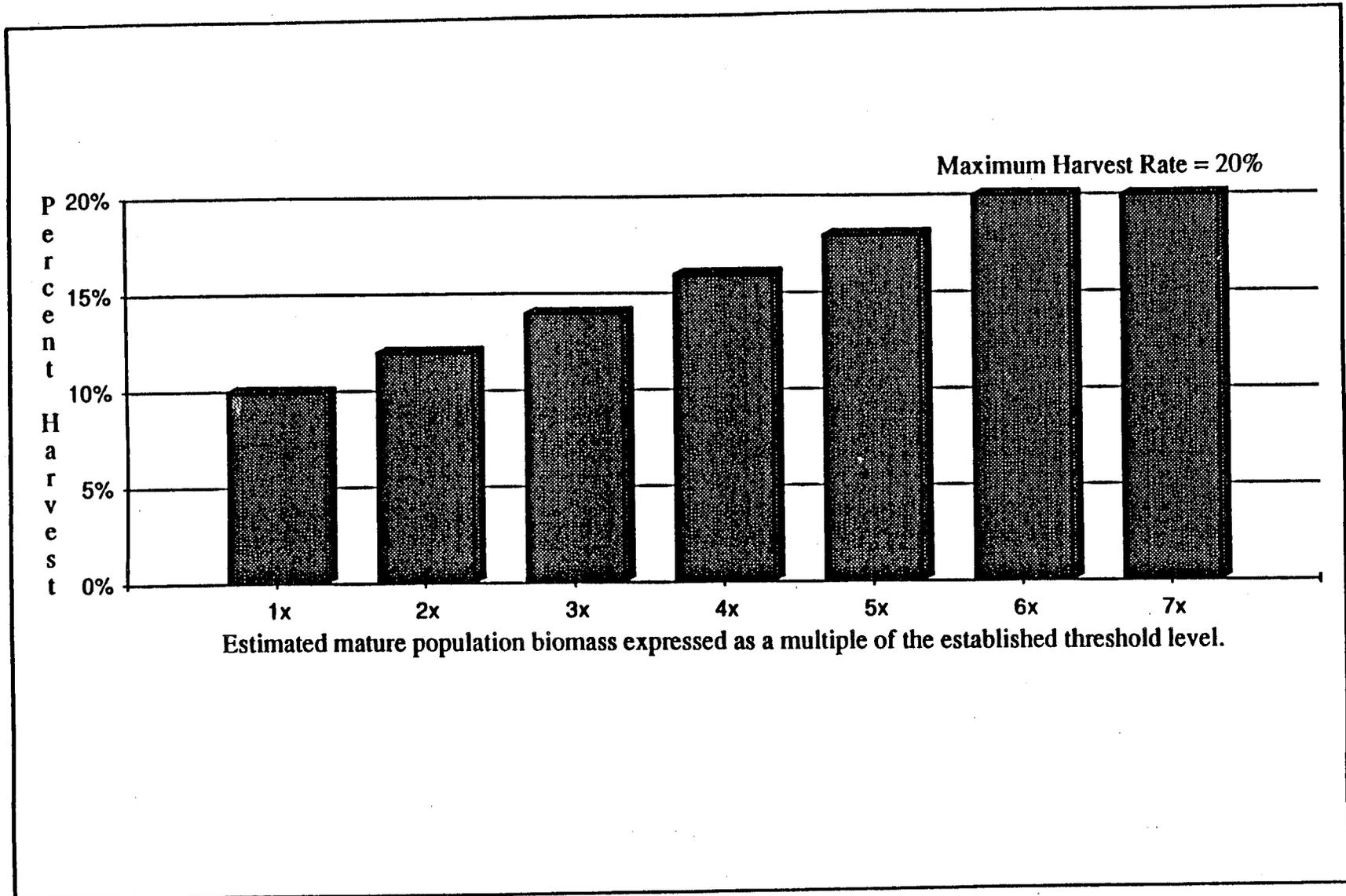


Figure 2. Generalized harvest strategy for Southeast Alaska herring stocks showing allowable percent annual harvest related to estimated biomass of mature stock expressed as a multiple of the established harvest threshold level.

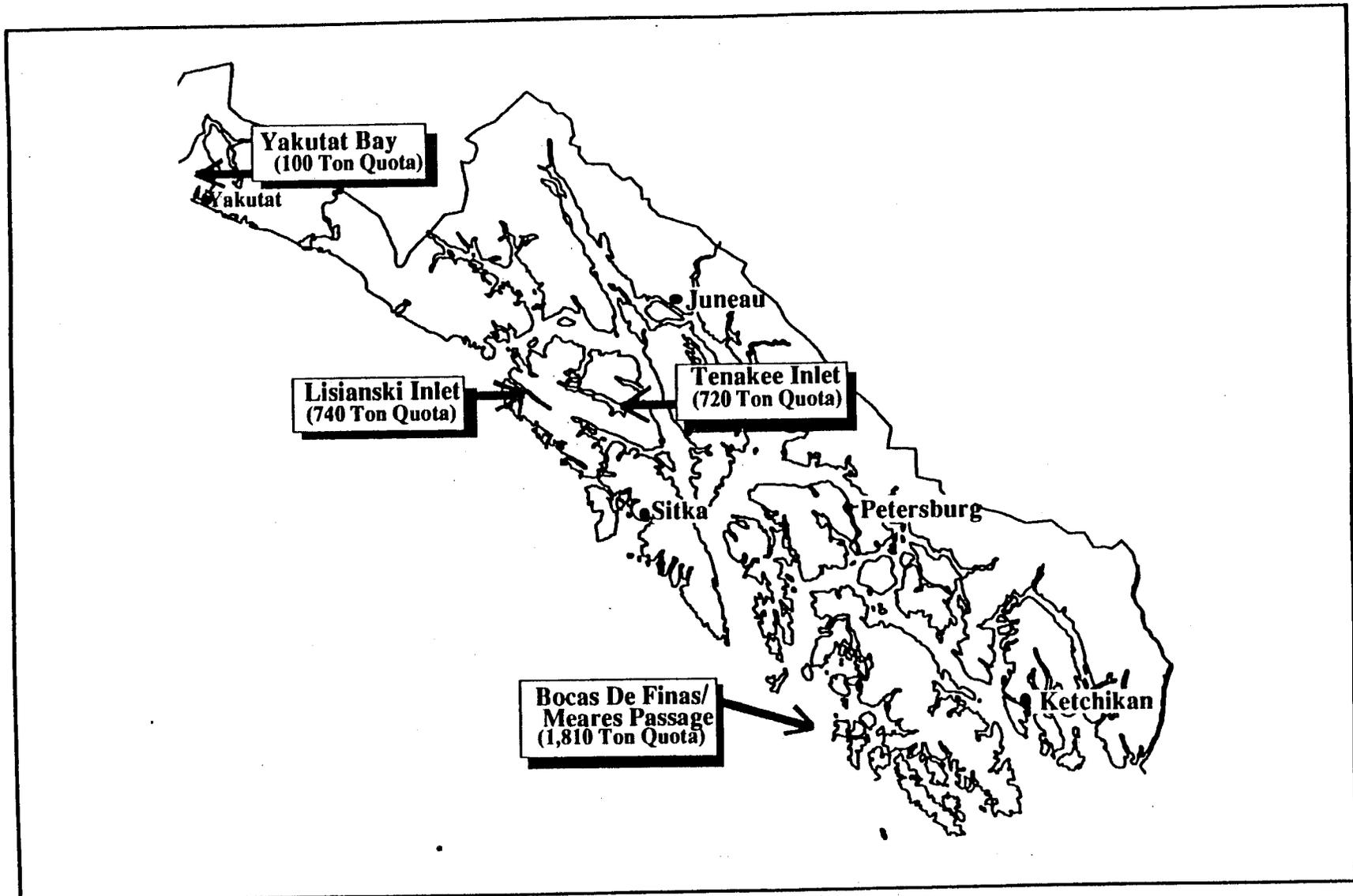


Figure 3. Southeast herring food and bait fishing areas, 1988/89.

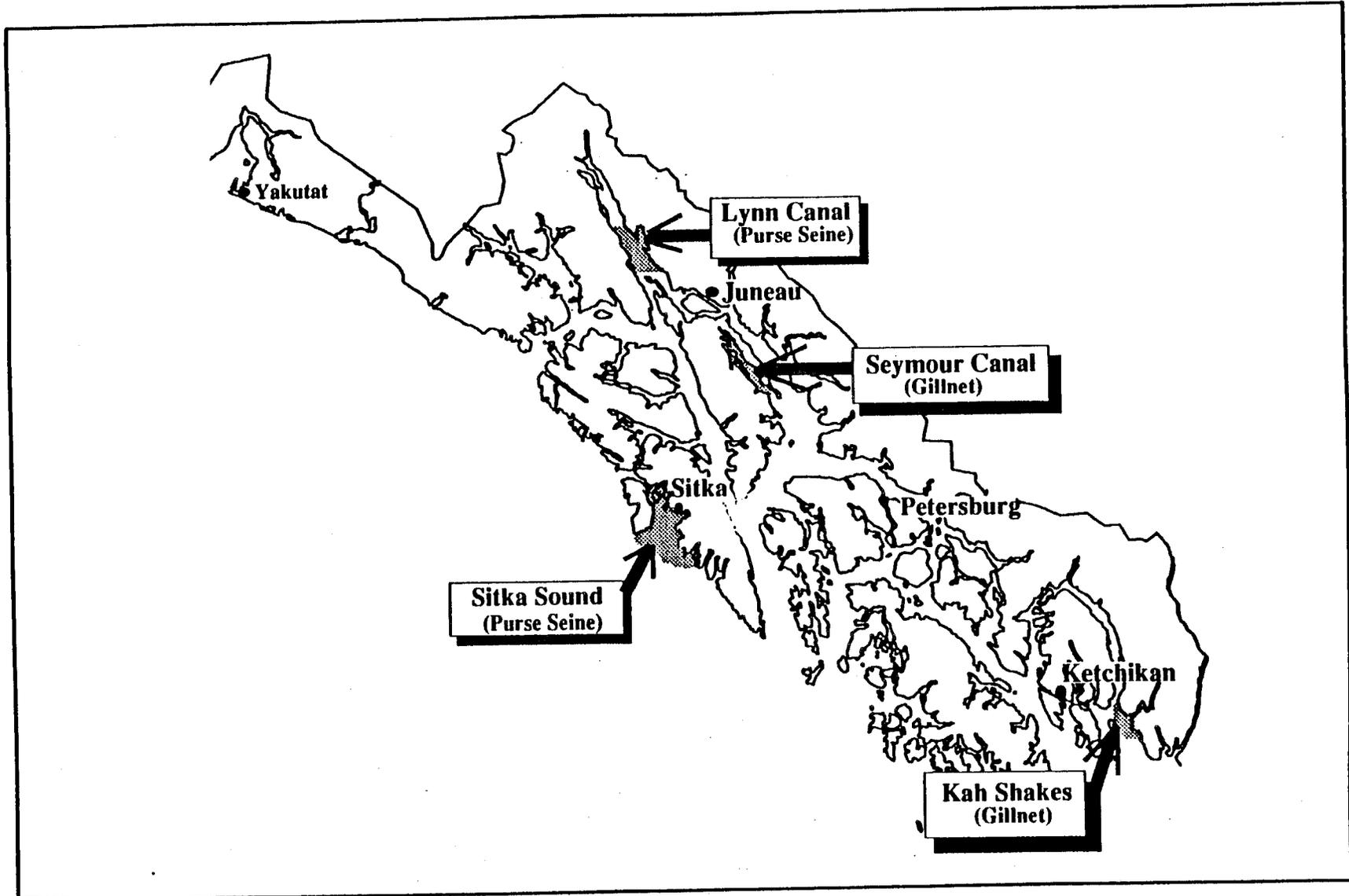


Figure 4. Southeast Alaska sac roe fishing areas.

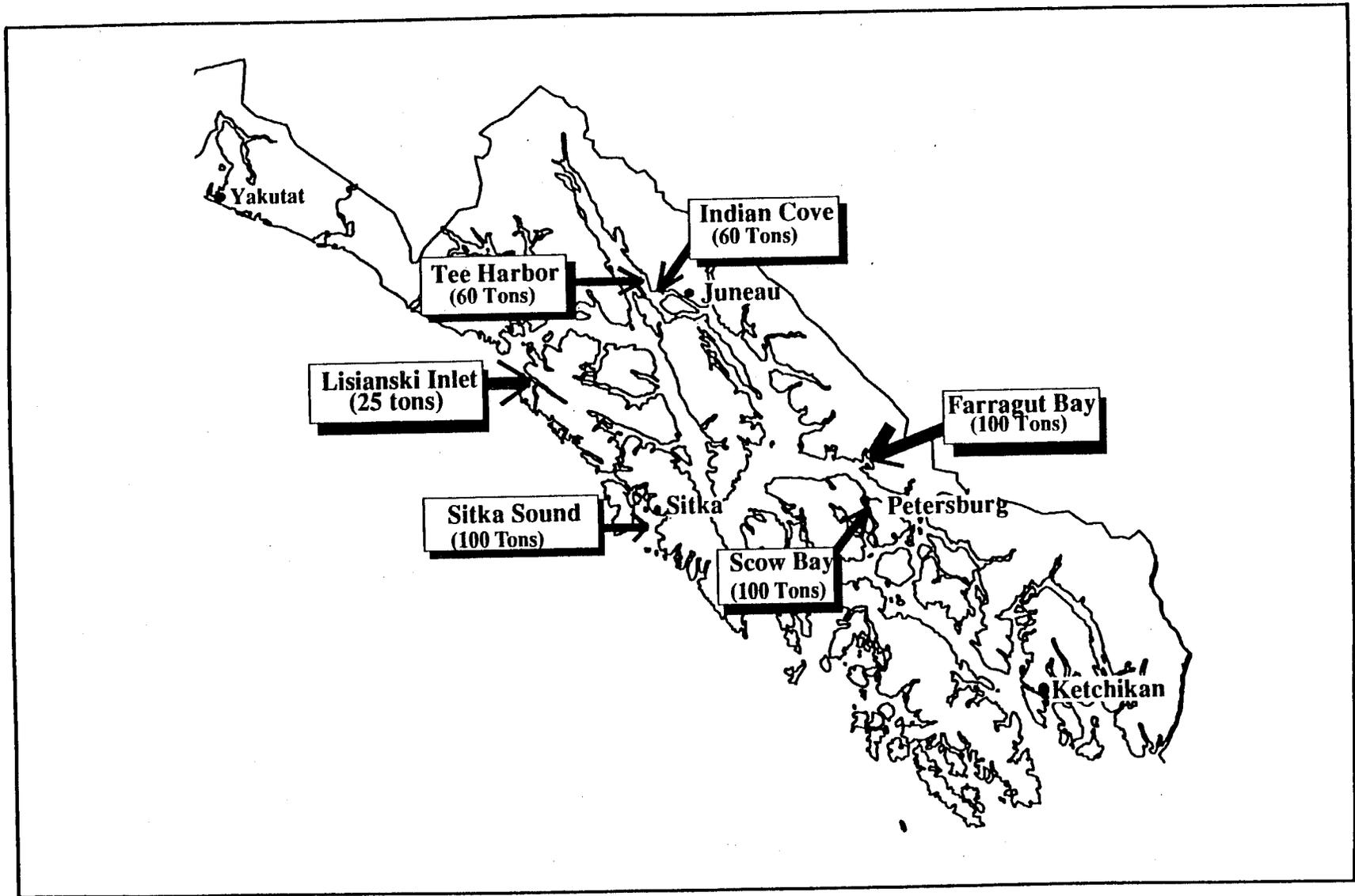


Figure 5. Fresh bait pounds - Southeast Alaska.

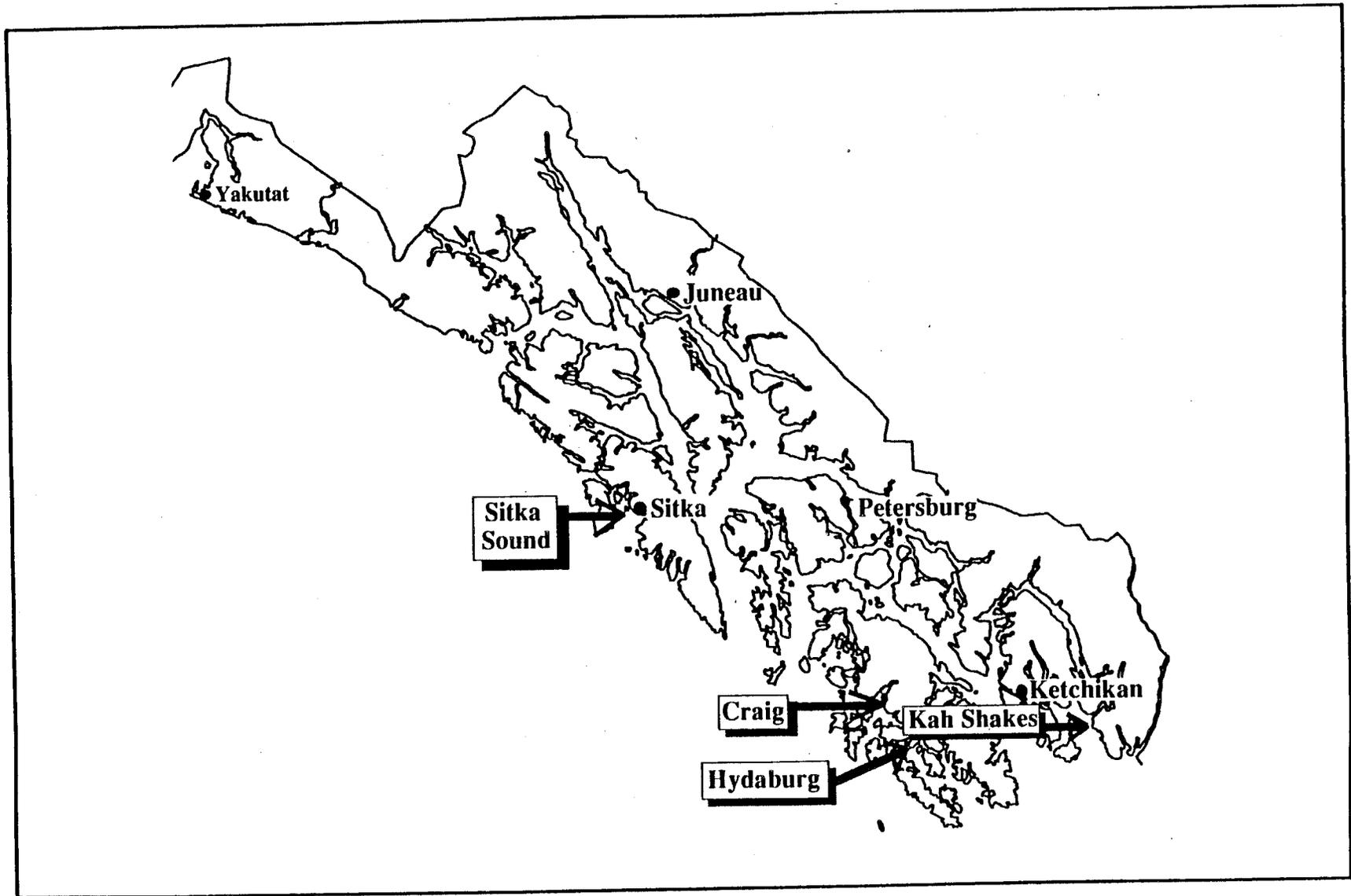


Figure 6. Major Southeast Alaska spawn-on-kelp subsistence fishery areas.

REPORT TO THE BOARD OF FISHERIES
1989 SOUTHEAST ALASKA-YAKUTAT GROUND FISH FISHERIES



By

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Alaska Department of Fish and Game
Division of Commercial Fisheries
Juneau, Alaska

February 1990

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1. Alaska Department of Fish and Game Region 1 boundaries and groundfish management areas in the Eastern Gulf of Alaska
2. The Southeast Alaska coastline showing Alaska Department of Fish and Game groundfish management areas

ABSTRACT

The 1989 Region I Groundfish Report to the Board of Fisheries includes summaries of catch and effort information and management action in the state-managed groundfish fisheries in the Eastern Gulf of Alaska during 1989. Preliminary harvest figures indicate a total harvest of nearly 5.7 million pounds landed weight worth an estimated ex-vessel value of nearly \$4.8 million. The total 1989 groundfish harvest decreased by 17% and the value decreased by 31% compared to the 1988 levels. Most of the decrease resulted from declines in rockfish, sablefish, and flatfish harvests and a substantial decline in the ex-vessel value of sablefish. However, the harvest of all groundfish species was lower in 1989 than in 1988.

Sablefish seasons were extremely brief; with a five day fishery for the SSEI area and 1 day for the NSEI area. The upper end of the guideline harvest range for the northern inside area was exceeded by nearly 1 million pounds (61%). The upper end of the SSEI area fishery harvest range was exceeded by 22%. The excess harvest in both areas is the result of increased effort and does not reflect an improvement in stock condition in either area.

Three of the five Southeast management areas were closed to demersal shelf rockfish fishing during portions of the 1988-89 season when the spring seasonal harvest objectives were reached. This was the first year that rockfish were managed with a split season. The 15% portion of the annual harvest objectives reserved for the summer season was not taken in any of the management areas.

A summary of new regulations adopted by the Board of Fisheries in 1989 are included in the management section under each species. Detailed descriptions of the primary Region I groundfish fisheries including landings by area and management action taken during the year are included in the report.

INTRODUCTION

The Alaska Department of Fish and Game has management jurisdiction over all groundfish resources in state waters within the Eastern Gulf of Alaska Area. State waters include all internal waters in Southeast Alaska and Yakutat Bay and waters within three miles of shore along the outer coast. In addition, a provision in the Gulf of Alaska Groundfish Fisheries Management Plan grants the state management authority over demersal shelf rockfish in both state and federal waters in the Southeast Outside District (outer coastal waters east of 137° W. longitude).

The Eastern Gulf of Alaska regulatory area for groundfish management encompasses all waters surrounding the Alexander Archipelago from Dixon Entrance (54°30' N. longitude) on the south and projects northwestward along the outer coast to 147° W longitude (Figure 1). This is an extension from the previous westward Region I boundary at Cape Suckling (144° W latitude). This change was implemented by the Board of Fisheries early in 1989 to make the Alaska Department of Fish and Game boundaries for groundfish management consistent with Federal management areas in the Gulf of Alaska. The Cape Suckling boundary is still used to separate Region I and Region II for management of other fisheries.

Five groundfish management regulatory areas have been established in Southeast Alaska (Figure 2). Three of the areas are along the outer coast and two are in the internal waters. The Southern Southeast Outside (SSEO) area includes all outer coastal waters from 54°30' N latitude and 56° N latitude. The Central Southeast Outside (CSEO) area includes the outer coastal waters between 56°00' and 57°30' N latitude. The Northern Southeast Outside (NSEO) area includes all outer coastal waters between 57°30' N latitude and 137° W longitude. The two inside areas are the Northern Southeast Inside (NSEI) and Southern Southeast Inside (SSEI) management areas, each of which represents approximately one half of the internal waters of Southeast Alaska. The NSEI area includes waters of Chatham Strait, Stephens Passage, Glacier Bay, Frederick Sound, Icy Strait, Peril Strait, Lynn Canal and the adjacent bays and inlets. The SSEI area includes: the Dixon Entrance District east of Cape Muzon; Clarence Strait; Cordova Bay; Ernest Sound; Behm, Portland, and Bradfield Canals; Sumner Strait; and all waters inside the island chain along the outer coast of Prince of Whales Island including the Gulf of Esquibel, Bucareli Bay, Davidson Inlet, and Sea Otter Sound.

Besides having direct management responsibility for certain groundfish species, the Region I Groundfish Project provides harvest information and other resource data from the adjacent Exclusive Economic Zone (EEZ) to the National Marine Fisheries Service (NMFS) and the North Pacific Fisheries Management Council (NPFMC) under the terms of a cooperative agreement with NMFS. Under that agreement department staff has responsibility for collecting, editing, and entering all fish tickets from domestic harvest of groundfish in Alaskan waters. The NMFS fish ticket data collection agreement was extended through 1989.

The offshore sablefish and "other rockfish" fisheries are managed jointly by the state and federal governments through informal agreements. Data provided by the state has been used extensively by NMFS for in-season management of the EEZ fisheries. The state is also involved in management of groundfish in the EEZ through the Groundfish Project Leader's participation on the Gulf of Alaska Groundfish Plan Team.

This report provides detailed harvest, effort, and management information for the state-managed groundfish fisheries. This includes all groundfish species in internal waters, demersal shelf rockfish in all waters of Southeast Alaska, and lingcod region wide. Only summary harvest information from Federal-managed fisheries in the adjacent EEZ of the Eastern Gulf is provided.

Primary state-managed fisheries within the region include sablefish, rockfish, lingcod, starry flounder, and Pacific cod. By regulation, in Southeast Alaska, sablefish can be fished only with longline and pot gear and state-managed rockfish fisheries are restricted to hook and line gear only. Fisheries targeting on sablefish and demersal shelf rockfish are both executed almost exclusively by longline gear although some sablefish pot harvests and rockfish harvests by jigging machines and troll gear also occur.

Management of both the target rockfish longline and the flatfish trawl fisheries is based on a season which begins on October 1 of each year. This report, therefore, provides information from the 1988-89 season for those species. All other species and species groups are managed on a calendar year basis.

In addition to their target fisheries rockfish, Pacific cod, and lingcod are also landed in the salmon troll and halibut longline fisheries. Some deep water rockfish are also landed incidental to the sablefish fisheries. Flatfish (flounder and sole) are harvested almost exclusively by trawl gear. Pollock trawl fisheries, which averaged nearly 1 million pounds annually from 1976-1980 have been minimal since 1981 and no significant landings have been reported since 1983.

Preliminary 1989 groundfish landings from state managed fisheries totaled slightly over 5.7 million pounds landed weight, a significant reduction from the 1988 harvest of over 7 million pounds. Ex-vessel value of the harvest decreased even more dramatically from over \$7.1 million in 1988 to approximately \$4.9 million in 1989. The 1988 and 1989 landings and value of major groundfish species are shown in Table 1.

Federal-managed groundfish fisheries conducted in the Eastern Gulf are not discussed in detail in this report. Landings from federal-managed fisheries in the region totaled 19,604 metric tons (43.2 million pounds) worth an estimated ex-vessel value of nearly \$38 million. Landings by species by federal management area are shown in Table 2.

Since some fish tickets are still being received from fisheries conducted during 1989, information contained within this report should be considered preliminary.

SABLEFISH (BLACKCOD) FISHERY

Southeast Alaska has historically been separated into Inside and Outside areas for sablefish management with the "surf line", established by regulation, used as a separation between those areas. The state has exclusive management jurisdiction in the NSEI and SSEI management areas. The state also has jurisdiction for sablefish in state waters along the outer coast outside of the surf line to three miles from shore. There are few sablefish actually harvested from that area and available data is inadequate to justify separate management. Therefore, the sablefish fishery in that area is managed in conjunction with the seasons and quotas set by the NPFMC for the adjacent EEZ.

In state waters, the sablefish fisheries are regulated by seasons and guideline harvest levels which are set and then periodically reviewed by the Board of Fisheries.

The SSEI area season extends from an opening date, which is set by Emergency Order in June, through November 15, or until an annual harvest objective of between 125,000 and 500,000 pounds dressed weight has been taken. Most of the fish are harvested in the deep water areas of Clarence Strait and Dixon Entrance. Sablefish are also harvested in Behm Canal and from Cordova Bay.

The NSEI area season extends from an opening date in September, which is set by Emergency Order, through November 15 or until an annual harvest objective of between 500,000 and 1,500,000 pounds dressed weight has been taken. Most of the fish from the NSEI area are harvested from Chatham Strait. In addition, minimal harvests are also reported from Frederick Sound, Icy Strait, and Lynn Canal.

Offshore state waters, including salmon management Districts 4 and 16, and Sections 13-A and 13-B, are opened April 1 to correspond with the opening of the offshore waters set by the NPFMC. Since those districts are managed in conjunction with the adjacent EEZ the seasons are set accordingly. However, because of the generally shallow depths, very little sablefish harvest occurs in those districts.

Fishing Gear

In state waters of Southeast Alaska, sablefish fishing is restricted to use of longline and pot gear. Use of pot gear is further restricted to the SSEI management area only. The number of vessels participating in each of the 1989 state managed sablefish fisheries was reported in the section on catch.

The numbers of vessels which participated in both of the inside fisheries during 1989, (183 vessels) was over twice the target numbers set by CFEC for both areas (88 vessels). The target number for the

NSEI area is 73 longline vessels while the target for the SSEI area is 12 longline and 3 pot vessels. These numbers are based upon the numbers of vessels participating during the 1984 seasons.

Management

The state has direct management responsibility for sablefish fisheries in state waters under regulations approved by the Board of Fisheries. The department has also contributed substantially to offshore sablefish management in recent years. Department reports on sablefish migration, growth, status of stocks, and fisheries performance have been used to help determine appropriate harvest levels Gulf-wide. Management related research studies are improving managers' understanding of the complex biology of this species throughout its range.

Staff participation on the Gulf of Alaska Groundfish Plan Team provides direct input to the NPFMC decision-making process regarding harvest levels, seasons, and gear issues. In addition, the department is the primary data collection agency for domestic catch information which is used for management of the offshore fisheries.

Comparative catch and effort data from the commercial fishery is currently being used for managing inside sablefish fisheries. However, data gathered during abundance indexing surveys conducted during 1988 and 1989 in both inside management areas is expected to replace fisheries performance as the principal management tool after one more year of survey data collection.

The season timing and duration are set for each area well in advance of the openings. This is done to allow the participating fishermen adequate time to plan their operation. Past catch and effort data and anticipated effort for the upcoming season are used to establish the season length. The timing of the seasons are set within regulatory guidelines for each area to minimize conflicts with other major groundfish and halibut fisheries and to correspond with favorable tide conditions for fishing.

Both fisheries are intensively monitored during the fishing period. Overflights of the fishing grounds are conducted to determine fleet distribution and to verify fish ticket reporting data. Two flights were made during the 5-day SSEI area opening and one flight was made during the 24-hour NSEI area opening. The 1989 overflight of the NSEI area was incomplete because of inclement weather conditions. Port samplers in Petersburg, and Ketchikan obtained skipper interviews from the SSEI area fishery. Samplers in those two ports plus Sitka, Pelican, Hoonah, Juneau, Excursion Inlet, and Seattle obtained interviews and collected tags from the NSEI area fishery. The port samplers primary responsibility is to obtain interviews from as many participating vessel operators as possible. The interviews provide detailed effort data as well as information on location of fishing, numbers of fish caught, and amount of gear lost during the fishery. In addition to collecting interview data, the port samplers also retrieve logbook pages from skippers participating in the logbook program, and retrieve sablefish tags recovered during the fisheries.

Because of advances in gear technology, shorter, more intense seasons, and substantial increases in the number and size of vessels in these fisheries, fishery performance data is not considered to be a valid indicator of stock condition. An analysis of longline monitoring data conducted in 1986 indicates that there is a significant risk of over harvest if fisheries performance is used as the only criteria for fisheries management, particularly in rapidly evolving fisheries such as the sablefish fishery. As a result, beginning in 1988, stock assessment surveys were conducted in both the SSEI and NSEI areas prior to the seasons. These surveys were repeated in 1989 and analysis is still ongoing. Comparative information with which to determine relative abundance trends will not be available until later in the year. The survey information was not used to set seasons during 1989, however, results of the 1988 and 1989 surveys will be examined prior to setting the 1990 season lengths.

Independent stock assessment is considered vital for monitoring stock condition in these fisheries. The department will rely more heavily on abundance indexing surveys in both the NSEI and SSEI areas in the future. These surveys are being conducted using test fish funding. Comparative analysis will contribute to management for the 1990 season. The staff is not recommending changes in current guideline harvest ranges until the survey results provide justification for that action.

Otoliths (aging structures) collected during the surveys were sent to the department groundfish age reading laboratory in Kodiak. These data will be used to determine the changes in the age distribution of the sablefish populations over time. Aging work is on-going and results are not yet available.

In addition to the abundance indexing survey, the department conducted an exploitation rate study in cooperation with NMFS during 1989. During this survey over 8,000 sablefish were tagged in the northern portion of the NSEI area just prior to the fishery. Tag recovery effort was intensified by placing NMFS biologists in Seattle and Juneau, and ADF&G technicians in Hoonah, Pelican, and Excursion Inlet during the fishery. This effort was in addition to the normal distribution of ADF&G samplers in Petersburg, Sitka, and Ketchikan. A follow-up survey was conducted in the same area after the fishery to determine the change in catch rate as a result of harvest during the fishery. The data is being analyzed using both tag recovery rate and change in catch rate after the fishery to estimate the exploitation rate of sablefish during the fishery. A population estimate will also be generated by dividing the total catch from the area by the estimated exploitation rate.

1989 Season Summary

The 1989 sablefish landings from the state-managed fisheries totaled nearly 3.1 million pounds landed weight, which converts to over 4.9 million pounds (2,232 mt) round weight. This approaches the record harvest of over 3.2 million pounds reported in 1988. Of the 1989 total harvest, 82,000 pounds were reported landed from the two inside management areas either before or after the seasons set for that

species. Fishing time in both areas totaled only 6 days with 5 days in the SSEI area and 24 hours in the NSEI area.

The price for sablefish decreased substantially in 1989 to an average ex-vessel dressed price of less than \$1.20 per pound from a peak of nearly \$1.70 in 1988. The estimated ex-vessel value of sablefish from state-managed fisheries was approximately \$3.6 million, a 32% decrease from the estimated \$5.3 million ex-vessel value of the 1988 harvest.

Northern Inside (NSEI) Area

Based on a projection that the number of vessels would be reduced from the 1988 levels by a change in Commercial Fisheries Entry Commission (CFEC) permit procedures, the opening period for the NSEI area was set for 24 hours in 1989. To minimize problems with tides and to eliminate conflicts with an area 2-C halibut opening set for earlier in the month, the season opening was set for noon September 22. The number of vessels and amount of gear run per vessel both exceeded anticipated levels again in 1989. Preliminary harvest information shows that 151 vessels harvested nearly 2.4 million pounds landed weight of sablefish during the 24-hour opening. The 1989 harvest exceeded the 1.5 million pound upper end of the harvest guideline range by nearly one million pounds. This was the seventh consecutive season during which the upper end of the range has been exceeded.

A moratorium on new effort imposed by the CFEC in 1985 has not been successful in decreasing the number of participating vessels. In fact, the number of vessels which fished during the 1987, 1988, and 1989 fisheries was over twice the number that fished in 1984, the cut-off year for participation. In addition to an increase in numbers of participants, the vessels now fishing are larger, carry more gear, and are more efficient than ever before. This year the vessels fished an average 4.8 times more hooks per unit of time than in 1984. This has resulted in an increase in total effort much greater than the increase in vessel numbers alone implies.

Southern Inside (SSEI) Area

New regulations adopted in 1989 allow for a flexible opening date for the SSEI area sablefish fishery. The season is to be opened by Emergency Order after June 1 and set for a time period that does not conflict with big tide ranges or with an area 2-C halibut opening. The fishery was open from noon June 22 through noon June 27 in 1989. The 1989 harvest reached approximately 607,750 pounds landed weight, which is nearly 22% above the 500,000 pound upper end of the guideline harvest range. This is the highest harvest reported from the SSEI area since the early 1970's.

Stocks are still considered to be in relatively low abundance in the SSEI area. Preliminary results of abundance indexing surveys conducted during 1988 and 1989 showed a reduction in catch rates of over

35% between those two years. Long-term harvests above the mid-point of the 125,000 to 500,000 pound harvest range do not appear to be justified.

A total of 32 vessels fished in the SSEI area during the 1989 season. This was an increase from 28 vessels in 1988 and 26 vessels in 1987 and substantially higher than the target number of 15 vessels set for this area by the CFEC. All but one of the vessels fished longline gear during the 1989 season.

More gear was run per vessel in this fishery during the 1989 season resulting in an increase in total effort. Average catch increased from 12,600 pounds per vessel in 1987 and approximately 17,000 pounds per vessel in 1988 to nearly 19,000 pounds per vessel in 1989. The increase in average catch per vessel was directly attributable to the increase in the amount of gear run since catch per hook declined significantly between 1988 and 1989. The increase in vessels and individual effort are both considered to be the major factors accounting for a greater than anticipated harvest during the 1989 season.

Projection

The number of vessels participating in the NSEI area fishery is expected to decrease slightly in 1990 as limited entry criteria are applied to the issuance of permits. Little change is expected in the number of vessels in the SSEI area fishery. In fact, the effort could increase even more in that area compared to recent years based on the total number of 1990 permits that may be issued. A number of permit applications are under adjudication and the actual numbers will not be known until later in the year. Regardless of the number of participating vessels, total effort (amount of gear deployed) will continue to increase as larger, more efficient vessels enter the inside area fisheries.

A total harvest objective of approximately 1.8 to 2.0 million pounds is anticipated for both inside fisheries for the 1990 seasons. Unless the 1990 surveys indicate a substantial improvement in stock condition, it will be difficult to justify 1990 harvest objectives exceeding the upper end of the guideline harvest range for either area. If survey data indicates a continuation of the declining trend in abundance, the harvest objectives may have to be reduced even further. If the effort levels remain as high as anticipated, the seasons may have to be shortened to stay within the harvest objectives.

The information collected from the 1988 and 1989 surveys indicates that the high sablefish abundance observed in the inside area fisheries over the past several years is beginning to decline. This is consistent with reports of declining abundance in the outside waters. If this trend continues, more restrictive harvests may be required in the near future. A harvest objective not to exceed the upper end of the harvest range (1.5 million pounds) for the NSEI area, and a harvest objective below the upper end of the harvest range (350,000 to 400,000 pounds) for the SSEI area will likely be set for the 1990

seasons. A final determination of the annual harvest objectives will be made after the completion of the 1990 surveys in each area.

No evidence of an expected strong 1984 year class was observed in length frequency or age samples taken from either the fisheries or the surveys conducted during 1988 and 1989. There were earlier indications that recruitment from that year class would be above average in Southeast Alaska waters. With the apparent lack of recruitment from the 1984 year class, there is no evidence of any strong recruitment between 1981 and 1988. This indicates no significant recruitment until at least 1994 and suggests that sablefish populations may continue to decline at current harvest levels. Most of the adult fish from the 1977 and 1981 year classes which have contributed to the increase in abundance in recent years have passed their maximum growth potential and no new recruitment is evident. The surveys planned for 1990 and beyond should provide a better indication of the population trends.

ROCKFISH FISHERY

Two genera, *Sebastes* and *Sebastolobus* and over twenty species of rockfishes are landed in the Region I groundfish fisheries. Thornyhead rockfishes (*Sebastolobus spp.*) occur along the continental slope in depths as great as 1,000 fathoms. These fish are landed primarily as bycatch in the sablefish longline fishery. The *Sebastes* rockfishes are divided into three main assemblages based on habitat preference and behavior:

- The demersal shelf rockfish assemblage is comprised of ten nearshore bottom dwelling species includes yelloweye rockfish (*S. ruberrimus*) and quillback rockfish (*S. maliger*) as the predominant commercial species.
- The pelagic shelf rockfish assemblage is comprised of five nearshore schooling species including black rockfish (*S. melanops*) and dusky rockfish (*S. ciliatus*).
- The deep water slope assemblage is found along the edge of the continental shelf and on the continental slope in depths as great as 400 fathoms. This group contains all remaining *Sebastes* rockfishes. Pacific ocean perch (*S. alutus*), rougheye rockfish (*S. aleutianus*), and shortraker rockfish (*S. borealis*) are predominant commercial species in Southeast Alaska.

Rockfish fisheries under state jurisdiction are managed in Southeast Alaska based upon the five groundfish management areas described earlier in this report. A provision in the Gulf of Alaska Groundfish Fisheries Management Plan transfers direct management authority to the state for the demersal shelf rockfish assemblage in both state and federal waters east of 137° west longitude. State

jurisdiction over the other assemblages is restricted to state waters. No state management policies or regulations have been developed for the other assemblages, hence the management section of this report includes a complete discussion on the demersal shelf rockfish assemblage only.

Demersal shelf rockfish are the target of a vigorous directed longline fishery. Fishing effort is concentrated along the outer coast of Baranof and Kruzof Islands and the waters surrounding Prince of Wales Island including Sumner and Clarence Straits. The remaining portions of Southeast Alaska are also fished, but to a lesser extent. Productive fishing grounds occur in areas of rocky reefs and pinnacles from 15 to 90 fathoms in depth. A large portion of the fishery occurs in federal waters.

In addition to the target fishery, rockfish are harvested throughout the region incidental to fisheries for halibut, sablefish, and salmon. A new regulation adopted in 1989 allows for the unrestricted retention of all demersal shelf rockfish landed during halibut fisheries. In areas closed to directed fishing for demersal shelf rockfish and for vessels using gear or permits not allowed for the direct harvest of rockfish, up to 10%, by weight, of all species on board may be demersal shelf rockfish. This is to minimize waste of these valuable species since, due to their physiology, most demersal shelf rockfish are fatally injured when caught on fishing gear and brought to the surface.

Fishing Gear

Directed fishing for rockfish is restricted by regulation to hook-and-line gear in Southeast Alaska. Total effort in terms of number of individual vessels participating in the target fishery is very difficult to quantify since several fisheries share the same permit card. For the purposes of this report the "target" fishery for demersal shelf rockfish is defined as those landings made using an M61B or M06B (miscellaneous saltwater finfish longline permit cards) with demersal shelf rockfish poundage reported on the fish ticket. Under this definition, 206 vessels made a total of 633 landings during the 1988-89 season. The actual number of vessel actively participating in this fishery is much lower than this. For example, all participating vessels averaged just slightly over three landings and only 64 vessels made landings with 1,000 pounds or more of demersal shelf rockfish during the 1988-89 season.

Longline gear is the predominant method of harvest for this group of fish. Snap-on longline gear using 4 to 6 foot spacing and circle hooks is most often used. Jigging machines, hand trolling (sport poles) and dingle bars are used to harvest this species to a lesser extent. Five metric tons of demersal shelf rockfish was reported as bycatch by trawl vessels fishing for other rockfish in the EEZ.

Management

For the first time since 1984, the Board of Fisheries reviewed regulations for the demersal shelf rockfish fishery at their winter, 1989 meeting. Consequently, several new regulations were implemented.

The fishery is managed with an October 1 starting date. During 1989 the Board of Fisheries passed a regulation providing for a split season to facilitate marketing of fresh product over an extended portion of the year. Under this regulation no more than 43% of the annual harvest objective is to be taken in each management area between October 1 and November 30, 42% from December 1 through May 15, and 15% from July 1 through September 30. Additionally the annual guideline harvest limits for demersal shelf rockfish were reduced substantially in all areas. The current guideline harvest ranges are shown in Table 3.

Primary management action for the Southeast rockfish fisheries centers around catch and effort monitoring. Management areas are closed when fish ticket data indicates that seasonal harvest objectives will be reached. In addition, port samplers working in the major ports sample landings for species composition and collect age-weight-length (AWL) samples from the landed catch. Interviews are conducted with vessel operators to obtain detailed information on effort, harvest location, number of fish discarded, and other information. Port samplers also collect logbook entries from the mandatory logbook program which was initiated by regulation in 1989.

A portion of Sitka Sound, which was closed by emergency order after public meetings in the fall of 1987 was extended to include the waters around St. Lazaria Island and it was permanently closed to directed rockfish fishing by regulation at the 1989 Board meetings. At the same time, a similar area surrounding Ketchikan was also closed to directed rockfish fishing.

All of the SSEO area and portions of the SSEI and NSEI areas were closed from March 3 until July 1 to assure that enough of the fish remained in each area to allow for harvest of 15% of the annual harvest objective during the summer period. This was to satisfy the new split season regulations passed by the Board. The remaining portion of the SSEI area was closed from March 22 until July 1 and the remaining portion of the NSEI area was closed from April 29 until July 1. The harvests in the NSEO and CSEO areas remained below the harvest objectives in each of the three harvest periods and remained open throughout the entire season. The total annual harvest objective (three seasonal segments combined) was met only in the SSEI area during the 1988-89 season.

The demersal shelf rockfish guideline harvest limits and the 1987-88 and 1988-89 season harvest limits for the directed fishery are listed in Table 3. The harvest of "other" rockfish and the incidental catch of demersal shelf rockfish in fisheries for other groundfish species is listed in Table 4.

In addition to the regulation changes mentioned above, the Board also changed the regulations regarding personal use and bait harvest of groundfish. Under the new regulations any CFEC permit holder may fish for groundfish for bait to be used in the fishery for which the permit is held. However, fishermen may not target on demersal shelf rockfish while fishing for groundfish to use as bait in other fisheries and no more than 10%, by weight, of all species on board taken for bait purposes may be demersal shelf rockfish. Any gear allowed in the regulations for groundfish fishing in Southeast Alaska except trawl gear may be used.

Last year rockfish fishermen from Southeast Alaska recommended that an individual fishing quota (IFQ) management option be explored for the demersal shelf rockfish fishery. The Pacific States Marine Fisheries Commission (PSMFC) contracted a private consultant to conduct meetings regarding this topic. During July, 1989 a rockfish working group meeting was held to discuss the IFQ option and public workshops were scheduled for later in the year to explore this possibility. At the time of this report, workshops have been held in Pelican, Petersburg, Sitka, Ketchikan and Craig. A summary report of these workshops will be drafted by the contractor.

The concept of IFQs has been met with mixed reaction. In Sitka the fishermen attending the workshop were opposed to the use of IFQs in this fishery, objected to the concept of the rockfish working group, and to contracting an independent consultant to conduct the meetings. Use of IFQs met with a more favorable response from Petersburg, Ketchikan, and Craig fishermen who attended the workshops. There were, however, concerns expressed in those ports as well.

1988/89 Season Summary

The directed fishery for demersal shelf rockfish is managed on a season basis which extends from October 1 of one year through September 30 of the following year or until the harvest objectives are reached.

During the 1988-1989 season the target fishery for demersal shelf rockfish fishery landed 1.02 million pounds (463.4 metric tons) round weight¹. Additionally, 370,030 pounds (168 metric tons) of demersal shelf rockfish were landed in other fisheries during 1989².

Yelloweye rockfish (*S. ruberrimus*) accounted for 71% of the target catch by weight. This percentage should actually be higher, however, since yelloweye are also recorded as red snapper or unspecified demersal shelf rockfish. It is difficult to determine the amount of incidental catch for this fishery as the

¹ For the purposes of this report "target fishery" is defined as species of demersal shelf rockfish landed using a miscellaneous fin fish card for longline gear.

² 5 mt from trawl landings, 1.8 mt from salmon trollers, and 161 mt from other groundfish fisheries.

directed Pacific cod and lingcod fisheries both also use the same miscellaneous finfish permit card required for the rockfish fishery. Other rockfish species, Pacific cod, lingcod and skate are landed routinely as bycatch in the demersal shelf rockfish fishery. During the 1988-89 season 75 mt of lingcod, 196 mt of Pacific cod, and 68 mt of other rockfish were landed with longline gear using a miscellaneous finfish card.

The SSEI area was the only management area where the seasonal harvest objectives were met during the 1988-89 season. As expected, based on the larger harvest limit, the SSEO area accounted for the greatest total harvest with 159 mt of targeted demersal shelf rockfish, followed by 119 mt from the CSEO area, and 99 mt from the SSEI area.

Pounds per landing remained fairly consistent within areas between the 1987-88 and 1988-89 seasons. The SSEI area was the only area which had a noticeable change with an average decrease of 409 pounds per landing. The SSEO area had by far the highest overall landing size with 3,447 pounds per landing, followed by CSEO which had 1,539 pounds per landing.

Reported landings of demersal shelf rockfish totaled only 58 mt in the East Yakutat and West Yakutat areas combined. The reported landings of other rockfish totaled 63 mt in these areas. These figures primarily represent rockfish landed incidentally to the halibut fisheries. Trawl landings are not available on the regional fish ticket data base, but federal catch reports show that 6,335 mt of slope rockfish and 737 mt of pelagic shelf rockfish were landed in the eastern Gulf of Alaska during 1989.

Projection

The total harvest of demersal shelf rockfish is expected to decline in the 1989-90 season. Poor weather conditions in October and November discouraged active participation in this fishery during the fall of 1989. The Sitka fleet has continued to decline in numbers. The remaining active fishermen report that the resource has stabilized and feel that the guideline harvest levels set for the CSEO area are too low. Fish tickets received to date indicate a smaller fleet size (17 versus 23), fewer landings (27 versus 33), but a significantly larger average landing size (759 pounds/landing compared to 2,549 pounds/landing) in the CSEO area during the October-December period of 1989 compared to the same period in 1988.

In contrast to Sitka fishermen, fishermen from the SSEI and SSEO areas continue to voice concern about declining stocks. Many fishermen have, in fact, expressed concern that the guideline harvest limits set for those areas are still too high.

The numbers of landings and vessels remained fairly stable in the SSEO area between the fall of 1988 and the fall of 1989. The average landing size decreased rather dramatically, however, from 2,888 pounds per landing in the fall of 1988 to 1,130 pounds per landing in the fall of 1989.

Both fleet size and number of landings declined substantially in the SSEI area between the fall of 1988 and the fall of 1989. The average landing size remained similar, however, with 927 pounds per landing during this period in 1988 compared to 963 pounds per landing during the fall of 1989.

During 1989 two types of underwater platforms, a manned submersible and a remotely operated vehicle were tested for usefulness in stock assessment surveys for demersal shelf rockfish. The manned submersible appears to be an excellent tool for use in defining a relationship between demersal shelf rockfish abundance and habitat complexity. A proposal for two years of funding to continue this research was submitted to the National Undersea Research Program of NOAA in January, 1990. Data gathered from this effort is expected to contribute to rockfish management in the future.

TRAWL FISHERIES

The state managed trawl fisheries in Region I occur almost exclusively in the waters of the two Southeast inside management areas. Virtually all of the recent effort has been directed at flatfish which inhabit several large shallow estuaries in the central portion of the Southeast area.

Fishing Gear

Trawl permits were issued to three individual vessels during the 1988-89 season, substantial reduction from the nine permits issued for the 1987-88 season.

All vessels which fished during the 1988-89 season used bottom trawl gear. The vessels responsible for the bulk of the landings use rollers on the foot ropes rather than the disk gear commonly used in the past. This change in gear appears to have reduced the incidental catch of prohibited species, particularly halibut and crab.

Management

Trawl fisheries in state waters of Region I are managed under the terms of a special permit issued by staff biologists by authority of the Commissioner. All permits are cleared with the Regional Groundfish Biologist before they are issued. This is done to maintain consistency and to assure that the areas requested are still open to fishing.

The permits specify areas of harvest, gear restrictions, and reporting requirements. They are generally issued with a 30 day limit and are renewable only upon completion and return of pages from ADF&G furnished log books, which must be completed as a condition of the permit.

During the 1989 Board of Fisheries meetings regulations were adopted which restrict flatfish trawling to four areas of the region. Guideline harvest ranges and seasons were established for each area. Harvests within the newly adopted guideline harvest ranges justified closures of two areas last spring.

1988/89 Season Summary

As only three vessels participated in the 1988/89 trawl fishing season, the reported landing information is confidential. Thus the 1988/89 trawl fishing season can be discussed only in general terms.

The flatfish trawl harvest during the 1988-89 season was distributed similarly to the past few seasons. Most of the harvest (75%) was from the SSEI area with the remaining 25% from the NSEI area. During the 1987-88 season 63% of the total was harvested in the SSEI area.

Total trawl landings during the 1988-89 season were considerable decreased from the 829,962 pounds reported during the 1987-88 season. Of the total seasonal trawl landings, approximately 98% were flatfish.

The trawl fisheries occur primarily during the fall and winter. Over 94% of the harvest occurred during the fall in 1988, and the primary fishing areas were closed prior to January 1, 1989 for conservation reasons. Because of that, there was very little trawl effort in inside waters during the winter and spring of 1989.

Prior to the 1987-88 season, starry flounder made up to 99% of the flatfish trawl landings. That was primarily because of market constraints which caused fishermen to alter their fishing strategy or discard other species to deliver primarily starry flounder. During the 1987-88 and 1988-89 seasons market constraints were eased. As a result, approximately 20% of the 1987-88 harvest and 16% of the 1988-89 flatfish harvest was made up of other flatfish species.

All flounder were landed and processed within Southeast Alaska again during the 1988-89 for the third straight year. This is a significant change from past years when virtually all significant landings were delivered to out-of-state processors.

Landings of miscellaneous groundfish species to be used for bait in other fisheries, which made up a substantial portion of the Region I trawl catch in the past, were minimal again during 1989. Pacific cod and pollock which made up the bulk of the harvest. The majority of the harvest was landed incidental to the flatfish fisheries and very little directed effort for bait groundfish occurred.

Projection

The flatfish fisheries in Southeast Alaska are severely restricted by limited habitat and low stock condition. The fisheries are not expected to expand significantly in the near future. The trawl fishery targets on pre-spawning concentrations of flatfish and so fishing is not productive over much of the year.

Samples collected from the Stikine Flats indicate that the flatfish stock is in very poor condition in that area with much of the remaining population currently made up of immature fish. This is very likely the result of overharvest. The area will remain closed to production fishing until evidence of improved stock conditions is obtained.

The fishery in lower Duncan Canal went through a low cycle for several years, but has produced well the past two seasons. It is unknown if these cycles are the result of exploitation or occur naturally. The fishery in that area will be monitored closely to determine if the relatively high harvests can be sustained.

Port Camden is another major area which remained open under the new regulations. Harvest from that area has shifted from primarily a fall fishery to a late winter and early spring fishery. It is not known whether the fish taken later in the year are from the same stock of fish.

The fourth area which has remained open is Anita Bay. The stock in that area is quite small and there is some indication that the fish which are found in that bay in the spring may be part of the Stikine Flats population. Because of its small size and limited flatfish population very little annual harvest is expected from that area in the future.

Each year the department staff receives numerous requests for information concerning the potential for additional trawl fisheries within the region. Because the productive shelf area is so limited within Southeast Alaska, and the limited shelf area that does exist is also occupied by other valuable

commercial species, Southeast Alaska appears to have very limited potential for major trawl production. Bait fisheries may occur to some extent in the future, but, according to Board direction, they will have to be very restrictive to minimize bycatch of other valuable commercial species.

PACIFIC COD FISHERIES

Most of the Region I cod harvest (72% in 1989) comes from the two inside areas which are managed by the state. The NSEI management area is the most productive and 62% of the 1989 regional landings and 87% of the landings reported from the inside waters were reported from that management area. The modest harvests reported from the Outside Southeast and Yakutat management areas are counted against the Total Allowable Catch (TAC) limit set annually by the NPFMC. Harvest levels reported from each of the SSEI, CSEO, and NSEO management areas were between 6% and 10% of the regional total. The two Yakutat areas combined accounted for only 8% and the SSEO area accounted for less than 4% of the regional harvest.

Management

Much of the cod are landed in small amounts incidental to other fisheries or sold at sea as bait making it difficult to collect biological data from the catch. Therefore, very little is known about stock conditions and there are no regulations specifically for Pacific cod in effect at this time.

Based upon ancillary information and catch trends, cod stocks appear to be rebuilding after a period of relatively low abundance. Increased availability may be at least partially responsible for the increase in harvest and renewed interest in the fishery observed in recent years.

1989 Season Summary

Pacific cod landings from the entire region totaled approximately 491,000 pounds during 1989, a substantial decrease from the harvest of 578,000 pounds reported in 1988. Of the 1989 total, over 346,000 pounds was reported from the two inside management areas which are under state management.

Most of the harvest (302,000 pounds) was reported from the NSEI area. Most of the production from both inside areas occurred during the first half of the year. Over 94% of the NSEI area harvest, and over 89% of the SSEI harvest was taken prior to July. February and April were the peak months of

harvest in the NSEI area, while the harvest was fairly uniformly distributed from January through June in the SSEI area.

Much of the harvest in the NSEI area is sold directly to crab vessels on the fishing grounds for bait and it is assumed that at least some of those sales go unreported. In addition, many fishermen catch Pacific cod for their own use as bait. That practice does not require that the landings be reported. For those reasons, the actual annual Pacific cod harvest is assumed to be much greater than the reported catch indicates.

Besides the catch from the directed fisheries, Pacific cod are also landed incidentally from salmon troll, halibut longline and flatfish trawl fisheries.

Projection

The amount of cod landed annually depends to a large extent on market conditions. When markets are weak much of the cod is discarded or used as bait for other species aboard the catcher vessel. Because of this, annual catch projections are extremely difficult to make. Reported landings have increased substantially in the past three years compared to the historic average. That trend is expected to continue as long as markets remain favorable.

Beginning in 1990, fishermen taking over 2,000 pounds of groundfish for their own use as bait will be required to report their catch to the department. That regulatory requirement is expected to provide better information on the total harvest of Pacific cod since cod is the primary target of most bait fishermen.

LINGCOD FISHERIES

Most of the Region I lingcod harvest occurs along the outer coast, although catches in the major inside straits are also reported. The current data base does not provide an accurate division of the ratio of harvest between state and federal waters, but it is assumed that the majority of the landings are from the shallower state managed areas along the outer coast.

Fishing Gear

Most of the 1989 lingcod harvest was landed by longline gear accounting for nearly 56% the landings, followed by mechanical jigging machines with nearly 30% of the catch. Incidental landings of lingcod from troll gear fished for salmon made up the remaining 15%.

It should be noted that most of the longline landings of lingcod are from fisheries targeting on demersal shelf rockfish and halibut.

Most of the catch attributed to the mechanical jigging machines was actually taken by troll vessels using "dingle bar" gear, which represents the only major target fishery for lingcod in the region at this time. The dingle bar catch is reported as coming from mechanical jigging gear because power troll gear is not currently legal for groundfish. Dingle bar gear is rigged to operate off the hydraulic gurdies on power troll vessels and differs from power trolling only in the configuration of the terminal tackle and the proximity of the gear to the bottom.

As long as power troll gear is not legal for bottomfish, power trollers will continue to fish dingle bar gear using their jigging machine permits as they have in the past. The Board of Fisheries may wish to consider allowing power troll gear as a legal gear type for bottomfish. That would provide ADF&G staff with the means for separating dingle bar landings from mechanical jigging machine landings.

Management

Since lingcod are not included in the federal Fisheries Management Plan the state has assumed management responsibility for this species in all waters of the Eastern Gulf of Alaska.

A regulation adopted by the Board at their 1989 meeting placed a minimum size limit on lingcod, regardless of gear. A length of 27 inches over all, or 22 inches from the anterior insertion of the dorsal fin and the tip of the tail was established. A regulation for a seasonal closure to protect nest guarding males was rejected because of lack of conclusive information on spawn timing in Southeast Alaska.

The rapid increase in lingcod harvests over the past several years in the Southeast area is a cause for concern. These fish are extremely vulnerable to exploitation during some portions of the year and breeding populations can be easily fished down, resulting in year class failures.

Very little is known about biomass, sustainable harvest levels, or even the basic biological parameters of lingcod in Southeast Alaska. The staff is examining catch trends and distribution of harvest to see

if effort is consistent in the more productive areas from year to year. We are also conducting preliminary studies to determine seasonal distribution and spawn timing of this species.

1989 Season Summary

Lingcod have not been a major target species in the Southeast Alaska Region until recently and historically most of the harvest has been incidental in fisheries for other species. Beginning in 1986, directed fisheries were reported for the first time. As a result of that directed effort, total landings have increased dramatically compared to historic averages.

The 1989 harvest from the Region totaled over 636,000 pounds (288 metric tons) round weight. This includes both directed and incidental harvest from all Southeast and Yakutat management areas.

Landings from the CSEO management area dominated the Southeast Alaska area harvest again this year with over 50% (270,000 pounds) reported from that management area alone. Landings from the East Yakutat and SSEO areas were also significant, with 79,000 (15%) and 62,000 pounds (12%) of the regional total, respectively. Lingcod landings by management area and gear type are shown in Table 4.

Projection

The preliminary 1989 catch figures indicate a decrease in lingcod harvest compared to the peak 1988 harvest level. The reduction in harvest appears to be primarily the result of a reduction in effort in the directed dingle bar fishery which decreased from 162 landings in 1988 to 109 landings in 1989. However, it is unclear what caused the reduction in effort in the directed fishery during 1989, or if the downward trend will continue.

OTHER SPECIES

Species harvested and included in the other groundfish category has included skates, sculpins, dogfish sharks, salmon sharks, giant wrymouths, and greenlings. Because of the way the state catch data is grouped, species such as squid, eulachon, and albacore also fall into this category. Hagfish were reported landed from Southeast Alaska waters during 1989 for the first time.

Landings of other groundfish species were low again during 1989 with less than 120,000 pounds of all other groundfish species reported from the region. Of this total only 57,000 pounds were reported landed from the two inside management areas.

There are several possible explanations for why the other species harvest is low compared to past years. Much of the miscellaneous groundfish catch is used for bait in other fisheries. With the shorter crab and halibut seasons the demand for fresh bait has been reduced. Also, reporting of groundfish catch by species has improved. That places much of the catch such as Pacific cod, pollock, and unspecified rockfish that was previously reported in the general groundfish category into the appropriate individual species categories instead.

Harvest of other groundfish in the Southeast area has depended to a large extent on demand for bait. Bait harvests are not expected to increase substantially unless the crab and halibut seasons are extended. Harvests of other species for food fish are not expected to increase substantially until markets improve. There is currently some interest in expanded fisheries for dogfish and hagfish, but very little actual production has been documented.

There are currently no regulations regarding seasons or harvest levels of other groundfish species in state-managed waters of Region I.

Table 1. Total groundfish landings (pounds landed weight x 1,000) and estimated ex-vessel value (\$ x 1,000) from State of Alaska managed fisheries in the Eastern Gulf of Alaska by major species or species group for the calendar years 1987-1989.

Species	1987		1988		1989	
	Catch	Value	Catch	Value	Catch	Value
Sablefish	2,874	\$ 4,024	3,185	\$ 5,351	3,056	\$ 3,636
Rockfish	2,782	1,364	1,838	1,049	1,494	771
Flatfish	795	191	775	202	240	58
Pacific Cod	648	240	456	160	336	128
Lingcod	437	191	627	351	542	283
Other Species	87	22	137	34	57	14
Total	7,623	\$ 6,032	7,018	\$ 7,147	5,725	\$ 4,890

NOTE: Sablefish, Pacific cod, flatfish and other species landings reported in this table are from the NSEI and SSEI management areas only.

Rockfish landings in this table are from all Southeast management areas (NSEI, NSEO, CSEO, SSEI, and SSEO).

Lingcod landings are reported from all Region I management areas, but do not include landings made incidental to the salmon troll fishery.

Table 2. Preliminary landings in metric tons by federal management group and management area from federal managed fisheries in the Eastern Gulf of Alaska during 1989.

Species	Management Area		
	Southeast Yakutat	West Yakutat	Eastern Gulf Total
Sablefish ^{a/}	6,073	5,325	11,398
Other Rockfish			6,335
Pelagic Rockfish			737
Pollock			96
Flounders			973
Pacific Cod			65
Total			19,604

^{a/} All federal Fisheries Management Plan (FMP) species with the exception of sablefish are managed and reported for the entire Eastern Gulf Regulatory District only.

Table 3. Harvest limits and season harvests for 1987-1988 and 1988-1989 in metric tons round weight in the Southeast Alaska directed demersal shelf rockfish longline fishery.

Management Area	1987-1988		1988-1989	
	Harvest Limit	Harvest	Guideline Harvest Range ^{a/}	Harvest
NSEO	75	66.4	25 - <u>50</u>	34.7
CSEO	300	186.0	<u>150</u> - 200	119.3
NSEI	90	73.8	35 - 60	39.0
SSEO	250	268.4	125 - <u>170</u>	
SSEI	225	218.1	<u>100</u> - 150	98.8
Southeast ^{b/}		.6		1.2
Total	940	813.3	517.5 ^{c/}	452.4

^{a/} Underlined value is the target for the 1988-89 and 1989-90 seasons. The target for the NSEI area is the midpoint of the range.

^{b/} Not specified by management area.

^{c/} Harvest objective for the 1988-89 and 1989-90 seasons.

Table 4. "Other" rockfish and incidental demersal shelf rockfish (DSR) harvested in fisheries for other species during 1989 in metric tons round weight.

Management Area	Incidental DSR	"Other" Rockfish
NSEO	12.7	29.9
CSEO	42.3	30.8
NSEI	28.4	13.5
SSEO	41.0	10.8
SSEI	36.2	15.5
Southeast ^{b/}	3.3	.1
Total	163.9	100.6

^{a/} Halibut, salmon troll, and other groundfish fisheries.

^{b/} Not specified by management area.

Table 5. Preliminary lingcod harvests (pounds landed weight x 1,000) by ADF&G groundfish management area and gear type, 1988-89.

Management Area	Longline		Jig		Troll ^{a/}		Total	
	88	89	88	89	88	89	88	89
NSEO	56	41	47	13				
CSEO	110	104	137	167				
NSEI	18	21	5	5				
SSEO	84	62	38	3				
SSEI	44	31	18	1				
Total	312	259	245	189	70	94	627	542

^{a/} Incidental landings on salmon troll gear are not available by groundfish management area.

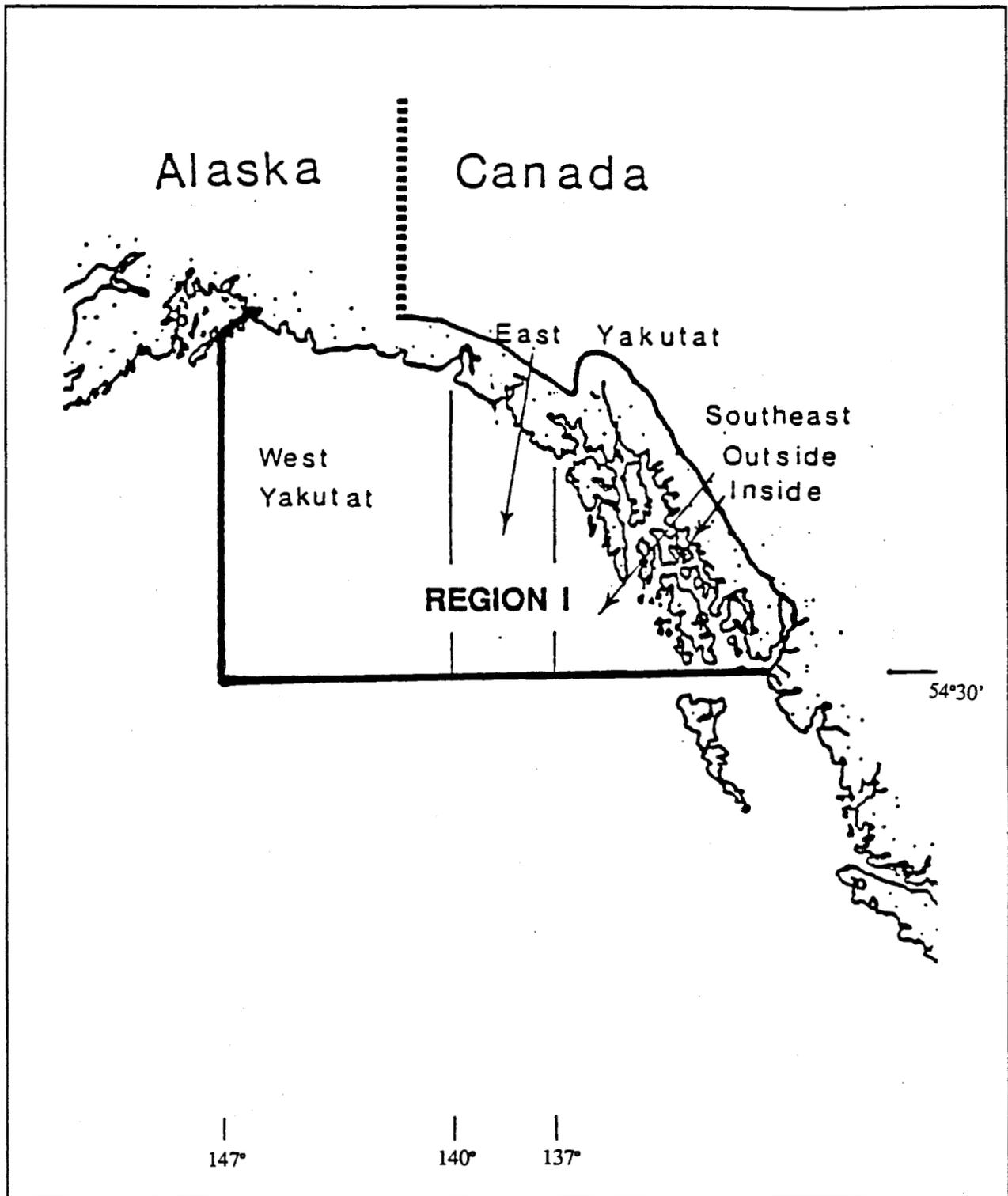


Figure 1. Alaska Department of Fish and Game Region 1 boundaries and groundfish management areas in the Eastern Gulf of Alaska.

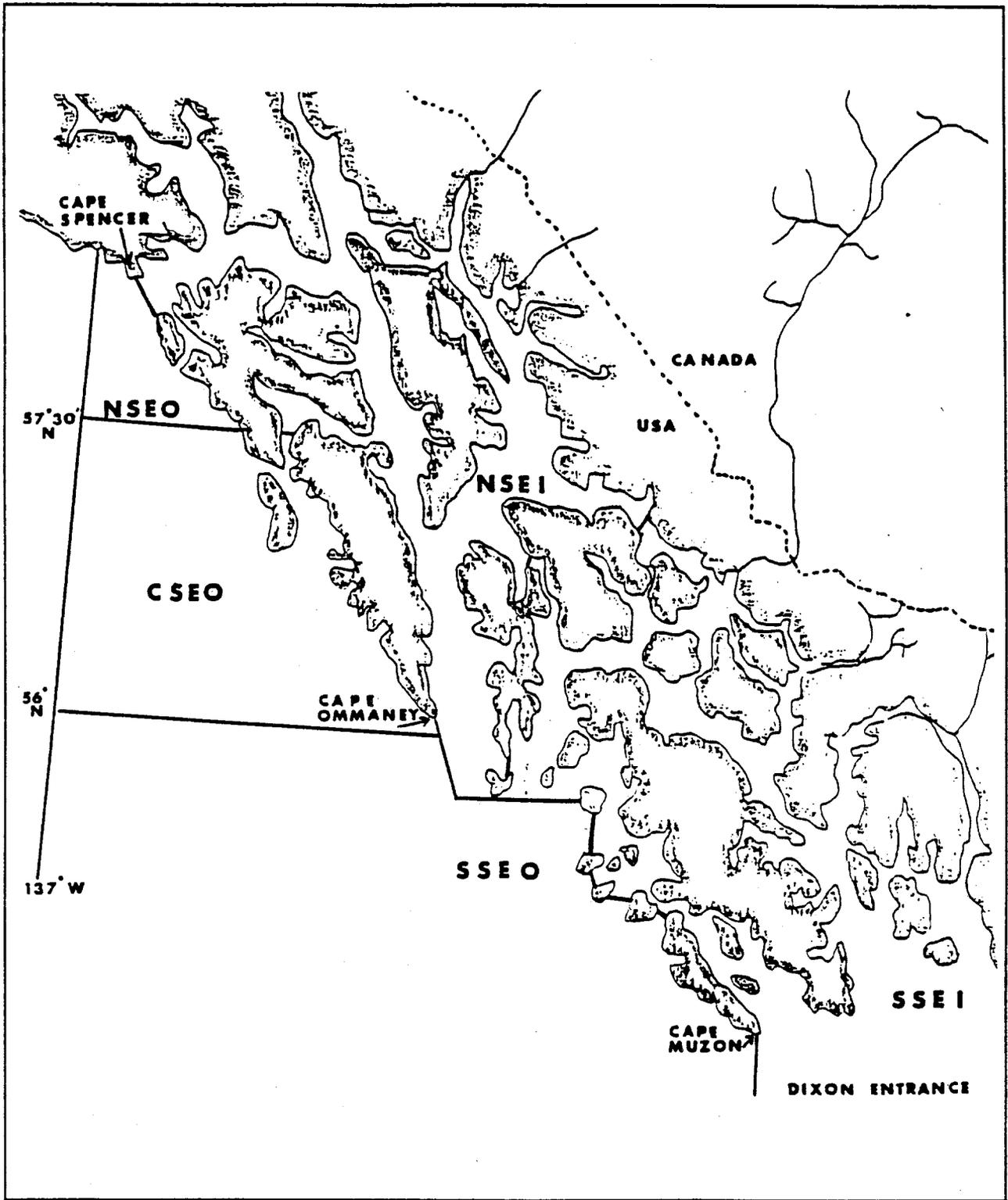


Figure 2. The Southeast Alaska coastline showing Alaska Department of Fish and Game groundfish management areas.

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