

FINFISH FISHERIES

Report to the Board of Fisheries

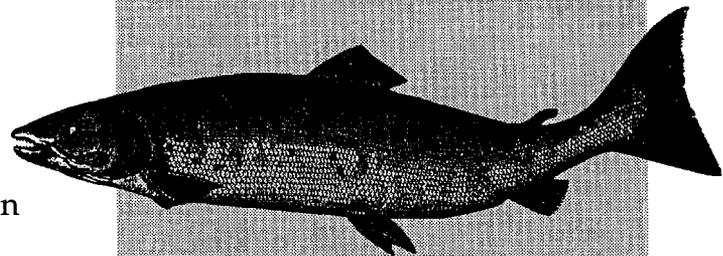
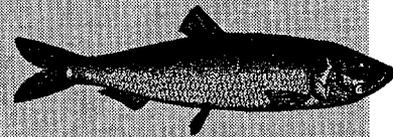
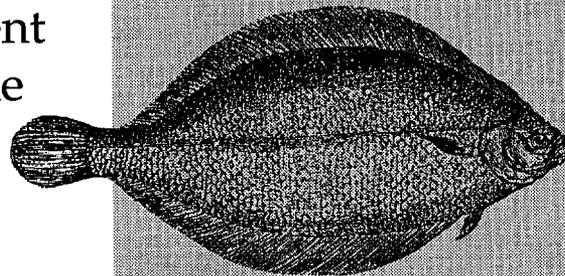
*Southeast Alaska-Yakutat Region
1991*

Alaska Department
of Fish and Game

Division of
Commercial Fisheries
Juneau, Alaska

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Report No. 1J93-10



REGION 1
FINFISH FISHERIES
1991 REPORT TO THE BOARD OF FISHERIES



Regional Information Report No.¹ 1J93-10

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

May 1993

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SECTION 1

INTRODUCTION TO THE 1991 FINFISH FISHERIES

REPORT TO THE BOARD OF FISHERIES
INTRODUCTION TO THE 1991 FINFISH FISHERIES



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Juneau, Alaska

May 1993

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INTRODUCTION

This report provides the Alaska Board of Fisheries with a general overview of the 1991 Region I finfish fisheries. Southeast Alaska finfish fisheries harvest all five species of Pacific salmon, herring and various groundfish species. Preliminary estimates indicate that the 1991 or 1990/91 Region 1 seasonal finfish landings from state-managed fisheries (not including halibut or federally-managed groundfish fisheries) were worth an exvessel value of at least \$82.5 million. This value consisted of approximately \$71.8 million for salmon, \$1.8 million for herring, and \$8.9 million for groundfish.

Description of the Southeast Region

The Southeast Region consists of Alaskan waters 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 and Area D, the Yakutat area, extends from Cape Fairweather to Cape Suckling. By regulation, the Yakutat Area is divided into the Yakutat District, extending from Cape Fairweather to Icy Cape, and the Yakataga District extending 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 a single registration area - the Eastern Gulf of Alaska. The area extends west of Cape Suckling to include the outside waters to 140° W. longitude. The region is further divided into several groundfish management areas (Figure 4).

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

Fisheries Management Organization

Management of the Region I commercial and subsistence finfish fisheries is accomplished via coordination of the area management biologists and overall regional management biologists. There are six area management biologists in Region I, corresponding to the six 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, shellfish, and salmon troll fisheries is accomplished by management biologists with regional responsibility. 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 1870s. Until the early 1900s, sockeye salmon was the primary species harvested. Pink salmon began to dominate the catch in the early 1900s and, in recent years, pinks have annually comprised 75% to 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 harvest of salmon in Southeast Alaska peaked in the late 1930s and early 1940s and declined to historic low levels in the 1950s and early 1960s. During the mid to late 1960s improved catches occurred, but in the early 1970s another decline in production was experienced. The recent trend has been for increased production levels. The consecutive 30-year, high annual total commercial harvest of salmon occurred from 1915 through 1944, when the average annual harvest was approximately 39 million fish. The most recent 5-year average harvest (1987-'91) was 42 million salmon.

Fishery Characteristics

Salmon are commercially harvested in the Southeast Area (Area A) with purse seines, drift gillnets, floating fish traps, and hatchery cost recovery; in the Yakutat area (Area D) with setnets; 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 in the federal waters of the Exclusive Economic Zone (EEZ). The use of floating fish traps is restricted to the Annette Islands Fishery Reserve, established by Presidential Proclamation in 1916.

The region's salmon fisheries are extremely complex due to the mixed stock and mixed species nature of the returns, and to the existence of several distinct gear groups harvesting the same stocks of salmon. The Southeast Region contains over 2,500 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 (primarily Washington and Oregon) and Canada. Often, a fishery targeting on a specific salmon species incurs major incidental catches of other species.

Fishery Participation

According to preliminary information from the Commercial Fisheries Entry Commission, 420 purse seine, 485 drift gillnet, 168 set gillnet, 958 power troll, and 1,745 hand troll permits were renewed and could have fished in 1991 (Table 1). A total of 2,557 permits, including 383 purse seine, 466 drift gillnet, 161 set gillnet, 847 power troll, and 700 hand troll permittees reported salmon landings. The four fish traps that are authorized on the Annette Island Reserve also reported landings. •

Salmon Harvest

The Southeast Alaska region's commercial salmon harvest by all gear types, including hatchery cost recovery, totaled almost 71 million fish in 1991 (Tables 2 and 3). This was the highest catch recorded since 1960 and approximately 4.8 million fish more than the next highest catch in 1989 (approximately 66 million). The harvest was considerably above the preseason forecast.

The harvest of approximately 62 million pink salmon was the largest catch on record, approximately 2.5 million more than the next highest pink catch in 1989. Pink salmon accounted for 87% of the 1991 salmon catch. Region-wide sockeye salmon landings of over two million fish were the third highest reported since Alaska statehood in 1959. The commercial harvest of over 3.3 million chum salmon was an improvement over the poor returns observed in 1989 and 1990, and was the fourth highest since 1960. The region-wide coho salmon harvest of about 3.2 million fish was the second highest catch observed since statehood and was more than double the 1960-1990 average. The 1991 commercial catch of chinook salmon was approximately 325,000 fish, including those caught in the winter troll fishery from October 1, 1989 through April 14, 1991. This was slightly less than was caught in 1990, but still the second largest catch in the last ten years.

Harvest by Gear Type

The 1991 Southeast Alaska salmon catch by gear type and species is summarized in Tables 4-9. Salmon landed by purse seine gear accounted for 88.6% of the total salmon catch, followed by drift gillnet at 4.6%, and troll at 3.5%. Troll gear accounted for 81.2% of the region's landings of chinook salmon and 53.8% of the coho salmon harvest. Purse seine fisheries harvested 95.5% of the pink, 63.9% of the chum, and 51.2% of the region's sockeye salmon harvest. Drift gillnet gear accounted for 36.6% of the sockeye, 23.7% of the chum, 18.8% of the coho, and 1.8% of the pink salmon harvest. The set gillnet landings of sockeye and coho salmon represented 11.1% and 5.2% of the regional harvest of these species, respectively. The trap catch of pink salmon was less than 1% of the total Region 1 pink salmon landings. Approximately 9% of the chinook, 9% of the coho, 2% of the pink, and 11% of the overall chum salmon harvest was taken for cost recovery purposes at private hatcheries. The private hatchery harvests of 28,136 chinook, 285,904 coho, and 1,124,314 pink salmon were the highest catches on record, surpassing 1990's record harvests.

Exvessel Value

The exvessel value of the 1991 Southeast Alaska regional commercial salmon harvest was estimated at approximately \$71.8 million (Table 10). This estimate is considered conservative as it is based on the price reported on fish tickets and does not include unreported price adjustments, or situations where price information was not reported. The actual exvessel value, which may be from 10% to 20% higher, will not be known until final processor reports are received and analyzed.

The regional, all-gear harvest of pink salmon was valued at \$22.2 million, followed by coho (\$19.4 million), sockeye (\$10.8 million), chinook (\$10.6 million), and chum salmon (\$8.8 million). The exvessel value was highest for purse seine gear (\$32.4 million), followed by troll (\$21.1 million), drift gillnet (\$10.8 million), set gillnet (\$2.2 million), and private hatchery (\$3.6 million).

GROUND FISH FISHERIES

The harvest of groundfish in state-managed fisheries totaled approximately 6.0 million pounds landed weight during the 1991 season, an increase of roughly 1.3 million pounds compared to 1990, and an

increase of 0.6 million pounds when compared to 1989. The exvessel value of the 1991 groundfish catch was at least \$8.87 million. This was an increase of \$3.6 million compared to 1990, and an increase of \$4.0 million when compared to 1989. The increased value of the groundfish catch in 1991 (compared to 1990) was due mainly to a sharp increase in landings and prices for sablefish. The landed catch of demersal shelf rockfish increased (49,000 lbs) in 1991, compared to 1990, but was still below the 1990 value by approximately \$17,000. The landed value of demersal shelf rockfish has declined significantly since 1988.

Sablefish (blackcod) fishing seasons were again short in 1991, lasting only 57 hours in the Southern Southeast Inside area (SSEI) and only 24 hours in the Northern Southeast Inside area (NSEI). The upper end of the guideline harvest range for the NSEI area was exceeded by over one million pounds during the 24-hour fishery. The harvest in the SSEI area was just under the 500,000 lb upper end of the guideline harvest range.

The 1990/91 seasonal harvest objectives for demersal shelf rockfish were met in the two inside management sections. The fall and winter/spring harvest objectives were met in the three outside areas, but summer objectives were not met because the entire Southeast Outside Subdistrict was closed to longlining on July 8 when the prohibited species catch limit for halibut set by the North Pacific Fisheries Management Council was met.

The harvest of lingcod increased significantly during 1991 primarily because of an increase in directed landings by dinglebar gear (modified troll fishing gear). The total harvest would have been much higher had it not been for a federal longline closure in the Southeast Outside Subdistrict between July 8 and December 31.

HERRING FISHERIES

The total commercial harvest of herring in the Southeast region during the 1990/91 season was 5,881 tons (exvessel value was approximately \$1.8 million), down dramatically from the 1989/90 season when over 8,000 tons were harvested. This was due mainly to a reduction in the Sitka Sound sac roe quota, and the Seymour Canal gillnet sac roe area not meeting the required threshold level. The sac roe harvest totaled 2,514 tons, for an estimated exvessel value of \$698,000. The catch of 3,273 tons in the winter bait fishery was worth an estimated \$867,345 to the fishermen, and the spawn-on-kelp fishery, with a harvest of 13.6 tons, was worth an additional \$206,401. The sac roe fishery was open in the Kah Shakes/Cat Island and Sitka Sound areas, but the Lynn Canal and Seymour Canal areas remained below their threshold levels.

The winter bait season was opened in Meares Passage and Boca de Finas, but remained closed in the Lisianski and Tenakee Inlet areas. Fresh bait pounds operated in Farragut Bay and Sitka Sound harvested 81 tons of herring worth an estimated \$56,700.

Table 1. Number of Limited Entry and Interim Use Permits issued and fished in the Southeast Alaska and Yakutat salmon fisheries, 1977 to 1991.

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
1977	414	325	474	438	159	144	2,953	1,836	970	750
1978	420	376	491	474	164	155	3,923	2,624	976	816
1979	418	319	491	449	167	155	3,702	2,207	979	819
1980	417	335	489	445	167	159	2,436	1,667	974	842
1981	418	364	487	447	167	158	2,048	1,153	970	793
1982	421	370	486	431	164	147	1,909	1,067	968	810
1983	421	337	480	432	165	145	2,150	946	968	810
1984	422	383	481	437	164	140	2,147	860	963	795
1985	420	368	485	446	164	148	2,028	903	963	830
1986	420	368	488	460	164	154	1,975	804	957	827
1987	420	381	486	465	165	154	1,931	763	957	828
1988	420	394	485	470	165	159	1,867	777	956	828
1989	420	365	485	466	166	160	1,820	694	955	830
1990	420	360	486	465	166	158	1,782	699	956	839
<hr/>										
Average 1977-1990										
	419	360	485	452	165	153	2,334	1,214	965	816
Preliminary 1991										
	420	383	485	466	168	161	1,745	700	958	847

1.10

Table 2. Southeast Alaska region annual commercial salmon catches, in numbers, by species, 1960 to 1991.

Year	Chinook ^a		Sockeye	Coho	Pink	Chum	Total
	>=28"	>=28"					
1960	301,344	N/A	533,118	681,604	2,712,146	932,430	5,160,642
1961	220,397	N/A	682,292	833,609	11,459,298	2,446,331	15,641,927
1962	196,650	N/A	727,437	1,156,277	11,255,790	1,837,010	15,173,164
1963	257,706	N/A	675,750	1,265,328	19,115,942	1,470,239	22,784,965
1964	357,139	N/A	919,124	1,586,258	18,580,259	1,927,834	23,370,614
1965	337,109	N/A	1,076,998	1,543,807	10,879,097	1,466,256	15,303,267
1966	308,042	N/A	1,046,075	1,218,827	20,350,917	3,227,402	26,151,263
1967	300,938	N/A	966,398	864,250	3,109,343	1,806,940	7,047,869
1968	331,511	N/A	826,195	1,539,686	25,077,871	2,636,207	30,411,470
1969	314,012	N/A	811,232	596,407	4,869,056	561,366	7,152,073
1970	322,370	N/A	667,909	758,911	10,657,293	2,446,110	14,852,593
1971	333,997	N/A	623,269	914,420	9,344,830	1,946,105	13,162,621
1972	286,826	N/A	916,720	1,508,654	12,399,801	2,942,712	18,054,713
1973	343,833	N/A	1,011,595	836,400	6,455,488	1,832,215	10,479,531
1974	346,570	N/A	687,422	1,276,941	4,888,711	1,684,315	8,883,959
1975	300,707	N/A	245,191	427,357	4,026,520	686,615	5,686,390
1976	241,762	N/A	595,259	823,667	5,329,598	1,030,877	8,021,163
1977	285,178	N/A	1,085,143	944,654	13,843,520	738,723	16,897,218
1978	401,424	N/A	788,319	1,714,508	21,243,378	868,963	25,016,592
1979	367,619	N/A	1,073,657	1,284,637	10,978,334	888,273	14,592,520
1980	324,610	N/A	1,108,349	1,116,237	14,500,066	1,642,266	18,691,528
1981	268,490	N/A	1,072,201	1,358,806	19,038,296	837,240	22,575,033
1982	292,220	N/A	1,490,034	2,117,303	24,211,210	1,329,501	29,440,268
1983	289,451	N/A	1,556,615	1,947,099	37,528,922	1,168,606	42,490,693
1984	270,381	N/A	1,215,861	1,909,478	24,704,782	4,083,866	32,184,368
1985	255,335	N/A	1,861,685	2,598,874	51,954,805	3,275,127	59,945,826
1986	262,352	1,158	1,442,298	3,403,962	46,156,323	3,359,131	54,625,224
1987	261,695	1,787	1,377,707	1,543,117	10,280,725	2,721,486	16,186,517
1988	263,818	1,032	1,459,789	1,045,277	11,192,866	3,532,985	17,495,767
1989	280,988	4,461	2,124,814	2,204,106	59,478,289	1,968,871	66,061,529
1990	342,333	3,454	2,155,223	2,866,859	32,385,512	2,212,388	39,965,769
Average 1960 to 1990							
	298,929	2,378	1,058,828	1,415,720	18,000,290	1,919,625	22,693,777
Preliminary 1991							
	324,873	5,591	2,062,586	3,194,323	61,923,444	3,335,297	70,846,114

^a Chinook troll catch is calendar year for 1960-1979 and by season (Oct. 1-Sept. 30) for 1980-1991. N/A = Not Available

Table 3. Southeast Alaska region commercial salmon catches, in numbers, by gear and fishery, 1991.

Fishery	Chinook		Sockeye	Coho	Pink	Chum	Total
	>=28"	<=28"					
Total Seine	11,562	5,519	1,051,193	405,698	58,590,237	2,126,724	62,190,933
Southern ^a	9,708	2,674	979,006	299,795	41,621,599	1,062,366	43,975,148
Northern ^b	1,854	2,845	72,187	105,903	16,968,638	1,064,358	18,215,785
Total Drift Gillnet	18,595		715,641	544,396	824,742	712,975	2,816,349
Tree Point	2,077		131,492	70,319	600,529	183,822	988,239
Prince of Wales	2,068		144,084	197,952	133,360	124,580	602,044
Sukine	1,504		22,275	15,864	10,935	11,402	61,980
Taku-Snettisham	3,217		109,877	126,436	74,183	161,175	474,888
Lynn Canal	745		307,811	128,365	5,472	210,189	652,582
Hatchery Terminal	8,984		102	5,460	263	21,807	36,616
Set Gillnet	1,750		229,903	166,172	3,051	2,979	403,855
Total Troll ^c	262,899		9,886	1,719,002	426,685	28,461	2,446,933
Hand Troll	39,939		1,077	238,511	72,283	3,856	355,666
Power Troll	222,960		8,809	1,480,491	354,402	24,605	2,091,267
Total Arnette Isl. Res.	1,880	0	45,153	62,398	933,405	82,120	1,124,956
Seine	56	0	5,091	5,513	543,412	4,972	559,044
Drift Gillnet	801		39,353	55,804	296,036	76,844	468,838
Total Troll ^c	953		0	763	22	1	1,739
Hand Troll	918		0	563	22	1	1,504
Power Troll	35		0	200	0	0	235
Trap	70		709	318	93,935	303	95,335
Hatchery Controlled	28,136		1,459	285,904	1,124,314	373,812	1,813,625
Miscellaneous ^d	51	72	9,351	10,753	21,010	8,226	49,463
Southern Totals ^d	121,413	2,674	1,328,017	1,307,625	43,496,704	1,548,308	47,804,741
Northern Totals ^e	194,536	2,917	504,451	1,665,470	18,421,564	1,783,753	22,572,691
Yakutat Totals ^f	8,924	0	230,118	221,228	5,176	3,236	468,682
Region Totals	324,873	5,591	2,062,586	3,194,323	61,923,444	3,335,297	70,846,114

^a Districts 101-107. Includes hatchery terminal area fisheries.

^b Districts 109-114. Includes hatchery terminal area fisheries.

^c Catch accounting period for the 1991 chinook salmon season goes from 1 Oct. 1990 to 30 Sept. 1991.

^d Districts 101-108, 150, and 152.

^e Districts 109-116, 154, 156, and 157.

^f Districts 181, 182, 183, 185, 186, 189, 191, 192.

^g Includes salmon that were confiscated, caught in sportfish derbies, or commercial test fisheries, and sold.

Table 4. Southeast Alaska region annual commercial total salmon catches by gear, in numbers and percent, 1960 to 1991.

Year	Seine ^a	Drift Gillnet	Set Gillnet	Troll ^b	Annette Isl. Res. ^b	Hatchery Controlled	Miscellaneous Fishery ^c	Total
1960	3,789,373 (73%)	432,438 (8%)	177,916 (3%)	707,570 (14%)	53,345 (1%)	0 (0%)	0 (0%)	5,160,642
1961	13,778,020 (88%)	766,804 (5%)	288,253 (2%)	627,467 (4%)	181,383 (1%)	0 (0%)	0 (0%)	15,641,927
1962	12,394,256 (82%)	1,010,200 (7%)	274,139 (2%)	896,277 (6%)	598,292 (4%)	0 (0%)	0 (0%)	15,173,164
1963	20,120,230 (88%)	1,232,700 (5%)	283,814 (1%)	1,051,912 (5%)	96,309 (0%)	0 (0%)	0 (0%)	22,784,965
1964	20,060,487 (86%)	1,431,389 (6%)	302,962 (1%)	1,188,373 (5%)	387,403 (2%)	0 (0%)	0 (0%)	23,370,614
1965	12,490,889 (82%)	1,426,018 (9%)	252,443 (2%)	1,094,147 (7%)	39,770 (0%)	0 (0%)	0 (0%)	15,303,267
1966	22,697,106 (87%)	1,658,535 (6%)	257,968 (1%)	880,209 (3%)	657,445 (3%)	0 (0%)	0 (0%)	26,151,263
1967	5,151,431 (73%)	880,264 (12%)	222,423 (3%)	782,935 (11%)	10,816 (0%)	0 (0%)	0 (0%)	7,047,869
1968	27,306,485 (90%)	1,432,710 (5%)	189,474 (1%)	1,213,591 (4%)	269,210 (1%)	0 (0%)	0 (0%)	30,411,470
1969	5,099,984 (71%)	1,017,462 (14%)	239,271 (3%)	764,490 (11%)	30,866 (0%)	0 (0%)	0 (0%)	7,152,073
1970	12,173,362 (82%)	1,756,875 (12%)	166,517 (1%)	646,033 (4%)	109,740 (1%)	0 (0%)	0 (0%)	14,852,527
1971	10,495,932 (80%)	1,593,806 (12%)	257,077 (2%)	815,806 (6%)	0 (0%)	0 (0%)	0 (0%)	13,162,621
1972	14,269,165 (79%)	1,937,570 (11%)	199,266 (1%)	1,213,688 (7%)	435,024 (2%)	0 (0%)	0 (0%)	18,054,713
1973	7,316,094 (70%)	1,926,658 (18%)	198,914 (2%)	994,199 (9%)	43,385 (0%)	0 (0%)	0 (0%)	10,479,250
1974	5,583,200 (63%)	1,570,365 (18%)	170,616 (2%)	1,446,714 (16%)	113,064 (1%)	0 (0%)	0 (0%)	8,883,959
1975	3,925,990 (69%)	867,832 (15%)	196,691 (3%)	582,276 (10%)	110,901 (2%)	2,700 (0%)	0 (0%)	5,686,390
1976	5,023,411 (63%)	1,373,943 (17%)	219,987 (3%)	955,304 (12%)	446,652 (6%)	0 (0%)	0 (0%)	8,019,297
1977	12,216,997 (72%)	2,516,042 (15%)	364,295 (2%)	1,077,142 (6%)	630,283 (4%)	92,459 (1%)	0 (0%)	16,897,218
1978	19,596,101 (78%)	1,690,223 (7%)	309,944 (1%)	2,122,965 (8%)	1,293,536 (5%)	0 (0%)	3,807 (0%)	25,016,576
1979	9,955,755 (68%)	1,884,812 (13%)	424,693 (3%)	1,917,987 (13%)	362,004 (2%)	35,448 (0%)	11,773 (0%)	14,592,472
1980	13,581,616 (73%)	2,178,863 (12%)	445,334 (2%)	1,282,130 (7%)	1,191,683 (6%)	0 (0%)	11,150 (0%)	18,690,776
1981	17,472,456 (77%)	2,094,774 (9%)	428,332 (2%)	1,705,369 (8%)	729,389 (3%)	137,749 (1%)	6,964 (0%)	22,575,033
1982	23,757,840 (81%)	1,978,246 (7%)	378,093 (1%)	2,069,973 (7%)	1,227,885 (4%)	20,270 (0%)	7,961 (0%)	29,440,268
1983	35,373,471 (83%)	2,527,671 (6%)	271,517 (1%)	2,072,723 (5%)	2,091,874 (5%)	143,178 (0%)	9,918 (0%)	42,490,352
1984	24,330,951 (76%)	3,132,688 (10%)	337,983 (1%)	1,978,299 (6%)	1,736,331 (5%)	652,340 (2%)	10,557 (0%)	32,179,149
1985	50,240,276 (84%)	4,117,169 (7%)	467,790 (1%)	2,845,163 (5%)	1,603,899 (3%)	637,133 (1%)	31,628 (0%)	59,943,058
1986	46,141,141 (84%)	3,160,907 (6%)	267,932 (0%)	2,605,671 (5%)	2,155,047 (4%)	278,525 (1%)	14,813 (0%)	54,624,036
1987	8,706,539 (54%)	3,016,875 (19%)	413,922 (3%)	1,793,481 (11%)	542,805 (3%)	1,642,573 (10%)	70,122 (0%)	16,186,317
1988	11,048,932 (63%)	2,555,046 (15%)	518,378 (3%)	1,349,608 (8%)	1,057,401 (6%)	910,404 (5%)	55,998 (0%)	17,495,767
1989	54,303,677 (82%)	4,450,677 (7%)	580,470 (1%)	3,511,486 (5%)	2,691,267 (4%)	480,668 (1%)	43,284 (0%)	66,061,529
1990	30,326,070 (76%)	2,916,190 (7%)	530,740 (1%)	2,963,037 (7%)	1,727,274 (4%)	1,457,089 (4%)	45,369 (0%)	39,965,769
Average 1960 to 1990								
	18,023,459 (79%)	1,952,766 (9%)	310,876 (1%)	729,816 (3%)	729,816 (3%)	209,372 (1%)	10,430 (0%)	22,693,366
Preliminary 1991								
	62,190,933 (88%)	2,816,349 (4%)	403,855 (1%)	2,446,933 (3%)	1,124,956 (2%)	1,813,625 (3%)	49,463 (0%)	70,846,114

^a Includes Chinook <=21"

^b Chinook troll catch is calendar year for 1960-1979 and by season (Oct. 1-Sept. 30) for 1980-1991.

^c Includes salmon that were confiscated, caught in sportfish derbies, or commercial test fisheries, and sold.

Table 5. Southeast Alaska region annual commercial chinook salmon catches by gear, in numbers and percent, 1960 to 1991.

Year	Seine ^a	Drift Gillnet	Set Gillnet	Troll ^b	Annette Isl. Res. ^b	Hatchery Controlled	Miscellaneous Fishery ^c	Total
1960	6,509 (2%)	11,523 (4%)	908 (0%)	282,404 (94%)	0 (0%)	0 (0%)	0 (0%)	301,344
1961	4,134 (2%)	9,440 (4%)	2,534 (1%)	204,289 (93%)	0 (0%)	0 (0%)	0 (0%)	220,397
1962	10,145 (5%)	10,161 (5%)	2,747 (1%)	173,597 (88%)	0 (0%)	0 (0%)	0 (0%)	196,650
1963	6,659 (3%)	6,427 (2%)	941 (0%)	243,679 (95%)	0 (0%)	0 (0%)	0 (0%)	257,706
1964	16,819 (5%)	9,371 (3%)	1,488 (0%)	329,461 (92%)	0 (0%)	0 (0%)	0 (0%)	357,139
1965	14,992 (4%)	11,892 (4%)	1,323 (0%)	308,902 (92%)	0 (0%)	0 (0%)	0 (0%)	337,109
1966	11,874 (4%)	12,527 (4%)	1,555 (1%)	282,083 (92%)	3 (0%)	0 (0%)	0 (0%)	308,042
1967	9,054 (3%)	16,464 (5%)	742 (0%)	274,678 (91%)	0 (0%)	0 (0%)	0 (0%)	300,938
1968	13,335 (4%)	12,902 (4%)	697 (0%)	304,455 (92%)	122 (0%)	0 (0%)	0 (0%)	331,511
1969	6,730 (2%)	15,178 (5%)	1,936 (1%)	290,168 (92%)	0 (0%)	0 (0%)	0 (0%)	314,012
1970	5,954 (2%)	9,460 (3%)	2,299 (1%)	304,599 (95%)	0 (0%)	0 (0%)	0 (0%)	322,312
1971	4,799 (1%)	15,718 (5%)	2,041 (1%)	311,439 (93%)	0 (0%)	0 (0%)	0 (0%)	333,997
1972	16,786 (6%)	25,142 (9%)	2,467 (1%)	242,282 (84%)	149 (0%)	0 (0%)	0 (0%)	286,826
1973	8,751 (3%)	24,471 (7%)	2,733 (1%)	307,806 (90%)	25 (0%)	0 (0%)	0 (0%)	343,786
1974	6,759 (2%)	15,481 (4%)	2,214 (1%)	322,099 (93%)	15 (0%)	0 (0%)	0 (0%)	346,568
1975	2,056 (1%)	9,082 (3%)	2,224 (1%)	287,342 (96%)	3 (0%)	0 (0%)	0 (0%)	300,707
1976	1,426 (1%)	7,222 (3%)	1,830 (1%)	231,239 (96%)	45 (0%)	0 (0%)	0 (0%)	241,762
1977	5,242 (2%)	5,578 (2%)	2,549 (1%)	271,735 (95%)	74 (0%)	0 (0%)	0 (0%)	285,178
1978	13,972 (3%)	8,266 (2%)	3,057 (1%)	375,433 (94%)	197 (0%)	0 (0%)	486 (0%)	401,411
1979	10,079 (3%)	13,738 (4%)	4,299 (1%)	338,319 (92%)	339 (0%)	0 (0%)	832 (0%)	367,606
1980	11,701 (4%)	5,433 (2%)	2,800 (1%)	303,885 (94%)	180 (0%)	0 (0%)	611 (0%)	324,610
1981	10,264 (4%)	6,317 (2%)	2,069 (1%)	248,791 (93%)	301 (0%)	0 (0%)	748 (0%)	268,490
1982	31,165 (11%)	15,238 (5%)	1,456 (0%)	242,315 (83%)	1,140 (0%)	0 (0%)	906 (0%)	292,220
1983	13,578 (5%)	4,734 (2%)	976 (0%)	269,790 (93%)	367 (0%)	0 (0%)	6 (0%)	289,451
1984	20,762 (8%)	10,338 (4%)	1,062 (0%)	235,629 (87%)	236 (0%)	937 (0%)	1,263 (0%)	270,227
1985	23,073 (9%)	10,411 (4%)	1,231 (0%)	216,086 (85%)	705 (0%)	2,658 (1%)	961 (0%)	255,125
1986	13,342 (5%)	8,437 (3%)	1,427 (1%)	237,557 (90%)	117 (0%)	1,093 (0%)	1,076 (0%)	263,049
1987	6,292 (2%)	8,430 (3%)	2,072 (1%)	242,667 (92%)	532 (0%)	2,371 (1%)	918 (0%)	263,282
1988	12,104 (5%)	8,807 (3%)	893 (0%)	231,225 (87%)	735 (0%)	10,046 (4%)	1,040 (0%)	264,850
1989	17,556 (6%)	9,613 (3%)	798 (0%)	235,609 (83%)	892 (0%)	19,602 (7%)	1,379 (0%)	285,449
1990	14,793 (4%)	14,692 (4%)	664 (0%)	287,092 (83%)	1,840 (1%)	26,340 (8%)	366 (0%)	345,787
Average 1960 to 1990								
	11,313 (4%)	11,371 (4%)	1,807 (1%)	272,150 (91%)	259 (0%)	2,034 (1%)	342 (0%)	299,276
Preliminary 1991								
	17,081 (5%)	18,595 (6%)	1,750 (1%)	262,899 (80%)	1,880 (3%)	28,136 (9%)	123 (0%)	330,464

^a Includes Chinook <=21"

^b Chinook Troll Catch is Calendar year for 1960-1979 and by season (Octo. 1-Sept. 30) for 1980-1991.

^c Includes salmon that were confiscated, caught in sportfish derbies, or commercial test fisheries, and sold.

Table 6. Southeast Alaska region annual commercial sockeye salmon catches by gear, in numbers and percent, 1960 to 1991.

Year	Seine	Drift Gillnet	Set Gillnet	Troll	Annette Isl. Res	Hatchery Controlled	Miscellaneous Fishery ^a	Total
1960	358,697 (67%)	127,058 (24%)	44,671 (8%)	939 (0%)	1,753 (0%)	0 (0%)	0 (0%)	533,118
1961	418,952 (61%)	169,724 (25%)	82,403 (12%)	1,264 (0%)	9,949 (1%)	0 (0%)	0 (0%)	682,292
1962	411,748 (57%)	233,082 (32%)	73,937 (10%)	1,181 (0%)	7,489 (1%)	0 (0%)	0 (0%)	727,437
1963	422,605 (63%)	194,420 (29%)	52,517 (8%)	2,014 (0%)	4,194 (1%)	0 (0%)	0 (0%)	675,750
1964	570,250 (62%)	246,250 (27%)	90,175 (10%)	1,004 (0%)	11,445 (1%)	0 (0%)	0 (0%)	919,124
1965	672,001 (62%)	279,349 (26%)	120,417 (11%)	1,872 (0%)	3,359 (0%)	0 (0%)	0 (0%)	1,076,998
1966	480,024 (46%)	334,702 (32%)	185,360 (18%)	679 (0%)	45,310 (4%)	0 (0%)	0 (0%)	1,046,075
1967	600,602 (62%)	274,038 (28%)	88,431 (9%)	157 (0%)	3,170 (0%)	0 (0%)	0 (0%)	966,398
1968	494,851 (60%)	245,865 (30%)	80,776 (10%)	574 (0%)	4,129 (0%)	0 (0%)	0 (0%)	826,195
1969	338,217 (42%)	348,298 (43%)	123,303 (15%)	444 (0%)	970 (0%)	0 (0%)	0 (0%)	811,232
1970	307,793 (46%)	240,700 (36%)	115,992 (17%)	477 (0%)	2,947 (0%)	0 (0%)	0 (0%)	667,909
1971	162,823 (26%)	328,774 (53%)	130,743 (21%)	929 (0%)	0 (0%)	0 (0%)	0 (0%)	623,269
1972	323,927 (35%)	449,019 (49%)	134,536 (15%)	1,060 (0%)	8,178 (1%)	0 (0%)	0 (0%)	916,720
1973	348,679 (34%)	532,164 (53%)	128,412 (13%)	1,222 (0%)	1,118 (0%)	0 (0%)	0 (0%)	1,011,595
1974	235,934 (34%)	363,857 (53%)	82,413 (12%)	2,603 (0%)	2,615 (0%)	0 (0%)	0 (0%)	687,422
1975	61,877 (25%)	108,334 (44%)	73,260 (30%)	1,098 (0%)	622 (0%)	0 (0%)	0 (0%)	245,191
1976	135,811 (23%)	322,984 (54%)	130,176 (22%)	1,266 (0%)	5,022 (1%)	0 (0%)	0 (0%)	595,259
1977	327,966 (30%)	538,301 (50%)	185,377 (17%)	5,701 (1%)	27,798 (3%)	0 (0%)	0 (0%)	1,085,143
1978	272,197 (35%)	358,917 (46%)	130,681 (17%)	2,804 (0%)	23,619 (3%)	0 (0%)	101 (0%)	788,319
1979	397,137 (37%)	472,610 (44%)	165,069 (15%)	7,018 (1%)	31,345 (3%)	0 (0%)	478 (0%)	1,073,657
1980	513,266 (46%)	408,296 (37%)	159,564 (14%)	2,921 (0%)	23,734 (2%)	0 (0%)	568 (0%)	1,108,349
1981	438,921 (41%)	438,824 (41%)	149,273 (14%)	7,476 (1%)	37,528 (4%)	1 (0%)	178 (0%)	1,072,201
1982	457,198 (31%)	748,963 (50%)	211,613 (14%)	2,366 (0%)	69,689 (5%)	1 (0%)	204 (0%)	1,490,034
1983	775,780 (50%)	586,594 (38%)	152,527 (10%)	8,017 (1%)	32,478 (2%)	1 (0%)	1,157 (0%)	1,556,554
1984	457,160 (38%)	593,278 (49%)	102,565 (8%)	9,654 (1%)	49,740 (4%)	7 (0%)	2,283 (0%)	1,214,687
1985	714,714 (38%)	830,285 (45%)	234,896 (13%)	7,724 (0%)	67,885 (4%)	18 (0%)	6,115 (0%)	1,861,637
1986	587,720 (41%)	658,561 (46%)	150,556 (10%)	6,889 (0%)	36,171 (3%)	6 (0%)	2,236 (0%)	1,442,139
1987	310,622 (23%)	736,745 (53%)	259,979 (19%)	9,727 (1%)	54,292 (4%)	1,121 (0%)	5,221 (0%)	1,377,707
1988	652,786 (45%)	600,858 (41%)	162,168 (11%)	9,307 (1%)	30,885 (2%)	1,703 (0%)	2,082 (0%)	1,459,789
1989	822,501 (39%)	893,996 (42%)	329,461 (16%)	20,197 (1%)	50,466 (2%)	724 (0%)	7,469 (0%)	2,124,814
1990	965,900 (45%)	767,037 (36%)	344,604 (16%)	9,174 (0%)	59,625 (3%)	77 (0%)	8,806 (0%)	2,155,223
Average 1960 to 1990								
	452,860 (43%)	433,287 (41%)	144,382 (14%)	4,121 (0%)	22,823 (2%)	118 (0%)	1,190 (0%)	1,058,782
Preliminary 1991								
	1,051,193 (51%)	715,641 (35%)	229,903 (11%)	9,886 (0%)	45,153 (2%)	1,459 (0%)	9,351 (0%)	2,062,586

^a Includes salmon that were confiscated, caught in sportfish derbies, or commercial test fisheries, and sold.

Table 7. Southeast Alaska region annual commercial coho salmon catches by gear, in numbers and percent, 1960-1991.

Year	Seine	Drift Gillnet	Set Gillnet	Troll	Annette Isl. Res	Hatchery Controlled	Miscellaneous Fishery ^a	Total
1960	125,871 (18%)	37,986 (6%)	119,149 (17%)	396,211 (58%)	2,387 (0%)	0 (0%)	0 (0%)	681,604
1961	264,524 (30%)	52,743 (6%)	128,670 (15%)	399,932 (48%)	5,740 (1%)	0 (0%)	0 (0%)	833,609
1962	239,382 (21%)	98,404 (9%)	170,776 (15%)	643,740 (56%)	3,975 (0%)	0 (0%)	0 (0%)	1,156,277
1963	316,449 (25%)	112,776 (9%)	141,365 (11%)	693,050 (55%)	1,688 (0%)	0 (0%)	0 (0%)	1,265,328
1964	506,341 (32%)	172,411 (11%)	169,780 (11%)	730,766 (46%)	6,960 (0%)	0 (0%)	0 (0%)	1,586,258
1965	556,981 (36%)	166,452 (11%)	122,207 (8%)	695,887 (45%)	2,280 (0%)	0 (0%)	0 (0%)	1,543,807
1966	451,888 (37%)	155,922 (13%)	66,252 (5%)	528,621 (43%)	16,144 (1%)	0 (0%)	0 (0%)	1,218,827
1967	188,959 (22%)	134,029 (16%)	97,211 (11%)	443,677 (51%)	374 (0%)	0 (0%)	0 (0%)	864,250
1968	463,270 (30%)	202,955 (13%)	92,005 (6%)	779,500 (51%)	1,956 (0%)	0 (0%)	0 (0%)	1,539,686
1969	109,956 (18%)	65,053 (11%)	32,555 (5%)	388,443 (65%)	400 (0%)	0 (0%)	0 (0%)	596,407
1970	294,574 (39%)	163,901 (22%)	30,279 (4%)	267,647 (35%)	2,499 (0%)	0 (0%)	0 (0%)	758,900
1971	326,264 (36%)	159,143 (17%)	37,734 (4%)	391,279 (43%)	0 (0%)	0 (0%)	0 (0%)	914,420
1972	390,325 (26%)	275,393 (18%)	46,289 (3%)	791,941 (52%)	4,706 (0%)	0 (0%)	0 (0%)	1,508,654
1973	129,593 (15%)	124,349 (15%)	41,776 (5%)	540,125 (65%)	324 (0%)	0 (0%)	0 (0%)	836,167
1974	166,687 (13%)	186,583 (15%)	77,556 (6%)	845,109 (66%)	1,006 (0%)	0 (0%)	0 (0%)	1,276,941
1975	70,193 (16%)	102,321 (24%)	37,403 (9%)	214,170 (50%)	570 (0%)	2,700 (0%)	0 (0%)	427,357
1976	87,473 (11%)	156,469 (19%)	51,743 (6%)	524,762 (64%)	1,354 (0%)	0 (0%)	0 (0%)	821,801
1977	150,535 (16%)	182,934 (19%)	92,214 (10%)	506,845 (54%)	12,126 (1%)	0 (0%)	0 (0%)	944,654
1978	242,961 (14%)	221,134 (13%)	139,500 (8%)	1,100,902 (64%)	8,671 (1%)	0 (0%)	1,337 (0%)	1,714,505
1979	176,354 (14%)	81,324 (6%)	95,873 (7%)	918,845 (72%)	5,649 (0%)	5,893 (0%)	665 (0%)	1,284,603
1980	184,570 (17%)	109,516 (10%)	199,684 (11%)	696,391 (62%)	5,263 (0%)	0 (0%)	813 (0%)	1,116,237
1981	237,402 (17%)	114,503 (8%)	132,579 (10%)	860,898 (63%)	7,839 (1%)	5,003 (0%)	582 (0%)	1,358,806
1982	428,700 (20%)	194,672 (9%)	148,854 (7%)	1,316,013 (62%)	14,345 (1%)	12,150 (1%)	2,569 (0%)	2,117,303
1983	356,946 (18%)	210,332 (11%)	81,541 (4%)	1,276,363 (66%)	17,498 (1%)	4,220 (0%)	95 (0%)	1,946,995
1984	350,037 (18%)	190,971 (10%)	182,256 (10%)	1,132,637 (59%)	25,123 (1%)	26,836 (1%)	1,421 (0%)	1,909,281
1985	418,725 (16%)	309,693 (12%)	202,835 (8%)	1,600,294 (62%)	30,679 (1%)	33,145 (1%)	3,453 (0%)	2,598,824
1986	568,333 (17%)	395,932 (12%)	92,087 (3%)	2,127,922 (63%)	145,545 (4%)	72,810 (2%)	1,288 (0%)	3,403,917
1987	122,254 (8%)	165,136 (11%)	124,406 (8%)	1,041,175 (67%)	35,794 (2%)	50,455 (3%)	3,897 (0%)	1,543,117
1988	152,713 (15%)	157,970 (15%)	205,866 (20%)	500,474 (48%)	8,645 (1%)	16,437 (2%)	3,172 (0%)	1,045,277
1989	330,784 (15%)	234,424 (11%)	176,804 (8%)	1,415,511 (64%)	23,870 (1%)	19,162 (1%)	3,551 (0%)	2,204,106
1990	372,361 (13%)	350,669 (12%)	148,820 (5%)	1,831,492 (64%)	35,104 (1%)	125,874 (4%)	2,539 (0%)	2,866,859
Average 1960 to 1990								
	282,690 (20%)	170,519 (12%)	109,873 (8%)	825,827 (58%)	13,823 (1%)	12,087 (1%)	819 (0%)	1,415,638
Preliminary 1991								
	405,698 (13%)	544,396 (17%)	166,172 (5%)	1,719,002 (54%)	62,398 (2%)	285,904 (9%)	10,753 (0%)	3,194,323

^a Includes salmon that were confiscated, caught in sportfish derbies, or commercial test fisheries, and sold.

Table 8. Southeast Alaska region annual commercial pink salmon catches by gear, in numbers and percent, 1960 to 1991.

Year	Seine	Drift Gillnet	Set Gillnet	Troll	Annette Isl. Res.	Hatchery Controlled	Misc. Fishery ^a	Total
1960	2,572,279 (95%)	55,984 (2%)	12,911 (0%)	25,563 (1%)	45,409 (2%)	0 (0%)	0 (0%)	2,712,146
1961	10,936,344 (95%)	282,997 (2%)	63,608 (1%)	19,303 (0%)	154,046 (1%)	0 (0%)	0 (0%)	11,459,298
1962	10,139,595 (90%)	435,132 (4%)	26,063 (0%)	75,083 (1%)	579,917 (5%)	0 (0%)	0 (0%)	11,255,790
1963	18,188,335 (95%)	653,826 (3%)	78,697 (0%)	106,939 (1%)	88,145 (0%)	0 (0%)	0 (0%)	19,115,942
1964	17,305,646 (93%)	753,312 (4%)	40,038 (0%)	124,566 (1%)	356,697 (2%)	0 (0%)	0 (0%)	18,580,259
1965	10,061,346 (92%)	698,339 (6%)	4,402 (0%)	81,127 (1%)	33,883 (0%)	0 (0%)	0 (0%)	10,879,097
1966	18,906,895 (93%)	790,314 (4%)	1,405 (0%)	63,623 (0%)	588,680 (3%)	0 (0%)	0 (0%)	20,350,917
1967	2,807,759 (90%)	205,683 (7%)	31,580 (1%)	57,372 (2%)	6,949 (0%)	0 (0%)	0 (0%)	3,109,343
1968	24,083,473 (96%)	607,275 (2%)	2,130 (0%)	126,271 (1%)	258,722 (1%)	0 (0%)	0 (0%)	25,077,871
1969	4,312,402 (89%)	379,423 (8%)	64,266 (1%)	83,727 (2%)	29,238 (1%)	0 (0%)	0 (0%)	4,869,056
1970	9,628,138 (90%)	848,376 (8%)	7,800 (0%)	70,072 (1%)	102,907 (1%)	0 (0%)	0 (0%)	10,657
1971	8,505,647 (91%)	654,434 (7%)	80,192 (1%)	104,557 (1%)	0 (0%)	0 (0%)	0 (0%)	293
1972	11,369,376 (92%)	443,866 (4%)	3,087 (0%)	166,771 (1%)	416,701 (3%)	0 (0%)	0 (0%)	12,399,801
1973	5,609,519 (87%)	652,692 (10%)	16,998 (0%)	134,586 (2%)	41,692 (1%)	0 (0%)	0 (0%)	6,455,487
1974	4,174,219 (85%)	338,108 (7%)	4,248 (0%)	263,083 (5%)	109,053 (2%)	0 (0%)	0 (0%)	4,888,711
1975	3,410,755 (85%)	350,440 (9%)	80,043 (2%)	76,882 (2%)	108,400 (3%)	0 (0%)	0 (0%)	4,026,520
1976	4,286,896 (80%)	384,003 (7%)	28,492 (1%)	193,786 (4%)	436,421 (8%)	0 (0%)	0 (0%)	5,329,598
1977	11,394,597 (82%)	1,424,639 (10%)	75,504 (1%)	281,244 (2%)	575,077 (4%)	92,459 (1%)	0 (0%)	13,843,520
1978	18,545,091 (87%)	812,947 (4%)	30,525 (0%)	617,633 (3%)	1,235,444 (6%)	0 (0%)	1,738 (0%)	21,243,378
1979	8,934,010 (81%)	915,976 (8%)	152,053 (1%)	629,144 (6%)	308,234 (3%)	29,555 (0%)	9,361 (0%)	10,978,333
1980	11,869,988 (82%)	1,107,229 (8%)	143,135 (1%)	622,885 (2%)	1,105,442 (8%)	0 (0%)	7,387 (0%)	14,500,066
1981	16,268,867 (85%)	1,264,900 (7%)	133,756 (1%)	579,524 (3%)	653,409 (3%)	132,744 (1%)	5,096 (0%)	19,038
1982	22,014,056 (91%)	570,555 (2%)	9,850 (0%)	503,578 (2%)	1,101,882 (5%)	7,346 (0%)	3,943 (0%)	24,211,210
1983	33,649,518 (90%)	1,209,372 (3%)	25,278 (0%)	498,245 (1%)	2,017,294 (5%)	120,688 (0%)	8,416 (0%)	37,528,811
1984	21,069,273 (85%)	1,307,853 (5%)	19,870 (0%)	572,351 (2%)	1,556,283 (6%)	171,356 (1%)	4,622 (0%)	24,701,608
1985	47,231,253 (91%)	1,832,505 (4%)	16,362 (0%)	968,151 (2%)	1,418,244 (3%)	470,949 (1%)	15,044 (0%)	51,952,508
1986	42,772,257 (93%)	1,282,458 (3%)	7,254 (0%)	181,912 (0%)	1,856,013 (4%)	47,461 (0%)	8,647 (0%)	46,156,002
1987	7,031,297 (68%)	1,359,103 (13%)	12,910 (0%)	487,069 (5%)	343,013 (3%)	994,190 (10%)	53,143 (1%)	10,280,725
1988	8,774,060 (78%)	686,117 (6%)	120,204 (1%)	520,203 (5%)	889,933 (8%)	159,507 (1%)	42,842 (0%)	11,192,866
1989	52,054,130 (88%)	2,769,805 (5%)	57,174 (0%)	1,771,181 (3%)	2,550,624 (4%)	247,752 (0%)	27,623 (0%)	59,478,289
1990	27,915,090 (86%)	1,167,876 (4%)	30,839 (0%)	772,468 (2%)	1,546,186 (5%)	923,703 (3%)	29,350 (0%)	32,385,512
Average 1960 to 1990								
	15,994,262 (98%)	846,630 (5%)	44,538 (0%)	336,223 (2%)	661,837 (4%)	109,604 (1%)	7,007 (0%)	18,000,099
Preliminary 1991								
	58,590,237 (95%)	824,742 (1%)	3,051 (0%)	426,685 (1%)	933,405 (2%)	1,124,314 (2%)	21,010 (0%)	61,923,444

^a Includes salmon that were confiscated, caught in sportfish derbies, or commercial test fisheries, and sold.

Table 9. Southeast Alaska region annual commercial chum salmon catches by gear, in numbers and percent, 1960 to 1991.

Year	Seine	Drift Gillnet	Set Gillnet	Troll	Annette Isl. Res.	Hatchery Controlled	Miscellaneous Fishery ^a	Total
1960	726,017 (78%)	19,887 (21%)	277 (0%)	2,453 (0%)	3,796 (0%)	0 (0%)	0 (0%)	932,430
1961	2,172,066 (89%)	251,900 (10%)	11,038 (0%)	2,679 (0%)	8,648 (0%)	0 (0%)	0 (0%)	2,446,331
1962	1,593,386 (87%)	233,421 (13%)	616 (0%)	2,676 (0%)	6,911 (0%)	0 (0%)	0 (0%)	1,837,010
1963	1,186,182 (81%)	265,251 (18%)	6,230 (0%)	2,282 (0%)	0 (0%)	0 (0%)	0 (0%)	1,470,239
1964	1,661,431 (86%)	250,045 (13%)	1,481 (0%)	2,576 (0%)	12,301 (1%)	0 (0%)	0 (0%)	1,927,834
1965	1,185,569 (81%)	269,986 (18%)	4,094 (0%)	6,359 (0%)	248 (0%)	0 (0%)	0 (0%)	1,466,256
1966	2,846,425 (88%)	365,070 (11%)	3,396 (0%)	5,203 (0%)	7,308 (0%)	0 (0%)	0 (0%)	3,227,402
1967	1,545,057 (86%)	250,050 (14%)	4,459 (0%)	7,051 (0%)	323 (0%)	0 (0%)	0 (0%)	1,806,940
1968	2,251,556 (85%)	363,713 (14%)	13,866 (1%)	2,791 (0%)	4,281 (0%)	0 (0%)	0 (0%)	2,636,207
1969	332,679 (59%)	209,510 (37%)	17,211 (3%)	1,708 (0%)	258 (0%)	0 (0%)	0 (0%)	561,366
1970	1,936,903 (79%)	494,438 (20%)	10,147 (0%)	3,235 (0%)	1,387 (0%)	0 (0%)	0 (0%)	2,446,110
1971	1,496,399 (77%)	435,737 (22%)	6,367 (0%)	7,602 (0%)	0 (0%)	0 (0%)	0 (0%)	1,946,105
1972	2,168,751 (74%)	744,150 (25%)	12,887 (0%)	11,634 (0%)	5,290 (0%)	0 (0%)	0 (0%)	2,942,712
1973	1,219,552 (67%)	592,982 (32%)	8,995 (0%)	10,460 (1%)	226 (0%)	0 (0%)	0 (0%)	1,832,215
1974	999,601 (59%)	666,336 (40%)	4,185 (0%)	13,818 (1%)	375 (0%)	0 (0%)	0 (0%)	1,684,315
1975	381,109 (56%)	297,655 (43%)	3,761 (1%)	2,784 (0%)	1,306 (0%)	0 (0%)	0 (0%)	686,615
1976	511,805 (50%)	503,265 (49%)	7,746 (1%)	4,251 (0%)	3,810 (0%)	0 (0%)	0 (0%)	1,030,877
1977	338,657 (46%)	364,590 (49%)	8,651 (1%)	11,617 (2%)	15,208 (2%)	0 (0%)	0 (0%)	738,723
1978	521,880 (60%)	288,959 (33%)	6,181 (1%)	26,193 (3%)	25,605 (3%)	0 (0%)	145 (0%)	868,963
1979	438,175 (49%)	401,164 (45%)	7,399 (1%)	24,661 (3%)	16,437 (2%)	0 (0%)	437 (0%)	888,273
1980	1,002,091 (61%)	548,389 (33%)	20,151 (1%)	12,048 (1%)	57,064 (3%)	0 (0%)	1,771 (0%)	1,641,514
1981	517,002 (62%)	270,230 (32%)	10,655 (1%)	8,680 (1%)	30,312 (4%)	1 (0%)	360 (0%)	837,240
1982	826,721 (62%)	448,818 (34%)	6,320 (0%)	5,701 (0%)	40,829 (3%)	773 (0%)	339 (0%)	1,329,501
1983	577,649 (49%)	516,639 (44%)	11,195 (1%)	20,308 (2%)	24,237 (2%)	18,269 (2%)	244 (0%)	1,168,541
1984	2,433,719 (60%)	1,030,248 (25%)	32,230 (1%)	28,028 (1%)	104,949 (3%)	453,204 (11%)	968 (0%)	4,083,346
1985	1,852,511 (57%)	1,134,275 (35%)	12,466 (0%)	52,908 (2%)	86,386 (3%)	130,363 (4%)	6,055 (0%)	3,274,964
1986	2,199,489 (65%)	815,519 (24%)	16,608 (0%)	51,391 (2%)	117,201 (3%)	157,155 (5%)	1,566 (0%)	3,358,929
1987	1,236,074 (45%)	747,461 (27%)	14,555 (1%)	12,843 (0%)	109,174 (4%)	594,436 (22%)	6,943 (0%)	2,721,486
1988	1,457,269 (41%)	1,101,294 (31%)	29,247 (1%)	88,399 (3%)	127,203 (4%)	722,711 (20%)	6,862 (0%)	3,532,985
1989	1,078,706 (55%)	542,839 (28%)	16,233 (1%)	68,988 (4%)	65,415 (3%)	193,428 (10%)	3,262 (0%)	1,968,871
1990	1,057,926 (48%)	615,916 (28%)	5,813 (0%)	62,811 (3%)	184,519 (4%)	381,095 (17%)	4,308 (0%)	2,212,388
Average 1960 to 1990								
	1,282,334 (67%)	490,959 (26%)	10,275 (1%)	18,325 (1%)	31,074 (2%)	85,530 (4%)	1,073 (0%)	1,919,571
Preliminary 1991								
	2,126,724 (64%)	712,975 (21%)	2,979 (0%)	28,461 (1%)	82,120 (2%)	373,812 (11%)	8,226 (0%)	3,335,297

1.18

^a Includes salmon that were confiscated, caught in sportfish derbies, or commercial test fisheries, and sold.

Table 10. Southeast Alaska region salmon ex-vessel value, catch, average weight, and price paid per pound by gear and species, 1991.

Fishery	Chinook	Sockeye	Coho	Pink	Chum	Total
-----Ex-vessel Value in Dollars----- ^f						
Purse Seine	220,737	5,087,373	1,663,195	20,667,315	4,801,905	32,450,524
Drift Gillnet	271,454	4,135,186	3,823,037	493,549	2,109,145	10,832,371
Set Gillnet	25,279	1,252,303	958,327	1,634	8,922	2,246,464
Troll ^b	9,924,424	62,555	11,065,279	249,409	96,156	21,089,916
Annette Isl. Res. ^c	76,705	222,731	416,175	558,508	228,716	1,502,836
Hatchery Controlled	351,711	2,765	1,521,413	207,800	1,514,525	3,598,214
Miscellaneous ^d	442	55,874	7,147	6,846	20,437	90,745
Total	10,562,843	10,818,787	19,454,574	22,195,061	8,779,806	71,811,071
-----Catch in Numbers of Salmon-----						
Purse Seine (≥ 28")	11,562	1,051,193	405,698	58,590,237	2,126,724	62,185,414
Purse Seine (≤ 28")	5,519	N/A	N/A	N/A	N/A	5,519
Drift Gillnet	18,595	715,641	544,396	824,742	712,975	2,816,349
Set Gillnet	1,750	229,903	166,172	3,051	2,979	403,855
Troll ^b	262,899	9,886	1,719,002	426,685	28,461	2,446,933
Annette Isl. Res. ^c	1,880	45,153	62,398	933,405	82,120	1,124,956
Hatchery Controlled	28,136	1,459	285,904	1,124,314	373,812	1,813,625
Miscellaneous ^d	51	9,351	10,753	21,010	8,226	49,391
Total	330,392	2,062,586	3,194,323	61,923,444	3,335,297	70,846,042
-----Average Weight in Pounds----- ^e						
Purse Seine (≥ 28")	17.80	5.67	6.67	2.69	7.63	N/A
Purse Seine (≤ 28")	4.85	N/A	N/A	N/A	N/A	N/A
Drift Gillnet	12.56	6.40	8.59	3.69	9.02	N/A
Set Gillnet	15.29	6.00	9.00	3.46	7.68	N/A
Troll ^b	15.10	5.05	6.37	2.46	6.32	N/A
Annette Isl. Res. ^c	16.04	5.94	8.38	3.02	8.39	N/A
Hatchery Controlled	18.94	5.00	8.37	2.57	7.73	N/A
Miscellaneous ^d	9.04	6.42	2.72	2.59	7.62	N/A
-----Average Ex-vessel Price Paid Per Pound----- ^d						
Purse Seine (≥ 28")	1.02	0.85	0.62	0.13	0.30	N/A
Purse Seine (≤ 28")	0.38	N/A	N/A	N/A	N/A	N/A
Drift Gillnet	1.16	0.09	0.82	0.16	0.33	N/A
Set Gillnet	0.95	0.91	0.64	0.16	0.39	N/A
Troll ^b	2.50	1.25	1.01	0.24	0.54	N/A
Annette Isl. Res. ^c	2.54	0.83	0.80	0.20	0.33	N/A
Hatchery Controlled	0.66	0.38	0.64	0.07	0.52	N/A
Miscellaneous ^d	0.96	0.93	0.24	0.13	0.33	N/A

^a Includes salmon that were confiscated, caught in sportfish derbies, or commercial test fisheries, and sold.

^b Catch accounting period for the 1991 chinook salmon season goes from 1 Oct. 1990 to 30 Sept. 1991.

^c Annette Island Reserve includes seine, drift gillnet, hand and power troll, and trap gears.

^d (total value for all fish tickets (where value ≠ 0)) ÷ (total pounds for all fish tickets (where pounds ≠ 0))

^e (total pounds for all fish tickets (where pounds ≠ 0)) ÷ (total number fish for all tickets (where number ≠ 0))

^f (number caught) ■ (average weight) ■ (average ex-vessel price).

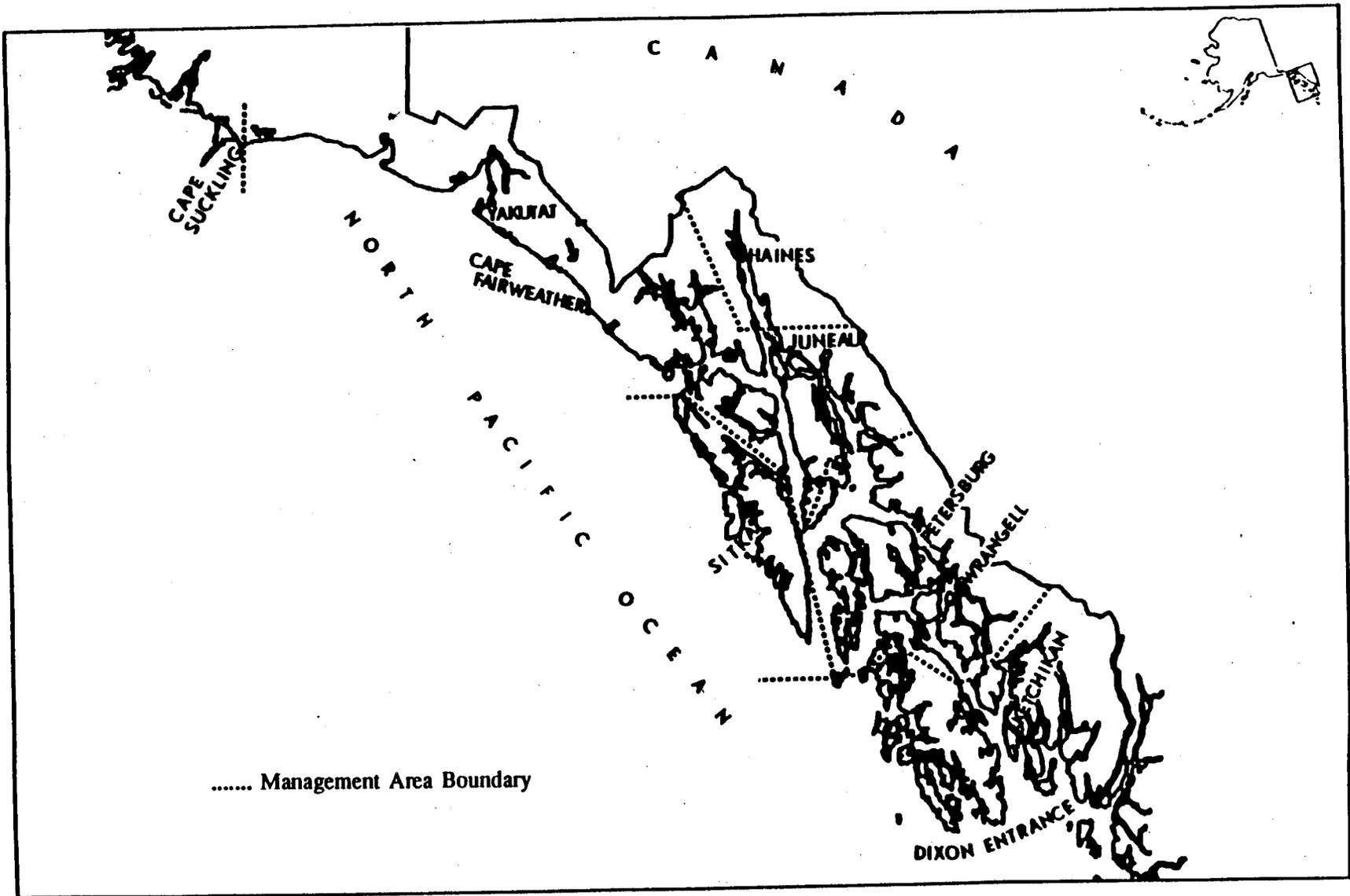


Figure 1. Region 1 (Southeast Alaska and Yakutat) management area boundaries.

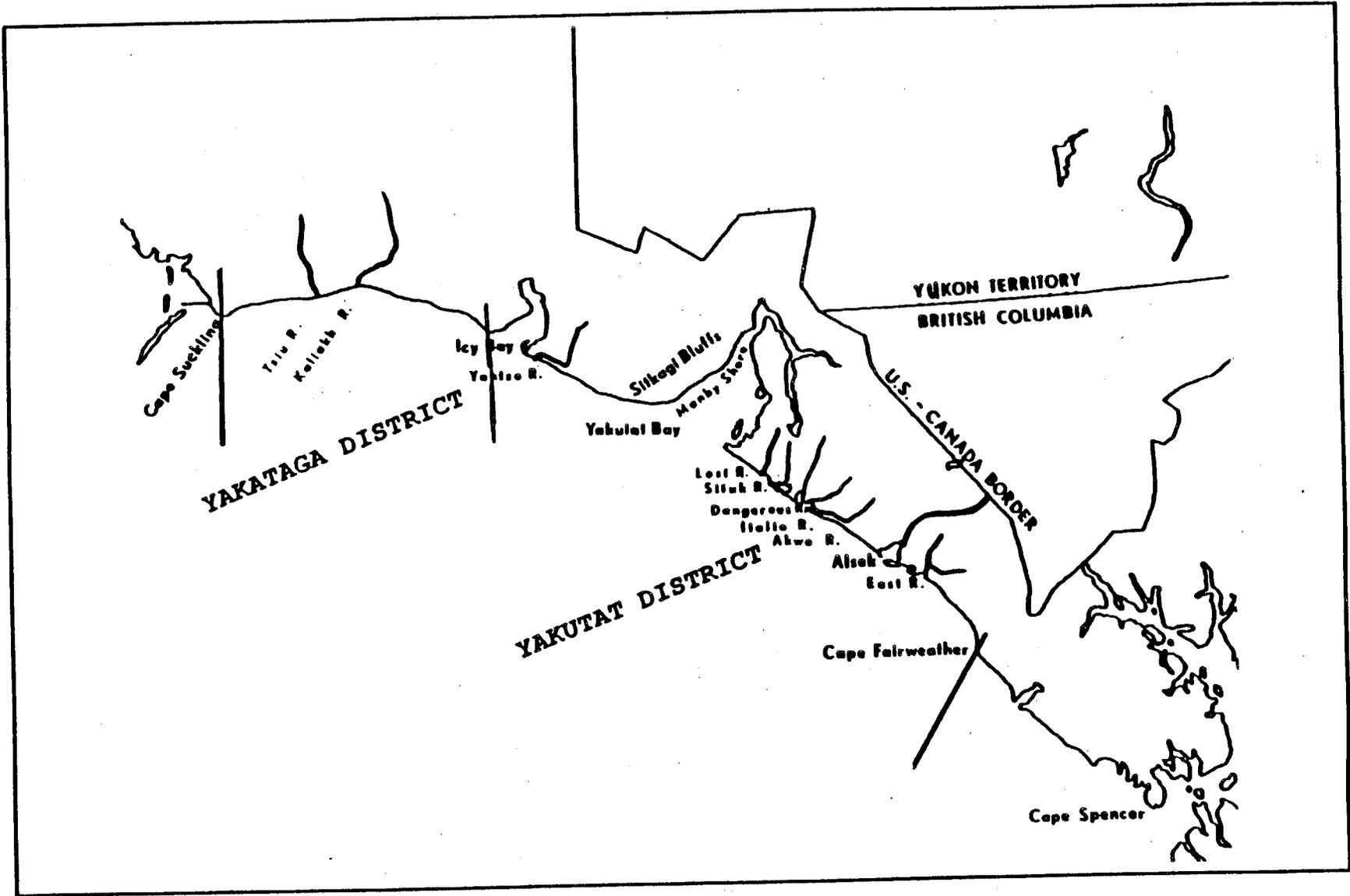


Figure 2. Yakutat's Yakataga and Yakutat Districts.

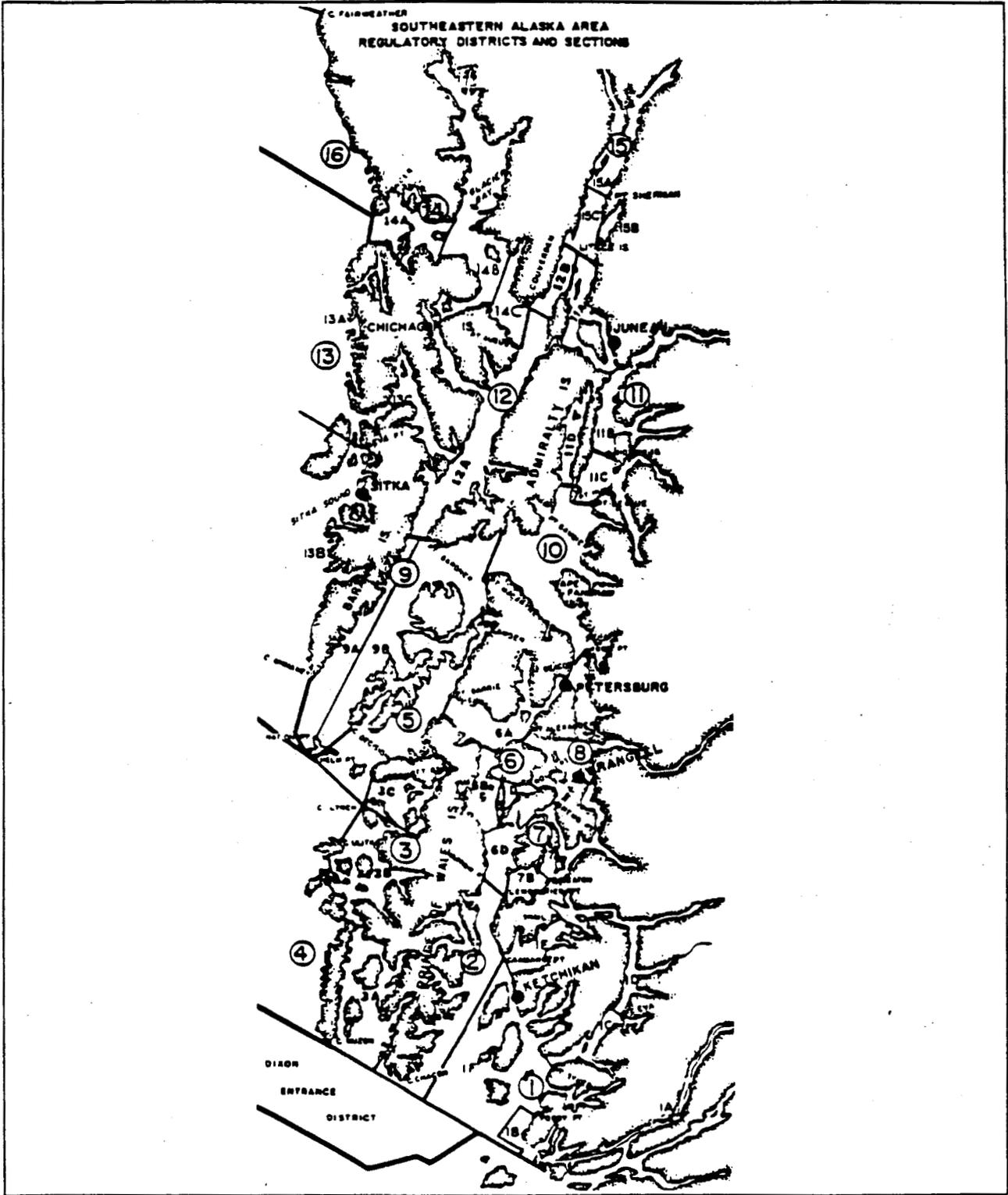


Figure 3. Southeast Alaska regulatory areas and districts.

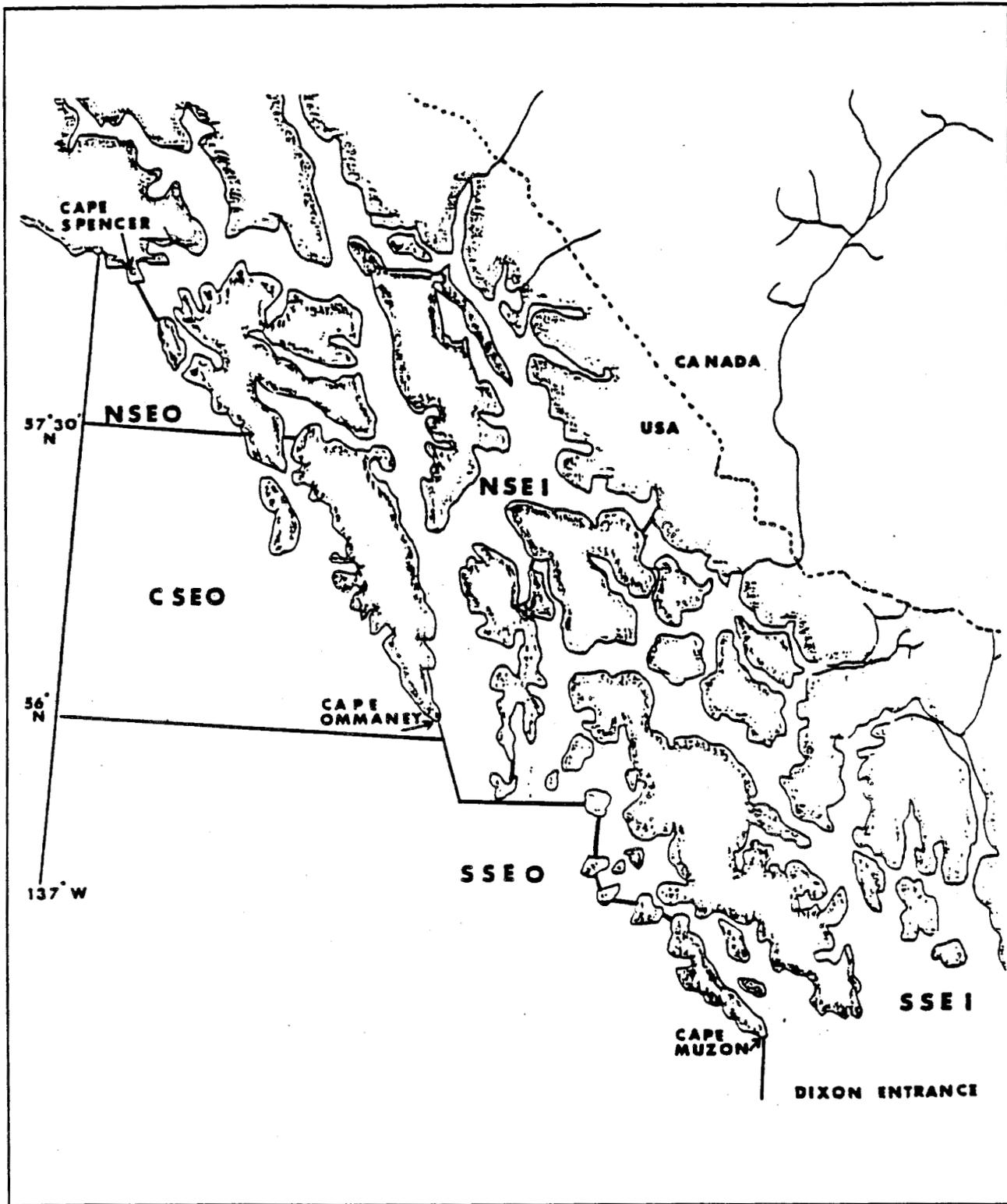


Figure 4. Southeast Alaska groundfish management areas.

SECTION 2

**SOUTHEAST ALASKA-YAKUTAT
SALMON NET FISHERIES, 1991**

REPORT TO THE BOARD OF FISHERIES
SOUTHEAST ALASKA-YAKUTAT SALMON-NET FISHERIES, 1991



By

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

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ABSTRACT

This report reviews the commercial salmon purse seine, drift gillnet, hatchery cost recovery, subsistence, and personal use fisheries in Southeast Alaska during 1991 and compares harvests to historical catches. The 1991 purse seine harvest of approximately 62,700,000 fish was the largest harvest on record (twice the size of the 1990 harvest and approximately 7,200,000 more than the second largest in 1989). The pink salmon catch of 59,100,000 represented 94% of the total purse seine harvest. The return of pink salmon greatly exceeded preseason forecasts for both northern and southern Southeast Alaska. Approximately 3,300,000 salmon were harvested in all drift gillnet fisheries in 1991. About 34% (1,100,000) of the drift gillnet catch was comprised of pink salmon, followed by sockeye salmon at 23% (760,000), and chum salmon at 24% (800,000). Hatchery cost recovery harvests of chinook, coho, and pink were the largest, and sockeye the second largest on record, with pinks making up 62% of the catch. The 1991 combined subsistence and personal use salmon harvests in Southeast were among the highest observed, with sockeye making up approximately 80% of the catch.

INTRODUCTION

This chapter describes the commercial salmon purse seine, drift gillnet, and salmon subsistence and personal use fisheries that occurred during 1991 in the Southeast Alaska portion of Region 1 of the Commercial Fisheries Division, Alaska Department of Fish and Game. A discussion of the fishery management actions is included and the preliminary landing estimates 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 1991 Finfish Fisheries). A review of the Region 1 troll and Yakutat set gillnet fisheries is presented in subsequent chapters.

SALMON PURSE SEINE FISHERIES

Regulations allow purse seine fishing in Districts 101 (Sections 1-C, 1-D, 1-E, and 1-F only), 102, 103 (Sections 3-A, 3-B and 3-C), 104, 105, 106 (Sections 6-C and 6-D), 107, 109 (Sections 9-A and 9-B), 110, 111 (Sections 11-A and 11-D only), 112 (Sections 12-A and 12-B), 113 (Sections 13-A, 13-B and 13-C), and 114 (Sections 14-A, 14-B and 14-C). Existing regulations also allow purse seining in terminal hatchery fishing areas at Nakat Inlet, Carroll Inlet, Neets Bay, Earl West Cove, and Hidden Falls. These terminal hatchery seine fisheries are discussed in a later section of this chapter; this section will discuss the general common property purse seine fishery. Although the areas specified above are generally open to seine fishing, regulations also mandate that the specific open areas and fishing periods are to be established by emergency order.

The purse seine fishery normally accounts for between 70% and 90% of the total commercial salmon harvest in the Southeast Alaska region. Pink salmon are the primary species targeted by the seine fleet, and management actions are based primarily on the abundance of pink salmon. Other species are generally harvested incidental to the pink salmon purse seine fishery. On average, sockeye and coho salmon account for approximately 4%, chum salmon 7%, and chinook salmon less than 1%, of the total purse seine salmon harvest.

Adult tagging studies have demonstrated that pink salmon stocks in Southeast Alaska exhibit a distinct separation between the northern and southern portions of the region. For purposes of forecasting, catch tabulation, and management, Districts 101 through 108 are grouped as "southern Southeast" and Districts 109 through 116 as "northern Southeast" (see Figure 1, Chapter 1, Introduction to 1991 Finfish Fisheries). In general, management of the northern and southern purse seine fisheries is independent. However,

because both the northern and southern portions are included in the same salmon registration area, purse seine fishermen are free to move between them. Inseason assessments of pink salmon run strength are determined primarily from spawning escapement information obtained from aerial surveys of sanctuary areas and streams, and from fishery performance data (i.e., catch per unit effort or CPUE). In addition, the department often charters purse seine vessels to conduct test fishing assessments of run strength in selected areas.

The 1991 general purse seine season extended from June 30 through October 10 (Table 1). The summer season usually runs from approximately June 30 through August 30, and the fall seine season from August 30 until the season closure. The total 1991 purse seine harvest was approximately 62,700,000 salmon, the highest seine catch on record (Tables 2 and 3). The harvest consisted of 59,100,000 pink, 2,100,000 chum, 1,000,000 sockeye, and 400,000 coho salmon. Pink salmon accounted for over 94% of the total harvest followed by 3.4% chum, 1.7% sockeye, 0.7% coho, and chinook salmon at less than 0.1%.

Non-Retention of Chinook Salmon

Regulations specify a seasonal harvest guideline of 11,400 chinook salmon, 28 inches or larger, for the purse seine fishery. The 28-inch size limit also exists for the commercial troll and recreational fisheries. The Alaska Board of Fisheries adopted the chinook harvest guideline as part of an overall allocation scheme among commercial users resulting from implementation of the U.S./Canada Pacific Salmon Treaty (PST). Similar harvest guidelines are specified for the drift gillnet and set gillnet fisheries. Regulations further prohibit seiners from selling, but not possession of, chinook salmon between 21 and 28 inches. Chinook salmon less than 21 inches (approximately 5 lbs or less) may be sold but do not count against the seasonal harvest guideline. In addition, the PST specifies that chinook salmon produced by Alaska hatcheries, minus adjustments for "pre-Treaty" hatchery production and estimation error, do not count against the seasonal harvest guideline.

The primary management tool employed by the department to stay within the chinook harvest guideline for the purse seine fishery is to establish periods, by emergency order, when chinook salmon greater than 28 inches may not be retained. "Non-retention" is usually implemented early in the season when the total salmon catch rate is low. This allows for more efficient release of large chinook salmon and minimizes the impact of incidental mortality. Retention of larger chinook salmon is permitted as long as possible during the period when catch rates for other species is high. Once the chinook harvest guideline is obtained, non-retention is again required.

During the 1991 general summer seine season (June 30 - August 30), retention of 28-inch or larger chinook salmon was allowed during 5 of the 16 open fishing periods, or for 13 of the 32 open days.

The non-retention period included the first 12 open days of the season, through July 29. Chinook salmon retention was allowed August 1-2, August 9-19, and August 25-27. Non-retention was necessary between these dates to assess chinook catch rates relative to the seine harvest limit of 11,400. Chinook salmon retention was not allowed during the fall season (August 29 - October 10).

The retention of large chinook salmon was also allowed during seine openings at the Hidden Falls, Nakat Inlet, and Earl West Cove terminal hatchery fishing areas. In these areas, the harvest of chinook salmon is comprised almost entirely of Alaskan hatchery-produced fish.

The 1991 purse seine catch of chinook salmon totaled 17,137 fish of which 11,618 were reported as 28 inches or larger and 5,519 less than 21 inches. Approximately 3,100 of the large chinook salmon were Alaskan hatchery-produced chinook salmon that did not count against the harvest guideline. When both the catch of small chinook and hatchery-produced chinook salmon are considered, the 1991 season seine harvest of chinook salmon was roughly 2,900 fish below the harvest guideline of 11,400 fish.

Northern Southeast Purse Seine Fisheries

Northern Southeast Alaska consists of regulatory Districts 109-116, although purse seine fishing is allowed only by regulation in Districts 109-114. The fishery is managed primarily for pink salmon during the summer season and chum salmon during the fall season. A minor fishery for sockeye occurs during the summer season in the vicinity of Redfish Bay and Necker Bay, on the outer coast of Baranof Island, in District 113. Additionally, the harvesting of summer-run chum salmon is a major concern during the pink salmon season; this includes distinct chum salmon seining in selected locations during the early portions of the summer season.

The summer season is separated into distinct inside and outside fisheries. The inside areas include Districts 109, 110, 111, 112, and 114 and Section 13-C. The outside area consists of the waters of Sections 13-A and 13-B, along the outer coasts of Baranof and Chichagof Islands. The inside fisheries target on two major pink salmon stock groups: 1) stocks that return 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) stocks that return through lower Chatham Strait and disperse locally and into portions of Frederick Sound. Although some intermingling of the two stock groups occurs in some seine fishing areas, distinct and independent management for each group is usually possible. The

Icy Strait stock group consists of 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 stock groups.

The 1991 preseason forecast of the total pink salmon return to northern Southeast Alaska was 24,200,000 fish with a range from 16.9 to 34,600,000 fish. The overall pink salmon spawning escapement goal for northern Southeast was 12,000,000 fish which allowed for an expected harvest of 12,200,000 pink salmon (midpoint of the forecasted return). Pink salmon returns were expected to be good in all districts except 114, 115, and in the outside portion of District 113 (Sections 13-A and 13-B) where escapement goals were not achieved in 1989. Especially good pink salmon returns were expected for Districts 109, 112 and Section 13-C (Peril Strait).

The 1991 season began in northern Southeast on June 30 with a 15-hour opening in Frederick Sound in District 110, Tenakee Inlet, Kelp Bay, and Hidden Falls Hatchery in District 112, Peril Strait in Section 13-C, and Port Frederick in District 114. Fishing was expanded to other areas starting on July 7. Fishermen were dissatisfied with the pink salmon price, thus a regionwide boycott of the 15 hour opening on July 11 and the 39 hour period on July 14-15 took place until a settlement was reached. All boats returned to the fishing grounds on July 17 when more fishing areas were opened. As the 1991 seine season progressed, it became evident that the preseason pink salmon forecast to northern Southeast was in the estimated range. Pink salmon returns were strong in most areas with the notable exception of Seymour Canal, in District 111, which was a failure after excellent escapements in 1989. Icy Strait in District 114 had generally poor returns but they were improved over the 1989 parent year.

Inside Fisheries

In District 109, Section 9-A was open beginning July 17. Openings were limited to the northern portions of section 9-A near Redbluff Bay through August 10; however, beginning August 13, openings were extended to include the southern portions of Section 9-A near Port Walter. The total pink salmon catch in Section 9-A was 893,000 fish, the second largest since statehood. Initially, effort was light even though returns were strong in the area. To attract effort and adequately harvest surpluses, fishermen were allowed to fish three days per period beginning in mid-August, as compared to two days in other areas of the region. The majority of the catch occurred near Redbluff Bay.

In District 109, Section 9-B was initially open along the Admiralty shoreline for 15 hours on July 25. Harvests were very good, totaling 140,000 salmon from 25 boats. On July 28 and 29 the Kingsmill and Saginaw Bay shoreline was also opened, and 787,000 salmon were harvested by 44 seiners. The first opening in Tebenkof Bay occurred on August 1 and 2. Effort and harvests in Tebenkof Bay remained

low throughout the season with a maximum of 10 boats fishing, and a season catch of 411,000 pink salmon. Catches were excellent along the Kingsmill and Pt. Brightman shorelines through the middle of August, averaging about 10,000 fish per boat per day. However, by the opening on August 9 and 10, many seiners had departed for southern Southeast Alaska. Most of the bays in Frederick Sound were closed during this opening, with the exception of Port Camden, which was opened based upon expected returns of chum salmon. From the opening on August 17 through the end of the season on September 3, fewer than 20 boats fished, even though almost all of the section was open and average catches were very good. Harvests totaled a record 4,200,000 pink salmon in Section 9-B for the season. The total harvest of salmon in all of District 109 during the 1991 season was 5,200,000 fish (Table 3).

In District 110, pink salmon returns were also very good. District 110, in its entirety, opened June 30 for 15 hours and remained open for three more openings through July 15. Fishing effort was light due to a boycott by the purse seine fleet in an attempt to improve pink salmon prices which had fallen to a dismal 12 cents/lb per pound for deliveries to tenders of unbrined fish. The fifth opening of the season on July 17 and 18 was the first opening the entire seine fleet fished since July 7. Effort was light with only 14 boats, but catches were excellent averaging 9,000 fish per boat per day. Total catch peaked the following 39 hour opening when 636,000 salmon were harvested. Effort peaked at 75 vessels during the July 25 opening when the region was only open for 15 hours and District 4 was closed. Fishing effort declined quickly during the remaining openings, but catches were excellent for the next four openings through August 10, with averages of about 10,000 fish per boat per day. The district closed for the season on August 18. Record catches totaled approximately 2,800,000 salmon in District 110 in 1991 (Table 3). Approximately 60% of the catch came from the mainland shoreline outside of the bays.

In District 112, many separate fisheries occur due to the large size of this district. The upper Baranof Island shoreline in Chatham Strait was first opened for harvesting chum salmon returning to the Hidden Falls Hatchery and Kelp Bay. Several openings in this area produced a catch of 550,000 chum salmon. Beginning on July 21, openings in the area were primarily scheduled to target pink returns to Kelp Bay. Openings occurred on a regular basis through September 3. Effort was generally light and 687,000 pink salmon were harvested. Tenakee Inlet was open to Corner Bay Point from June 30 through late-July with the peak effort (roughly 40 boats) occurring during the first two weeks. Tenakee Inlet was not opened to the normal boundary at Seal Bay during the first two weeks since chum salmon abundance appeared less than desirable. Pink salmon escapements built very quickly and by mid-July, without any fishing for two openings due to the strike, a large buildup of pinks had occurred in Tenakee Inlet. This may have occurred even with a fishery since the return to Tenakee was so strong, and an earlier opening inside Tenakee Inlet would have allowed a better harvest of the surplus return. The inlet was opened to Seal Bay on August 1, but quality was poor and few fish were taken. The markers were returned to Corner Bay Point on August 9 and remained there through August 27 when Tenakee Inlet was closed. Because good fishing opportunities were available elsewhere, little effort occurred in Tenakee Inlet in 1991. A

maximum of 43 boats fished Tenakee on the second opening. Approximately 1,200,000 pink salmon were harvested in Tenakee Inlet during the 1991 season along with 60,000 chums.

No openings occurred in the northern corridor of District 112 until July 17 when the western shoreline of Admiralty Island was opened south of Point Marsden to Fishery Point. The July 17 opening was restricted to the area below Point Marsden because there were no indication of pink salmon abundance in northern inside areas. No openings occurred north of Point Marsden in 1991. A 39-hour mid-week opening was allowed on July 17-18. Fishing was delayed until that time to allow early-run stocks to pass through the area. Catches during this first July opening along the Marsden shoreline were very good, averaging 4,000 fish per boat per day from 26 boats. The high catches warranted continued fishing on a two-days-on, two-days-off basis through August 30, although a closure was implemented between Point Hepburn and Danger Point on August 21 to increase the pink salmon escapements in the area.

The western Admiralty Island shoreline fishery was extended southward from Fishery Point to Point Garner on July 28. All systems in this area were open to normal markers since the run in this area looked strong. The area remained open until September 3 when the fishery was closed to give protection to fall chums beginning to enter lower West Admiralty Island systems. Seine fishing effort along the western shoreline of Admiralty Island south of Hawk Inlet was very light throughout the season with about 20 boats fishing along the entire area. Peak effort occurred on July 25 when the Basket Shore was closed, and a total of 53 boats were counted on the Marsden Shore. A total of 5,300,000 pink salmon were harvested on the west Admiralty Shore between Point Marsden and Point Garner.

The Basket Bay shoreline in District 112 south of Tenakee Inlet was opened July 14 to provide a harvest of incoming Peril Strait pinks, local Basket Shore stocks, and additional harvest of Tenakee pink salmon. The first period occurred during the strike with only 6 boats fishing, but the following two openings had 20 to 30 boats and fishing success was excellent, with a boat average of over 5,000 pinks per day. The Basket Shore was closed for two weeks to increase local pink escapement, reopened on August 9, and it remained open through August 27. Approximately 800,000 pinks were reported harvested in the Basket Bay Shore subarea, although there was boat movement between the open areas in Tenakee and the Admiralty Shoreline.

Numerous openings occurred in Peril Strait, Section 13-C, beginning June 30. Both catch and fishery effort were low and only 254,000 fish were harvested. Overall, pink salmon escapements were good in Peril Strait, especially Hoonah Sound.

In District 114, the Whitestone Shore of Icy Strait was open for eight days between August 9-19. Fishing on the Whitestone Shore allowed some additional harvest of the strong pink salmon return entering Chatham Strait as well as providing a harvest of the local Whitestone Shore stocks. It was closed in late

August to allow additional pink salmon escapement into Port Frederick, Spaski Bay, and Whitestone Harbor. A total of 600,000 pinks were harvested on the Whitestone Shore with effort at about 10 boats and very good catches. The other large pink salmon producers in Icy Strait such as Port Althorp, Idaho Inlet, and Mud Bay had only fair escapements with no surplus to harvest.

Pink salmon abundance increased along the northern shore of District 114 in Icy Strait, near Homeshore Creek, in early August. Only one special pink salmon opening occurred on the Homeshore in 1991. A six-hour opening occurred on August 6 from the Excursion Inlet dock to southern Porpoise Island. Only three boats fished the area and their catch was mixed with District 112 so no report was available.

Outside Fisheries

Management of Sections 13-A and 13-B in District 113, along the outer coastal areas of Baranof and Chichagof Islands, is distinct from the management of the other northern Southeast districts. Salmon entering this area migrate directly from the ocean and do not pass through major inside migration corridors.

In 1991, stronger than anticipated pink salmon returns developed in Slocum Arm and Salisbury Sound streams, on the outside coast of District 113. Several openings were allowed in these areas beginning July 14 in Slocum Arm and August 5 in Salisbury Sound. Fishing effort was generally light, and 160,000 and 130,000 fish were taken, respectively. With the exception of Lisianski Inlet, pink salmon escapements to streams in Section 13-A were excellent. Pink escapements to Section 13-B streams in Sitka Sound and the outside of Baranof Island showed considerable improvements over recent years but were below harvestable levels and no fisheries occurred.

A small sockeye salmon fishery has historically occurred in the waters of Necker and Redfish Bays, located along the southern outside coast of Baranof Island in District 113. During 1991, Necker Bay was opened for one 39-hour period on July 21-22, and Redfish Bay for one 39-hour period on July 28-29. Two boats harvested 6,200 sockeye in Necker Bay, and 3 boats took approximately 1,000 sockeye in Redfish Bay; 330 of these fish were harvested illegally by 1 vessel.

Northern Southeast Alaska Chum Salmon Fishery

Directed purse seine fishing occurs in selected areas of northern Southeast Alaska for both summer and fall chum salmon stocks. The majority of the summer chum salmon harvest is usually taken incidental to the pink salmon fishery; however, specific summer chum salmon seining periods occur in some years

depending on local stock abundance. The primary summer chum salmon fishing areas are in Tebenkof Bay, in District 109, Farragut Bay in District 110, Tenakee Inlet and Kelp Bay in District 112, Whale Bay, Slocum Arm, and Portlock Harbor along the outer coastal waters of District 113, and Frederick Sound in District 114. Additionally, a major summer chum fishery occurs at the Hidden Falls Hatchery in District 112. Fall chum salmon seining occurs in Port Camden, Security Bay, and Tebenkof Bay in District 109, Chaik Bay and Hood Bay in District 112, Nakwasina Sound in District 113, and Excursion Inlet in District 114.

Chum salmon escapements in 1986 and 1987 (the parent years for 1991 returns of ages four and five) were very good in many summer and fall-run systems in northern Southeast, and strong returns were expected in 1991. However, the returns were much weaker than anticipated.

In District 114, the Port Frederick chum salmon return was particularly disappointing considering the strong parent-year escapements. In anticipation of a good return, the inner bay was opened on June 30 but only 3,000 chum were caught. Port Frederick was open in the "Point Sophia Triangle", from Inner to Outer Point Sophia, for six days, although it was only fished three of those days due to the strike. The local Hoonah seine fleet of about 10 boats fished the area for 12,000 chum and 78,000 pink salmon, of which most were probably not from local stocks. Port Frederick chum escapements were poor in the major streams such as Game and Neka Creeks.

In District 112, early openings occurred in Kelp Bay, at Hidden Falls Hatchery, and outside Tenakee Inlet beginning on June 30. Several openings in the Hidden Falls and Kelp Bay areas in July produced an overall catch of approximately 550,000 chum salmon. The Tenakee Inlet return was not as strong as expected, and an inside opening was not held on June 30 due to the poor showing. A total of 61,000 chums were harvested along with the 1,200,000 pinks in Tenakee Inlet in 1991. Some portion of these fish were not Tenakee stocks but were caught while migrating past the inlet entrance. Fall chum salmon returns to Hood and Chaik Bays on Admiralty Island were also very poor and no harvestable surpluses were evident.

Three openings were held at Excursion Inlet in District 114 for fall chum salmon. Catches were low during all openings with only 28,000 chum and 20,000 pinks caught during the season. Fall chum escapements appeared to be below escapement goal levels.

Northern Southeast Alaska Pink Salmon Escapements

The large number of spawning streams in Southeast Alaska makes it impossible to obtain a count of pink salmon spawning escapements to all systems. Instead, a spawning escapement index is estimated each

year, with index escapement goals established for each of the major districts. The escapement index is used primarily to compare yearly variations in pink salmon spawning escapements. The index is based on a summation of the highest (peak) pink salmon spawning counts observed in a large number of selected streams during the season.

The northern Southeast Alaska pink salmon escapement index goal is 4,800,000 fish. The 1991 escapement index totaled 5,200,000 pink salmon (Table 5). Escapement goals were exceeded in Districts 109, 110, and 112. Escapements were below goals in Districts 111 and 114, and approximately 90% of the goal in District 113. Good escapements occurred in Section 13-C (Peril Strait) and portions of Section 13-A. Escapements were below goal in Section 13-B, the outer coastal waters of Baranof Island.

Southern Southeast Alaska Purse Seine Fisheries

The southern area seine fishery occurs in Districts 101-107. As in the northern area, the fishery is driven primarily by pink salmon stock abundance. However, large numbers of sockeye salmon are also harvested in District 104 during the early portion of the summer season, and a targeted fall chum salmon fishery usually occurs in portions of Districts 102, 103 and 105.

The 1991 forecast for wild pink salmon runs in southern Southeast was 72,700,000 fish, with a range of 38,000,000 to 107,400,000. Subtracting the overall escapement goal for the southern districts of 22,500,000 pink salmon left a potential harvest of 50,200,000 fish. The majority of the run was expected to be produced from stocks returning to streams in Districts 101, 102, and 103; pink salmon returns were expected to be at goal levels in Districts 105-108.

District 104: Noyes Island Purse Seine Fishery

The U.S./Canada Pacific Salmon Treaty calls for limiting the sockeye salmon harvest in the District 104 purse seine fishery during the period 1990 to 1993 to a maximum four year total catch of 480,000 fish prior to Statistical Week 31. Under the terms of the agreement, when the annual catch reaches 160,000 sockeye salmon no further fishing periods will be allowed prior to Statistical Week 31. All underages, not to exceed 20% of the annex ceiling, will add to, and any overages will subtract from, the subsequent four year period.

In 1990, during a four week period, 170,000 sockeye salmon were harvested. In this four week period, Statistical Weeks 27 through 30, the district was opened for four fishing days - two 15 hour periods

(Statistical Weeks 27 and 28) and two 6 hour periods (Statistical Weeks 29 and 30). During the opening in Statistical Week 30 fishing was restricted to the northern portion of District 104.

With 170,000 sockeye harvested in 1990, the department would try to manage for a harvest of 310,000 sockeye over the remaining three years of the agreement, and it would attempt to manage the fisheries in a way that would allow the remaining fish to be harvested evenly over those three years. Therefore, for 1991, an informal harvest goal of 100,000 sockeye salmon prior to Statistical Week 31 was established.

The District 104 opening date was July 7, the first Sunday in July (Statistical Week 28). District 104 was opened for a fifteen hour period in Statistical Week 28. During this opening, 23,000 sockeye were harvested by 101 boats. In order to limit the sockeye harvest in Statistical Week 29, the district was limited to an initial ten hour opening on July 14. However, due to a price dispute with processors, the vast majority of purse seine fishermen did not fish during this opening. Only 3 boats fished in District 104 and they harvested 2,500 sockeye salmon. The Southeast purse seine fisheries re-opened in Statistical Week 29 on Thursday, July 18, with District 104 opened for another ten hours. During this opening, in which the seine fleet was not striking, 96 boats harvested 55,000 fish. This left approximately 20,000 sockeye to be harvested prior to Statistical Week 31. The district was re-opened on July 21 (Statistical Week 30) for a six hour opening, with only the extreme southern portion of the district open. During the reduced opening 35 seine boats harvested 18,000 sockeye salmon.

Approximately 98,500 sockeye salmon were harvested during the treaty period in the three statistical weeks fished. The district was opened for a total of 41 hours. However, during the initial ten hour opening in Statistical Week 29, only three boats fished so, realistically, the district was only fished for 31 hours during the treaty period. This leaves approximately 211,500 sockeye to be harvested in the next two years to remain within the 480,000 sockeye limit agreed to in the Treaty.

Beginning on July 28 (Statistical Week 31) and continuing through the final opening on September 3, the District 104 fishery was managed according to the strength of the pink salmon return. In the week immediately following the Treaty period a harvest of 8,600,000 pink salmon occurred in the district. This was the largest single week's harvest of pink salmon in the district. Also, during this week, 298,000 sockeye were harvested. This constituted the largest single week's harvest of sockeye in the district. The harvest of pinks remained at record levels for the next several weeks. In Statistical Week 32 another 8,400,000 pink salmon were harvested along with 259,000 sockeye salmon. Through the next four weeks of fishing the pink run came in at record levels. The harvest of sockeye, coho, and chum salmon were all harvested at record or near record levels.

For the season, the district was opened for a total of 24 days, four within the Treaty period, with one of those days being a strike day, and 20 days after the start of Statistical Week 31. The 24 days constituted

a total of 428 hours, 41 within the Treaty period, with ten of those hours being a strike period, and 387 hours after the start of Statistical Week 31. The department managed the seine fisheries in Districts 101-104 on a two-days-open and two-days-closed schedule. This allowed the industry to properly handle the record run, the fishermen to prepare for the next opening, and the department to survey the escapements, tabulate catches, and make necessary line changes. Effort levels in the district remained high through most of the season, with an average of 175 boats fishing an opening.

The harvest of all species were well above average in District 104. For pink salmon, 28,400,000 fish were caught, the sockeye harvest was 850,000 fish, and the chum harvest was 555,000. All of these catches were the largest in the history of the fisheries. The coho harvest of 202,000 was the third largest harvest. Approximately 10,000 chinook salmon were caught, which was close to the number of chinook allocated to the purse seine fleet.

Southern Southeast Alaska Inside Summer Purse Seine Fishery

The District 101 purse seine fishery opened for 15 hours on July 7 (Statistical Week 28). The early opening was in anticipation of the predicted large return of pink salmon to the southern Southeast Regions. The effort in District 101 during the initial opening was light, with only 24 boats participating. The light effort was due in part to simultaneous openings in northern Southeast Alaska, where a good early season run was developing, and to the concurrent opening in District 104. As the season progressed in District 101 it became apparent that escapements and harvest levels were less than in recent years of good returns. The total pink salmon catch of 4,200,000 in District 101 was below the past ten year average of 5,040,000. District 101 was not opened in as many areas as in past years due to lagging pink salmon escapements. The district was also closed earlier than in past years due to lower than anticipated returns. The record harvest of over 9,000,000 pink salmon in Canadian Area 3 certainly reduced catches in District 101.

Districts 102 and 103 were opened on July 11 and July 21, respectively. The harvests of pink salmon in these districts were above the past ten year averages. These districts were opened for a two-day-on, two-day-off schedule starting on July 17 for District 102, and on July 21 for District 103.

Southern Southeast Alaska Chum Salmon Fishery

Directed purse seine fisheries on natural fall chum salmon returns were limited to District 102 in 1991. This fishery targets on chum salmon returning to watersheds primarily in Cholmondeley Sound. The District 102 fall seining season consisted of 487 hours. The season was opened on September 11 for 39 hours, and closed on October 10. From September 27 through October 10 the district was opened on a

continual basis. An average of 30 purse seine vessels fished per week. The run came in very strong, with escapement goals being met by late September. The harvest of 185,000 was the second largest on record.

Southern Southeast Alaska Pink Salmon Escapements

Pink salmon escapements were above goals in Districts 101, 102, and 103. Poor weather hampered surveys in mid and late August, and it is felt that escapements were actually above those recorded since a number of peak counts in the districts were conducted.

DRIFT GILLNET FISHERIES

In 1991, drift gillnet fishing was allowed by regulation in Districts 101 (Sections 1-A and 1-B only), 106 (Sections 6-A, 6-B, 6-C, and 6-D), 108, 111 (Sections 11-B and 11-C only), and 115 (Sections 15-A, 15-B, and 15-C). In addition, drift gillnet fishing occurred in terminal hatchery areas at Wrangell Narrows, Ohmer Creek, Nakat Inlet, and Earl West Cove. Per regulations instituted in 1989, no gillnet fishing was allowed in Lower Clarence Strait. The gillnet fisheries which occurred in hatchery terminal areas are discussed in the hatchery harvest section of this report; this section will concentrate on the general drift gillnet fishing season. The salmon species, run timing, management problems and information used to manage the fisheries are quite variable among the areas, hence each area is discussed separately.

The 1991 general drift gillnet season extended for 17 weeks from June 16 through October 10 (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 1991, gillnet openings were allowed in most of the general areas.

Overall, the drift gillnet fishery (including hatchery terminal areas) harvested approximately 3,300,000 salmon during the 1991 season, (Tables 9 and 10). The catch consisted of 1,120,000 pink (34.1%), 750,000 sockeye (23.0%), 790,000 chum (24.0%), 600,000 coho (18.3%), and 19,396 chinook salmon (0.6%).

Chinook Salmon Harvests

Regulations specify a seasonal harvest guideline of 7,600 chinook salmon, not including chinook produced by Alaska hatcheries. The Board of Fisheries 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 has specified that inseason management measures for maintaining the catch levels should include early season area closures for the protection of mature chinook and nighttime fishing restrictions to minimize the harvest of immature ("feeder") chinook salmon.

The 1991 drift gillnet landings of chinook salmon totaled 19,396 fish. Of these, 12,089 were Alaska hatchery-produced fish (8,984 terminal area, and an estimated 3,105 common property harvest fish) that did not count against the seasonal harvest guideline. As a result, the total drift gillnet harvest of chinook salmon was roughly 290 fish below the 7,600 fish harvest guideline.

Early season area closures adjacent to the Stikine Taku, and Chilkat Rivers were maintained, as in recent years, to minimize the harvest of mature chinook salmon taken incidental to the harvest of sockeye salmon.

District 101: Tree Point/Portland Canal Drift Gillnet Fishery

The Tree Point/Portland Canal drift gillnet fishery encompasses the waters of Sections 1-A and 1-B, in District 101 (Figure 1). Management actions are based primarily on harvesting sockeye salmon and secondarily on summer chum salmon during the early season, pink salmon in the middle of the season, and chum and coho salmon at the end of the season.

Management of the fishery is affected by provisions of the U.S./Canada Pacific Salmon Treaty. This is because a significant portion of the sockeye salmon stocks harvested in this fishery are of Canadian origin (primarily Nass River and Skeena River). The PST specifies that an annual average sockeye salmon catch level of 130,000 fish be maintained for the Tree Point drift gillnet fishery and that efforts be made to limit the interception of chum salmon bound for Portland Canal. State of Alaska commercial fishing regulations mandate that the department manage this fishery consistent with PST provisions.

The Tree Point drift gillnet fishery opens by regulation on the third Sunday of June. During the early stages of the fisheries, management is based on the run strength of Alaskan wild stock chum and sockeye salmon and on the run strength of Nass River sockeye salmon. Beginning in the third week of July, when

pink salmon stocks begin to enter the fisheries in large numbers, management emphasis shifts to that species. The District 101 Pink salmon Management Plan sets gillnet fishing times at Tree Point in relation to District 101 purse seine fishing time when both fleets are concurrently harvesting the same pink salmon stocks.

In 1991 the fishery at Tree Point was initially opened for a four-day fishing week on June 16 (Statistical Week 25). During this opening, 89 boats harvested 7,400 sockeye and 4,400 chum salmon. Catches of both species were slightly below average; however, effort levels were also low. Portland Canal was closed to fishing north of Akeku Point throughout the season in order to conserve chum salmon stocks returning to Portland Canal. Due to the low returns of sockeye salmon to Hugh Smith and low escapement levels of chum salmon to Portland Canal systems, Tree Point fishing time was reduced to three day weeks for the next four weeks. Beginning in Statistical Week 28, a closure in the northern portion of the gillnet area was instituted to protect sockeye salmon returning to Hugh Smith Lake. This area closure was in conjunction with an area closure in the District 101 purse seine fishery. This area closure was in place for the next four weeks.

On July 21 (Statistical Week 30), the District 101 Pink Salmon Management Plan was initiated and continued through Statistical Week 35. Five day fishing weeks were allowed under the plan starting in Statistical Week 30 and lasting through Week 34. During the final week of the Plan (Statistical Week 35) a four day week was allowed. Effort levels remained well below average throughout the season. During the peak weeks of the season, 80 to 90 boats fished at Tree Point compared to averages of 120 to 130 over the past several years. During the last three weeks of the season, three days of fishing per week was allowed. The catches of fall coho and chum salmon were generally above average during this time period. Late coho catches were well above average; however, the hatchery component of coho returning to Nakat Inlet has not been determined.

The total harvest of sockeye salmon at Tree Point was approximately 131,000 fish (Table 11). This compares to a ten year average of 129,000. The harvest of 600,000 pink salmon was low considering the overall large return to other portions of southern Southeast Alaska. The harvest of 70,000 coho was well above the ten year average of 37,000 but, as mentioned above, the Nakat Inlet component of the harvest has not yet been determined. The chum harvest of 183,000 was below the ten year average of 212,000 fish. The component of the chum catch that was destined for Nakat Inlet has not yet been determined. Escapement of chum salmon into Portland Canal systems were again below goal levels.

District 106 and 108: Prince of Wales and Stikine Drift Gillnet Fishery

The Prince of Wales and Stikine River drift gillnet fisheries occur in adjoining waters of Districts 106 and 108 (Figure 1). The District 106 drift gillnet area includes Section 6-A in Sumner Strait and Section 6-B, 6-C, and 6-D in Clarence Strait. The District 108 fishery consists of Section 8-A, waters north of the Stikine River flats, and Section 8-B, waters south of the Stikine flats. The management of these fisheries is interrelated due to their close proximity and to the salmon migration patterns which expose some major 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 affected by terms of the U.S./Canada Pacific Salmon Treaty. Salmon stocks of Stikine River origin, a major transboundary river extending into Canada, are available for harvest in both districts. The PST specifies a sharing arrangement for Stikine River sockeye and coho salmon stocks.

The District 106 drift gillnet fishery was open for 39 days from June 16 to October 8 (Table 8). This was above the average fishing time allowed during the past ten years of 30 days. Sections 6-A, 6-B, and 6-C were open simultaneously each week throughout the season with an area restriction for Salmon Bay during part of the sockeye fishery. The District 108 openings were very extensive during the latter part of the sockeye season. The 49 days open was about 2.7 times the 10-year average of 18 days. Area restrictions were used for the first two weeks around the mouth of the Stikine River to protect adult chinooks returning to the Stikine. Area restrictions were also used during portions of the fishery in Frederick Sound.

Fishing effort in District 106 was near average during the first two weeks of the sockeye season and the first two weeks in August. The rest of the season it was above the previous ten year average, especially during the peak of the sockeye and coho seasons. District 108 weekly fishing effort started near average but jumped to 8 times the average during the first midweek extension. Effort remained high in the district during the extended fishing periods and was near average during the rest of the season except for the end of the coho fishery. Especially low effort occurred during the first week in September when the halibut fishery reopened.

From June 16 through August 6, the management of both Districts 106 and 108 was based primarily on the harvest of sockeye salmon. The sockeye fisheries were managed in accordance with an in-season model developed by the Transboundary River Technical Committee to meet the mandated Stikine sharing agreement of the PST. Preseason expectations were for an average sockeye salmon return to the Stikine River and to local Alaskan sockeye salmon systems. The District 106 harvest of approximately 144,100 fish was below the 10-year average of 153,400 (Table 12). The District 108 harvest of approximately 22,300 was considerably above the 10-year average of 4,700 (Table 13).

During the first two weeks of the fishery, both the District 106 and District 108 openings were restricted to 2 days. The opening for the third week of the fishery in both districts was announced as 2 days, but after the two-day opening in District 108, the management model projecting the Stikine sockeye return showed a dramatic rise from 7,200 fish to 160,000, so a midweek one-day opening was announced on July 4 for an opening beginning the following day. For the rest of the sockeye season, the District 106 fishery remained at two days per week while openings became more extensive in District 108.

During the fourth week of the season, the model projection peaked out at 197,000 fish and the initial 2-day opening was followed by a 2-day midweek opening from Thursday through Saturday. The solidarity boycott with the seiners for higher fish prices kept effort much lower than the previous week with only five boats going out for the extra days and most of those didn't fish the full time. During the following week the fishery in District 108 was extended until further notice. By then it appeared the run had peaked. During the sixth week the fishery closed on Tuesday at noon after being open for 9 straight days. The final extension was for two days, from July 25 to July 27. The U.S. total allowable catch under the model began at 14,000 with the inseason prediction, dropped to 2,500 the third week, peaked out at 107,000 during the middle of July and by early August had dropped to 30,000. The inseason catch estimate of U.S. harvests of Stikine stocks remained very low with only about 2% of the District 106 catch and 28% of the District 108 fish classified as Stikine stocks. These estimates were expected to rise postseason. Area closures around Salmon Bay, Petersburg Creek and Muddy River were used to protect fish backing out of the systems. The sockeye escapement to the Tahltan Lake was very good and almost exceeded 5,000. Index escapement counts on the island sockeye systems were average to above average.

The management emphasis changed from sockeye to pink salmon during the ninth week (August 11) of the fishery. This season there were approximately 133,400 and 10,900 pink salmon harvested, respectively, in District 106 and District 108. The District 106 catch was down from the recent five-odd-year average of 515,200. Catches were low primarily due to the small size of the pinks and the low prices, which prompted the fleet to target the larger-sized "money fish". Pink salmon escapements to both districts were very good.

During the eleventh week (August 25), management emphasis changed from pink to coho salmon. Early season coho indicators in both the drift gillnet and troll fisheries indicated a very strong return to southern Southeast. Prior to the change to coho management, the sockeye and pink salmon fisheries harvested approximately 30% of the total District 106 coho catch and about 20% of the District 108 catch. The District 106 coho catch of approximately 197,900 was the second highest catch on record, and was 250% above the 10-year average of 79,000. The District 108 coho catch of approximately 15,800 was also above the 10-year average of 7,500. Fishing effort remained higher than normal through the end of the season in Districts 106 and 108. Hatchery coho contributed 59,600 (30%) of the District 106 catch and 2,400 (11%) of District 108. The run lasted much later than normal, with both districts closing on

October 8. Aerial surveys indicated average coho salmon spawning escapements to the Stikine River drainage. Coho salmon escapements to most local Alaskan spawning streams were also average to above average.

The District 106 chum salmon harvest of approximately 124,600 was the highest on record, considerably above the next highest harvest of 90,103 in 1963, and the previous 10-year average harvest of 54,990. All of the chum salmon harvested in District 106 are caught incidentally while targeting on sockeye, pink and coho salmon. The harvest is not always a true reflection of the strength of the chum salmon return, but of the amount of fishing time and number of vessels fishing throughout the season. The 1991 chum harvest in District 108 of 11,400 was more than three times the 10-year average of 3,170 chums. Chum salmon escapements into both districts appeared to be about average. Hatchery chum contributed 47,500 fish or 35% of the harvest.

District 111: Taku/Snettisham Drift Gillnet Fishery

The Taku/Snettisham drift gillnet fishery (District 111) occurs in 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 1). The fishery targets on sockeye and pink salmon early in the season and fall chum and coho salmon late in the season.

Management of the District 111 drift gillnet fishery is also affected by the PST because salmon of Taku River origin, a major transboundary river extending into Canada, contribute most of the salmon harvested in the district. The PST mandates that the fishery 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 PST also provides for a Canadian harvest of 3,000 coho salmon.

The District 111 drift gillnet fishery was opened June 16 and closed on October 10, 1991, for a total of 57 fishing days. The fishery included 49 fishing days to harvest wild stocks bound for Port Snettisham and Taku River, and 14 days (with mesh restrictions) to harvest summer chum salmon hatchery returns. An additional 13 days of fishing was allowed in Section 11-C to harvest above average pink salmon returns. Total fishing time allowed was 50% above the 1981 to 1990 average, primarily because of fishing time extensions during the fall coho fishery. Fishing effort in District 111 for 1991 was 22% above the 1981 to 1990 average.

Catches in the District 111 drift gillnet fishery were among the largest in the history of the fishery, with records being exceeded for summer chum and coho harvests. The total harvest for all species was 474,888, consisting of 3,217 chinook, 109,877 sockeye, 74,183 pink, 147,404 summer chums, 13,771 fall chums, and 126,436 coho salmon. Catches of sockeye, pink salmon, and fall chums were comprised primarily of mixed wild stocks from the Taku River, Port Snettisham, and drainages in lower Stephens Passage. Catches of chinook, summer chums, and coho were comprised of both wild stocks and local hatchery stocks. In addition to the commercial fishery, a gillnet mesh selectivity study was conducted by the department in Taku Inlet during July. Catches during this five week test fishery totaled 9 chinook, 917 sockeye, 162 pinks, 86 coho, and 1,859 chum salmon. Annual District 111 drift gillnet catches since 1960 are shown in Table 14.

The chinook harvest of 3,217 was approximately 50% above the 1981 to 1990 average and was comprised primarily of small feeders. Approximately 25% of the 1991 chinook harvest was taken during the initial two weeks of the fishery (Statistical Weeks 25 and 26), when the CPUE was over two and a half times above the 1981 to 1990 average. In the past, catches from these weeks have been comprised mainly of large spawners bound for the Taku. It is unknown why there was such a large early abundance of feeders.

The sockeye harvest of 109,877 sockeye was the fourth largest sockeye catch on record, approximately 55% above the 1981 to 1990 average, and only about 15% below last year's historical high.

Scale pattern analysis (SPA) has been used inseason and postseasonally to provide stock composition estimates of District 111 sockeye catches since the 1980s. The inseason estimates in 1991 were unreliable; estimates did not follow historical trends, and analysis of brain parasite incidence in the catch revealed that SPA estimates were not realistic. This problem occurred because of interannual changes in scale patterns. Postseason analysis of scale data, which is updated with spawning ground samples from 1991, will be conducted to provide revised stock composition estimates. While the stock composition of catches are currently unknown, the relative magnitudes of the Taku River and Port Snettisham escapements and the fishery restrictions designed to reduce the harvest of Snettisham sockeye suggest that the catch was predominantly of Taku River origin. The previous 8 year average contribution of Taku River stocks to the fishery was 78% of the annual catch.

The summer chum returns were exceptional in 1991 and were comprised primarily of 5 year old fish (approximately 80%). Local hatcheries contributed the majority. The total summer (prior to August 18, Statistical Week 34) catch of 147,404 was 330% above the 1981 to 1990 average, and was the largest District 111 summer chum harvest on record.

The fall chum returns were another story. They were exclusively wildstock chum salmon, the progeny of the large 1987 Taku River and Port Snettisham returns. The total fall (after August 18, Statistical

Week 34) chum salmon harvest was 13,771. This was 67% below the 1981 to 1990 average, and the third smallest fall chum harvest on record.

The District 111 pink salmon harvest of 74,183 fish was approximately 67% below the 1981 to 1990 odd year average, but it did not accurately represent the strength of the return. A combination of factors were responsible for the low catches. Pink salmon were smaller than average, with average weights less than 3 lbs. This resulted in lower interception rates in the traditional sockeye gillnet mesh. In addition, pink salmon prices were depressed, which consequently stymied the fleet's motivation to switch to smaller meshed gear in order to target this species.

The total coho salmon catch of 126,436 fish was the largest on record, approximately three times larger than the 1981 to 1990 average, and almost double the previous record catch of 67,310 taken in 1990. The exceptional harvest was a combination of extremely large coho wildstock returns to the Taku River, and DIPAC Hatchery returns. Coho salmon returns were about 10 days late. Peak coho catches were taken during Statistical Weeks 38, 39 and 40, when weekly catches were 5, 22, and 150 times above average, respectively.

Except for the two day opening during Statistical Weeks 27 and 28 (June 30 to July 13), Taku Inlet was opened for three days per week for the entire summer season. Extensions were considered during Statistical Weeks 29 and 30 (July 14-27) as a result of the large sockeye salmon catches and high fish wheel CPUE, but the department opted against them in order to assure better escapements to Tatsamenie Lake.

An additional 24 hours of fishing time was provided each week in Stephens Passage, south of the latitude of Circle Point, from June 30 to July 27 (Statistical Weeks 27-30), in an effort to harvest excess Port Snettisham hatchery chum salmon returning to Port Snettisham and Limestone Inlet. This area was restricted to a minimum mesh size of six inches during this period in order to target chums and minimize interception of the depressed Port Snettisham sockeye stocks. However, the greatest chum catches were found north of this line due to the large DIPAC hatchery chum contribution, but extensions were not granted in order to provide brood stock for the DIPAC Hatchery.

Section 11-C was opened during Statistical Weeks 32-33 (July 28 to August 16) for a total of 13 days in an effort to harvest the strong pink returns in lower Stephens Passage. The area did not draw much effort (8 boats), and only 6,100 pinks were harvested.

Fall management was initiated on August 18 (Statistical Week 34), when the District 111 gillnet fishery was opened for three days. At this time, coho catches were average, while the chum returns were below average. Consequently, fishing time was restricted to two days beginning August 25 (Statistical Week 35).

Fishing time remained at two days per week during the next 5 weeks (Statistical Weeks 35-39) due to the poor chum return, despite increasing coho CPUE. The coho harvest jumped to a record weekly catch of approximately 18,000 during Statistical Week 37 and continued exceptionally strong for the remainder of the season. Coho salmon fish wheel CPUE at Canyon Island and preliminary inriver run projections were the highest observed since the coho mark/recapture program began in 1987. By September 29 (Statistical Week 40) the chum salmon returns had passed through the fishing area and the fishery was opened "until further notice" to harvest the exceptionally strong coho returns. Only 45 boats were fishing by this time, but coho catches were steady and remained high throughout the entire week. Consequently, fishing continued into Statistical Week 41 for an additional 4 days, by which time the effort had dropped to only 14 boats. Although catches were averaging over 100 coho a day at the beginning of the week, it appeared that the wildstocks had passed and the fleet was catching hatchery fish exclusively. During the 11 day extended opening, approximately 30,000 coho salmon were harvested. The District 111 gillnet fishery was closed for the season on October 10, 1991. It was the longest fall opening on record.

District 115: Lynn Canal Drift Gillnet Fishery

The Lynn Canal drift gillnet fishery occurs in the waters of District 115 which consists of Section 15-A in upper Lynn Canal, Section 15-C in lower Lynn Canal, and Section 15-B in Berners Bay (Figure 1). The fishery targets sockeye during the summer season, and chum and coho salmon during the fall season.

The sockeye harvest for the 1991 season approximated the ten year average and totaled 307,811. Landings of summer chum were very high with 100,627 harvested. Sockeye escapement to Chilkoot Lake totaled 90,714, near the upper end of the escapement goal range of 53,000 to 92,000. The Chilkat Lake sockeye escapement totaled 50,889, below the lower end of its escapement range.

Fall chum salmon harvests resulted in a cumulative catch of only 109,562. Extensive conservation measures were put into effect throughout the fall season in order to protect escapement of chum returning to the Chilkat River. This marked the third consecutive year in which fall chum salmon run strength was low. Coho salmon harvests, by contrast, were at record highs during the fall season. A total of 128,365 coho salmon were landed, approximately 88% above the 10 year average.

The total salmon harvest for the Lynn Canal drift gillnet fishery during 1991 was 652,582 salmon. Effort level reached 180 vessels during the peak weeks of the summer season. Fall season effort was again well below normal, 140 vessels, due to reduced fishing time and poor prices paid for chum salmon.

The Lynn Canal district opened by regulation June 16 with a two day fishing period. Section 15-A was opened south of the latitude of the northern tip of Sullivan Island as a conservation measure to protect depressed Chilkat River chinook and early segment Chilkat sockeye. Section 15-C opened during the initial week within two nautical miles of the eastern shoreline south of the latitude of Bridget Point, and within two nautical miles of the western shoreline south of the latitude of Lance Point to a point above Pt. Whidbey, also for a two day period. The open areas of section 15-C were intended to provide information on the availability of hatchery and wild stock summer chum salmon in lower Lynn Canal during the early weeks of the season. Section 15-B, Berners Bay, remained closed throughout the season since stocks returning to Berners systems were available to harvest outside the Bay. Good landings of chum salmon during the initial opening indicated a strong return of summer chum salmon to lower Lynn Canal.

During the third period, section 15-C was restricted to 6 1/4" minimum mesh gear to allow additional time to harvest the strong chum return while minimizing the interception of sockeye salmon. Chum catches peaked during the second period with over 25,000 landed. Hatchery chum returns to Boat Harbor failed to contribute significant harvests along the western shoreline, and Section 15-C was closed following the last period in July.

Chilkoot early sockeye run strength was good, thus an additional area was opened in the upper inlet to the normal markers (Tank Farm) during the third fishing period. Chinook conservation closures remained in effect until the fourth week in July, when the line was moved to the latitude of the southern tip of Talsani Island and adult chinook were no longer a concern in the gillnet fishery. Due to the extensive closed areas to conserve chinook salmon, night closures were not put into effect during the July period. Two day openings were held in Section 15-A during the early season, with Lutak Inlet remaining closed. The early Chilkoot sockeye escapement goal was met, with an estimate of over 19,000 early run fish. Late run Chilkoot sockeye strength developed early, and 3-day openings were held beginning the last week in July through the last week in August, with Lutak Inlet open to the mouth of the river during three fishing periods. The late run Chilkoot escapement totaled approximately 69,000 sockeye, exceeding the upper end of the goal range.

Chilkat sockeye run strength, both early and late run stocks, remained weak throughout the season. Chilkat Inlet was not opened during the 1991 season. Expanded closed areas including Mud Bay and waters to Talsani Island remained in effect to protect the weak Chilkat return. A harvest of approximately 62,000 Chilkat Lake sockeye, only 66% of average, was landed. Despite extensive conservation closures throughout the season, Chilkat lake escapement totaled 50,889 spawners, well below the season escapement goal for this stock.

Due to the weak late run Chilkat sockeye and weak early chum returns, management strategy continued to be very conservative going into the fall season. Only two day periods with expanded closed waters in terminal areas were allowed through the month of September. Well below average chum salmon CPUE continued through the fall weeks. Coho salmon catches, on the other hand, began above average strength during the second week in September and increased to record harvests throughout September and into early October. The management dilemma was to conserve an extremely weak chum return while allowing the harvest of a record high coho salmon return. This was accomplished by targeting coho salmon in Section 15-C, where, historically, the coho to chum ratio has been higher, and by expanding the closed water areas where chum salmon are traditionally taken. A three day opening was held during the last week in September in the waters of Section 15-C only, in order to maximize the harvest of coho salmon. A final two day opening in Section 15-C concluded the season on October 8, 1991. A record 128,365 coho salmon were landed in Lynn Canal. Escapement levels of coho salmon were above average to all index systems in the district.

HATCHERY HARVESTS

Both state and privately operated hatcheries contributed chinook, coho, pink, and chum salmon to the 1991 commercial drift gillnet and purse seine fisheries. Sockeye salmon enhancement production is presently very limited in Southeast Alaska. Hatchery-produced salmon are harvested in terminal-area common property fisheries, and in private hatchery cost-recovery fisheries.

General Common Property Harvests

With the exception of chinook and coho salmon, and in limited instances for chum salmon, reliable information is not available for the harvest of hatchery-produced salmon in the general, common property fisheries. Pink salmon production releases are seldom coded-wire-tagged, making it difficult to accurately estimate fishery contributions.

From a management standpoint, the availability of hatchery fish is of most concern in those mixed stock fisheries where fishery performance information is used for inseason management. During 1991, intensive coded-wire-tag sampling programs were conducted throughout Southeast Alaska to estimate contributions of hatchery and wild stocks to commercial fisheries. Particular emphasis was placed on sampling catches of chinook and coho salmon in the troll and net fisheries throughout the region. In addition, catches in

commercial drift gillnet and purse seine fisheries were sampled to estimate coded-wire tag contributions of wild and hatchery chum salmon stocks and wild sockeye salmon stocks during selected periods. A more detailed discussion of coded wire tagged contributions of wild and hatchery chinook and coho salmon is presented in a subsequent section of this report (Southeast and Yakutat Troll Fisheries).

Common Property Terminal Harvests

Common property fisheries were allowed for harvesting hatchery returns in terminal areas adjacent to state-operated facilities in Klawock Inlet in District 103, Crystal Lake in District 106, and at privately operated enhancement facilities in Nakat Inlet (SSRAA) in District 101, Earl West Cove (SSRAA) in District 107, and Hidden Falls (NSRAA) in District 112. In addition, terminal troll fisheries for chinook and coho salmon were also conducted. They are discussed in detail in the troll chapter of this report.

Terminal hatchery seine and drift gillnet fisheries harvested 979,994 salmon in 1991, including 11,122 chinook, 2,956 sockeye, 9,233 coho, 439,689 pink, and 516,994 chum salmon (Tables 3 & 9). Terminal hatchery purse seine fisheries occurred in Nakat Inlet, Earl West Cove, and Hidden Falls. Terminal drift gillnet fisheries occurred in Nakat Inlet, Earl West Cove, and for the Crystal Lake Hatchery (Wrangell Narrows and Ohmer Creek).

The Hidden Falls Hatchery was operated for the fourth consecutive season by the Northern Southeast Regional Aquaculture Association (NSRAA) under a contract with the State. The contract allowed the association to conduct cost recovery harvesting to finance hatchery operations. In 1991, 446,382 chum salmon were taken in the Hidden Falls common property seine fishery (Table 3).

Common property fisheries with drift gillnet gear were authorized in both of Crystal Lake terminal fishing areas. At Blind Slough, in District 106, the area was opened to both the harvest of chinook and coho salmon, while Ohmer Creek, in District 108, was opened only for the harvest of chinook salmon. The Blind Slough terminal area was open for five days for chinook salmon in the summer and six days for coho salmon in the fall. All fishing in Blind Slough (Wrangell Narrows) was limited to the hours of daylight to minimize conflicts between fishing vessels and other vessels traveling the narrows. Ohmer Creek was open for eleven days and had no night restrictions. Both areas also opened Mondays to avoid conflicts with sport fishermen. The harvest of salmon in both terminal areas is summarized in Table 9.

The Southern Southeast Regional Aquaculture Association (SSRAA) operates major hatchery release sites within the southern Southeast management districts. Hatcheries are located in Neets Bay, Herring Cove, and at Beaver Falls. Remote release sites include Nakat Inlet, Earl West Cove, and Carroll Inlet.

Chinook, summer chum, coho, and fall chum salmon are released at Neets Bay. Chinook and coho are released at Herring Cove. Sockeye salmon are released at Beaver Falls. Summer and fall chum, and coho are released in Nakat Inlet. Chinook, summer and fall chum, and coho are released in Earl West Cove. Chinook salmon are released in Carroll Inlet.

In 1991, Nakat Inlet and Earl West Cove were opened from June 15 through October 17 for a rotational fishery for the different gear groups for hatchery chinook, chum and coho salmon. The harvest of hatchery chinook, coho, chum, and sockeye salmon from the other production areas was limited to hatchery brood stock and cost recovery harvests. The harvest of salmon in each of the SSRAA hatchery release sites is summarized in Tables 3 and 9.

Cost Recovery Harvests

Harvesting of salmon for cost recovery was reported at 17 different locations during 1991. Salmon landings totaled approximately 1,800,000 fish (Tables 16 and 17). The harvest consisted of 1,124,314 pink, 373,812 chum, 285,904 coho, and 28,136 chinook salmon.

CANADIAN TRANSBOUNDARY RIVER FISHERIES

A Canadian Indian food fishery has operated on the upper Stikine River for many years, and a small scale commercial fishery has occurred there since 1975. In 1979, Canada initiated larger scale commercial fisheries in the lower portions of both the Stikine and Taku Rivers. An Indian food fishery has also operated in recent years in the lower Taku River. Both drift and set gillnets are used in the lower river fisheries, although mostly drift gillnet gear has been used in recent years. These fisheries are conducted primarily in the mainstem portions of the rivers by fishermen using small outboard-powered skiffs. Both commercial and Indian food fisheries are included as part of the U.S./Canada Pacific Salmon Treaty which currently provides an international harvest sharing arrangement through 1992.

For Stikine River salmon, the PST 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 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 1991 season, the Transboundary Technical Committee developed a management plan and a run forecast model to implement the new Annex provisions. As required by the Transboundary River Annex of the PST, a preseason forecast of the Stikine River sockeye salmon return was used to guide the initial fishing patterns of U.S. and Canadian fisheries. Beginning the first week of July, inseason forecasts of total run size and total allowable catch (TAC), based on catch per unit effort data and the Stikine management model, were used to determine weekly fishing plans.

Harvests in the combined 1991 Canadian Stikine River fisheries totaled 22,763 sockeye, 2,648 coho, 2,171 chinook, 394 pink, and 208 chum salmon (Table 18). The sockeye harvest exceeded the 1979 to 1990 average of 17,910 fish by 27%. The lower river fishery, which occurs just above the border, accounted for the major portion of the harvest. A total of 20 fishermen participated in the lower Stikine River fishery throughout the season with an average of 7 fishermen present each week. The total effort of 283 boat-days was 32% below the previous ten-year average of 413 boat-days. Weekly fishing periods were allowed beginning on June 24 and ending on September 21. The other two fisheries, one commercial and the other an Indian food fishery, occur upstream near Telegraph Creek. The combined harvests in the two upper river fisheries totaled 1,212 chinook, 5,200 sockeye, and 10 coho salmon. Fishing effort in the upper river commercial fishery was similar to previous years, with one to three people fishing one day per week from late June through the first week of August.

The 1991 Stikine River sockeye salmon total run size was an estimated 157,000 fish of which approximately 59,000 were harvested by the two nations and 98,000 escaped to spawn. The escapement goal of 60,000 sockeye salmon (range 40,000 to 80,000) was exceeded by an estimated 38,000 fish.

The harvest sharing agreement for the Taku River establishes specific limits for sockeye and coho salmon. The harvest of other species is allowed 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 of Canadian origin and 3,000 coho salmon. The TAC is defined as the estimated total return (catch + escapement) of Canadian Taku River origin sockeye salmon minus the escapement goal range of 71,000 (U.S.) to 80,000 (Canada).

The Canadian Taku River harvest in 1991 totaled 25,067 sockeye, 3,415 coho, 1,609 chinook, 296 pink, and 2 chum salmon (Table 19). Almost all of the harvest was taken in the commercial fishery; the Indian food fishery contributed only 74 sockeye and 7 coho salmon. The total Canadian catch of sockeye salmon was 60% above the 1979 to 1990 average of 15,761 fish despite average commercial fishing effort levels. Based on the desired escapement range of 71,000 to 80,000 sockeye salmon for Canadian portions of the Taku River, and the preliminary total run size estimate of approximately 255,000 fish, Canada harvested about 14% of the 1991 TAC of Taku River sockeye salmon, while the U.S. harvested from 57% to 60%

of the TAC. The estimated escapement of approximately 125,000 sockeye salmon exceeded the interim escapement goal range by over 50%.

ANNETTE ISLAND FISHERIES

The Annette Island Fishery Reserve was established by Presidential Proclamation in 1916. It provides for a 3,000 foot offshore zone wherein the Reserve Indians have exclusive fishing rights. Salmon are harvested by seine, gillnet and troll gear. Also, four floating fish traps are allowed to fish in specific areas on the west side of the island. The 1991 trap catch totaled 95,335 salmon, the drift gillnet catch 468,838 salmon, and the seine harvest 559,044 salmon (Tables 20, 21 and 22).

SUBSISTENCE AND PERSONAL USE SALMON FISHERIES

A combined total of 3,444 salmon subsistence and personal use fishing permits were issued in the Southeast Alaska portion of the region in 1991. This included 2,703 subsistence (892 more than 1990) and 741 personal use (716 less than 1990) permits (Table 23). The preliminary reported salmon harvest of 46,018 salmon included 39,161 in the subsistence fisheries and 6,857 in the personal use fisheries. The total harvest was similar to that observed in 1990. The preliminary 1991 catches may increase slightly as more permits are returned.

A preliminary combined subsistence and personal use harvest of 1,171 salmon, including 1,119 in the subsistence fishery and 52 in the personal use fishery was reported from the Yakutat portion of the region (Table 24). The 1991 combined reported harvest was substantially less than reported from the Yakutat Area in recent years. A total of 132 subsistence and 2 personal use permits were issued during 1991.

Table 1. (Cont.)

Stat.	Day/ Week Date	Week	District or Section														Terminal Hatchery Area ^a															
			1-A	1-B	1-C	1-D	1-E	1-F	2	3-A	3-B	3-C	4	5	6-B	6-D	7-A	7-B	9-A	9-B	10	11-D	12	13-A	13-B	13-C	14-B	14-C	Earl West	Hidden Falls	Nakat Inlet	Port Armstrong
28	07-Jul-91 Sun.		-	-	-	-	-	15	-	-	-	-	15	-	-	-	-	-	-	15	-	15	15	15	15	15	-	-	15	-	-	15
	08-Jul-91 Mon.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	09-Jul-91 Tues.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	10-Jul-91 Wed.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11-Jul-91 Thurs.		-	-	-	-	-	15	15	-	-	-	-	-	-	-	-	-	-	-	15	-	15	15	15	15	15	-	-	15	-	-
	12-Jul-91 Fri.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	13-Jul-91 Sat.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	14-Jul-91 Sun.		-	-	-	-	-	18	18	-	-	-	-	-	-	18	18	-	-	18	-	18	18	18	18	18	-	-	18	-	-	
	15-Jul-91 Mon.		-	-	-	-	-	21	21	-	-	-	10	-	-	21	21	-	-	21	-	21	21	21	21	21	-	-	12	21	-	-
	16-Jul-91 Tues.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17-Jul-91 Wed.		-	-	-	-	-	18	18	-	-	-	10	-	-	18	-	18	-	18	-	18	18	-	18	18	-	-	18	-	-	
	18-Jul-91 Thurs.		-	-	-	-	-	21	21	-	-	-	-	-	-	21	-	21	-	21	-	21	21	-	21	21	-	-	12	21	-	-
	19-Jul-91 Fri.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	20-Jul-91 Sat.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	21-Jul-91 Sun.		-	-	-	-	-	18	18	18	-	-	-	-	-	18	-	18	-	18	-	18	18	18	18	-	-	12	18	12	-	
	22-Jul-91 Mon.		-	-	-	-	-	21	21	21	-	-	6	-	-	21	-	21	-	21	-	21	21	21	21	-	-	-	21	-	-	
	23-Jul-91 Tues.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Jul-91 Wed.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	25-Jul-91 Thurs.		15	15	15	15	15	15	15	15	15	15	-	-	-	-	-	15	15	15	-	15	15	-	-	-	-	-	-	15	-	-
	26-Jul-91 Fri.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
	27-Jul-91 Sat.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-

2.34

-Continued-

Table 1. (Cont.)

Stat.	Day/ Week Date	Week	District or Section														Terminal Hatchery Area *																			
			1-A	1-B	1-C	1-D	1-E	1-F	2	3-A	3-B	3-C	4	5	6-B	6-D	7-A	7-B	9-A	9-B	10	11-D	12	13-A	13-B	13-C	14-B	14-C	Earl West	Hidden Falls	Nakat Inlet	Port Armstrong				
31	28-Jul-91 Sun.	-	-	-	-	-	18	18	18	-	-	18	-	-	-	-	-	18	18	18	-	18	18	18	18	-	-	-	-	-	-	-	-			
	29-Jul-91 Mon.	-	-	-	-	-	21	21	21	-	-	21	-	-	-	-	-	21	21	21	-	21	21	21	21	-	-	-	-	-	-	-	-			
	30-Jul-91 Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-			
	31-Jul-91 Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-			
	01-Aug-91 Thurs.	-	-	-	6	-	18	18	18	-	-	18	18	-	-	-	-	-	18	18	18	-	18	18	-	18	-	-	-	-	-	-	-	-		
	02-Aug-91 Fri.	-	-	-	-	-	21	21	21	-	-	21	21	-	-	-	-	-	21	21	21	-	21	21	-	21	-	-	12	-	-	-	-	-		
	03-Aug-91 Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
32	04-Aug-91 Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	05-Aug-91 Mon.	-	-	18	-	-	18	18	18	18	18	18	-	-	-	-	-	18	18	18	-	18	18	-	18	18	-	12	-	12	-	-	-	-	-	
	06-Aug-91 Tues.	-	-	21	-	-	21	21	21	21	21	21	-	-	-	-	-	21	21	21	-	21	21	-	21	21	6	-	-	-	-	-	-	-	-	
	07-Aug-91 Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	08-Aug-91 Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	
	09-Aug-91 Fri.	-	-	18	-	-	18	18	18	18	18	18	-	-	-	-	-	18	18	18	-	18	18	-	18	18	-	12	-	-	-	-	-	-	-	
10-Aug-91 Sat.	-	-	21	-	-	21	21	21	21	21	21	-	-	-	-	-	21	21	21	-	21	21	-	21	21	-	-	-	12	-	-	-	-	-		
33	11-Aug-91 Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	
	12-Aug-91 Mon.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Aug-91 Tues.	-	-	18	-	-	18	18	18	18	18	18	-	-	-	-	-	18	18	18	-	18	18	-	18	18	-	-	-	-	-	-	-	-	-	-
	14-Aug-91 Wed.	-	-	21	-	-	21	21	21	21	21	21	-	-	-	-	-	24	21	21	-	24	21	-	21	24	-	12	-	-	-	-	-	-	-	-
	15-Aug-91 Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	-	-	-	21	-	-	-	21	-	-	-	12	-	-	-	-	-	
	16-Aug-91 Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17-Aug-91 Sat.	-	-	18	-	-	18	18	18	18	18	18	-	-	-	-	-	18	15	18	-	18	18	-	18	18	-	12	-	-	-	-	-	-	-	-

-Continued-

2.35

Table 1. (Cont.)

Stat. Week	Day/ Date	Week	Section or District														Terminal Hatchery Area ^a														
			1-A	1-B	1-C	1-D	1-E	1-F	2	3-A	3-B	3-C	4	5	6-B	6-D	7-A	7-B	9-A	9-B	10	11-D	12	13-A	13-B	13-C	14-B	14-C	Earl West	Hidden Falls	Nakat Inlet
34	18-Aug-91 Sun.	-	-	-	-	-	21	21	21		21	21	21	21	-	-	-	-	24	15	21	-	24	24	-	24	24	-	-	-	-
	19-Aug-91 Mon.	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	21	-	-	-	21	21	-	21	21	-	-	-	-
	20-Aug-91 Tues.	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21-Aug-91 Wed.	-	-	-	-	-	18	18	18		18	18	18	18	18	18	-	18	18	18	-	-	18	18	-	18	-	-	-	-	-
	22-Aug-91 Thurs.	-	-	-	-	-	21	21	21		21	21	21	24	21	21	-	21	24	24	-	-	24	24	-	24	-	-	-	12	-
	23-Aug-91 Fri.	-	-	-	-	-	-	-	-		-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Aug-91 Sat.	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	25-Aug-91 Sun.	-	-	-	-	-	18	18	18		18	18	18	18	-	-	-	-	18	18	-	-	18	18	-	18	-	-	-	-	12
	26-Aug-91 Mon.	-	-	-	-	-	21	21	21		21	21	21	24	-	-	-	-	24	24	-	-	24	24	-	24	-	-	12	-	-
	27-Aug-91 Tues.	-	-	-	-	-	-	-	-		-	-	-	21	-	-	-	-	21	21	-	-	21	21	-	21	-	-	-	-	-
	28-Aug-91 Wed.	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	12	12	12	-
	29-Aug-91 Thurs.	-	-	-	-	-	18	18		18	18	18	18	18	-	-	-	-	18	18	-	-	18	18	-	18	12	-	-	-	12
	30-Aug-91 Fri.	-	-	-	-	-	21	21		21	21	21	21	-	-	-	-	-	21	21	-	-	21	21	-	21	-	-	-	-	-
	31-Aug-91 Sat.	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	01-Sept-91 Sun.	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	02-Sept-91 Mon.	-	-	-	-	-	18	18		18	18	18	18	-	-	-	-	-	18	18	-	-	18	18	18	18	-	-	12	-	-
	03-Sept-91 Tues.	-	-	-	-	-	21	21		21	21	21	21	-	-	-	-	-	21	21	-	-	21	21	21	21	-	-	-	-	12
	04-Sept-91 Wed.	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	05-Sept-91 Thurs.	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	06-Sept-91 Fri.	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	07-Sept-91 Sat.	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-

-Continued-

2.36

Table 1. (Cont.)

Stat.	Day/ Week Date	Week	Section or District														Terminal Hatchery Area ^a																	
			1-A	1-B	1-C	1-D	1-E	1-F	2	3-A	3-B	3-C	4	5	6-B	6-D	7-A	7-B	9-A	9-B	10	11-D	12	13-A	13-B	13-C	14-B	14-C	Earl West	Hidden Falls	Nakat Inlet	Port Armstrong		
40	29-Sept-91 Sun.	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
	30-Sept-91 Mon.	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	01-Oct-91 Tues.	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	02-Oct-91 Wed.	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	
	03-Oct-91 Thurs.	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	04-Oct-91 Fri.	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	05-Oct-91 Sat.	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
41	06-Oct-91 Sun.	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	07-Oct-91 Mon.	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	
	08-Oct-91 Tues.	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	09-Oct-91 Wed.	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	10-Oct-91 Thurs.	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11-Oct-91 Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	12-Oct-91 Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	
42	13-Oct-91 Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	14-Oct-91 Mon.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Oct-91 Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-91 Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17-Oct-91 Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-
	18-Oct-91 Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Oct-91 Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a/ Carroll Inlet and Klawock Inlet Terminal Area Fisheries were open from 1 June through 31 September 1991.

2.38

Table 2. Southeast Alaska commercial purse seine salmon catches, in numbers, by species, 1960 to 1991.

Year	Chinook		Sockeye	Coho	Pink	Chum	Total
	>=28"	<=28"					
1960	6,509	N/A	358,697	125,871	2,572,279	726,017	3,789,373
1961	4,134	N/A	418,952	246,524	10,936,344	2,172,066	13,778,020
1962	10,145	N/A	411,748	239,382	10,139,595	1,593,386	12,394,256
1963	6,659	N/A	422,633	316,491	18,189,644	1,186,260	20,121,687
1964	16,819	N/A	570,666	506,505	17,310,850	1,662,135	20,066,975
1965	14,992	N/A	672,015	557,005	10,061,603	1,185,571	12,491,186
1966	11,877	N/A	480,519	452,057	18,919,555	2,846,668	22,710,676
1967	9,054	N/A	600,628	188,965	2,807,783	1,545,059	5,151,489
1968	13,335	N/A	494,998	463,553	24,099,793	2,252,605	27,324,284
1969	6,730	N/A	338,217	109,956	4,312,402	332,679	5,099,984
1970	5,954	N/A	307,814	294,574	9,629,162	1,936,903	12,174,407
1971	4,799	N/A	162,823	326,264	8,505,647	1,496,399	10,495,932
1972	16,800	N/A	323,966	390,343	11,370,835	2,169,523	14,271,467
1973	8,751	N/A	348,679	129,593	5,609,519	1,219,552	7,316,094
1974	6,759	N/A	235,934	166,687	4,174,219	999,601	5,583,200
1975	2,056	N/A	61,878	70,201	3,410,938	381,307	3,926,380
1976	1,426	N/A	135,823	87,604	4,287,516	512,777	5,025,146
1977	5,243	N/A	329,396	160,519	11,600,431	342,322	12,437,911
1978	13,998	N/A	274,238	245,074	19,044,766	529,779	20,107,855
1979	10,079	N/A	397,448	176,593	9,000,060	441,686	10,025,866
1980	11,704	N/A	515,127	185,479	12,334,324	1,019,363	14,065,997
1981	10,268	N/A	440,237	238,502	16,514,018	521,749	17,724,774
1982	31,183	N/A	459,628	431,804	22,436,252	839,356	24,198,223
1983	13,581	N/A	781,719	360,287	34,651,168	582,666	36,389,421
1984	20,777	N/A	466,719	361,325	21,571,738	2,460,774	24,881,333
1985	23,120	N/A	720,787	422,636	47,719,676	1,861,639	50,747,858
1986	12,200	1,158	592,766	588,642	43,623,539	2,213,427	47,031,732
1987	4,510	1,787	311,240	131,458	7,059,881	1,254,065	8,762,941
1988	11,077	1,032	655,159	154,144	9,265,567	1,468,772	11,555,751
1989	13,168	4,461	837,043	332,911	53,285,411	1,090,922	55,563,916
1990	11,373	3,454	973,632	379,224	28,393,482	1,066,275	30,827,440
Average 1960 to 1990							
	10,938	2,378	454,875	285,167	16,220,581	1,287,461	18,259,406
Preliminary 1991							
	11,618	5,519	1,056,284	411,211	59,133,649	2,131,696	62,749,977

N/A = Not Available

Table 3. Southeast Alaska commercial purse seine salmon catches by area, in numbers, by species, 1991.

	Chinook		Sockeye	Coho	Pink	Chum	Total
	>=28"	<=21"					
District 101 (traditional)	133	202	60,397	20,697	4,291,385	64,964	4,437,778
Nakat Inlet (hatchery terminal area)	0	0	550	594	7,171	48,585	56,900
Annette Island	56	0	5,091	5,513	543,412	4,972	559,044
District 102 (traditional)	95	260	43,254	31,460	2,882,026	277,450	3,234,545
District 103 (traditional)	301	23	18,862	35,501	4,636,724	99,097	4,790,508
District 104 (traditional)	7,926	2,129	849,831	201,836	28,379,281	554,037	29,995,040
District 105 (traditional)	45	21	1,898	3,590	711,111	10,001	726,666
District 106 (traditional)	0	2	1,626	2,217	156,868	890	161,603
District 107 (traditional)	0	14	2,587	1,449	557,024	7,122	568,196
Earl West Cove (hatchery terminal area)	1,208	23	1	2,451	9	220	3,912
District 109 (traditional)	503	519	8,861	54,868	5,046,385	92,608	5,203,744
District 110 (traditional)	136	1,137	10,670	6,563	2,752,523	55,341	2,826,370
District 111 (traditional)	0	0	0	0	0	0	0
District 112 (traditional)	441	895	37,300	36,668	7,551,562	385,227	8,012,093
Hidden Falls (hatchery terminal area)	690	217	2,303	728	432,246	446,382	882,566
District 113 (traditional)	70	10	8,746	1,955	508,170	33,159	552,110
District 114 (traditional)	14	67	4,307	5,121	677,752	51,641	738,902
Southern Subtotals							
Traditional	8,500	2,651	978,455	296,750	41,614,419	1,013,561	43,914,336
Hatchery Terminal Area	1,208	23	551	3,405	7,180	48,805	60,812
Annette Island	56	0	5,091	5,513	543,412	4,972	559,044
Northern Subtotals							
Traditional	1,164	2,628	69,884	105,175	16,536,392	617,976	17,333,219
Hatchery Terminal Area	690	217	2,303	728	432,246	446,382	882,566
Total Southeast							
Traditional	9,664	5,279	1,048,339	401,925	58,150,811	1,631,537	61,247,555
Hatchery Terminal Area	1,898	240	2,854	3,773	439,426	495,187	943,378
Annette Island	56	0	5,091	5,513	543,412	4,972	559,044

Table 4. Northern Southeast Alaska commercial purse seine salmon catches, in numbers, by species, 1960-1991.

Year	Chinook		Sockeye	Coho	Pink	Chum	Total
	>=28"	>=21"					
1960	1,377	N/A	193,185	40,578	1,208,645	344,005	1,787,790
1961	2,738	N/A	306,490	98,626	7,545,647	1,276,238	9,229,739
1962	3,308	N/A	190,704	44,844	450,906	779,813	1,469,575
1963	3,992	N/A	241,483	146,899	13,772,188	697,716	14,862,278
1964	6,155	N/A	259,808	179,568	7,184,778	615,968	8,246,277
1965	6,451	N/A	353,618	243,509	5,106,087	949,074	6,658,739
1966	6,071	N/A	273,071	170,354	4,720,620	2,277,117	7,447,233
1967	2,349	N/A	213,594	120,294	2,358,831	1,317,519	4,012,587
1968	4,665	N/A	336,407	208,564	9,729,290	1,167,207	11,446,133
1969	4,173	N/A	270,034	87,731	3,453,139	297,203	4,112,280
1970	3,686	N/A	236,663	165,940	4,972,826	1,408,347	6,787,462
1971	2,595	N/A	113,699	127,703	2,911,913	866,044	4,021,954
1972	5,998	N/A	157,942	155,628	3,026,945	1,394,570	4,741,083
1973	4,059	N/A	181,604	56,225	1,741,261	634,047	2,617,196
1974	1,559	N/A	66,858	27,415	514,119	440,342	1,050,293
1975	108	N/A	5,471	2,185	585,294	66,959	660,017
1976	12	N/A	19,126	1,744	80,775	55,005	156,662
1977	233	N/A	17,674	20,194	2,064,103	30,357	2,132,561
1978	501	N/A	36,641	9,101	2,398,505	39,990	2,484,738
1979	797	N/A	36,311	19,990	3,198,769	226,125	3,481,992
1980	512	N/A	29,879	12,378	902,071	415,511	1,360,351
1981	2,280	N/A	60,750	44,016	4,428,712	282,754	4,818,512
1982	3,643	N/A	79,970	135,333	10,689,058	162,036	11,070,040
1983	2,796	N/A	60,516	54,457	5,323,568	269,846	5,711,183
1984	1,808	N/A	53,308	48,703	4,159,670	1,473,603	5,737,092
1985	7,999	N/A	99,227	77,576	19,338,817	1,011,963	20,535,582
1986	752	633	18,592	17,786	933,601	947,510	1,918,874
1987	650	1,039	77,238	28,492	3,858,922	834,947	4,801,288
1988	616	520	13,318	23,545	1,289,526	653,124	1,980,649
1989	547	2,191	98,339	56,558	11,987,726	336,553	12,481,914
1990	490	1,217	38,502	43,384	4,082,182	603,299	4,769,074
Average 1960 to 1990							
	2,675	1,120	133,549	79,655	4,645,758	705,638	5,567,465
Preliminary 1991							
	1,854	2,845	72,187	105,903	16,968,638	1,064,358	18,215,785

N/A = Not Available

Table 5. Northern Southeast Alaska pink salmon spawning escapement index, by district and year, 1960 to 1991.

Year	Numbers of Fish by District						Total	
	109	110	111	112	113	114		115
1960	116,507	258,417	339,325	192,005	365,565	128,931	19,901	1,420,651
1961	473,110	382,484	465,385	514,959	711,835	215,163	72,360	2,835,296
1962	477,778	425,495	290,287	194,470	349,166	196,235	23,490	1,956,921
1963	545,565	319,735	436,413	844,901	1,311,416	549,286	25,650	4,032,966
1964	705,460	497,550	400,373	470,200	532,286	125,771	10,800	2,742,440
1965	670,900	238,048	322,578	472,466	768,328	406,669	0	2,878,989
1966	750,891	549,500	513,337	642,936	529,276	109,546	2,700	3,098,186
1967	436,847	196,146	270,465	335,281	577,923	179,435	15,255	2,011,352
1968	708,606	966,116	476,213	546,877	310,460	155,089	47,250	3,210,611
1969	397,370	288,980	218,931	465,749	770,712	255,344	22,897	2,419,983
1970	472,550	522,020	448,846	518,715	379,789	164,774	54,170	2,560,864
1971	533,133	576,473	306,941	499,233	600,106	392,115	0	2,908,001
1972	451,761	690,421	594,141	553,541	345,027	193,944	0	2,828,835
1973	309,487	285,872	268,837	487,909	600,917	258,157	71,550	2,281,929
1974	291,744	272,527	429,787	321,228	441,701	123,090	0	1,880,077
1975	211,056	74,037	139,149	296,644	669,543	146,830	29,750	1,567,009
1976	223,739	163,536	107,967	231,489	520,796	125,810	27	1,373,364
1977	560,841	247,957	328,991	644,740	2,082,431	237,325	50,247	4,152,532
1978	447,360	413,769	181,865	819,664	908,571	194,070	108	2,965,407
1979	813,719	729,235	485,602	717,218	1,995,662	239,716	71,988	5,053,140
1980	460,143	397,892	319,177	550,499	610,970	227,954	82,270	2,648,845
1981	427,685	370,093	244,688	612,112	1,960,006	234,140	45,360	3,894,084
1982	757,824	590,506	451,872	738,340	1,139,190	195,932	49,601	3,923,265
1983	577,412	358,403	422,663	687,269	1,913,146	261,587	62,536	4,283,016
1984	732,250	409,358	465,771	479,698	1,605,190	213,129	70,365	3,975,761
1985	1,135,524	1,050,671	1,074,865	1,168,254	2,759,386	568,571	282,767	8,040,038
1986	738,965	270,377	245,369	659,601	767,532	170,350	3,810	2,856,004
1987	600,852	1,085,859	889,285	517,383	948,355	160,508	82,902	4,285,144
1988	624,615	469,130	326,043	641,769	576,384	195,269	59,130	2,892,340
1989	809,257	991,768	632,277	787,499	1,091,907	192,689	71,822	4,577,219
1990	596,405	1,058,618	369,370	607,486	870,923	187,760	119,702	3,810,264
1991	1,176,295	1,051,421	306,833	1,037,528	1,436,044	220,886	24,899	5,253,906
Goal	600,000	1,000,000	500,000	600,000	1,600,000	500,000	-	4,800,000

Table 6. Southern Southeast Alaska commercial purse seine salmon catches, in numbers, by species, 1960 to 1991.

Year	Chinook		Sockeye	Coho	Pink	Chum	Total
	>=28"	>=21"					
1960	5,132	N/A	165,512	85,293	1,363,634	382,012	2,001,583
1961	1,396	N/A	112,462	147,898	3,390,697	895,828	4,584,281
1962	6,837	N/A	221,044	194,538	9,688,689	813,573	10,924,681
1963	2,667	N/A	181,050	169,592	4,417,456	488,544	5,259,409
1964	10,664	N/A	310,858	326,937	10,126,072	1,046,167	11,820,698
1965	8,541	N/A	318,397	313,496	4,955,516	236,497	5,832,447
1966	5,806	N/A	207,448	281,703	14,198,935	569,551	15,263,443
1967	6,705	N/A	387,034	68,671	448,952	227,540	1,138,902
1968	8,670	N/A	158,591	254,989	14,370,503	1,085,398	15,878,151
1969	2,557	N/A	68,183	22,225	859,263	35,476	987,704
1970	2,268	N/A	71,151	128,634	4,656,336	528,556	5,386,945
1971	2,204	N/A	49,124	198,561	5,593,734	630,355	6,473,978
1972	10,802	N/A	166,024	234,715	8,343,890	774,953	9,530,384
1973	4,692	N/A	167,075	73,368	3,868,258	585,505	4,698,898
1974	5,200	N/A	169,076	139,272	3,660,100	559,259	4,532,907
1975	1,948	N/A	56,407	68,016	2,825,644	314,348	3,266,363
1976	1,414	N/A	116,697	85,860	4,206,741	457,772	4,868,484
1977	5,010	N/A	311,722	140,325	9,536,328	311,965	10,305,350
1978	13,497	N/A	237,597	235,973	16,646,261	489,789	17,623,117
1979	9,282	N/A	361,137	156,603	5,801,291	215,561	6,543,874
1980	11,192	N/A	485,248	173,101	11,432,253	603,852	12,705,646
1981	7,988	N/A	379,487	194,468	12,085,306	238,995	12,906,262
1982	27,540	N/A	379,658	296,471	11,747,194	677,320	13,128,183
1983	10,785	N/A	721,203	305,830	29,327,600	312,820	30,678,238
1984	18,969	N/A	413,411	312,622	17,412,068	987,171	19,144,241
1985	15,121	N/A	621,560	345,060	28,380,859	849,676	30,212,276
1986	11,448	525	574,174	570,856	42,689,938	1,265,917	45,112,858
1987	3,860	748	234,002	102,966	3,200,959	419,118	3,961,653
1988	10,461	512	641,841	130,599	7,976,041	815,648	9,575,102
1989	12,621	2,270	738,704	276,353	41,297,685	754,369	43,082,002
1990	10,883	2,237	935,130	335,840	24,311,300	462,976	26,058,366
Average 1960 to 1990							
	8,263	1,258	321,326	205,511	11,574,823	581,823	12,691,949
Preliminary 1991							
	9,764	2,674	984,097	305,308	42,165,011	1,067,338	44,534,192

N/A = Not Available

Table 7. Southern Southeast Alaska pink salmon spawning escapement index, by district and year, 1960 to 1991.

Year	Numbers of Fish by District							Total
	101	102	103	105	106	107	108	
1960	726,020	210,776	928,350	156,136	69,119	239,301	36,000	2,365,702
1961	611,341	127,287	677,952	265,630	483,585	178,751	110,900	2,455,446
1962	1,220,747	355,825	1,273,828	468,526	518,150	421,000	59,400	4,317,476
1963	1,065,132	271,115	1,122,225	424,052	369,775	468,913	160,500	3,881,712
1964	1,273,469	532,704	1,253,950	547,965	663,449	453,203	118,703	4,843,443
1965	687,106	279,820	1,078,362	614,122	485,500	290,350	34,830	3,470,090
1966	1,496,930	616,668	1,315,405	537,150	647,696	495,020	0	5,108,869
1967	563,241	384,967	94,037	412,298	166,842	154,067	81,000	1,856,452
1968	1,837,225	544,322	1,094,890	499,324	406,259	388,769	92,693	4,863,482
1969	726,072	328,862	333,985	218,013	161,858	168,864	76,906	2,005,560
1970	1,508,615	264,761	1,439,322	229,459	248,866	348,733	73,860	4,113,616
1971	1,353,991	649,546	1,604,638	385,944	0369,310	476,658	40,004	4,880,091
1972	1,651,100	354,146	915,956	283,570	229,440	442,248	113,834	3,990,294
1973	911,847	512,260	853,001	281,731	350,016	393,633	66,825	3,369,313
1974	1,293,850	480,440	1,155,955	201,088	201,353	325,146	39,825	3,697,657
1975	1,439,667	664,546	1,449,408	291,394	352,581	467,228	18,314	4,683,138
1976	1,523,782	706,470	1,556,397	154,703	663,544	685,745	15,797	5,306,438
1977	2,252,755	690,351	1,616,768	263,381	358,462	949,824	45,332	6,176,873
1978	2,157,453	569,293	1,685,581	292,617	289,082	439,422	21,063	5,454,511
1979	1,062,770	675,036	1,607,025	459,211	381,886	467,305	91,388	4,744,621
1980	2,360,089	686,073	2,506,575	147,830	156,533	358,830	26,569	6,242,499
1981	1,862,171	641,624	2,460,622	394,647	240,558	281,105	31,611	5,912,335
1982	2,199,570	582,615	2,098,555	256,100	341,156	457,980	69,674	6,005,950
1983	2,789,250	998,214	3,230,366	535,809	264,265	374,643	26,382	8,218,929
1984	3,685,157	956,239	3,334,059	266,360	313,096	409,202	28,196	8,992,309
1985	3,854,308	1,167,087	4,791,491	699,921	889,369	976,802	83,6501	2,462,628
1986	4,528,205	1,716,475	5,841,107	676,983	842,498	590,321	40,798	14,281,387
1987	2,249,846	518,155	1,998,696	174,317	254,604	337,638	96,378	5,629,634
1988	1,558,852	573,143	1,506,894	171,101	278,547	300,444	65,484	4,454,465
1989	2,850,941	883,842	2,954,216	406,398	647,753	882,604	125,856	8,751,610
1990	2,171,659	1,107,557	2,362,241	397,298	587,181	431,244	113,805	7,170,985
1991	1,988,036	606,060	2,764,874	660,180	551,191	631,436	157,454	7,359,231
Goal	600,000	1,000,000	500,000	600,000	1,600,000	500,000	-	4,800,000

2.44

Table 8. Southeast Alaska commercial drift gillnet fishing time by area and hours open per day, 1991.

Stat. Week	Day/ Date	Day/ Week	District or Section													Terminal Hatchery Area				
			1-A	1-B	1-F	6-A	6-B	6-C	6-D	8-A	8-B	11-B	11-C	15-A	15-B	15-C	Earl West	Nakat Inlet	Ohmer Creek	Wrangell Narrows
23	02-Jun-91	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	03-Jun-91	Mon.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	15
	04-Jun-91	Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-
	05-Jun-91	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
	06-Jun-91	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	07-Jun-91	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	08-Jun-91	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	09-Jun-91	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10-Jun-91	Mon.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	15
	11-Jun-91	Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-
	12-Jun-91	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
	13-Jun-91	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jun-91	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15-Jun-91	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
25	16-Jun-91	Sun.	-	12	-	12	12	-	-	12	12	12	-	12	-	12	-	-	-	-
	17-Jun-91	Mon.	-	24	-	24	24	-	-	24	24	24	-	24	-	24	-	-	12	15
	18-Jun-91	Tues.	-	24	-	12	12	-	-	12	12	24	-	12	-	12	-	-	24	-
	19-Jun-91	Wed.	-	24	-	-	-	-	-	-	-	12	-	-	-	-	-	12	-	-
	20-Jun-91	Thurs.	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21-Jun-91	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	22-Jun-91	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Table 8. (Cont.)

Stat. Week	Date	Day/ Week	District or Section													Terminal Hatchery Area				
			1-A	1-B	1-F	6-A	6-B	6-C	6-D	8-A	8-B	11-B	11-C	15-A	15-B	15-C	Earl West	Nakat Inlet	Ohmer Creek	Wrangell Narrows
26	23-Jun-91	Sun.	-	12	-	12	12	-	-	12	12	12	-	12	-	12	-	-	-	-
	24-Jun-91	Mon.	-	24	-	24	24	-	-	24	24	24	-	24	-	24	12	-	12	15
	25-Jun-91	Tues.	-	24	-	12	12	-	-	12	12	24	-	12	-	12	12	-	24	-
	26-Jun-91	Wed.	-	12	-	-	-	-	-	-	-	12	-	-	-	-	-	-	12	-
	27-Jun-91	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28-Jun-91	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	29-Jun-91	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
27	30-Jun-91	Sun.	-	12	-	12	12	-	-	12	12	12	-	12	-	12	-	-	12	-
	01-Jul-91	Mon.	-	24	-	24	24	-	-	24	24	24	-	24	-	24	12	-	24	15
	02-Jul-91	Tues.	-	24	-	12	12	-	-	12	12	24	-	12	-	12	12	-	24	-
	03-Jul-91	Wed.	-	12	-	-	-	-	-	-	-	12	-	-	-	-	-	-	12	-
	04-Jul-91	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	05-Jul-91	Fri.	-	-	-	-	-	-	-	12	12	-	-	-	-	-	12	-	-	-
	06-Jul-91	Sat.	-	-	-	-	-	-	-	12	12	-	-	-	-	-	-	-	-	-
28	07-Jul-91	Sun.	-	12	-	12	12	-	-	12	12	12	-	12	-	12	12	-	-	-
	08-Jul-91	Mon.	-	24	-	24	24	-	-	24	24	24	-	24	-	24	24	-	-	-
	09-Jul-91	Tues.	-	24	-	12	12	-	-	12	12	24	-	12	-	12	-	-	-	-
	10-Jul-91	Wed.	-	12	-	-	-	-	-	-	-	12	-	-	-	-	12	-	-	-
	11-Jul-91	Thurs.	-	-	-	-	-	-	-	12	12	-	-	-	-	-	12	-	-	-
	12-Jul-91	Fri.	-	-	-	-	-	-	-	24	24	-	-	-	-	-	-	-	-	-
	13-Jul-91	Sat.	-	-	-	-	-	-	-	12	12	-	-	-	-	-	12	-	-	-

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Table 8. (Cont.)

Stat. Week	Day/ Date	Week	District or Section													Terminal Hatchery Area				
			1-A	1-B	1-F	6-A	6-B	6-C	6-D	8-A	8-B	11-B	11-C	15-A	15-B	15-C	Earl West	Nakat Inlet	Ohmer Creek	Wrangell Narrows
29	14-Jul-91	Sun.	12	12	12	12	12	-	-	12	12	12	-	12	-	12	12	-	-	-
	15-Jul-91	Mon.	24	24	24	24	24	-	-	24	24	24	-	24	-	24	-	-	-	-
	16-Jul-91	Tues.	24	24	24	12	12	-	-	24	24	24	-	12	-	12	12	-	-	-
	17-Jul-91	Wed.	12	12	12	-	-	-	-	24	24	24	-	-	-	-	12	-	-	-
	18-Jul-91	Thurs.	-	-	-	-	-	-	-	24	24	12	-	-	-	-	-	-	12	-
	19-Jul-91	Fri.	-	-	-	-	-	-	-	24	24	-	-	-	-	-	-	12	12	-
	20-Jul-91	Sat.	-	-	-	-	-	-	-	12	12	-	-	-	-	-	12	-	-	-
30	21-Jul-91	Sun.	-	12	-	12	12	-	-	12	12	12	-	12	-	12	-	-	-	-
	22-Jul-91	Mon.	-	24	-	24	24	-	-	24	24	24	-	24	-	24	12	-	-	-
	23-Jul-91	Tues.	-	24	-	12	12	-	-	12	12	24	-	12	-	24	12	12	-	-
	24-Jul-91	Wed.	-	12	-	-	-	-	-	-	-	24	-	-	-	12	-	12	-	-
	25-Jul-91	Thurs.	-	24	-	-	-	-	-	12	12	12	-	-	-	-	12	-	-	-
	26-Jul-91	Fri.	-	12	-	-	-	-	-	24	24	-	-	-	-	-	12	-	-	-
	27-Jul-91	Sat.	-	-	-	-	-	-	-	12	12	-	-	-	-	-	-	-	-	-
31	28-Jul-91	Sun.	12	12	12	12	12	-	-	12	12	12	12	12	-	12	12	12	-	-
	29-Jul-91	Mon.	24	24	24	24	24	-	-	24	24	24	24	24	-	24	12	12	-	-
	30-Jul-91	Tues.	24	24	24	12	12	-	-	12	12	24	24	24	-	24	-	-	-	-
	31-Jul-91	Wed.	24	24	24	-	-	-	-	-	-	12	12	12	-	12	12	-	-	-
	01-Aug-91	Thurs.	24	24	24	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	02-Aug-91	Fri.	12	12	12	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	03-Aug-91	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	12	-	-

-Continued-

Table 8. (Cont.)

Stat. Week	Day/Week	District or Section															Terminal Hatchery Area			
		1-A	1-B	1-F	6-A	6-B	6-C	6-D	8-A	8-B	11-B	11-C	15-A	15-B	15-C	Earl West	Nakat Inlet	Ohmer Creek	Wrangell Narrows	
32	04-Aug-91 Sun.	-	12	-	12	12	-	-	12	12	12	12	12	-	-	12	-	-	-	
	05-Aug-91 Mon.	-	24	-	24	24	-	-	24	24	24	24	24	-	-	-	-	-	-	
	06-Aug-91 Tues.	-	24	-	12	12	-	-	12	12	24	24	24	-	-	12	-	-	-	
	07-Aug-91 Wed.	-	24	-	-	-	-	-	-	-	12	24	12	-	-	12	12	-	-	
	08-Aug-91 Thurs.	-	24	-	-	-	-	-	-	-	-	24	-	-	-	-	-	12	-	
	09-Aug-91 Fri.	-	12	-	-	-	-	-	-	-	-	12	-	-	-	12	-	-	-	
	10-Aug-91 Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	
33	11-Aug-91 Sun.	-	12	-	12	12	-	-	12	12	12	12	-	-	-	-	-	-	-	
	12-Aug-91 Mon.	-	24	-	24	24	-	-	24	24	24	24	12	-	12	12	12	-	-	
	13-Aug-91 Tues.	-	24	-	12	12	-	-	12	12	24	24	24	-	24	12	12	-	-	
	14-Aug-91 Wed.	-	24	-	-	-	-	-	-	-	24	24	24	-	24	-	-	-	-	
	15-Aug-91 Thurs.	-	24	-	-	-	-	-	-	-	24	24	12	-	24	12	-	-	-	
	16-Aug-91 Fri.	-	12	-	-	-	-	-	-	-	12	12	-	-	24	12	-	-	-	
	17-Aug-91 Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	12	-	-	
34	18-Aug-91 Sun.	-	12	-	12	12	-	-	12	12	12	-	12	-	12	12	12	-	-	
	19-Aug-91 Mon.	-	24	-	24	24	-	-	24	24	24	-	24	-	24	12	-	-	-	
	20-Aug-91 Tues.	-	24	-	24	24	-	-	24	24	24	-	24	-	24	-	-	-	-	
	21-Aug-91 Wed.	-	24	-	12	12	-	-	12	12	12	-	12	-	24	12	-	-	-	
	22-Aug-91 Thurs.	-	24	-	-	-	-	-	-	-	-	-	-	-	24	12	12	-	-	
	23-Aug-91 Fri.	-	12	-	-	-	-	-	-	-	-	-	-	-	24	-	12	-	-	
	24-Aug-91 Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	12	12	-	-	-	

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-Continued-

Table 8. (Cont.)

Stat. Week	Date	Day/Week	District or Section													Terminal Hatchery Area				
			1-A	1-B	1-F	6-A	6-B	6-C	6-D	8-A	8-B	11-B'	11-C	15-A	15-B	15-C	Earl West	Nakat Inlet	Ohmer Creek	Wrangell Narrows
35	25-Aug-91	Sun.	-	12	-	12	12	-	-	12	12	12	-	12	-	12	12	-	-	-
	26-Aug-91	Mon.	-	24	-	24	24	-	-	24	24	24	-	24	-	24	-	-	-	19
	27-Aug-91	Tues.	-	24	-	24	24	-	-	24	24	12	-	24	-	12	12	12	-	20
	28-Aug-91	Wed.	-	24	-	12	12	-	-	12	12	-	-	12	-	-	12	12	-	-
	29-Aug-91	Thurs.	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	30-Aug-91	Fri.	-	12	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	31-Aug-91	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	
36	01-Sept-91	Sun.	-	12	-	12	12	-	-	12	12	12	-	12	-	12	-	12	-	-
	02-Sept-91	Mon.	-	24	-	24	24	-	-	24	24	24	-	24	-	24	-	12	-	19
	03-Sept-91	Tues.	-	24	-	24	24	-	-	24	24	12	-	12	-	12	-	-	-	20
	04-Sept-91	Wed.	-	12	-	12	12	-	-	12	12	-	-	-	-	-	12	-	-	-
	05-Sept-91	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	06-Sept-91	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	07-Sept-91	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
37	08-Sept-91	Sun.	-	12	-	12	12	-	-	12	12	12	-	12	-	12	-	-	-	-
	09-Sept-91	Mon.	-	24	-	24	24	-	-	24	24	24	-	24	-	24	12	-	-	19
	10-Sept-91	Tues.	-	24	-	24	24	-	-	24	24	12	-	12	-	12	12	-	-	20
	11-Sept-91	Wed.	-	12	-	12	12	-	-	12	12	-	-	-	-	-	-	12	-	-
	12-Sept-91	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	13-Sept-91	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Sept-91	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	

2.49

-Continued-

Table 8. (Cont.)

Stat. Week	Day/ Date	Week	District or Section													Terminal Hatchery Area				
			1-A	1-B	1-F	6-A	6-B	6-C	6-D	8-A	8-B	11-B	11-C	15-A	15-B	15-C	Earl West	Nakat Inlet	Ohmer Creek	Wrangell Narrows
38	15-Sept-91	Sun.	-	12	-	12	12	-	-	12	12	12	-	12	-	12	12	-	-	-
	16-Sept-91	Mon.	-	24	-	24	24	-	-	24	24	24	-	24	-	24	-	12	-	-
	17-Sept-91	Tues.	-	24	-	24	24	-	-	24	24	12	-	12	-	12	-	12	-	-
	18-Sept-91	Wed.	-	12	-	12	12	-	-	12	12	-	-	-	-	-	-	-	-	-
	19-Sept-91	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	20-Sept-91	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
	21-Sept-91	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
39	22-Sept-91	Sun.	-	-	-	12	-	-	-	12	12	12	-	12	-	12	-	12	-	-
	23-Sept-91	Mon.	-	-	-	24	-	-	-	24	24	24	-	12	-	12	-	-	-	-
	24-Sept-91	Tues.	-	-	-	12	-	-	-	12	12	12	-	-	-	-	12	-	-	-
	25-Sept-91	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	12	-	-
	26-Sept-91	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
	27-Sept-91	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	28-Sept-91	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	29-Sept-91	Sun.	-	-	-	12	12	-	-	12	12	12	-	-	-	12	12	-	-	-
	30-Sept-91	Mon.	-	-	-	24	24	-	-	24	24	24	-	-	-	24	12	-	-	-
	01-Oct-91	Tues.	-	-	-	12	12	-	-	12	12	24	-	-	-	24	-	12	-	-
	02-Oct-91	Wed.	-	-	-	-	-	-	-	-	-	24	-	-	-	12	-	12	-	-
	03-Oct-91	Thurs.	-	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-
	04-Oct-91	Fri.	-	-	-	-	-	-	-	-	-	24	-	-	-	-	12	-	-	-
05-Oct-91	Sat.	-	-	-	-	-	-	-	-	-	24	-	-	-	-	12	-	-	-	

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Table 8. (Cont.)

Stat. Week	Day/ Date	Week	District or Section													Terminal Hatchery Area				
			1-A	1-B	1-F	6-A	6-B	6-C	6-D	8-A	8-B	11-B	11-C	15-A	15-B	15-C	Earl West	Nakat Inlet	Ohmer Creek	Wrangell Narrows
41	06-Oct-91	Sun.	-	-	-	12	12	-	-	12	12	24	-	-	-	12	-	12	-	-
	07-Oct-91	Mon.	-	-	-	24	24	-	-	24	24	24	-	-	-	24	-	12	-	-
	08-Oct-91	Tues.	-	-	-	12	12	-	-	12	12	24	-	-	-	12	-	-	-	-
	09-Oct-91	Wed.	-	-	-	-	-	-	-	-	-	24	-	-	-	12	-	-	-	-
	10-Oct-91	Thurs.	-	-	-	-	-	-	-	-	-	12	-	-	-	12	-	-	-	-
	11-Oct-91	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Oct-91	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	13-Oct-91	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Oct-91	Mon.	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-
	15-Oct-91	Tues.	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-
	16-Oct-91	Wed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17-Oct-91	Thurs.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Oct-91	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Oct-91	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 9. Southeast Alaska commercial drift gillnet salmon catches by area, in numbers, by species, 1991.

Area	Chinook	Sockeye	Coho	Pink	Chum	Total
Tree Point (District 101)	2,077	131,492	70,319	600,529	183,822	988,239
Nakat (hatchery terminal area)	0	17	40	203	1,969	2,229
Annette Island	801	39,353	55,804	296,036	76,844	468,838
Prince of Wales (District 106)	2,068	144,084	197,952	133,360	124,580	602,044
Wrangell (hatchery terminal area)	787	1	626	1	1	1,416
Earl West Cove (hatchery terminal area)	8,197	84	4,794	59	19,837	32,971
Stikine (District 108)	1,504	22,275	15,864	10,935	11,402	61,980
Taku/Snettisham (District 111)	3,217	109,877	126,436	74,183	161,175	474,888
Lynn Canal (District 115)	745	307,811	128,365	5,472	210,189	652,582
Subtotal						
Traditional	9,611	715,539	538,936	824,479	691,168	2,779,733
Hatchery Terminal Area	8,984	102	5,460	263	21,807	36,616
Annette Island	801	39,353	55,804	296,036	76,844	468,838
Total	19,369	754,994	600,200	1,120,778	789,819	3,285,187

Table 10. Southeast Alaska commercial drift gillnet salmon catches, in numbers, by species, 1960 to 1991.

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	15,178	348,298	65,053	379,423	209,510	1,017,462
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	15,481	363,857	186,583	338,108	666,336	1,570,365
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	183,702	1,500,378	373,516	2,613,556
1978	8,302	374,424	223,321	845,559	305,321	1,757,927
1979	13,827	488,166	83,050	968,580	412,830	1,966,453
1980	5,471	424,071	112,081	1,299,043	587,168	2,427,834
1981	6,528	464,418	119,595	1,478,952	294,596	2,364,089
1982	15,807	791,810	201,337	732,604	476,099	2,217,657
1983	4,904	608,588	218,219	1,422,316	534,083	2,788,110
1984	10,377	616,985	199,211	1,712,213	1,101,858	3,640,644
1985	10,703	881,176	332,920	2,239,002	1,209,953	4,673,754
1986	8,535	686,500	448,766	1,794,962	912,2740	3,851,037
1987	8,957	784,214	189,169	1,582,440	834,249	3,399,029
1988	9,386	784,214	189,169	1,582,440	834,249	3,399,029
1989	9,982	927,190	255,690	3,592,886	595,556	5,381,304
1990	15,216	811,016	377,433	1,783,436	691,288	3,678,389
Average 1960 to 1990	11,486	446,286	176,661	985,103	514,156	2,133,691
Preliminary 1991	19,396	745,994	600,200	1,120,778	789,819	3,285,187

Table 11. Southeast Alaska Portland Canal Tree Point (District 101) commercial drift gillnet salmon catches, in numbers, by species, 1960 to 1991.

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	35,638	167,684
1962	1,498	41,178	12,110	156,302	36,596	247,684
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	589	67,095	17,032	271,972	96,305	452,993
1969	676	89,733	3,154	87,550	20,580	201,693
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	1,963	25,432	12,631	134,603	32,226	206,855
1976	1,816	118,647	17,574	224,451	39,437	401,925
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	109,383	19,329	675,424	153,702	959,369
1981	1,448	104,853	19,125	433,735	38,527	597,688
1982	3,532	190,833	28,015	349,227	84,966	656,573
1983	1,113	135,923	41,556	773,126	139,411	1,091,129
1984	1,494	88,390	35,384	720,706	227,817	1,073,791
1985	2,787	172,863	53,019	691,455	256,564	1,176,688
1986	1,267	145,657	63,073	906,424	286,616	1,403,037
1987	2,077	107,595	38,123	583,295	188,917	920,007
1988	2,029	116,116	16,887	230,553	509,278	874,863
1989	1,808	144,936	32,485	1,347,847	299,798	1,826,874
1990	1,710	85,690	42,893	580,555	174,179	885,027
Average 1960 to 1990	1,503	98,975	21,491	371,806	117,202	610,977
Preliminary 1991	2,077	131,492	70,319	600,529	183,822	988,239

Table 12. Southeast Alaska Prince of Wales (District 106) commercial drift gillnet salmon catches, in numbers, by species, 1960 to 1991.

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	877	70,381	10,280	197,073	10,903	289,451
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	1,927	57,445	45,687	104,549	50,411	260,019
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	31,454	648,212	35,507	784,266
1980	580	107,422	16,666	45,666	26,277	196,611
1981	1,565	182,001	22,614	437,573	34,296	678,049
1982	1,671	193,712	45,244	25,993	18,859	285,479
1983	567	48,842	62,442	208,290	20,144	340,285
1984	895	91,664	48,244	343,633	70,554	554,990
1985	1,697	265,033	97,559	585,134	70,150	1,019,573
1986	1,705	145,714	205,598	308,942	82,621	744,580
1987	853	136,437	37,151	243,710	43,020	461,171
1988	2,961	92,532	14,419	69,559	69,675	249,146
1989	1,544	192,734	92,386	1,101,194	67,351	1,455,209
1990	2,107	185,805	164,211	319,186	73,232	744,541
Average 1960 to 1990	1,488	91,143	52,294	298,975	44,460	488,361
Preliminary 1991	2,068	144,084	197,952	133,360	124,580	602,044

Table 13. Southeast Alaska Stikine River (District 108) commercial drift gillnet salmon catches, in numbers, by species, 1960-1990.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	0	0	0	0	0	0
1961	0	0	0	0	0	0
1962	618	4,430	3,921	2,889	2,035	13,893
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	5,021	19,209	5,790	11,877	2,311	44,208
1970	3,207	15,120	18,403	20,523	12,305	69,558
1971	3,717	18,143	14,876	21,806	4,665	63,208
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	6,911	19,971	16,988	741	45,644
1983	47	178	15,369	4,171	675	20,440
1984	14	1,290	5,141	4,960	1,892	13,297
1985	20	1,066	5,132	5,329	2,006	13,553
1986	109	4,187	14,324	4,968	5,943	29,531
1987	201	1,620	1,015	3,331	949	7,116
1988	776	1,246	12	145	3,129	5,308
1989	310	10,083	4,261	27,640	3,375	45,669
1990	557	11,574	8,218	13,822	9,382	43,553
Average 1960 to 1990	2,290	12,140	11,079	15,929	4,999	46,437
Preliminary 1991	1,504	22,275	15,864	10,935	11,402	61,980

Table 14. Southeast Alaska Taku/Snettisham (District 111) commercial drift gillnet salmon catches, in numbers, by species, 1960 to 1991.

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	2,908	38,670	38,667	57,731	86,687	224,663
1975	2,182	32,513	1,185	9,567	2,678	48,125
1976	1,757	61,749	41,729	14,962	81,801	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	3,701	122,148	16,194	152,836	61,197	356,076
1980	2,251	123,451	41,677	296,572	192,647	656,598
1981	1,721	49,942	26,711	254,856	76,438	409,668
1982	3,057	83,625	29,072	109,297	37,608	262,659
1983	888	31,821	21,455	66,239	15,264	135,667
1984	1,773	77,233	33,836	145,971	86,741	345,554
1985	2,636	88,077	55,597	311,248	106,720	564,278
1986	2,584	73,061	30,512	16,568	58,792	181,517
1987	2,076	75,212	35,217	363,019	121,637	597,161
1988	1,778	38,918	44,966	157,803	139,730	383,195
1989	1,811	74,019	51,812	180,597	36,977	345,216
1990	3,480	126,884	67,310	153,036	145,530	496,240
Average 1960 to 1990	3,945	59,011	33,469	102,636	65,576	264,639
Preliminary 1991	3,217	109,877	126,436	74,183	161,175	474,888

Table 15. Southeast Alaska Lynn Canal (District 115) commercial drift gillnet salmon catches, in numbers, by species, 1960 to 1991.

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	1,671	152,015	64,881	5,003	445,361	668,931
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	53,987	28,898	82,343	168,853	334,521
1981	1,300	93,195	44,650	137,270	117,375	393,790
1982	5,945	273,882	72,370	69,050	306,644	727,891
1983	2,119	369,830	69,510	157,546	341,145	940,150
1984	6,099	334,582	68,215	78,000	642,238	1,129,134
1985	3,260	303,241	98,290	239,080	698,810	1,342,681
1986	2,772	289,905	82,121	38,115	381,382	794,295
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
1989	1,989	471,934	50,307	110,436	123,671	758,337
1990	670	356,964	62,879	101,035	210,276	731,824
Average 1960 to 1990	1,873	171,991	51,830	55,146	258,033	538,873
Preliminary 1991	745	307,811	128,365	5,472	210,189	652,582

Table 16. Southeast Alaska private hatchery cost recovery salmon catches in numbers, by species, 1975 to 1991.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1975	0	0	2,700	0	0	27,00
1976	0	0	0	0	0	0
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	12,150	7,364	773	20,270
1983	0	1	4,220	120,688	18,269	143,178
1984	937	7	26,836	171,356	453,204	652,340
1985	2,658	18	33,145	470,949	130,363	637,133
1986	1,093	6	72,810	47,461	157,155	278,525
1987	2,371	1,121	50,455	994,190	594,436	1,642,573
1988	10,064	1,703	16,437	159,507	722,711	910,404
1989	19,602	724	19,162	247,752	193,428	480,668
1990	26,340	77	125,874	923,703	381,095	1,457,089
Average 1975 to 1990	3,940	229	23,418	212,357	165,715	405,659
Preliminary 1991	28,136	1,459	285,904	1,124,314	373,812	1,813,625

Table 17. Southeast Alaska private hatchery cost recovery salmon catches, by species, 1991.

Area	Chinook	Sockeye	Coho	Pink	Chum	Total
Tamgass Bay	2,142	0	760	0	0	2,902
Herring Bay	0	0	3,868	0	0	3,868
Beaver Falls	27	1,404	6	74	31	1,542
Carrol Inlet	14,756	0	0	1	124	14,881
Neets Bay	5,145	9	105,267	68	54,462	164,951
Burnett Inlet	2	0	0	119,377	4,430	123,809
Wrangell Narrows	3,278	0	3,410	0	0	6,688
Paterson Bay	0	0	60,451	9,615	22	70,088
Port Armstrong	62	11	14,821	828,691	794	844,379
Kake	0	0	32	47,613	22,301	69,946
Keku Island	0	0	0	14,655	18,079	32,734
Additional Dist. 109 4,827	0	0	4,827	0	0	
Gastineau Channel	0	0	29,247	0	0	29,247
Salmon Creek	0	0	55,035	0	0	55,035
Sheep Creek	0	0	1	102,536	44,385	146,922
Hidden Falls	777	32	3,162	1,391	188,908	194,270
Bear Cove	1,947	2	0	0	0	1,951
Deep Inlet	0	1	5,017	293	40,274	45,585
Total	28,136	1,459	285,904	1,124,314	373,812	1,813,625

Table 18. Canadian commercial and food fisheries salmon catches in the Stikine River, 1972 to 1991.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1972	0	230	0	0	0	230
1973	200	3,670	0	0	0	3,870
1974	0	3,500	0	0	0	3,500
1975	1,202	2,252	50	0	0	3,504
1976	1,160	3,644	13	0	0	4,817
1977	162	6,310	0	0	0	6,472
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	107	307	23,039
1987	2,645	9,615	5,731	646	459	19,096
1988	2,814	15,291	2,117	418	733	21,373
1989	2,958	20,032	6,098	825	674	30,587
1990	3,209	18,024	4,037	496	499	26,265
Average 1972 to 1990	1,559	12,607	3,404	762	345	18,677
Average 1979 to 1990	2,200	17,910	5,385	1,207	546	27,248
Preliminary 1991						

Table 19. Canadian commercial and food fisheries salmon catches in the Taku River, 1979 to 1991.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
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	13,544	5,599	6,250	2,270	27,906
1988	741	12,259	3,221	1,030	733	17,984
1989	1,034	18,598	3,022	695	42	23,391
1990	1,386	21,189	3,281	378	12	26,246
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Average 1979 to 1990	475	15,761	4,041	6,006	3,928	30,211
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Preliminary 1991	1,609	25,141	3,422	296	2	30,470

Table 20. Southeast Alaska commercial trap salmon catches in numbers, by species, 1960 to 1991.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	0	1,753	2,387	45,409	3,796	53,345
1961	0	9,949	5,740	157,046	181,383	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	205,965
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	1,334	714,078
1979	250	15,478	3,684	189,580	1,260	210,252
1980	139	6,098	1,789	449,292	1,013	458,331
1981	86	10,618	1,647	194,206	1,199	207,756
1982	553	24,412	4,576	517,637	913	548,091
1983	194	4,545	6,270	802,700	1,776	815,485
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
1989	328	2,730	477	496,262	482	500,279
1990	443	7,914	1,288	452,225	798	642,668
Average 1960 to 1990	102	7,801	2,850	295,690	2,485	308,928
Preliminary 1991	70	709	318	93,935	303	95,335

Table 21. Annette Island commercial drift gillnet salmon catch in numbers, by species, 1977 to 1991.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
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	15,775	2,565	191,814	38,779	248,971
1981	211	25,594	5,092	214,052	24,366	269,315
1982	569	42,847	6,665	162,049	27,281	239,411
1983	170	21,994	7,887	212,944	17,444	260,439
1984	39	23,707	8,240	404,360	71,610	507,956
1985	292	50,891	23,227	406,497	75,678	556,585
1986	98	27,939	52,834	512,504	96,755	690,130
1987	527	47,469	24,033	223,337	86,788	328,154
1988	579	26,461	7,112	364,114	115,317	513,583
1989	369	33,194	21,266	823,081	52,717	930,627
1990	524	43,979	26,764	615,560	75,327	762,199
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Average 1979 to 1990	255	28,784	13,598	306,591	51,362	400,588
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Preliminary 1991	801	39,353	55,804	296,036	76,844	468,838

Table 22. Annette Island commercial purse seine salmon catch numbers, by species, 1977 to 1991.

Year	Chinook		Sockeye	Coho	Pink	Chum	Total
	<=28"	<=21					
1977	1	0	1,430	9,984	205,834	3,665	220,914
1978	26	0	2,041	2,113	499,675	7,899	511,754
1979	0	0	311	239	66,050	3,511	70,111
1980	3	0	1,861	909	464,336	17,272	484,381
1981	4	0	1,316	1,100	245,151	4,747	252,318
1982	18	0	2,430	3,104	422,196	12,635	440,383
1983	3	0	5,939	3,341	1,001,650	5,017	1,015,950
1984	15	0	9,559	11,288	502,465	27,055	550,382
1985	47	0	6,073	3,911	488,423	9,128	507,582
1986	19	0	5,046	20,309	851,282	13,938	890,594
1987	5	0	618	9,204	28,584	17,911	56,402
1988	1	4	2,373	1,431	491,507	11,503	506,819
1989	73	0	14,542	2,127	1,231,281	12,216	1,260,239
1990	34	0	7,732	6,863	478,392	8,349	501,370
Average 1977 to 1990							
	18	0	4,377	5,423	498,345	11,066	519,229
Preliminary 1991							
	56	0	5,091	5,513	543,412	4,972	559,044

Table 23. Southeast Alaska subsistence and personal use salmon harvest, by species, and number of permits issued, 1961 to 1991.

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	3,108	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	19	20,040	314	1,490	2,859	24,722
1986	3,489	29	21,966	277	898	2,585	25,755
1987	2,712	34	25,243	117	1,424	3,623	30,441
1988	2,842	94	19,980	97	1,034	2,896	24,101
1989							
Subsistence	1,631	25	18,333	241	1,160	2,485	22,244
Personal Use	1,457	206	10,492	312	2,912	361	14,283
Combined	3,088	231	28,825	553	4,072	2,846	36,527
1990							
Subsistence	1,811	69	21,570	396	2,290	2,737	28,873
Personal Use	1,327	94	12,010	420	1,125	617	15,593
Combined	3,138	163	33,580	816	3,415	3,354	44,466
Average 1961 to 1990	1,732						20,437
Average 1967 to 1990	1,947	34	15,782	206	2,916	3,827	22,896
1991							
Subsistence	2,703	118	32,637	365	1,193	2,145	39,161
Personal Use	741	80	4,290	254	412	1,080	6,857
Combined	3,444	198	36,927	619	1,605	3,225	46,18

Table 24. Yakutat Area subsistence and personal use salmon harvest, by species, and number of permits issued, 1975 to 1991.

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
1989							
Subsistence	117	284	3,537	894	220	49	4,984
Personal Use	36	4	167	17	1	2	191
Combined	153	288	3,704	911	221	51	5,175
1990							
Subsistence	116	360	3,146	729	35	2	4,272
Personal Use	12	1	186	80	0	0	267
Combined	128	361	3,332	809	35	2	4,539
Average 1961 to 1990							
	84	207	1,621	733	19	3	2,584
1991							
Subsistence	132	59	861	198	1	0	1,119
Personal Use	2	2	35	15	0	0	52
Combined	134	61	896	213	1	0	1,171

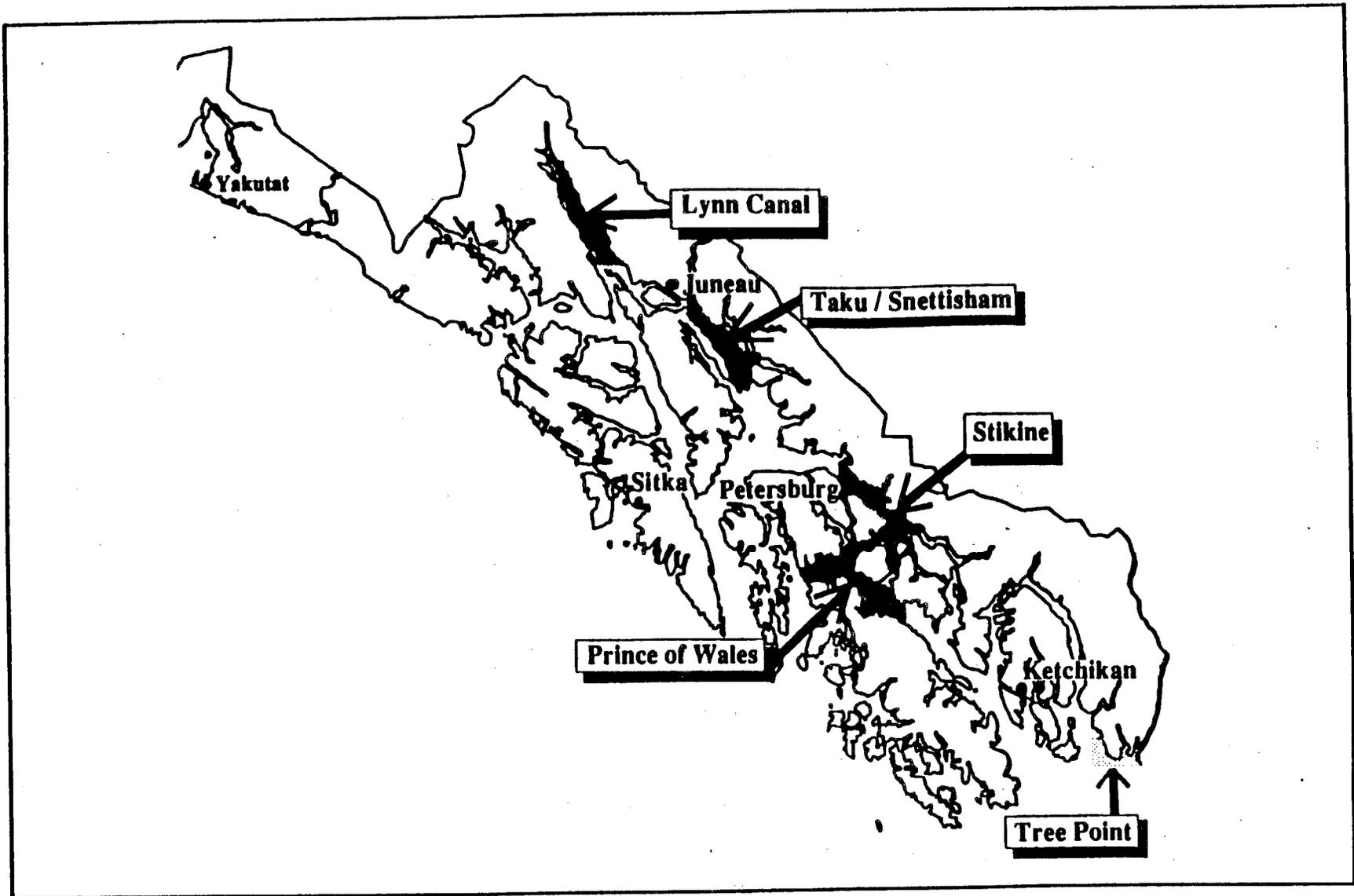


Figure 1. General drift gillnet fishing areas in Southeast Alaska.

SECTION 3

**SOUTHEAST ALASKA-YAKUTAT
SALMON TROLL FISHERIES, 1991**

REPORT TO THE BOARD OF FISHERIES
SOUTHEAST ALASKA-YAKUTAT SALMON TROLL FISHERIES, 1991



By

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Juneau, Alaska

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ABSTRACT

A total of 2,446,934¹ salmon of all species were caught in the 1991 Southeast Alaska troll fishery. The catch included 262,899 chinook, 1,719,001 coho, 426,685 pink, 28,462 chum and 9,887 sockeye salmon, landed by 854 power troll and 697 hand troll permits. Of this, 355,666 (14.5%) were taken by hand troll gear and 2,082,268 (85.5%) by power troll gear. The Alaskan chinook hatchery contribution to the troll fishery of 38,689 (14.7%) was the highest contribution ever achieved. A total of 366,684 coho produced by Alaskan hatcheries were harvested by the troll fleet, which accounted for 21.3% of the total troll coho salmon catch. Chinook escapements in Southeast Alaska declined slightly from 1990. Escapements to the Behm canal systems were again weak. Coho escapements were generally good.

¹ Catches are preliminary through May 1992.

INTRODUCTION

This report describes the fishery management actions by the Alaska Department of Fish and Game (ADF&G) and reports preliminary salmon catches by the troll fleet for the 1991 Southeast Alaska troll season. Data on stock status, escapement, and hatchery contribution of species important to the troll fishery are presented along with a discussion of current fishery management problems.

DESCRIPTION OF THE TROLL FISHERY

The commercial troll fishery in Southeast Alaska and Yakutat (Region 1) 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 three 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 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, lingcod and rockfish; harvest of these non-salmon species is limited by time, area and size restrictions.

Commercial trolling for chinook salmon occurs during two seasons; winter (October 1 through April 14) and summer (April 15 to September 30). The summer season is divided into four fisheries: 1) June experimental fishery; 2) hatchery access fishery; 3) terminal fishery; and 4) general summer fishery. The first three are designed to maximize the catch of Alaska-origin hatchery chinook. A quota on the number of non-Alaskan chinook salmon is set yearly under the U.S./Canada Pacific Salmon Treaty (PST). Time and area openings are set by the Alaska Board of Fisheries (Board). 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 two types of gear; hand troll and power troll. Vessels using hand troll gear are limited to two lines on hand-operated gurdies or four sport fishing poles. Although more permits are available compared with power troll gear, hand trollers take a smaller portion of the catch. Vessels using power troll gear are generally larger than those using hand troll gear and are limited to four lines on power operated gurdies except within the EEZ north of the latitude of Cape Spencer where six lines may be used.

STOCK DESCRIPTION AND STATUS

Only the status of chinook and coho salmon stocks are discussed in this report.

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 PST.

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 age structure 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 currently lower than historical levels (Figure 2). Annual commercial all-gear catches during the past ten years have averaged about 280,000 chinook salmon. This has been primarily due to harvest ceilings imposed by the North Pacific Fishery Management Council (NPFMC) through 1985, and the Board and PST since then. This is considerably lower than harvest levels 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. Most coho streams are small, with the number of spawners typically ranging from several up to 1,000. Because of the number of these systems they collectively make up a substantial portion of the production. Lake systems are also important and typically produce returns between 1,000 and 8,000. Large populations occur in the Taku, Chilkat, Berners, Stikine, Unuk, Chickamin and most Yakutat systems. Spawning takes place during the fall and early winter months. Most coho salmon rear in freshwater for two years and virtually all spend no more than one winter in the ocean before returning. The majority are 4-year-old 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). A decline in average catch occurred during the next three decades, with a low decade average of 1,000,000 in the 1970's. During the 1980's, the average all-gear commercial coho salmon catch was 1,900,000 coho. This nearly equals the decade high of 2,000,000 yearly average of the 1940's. It is also an increase of 83% over the 1970's decade average of 1,000,000 coho. This increase is thought to be primarily the result of the unusually mild winters experienced in recent years, and better spawning escapement levels realized since more conservative management was implemented beginning in 1980. Other probable contributing factors include more intensive fishing in highly mixed stock areas, increased targeting during chinook non-retention periods, and contributions from hatchery production.

SUMMARY OF 1991 SEASON

A total of 2,446,934 salmon of all species were harvested by the troll fleet (Table 1). Of this, 355,666 were taken by hand troll gear (Table 2), and 2,082,268 were taken by power troll gear (Table 3). This was the fifth highest total catch since statehood. Only seven other years exceeded 2,000,000, all of them since 1978.

Fishing Effort

The Alaska Commercial Fisheries Entry Commission (CFEC) currently issues 950 power troll permits and 2,150 hand troll permits. In 1991, preliminary estimates indicate that 854 power troll gear units and 697 hand troll gear units were actually fished. Hand troll gear permit holders accounted for about 15.2% of the 1991 chinook troll catch and about 13.9% of the coho troll catch.

The number of power troll permits fished annually since limited entry was introduced in 1975 has increased slowly. However, hand troll permits increased 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 number of actively fished permits has declined to 697 (Table 4). 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 1991 troll chinook fishery was managed to (1) comply with provisions of the PST 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 produced chinook salmon.

Compliance with the PST dictates: (1) the all-gear commercial and recreational base catch ceiling be 273,000 chinook, excluding catches of new or post-Treaty Alaskan hatchery-produced chinook (hatchery add-on); and (2) a management range of $\pm 7.5\%$ for accumulation of overages and underages beginning in 1987. There was also a 40,000 non-Alaskan hatchery-produced chinook salmon limit in June (an increase of 10,000 from 1990).

Chinook salmon produced in Alaskan hatcheries above the base level do not count against the quota. The Alaska hatchery add-on is calculated from coded wire tag recovery data. The add-on 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 1991 the risk factor adjustment was 3,591.

In 1991, the all-gear catch was approximately 357,060 chinook salmon. The commercial catch was 296,568 (83.1%), and there was a recreational harvest of 60,492 (16.9%) (Table 5). A hatchery harvest of 70,009 was calculated (61,418 add-on). The total commercial harvest of chinook salmon included a troll harvest of 263,804, a purse seine harvest of 11,618 chinook greater than 5 lbs and 5,591 less than 5 lbs, a drift gillnet harvest of 19,396, and a set gillnet harvest of 1,750. An additional 70 chinook salmon were harvested in traps on Annette Island. Comparative all gear commercial and recreational chinook salmon catches since 1965 are shown in Table 6.

Since implementation of the PST, troll chinook catches had remained relatively stable until 1990 (Figure 4) when an additional quota increase of 39,000 chinook salmon over previous years, along with a record Alaska hatchery add-on, combined to produce a harvest of 287,427. In 1991, the increase over the base was only 10,000.

Winter Season

The 1991 winter troll season was conducted from October 1, 1990 through April 14, 1991. Beginning and ending dates of the winter season have been the same since 1981. As in previous years, fishing during the 1990-1991 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 42,447 (16.1%) of the 1991 troll chinook catch was harvested during the 1990-1991 winter season (Table 7, Figure 5). This was the second largest winter catch on record. The winter troll catch is included in the all-gear catch ceiling; however, no specific catch limit exists for the winter fishery.

June Experimental Fisheries

In 1991, experimental troll fisheries were conducted several days each week during June in nine near-terminal hatchery areas. The purpose of all except the Cross Sound fishery, was to increase the take of Alaska-origin hatchery chinook. These areas were adjacent to the Little Port Walter (National Marine Fisheries Service, NMFS), Whitman Lake Hatchery and Carrol Inlet release site (Southern Southeast Regional Aquaculture Association, SSRAA), Crystal Lake Hatchery (ADF&G) and Medvejie (Northern

Southeast Aquaculture Association, NSRAA). In addition, approach areas in Clarence Strait, Stikine Strait and Frederick Sound were open. The open area in Frederick Sound was expected to provide for an additional harvest of Crystal Lake hatchery chinook salmon, while the areas in Clarence Strait were expected to provide additional catch, primarily from the various SSRAA releases. The area in Stikine Strait provided access to fish returning to Earl West Cove in Eastern Channel.

Between 200-300 boats participated in the 1991 experimental fisheries and they harvested 13,984 chinook salmon, of which 47.1% were of Alaskan hatchery origin (Table 8). The highest catches were in the Clarence Strait area, followed by Frederick Sound. Catches were highest in Statistical Week 26 followed by week 23. Approximately 188 chinook salmon were harvested in an experimental troll fishery conducted in the Cross Sound area (District 114). This fishery was designed to determine the feasibility of harvesting pink and chum salmon during the early part of the season with troll gear and it did result in catches of 21,978 pink, 6,915 chum, 1,121 sockeye and 299 coho salmon.

June Terminal Fisheries

The Carrol Inlet terminal fishery opened on May 28 and harvested a total of 3,563 chinook salmon. The Wrangell Narrows terminal fishery opened on June 2 and harvested 2,354 chinook salmon.

Hatchery Access Fisheries

Hatchery access fisheries were conducted in most of the inside waters during June 5-7 (Figure 6) and June 21-22 (Figure 7). Open areas in the outer districts (103 and 113) were limited to two days during the first period. The catch during the first period was the highest of the three years of the fishery. The second opening was only 1 1/2 days, however, the catch exceeded the catch of the first period. The highest catch during the first period was in District 102, while during the second period it was in District 113.

General Summer Season

The general summer season troll harvest target was determined by subtracting the base catches in the winter and June troll fisheries, along with the expected net and recreational harvest, from the total catch ceiling. Five percent of this total is added for the expected add-on.

Opening of the 1991 general summer trolling season was again delayed until July 1. This reduced the duration of the chinook salmon non-retention fishery which occurs after the allowable chinook salmon catch has been taken.

The catch and Alaskan hatchery add-on are monitored inseason by the department's fisheries performance data program (FPD). This consists of confidential interviews with trollers to obtain detailed catch per unit effort (CPUE) data and an inspection of troll catches for coded wire tags (CWT). Total catch is estimated by combining vessel counts obtained during weekly overflights with the CPUE obtained from the interviews.

The FPD data indicated that fishing was very good and an announcement was made on July 6 that closed the fishery at noon on July 8. The final catch was 154,020 for 7 1/2 days (20,500 per day). This was the shortest summer troll chinook season on record. The catch per fleet day was also the highest ever recorded.

Chinook salmon non-retention was implemented for a total of 64.5 days in 1991: July 8 through August 15 (38.5 days), and August 26 through September 20 (26 days). Several areas were closed to all fishing during chinook non-retention periods to reduce hook and release mortality (Table 12). No observer program was conducted in 1991 to document chinook salmon encounter rates or potential mortality.

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 gillnet fisheries peak approximately one month later in early to mid-September. Migrations into spawning streams generally peak in late September (Figure 10). During most recent years, a higher proportion of the troll catch has occurred earlier in the season. Early chinook closures and subsequent increases in coho targeting, as well as increased fishing in outside areas, have contributed to this pattern.

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

During the 1970's, troll effort and coho catch increased in the outer coastal areas (Figure 11). In 1980, the Board specified a 10-day closure during the coho season to maintain the historical allocation balance to inside fisheries. In addition, the closure 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.

The 1991 troll coho salmon harvest of 1,719,001 was the third highest since 1960 (Figure 12).

Opening of the general coho season in 1991 was delayed to correspond to the opening of the chinook season on July 1. However, coho caught after June 14 in the experimental and hatchery fisheries, could be retained. Historically, less than 5% of the troll coho salmon catch occurred between June 15 and July 1, when the coho run is just starting. Many of these fish which historically had been caught during this period are now probably caught in the experimental or hatchery access fisheries and in the general summer fishery, as most remain in the area to feed. Following the closure of trolling for chinook on July 8, trollers were allowed to continue fishing for cohos after offloading any chinook aboard. Catches of coho by period are shown in Figure 13 and Table 13.

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 three years, there was no effort.

The 1991 coho salmon management plan provided for a 7-14 day closure in late July if an assessment of run strength indicated a total all-gear harvest of less than 1,120,000 (80% of the 1980 to 1988 average catch). The assessment, using fishery performance data collected by the department, indicated a projected a total commercial harvest of 2,900,000 and an early conservation closure was not warranted. The actual total commercial harvest was 3,194,323 coho salmon.

The department continued to use FPD data to monitor the fishery for both conservation and allocation considerations. Data throughout the season indicated that the troll fishery was much further ahead of the 1971-1980 base catch specified by the Board than were the gillnet fisheries (Table 14). In addition, CPUE in the Juneau recreational fishery was also lower than the 1971-1980 base period. As a result, a 10-day closure was implemented beginning August 13. The final percentage of the total commercial coho salmon catch by the troll fleet was 53.8%, this was 7.2 points under the target of 61%.

Other Species

Catches of sockeye, pink and chum salmon in the 1991 summer troll season were 9,887, 426,685, and 28,462, respectively.

EEZ Catches

In 1991 approximately 6.3% (16,615) of the chinook catch and 3.3% (56,004) 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. In addition, 286 sockeye, 3,602 pink, and 609 chum salmon were taken in the EEZ.

ALASKA HATCHERY PRODUCTION

State, Federal and private hatcheries produce both chinook and coho salmon that were 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 have continued to rise and in 1991 contributed 38,689 chinook salmon to the troll catch, comprising 14.7% of the total (Figure 14).

Alaskan hatcheries contributed 10,106 (23.8%) chinook salmon to the winter fishery (Table 15). A total of 6,558 (47.1% of the total) Alaskan hatchery-produced chinook salmon were caught in the 1991 experimental fishery. In the hatchery access fishery, a total of 9,131 (19.7%) chinook salmon of Alaskan hatchery origin were caught. In the general summer fishery, a total of 4,939 (3.2%) chinook salmon were contributed by Alaskan hatcheries.

Hatcheries contributed an estimated 382,667 coho salmon (22.3%) to the total troll catch in 1991 (Table 16, Figure 15). Hatchery-produced coho salmon were first documented in the troll catch in 1980. Total and proportional contributions increased annually until 1986 when 276,155 hatchery-produced coho salmon contributed 13.0% of the total troll coho salmon catch. Hatchery contribution declined during the 1987-1989, but increased again to a record high in 1990. The proportional contribution of hatchery stocks has been greatest when wild stocks were abundant and lowest when wild stocks were weak.

ESCAPEMENTS

Chinook Salmon Escapements

The estimated total escapement of age 1.3 and 1.4 chinook salmon for all Southeast Alaska and transboundary rivers in 1991 was 47,193 fish (Table 17). This was -9% or 4,838 fish less than in 1990, and only 74% of the management escapement goal of 64,000 chinook salmon. Still, the 1991 escapement represented an increase of approximately 72% or 19,795 chinook salmon compared to the 1975-1980 base period average of 27,500 chinook salmon, and an increase of 14% or 5,681 chinook salmon compared to the 1981-1985 average of 41,500 chinook salmon (Table 18, Figure 16).

Although escapements of chinook salmon declined overall from 1990, good escapements were observed in the two largest systems. Chinook salmon escapements were very strong in the Taku River, where the 1991 escapement of 16,400 chinook salmon was the third largest observed since 1975. The Stikine River

escapement of 18,024 was the third largest since 1975 and it was the fifth year in a row that the escapement was above the goal of 13,400 fish. The other large river, the Alsek, the escapement remained below the goal.

In the medium sized rivers, only the Situk was above goal, all others were below. Escapements to the Behm Canal systems continued to decline. The low escapements to the Unuk, Chickamin, Blossom, and Keta Rivers were unexpected as they had shown a strong rebuilding trend until 1988.

No escapement was reported for the Chilkat River due to results of a study relating the index stream count to the total escapement.

Escapements also declined in the minor systems.

Coho Salmon Escapements

Escapement Assessment

Only a very small percentage of the coho salmon escapements in Southeast Alaska are enumerated or surveyed because of the extremely scattered distribution of stocks and difficult conditions for observation of spawners during the fall months. In 1991, weirs were operated on only three streams, while surveys were conducted on another 112 streams. An adult tagging program was used to estimate the escapement of coho salmon to the Taku River.

Variations in environmental conditions and run timing can cause serious problems in obtaining ground and aerial surveys that reflect actual spawner abundance. High water events appear to trigger spawning but also adversely affect stream visibility and, therefore, make it difficult or impossible to accurately count fish. Once spawning occurs, stream life is typically very short and post-spawners are quickly removed by predators or flushed downstream by high water. Survey counts are usually higher when fall weather is dry and fish continue to accumulate in streams before spawning occurs. Low peak counts are often associated with seasons when numerous protracted freshets occur in October that bring fish to the spawning areas and flush them out while at the same time severely limiting survey opportunities. Improved precision can be obtained by conducting multiple surveys throughout the fall. This is feasible for some systems such as those for the Juneau roadside streams, but is more difficult and expensive for remote streams such as the major coho producing systems in southern Southeast Alaska.

Escapement

Fishery harvest and CPUE indicated that the 1991 coho salmon return was one of the largest on record and that abundance was more evenly distributed by geographical area than in most recent years. Escapement data did not, in all cases, reflect abundance indicators in the fisheries. In addition, strong returns continued late into the fall, particularly in the north.

Difficult weather conditions were encountered during surveys of Yakutat area escapements. Considering the conditions, however, it appeared that adequate escapement was achieved. The set gillnet fisheries in Yakutat area systems encountered strong run strength, and a record catch was made in the Situk-Ahmklin system. Catches in some less accessible systems were low because of market problems. The overall catch of 166,172 was above average.

Escapement surveys and FPD both indicated exceptionally strong overall escapement in Lynn Canal and Stephens Passage systems. The highest peak count since surveys were initiated in 1974 was recorded in the Berners River. The combined peak survey count for Juneau roadside streams was the highest recorded, while counts for individual systems ranged from about average to record highs. The escapement estimate of 129,000 for the Taku River system indicated that escapement was approximately twice the average of the mid-1980's. The District 111 drift gillnet catch set a new record.

Streams on the central outside coast showed strong returns. Surveys in Sitka Sound indicated improvement over parent escapement levels in all surveyed streams. An apparent local survival problem had affected the abundance of both coho and pink salmon stocks in Sitka Sound since 1986. This appears to be a problem that has not affected either species at Ford Arm 45 miles north of Sitka where the weir count showed that the 1991 coho salmon escapement was 126% of the 1982-1990 average.

Escapement information from southern Southeast has historically been very sparse. Only District 101 had substantial survey effort in 1991. Escapement surveys and weir counts indicated average to high escapements in that district. Hugh Smith Lake, the only wild stock for which a weir count was available, received an escapement of 1,826 spawners compared with the 1982-1990 average of 1,184. Smolt survival for Hugh Smith Lake coho was 17.4% compared with the previous average of 10.7%.

COHO SALMON HARVEST RATES

Coded-wire tagging studies conducted since the early 1980's have provided annual harvest rate estimates for four coho salmon stocks. These stocks include Auke Creek near Juneau, the Berners River in lower

Lynn Canal, Ford Arm Lake on the outer coast north of Sitka, and Hugh Smith lake on the mainland southeast of Ketchikan. Fish are tagged in these systems and their contribution to the fisheries is estimated through the department's catch sampling and coded wire tag processing programs. Weirs are operated on the three lake systems where escapements are enumerated and sampled for tags. The Berners River escapement is intensively surveyed and sampled. Escapement estimates for the Berners River are conservative since a lower river weir is not employed and, therefore, resulting harvest rate estimates are likely biased upward.

Harvest rate estimates by the troll fishery and all fisheries combined are available since 1982 (Table 19; Figures 17 and 18). Total harvest rate estimates for all four stocks for nine years have averaged 60.2%. However, average harvest rate estimates for individual systems vary widely from 44% for Auke Creek to 74% for the Berners River. The average trend for the four stocks has been relatively stable. However, estimates for the Berners River decreased since 1988 coincident with reduced effort in the Lynn Canal drift gillnet fishery because of weaker chum salmon returns. Total exploitation of the Hugh Smith Lake stock in southern Southeast decreased in 1991 due primarily to the large run size and late timing.

Estimated harvest rates by the troll fishery alone have averaged 43% for all four stocks for the nine years. Average estimates for individual systems ranged from 35% for Auke Creek to 52% for Ford Arm Lake. Average harvest rate estimates for the troll fishery have shown no significant trend during 1982-1990. However, a significant upward trend is evident if 1988 is excluded on the basis of the additional emergency closures that occurred that year. Average harvest rate estimates peaked at 54% in 1989, but all four stocks showed a decrease in 1991 to an average of 48%.

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 salmon 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 15-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. However, during the last two years, total escapement has been decreasing.

Second, escapements for some non-Alaskan chinook stocks that contribute to the Southeast Alaska troll fishery are also currently below optimum levels. 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 to meet conservation and catch distribution objectives. A regionwide 10-day closure has been implemented for the troll fishery each year since 1980.

Finally, the length of the chinook salmon season impacts the troll harvest rate on coho salmon. When the number of days is short, the troll fleet targets primarily on coho salmon. Total harvest rate estimates for four coho indicator stocks for the past nine years have averaged 61%. Historical fishery trends along the Pacific coast and the results of very limited population studies indicate that this level of exploitation is likely to be sustainable by mixed coastal coho stocks. However, more intensive sustained mixed-stock exploitation at average rates between 75-80% has apparently led to a serious long-term decline in British Columbia's Georgia Strait coho stocks based on trends in both catch and escapement. Currently available data from throughout the Pacific coast suggests that an optimum continuous harvest rate for mixed coastal coho stocks is in the range of 65-70%. As a management guideline, the average harvest rate on stocks caught primarily in highly mixed-stock fisheries be limited to an average total harvest rate of no greater than 70%. Stock groups that can be more readily assessed and managed based on abundance may be harvested at higher levels if they have a historically demonstrated ability to sustain such intensive exploitation.

Table 1. Southeast Alaska Region annual commercial troll salmon catches in numbers by species by calendar year for 1960 to 1979 and by season (October 1 - September 30) for 1979-1980 to 1990-1991.¹

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	444	388,443	83,727	1,708	764,490
1970	304,599	477	267,635	70,071	2,804	645,586
1971	311,439	929	391,279	104,557	7,602	815,806
1972	242,282	1,060	791,941	166,771	11,634	1,213,688
1973	307,806	1,222	540,105	134,586	10,460	994,179
1974	322,099	2,603	845,109	263,083	13,818	1,446,712
1975	287,342	1,098	214,170	76,882	2,784	582,276
1976	231,239	1,266	524,762	193,786	4,251	955,304
1977	271,735	5,701	506,845	281,244	11,617	1,077,142
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
1980	303,885	2,921	696,391	266,885	12,048	1,282,130
1981	248,791	7,476	860,770	579,524	8,680	1,705,241
1982	242,315	2,365	1,316,141	503,578	5,700	2,070,099
1983	269,790	8,018	1,275,788	498,242	20,306	2,072,144
1984	235,629	9,559	1,133,212	572,354	28,030	1,978,784
1985	216,086	7,817	1,598,873	967,780	52,688	2,843,244
1986	237,557	6,891	2,129,342	182,283	51,612	2,607,685
1987	242,667	9,727	1,041,159	487,068	12,840	1,793,461
1988	231,225	9,305	500,491	520,204	88,396	1,349,621
1989	235,609	20,199	1,415,511	1,771,181	68,992	3,511,492
1990	287,092	9,173	1,831,491	772,468	62,812	2,963,036
1991	262,899	9,887	1,719,001	426,685	28,462	2,446,934
Average 1960 to 1991						
	271,861	4,301	853,737	339,049	18,629	1,487,578

¹ Does not include Annette Island troll catches.

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 1979-1980 to 1990-1991.¹

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
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
1980	52,034	1,257	179,122	111,548	4,532	348,493
1981	33,892	2,171	181,400	173,517	2,582	393,562
1982	36,677	513	260,769	132,135	1,187	431,281
1983	38,635	1,574	235,685	136,656	2,777	415,327
1984	34,287	1,982	178,400	151,227	4,894	370,790
1985	33,129	1,697	260,583	256,243	9,859	561,511
1986	29,718	811	339,531	40,098	6,695	416,853
1987	29,217	2,131	183,211	135,108	3,016	352,683
1988	33,236	1,861	92,270	147,773	14,532	289,672
1989	28,667	2,441	220,254	301,431	6,578	559,371
1990	39,175	1,245	273,361	154,815	6,490	475,086
1991	39,939	1,077	238,511	72,283	3,856	355,666
<hr/>						
Average 1975 to 1991						
	37,022	1,454	208,959	148,688	5,367	401,490

¹ Does not include Annette Island troll catches.

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 1979-1980 to 1990-1991.¹

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1975	259,347	1,002	173,248	48,029	2,243	483,869
1976	204,945	750	436,029	149,732	2,190	793,646
1977	238,559	3,961	351,032	164,468	7,474	765,494
1978	321,050	1,649	721,975	374,164	6,620	1,435,458
1979	279,400	4,570	674,030	347,433	16,735	1,322,168
1980	251,851	1,664	517,269	155,337	7,516	933,637
1981	214,899	5,305	679,370	406,007	6,098	1,311,679
1982	205,638	1,852	1,055,372	371,443	4,513	1,638,818
1983	231,155	6,444	1,040,103	361,586	17,529	1,656,817
1984	201,342	7,577	954,812	421,127	23,136	1,607,994
1985	182,957	6,120	1,338,290	711,537	42,829	2,281,733
1986	207,839	6,080	1,789,811	142,185	44,917	2,190,832
1987	213,450	7,596	857,948	351,960	9,824	1,440,778
1988	197,989	7,444	408,221	372,431	73,864	1,059,949
1989	206,942	17,758	1,195,257	1,469,750	62,414	2,952,121
1990	247,917	7,928	1,558,130	617,653	56,322	2,487,950
1991	222,960	8,810	1,480,490	354,402	24,606	2,082,268
Average 1975 to 1991						
	228,720	5,677	895,964	400,603	24,637	1,555,601

¹ Does not include Annette Island troll catches.

Table 4. The number of hand and power troll permits fished, 1977 to 1991.

Year	The Number of Hand Troll Permits	The Number of Power Troll Permits
1977	1,836	750
1978	2,624	816
1979	2,207	819
1980	1,667	842
1981	1,153	793
1982	1,067	810
1983	946	810
1984	860	795
1985	903	830
1986	804	827
1987	763	828
1988	777	828
1989	694	830
1990	699	839
1991	697	854

Table 5. Estimated harvest and Alaska hatchery add-on of chinook salmon by commercial and recreational fisheries in Southeast Alaska, 1991 (data from Sept. 1992).

Fishery	Total Catch	Common Property Catch	Alaska Hatchery Total Contribution			Add-on	Base Catch
			General Fisheries	Terminal	Subtotal		
General Purse Seine and Gillnet							
Seine	11,562	9,664	1,205	1,898	3,103	2,117	9,501
Gillnet	18,595	9,611	3,105	8,984	12,089	10,606	8,790
Seinet	1,750	1,750	0	0	0	0	1,750
Total	31,907	21,025	4,310	10,882	14,502	12,722	20,042
Annette Island Catches							
Trap	70	70	0	0	0	0	70
Troll	953	953	0	0	0	0	953
Seine	56	56	0	0	0	0	56
Gillnet	801	801	0	0	0	0	801
Total	1,880	1,880	0	0	0	0	1,880
Winter Troll Fishery							
Oct 1-Dec 31	19,728		7,132	0	7,132	6,257	13,471
Jan 1-April 14	22,719		2,974	0	2,974	2,609	20,110
Total	42,447		10,106	0	10,106	8,866	35,581
June Troll Fishery							
Experimental	13,949		6,558	0	6,558	5,733	8,162
Hatchery Access	46,487		9,131	0	9,131	8,011	38,407
Terminal	5,996		0	5,955	5,955	5,224	731
Total	66,432		15,689	5,955	21,644	18,988	47,300
Summer Troll Fishery							
July 1-7	154,020		4,939	0	4,939	4,333	150,736
Troll Total	262,899		30,734	5,955	38,689	32,187	231,617
Sport Fishery	60,492		15,690	3,128	18,818	16,509	43,983
Grand Totals	357,178		50,734	19,275	70,009	61,418	295,642
						Alaska Hatchery Add-on	61,418
						Risk Factor	3,591

Table 6. Annual Southeast Alaska commercial and recreational chinook salmon harvests and Alaska hatchery contributions, 1965-1991.

Year	Numbers of Fish (1,000's)					Alaska Hatchery Harvest	Total Less AK Hatchery
	Troll ^{a/}	Net ^{b/}	Subtotal	Recreational Fisheries ^{c/}	Total ^{d/}		
----- Commercial Fisheries -----							
1965	309	28	337	13	350		
1966	282	26	308	13	321		
1967	275	26	301	13	314		
1968	304	27	331	14	345		
1969	290	24	314	14	328		
Ave. 1965-69	292	26	318	13	332		
1970	305	18	323	14	337		
1971	311	23	334	15	349		
1972	242	44	286	15	301		
1973	308	36	344	16	360		
1974	322	24	346	17	363		
Ave. 1970-74	298	29	327	15	342		
1975	287	13	300	17	317		
1976	231	10	241	17	258		
1977	272	13	285	17	302		
1978	375	25	400	17	417		
1979	338	28	366	17	383		
Ave. 1975-79	301	18	318	17	336		
1980	304	20	324	20	344	7	337
1981	249	19	268	21	289	2	287
1982	242	48	290	26	316	1	315
1983	270	20	290	22	312	2	310
1984	236	32	268	22	290	5	285
Ave. 1980-84	260	28	288	22	310	3	307
1985	216	36	252	25	277	14	263
1986	238	22	260	23	283	18	265
1987	243	15	258	24	282	24	258
1988	231	22	253	26	279	30	249
1989	236	24	260	31	291	34	257
Ave. 1985-89	233	24	256	26	282	24	258
1990	287	28	315	51	366	59	307
1991	263	32	295	60	355	70	285

- a/ Troll catches prior to 1980 are reported by calendar year. From 1981 to 1990, catches are for the catch accounting year, Oct. 1 to Sept. 30.
- b/ Purse seine chinook catches reported under net fisheries for 1986-91 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 1991 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 7. Southeast Alaska winter troll fishery vessel landings and chinook salmon catches, and comparison with total season troll chinook catches, 1980-1991.

Year	EARLY WINTER POWERTROLL			LATE WINTER POWERTROLL			EARLY WINTER HANDTROLL			LATE WINTER HANDTROLL			TOTAL		
	Number Chinook	Vessel Landings	Chinook per land	Number Chinook	Vessel Landings	Chinook per land	Number Chinook	Vessel Landings	Chinook per land	Number Chinook	Vessel Landings	Chinook per land	Total	Percent	Total
1980	1,000	78	12.8	2,726	149	18.3	737	201	3.7	1,320	308	4.3	8,059	2.7	299,872
1981	3,156	217	14.5	6,015	414	14.5	1,709	321	5.3	1,855	421	4.4	9,607	3.9	248,791
1982	9,698	582	16.7	6,245	522	12.0	2,819	345	8.2	1,508	311	4.9	12,618	5.2	242,315
1983	11,292	826	13.7	15,572	1,017	15.3	2,431	392	6.2	3,039	508	6.0	31,128	11.5	269,790
1984	11,631	629	18.5	15,498	1,428	10.9	2,604	389	6.7	3,117	635	4.9	32,838	13.9	235,629
1985	13,337	742	18.0	6,358	645	9.9	3,390	458	7.4	1,870	503	3.7	22,463	10.4	216,086
1986	15,146	871	17.4	4,940	542	9.1	3,404	532	6.4	1,230	290	4.2	22,870	9.6	237,557
1987	38,243	1,569	24.4	8,850	717	12.3	6,531	1,059	6.2	1,229	279	4.4	28,625	11.8	242,025
1988	20,630	1,601	12.9	13,598	1,306	10.4	3,796	757	5.0	2,078	478	4.4	60,450	26.1	231,224
1989	15,092	755	20.0	8,009	973	8.2	2,522	372	6.8	1,863	407	4.6	34,298	14.6	235,609
1990	17,567	743	23.6	12,975	1,020	12.7	2,161	330	6.6	2,537	457	5.6	33,126	11.5	287,092
1991	24,786	1,384	17.9	20,314	1,507	13.5	3,484	577	6.0	2,405	530	4.0	42,447	16.2	262,803

NOTE: Early winter troll= Oct.1-Dec.31. Late winter troll= Jan.1-Apr.14.
Catches for 1980-1991 are by season (Oct.1-Sept.30). For example, the catch for the 1980 season is taken from Oct.1,1979-Sept.30,1980.

Table 8. The number of salmon harvested and permits fished in the 1991 experimental and terminal troll fisheries.

<i>Experimental Areas</i>	Dates	Total Week	Permits	Chinook	Sockeye	Coho	Pink	Chum	Salmon
Gravina Is. 101-27	6/2-3	23	29	345	0	0	0	0	345
	6/10-11	24	58	1,530	3	4	1	2	1,540
	6/16-17	25	57	902	3	62	7	2	976
	6/24-25	26	67	1,473	5	286	48	20	1,832
			211	4,250	11	352	56	24	4,693
Ship Is. Shore 102-80	6/2-3	23	11	342	0	0	0	0	342
	6/10-11	24	16	352	0	0	0	0	352
	6/16-17	25	19	389	0	21	2	0	412
	6/24-25	26	19	414	1	60	6	0	481
			60	1,497	1	81	8	0	1,587
Steamer Pt. 106-30	6/2-3	23	33	522	0	0	0	0	522
	6/10-11	24	21	244	0	0	0	0	244
	6/16-17	25	24	343	1	6	0	1	351
	6/24-25	26	12	93	0	6	0	0	99
			90	1,202	1	12	0	1	1,216
Little Port Walter 109-10	6/2-3	23	27	262	1	0	0	0	263
	6/10-11	24	29	198	0	0	0	0	198
	6/16-17	25	33	213	2	22	0	8	245
	6/24-25	26	59	1,291	1	86	6	13	1,397
			148	1,964	4	108	6	21	2,103
Big Creek 110-16	6/2-3	23	57	1,118	0	0	0	0	1,118
	6/10-11	24	34	498	0	0	0	0	498
	6/16-17	25	34	313	0	4	0	1	318
	6/24-25	26	25	514	0	4	1	0	519
			150	2,443	0	8	1	1	2,453
Cape Fanshaw 110-31	6/2-3	23	24	751	0	0	0	0	751
	6/10-11	24	12	142	0	0	0	0	142
	6/16-17	25	4	27	0	0	0	0	27
	6/24-25	26	4	135	1	2	0	1	139
			44	1,055	1	2	0	1	1,059
Hidden Falls 112-22	6/2-3	23	9	49	0	0	0	0	49
	6/10-11	24	5	15	0	0	0	0	15
	6/16-17	25	4	11	0	0	0	0	11
	6/24-25	26	5	49	0	1	9	14	73
			23	124	0	1	9	14	148
Silver Bay 113-35	6/2-3	23	51	282	0	0	0	0	282
	6/10-11	24	48	486	0	0	0	0	486
	6/16-17	25	40	198	0	0	0	0	198
	6/24-25	26	36	295	0	2	1	0	298
			175	1,261	0	2	1	0	1,264

-Continued-

Table 8. (page 2 of 2)

<i>Experimental Areas</i>	Dates	Total Week	Permits	Chinook	Sockeye	Coho	Pink	Chum	Salmon
Cross Sound	6/10-12	24	17	50	127	0	43	628	848
114-21	6/17-19	25	34	65	680	50	8,197	4,847	13,839
	6/24-25	26	42	73	314	249	13,738	1,440	15,814
			93	188	1,121	299	21,978	6,915	30,501
<i>Terminal Areas</i>	Dates	Total Week	Permits	Chinook	Sockeye	Coho	Pink	Chum	Salmon
Carroll Inlet	5/28-6/1	22	19	214	0	0	0	0	214
101-46	6/2-8	23	18	552	0	0	0	0	552
	6/9-15	24	53	1,230	0	1	0	0	1,231
	6/16-22	25	35	923	1	11	0	1	936
	6/23-29	26	28	644	0	9	1	1	655
			153	3,563	1	21	1	2	3,588
Wrangell Narrows	6/2-8	23	36	472	0	0	0	0	472
106-44	6/9-15	24	43	613	0	0	0	0	613
	6/16-22	25	38	543	0	1	0	0	544
	6/23-29	26	36	726	0	0	0	0	726
			153	2,354	0	1	0	0	2,355
Terminal Fishery									
Totals by Week		22		214	0	0	0	0	214
		23		1,024	0	0	0	0	1,024
		24		1,843	0	1	0	0	1,843
		25		1,466	1	12	0	1	1,480
		26		1,370	0	9	1	1	1,381
				5,917	1	22	1	2	5,942
Experimental Fishery									
Totals by Week		23		3,671	1	0	0	0	3,672
		24		3,515	130	4	44	630	4,323
		25		2,461	686	165	8,206	4,859	16,377
		26		4,337	322	696	13,809	1,488	20,652
				13,984	1,139	865	22,059	6,977	45,024

Table 9. The number of permits and chinook salmon harvested in the 1989, 1990 and 1991 hatchery access fisheries.

District	Harvest during first period	Number of permits	Harvest during second period	Number of permits	Harvest during first period	Number of permits	Harvest during second period	Number of permits	Harvest during first period	Number of permits	Harvest during second period	Number of permits
	1989				1990				1991			
101	433	32	1,184	21	945	17	2,624	45	1,535	44	1,077	39
102	974	43	527	20	1,056	26	2,006	31	3,311	53	1,946	44
103	1,192	71	1,959	77	1,021	25	4,255	90	3,166	80	3,742	98
105	327	23	544	11	166	8	1,382	30	506	20	221	11
106	456	19	728	36	300	657	25	1,131	31	690	32	
107	478	37	309	24	517	16	435	18	593	14	207	15
109	4,226	97	5,306	148	1,377	33	2,354	84	2,968	98	1,160	52
110	1,769	97	706	51	1,753	32	3,009	76	2,585	60	1,243	40
112	331	48	464	55	42	11	588	35	971	45	408	34
113	1,573	124	3,948	168	1,148	36	6,347	219	3,210	135	11,448	207
114	2,162	138	1,266	100	470	39	2,301	96	2,470	94	1,544	84
183	12	8	4	83	9	123	10					
Total	13,921	741	16,941	719	8,795	243	25,958	753	22,529	683	23,809	666
Combined Period Total			30,862				34,753				46,338	

Table 10. Chinook salmon catch per fleet day in the Southeast Alaska summer troll fishery, 1984-1991.

--- Number of Fish in Thousands ---				
Year	Fishing Period	Number of Days	Chinook Catch	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
1990	(Fishery closed April 15 - June 30) ^{b/}			
	JULY 1-22	22	200	9.1
	AUGUST 23-24	2	12	5.9
	COMBINED	24	212	8.8
1991	(Fishery closed April 15 - June 30) ^{c/}			
	JULY 1-8 (noon)	7.5	154	20.5

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 and 1990, 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.

c/ In 1991, troll fisheries were open from June 5-7 and June 21-22 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. Number of days and dates the Southeast Alaska troll fishery was open to chinook salmon fishing during the general summer season April 15 through September 30, 1978, to present.

Year	Days ^{a/} Open	Days Closed	Open Periods	Number of Days	Closed Periods	Number ^{b/} of Days	Chinook Non-Retention
1978	169	0	Apr 15-Sept 30	169	None		0
1979	169	0	Apr 15-Sept 30	169	None		0
1980	149	20	Apr 15-July 14 July 25-Sept 20	91 58	July 15-July 24 Sept 21-Sept 30	10 ALL 10 ALL	0
1981	101	69	May 15-June 25 July 5-Aug 6 Aug 20-Sept 3 Sept 13-Sept 20	42 36 15 8	Apr 15-May 14 Jun 26-Jul 4 Aug 10-Aug 19 Sept 4-Sept 12 Sept 21-Sept 30	30 ALL 9 ALL 10 ALL 9 10 ALL	9
1982	65	104	May 15-June 6 June 17-July 28	23 42	Apr 15-May 14 June 7-June 16 July 29-Aug 7 Aug 8-Sept 20 Sept 21-30	30 ALL 10 ALL 10 ALL 44 10 ALL	44
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 20 Sept 21-30	30 ALL 22 ALL 10 ALL 37 10 ALL	37
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 20 Sept 21-Sept 30	51 ALL 10 ALL 16 10 ALL 27 10 ALL	43
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 20 Sept 21-30	49 ALL 18 ALL 23 10 ALL 25.4 10 ALL	48.4
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 ALL 26 10 ALL 5 11 10 ALL	42
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	66 ALL 21 10 ALL 39 10 ALL	60

-Continued-

Table 11. (page 2 of 2.)

Year	Days ^{a/} Open	Days Closed	Open Periods	Number of Days	Closed Periods	Number ^{b/} of Days	Chinook Non-Retention
1988	12	157	July 1-July 12	12	Apr 15-June 30	77 ALL	47
					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	156	July 1-July 13	13	Apr 15-June 30	77 ALL	59
					July 14-Aug 13	31	
					Aug 14-Aug 23	10 ALL	
					Aug 24-Sept 20	28	
					Sept 21-Sept 30	10 ALL	
1990	24	145	July 1- July 22	22	Apr 15-June 30	77 ALL	48
			Aug 23-Aug 24	2	July 23-Aug 12	21	
					Aug 13-Aug 22	10 ALL	
					Aug 25-Sept 20	27	
					Sept 21-Sept 30	10 ALL	
1991	7.5	161.5	July 1-July 8	7.5	Apr 15-June 30	77 ALL	64.5
					July 8-Aug 15	38.5	
					Aug 16-24	10 ALL	
					Aug 25-Sept 20	26	
					Sept 21-30	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 12. Descriptions of Southeast Alaska areas closed to trolling for species during the 1991 summer season between July 8 and August 15 and August 25 and September 20 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 13. Preliminary 1991 Southeast Alaska Troll fishery chinook and coho salmon catches by period.

PERIOD

Winter Season	Days	Chinook Harvest	Coho Harvest
October 1, 1990 April 14, 1991	169	42,447	Closed
Summer Season			
Apr 15 - May 27	38	Closed	Closed
May 28 - Jun 30	33	66,432	2,782
Jul 01 - Jul 8	7.5	154,020	147,932
Jul 8 - Aug 15	38.5	Closed	1,055,666
Aug 16 - Aug 24	10	Closed	Closed
Aug 25 - Sep 20	26	Closed	512,654
Sep 21 - Sep 30	10	Closed	Closed

Special June chinook salmon access fisheries were open June 5 - 7 and June 21 and 22 in inside fishing districts only. Experimental hatchery openings were several days each week.

Table 14. Comparison of coho salmon catch expressed as a percent of the 1971-1980 base in Districts 1, 6, 11, and 15 drift gillnet fisheries of the total troll fishery catch at the time of the 10-day closure, 1985-1991.

	1985	1986	1987	1988	1989	1990	1991
Closing Date	08/15	08/11	08/01	08/13	08/14	08/13	08-15
Percentage of the Estimated 1971 to 1980 Base							
Troll	192	445	38	28	222	261	204
Drift Gillnet	103	72	-3	-54	65	105	47
Percentage of the Estimated 1971 to 1980 Base by District in the Drift Gillnet Fishery							
District 1	-2	28	-53	-49	9	9	32
District 6	183	193	54	-64	139	241	89
District 11	4	-56	-42	-42	-10	-18	47
District 15	-322	-86	159	-39	115	93	9
Final Percentage of the Coho Catch by the Troll Fishery							
Total	62.5	65.3	70.0	48.8	64.9	66.9	59.4

Table 15. Contribution in numbers and percent of Alaskan hatchery produced chinook salmon in the winter experimental, terminal, hatchery access and general summer troll fisheries, 1989 and 1991.

Fishery	Total Catch	Alaskan Hatchery Produced Chinook Salmon	
		Number	Percent
Winter			
1989	34,300	4,710	13.7
1990	33,100	4,433	13.4
1991	42,400	10,106	23.8
Experimental			
1989	2,300	854	37.1
1990	7,200	4,425	61.5
1991	13,900	6,558	47.2
Terminal			
1989	1,100	1,100	100
1990	16	16	100
1991	6,000	6,000	100
Hatchery Access			
1989	31,200	4,575	14.7
1990	34,810	6,532	18.8
1991	46,487	9,131	19.6
General Summer			
1989	167,600	5,225	3.1
1990	211,900	14,189	6.7
1991	154,000	4,939	3.2

Table 16. Total Southeast Alaska troll coho salmon catch and estimated wild and hatchery contributions, 1960-1991.^{a/} (1991 data is preliminary.)

Year	Number of Fish					
	Total Catch	Wild Contribution	Alaska Hatchery	Other Hatchery	Total Hatchery	Percent Hatchery
1960	396,211	396,211	0	0	0	0.0
1961	399,932	399,932	0	0	0	0.0
1962	643,740	643,740	0	0	0	0.0
1963	693,050	693,050	0	0	0	0.0
1964	730,766	730,766	0	0	0	0.0
1965	695,887	695,887	0	0	0	0.0
1966	528,621	528,621	0	0	0	0.0
1967	443,677	443,677	0	0	0	0.0
1968	779,500	779,500	0	0	0	0.0
1969	388,443	388,459	0	0	0	0.0
1970	267,635	267,647	0	0	0	0.0
1971	391,279	391,279	0	0	0	0.0
1972	791,941	791,947	0	0	0	0.0
1973	540,105	540,125	0	0	0	0.0
1974	845,109	844,748	0	0	0	0.0
1975	214,170	214,170	0	0	0	0.0
1976	524,762	524,762	0	0	0	0.0
1977	506,895	506,887	0	0	0	0.0
1978	1,100,902	1,100,902	0	0	0	0.0
1979	918,845	918,845	0	0	0	0.0
1980	696,391	704,297	2,876	187	3,063	0.4
1981	862,177	846,088	15,918	171	16,089	1.9
1982	1,321,546	1,285,969	35,400	177	35,577	2.7
1983	1,279,518	1,227,242	51,709	567	52,276	4.1
1984	1,131,936	1,062,327	68,594	1,015	69,609	6.1
1985	1,605,953	1,499,661	106,111	181	106,292	6.6
1986	2,126,159	1,850,004	268,215	7,940	276,155	13.0
1987	1,041,175	950,757	87,074	3,344	90,418	8.7
1988	499,819	472,334	25,885	1,600	27,485	5.5
1989	1,415,511	1,295,033	116,519	3,959	120,478	8.5
1990	1,831,515	1,540,772	278,830	11,913	290,743	15.9
1991	1,719,107	1,336,440	366,684	15,983	382,667	22.3
60-69 Avg.	569,984	569,984	0	0	0	0.0
70-79 Avg.	610,131	610,131	0	0	0	0.0
80-89 Avg.	1,199,115	1,119,371	77,830	1,914	79,744	5.8

^{a/} Hatchery contribution estimates are unavailable before 1980. Because hatchery production was very low, all catch during 1960-1979 was assumed to be from wild stocks.

Table 17. Preliminary 1991 estimates of total escapements of chinook salmon to Southeast Alaska and transboundary rivers (includes 3- and 4-ocean chinook only).^{a/}

System(Index Tributaries)	Index Systems			Est. Total Escap.	Categ. Expans. Factor	Est. Total Escap.
	1991 Escap. Index	Survey Expans. Factor	Tribut. Expans. Factor			
Major Category (Transboundary) Systems (3 total)						
Alesek (Klukshu) ^{b/}	3,200 (W)	1	1/.64			5,000
Taku (Nakina and Nahlin)	11,500 (A)	1/.75	1/.60			25,556
Stikine (Little Tahltan)	3,360 (W)	1	1/.25			13,440
Major Subtotals	18,060			41,686	1	43,996
Medium Category Systems (9 total)						
Situk	2,100 (W)	1	1	2,100		
Chilkat (Big Boulder/Stonehouse) ^{c/}	450 (A)	1/.80	1/.28	2,009		
Andrew Creek	470 (A)	1/.625	1	750		
Behm Canal Systems						
Unuk	1,800 (A)	1/.625	1	2,880		
Chickamin	900 (A)	1/.625	1	1,440		
Blossom	800 (A)	1/.625	1	1,280		
Keta	500	(A)	1/.625	1	800	
Subtotals	4,000			6,400		
Medium Subtotals	7,020			11,259	9/7	14,476
Minor Category Systems (22 total)						
King Salmon R. ^{d/}	250 (W)	1	1	250		
Minor Subtotals	250			250	22/1	5,500
All Systems Totals	25,330			55,504		63,971

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

a/ Total escapement estimates = (index escapements) x (expansion factors)

b/ Alesek escapement = weir count () - subsistence catch (?)

c/ Stonehouse Creek added to index in 1981

d/ Includes chinook used for ADF&G Snettisham egg take

Table 18. Estimates of total escapements of chinook salmon to escapement indicator systems and to southeast Alaska and transboundary (T) rivers, 1975-1991. Index escapements are expanded for survey counting rates and unsurveyed tributaries. Using 1990 expansions and escapement goals.

Year	MAJOR SYSTEMS				MEDIUM SYSTEMS							MINOR SYSTEMS			TOTAL			
	Alsek (T)	Taku (T)	Stikine (T)	Major Subt.	Situk	Chilkat (T)	Andrew	Unuk (T)	Chick-amin(T)	Blossom	Keta	Behm Subt.	Medium Unsurv. Subt.	Medium Subt.	King Salm.	Minor Unsurv. Subt.	Minor Subt.	ALL SYSTEMS
1975	4,214	4,609	5,800	14,623	1,510	187	416	1,469	588	234	325	2,616	1,351	6,080	53	1,113	1,166	21,869
1976	1,672	8,278	3,300	13,250	1,433	223	404	1,469	147	109	134	1,859	1,120	5,039	81	1,701	1,782	20,071
1977	4,363	10,000	6,600	20,963	1,732	223	456	1,558	363	179	368	2,468	1,394	6,273	168	3,528	3,696	30,932
1978	4,050	4,987	5,200	14,237	814	214	388	1,770	290	229	627	2,916	1,238	5,570	71	1,491	1,562	21,369
1979	6,101	6,593	9,328	22,022	1,400	214	327	922	224	86	682	1,914	1,101	4,956	89	1,869	1,958	28,936
1980	3,770	13,402	17,096	34,268	905	214	282	1,626	418	142	307	2,493	1,113	5,007	88	1,848	1,936	41,211
Average	4,028	7,978	7,887	19,894	1,299	213	379	1,469	338	163	407	2,378	1,219	5,487	92	1,925	2,017	27,398
1981	2,837	17,900	26,672	47,409	702	1,143	536	1,170	614	254	526	2,564	1,413	6,358	113	2,373	2,486	56,253
1982	3,078	8,398	22,640	34,116	434	799	672	2,162	1,015	552	1,206	4,935	1,954	8,794	286	6,006	6,292	49,202
1983	3,352	3,020	4,752	11,124	592	1,103	366	1,800	922	942	1,315	4,979	2,011	9,051	245	5,145	5,390	25,565
1984	2,038	6,307	10,352	18,697	1,726	1,487	389	2,939	1,763	813	976	6,491	2,884	12,977	250	5,250	5,500	37,174
1985	1,853	10,851	12,456	25,160	1,521	536	510	1,894	1,530	1,134	998	5,556	2,321	10,444	171	3,591	3,762	39,366
Average	2,632	9,295	15,374	27,301	995	1,014	495	1,993	1,169	739	1,004	4,905	2,117	9,525	213	4,473	4,686	41,512
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	81%	31%	59%	45%	62%	11%	51%	51%	23%	13%	51%	37%	38%	38%	37%	37%	37%	43%
1981-85	53%	36%	114%	62%	47%	50%	66%	69%	81%	58%	126%	77%	66%	66%	85%	85%	85%	65%
1986-90	66%	56%	143%	84%	59%	38%	135%	84%	110%	90%	152%	100%	83%	83%	84%	84%	84%	84%
1986	3,966	12,178	11,564	27,708	2,067	129	1,131	3,402	2,683	2,045	1,104	9,234	3,589	16,150	245	5,145	5,390	49,248
1987	3,598	8,951	19,132	31,681	1,884	1,286	1,261	3,157	1,560	2,158	1,229	8,104	3,581	16,116	193	4,053	4,246	52,043
1988	2,891	13,411	29,168	45,470	885	781	760	2,794	1,258	614	920	5,586	2,289	10,301	206	4,326	4,532	60,303
1989	3,399	15,451	18,860	37,710	652	1,362	848	1,838	1,494	550	1,848	5,730	2,455	11,047	238	4,998	5,236	53,993
1990	2,722	21,278	17,568	41,568	700	272	1,062	946	902	411	970	3,229	1,504	6,767	168	3,528	3,696	52,031
Average	3,315	14,254	19,258	36,827	1,238	766	1,012	2,427	1,579	1,156	1,214	6,377	2,684	12,076	210	4,410	4,620	53,524
1991	3,165	16,424	18,024	37,613	875	826	640	1,221	779	382	435	2,817	1,474	6,632	134	2,814	2,948	47,756

-Continued-

Table 18. (page 2 of 2)

Year	MAJOR SYSTEMS							MEDIUM SYSTEMS					MINOR SYSTEMS			TOTAL		
	Alsek (T)	Taku (T)	Stikine (T)	Major Subt.	Situk	Chilkat (T)	Andrew	Unuk (T)	Chick- amin(T)	Blossom	Keta	Behm Subt.	Medium Unsurv.	Medium Subt.	King Salm.	Minor Unsurv.	Minor Subt.	ALL SYSTEMS
1991 CHANGE FROM 1990																		
Number	1,006	(4,854)	456	(3,392)	175	554	(422)	275	(123)	(29)	(535)	(412)	(30)	(135)	(34)	(714)	(748)	(4,275)
Percent	37%	-23%	3%	-8%	25%	204%	-40%	29%	-14%	-7%	-55%	-13%	-2%	-2%	-20%	-20%	-20%	-8%

1/ Prior to Little Tahltan weir in 1985, Stikine estimate is 8 times aerial survey.

2/ Using CTC calculations of Alsek Escapement: Escapement = (weir count/0.64)-sport and IFF harvest.

3/ Andrew Creek revised to include North Arm counts

Table 19. Estimated harvest rates for four coded-wire tagged indicator stocks by the Alaska troll fishery and by all fisheries combined, 1982-1991 (1991 data is preliminary).

Troll Fishery

Year	Stock (Troll Harvest Rate in Percent)				Average
	Auke Lake	Berners River ^{a/}	Ford Arm Lake	Hugh Smith Lake	
1982	20.1	41.6	41.3	45.6	37.2
1983	32.6	50.4	54.3	35.4	43.2
1984	32.3			31.4	38.3 ^{b/}
1985	35.1	44.8	51.2	36.0	41.8
1986	43.0	55.1	60.9	35.4	48.6
1987	37.2	51.3	45.1	28.0	40.4
1988	25.4	39.6	47.9	26.7	34.9
1989	49.6	53.4	61.5	50.0	53.6
1990	43.1	43.6	56.5	39.4	48.7
1991	15.0	18.3	53.4	36.7	30.8
Average	33.3	44.2	52.5	36.5	41.5

All Fisheries

Year	Stock (Total Harvest Rate in Percent)				Average
	Auke Lake	Berners River ^{a/}	Ford Arm Lake	Hugh Smith Lake	
1982	40.9	75.7	43.6	64.8	56.3
1983	43.8	71.1	69.1	61.5	61.4
1984	43.4			64.9	59.7 ^{b/}
1985	44.2	74.5	51.2	62.6	58.1
1986	53.1	92.9	62.4	60.1	67.1
1987	43.2	76.8	47.5	52.3	55.0
1988	36.5	81.8	49.2	66.5	58.5
1989	55.9	61.9	64.5	82.1	66.1
1990	52.6	67.3	58.5	81.1	64.9
1991	29.8	67.2	54.1	68.1	54.8
Average	44.3	74.4	55.6	66.4	60.2

^{a/} Estimated harvest rates for the Berners River stock are probably biased upward because the escapement estimate is made from intensive ground and helicopter surveys of the drainage instead of total weir counts.

^{b/} The average for 1984 is weighted. The sum of estimates for the Auke and Hugh Smith Lake stocks in 1984 was divided by their average proportional contribution to the sum of estimates for all four systems during 1982-83 and 1985-89. That number was then divided by the total number of stocks (4) to get a weighted average for 1984 that is more comparable with other years than a simple average.

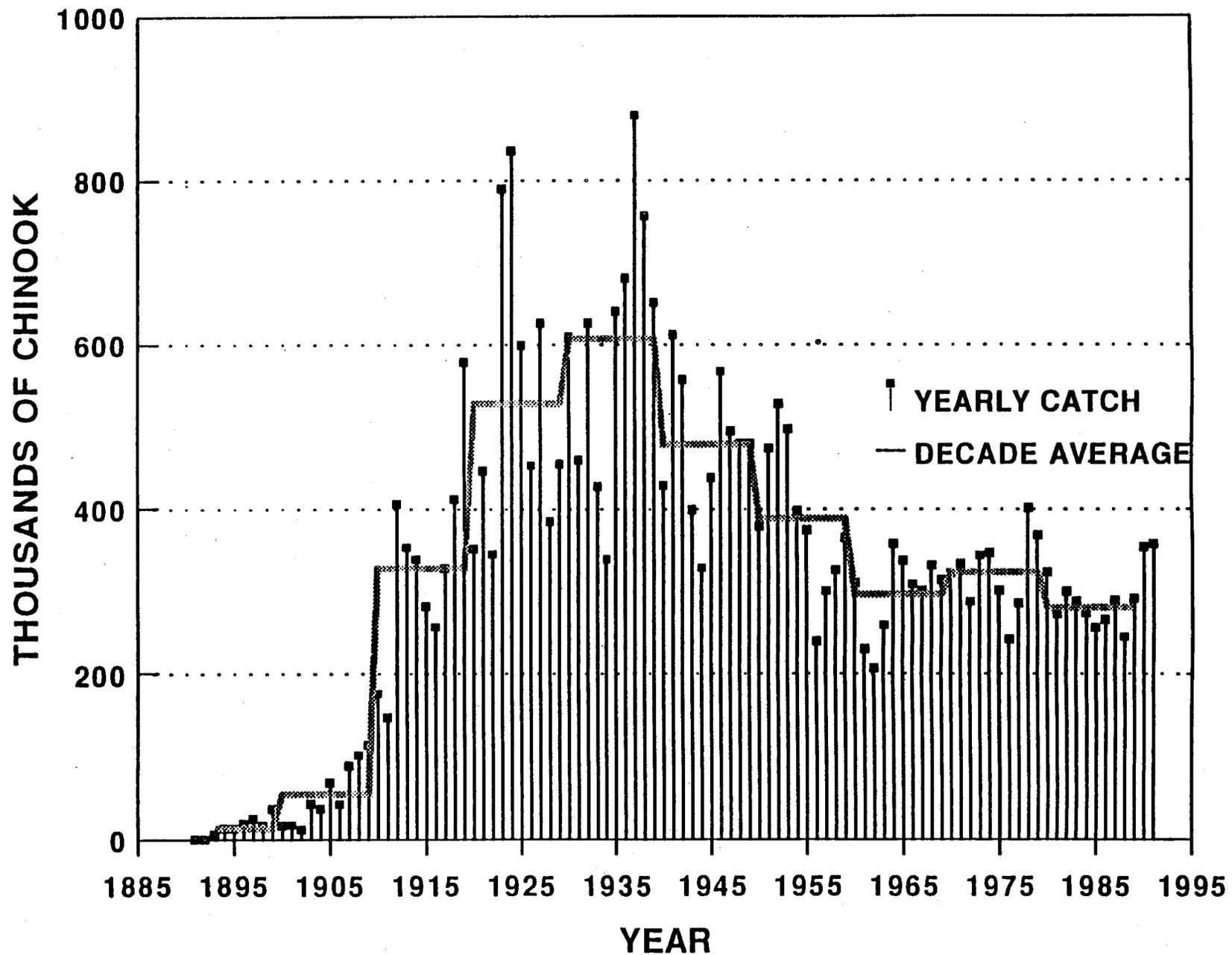


Figure 2. Commercial all gear catches of chinook salmon 1890-1991.

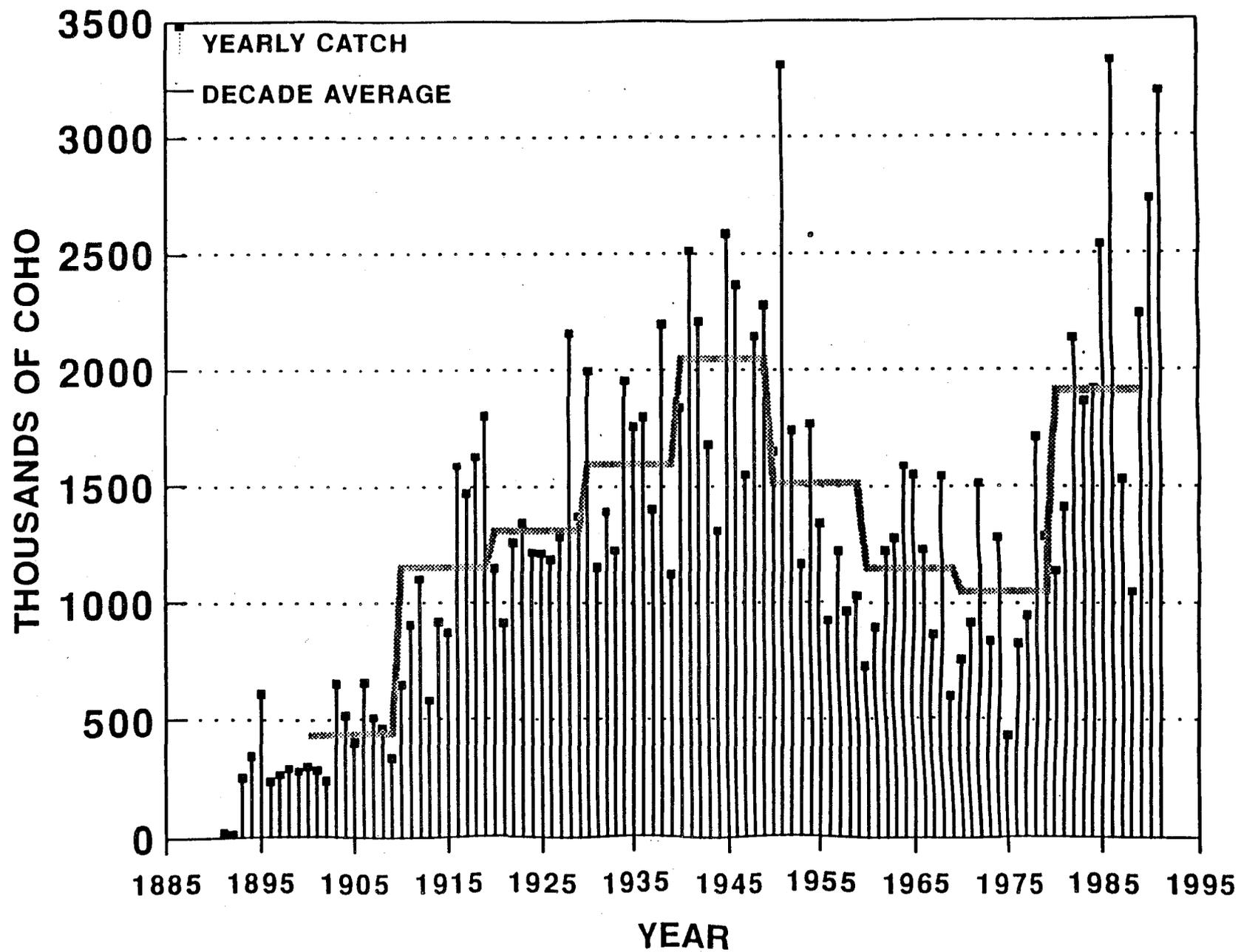


Figure 3. Commercial all gear catches of coho salmon, 1890-1991.

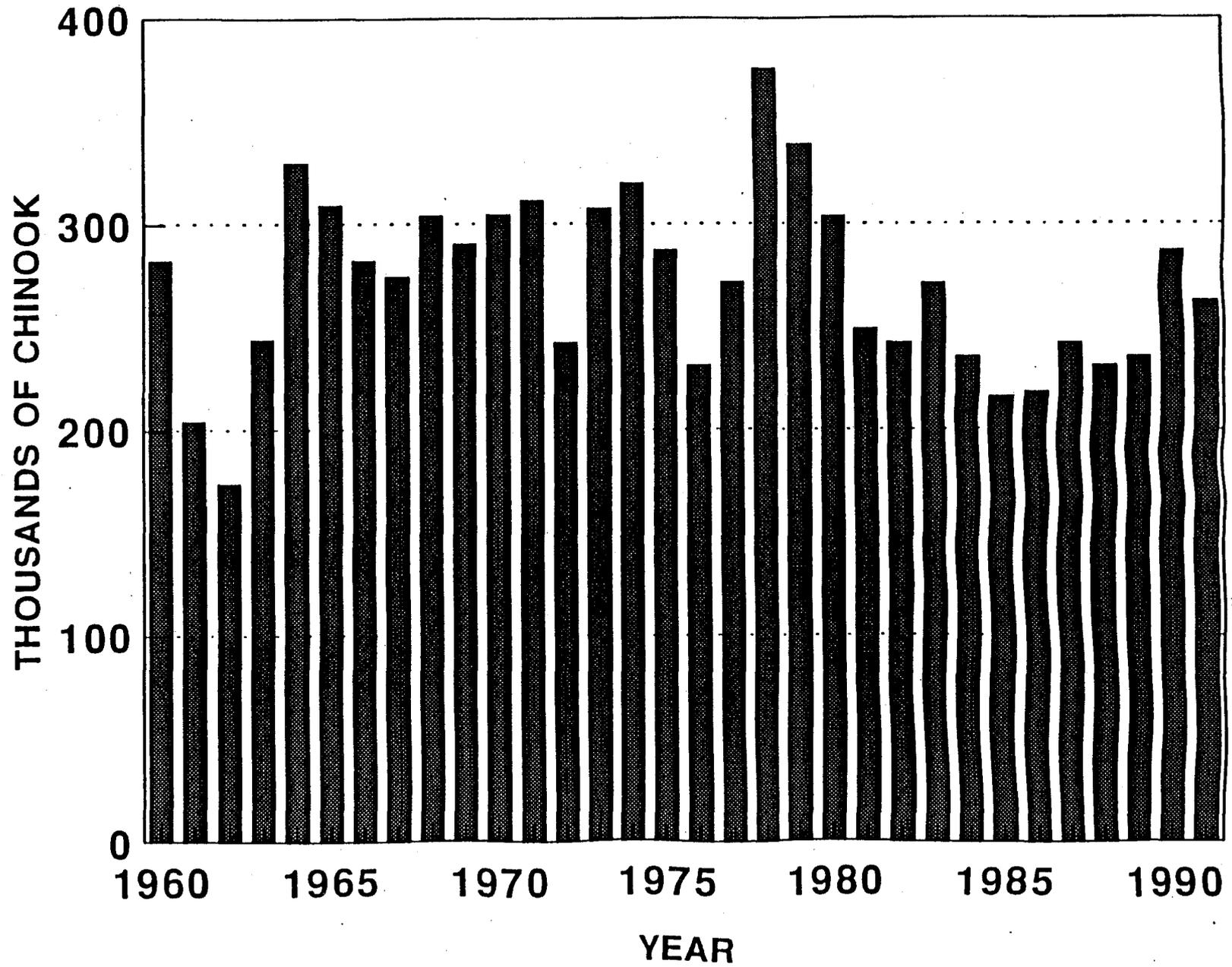


Figure 4. Chinook catches in the Southeast Alaska troll fishery, 1960-1991.

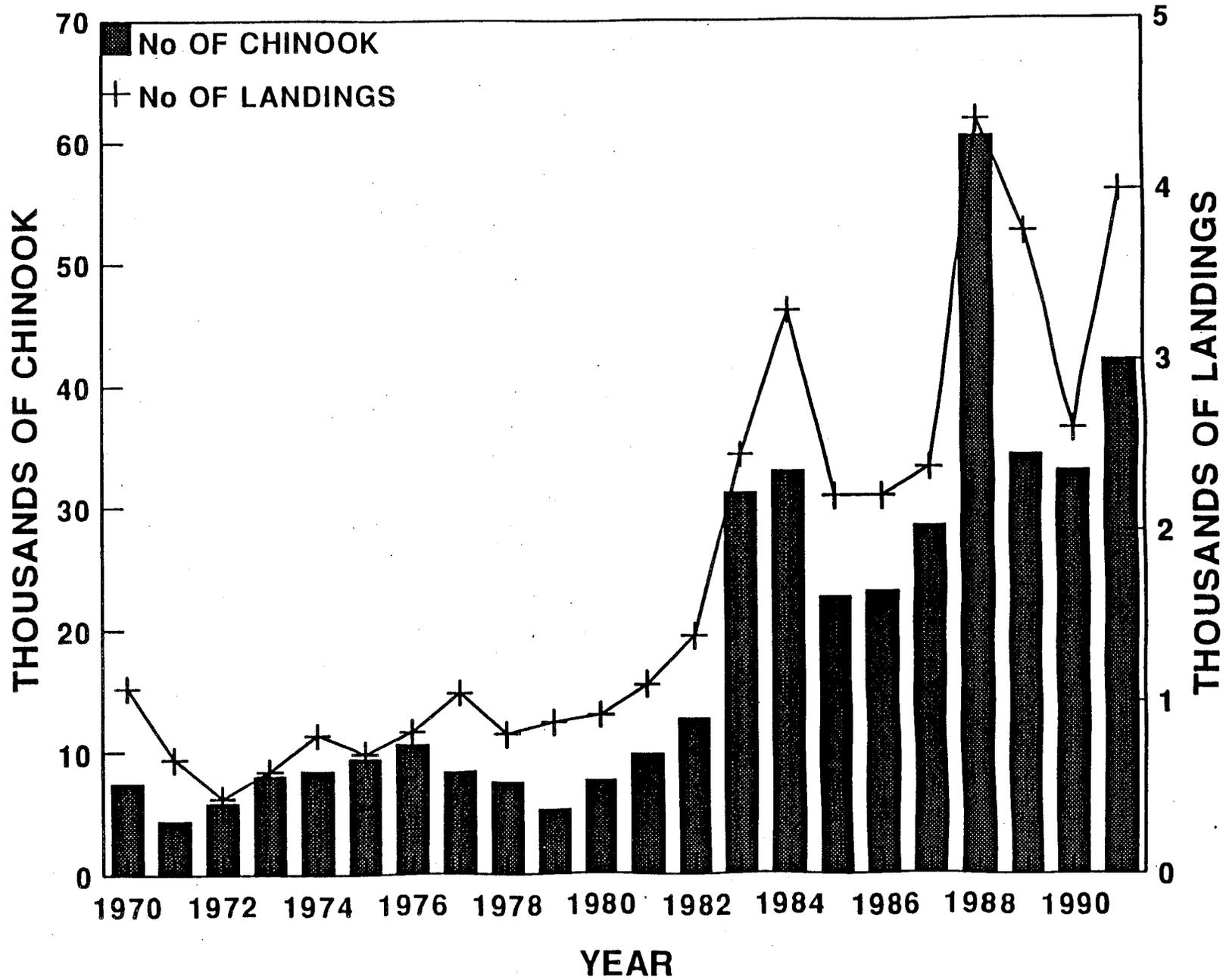


Figure 5. Southeast Alaska winter troll fishery yearly chinook catches and landings, 1970-1991.

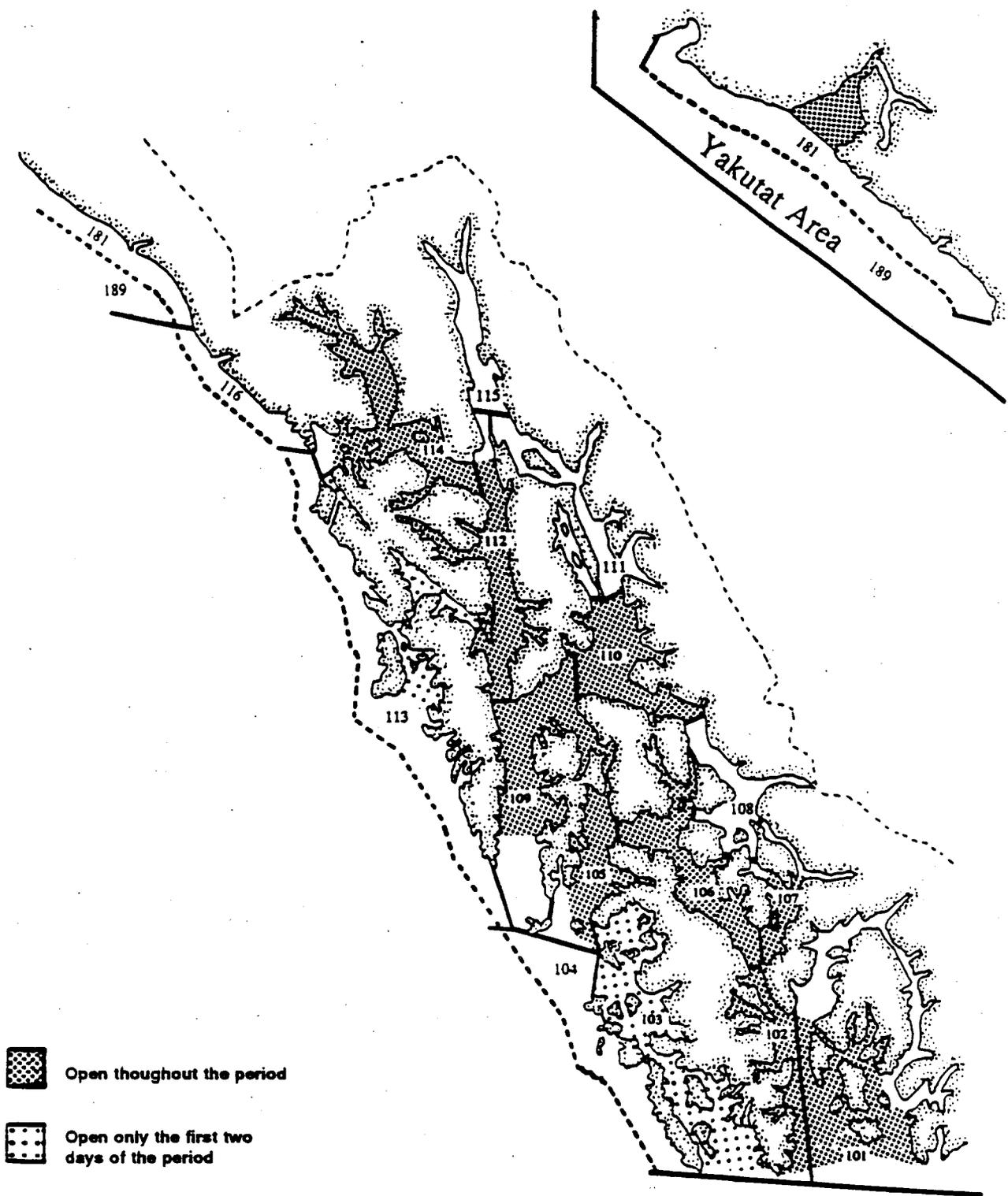


Figure 6. Areas open to trolling during the hatchery access opening.

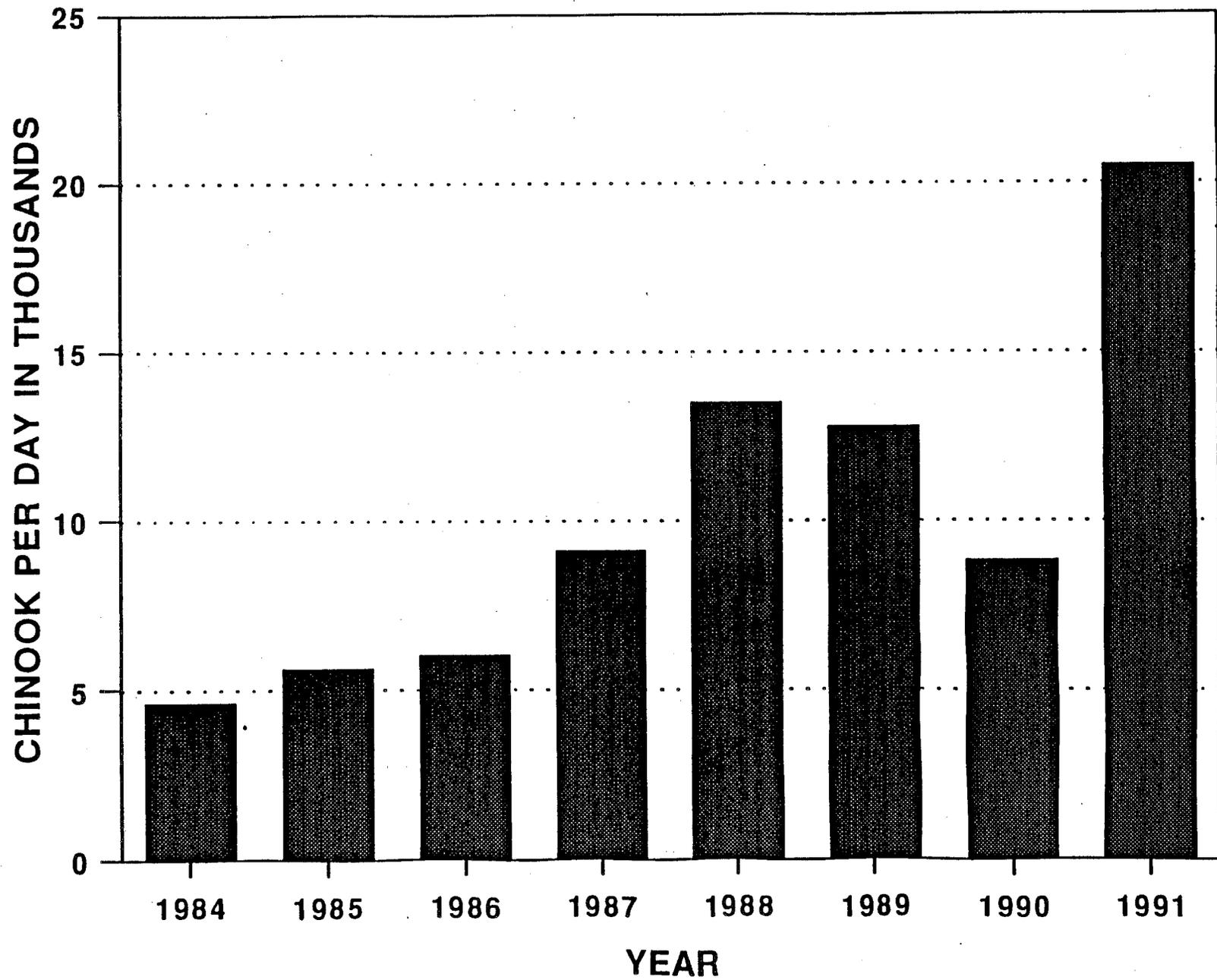


Figure 7. The number of chinook salmon caught per fleet day, 1984-1991.

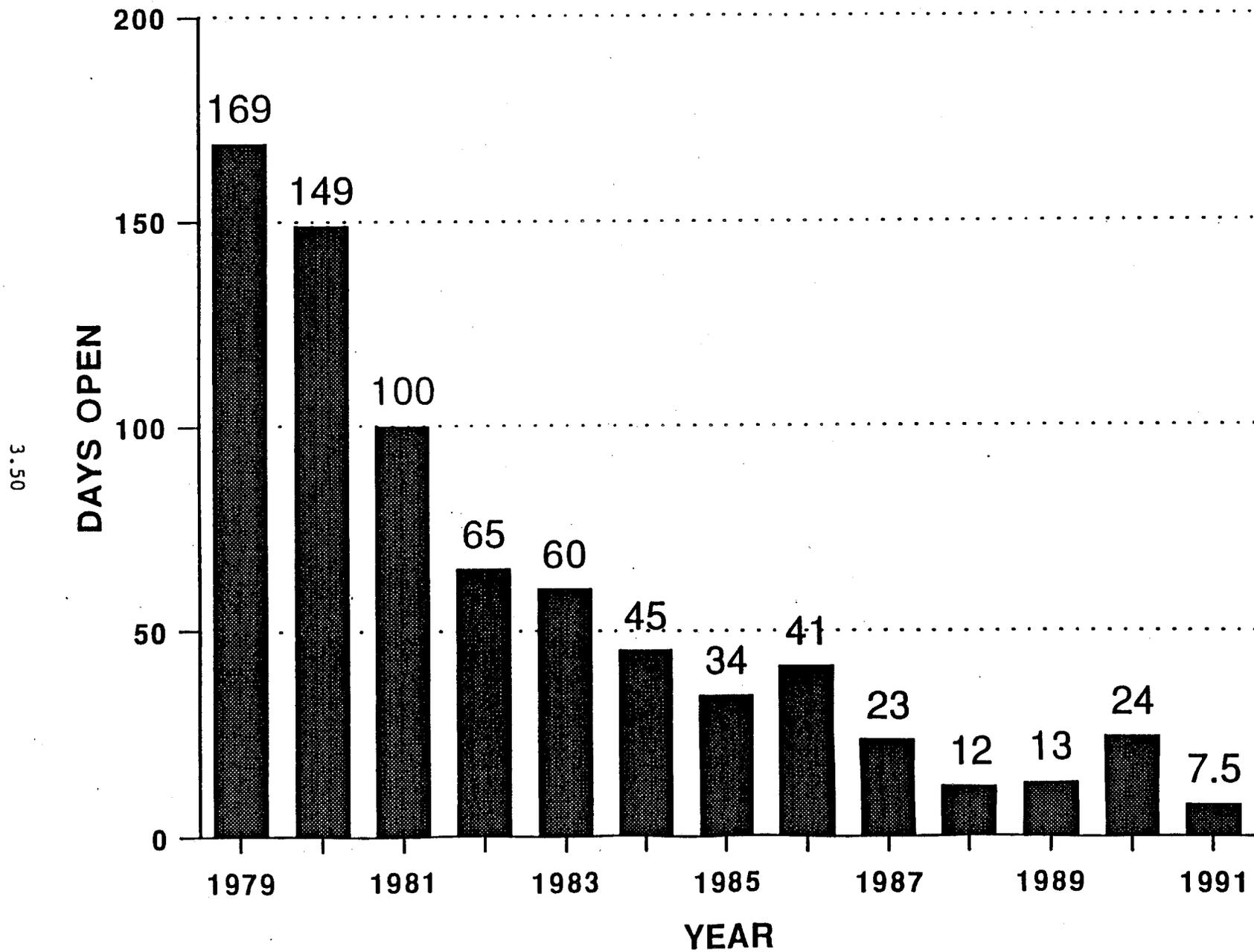


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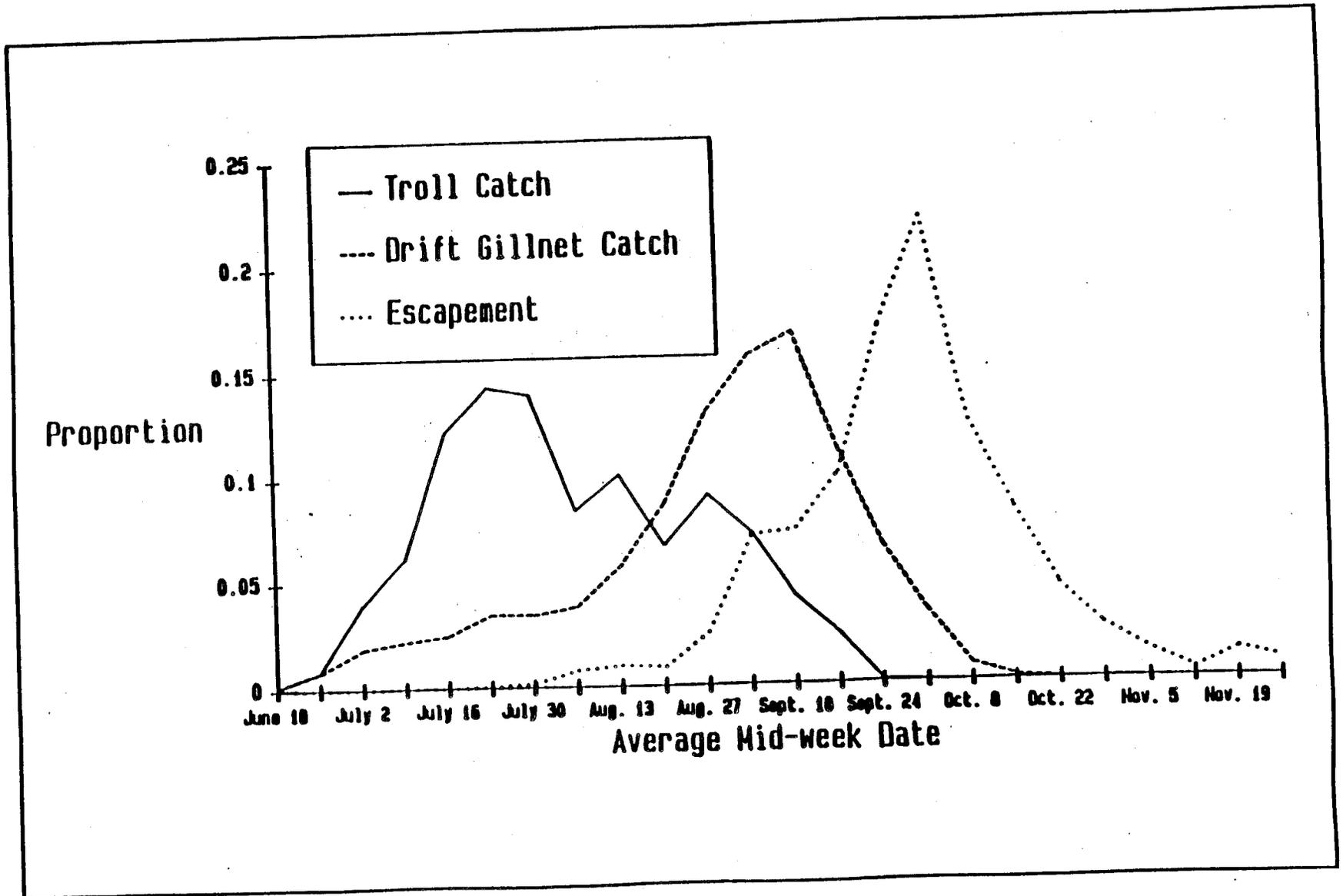


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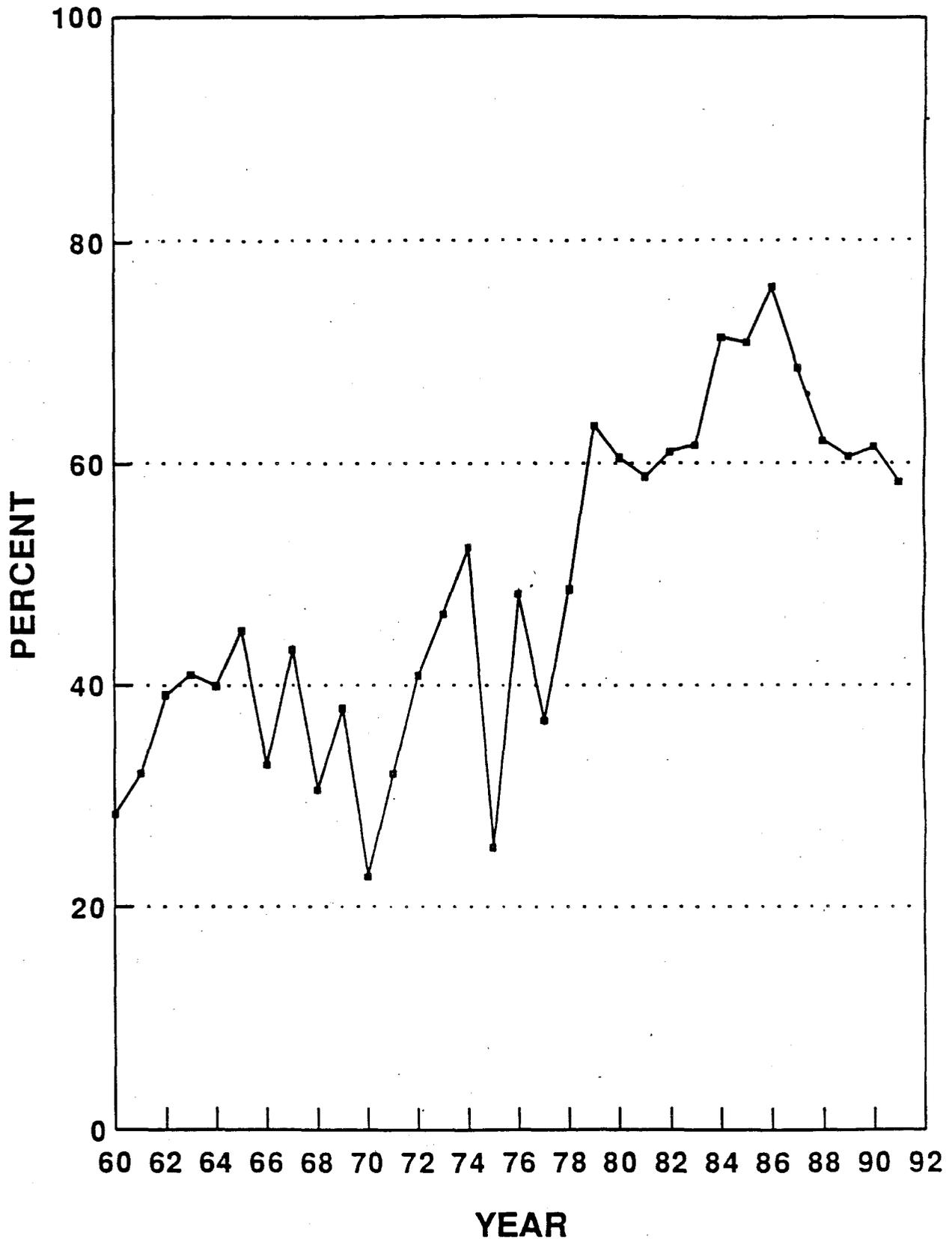


Figure 10. Percent of the total Southeast Alaska coho troll catch harvested in outside districts, 1960-1991. Districts included: 104, 113, 116, 150, 152, 154, 156, 157, 181, 182, 183, 185, 189, 191, 192.

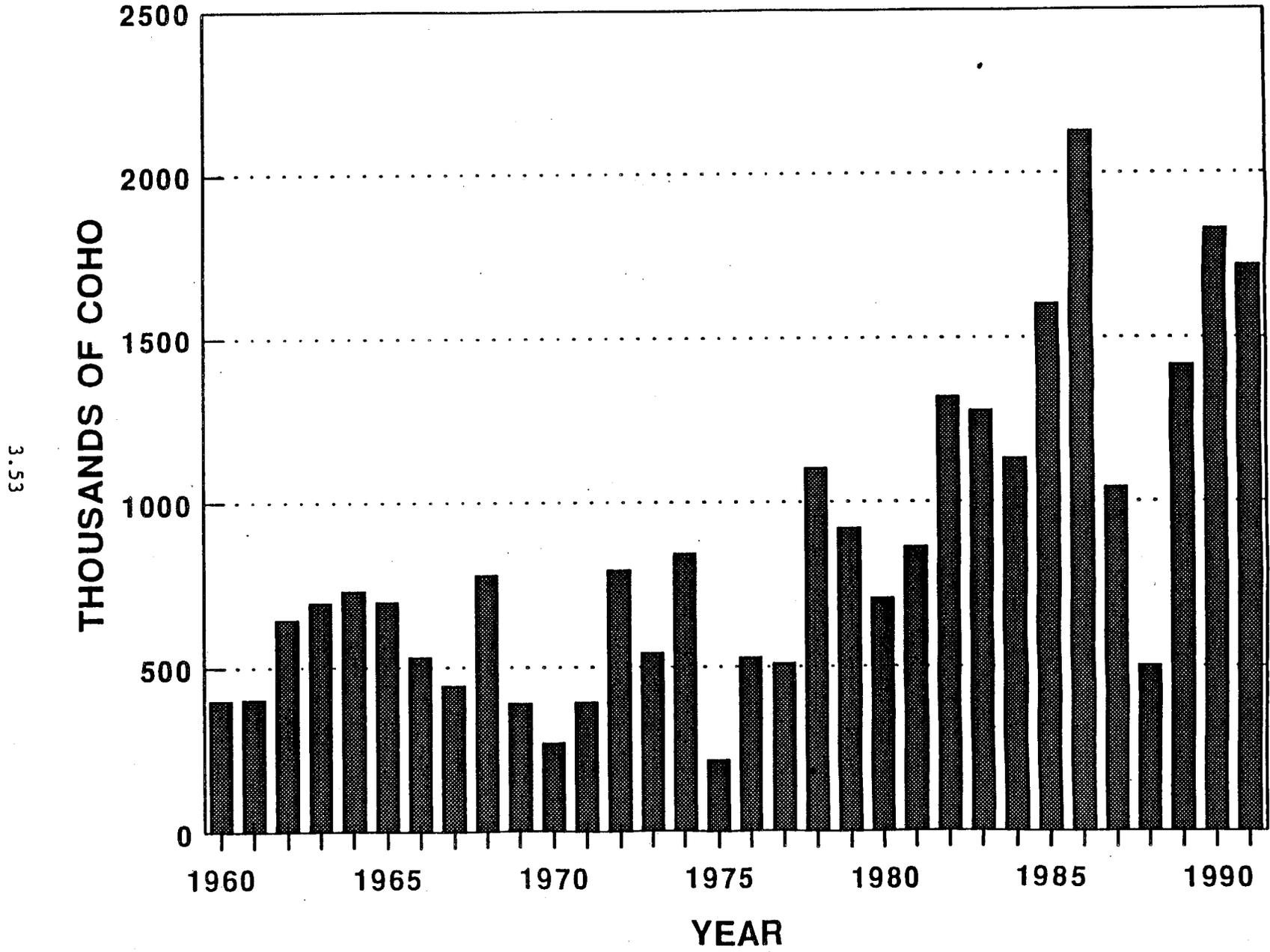


Figure 11. Southeast Alaska troll fishery coho salmon catches, 1960-1991.

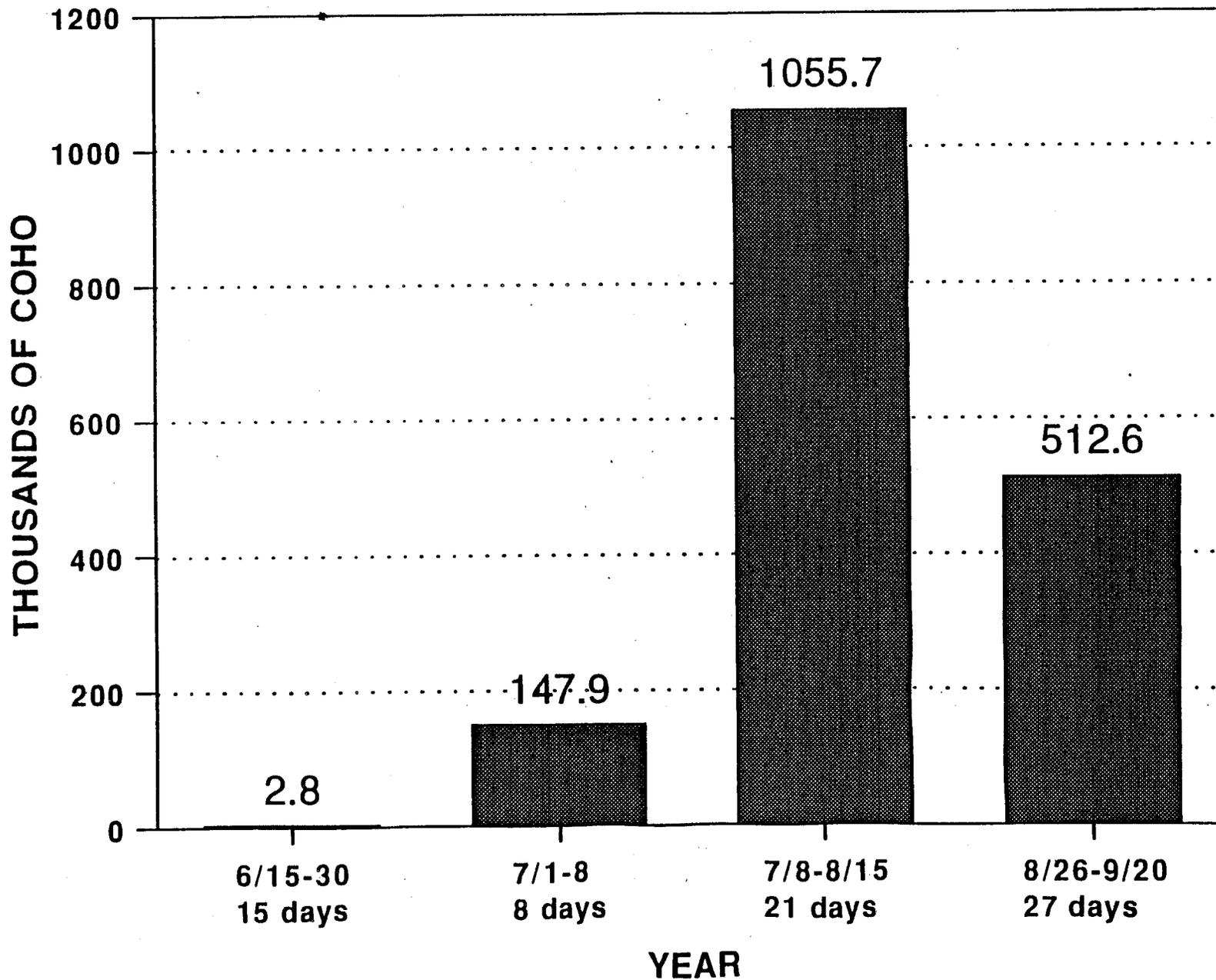


Figure 12. Southeast Alaska troll fishery coho catch by period, 1991.

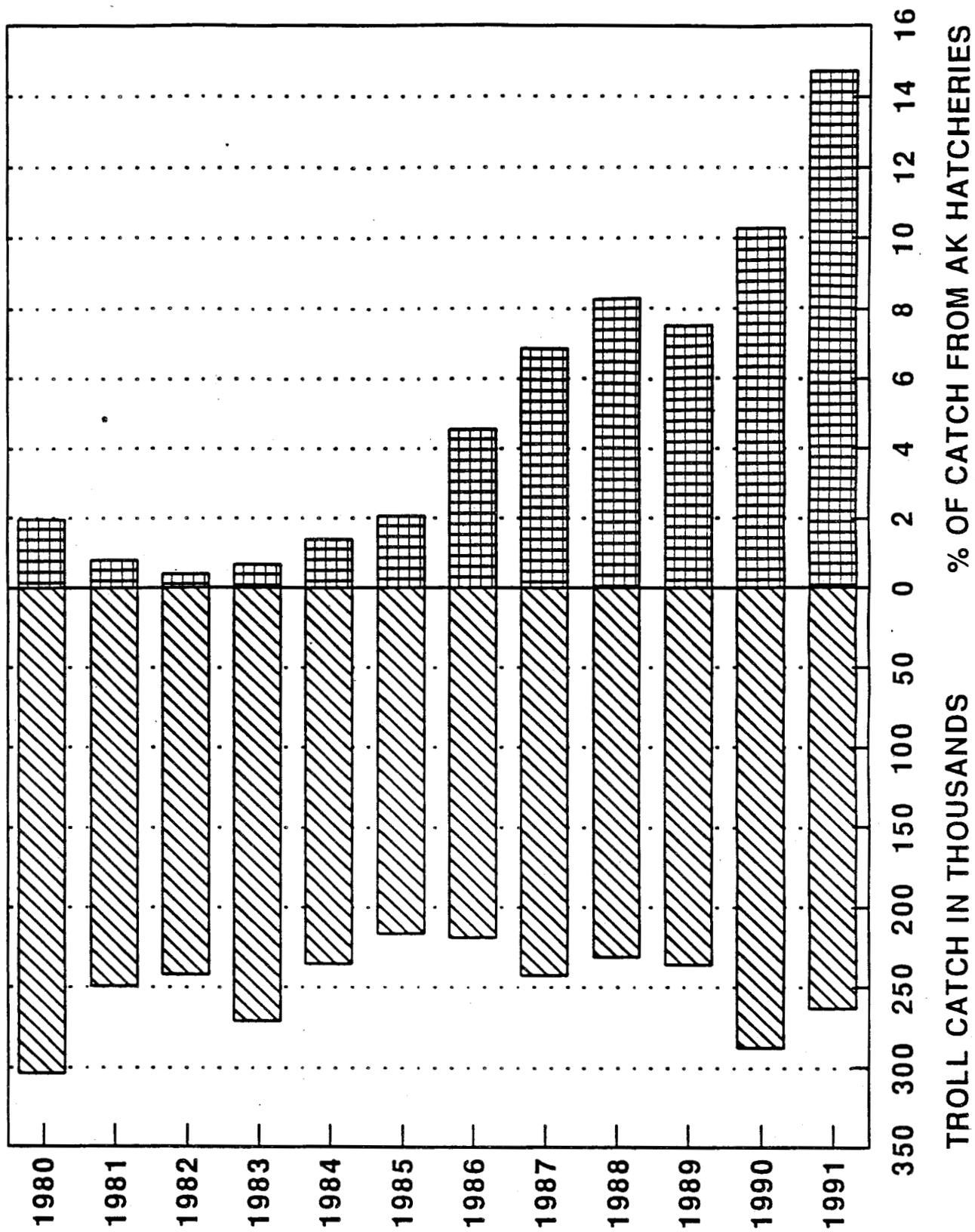


Figure 13. Hatchery chinook contributions to the troll fishery.

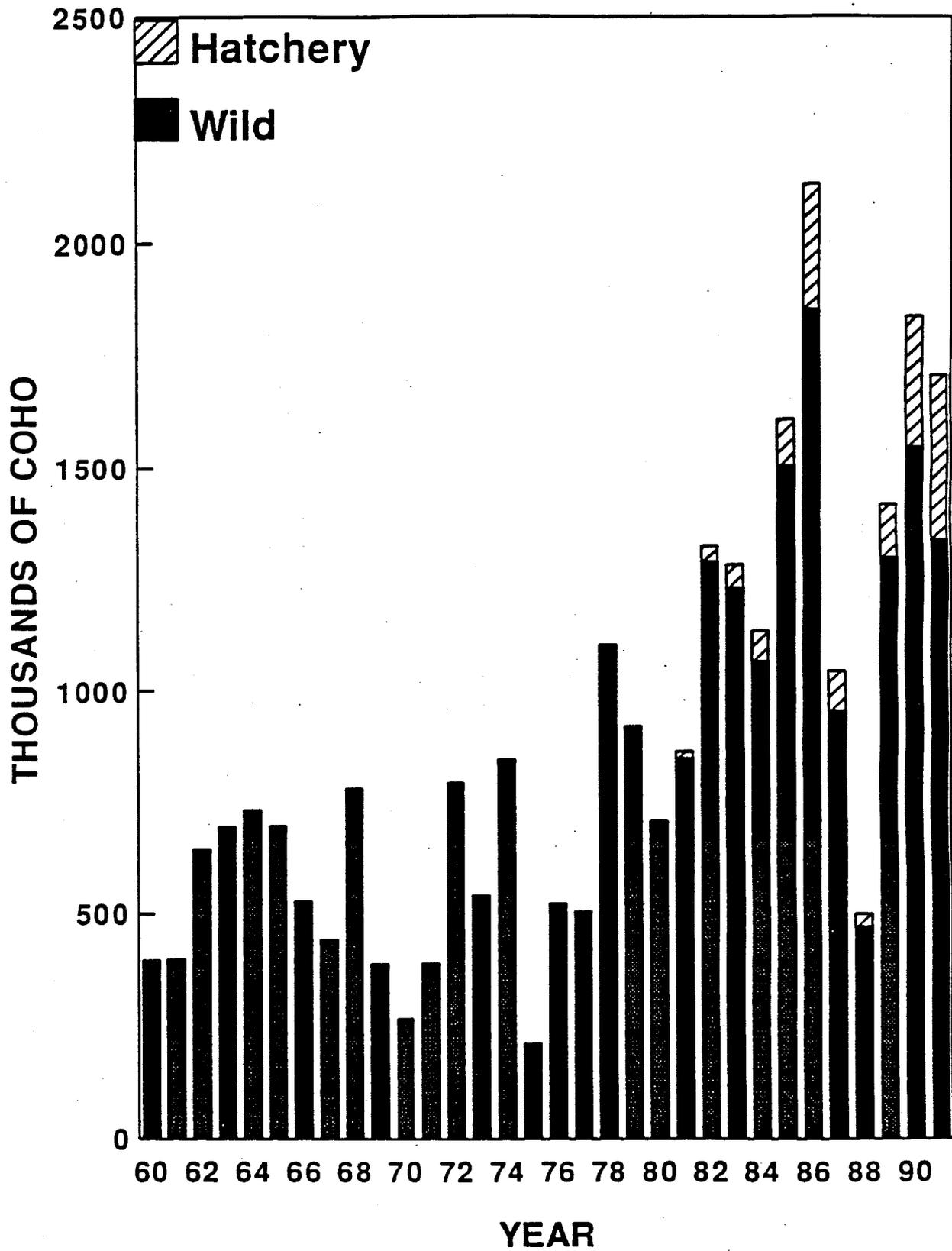


Figure 14. Hatchery coho contributions to the troll fishery, 1980-1991.

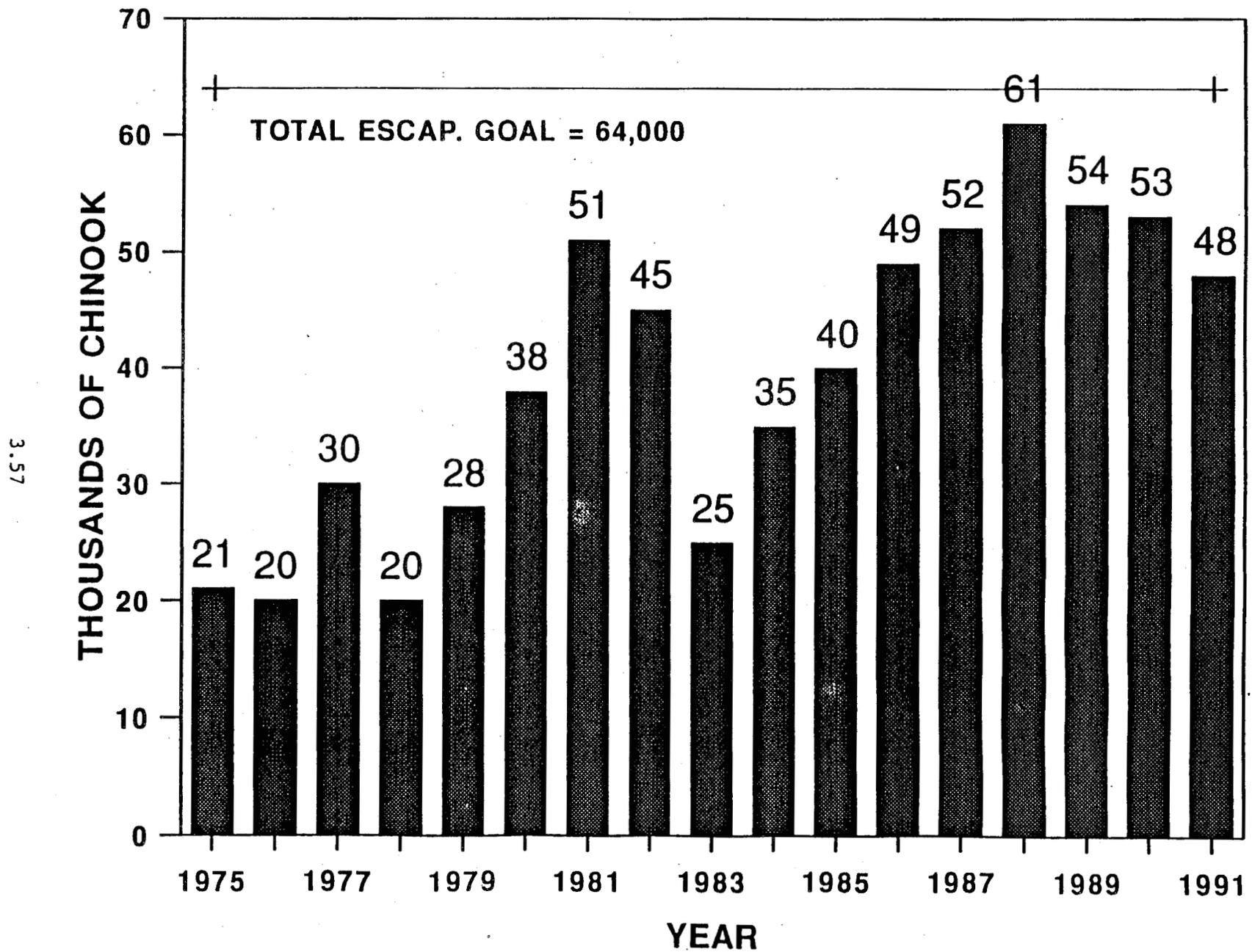
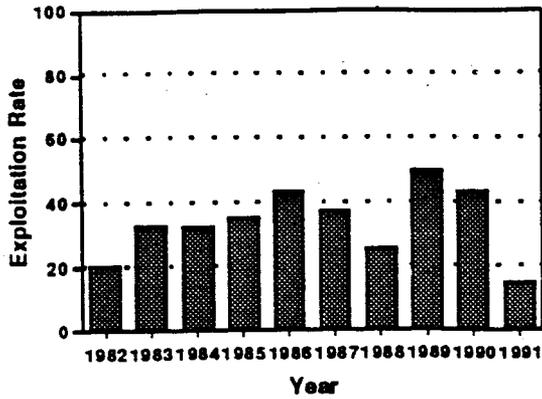
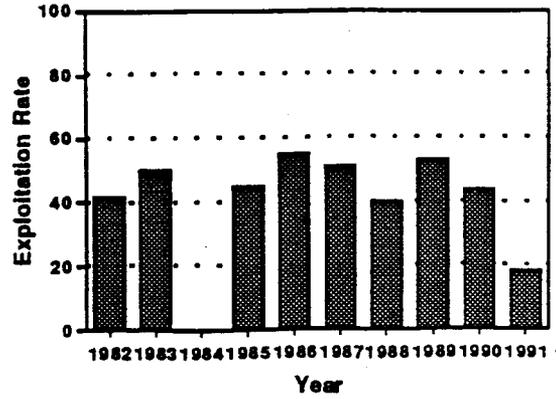


Figure 15. Estimated total natural chinook salmon escapements to Southeast Alaska and transboundary rivers, 1975-1991.

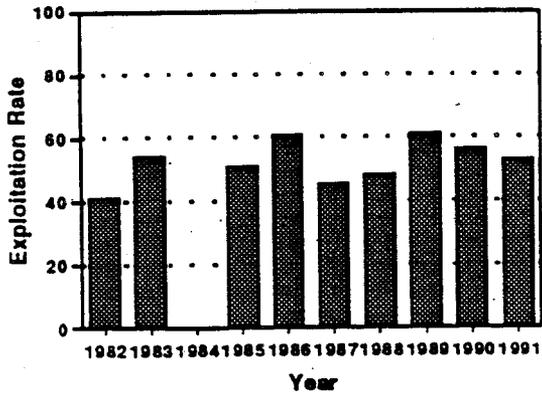
Auke Creek



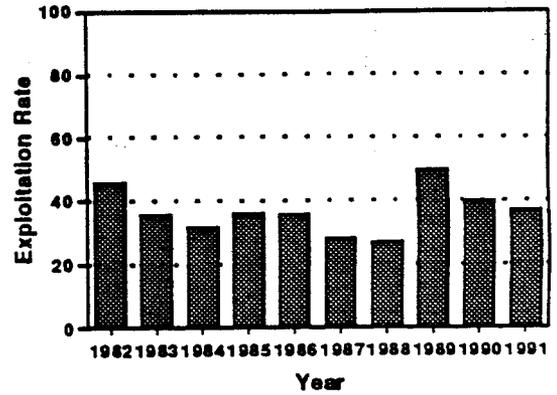
Berners River



Ford Arm Lake



Hugh Smith Lake



Average

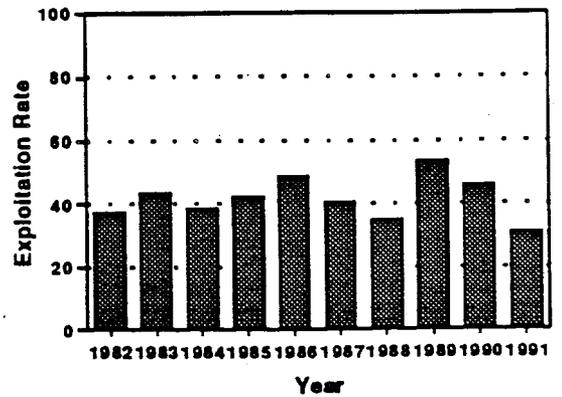
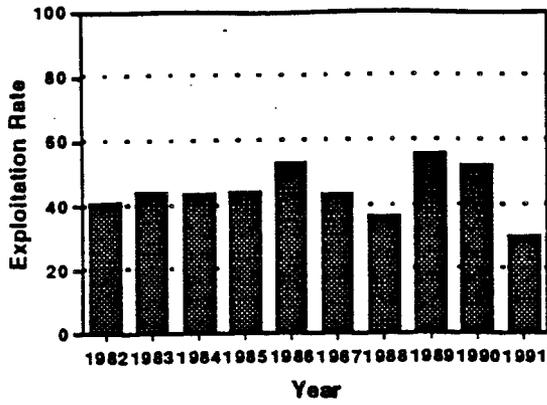
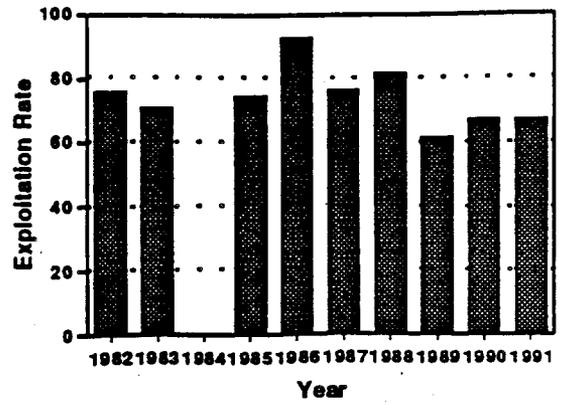


Figure 16. Estimated exploitation rates for four coded wire tagged wild Southeast Alaska coho salmon stocks by the Alaska troll fishery, 1982-1991.

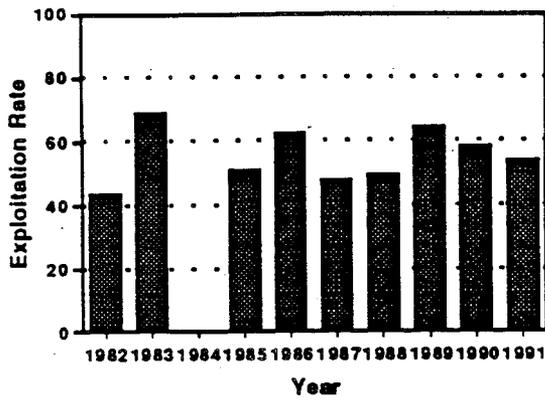
Auke Creek



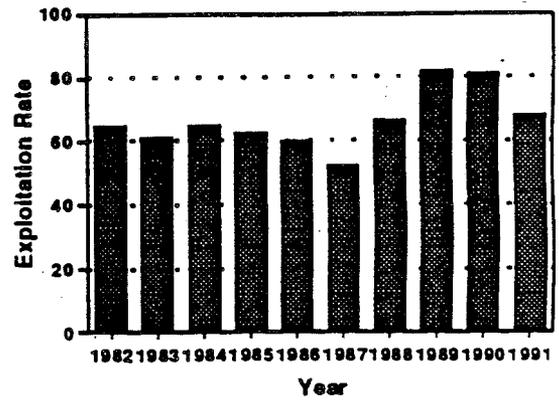
Berners River



Ford Arm Lake



Hugh Smith Lake



Average

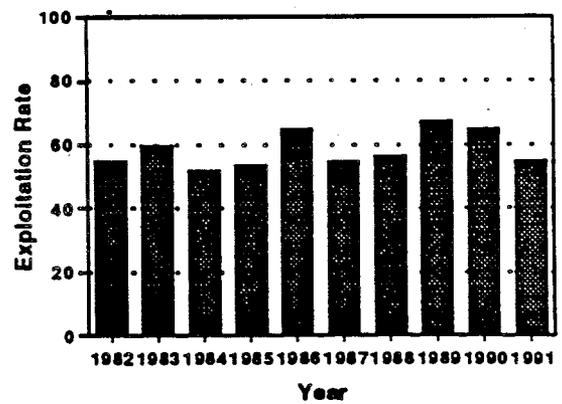


Figure 17. Estimated total exploitation rates for four coded wire tagged wild Southeast Alaska coho salmon stocks by all fisheries, 1982-1991.

SECTION 4

**SOUTHEAST ALASKA-YAKUTAT
SALMON SET GILLNET FISHERIES, 1991**

REPORT TO THE BOARD OF FISHERIES
SOUTHEAST ALASKA-YAKUTAT SALMON SET GILLNET FISHERIES, 1991



By

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

May 1993

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ABSTRACT

The 1991 Yakutat set gillnet fishery produced a cumulative catch of 404,000 salmon which was 30% above the average since 1960. It was worth about \$2,200,000 to the fishermen, the tenth highest value on record. The catch included 230,000 sockeye, 166,000 coho, 1,800 chinook, 3,000 chum and 3,000 pink salmon. Sockeye harvests ranged from above average in the Situk-Ahrnklin, Yakutat Bay and Manby Shore fisheries to below average for most of the other areas. The 1991 harvest of 230,000 sockeye was the fifth highest since 1960 and made up 57% of the total salmon harvest in the Yakutat area. The Situk-Ahrnklin catch of 120,000 was the second highest harvest since 1960. Coho returns ranged from below average to above average. The Situk-Ahrnklin fishery was the area's top producer with a catch of 89,000 coho; its highest harvest since 1955. The coho harvest of 166,000 was the seventh highest since 1960 and was 52% above average. There were some signs of late strength in the year's coho returns. The area's chinook salmon harvest was average. Chinook non-sale was rescinded for the first time in three years after the third week of the season. The Situk-Ahrnklin catch of 800 was 38% above average. The pink salmon harvest of 3,000 fish and the chum salmon harvest of 3,000 fish were well below average. Most of the pink salmon (2,500 fish) were caught in the Situk-Ahrnklin fishery incidental to the sockeye harvest. The East River contribution of 2,200 chum salmon accounted for 74% of the Yakutat area's 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 commercially harvested in the Yakutat area by set gillnets and troll gear. A separate Board of Fisheries Report is prepared for the Yakutat-Southeast Alaska troll fisheries. This report will concentrate on the set gillnet fishery.

Yakutat set gillnet fisheries target primarily on sockeye salmon during the summer and coho salmon during the fall. The set gillnet 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 most of the chum salmon 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 production is on an upward trend. The total setnet catch in recent years (since 1970) has ranged from 155,000 (1970) to 583,000 (1989) fish with an ex-vessel value of \$1,000,000 to \$9,000,000 to the 170 Yakutat setnet permit holders. The recent ten year average ex-vessel value is approximately \$4,000,000.

The Yakutat setnet permits are not site specific; 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 salmon stocks. Preseason expectations are based on known, or estimated, parent-year spawning escapements and commercial catches, local observations of rearing conditions and, in some cases, the strength of certain year classes. Opening dates and weekly fishing periods are specified by regulation for the various set gillnet fisheries. However, these are altered by emergency order, as needed, based on parent year information and inseason management of each river's fishery. The inseason management is affected by catch per unit of effort (CPUE) analysis of the commercial catch and, where possible, salmon escapement rates. The 1991 set gillnet season extended from June 10 through October 4 (Table 1). During the 1991 season the southeast half of Yakutat Bay, the southeast half of the Situk-Ahmklin Inlet, and the Dangerous River, opened on June 10. Other areas opened in late June.

The 1991 setnet harvest of 404,000 salmon was approximately 30% above the average since 1960. The 1991 catch consisted primarily of sockeye and coho. The catch was valued at about \$2,200,000 for the 162 active permit holders. Annual salmon landings in the major Yakutat setnet fisheries are listed in Tables 2 - 16.

SOCKEYE SALMON FISHERY

Sockeye salmon are the main target species in the Yakutat District. The total 1991 catch of approximately 230,000 fish was 60% above the average since 1960 (Table 2). This harvest was mostly a result of strong returns to the Situk-Ahrnklin Inlet, which accounted for over 53% of the total sockeye catch (Table 3). It was the highest sockeye harvest in the Situk-Ahrnklin Inlet since 1966. Sockeye catches in other areas were generally mixed, ranging from below average to above average. The Italo River was not open to sockeye fishing for the fourth year in a row.

Alsek River

The Alsek River, a transboundary river emanating from Canada, is located about 40 miles southeast of Yakutat. 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 40% or 60% of the sockeye and 64% of the chinook spawn in this tributary. The Klukshu River chinook escapement goal is 4,700 fish. No official goal for sockeye has been established; however, United States managers believe that the optimal escapement to the Klukshu River is 15,000 to 20,000 sockeye salmon. The current United States sockeye salmon escapement goal for the entire Alsek River drainage is 33,000 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. Canadian subsistence fishing has been restricted in recent years prior to mid-August to conserve chinook and early run sockeye, and the Canadian subsistence harvest on sockeye has been reduced in recent years. Sport fishing is restricted in the Dalton Post area to a three and one-half 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, four in possession, and to one chinook per day, two in possession. In spite of these restrictions, the Canadian sport and Indian food fisheries, combined, have taken an average of 726 chinook salmon during the last two years, exceeding the 1976 to 1989 average of 485 fish by 50%. Meanwhile, during the last two years, the United States Alsek River commercial fishery harvest averaged 90 chinook salmon, representing a 90% decrease from the 1960 to 1990 average.

Alsek River fisheries management in Alaska is based on parent year escapement, inseason catch, and abundance modeling. Preseason expectations are derived from parent year escapement levels. After the first week of fishing the abundance model is employed each week to predict the Klukshu Weir sockeye escapement. The current catch, effort, and the historical cumulative proportion of the catch-to-date are used to predict the Alsek River sockeye escapement.

The 1991 Alsek River season opening on June 17 was a delay of two weeks from the date specified by regulation as the first Monday of June. This delayed opening date was the result of a poor forecast which was based on a poor parent year escapement of early run sockeye in 1986.

Alsek River fishing time started at one day per week but was extended to two days during the second, third, and fourth weeks of fishing (Table 1). Inseason abundance model estimates predicted that the inriver return was strong and escapements would be achieved. Fishing success showed good abundance of sockeye moving upstream and the weekly fishing period was extended to three days per week during the fifth week, and to four days per week for the sixth and seventh weeks.

The total 1991 Alsek River sockeye salmon harvest of 17,500 was still below the average catch of 21,400 recorded since 1960 (Table 4). The Klukshu Lake weir count of 18,977 fish was 5% less than the 1981 to 1990 average. A total of 1,324 sockeye salmon was taken above the weir in a Canadian Indian food fishery, thereby decreasing the escapement to 17,653. This escapement was 23% less than the 1986 parent year level of 23,000, but only slightly below the 1981 to 1990 average of 17,900. Escapement surveys of U.S. tributaries were incomplete due to inclement weather, but surveys completed showed average numbers of fish.

The Alsek River surf and ocean fishing area was opened during the same periods as the inriver fishery as per regulation. 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. No one fished the Alsek surf and ocean fishery in 1991.

East River

The East River fishery is located about 4 miles east of the Alsek River. The river emanates from upwelling springs on the Dry Bay forelands and does not extend into Canada. It is joined 4 miles from its mouth by the Doame River. The Doame River contributes primarily coho salmon and some early run sockeye. The East River fishery occurs in adjacent ocean waters and at the river mouth in the lower two miles of the river. The East River sockeye stock is the latest returning to the Yakutat area. It peaks in

early to mid-August when other area returns are ending. Most fishermen working this river also participate in other Yakutat area setnet fisheries.

By regulation, the East River fishery opened on the fourth Monday of June. The initial opening on June 24 was for a one day weekly fishing period. Fishing time stayed at one day for the next three weeks. Time was increased to two days during the fourth week of July, but escapement remained sluggish, and the fishery was returned to one day for the first two weeks in August. Escapement fell further behind and the fishery was closed until the end of August (Table 1). A peak count of 79 permit holders, or 49% of the active setnet permit holders in the Yakutat area, fished the East River during the first full week of August. The total 1991 East River harvest of 45,300 fish was slightly above the average (Table 5). The final escapement was estimated at 30,000.

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 has increased over previous years. The surf area was fished for the first nine weeks of the 1991 season, beginning in late June and extending through late August. The surf fishery accounted for 20% of the total 1991 East River sockeye catch. Peak effort in the surf was 22 nets during the first week of August. The ocean area was fished for two weeks during the season, in late July and early August, and accounted for 4% of the total East River catch. Peak effort in the ocean was 20 nets during the first week of August.

A new regulation banning the use of pulley systems within 100 yards of the mouth of the East River at mean low tide was enforced this year. A marker was initially put in place on the west side of the river mouth to delineate this 100 yard distance. No marker was placed on the east side as that 100 yard distance was regularly flooded by the tide. As the location of the mouth of the river changed from week to week, and sometimes from tide to tide, markers proved inadequate to properly delineate the area closed to the use of pulley systems. The marker on the west side of the river was removed prior to the fourth week of the season. No pulley systems were observed within the 100 yard limit at any time during the season and maintaining a pulley system free zone without markers doesn't appear to be a problem. The majority of the sets in the surf area were made up of pulley systems.

Yakutat Bay

Two separate sockeye salmon fisheries occur in Yakutat Bay. The Manby Shore fishery, north of 59°41' N. latitude, takes place along the northwest shore eastward of Pt. Manby, and the Yakutat Bay fishery, south of 59°41' N. latitude, occurs along the southeast shore in and around Monti Bay. Both fisheries are mixed stock fisheries supported primarily by fish 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 fish. The Manby Shore fishery is relatively new, while the traditional Yakutat Bay fishery in Monti Bay has a long history.

The Monti Bay fishery opened on June 10 per regulation. Fishing was fair to poor and fishing time was not extended until the fourth week of the season (Table 1). The Situk sockeye run developed well and Yakutat Bay fishing time was increased to the maximum of 4.5 days per week. A ceiling of 4.5 days has been placed on both Yakutat Bay fisheries due to the mixed stock nature of these fisheries. The Yakutat Bay catch of 28,600 fish was the second highest catch on record, exceeded only by last year's catch of 41,900 (Table 6). Effort remained high and averaged 26 units for the first seven weeks of the season.

The Manby Shore Ocean fishery opened on June 17 per regulation. An average of seven units fished this area during the first five weeks of the season. Peak effort during the season was nine fishermen. Fishing time was dependent on the strength of the Situk River return. With a good abundance of Situk River sockeye, extended fishing periods were allowed up to the maximum. The Manby Shore Ocean fishery harvested about 8,400 sockeye, which is about half the recent four year average.

The Manby Shore instream fisheries opened on June 24 per regulation. Both inside and outside waters were fished, but inside effort was light as most fishermen worked the more productive outside waters. The total combined 1991 Manby Shore catch of 11,000 sockeye was almost two times the average (Table 7), with the outside fishery taking 76% of the total.

Situk-Ahrnklin Inlet

The Situk-Ahrnklin Inlet fishery, located 7 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, and in the ocean within a 1/2 mile radius of the river's mouth. A weir on the lower Situk River helps management determine escapement levels throughout the sockeye season. The present Situk River sockeye escapement goal is 40,000 to 55,000 fish.

The Situk-Ahrnklin fishery was opened by emergency order on June 10, one week earlier than by regulation. This initial two and one-half day opening was confined to the Ahrnklin River end of the estuary. Regulatory markers were placed in both Divide Slough and the estuary, approximately 2 miles east of the western tip of Black Sand Island, delineating the area open to fishing. The confinement of the fishery to the southeastern half of the Inlet during this first opening was an attempt to minimize interception of emigrant Situk steelhead and immigrant Situk chinook, while providing some harvest opportunities on surplus Ahrnklin sockeye.

The results were positive; during this two and one-half day opening, approximately 11,500 sockeye, 11 steelhead and 22 chinook spawners were harvested. Age composition analysis of the sockeye catch showed that approximately 92% were classified freshwater age 0, indicating that most of these fish were from Ahmklin stocks. It was not known how many of the harvested steelhead and chinook were from Situk stocks. Some Ahmklin tributaries have steelhead and chinook populations in them, and some of the harvested fish may have been from these stocks.

The entire Situk-Ahmklin estuary opened to commercial fishing on June 17. Fishing time was maintained at two and one-half days for the first three weeks of the season. Catch and escapement remained good through this period, and fishing time was extended to four and one-half days during the first week of July. On July 11, when the lower end of the escapement goal was exceeded, the Situk-Ahmklin fishery was opened until further notice. On July 17, when the upper end of the escapement goal was exceeded, each Situk-Ahmklin fisherman was allowed two units of gear. Weekly fishing periods and allowable gear were returned to normal on August 8.

On July 27 high water washed out the Situk Weir. With only about two weeks of the season left and over 91% of the run concluded, the weir was not replaced. Final escapement was estimated at 74,000 sockeye. The upper escapement range limit was exceeded by approximately 19,000 fish.

The total Situk-Ahmklin catch of 120,000 sockeye was the second highest since 1966 (Table 8). Effort was above average, with a peak count of 87 fishermen (54% of the active permits) during the second week of July. Seventy or more fishermen fished during six of the nine weeks of the sockeye season.

For the fourth straight year, the Situk Weir was placed within the lower two miles of the river. Placing the weir there makes it more useful for inseason management than the old 9-mile site, which required surveying the river below the weir. Daily escapement information, when coupled with weekly catch data, has proven extremely valuable in managing the fishery.

The underutilization of the 1991 Situk River sockeye return may be partially due to the wetter than normal summer and the difficulty of fishing in high water. The total return of about 200,000 fish, which includes estimated portions of the Yakutat Bay, Lost River, and Manby Shore Ocean catches, yielded a return per spawner (R/S) of 2.8:1. This R/S is twice the average for the last 10 years. The 1986 parent year escapement was 71,500 sockeye.

Lost River

The Lost River fishery, located only 2 miles to the west of Situk-Ahrnklin Inlet, harvests some Situk-Ahrnklin stocks as well as resident stocks. In the last three years, weekly fishing periods for the Lost River tended to be extended when periods for the Situk-Ahrnklin fishery were extended. Consequently, for the last three years, the Lost River catches have been above the recent 10-year average.

By regulation, the Lost River was opened on June 17. The initial opening was two and one-half days. As time was added to the Situk-Ahrnklin fishing periods, time was also added to the Lost, and the river was open to four and one-half days for three weeks of the season (Table 1). Fishing time was then reduced to assist the Lost River escapement. Timely documentation of escapement has proven difficult and management has had to rely more on fishery performance data. The total Lost River catch of 2,800 sockeye salmon was 35% below the average catch of 4,300 recorded since 1960 (Table 9). A peak escapement count of 1,500 sockeye was recorded on August 28.

Italio River

The Italio 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 Italio 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 its mouth. Since that time, the open fishing areas on both rivers has been limited to areas above the junction to ensure more stock-specific management. On this "New" Italio River, the open area has been established by emergency order with markers placed 1/4 mile upstream from the new river confluence. Open areas on two other distinct river channels - the "Old" Italio and the "Middle" Italio - are also established by emergency order with markers. Only the New Italio River has a sockeye run.

The New Italio River fishery opens by emergency order when sockeye salmon escapements are building adequately. During 1991, as for the past three years, the fishery remained closed throughout the run. Escapements were poor to the New Italio River, totaling about 1,000 fish. The peak count of sockeye spawners seen in Italio Lake was 700. These counts were well below historical levels. The failure to rebuild this run, in spite of the closures, is puzzling. With poor escapements for the last four years, it is likely that this river will remain closed to sockeye fishing for some time. Historic Italio 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 is thus allowed on the Akwe River.

The Akwe River opened on June 24 per regulation. Catches and CPUE remained below average and fishing periods remained on reduced time for the entire sockeye season. Fishing time stayed at one and one-half days for the first four weeks of the season and was further reduced to one day for the next three weeks as a conservation measure (Table 1). A peak count of five permit holders fished the Akwe during the first two weeks of July. This was the lowest number of fishermen in the past 10 years, and was well below the effort of 12 to 16 permits recorded in the past four years.

This year marked the second year in a row of poor sockeye production for the Akwe River. The sockeye harvest of 4,200 fish was 39% below the 1960 to 1990 average (Table 12). Sockeye escapements appeared poor, but the visibility was hampered by glacial water and brush growing over the clear water tributaries. The river was flown six times from June 15 to July 6 and no fish were seen from the air. A foot survey on 8/31-9/01 revealed approximately 4,000 sockeye in the Little Akwe, and 61 sockeye in Swanson Creek. This escapement data indicted a sockeye removal rate in the fishery of approximately 50%. In spite of the fact that fishing time was limited to one and one-half days per week or less, this was a highly efficient fishery.

Yakataga District

Except for the Tsiu River and an area between Cape Yakataga and Icy Cape, the Yakataga District opened on Wednesday, June 19 for an exploratory fishery for sockeye salmon. As in 1989 and in 1990, the area was open from Wednesday to Friday of each week during the entire sockeye season (Table 1). No one fished the area for sockeye during the 1991 season; however, interest still exists to explore the area for commercially viable 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 taken incidentally during the sockeye fishery. Pink salmon production in the Yakutat area was below average in 1991. A low fish price was the main reason for the fourth lowest harvest on record (Table 2). The total 1991 pink salmon harvest of 3,000 fish was 93% below the 1960 to 1990 average. About 83% of the total harvest came from the Situk-Ahrnklin Inlet. No harvest was reported from the Humpback Creek area of Yakutat Bay (Table 13).

With the exception of Humpback Creek, very little effort was spent assessing pink returns to the area. The peak escapement count of 8,000 pink salmon to Humpback Creek was below average and slightly below the escapement goal of 10,000. Approximately 4,200 pinks were counted through the Situk Weir before it was washed out.

Chum salmon production is minimal in the Yakutat Area, with the East River accounting for most of the chums harvested. The total 1991 Yakutat setnet harvest of about 3,000 was 70% below the 1960 to 1990 average. The East River catch of 2,200 accounted for 74% of the total Yakutat set gillnet harvest (Table 3). East River chum salmon are primarily harvested in the fall along with coho. The estimated East River escapement of 4,000 chums was below the 10-year average of 7,000.

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 August when coho begin entering Yakutat area streams. The total Yakutat area coho catch has increased steadily over the past decade. The 1991 catch of 166,000 coho was 41% of the total Yakutat set gillnet salmon harvest (Table 3). The year's set gillnet harvest was about one and one-half times larger than the 1960 to 1990 average.

Yakataga District

The main coho fisheries in the Yakataga District are those in the Tsiu and Kaliakh Rivers. The Tsiu River fishery opens by emergency order when escapements in the Tsiu-Tsivat Lagoon are building adequately. In 1991 the Tsiu River opened on August 21, while the remainder of the district, including the Kaliakh River, was opened earlier for the exploratory sockeye fishery (Table 1). The total coho catch for the Yakataga district was about 43,000 fish, 26% of the total Yakutat area coho harvest (Table 3). This harvest was about 20% below the recent 10-year average for the District.

Of the total Yakataga District's coho catch, the Tsiu River harvest of 38,000 fish accounted for 89% 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 14 years. Fishing effort was 28% below average in 1991. A peak of 23 permit holders fished during the first week of September. Effort level was sharply curtailed from that point on, and no more than seven permit holders fished the river for the final four weeks of the season. The lack of a buying station and the subsequent problems associated with moving remote fish to market kept the effort well below historical levels. Escapement was steady and with the decrease in effort by the fourth week, extra fishing time was allowed for the rest of the season (Table 1). The total Tsiu River coho harvest of 38,000 fish was 9% below the recent 10-year average (Table 14). A peak escapement count revealed 11,000 fish in the Tsiu and 2,500 fish in the Tsivat River, a tributary to the Tsiu Lagoon. The department's on-ground monitoring of the Yakataga coho fisheries ceased on September 20, because of the abated effort in the area. No final escapement surveys were conducted.

The Kaliakh River is much larger and more difficult to fish than the Tsiu River. During 1991, effort was 63% below average, and the total Kaliakh River catch of a little over 4,000 coho was 65% below the recent 10-year average (Table 15). A peak of seven permit holders fished the Kaliakh River during the last week of August. Only two fishermen worked the Kaliakh River exclusively; the rest fished the Tsiu River, then switched to the Kaliakh during the closed periods on the Tsiu. An escapement survey for the Kaliakh system on September 20 revealed 600 coho in the main stem. No final surveys were conducted.

The Tashalich and Kiklukh Rivers are two small streams west of the Tsiu River that are sometimes fished during the coho season. The Tashalich River was not fished this year and the Kiklukh was worked for only two openings. As fewer than three people fished the Kiklukh, all catch data is confidential. An escapement survey conducted during a rain squall on September 20 revealed 400 coho in each river.

Yakutat District

The Yakutat District coho harvest of approximately 124,000 fish was 31% above the recent 10-year average of 94,600. Coho harvest occurred from west to east in the Yahtse, Yana, Manby Shore, Yakutat Bay, Lost, Situk-Ahrnklin, Middle Italio, Akwe, Alsek, and East Rivers. Run strengths ranged from below to above average. Fishing times were extended according to fisheries performance and available escapement data. The Situk-Ahrnklin Inlet was the area's single most productive coho system. The year's catch of 89,000 coho on the Situk-Ahrnklin Inlet accounted for 72% of the district's harvest. It was the highest coho harvest in Situk-Ahrnklin Inlet fishery since 1955, and it was 140% above the recent 10-year average. Peak effort was 73 fishermen during the coho season. In most of the other rivers, coho catches were average to below average. The Kaliakh River experienced the worst coho production and was 65% below its recent 10-year average.

The few escapement surveys conducted showed fair numbers of coho spawners in most systems. A wetter than normal fall thwarted most survey attempts. An excellent escapement count of 8,500 coho was documented at the Klukshu River Weir. This was the highest weir count ever.

CHINOOK SALMON HARVEST

No directed chinook salmon commercial setnet fishery occurs now in the Yakutat area. The Alsek River was the only river that historically supported a directed chinook fishery; but now, because of recent Canada and United States negotiations, any hope of resurrecting that fishery again are pretty much gone. The recently agreed upon Klukshu River escapement of 4,700 chinook is so unrealistically high that it will rarely, if ever, be achieved and strict conservation measures will be necessary.

Chinook salmon harvested by setnets in the Yakutat area are taken incidentally during the early weeks of the sockeye fisheries. Mature spawners were harvested during the 1991 season in Yakutat Bay, in the Situk-Ahrnklin Inlet, and in the Alsek, East, Akwe, and Dangerous Rivers. The Yakutat Bay fishery harvests mature spawners destined for Yakutat area rivers, and feeders of unknown origins. The 1991 harvest of 1,750 chinook was average (Table 2). Most of the harvest, 800 fish, occurred in the Situk-Ahrnklin Inlet fishery.

A comprehensive management plan for Situk River chinook was implemented for the first time in 1991. This plan mandated various chinook conservation measures based on an ascending scale of projected

escapement through the Situk Weir. A level of 750 large chinook through the weir had to be projected before commercial fishermen would be allowed to retain and sell the fish. A non-sale policy was implemented for the first three weeks of the season. All fishermen were asked to stay on their gear, and to release live chinook. Fishermen were allowed to retain dead chinook for personal use, and were required to report the dead chinook on fish tickets. A total of approximately 79 large (>28 inches) and 30 small (<28 inches) chinook were retained for personal use. Approximately 37% of the large chinook that passed through the weir were net-marked, indicating some survival of released fish.

The return of chinook was strong, and by the third week of the season a total run of more than 750 large chinook was projected. Beginning with the first week of July, fishermen were allowed to retain and sell incidentally caught chinook. The chinook harvest of 800 fish was 36% above the average for the years prior to the implementation of the non-sale policy in 1989 (Table 8). The final weir count was 1,613, of which 897 were large spawners, 132 were two ocean jacks, and 584 were one ocean jacks. Deducing a mortality of 22 large spawners above the weir left an escapement of 875.

The harvest of 103 Alsek River chinook salmon was 89% below the 1960-1990 average of 910 (Table 4). In 1991, the Alsek River opening was delayed two weeks from the date specified by regulation to conserve the early portion of the sockeye run and the chinook salmon. For the sixth year in a row, a maximum gillnet mesh size of six inches was implemented by emergency order during June and July to reduce the catch of chinook. The Klukshu River Weir count of 2,485 was below the new goal of 4,700, but above the 1976 to 1990 average. About 366 of the 2,485 chinook through the Klukshu Weir were harvested in the Indian food fisheries.

Table 1. Yakutat areas open to set gillnet fishing by time and area, 1991.

Stat. Week	Date	Day	Yakutat District										Yakataga District					
			Alsek River	East River	Akwe River	Italo River	Dangerous River	Situk River	Lost River	Streams of Manby Shore	Yakutat Bay		Yahtze River	Remainder District	Kaliakh River	Tsiu River	Remainder District	
											South 59°40'	North 59°40'						
24	10-Jun-91	Mon.	-	-	-	-	18	18	-	-	18	-	-	-	-	-	-	-
	11-Jun-91	Tues.	-	-	-	-	24	24	-	-	24	-	-	-	-	-	-	-
	12-Jun-91	Wed.	-	-	-	-	18	18	-	-	18	-	-	-	-	-	-	-
25	17-Jun-91	Mon.	12	-	-	-	18	18	18	-	18	18	-	-	-	-	-	-
	18-Jun-91	Tues.	12	-	-	-	24	24	24	-	24	24	-	-	-	-	-	-
	19-Jun-91	Wed.	-	-	-	-	18	18	18	-	18	18	-	-	18	-	18	-
	20-Jun-91	Thurs	-	-	-	-	-	-	-	-	-	-	-	-	24	-	24	-
	21-Jun-91	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	18	-	18	-
26	24-Jun-91	Mon.	12	12	18	-	18	18	18	18	18	18	18	18	-	-	-	-
	25-Jun-91	Tues.	24	12	18	-	24	24	24	24	24	24	24	24	24	-	-	-
	26-Jun-91	Wed.	12	-	-	-	18	18	24	18	24	24	18	18	18	-	18	-
	27-Jun-91	Thurs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-
	28-Jun-91	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	-
27	31-Jun-91	Sun.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	01-Jul-91	Mon.	12	12	18	-	18	18	18	18	18	18	18	18	18	-	-	-
	02-Jul-91	Tues.	24	12	18	-	24	24	24	24	24	24	24	24	24	-	-	-
	03-Jul-91	Wed.	12	-	-	-	18	24	24	18	24	24	18	18	18	18	-	18
	04-Jul-91	Thurs	-	-	-	-	-	24	24	-	24	24	-	-	-	-	24	-
28	05-Jul-91	Fri.	-	-	-	-	-	18	18	-	18	18	-	-	-	-	18	-
	07-Jul-91	Sun.	-	-	-	-	-	18	-	-	-	-	-	-	-	-	-	-
	08-Jul-91	Mon.	12	12	18	-	18	24	18	18	18	18	18	18	18	-	-	-
	09-Jul-91	Tues.	24	12	18	-	24	24	24	24	24	24	24	24	24	-	-	-
	10-Jul-91	Wed.	12	-	-	-	18	24	24	18	24	24	18	18	18	-	18	-
	11-Jul-91	Thurs	-	-	-	-	-	24	24	-	24	24	-	-	-	-	24	-
	12-Jul-91	Fri.	-	-	-	-	-	24	18	-	18	18	-	-	-	-	18	-
29	13-Jul-91	Sat.	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-
	14-Jul-91	Sun.	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-
	15-Jul-91	Mon.	12	12	18	-	18	24	18	18	18	18	18	18	18	-	-	-
	16-Jul-91	Tues.	24	12	18	-	24	24	24	24	24	24	24	24	24	-	-	-
	17-Jul-91	Wed.	24	-	-	-	18	24	24	18	24	24	18	18	18	18	-	18
	18-Jul-91	Thurs	12	-	-	-	-	24	24	-	24	24	-	-	-	-	24	-
	19-Jul-91	Fri.	-	-	-	-	-	24	18	-	18	18	-	-	-	-	18	-
20-Jul-91	Sat.	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	

4.18

--Continued--

Table 1. (Cont.)

Stat. Week	Date	Day	Yakutat District											Yakataga District				
			Alsek River	East River	Akwe River	Itallo River	Dangerous River	Situk River	Lost River	Streams of Manby Shore		Yakutat Bay		Yahtze River	Remainder District	Kaliakh River	Tsiu River	Remainder District
										South 59°40"	North 59°40"							
30	21-Jul-91	Sun.	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-
	22-Jul-91	Mon.	12	12	18	-	18	24	18	18	18	18	18	18	-	-	-	
	23-Jul-91	Tues.	24	24	6	-	24	24	24	24	24	24	24	24	-	-	-	
	24-Jul-91	Wed.	24	12	-	-	18	24	18	18	24	18	18	18	18	-	18	
	25-Jul-91	Thurs	24	-	-	-	-	24	-	-	18	-	-	-	24	-	24	
	26-Jul-91	Fri.	12	-	-	-	-	24	-	-	-	-	-	-	18	-	18	
	27-Jul-91	Sat.	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	
31	28-Jul-91	Sun.	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	
	29-Jul-91	Mon.	12	12	18	-	18	24	18	18	18	18	18	18	-	-	-	
	30-Jul-91	Tues.	24	24	6	-	24	24	24	24	24	24	24	24	-	-	-	
	31-Jul-91	Wed.	24	12	-	-	18	24	18	18	18	18	18	18	18	-	18	
	01-Aug-91	Thurs	24	-	-	-	-	24	-	-	-	-	-	-	24	-	24	
	02-Aug-91	Fri.	12	-	-	-	-	24	-	-	-	-	-	-	18	-	18	
	03-Aug-91	Sat.	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	
32	04-Aug-91	Sun.	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	
	05-Aug-91	Mon.	12	-	12	-	12	24	12	12	12	12	12	12	15	-	15	
	06-Aug-91	Tues.	24	-	12	-	24	24	24	24	24	24	24	24	24	-	24	
	07-Aug-91	Wed.	24	-	-	-	24	24	24	24	24	24	24	24	24	-	24	
	08-Aug-91	Thurs	12	12	-	-	12	12	12	12	12	12	12	12	9	-	9	
	09-Aug-91	Fri.	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	
33	12-Aug-91	Mon.	12	12	12	-	12	12	12	12	12	12	12	12	15	-	15	
	13-Aug-91	Tues.	24	12	12	-	24	24	24	24	24	24	24	24	24	-	24	
	14-Aug-91	Wed.	24	-	-	-	24	24	24	24	24	24	24	24	24	-	24	
	15-Aug-91	Thurs	12	-	-	-	12	12	12	12	12	12	12	12	9	-	9	
	16-Aug-91	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
34	19-Aug-91	Mon.	12	-	12	-	12	12	12	12	12	12	12	12	15	-	15	
	20-Aug-91	Tues.	24	-	24	-	24	24	24	24	24	24	24	24	24	-	24	
	21-Aug-91	Wed.	24	-	12	-	24	24	24	24	24	24	12	24	24	15	24	
	22-Aug-91	Thurs	12	-	-	-	12	12	12	12	12	12	-	12	9	9	9	

--Continued--

Table 1. (Cont.)

Stat. Week	Date	Day	Yakutat District										Yakataga District					
			Alsek River	East River	Akwe River	Italio River	Dangerous River	Situk River	Lost River	Streams of Manby Shore	South 59°40"	North 59°40"	Yahitze River	Remainder District	Kaliakh River	Tsiu River	Remainder District	
35	26-Aug-91	Mon.	12	-	12	-	12	12	12	12	12	12	12	12	12	15	15	15
	27-Aug-91	Tues.	24	-	24	-	24	24	24	24	24	24	24	24	24	24	9	24
	28-Aug-91	Wed.	24	-	12	-	24	24	24	24	24	24	12	24	24	15	24	
	29-Aug-91	Thurs	12	12	-	-	12	12	12	12	12	12	-	12	9	9	9	
	30-Aug-91	Fri.	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	
36	02-Sep-91	Mon.	12	12	12	-	12	12	12	12	12	12	12	12	15	15	15	
	03-Sep-91	Tues.	24	24	24	-	24	24	24	24	24	24	24	24	24	9	24	
	04-Sep-91	Wed.	24	24	12	-	24	24	24	24	24	24	12	24	24	3	24	
	05-Sep-91	Thurs	12	12	-	-	12	12	12	12	12	12	-	12	24	-	9	
	06-Sep-91	Fri.	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	
37	09-Sep-91	Mon.	12	12	12	-	12	12	12	12	12	12	12	12	15	15	15	
	10-Sep-91	Tue.	24	24	24	-	24	24	24	24	24	24	24	24	24	24	24	
	11-Sep-91	Wed.	24	24	24	-	24	24	24	24	24	24	24	24	24	24	24	
	12-Sep-91	Thurs.	24	24	24	-	24	24	24	24	24	24	24	24	24	24	24	
	13-Sep-91	Fri.	12	12	12	-	12	12	12	12	12	12	12	12	9	9	9	
38	16-Sep-91	Mon.	12	12	12	-	12	12	12	12	12	12	12	12	15	15	15	
	17-Sep-91	Tues.	24	24	24	-	24	24	24	24	24	24	24	24	24	24	24	
	18-Sep-91	Wed.	24	24	24	-	24	24	24	24	24	24	24	24	24	24	24	
	19-Sep-91	Thurs	24	24	24	-	12	24	24	12	24	12	12	12	24	24	9	
	20-Sep-91	Fri.	12	12	12	-	-	12	12	-	12	-	-	-	24	24	-	
21-Sep-91	Sat.	-	-	-	-	-	-	-	-	-	-	-	-	9	9	-		
39	23-Sep-91	Mon.	12	12	12	-	12	12	12	12	12	12	12	12	15	15	15	
	24-Sep-91	Tues.	24	24	24	-	24	24	24	24	24	24	24	24	24	24	24	
	25-Sep-91	Wed.	24	24	24	-	24	24	24	24	24	24	24	24	24	24	24	
	26-Sep-91	Thurs	24	24	24	12	12	24	24	12	24	12	12	12	9	24	9	
	27-Sep-91	Fri.	12	12	12	12	-	12	12	-	12	-	-	-	-	9	-	
40	30-Sep-91	Mon.	12	12	12	12	12	12	12	12	12	-	12	15	9	15		
	01-Oct-91	Tues.	24	24	24	24	24	24	24	24	24	-	24	24	24	24		
	02-Oct-91	Wed.	24	24	24	24	24	24	24	24	24	-	24	24	24	24		
	03-Oct-91	Thurs	24	24	24	24	12	24	24	12	24	12	-	12	9	24	9	
	04-Oct-91	Fri.	12	12	12	12	-	12	12	-	12	-	-	-	-	9	-	

4.20

Table 2. Yakutat annual commercial set gillnet salmon catches in numbers, by species.

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
1989	810	329,563	176,847	59,319	16,238	582,777
1990	664	344,461	148,890	30,839	5,813	530,667
Average 1960 to 1990						
	1,800	143,952	109,599	44,409	9,909	309,670
1991 PRELIMINARY						
	1,750	229,854	166,380	3,051	2,979	404,014

Table 3. Yakutat 1991 commercial set gillnet salmon catches by area in numbers, by species.

Area	Chinook	Sockeye	Coho	Pink	Chum	Total
Akwe River	265	4,172	5,697	2	67	10,203
Alsek River	103	17,542	5,956	0	103	23,704
East River	49	45,334	3,857	2	2,196	51,438
Kaliakh River	0	0	4,379	0	0	4,379
Tsiu River	0	0	38,195	0	1	38,196
Italio River	0	0	1,778	0	0	1,778
Lost River	21	2,789	3,621	7	3	6,441
Manby Shore	30	8,413	24	0	26	8,493
Situk-Ahrnklin	786	120,074	89,434	2,534	186	213,014
Yakutat Bay	392	28,581	5,296	506	397	35,172
Manby Shore Streams	0	2,558	5,585	0	0	8,143
Humpy Creek	0	0	0	0	0	0
Miscellaneous	104	391	2,558	0	0	3,053
Total	1,750	229,854	166,380	3,051	2,979	404,014

Table 4. Yakutat annual commercial Alesek River set gillnet salmon catches in numbers, by species.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	525	16,502	5,932	53	109	23,121
1961	2,120	23,339	7,679	84	86	33,308
1962	2,278	14,475	8,362	93	133	25,341
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
1989	240	13,513	5,972	2	1,031	20,758
1990	78	16,852	1,437	0	495	18,862
Average 1960 to 1990						
	910	21,420	6,405	59	428	29,221
1991 PRELIMINARY						
	103	17,542	5,956	0	103	23,704

Table 5. Yakutat annual commercial East River set gillnet salmon catches in numbers, by species.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	5	2,926	709	227	11,533	23,121
1961	0	1,784	310	195	10,564	12,853
1962	1	6,497	840	627	16,916	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
1989	42	145,516	7,287	678	13,724	167,247
1990	45	161,378	7,482	532	4,578	174,015
Average 1960 to 1990						
	65	43,018	4,053	518	9,210	56,864
1991 PRELIMINARY						
	49	45,334	3,857	2	2,196	51,438

Table 6. Yakutat annual commercial Yakutat Bay set gillnet salmon catches in numbers, by species.

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
1989	297	24,528	4,712	8,501	309	38,347
1990	304	41,854	5,472	4,969	359	52,958
Average 1960 to 1990						
	144	12,314	2,300	6,711	166	21,364
1991 PRELIMINARY						
	392	28,581	5,296	506	397	35,172

Table 7. Yakutat annual commercial Manby Shore Ocean and Streams set gillnet salmon catches in numbers, by species.

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	11,923	20,844	106	1	32,887
1989	23	33,078	7,150	47	6	40,304
1990	44	25,666	16,295	3	41	42,049
Average 1960 to 1990 (for the years fished)						
	15	6,012	9,564	33	45	15,669
1991 PRELIMINARY						
	30	10,971	5,609	0	26	16,636

Table 8.

Yakutat annual commercial Situk-Ahrnklin Inlet set gillnet salmon catches in numbers, by species.

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
1989	1	99,945	39,318	42,974	833	183,071
1990	0	90,735	45,075	23,895	283	159,989
Average 1960 to 1990						
	569	49,125	28,394	11,781	241	90,074
1991 PRELIMINARY						
	786	120,074	89,434	2,534	186	213,014

Table 9. Yakutat annual commercial Lost River set gillnet salmon catches in numbers, by species.

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
1989	15	3,090	5,737	816	20	9,678
1990	0	3,093	4,922	218	5	8,238
Average 1960 to 1990						
	29	4,295	5,684	801	16	11,124
1991 PRELIMINARY						
	21	2,789	3,621	7	3	6,441

Table 10. Yakutat annual commercial Dangerous River set gillnet salmon catches in numbers, by species.

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
1989	0	1,122	421	2	2	1,547
1990	0	710	454	0	5	1,169
Average 1960 to 1990 (for the years fished)						
	2	782	421	5	4	1,210
1991 PRELIMINARY						
	104	390	0	0	0	494

Table 11. Yakutat annual commercial Itlialo River set gillnet salmon catches in numbers, by species.

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
1989	0	0	99	0	0	99
1990	0	0	2,512	0	1	2,513
Average 1960 to 1990 (for the years fished)						
	3	1,329	3,816	467	577	6,192
1991 PRELIMINARY						
	0	0	1,778	0	0	1,778

Table 12. Yakutat annual commercial Akwe River set gillnet salmon catches in numbers, by species.

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
1989	192	8,653	10,136	491	313	19,788
1990	193	3,996	6,718	11	42	10,960
Average 1960 to 1990						
	96	6,853	6,719	818	223	14,710
1991 PRELIMINARY						
	265	4,172	5,697	2	67	10,203

Table 13. Yakutat annual commercial Humpback Creek set gillnet salmon catches in numbers, by species.

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
1989	0	4	0	5,798	0	5,802
1990	0	4	0	1,209	0	1,213
Average 1960 to 1990 (for the years fished)						
	10	357	203	32,850	21	33,440
1991 PRELIMINARY						
	0	4	0	1,209	0	1,213

Table 14. Yakutat annual commercial Tsiu River set gillnet salmon catches in numbers, by species.

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
1989	0	41	62,939	2	0	62,982
1990	0	31	33,785	2	0	33,818
Average 1960 to 1990 (for the years fished)						
	0	125	29,576	1	2	29,705
1991 PRELIMINARY						
	0	0	38,195	0	1	38,196

Table 15. Yakutat annual commercial Kaliakh River set gillnet salmon catches in numbers, by species.

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
1989	0	0	16,858	0	0	16,858
1990	0	7	13,775	0	3	13,785
Average 1960 to 1990 (for the years fished)						
	0	1	13,773	12	1	13,787
1991 PRELIMINARY						
	0	0	4,379	0	0	4,379

Table 16. Yakutat annual commercial Yahtse River set gillnet salmon catches in numbers, by species.

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
1989	0	8	10,762	4	0	10,774
1990	0	112	7,478	0	1	7,591
Average 1960 to 1990 (for the years fished)						
	0	25	8,047	6	0	8,078
1991 PRELIMINARY						
	*	*	*	*	*	*

* Where the number of permits participating is less than three, the information is considered confidential.

SECTION 5

**SOUTHEAST ALASKA-YAKUTAT
HERRING FISHERIES, 1990/1991**

REPORT TO THE BOARD OF FISHERIES
SOUTHEAST ALASKA-YAKUTAT HERRING FISHERIES, 1990/1991



By

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Division of Commercial Fisheries
Juneau, Alaska

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ABSTRACT

The 1990/91 Southeast Alaska and Yakutat commercial, subsistence, and personal use herring fisheries are reviewed. The total region commercial herring harvest was 5,881 tons, down from the previous year's catch of 8,056 tons. This was due mainly to a reduction in the Sitka Sound sac roe quota and the Seymour Canal gillnet sac roe area not meeting the required threshold level. The total exvessel value was approximately \$1,828,446. The sac roe harvest totaled 2,514 tons for an estimated exvessel value of \$698,000. The catch of 3,273 tons in the winter bait fishery was worth an estimated \$867,345 to the fishermen, and the spawn-on-kelp fishery with a harvest of 13.6 tons, (approximately 150 tons of herring) was worth an additional \$206,401. The sac roe fishery remained open in the Sitka Sound and Kah Shakes/Cat Island areas, while the Seymour and Lynn Canal areas remained below their threshold levels. The winter bait fishery was opened in the Meares Passage/Bocas de Finas area, but remained closed in the Lisianski and Tenakee Inlet areas. Fresh bait pounds operated in Farragut Bay and Sitka Sound harvested 81 tons of herring with an estimated value of \$56,700.

INTRODUCTION

This report reviews the commercial, subsistence, and personal use herring fisheries that occurred in the Southeast Alaska Region during the 1990/91 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, spawn on kelp, 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 harvesting of herring and spawn on kelp 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 more productive than stocks that spawn in the inside waters. Southeast Alaska herring stocks have been commercially harvested since a salting operation was initiated the 1880s. From the 1890s to the mid-1960s 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 1920s and 1930s when annual harvests commonly exceeded 100,000 tons (Tables 1 and 2). The reduction industry was phased out in the mid 1960s due 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. Existing regulations 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 1970s. The sac roe fishery takes herring immediately prior to spawning when egg maturity is highest. A wild spawn-on-kelp fishery occurred during the 1960s; however, this fishery was phased out in the early 1970s. A new herring spawn-on-kelp pound fishery was approved by the Alaska Board of Fisheries to begin in the spring of 1992.

Subsistence herring products have traditionally included spawn on kelp and herring spawn 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 commercial fishing 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. 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 and their abundance is viewed as necessary to ensure healthy populations of predatory fish such as salmon and halibut.

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 the winter bait and spring sac roe fisheries. A major management concern is to minimize the harvest of individual stocks that occur in both fisheries. Although some overlapping of stocks probably does occur, it is not believed that significant "double dipping" of individual herring stocks occurs. 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 ensure sustained yield. Threshold levels have been established for each of the winter bait, sac roe, and spawn-on-kelp pound stocks. Threshold levels are based on all available data and are evaluated by stock condition and performance over time. Current threshold levels vary from 4,000,000 to 15,000,000 lbs for the major sac roe and winter bait stocks to 2,000,000 lbs for the spawn-on-kelp pound fishery (Table 3).

Herring stocks with a spawning biomass of less than 4,000,000 lbs, 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, herring stocks of 4,000,000 lbs of adult fish would allow for an annual harvest of 200 tons of herring. The region's current management capability, combined with the 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, a winter bait harvest of 100 tons

has been allowed in prior years. However, the Yakutat area now has a 2,000,000 lb escapement threshold.

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 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 if the biomass estimate for the stock is less than the threshold. When the estimate of mature spawning 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 six 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 the 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 dive surveys or from vessel hydroacoustical 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 samples obtained from test fishing, commercial harvests, department mid-water trawling and department sampling on the spawning grounds.

SEASON SUMMARY

The 1990/91 seasonal herring catch totalled approximately 11,736,000 lbs (Table 1). The catch included 6,546,000 lbs. (3,273 tons) of winter bait herring, 5,028,0000 lbs (2,514 tons) of sac roe herring, 27,200 lbs (13.6 tons) of spawn on kelp, and 162,000 lbs (81 tons) of fresh bait from herring pounds (Table 2). The total exvessel value was approximately \$1,828,446 of which \$698,000 was for sac roe herring, \$867,345 for bait herring, \$206,401 for spawn-on-kelp and \$56,700 for fresh bait pound herring. A summary of the 1990/91 season's herring fisheries by area is presented in Table 4.

1990/91 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 gear, only purse seine gear has been fished in recent years.

Only one stock was identified as having harvestable quantities of bait herring during the 1990/91 winter season. The herring stock in the Craig area was determined to have 36,700,000 lbs of herring. A 15.3% harvest rate allowed for a quota of 2,814 tons. By the end of the season, 3,273 tons of winter bait had been harvested. Both Tenakee and Lisianski Inlets remained well below their threshold levels. The fishery in Craig occurred between January 14 and January 24, 1991. A summary of the winter food and bait herring harvest in pounds, by season and by month, is shown in Table 5.

1991 Sac Roe Fishery

Four sac roe herring fishing areas are established by regulation. They include two exclusive purse seine (Sitka Sound and Lynn Canal) and two exclusive set gill net (Kah Shakes 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 1991 season.

A harvest of 2,514 tons of herring occurred during the 1990/91 season. This harvest resulted from a Sitka Sound catch of 1,838 tons, a catch at Kah Shakes of 380 tons, and a catch at Cat Island of 280 tons (Table 6).

Based on a 14.10% harvest rate of the 1990 spawning biomass estimate of 45,500,000 lbs, a quota of 3,200 tons was established for the Sitka purse seine fishery. The fishery was placed on two-hour notice effective 6:00 a.m., April 10 and the fishery lasted from April 10-13, 1991. The fishery was a cooperative effort due to the poor quality and small size of the fish. On April 13, 1991, it was decided to stop the fishery before the quota had been reached. Poor quality and size were cited as the major reasons. The final catch was recorded as 1,838 tons.

Results from the previous year's surveys of the Kah Shakes area indicated a biomass of 12,800,000 lbs. This resulted in a 10.6% harvest rate and an estimated quota of 679 tons. The R/V Sundance monitored the Kah Shakes stock with the use of hydroacoustic gear. The vessel documented the presence of the Kah Shakes spawning stock in deep water offshore. As time progressed, the stock gradually dwindled. An intense spawning appeared shortly thereafter in the Cat Island area some ten nautical miles away. Since a spawn this intense had never before been documented before in the Cat Island area, it was assumed that the Kah Shakes stock had shifted and spawned in the Cat Island area. The decision was then made to relocate the fleet to the Cat Island area and commence fishing. Cat Island opened at 10:45 a.m. on Monday April 8, 1991, and closed at 6:30 p.m. April 8, 1991, with a one-hour grace period. Approximately 280 tons of herring were harvested with a roe percentage of 11%.

Minor spawning started to occur at Kah Shakes on Tuesday, April 9, 1991. Kah Shakes was opened at 10:30 a.m. and closed at 4:00 p.m. on April 9, 1991 with a harvest of 80 tons. The area was again opened on April 10, 1991 and closed at 6:00 p.m. with a harvest of 240 tons. The fishery commenced again on April 11, 1991 at 6:00 a.m. and closed at 11:00 a.m. on April 11 with a harvest of 60 tons. The total harvest for the Kah Shakes area was 380 tons with a roe content of 12%.

Results from previous years' spawning ground surveys revealed the herring populations in Seymour Canal were below the established threshold levels.

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

1990/91 Herring Pound Fishery

There are three types of herring pound fisheries in Southeast Alaska: tray pack bait pounds, fresh bait pounds, and spawn-on-kelp pounds. The tray pack pound fishery was created in 1979 when the Board of Fisheries allocated a harvest of up to 100 tons. Only limited catch occurred in the early 1980s. 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 nine years (since 1983) was 45.1 tons for all

areas combined (Table 7). In 1991, herring pounds were operated in Sitka Sound and Farragut Bay with a total of 81 tons of fresh bait herring harvested.

Regulations adopted by the Board of Fisheries established a spawn-on-kelp fishery for Hoonah Sound to begin in the spring of 1990. Approximately 185 fishermen applied for permits and were eligible to operate pounds in 1991. A total of 13.6 tons (27,200 lbs) of spawn on kelp, worth approximately \$206,401, was harvested by 83 of the 104 fishermen that actually had pounds on the fishing grounds. Many participants had a difficult time capturing herring due to their inexperience in the fishery and lack of seiner support. The area was opened by emergency order at 5:00 p.m. on April 6 and closed by emergency order at 8:00 p.m., April 25, 1991.

In 1991 the Board of Fisheries adopted regulations establishing an additional spawn-on-kelp fishery for the Craig area to begin in the spring of 1992.

Herring Spawn-on-Kelp Subsistence Fishery

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

Subsistence spawn-on-kelp harvests occur 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 1991, a combined total of 18,503 lbs of spawn on kelp was harvested in these areas (Table 8). This was a reduction from the 1987 record harvest of 23,875 lbs.

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 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. Harvest information is limited, as personal use regulations require a permit only for the harvest of herring spawn on kelp. The regulations were in effect during the 1991 spring spawn-on-kelp season and accounted for approximately 20% of the herring spawn-on-kelp harvest as summarized in Table 8.

Second, the 1989 regulations established special provisions that allow commercial fishermen to harvest herring for their personal bait needs but not for sale. This 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. Approximately 72 tons of herring were harvested in Sitka Sound, and 20 tons in Petersburg; estimates for other communities have not been made.

1991/92 SEASON OUTLOOK

Current regulations allow for a winter bait fishery between October 1 and February 28 throughout Southeast Alaska. The 1991/92 fishery opening was delayed until January 13, 1992 to allow sufficient time for the department to assess the abundance of major winter herring stocks not previously assessed with spawn depositions surveys in the spring of 1991. Harvest levels for winter bait areas are based on a combination of previous-year spawning ground surveys and current-year hydroacoustic surveys. Three areas assessed in the spring of 1991 revealed populations above or equal to current threshold levels. These areas include Craig, Lisianski, and Port Houghton. Results from spawning ground surveys in the Craig area revealed a biomass of 35,600,000 lbs, well above the required threshold level of 10,000,000 lbs. A projected harvest rate of 15.2% would allow for a guideline harvest level of 2,281 tons of bait herring. Spawning ground surveys conducted in the spring of 1991 in Lisianski Inlet and Port Houghton revealed populations to be at the minimum threshold levels. As a result, a minimum guideline harvest of 10% was established for these areas, thus allowing a harvest of 250 tons in Lisianski, and 200 tons in Port Houghton.

Spawning ground surveys conducted in Tenakee Inlet in the spring of 1991 failed to locate the minimum threshold level, therefore no fishery will be allowed in Tenakee in 1992.

A sac roe harvest of 4,556 tons is anticipated during the spring of 1992. This projected harvest is down considerably from the record harvest of 12,973 tons taken in 1989. The vast majority of the 1992 catch will occur in the Sitka Sound seine fishery. Based on 1991 spawn deposition studies, the target harvest level is established at 3,356 tons (14.3% harvest rate of 46,900,000 lbs) for the Sitka Sound sac roe purse

seine fishery. Although it was suspected in 1991 that the Kah Shakes gill net sac roe fishery had shifted to the Cat Island area, it was determined at a special meeting of the Board of Fisheries in October 1991 that the population that had spawned on the Cat Island shoreline was indeed the Kah Shakes spawning stock. It was therefore decided that the 1992 fishery would include the Cat Island area. Based on spawning ground surveys conducted in the Kah Shakes/Cat Island area in the spring of 1991 a target harvest of 1,200 tons (11.5% harvest rate of 20,900,000 lbs) was established for the Kah Shakes/Cat Island gillnet sac roe fishery. Spawn surveys conducted in the Seymour Canal area during the spring of 1991 indicated populations below the required threshold level; therefore, no fishery is scheduled to occur in 1992. The Lynn Canal area also remains below its required threshold level.

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. Macrocystis 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. 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 1990 season.^{a/c/}

Year ^{a/}	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	32,311
1919	21,924	1954	12,892	1989	16,112
1920	32,904	1955	22,736	1990	11,736
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. All of 1990/91 season catches occurred in 1991.

^{c/} 1991 season catch does not include 1991 spawn on kelp fishery.

Table 2. Southeast Alaska region annual herring catch in tons by fishery type, 1960 through 1990 season.

Year ^{a/}	Reduction	Winter Bait	Spawn on Kelp ^{b/}	Sac Roe	Bait 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	12,973	66	16,155
1989	0	3,843	12	4,163	38	8,056
1990	0	3,273	13.6	2,514	81	5,881

^{a/} Catch includes total season, although referenced as only one year. Example: 1990 season includes catches from the spring of 1991.

^{b/} A Spawn on kelp pound fishery was implemented in the spring of 1990; catches prior to that time were from the wild spawn on kelp fishery.

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 and Cat Island	12
Lynn Canal	10
Sitka Sound	15
Other stocks not included above	4

Table 4. Summary of 1990/1991 season herring fishery by area.

Winter Food & Bait Fishery

Opening Date	Closing Date	District	Area	Assessment (Million Pounds)	Quota (tons)	Harvest (tons)	Percent Harvest
1/14/91	1/24/91	3/4	Bocas de Finas/ Meares Passage	36.70	2,814	3,273	15.3
Total				36.70	2,814	3,273	

Sac Roe Fishery

Date	District	Area	Gear	Assessment (Millions Pounds)	Quota (tons)	Harvest (tons)	Percent Harvest	Roe Percent
4/10-4/13	13	Sitka	Seine	45.5	3,200	1,838	14.1	11.0
4/09-4/11	01	Kah Shakes	Gill Net	12.8	679	380	10.6	12.0
4/08-4/08	01	Cat Island	Gill Net		none	280	10.6	11.0
Total				58.30	3,879	2,499		

Table 5. Southeast Alaska winter food and bait herring harvest in pounds, by fishing season and by month 1971/72 through 1990/91.^u

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
1989-90	0	0	0	0	7,686,000	0	0	7,686,000
1990-91	0	0	0	0	6,546,000	0	0	6,546,000

^u These figures do not include herring bait pounds.

Table 6. Annual Southeast Alaska sac roe herring harvest by area in tons, 1971-1991.

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
1990	3,804	359	0	0	0	4,163
1991	1,838	0	0	380	280 ^{e/}	2,498

^{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).

^{e/} Cat Island Ketchikan area.

Table 7. Fresh herring bait pound catches by area, 1983 through 1991.

Catch by Area in Tons							
Year	Scow Bay	Farragut Bay	Sitka Sound	Tee Harbor	Indian Cove	Lisianski ^W 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
1990	0	0	38	0	0	0	38
1991	0	16	65	0	0	0	81
8 yr. avg.	2	5.6	42.7	0	0	0	45.1

^W 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 1991.

Year	Permits Issued	Permits Returned	Total Pounds Harvested ^{u/}
<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
1990	245	172	10,158
1991	274	142	12,627

Table 8. (page 2 of 2.)

Year	Permits Issued	Permits Returned	Total Pounds Harvested ^{*/}
Kah Shakes			
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
1990	7	0	0
1991	4	4	60
Sitka Area			
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
1990	71	63	4,532
1991	96	72	5,816

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

Table 9. Macrocyctis kelp harvested and transported to Prince William Sound for the spawn on kelp fishery.

Year	Tons of Macrocyctis 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
1990	30.5 ^{b/}
1991	31.4 ^{c/}

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

^{b/} Equals amount requested, final figures not available at this time.

^{c/} Equals amount requested, final figures not available at this time.

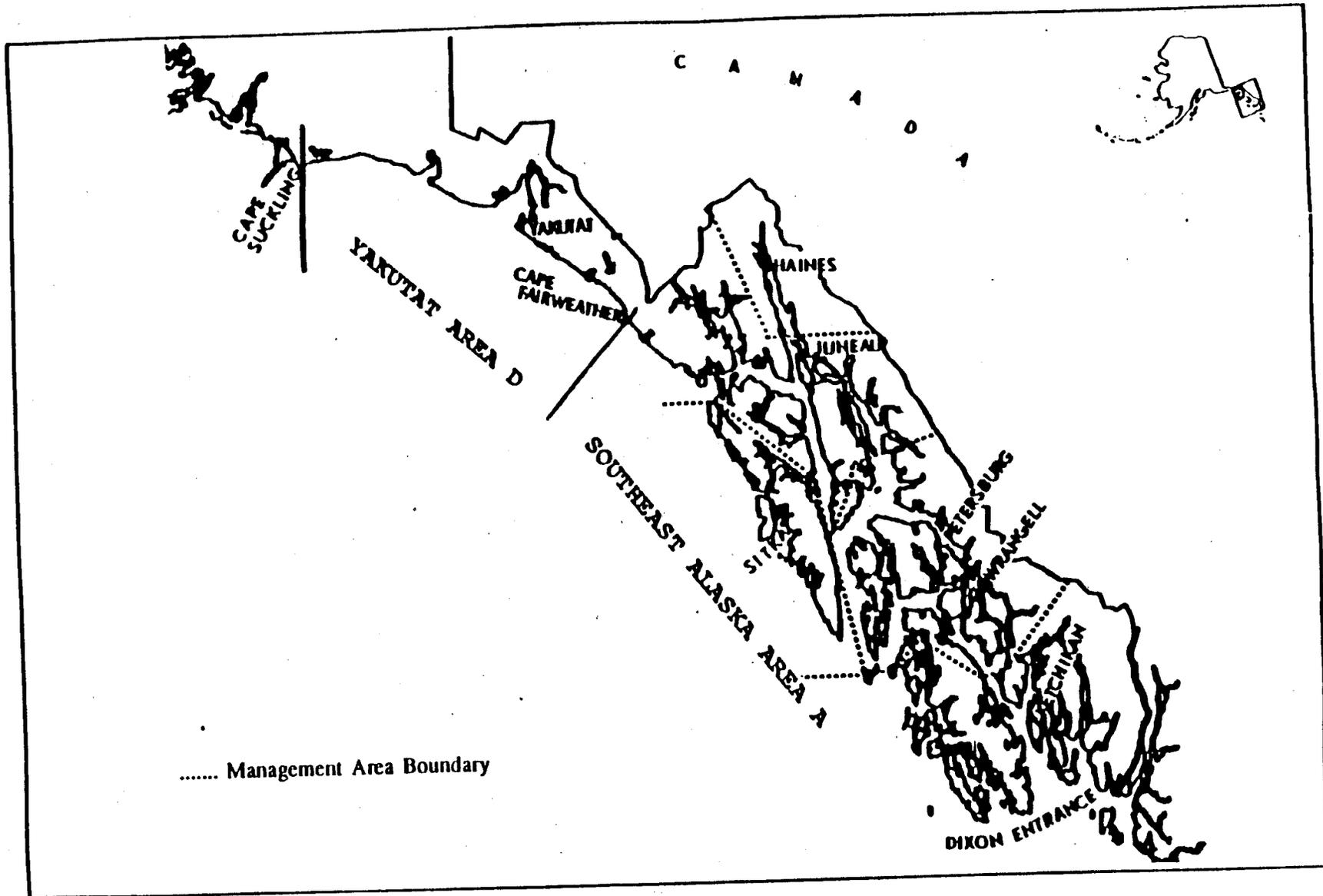


Figure 1. Southeast Alaska Region (Region 1) Herring Registration Areas (Southeast Alaska Area A and Yakutat Area D) and Management Area Boundaries.

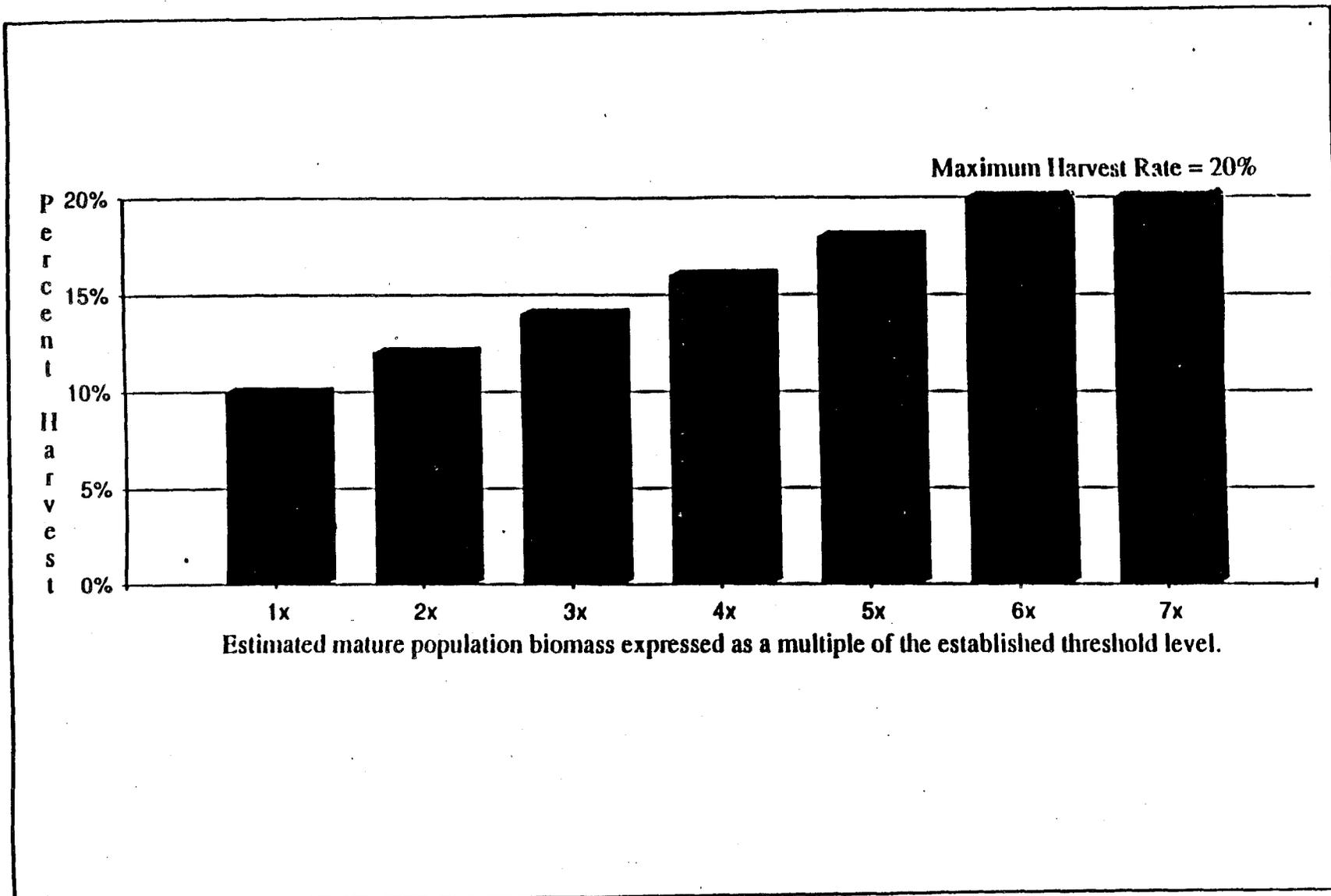


Figure 2. Generalized harvest strategy for Southeast Alaska herring stocks showing allowable percent annual harvest related to estimated biomass of mature stock expressed as a multiple of the established harvest threshold level.

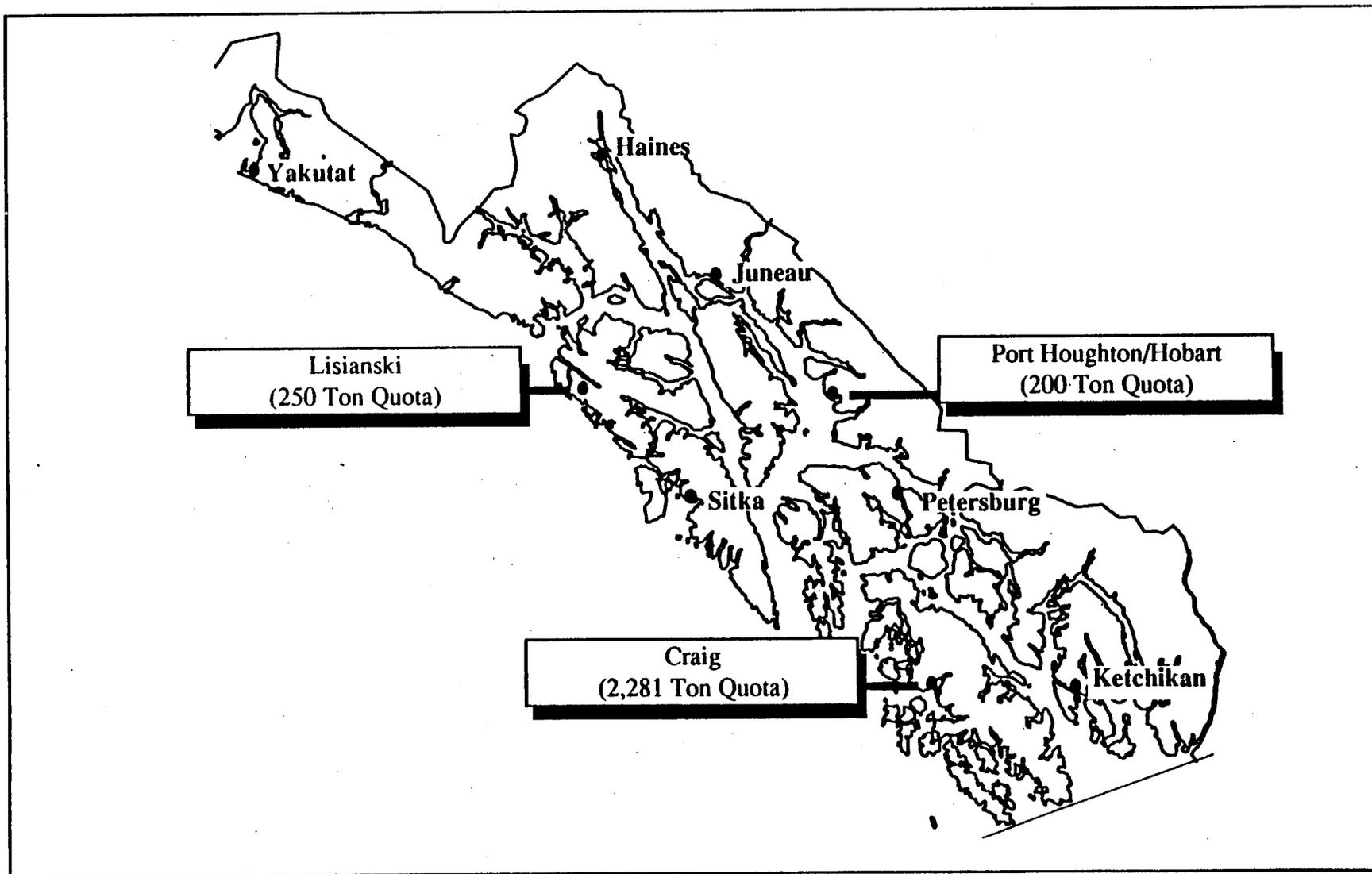


Figure 3. Southeast herring food and bait fishing areas.

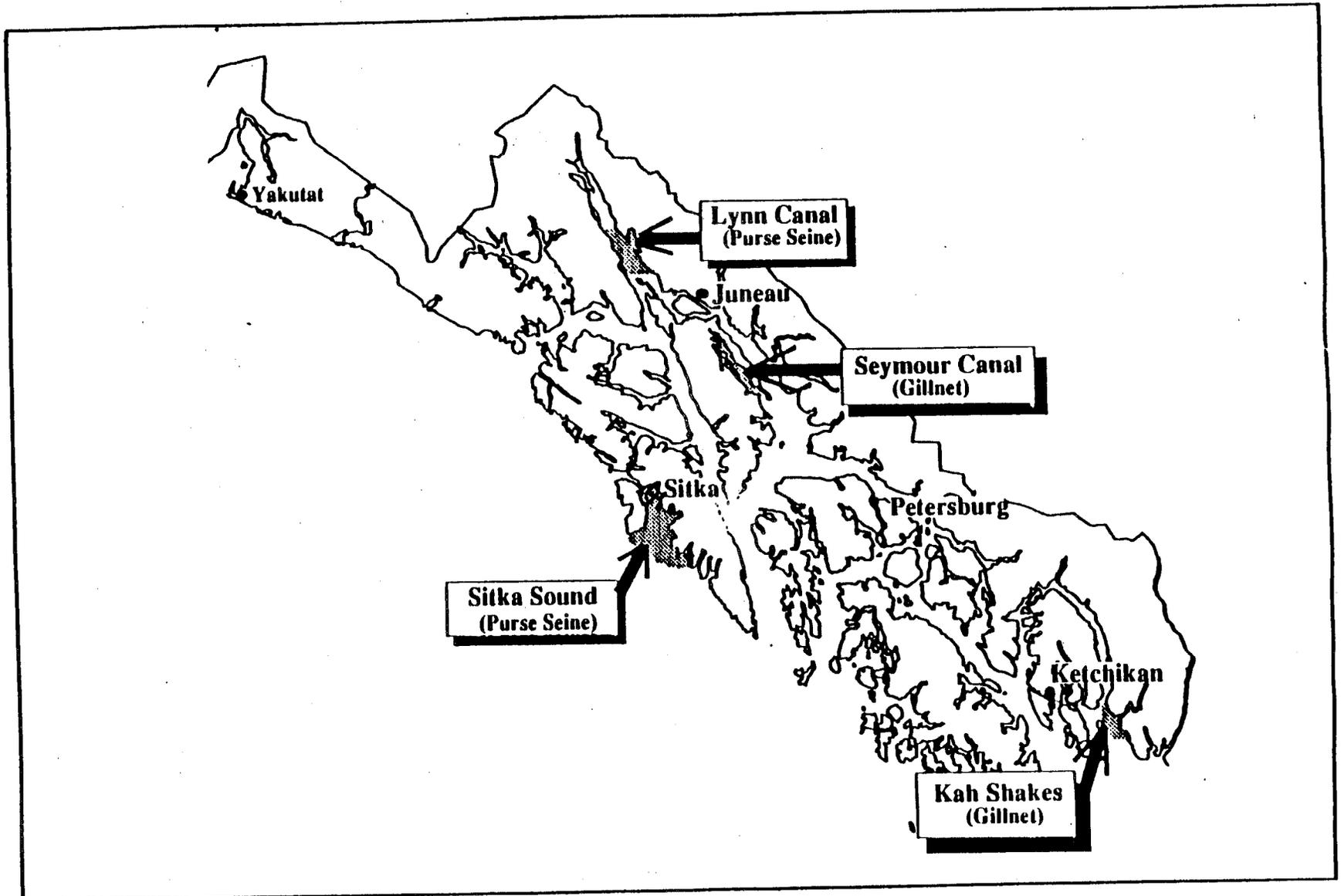


Figure 4. Southeast Alaska sac roe fishing areas.

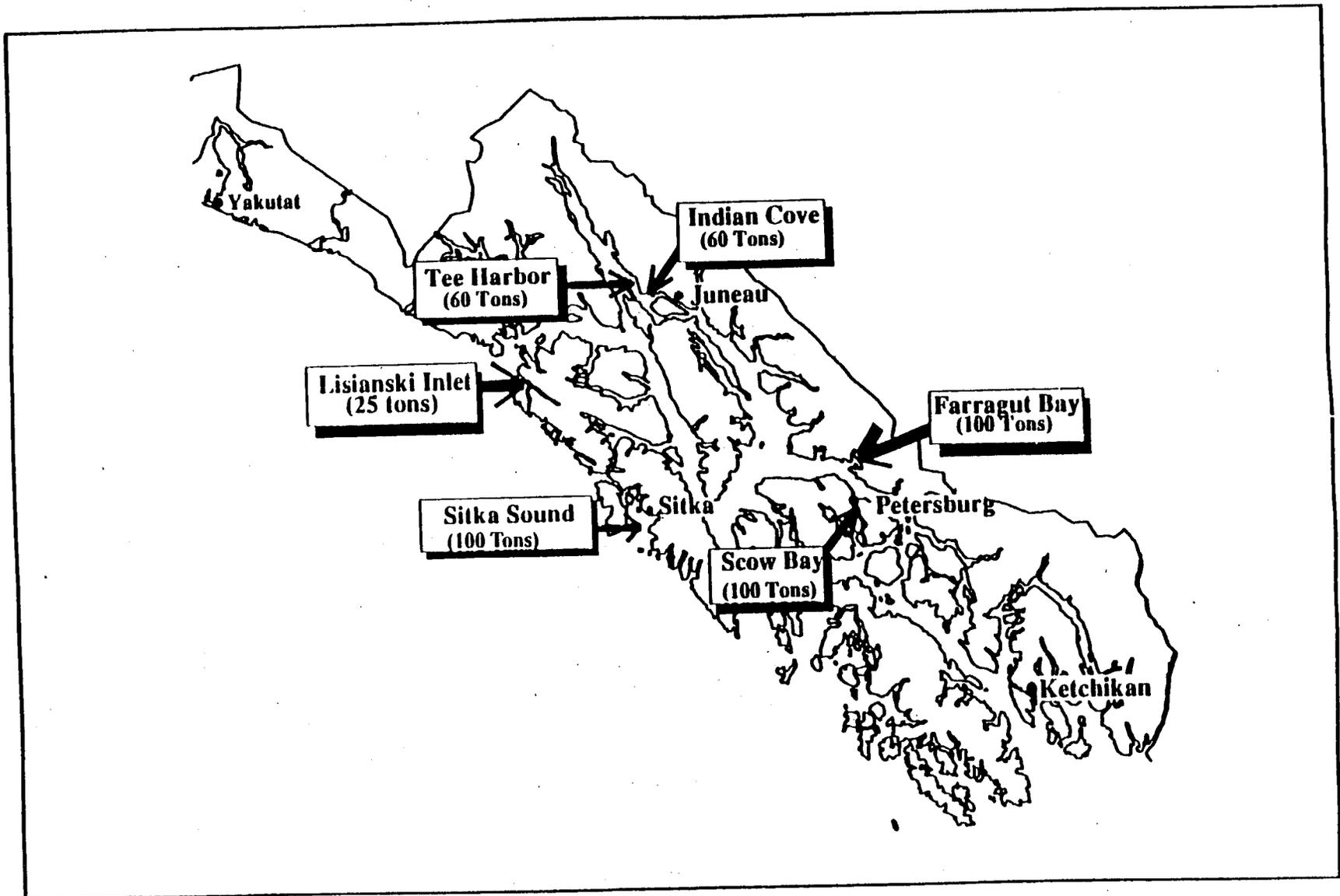


Figure 5. Fresh bait ponds - Southeast Alaska.

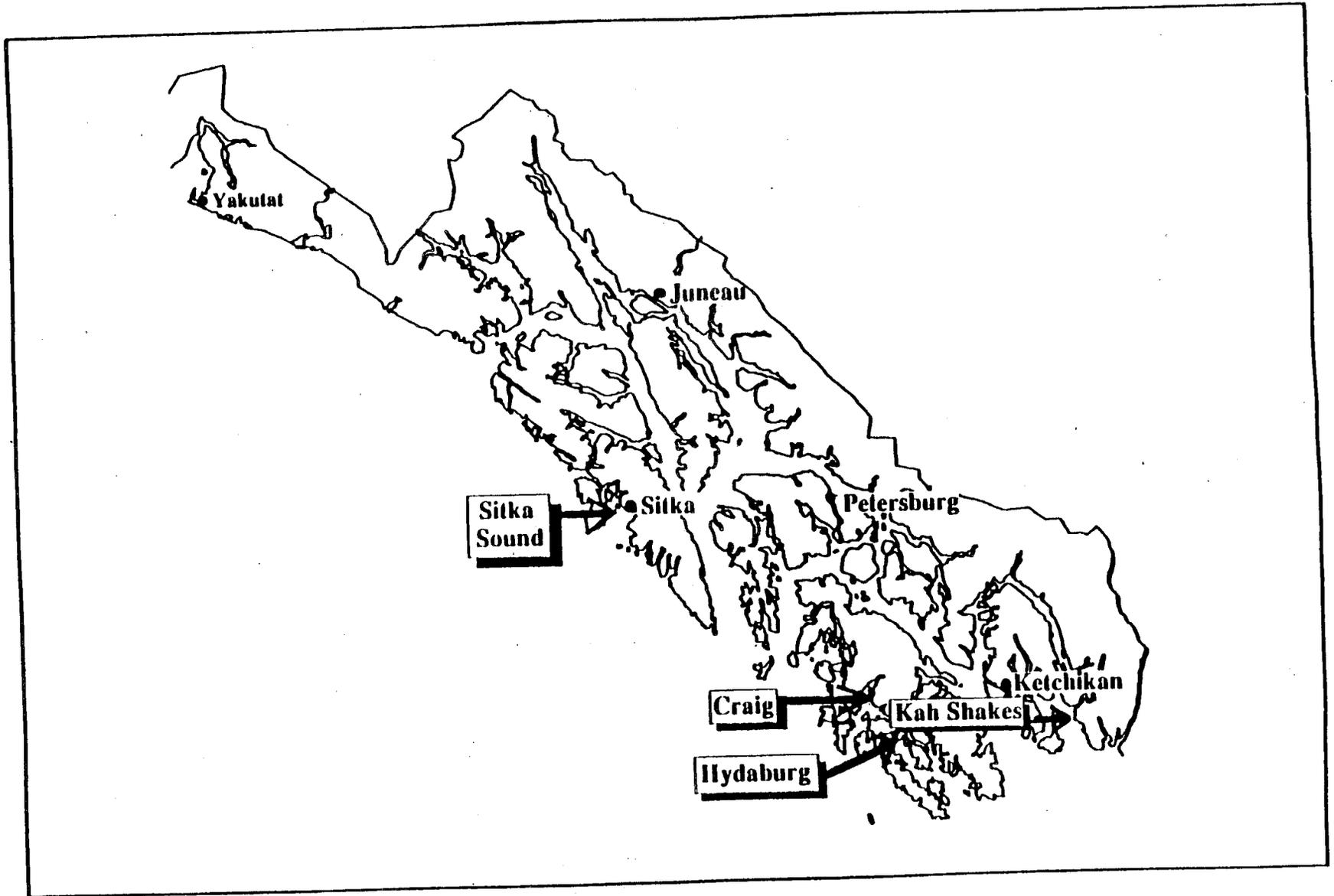


Figure 6. Major Southeast Alaska spawn-on-kelp subsistence fishery areas.

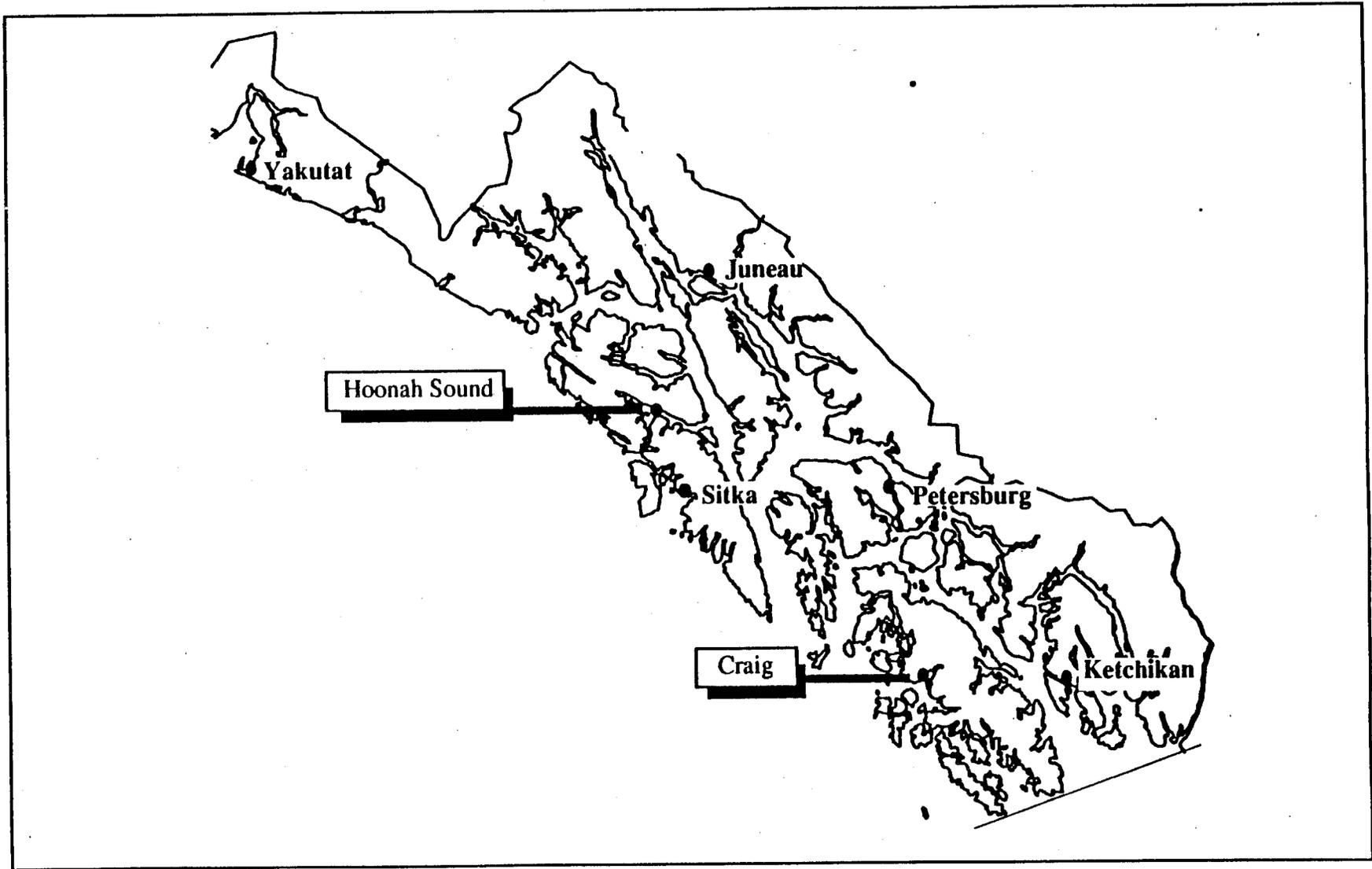


Figure 7. Southeast Alaska spawn-on-kelp commercial pound fishing areas.

SECTION 6

**SOUTHEAST ALASKA-YAKUTAT
GROUNDFISH FISHERIES, 1991**

REPORT TO THE BOARD OF FISHERIES
SOUTHEAST ALASKA-YAKUTAT GROUND FISH FISHERIES, 1991



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

May 1993

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ABSTRACT

The 1991 Region I Groundfish Report to the Board of Fisheries (Board) includes summaries of catch and effort information and management actions in the state-managed groundfish fisheries in of the Eastern Gulf of Alaska during 1991 (Table 1). Harvest figures indicate a total harvest of 6,027,000 lbs landed weight worth an estimated exvessel value of \$8,870,000. The 1991 groundfish harvest and value increased by 40% over the 1990 levels. The increase in 1991 was due primarily to a dramatic increase in sablefish landings and price.

The Southeast area demersal shelf rockfish longline fishery and flatfish trawl fishery are managed on a season which runs from October 1 of one year through September 30 of the next year. All other species are managed based on the calendar year.

Inseason management action was required in the sablefish, demersal shelf rockfish, and the directed lingcod fisheries during the year. The regulations adopted by the Board at its January 1991 meeting were implemented for management during the 1991 and 1991-92 seasons.

Sablefish seasons were extremely brief again in 1991 with only 57 hours of fishing in the SSEI section and 24 hours in the NSEI section. The upper end of the guideline harvest range for the NSEI section was exceeded by over 1,000,000 lbs during its 24-hour fishery. The harvest in the 1991 SSEI section fishery was just under the 500,000-lb upper end of the harvest range for that area. The outer coastal areas within three miles were opened May 15 in conjunction with fisheries in the adjacent federal waters.

The 1990/91 seasonal harvest objectives for **demersal shelf rockfish (DSR)** were met in the two inside management sections. The fall and winter/spring harvest objectives were met in the three outside areas, but summer objectives were not met because the entire Southeast Outside Subdistrict was closed to longlining on July 8 when the prohibited species catch limit for halibut set by the North Pacific Fisheries Management Council had been reached.

No inseason management action was necessary during the 1990-91 **flatfish** trawl season and harvests in all areas were below preseason harvest objectives.

Lingcod harvest increased significantly during 1991 primarily because of an increase in directed landings by dinglebar (modified power troll) gear. The total harvest would have been even higher had it not been for a federal longline closure in the Southeast Outside Subdistrict between July 8 and December 31.

Reported Pacific cod harvest was 27% greater than the 1990 harvest. New regulations requiring reporting of bait harvests have not been very effective.

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 Eastern Gulf of Alaska regulatory area for groundfish management encompasses all waters surrounding the Alexander Archipelago from Dixon Entrance ($54^{\circ} 30'$ N. latitude) 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 longitude). This change was implemented by the Board of Fisheries (Board) early in 1989 so that the Alaska Department of Fish and Game boundaries for groundfish management would be 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.

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 of 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 authorizes the state to execute in-season management of demersal shelf rockfish in both state and federal waters in the Southeast Outside Subdistrict (outer coastal waters east of 137° W. longitude). That authority was further expanded by the North Pacific Fisheries Management Council (NPFMC) during meetings held in June 1990.

Five groundfish management sections have been established in Southeast Alaska (Figure 2). Three of the sections are along the outer coast and make up the Southeast Outside Subdistrict. The remaining two are in internal waters.

The Southern Southeast Outside (SSEO) section includes all outer coastal waters from $54^{\circ} 30'$ N latitude and 56° N latitude. The Central Southeast Outside (CSEO) section includes the outer coastal waters between $56^{\circ} 00'$ and $57^{\circ} 30'$ N latitude. The Northern Southeast Outside (NSEO) section includes all outer coastal waters between $57^{\circ} 30'$ N latitude and 137° W longitude.

The two inside areas are the Northern Southeast Inside (NSEI) and Southern Southeast Inside (SSEI) subdistricts, each of which represents approximately one half of the internal waters of Southeast Alaska. The NSEI subdistrict 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 subdistrict 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 Wales Island including the Gulf of Esquibel, Bucareli Bay, Davidson Inlet, and Sea Otter Sound.

The Yakutat area is divided into two districts for catch reporting and sablefish management. The East Yakutat (EYAK) District includes all waters between 137° W. longitude and 140° W. longitude. The West Yakutat (WYAK) District includes all waters between 140° W. longitude and 147° W. longitude.

In addition to 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 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 1991.

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 inseason management of the EEZ fisheries, particularly the sablefish fishery. 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 in the Eastern Gulf of Alaska during 1991. This includes all groundfish species in internal waters, demersal shelf rockfish in all waters of the Southeast District, and lingcod region wide. Summary harvest information from Federally managed fisheries in the adjacent EEZ of the Eastern Gulf is also provided.

The primary state-managed fisheries within the region include sablefish, rockfish, lingcod, starry flounder, and Pacific cod. By regulation, sablefish can be fished only with longline and pot gear, and state-managed rockfish fisheries are restricted to hook and line gear in the Southeast District. Fisheries targeting on sablefish and demersal shelf rockfish are executed almost exclusively by longline gear, although minimal harvests of sablefish by pot gear, and rockfish harvests by jigging machines and troll gear also occur. Flatfish (flounder and sole) are harvested almost exclusively by trawl gear.

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 1990-91 season for species included in those management groups. All other species and species groups are managed on a calendar year basis. In addition to their respective target fisheries, rockfish, Pacific cod, and lingcod are landed in the salmon troll and halibut longline fisheries. Deep water rockfish are landed incidental to the sablefish fisheries.

Preliminary 1991 groundfish landings from state-managed fisheries totaled 5,936,000 lbs landed weight, a substantial increase from the 1990 harvest of 4,717,000 lbs. Exvessel value of the harvest increased dramatically from \$5,238,000 in 1990 to \$8,833,000 in 1991. The 1989, 1990 and 1991 landings and value of major groundfish species are shown in Table 1.

SABLEFISH (BLACKCOD) FISHERY

Southeastern 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 the two areas. The state has exclusive management jurisdiction in the NSEI and SSEI sections (Figure 2). The state also has jurisdiction for sablefish in state waters along the outer coast to three miles from shore. There are few sablefish actually harvested from that area, however, and available data is not adequate to justify separate management. Therefore, the sablefish fishery along the outer coast 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.

The SSEI section season extends from an opening date in June, which is set by Emergency Order, through November 15, or until an annual harvest objective of between 125,000 and 500,000 lbs 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 from Behm Canal and Cordova Bay.

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

Offshore state waters, including the Southeast Outside District and the East and West Yakutat Districts, opened May 15 to correspond with the opening of the offshore waters set by the NPFMC. Since these 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.

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 section only. The number of vessels participating in each of the 1991 state-managed sablefish fisheries is reported in the section on catch.

The number of vessels which participated in both of the inside fisheries during 1991 (157 vessels), was nearly twice the target number set by the Commercial Fisheries Entry Commission (CFEC) (88 vessels). The target number for the NSEI section is 73 longline vessels, while the target for the SSEI section is 12 longline and 3 pot vessels. These numbers are based upon the numbers of vessels that participated during the 1984 seasons.

Management

The state has direct management responsibility for sablefish fisheries in state waters under regulations approved by the Board. 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 the inside area sablefish fisheries. These data are collected through an extensive skipper interview program. Over the last three years the percentage of vessels included in the interview program was 60% of the fleet in the NSEI section, and 79% of the SSEI section fleet. Therefore, these data are considered to be very representative of the fleet performance. Because of dynamic changes in the nature of the fishery, however, fishery performance may not accurately reflect stock abundance trends.

The department began to conduct independent stock assessment surveys in both areas in 1988. Data gathered during these surveys is being used to replace fisheries performance as the principal management

tool. This transition will likely be complete after the collection and analysis of existing data is concluded.

Stock assessment surveys are conducted in both the SSEI and NSEI sections just prior to the fishing seasons. The surveys were repeated in 1989, 1990, and 1991. The surveys are scheduled to continue at least through 1992. Analysis of data collected during these surveys is ongoing.

Surveys from both areas indicate a slight increase in sablefish stocks between 1990 and 1991. In the SSEI section, catch per unit of effort (CPUE) expressed in pounds per hook, declined 30% from 1988 to 1990 but increased 14% in 1991 to 0.31 lbs/hook. In the NSEI section, the CPUE declined 45% from 1988 to 1990 but increased 30% in 1991 to 0.79 lbs/hook.

Fishery data exhibited a similar trend from 1988 to 1989, with the CPUE declining 11% in the SSEI section and 27% in the NSEI section. However, unlike the survey data, the fishery CPUE increased in both areas from 1989 to 1990, with a 11% increase in the SSEI section and a 7% increase in the NSEI section, then decreased in the SSEI section between 1990 and 1991.

The season is set for each area well in advance of the opening. This is done to allow the participating fishermen adequate time to plan their operations. The length of the season is set after the survey is completed and an annual harvest objective is determined. The season length depends on two factors, the number of participating vessels and the estimated time it will take those vessels to reach the annual harvest objective based on past catch and effort data. The timing of the seasons is set within regulatory guidelines to minimize conflicts with other major groundfish and halibut fisheries and to correspond with favorable tide conditions for fishing.

Both sections' fisheries are intensively monitored. Overflights of the grounds are conducted to determine fleet distribution and to verify fish ticket data. One overflight was made during the 57 hour SSEI subdistrict opening. An attempted overflight of the NSEI subdistrict was aborted because of poor visibility. Port samplers in Petersburg, Sitka and Ketchikan obtained skipper interviews and collected tags recovered from both fisheries. 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. Otoliths (aging structures) collected during the surveys were sent to the ADF&G groundfish age reading laboratories in Kodiak and Juneau. These data will be used to determine the changes in the age distribution of the sablefish populations over time.

1991 Season Summary

The 1991 sablefish landings from the state-managed fisheries totaled 2,937,000 lbs landed weight (dressed weight), which converts to 4,662,000 lbs (2,114 mt) round weight, well above the 1990 landings of 2,545,000 lbs landed weight (1,832 mt round weight). An additional 44,225 lbs were harvested during surveys conducted prior to the fisheries. Fishing time in both areas totaled only 3.4 days.

The price for sablefish increased substantially in 1991 to an average exvessel dressed weight price of over \$2.35/lb, significantly higher than the previous peak of \$1.60/lb paid in 1988. The estimated exvessel value of sablefish from state-managed fisheries was approximately \$7,515,000, a dramatic 45% increase over the 1990 exvessel value of \$4,132,000.

Northern Southeast Inside (NSEI) Subdistrict

During 1991 a total of 127 vessels harvested 2,509,000 lbs landed weight of sablefish during a 24-hour opening. The number of vessels increased from 121 in 1990. The 1991 harvest exceeded the 1,500,000-lb upper end of the harvest guideline range by over 1,000,000 lbs, but was down slightly from the recent-year peak harvest of over 2,700,000 lbs taken during the 1988 season. This was the ninth consecutive season during which the upper end of the range was exceeded.

A moratorium on new effort adopted by the CFEC in 1985 has not been successful in decreasing the number of participating vessels. In fact, the number of vessels which fished in 1987, 1988, and 1989 was over twice the number that fished in 1984, the cut-off year for future participation. The number of participating vessels was subsequently reduced in 1990 and 1991, but the 1991 level of 127 vessels was still 74% above the target level of 73 vessels.

In addition to an increase in numbers of participants from the 1984 level, the vessels now fishing are larger, carry more gear, and are much more efficient than ever before. In 1991 the vessels fished an average of 4.8 times more hooks per unit of time than in 1984. The trend toward more gear per vessel has increased annually since the moratorium was initiated. The number of hooks fished per vessel increased from 23,100 in 1990 to over 26,600 in 1991.

Southern Inside (SSEI) Subdistrict

Regulations adopted for the SSEI section in 1989 allow a flexible opening date. The season is to be opened by Emergency Order after June 1 and set for a time period that does not conflict with large tide ranges or with an IPHC Area 2-C halibut opening. To reduce the harvest, the fishery was reduced from three days in 1990 to 57 hours in 1991. The 1991 fishery was open from noon June 21 through 9:00 p.m. June 23. The 1991 harvest reached approximately 428,000 lbs landed weight, which was below the 477,900 lbs landed during the 1990 season and below the 500,000-lb upper end of the guideline harvest range.

A total of 31 vessels fished in the SSEI section during the 1991 season. This was an increase from 29 vessels in 1990, and still substantially higher than the target number of 15 vessels set for this area by the CFEC. All of the vessels fished longline gear during the 1991 season.

While the average catch per vessel for the entire fishery decreased from nearly 16,500 lbs in 1990 to approximately 13,873 lbs in 1991, most of the decrease in overall performance could be directly attributed to the shorter season. The catch per vessel per day actually increased from 5,493 lbs in 1990 to 5,816 lbs in 1991. The increase in average catch per vessel per day was directly attributable to the increase in the amount of gear run. The average number of hooks run per day increased from 15,500 in 1990 to 18,883 in 1991.

Projection

The number of vessels participating in both of the inside area fisheries in 1992 is expected to be approximately the same as the 1991 level. A number of permit applications are under review and the actual numbers will not be known until later in the year. Regardless of the total number of participating vessels, total effort (amount of gear deployed) is expected to continue to increase as larger, more efficient vessels enter the inside area fisheries.

A total harvest objective of approximately 2,000,000 to 2,500,000 lbs is anticipated for the inside fisheries for the 1992 seasons. A through analysis of the five years of survey data is expected to be completed by the spring of 1993. Adjustments in guideline harvest levels will depend on the results of this analysis.

To address the problem of increased effort and reduced stock levels, the department submitted a proposal to the Board in 1990 that would have limited the individual catch or the amount of gear each vessel could

use in the NSEI section fishery. The proposal failed. With a continued trend for larger, more efficient vessels, the amount of fishing time allowed may have to be further reduced to an impractical duration to stay within the appropriate harvest levels.

ROCKFISH FISHERY

More than 20 species of rockfishes from two genera (*Sebastolobus* and *Sebastes*) are landed in Region I groundfish fisheries. Thornyhead rockfish (*Sebastolobus spp*) inhabit the continental slope in waters as deep as 1,000 fathoms. These fishes are landed primarily as by catch in the sablefish longline fishery. The *Sebastes* rockfishes are divided into three assemblages for management purposes. The assemblages are based on habitat preference and behavior:

- The demersal shelf rockfish (DSR) assemblage is comprised of eight nearshore bottom-dwelling species and includes yelloweye rockfish (*S. ruberrimus*) and quillback rockfish (*S. maliger*).
- The pelagic shelf rockfish (PSR) 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* species. Pacific Ocean perch (*S. alutus*), roughey rockfish (*S. aleutianus*) and shortraker rockfish (*S. borealis*) are predominant commercial species in this group.

In Southeast Alaska, only DSR are currently targeted in a directed shore-based fishery. A provision in the Gulf of Alaska Groundfish Fisheries Management Plan transfers direct management authority to the State for the DSR assemblage in both state and federal waters east of 137° W. longitude. State jurisdiction over the other assemblages is restricted to state waters and there are currently no state regulations developed for these fishes. Therefore, the management and season summary sections of this report are limited to the DSR assemblage.

Demersal shelf rockfish are the target of a 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 are fished to a lesser extent. Productive fishing grounds occur primarily in areas of boulder fields, rocky reefs, and pinnacles in depths

from 15 to 90 fathoms. A large portion of this fishery takes place in federal waters, more than three miles from shore.

In addition to the target fishery, rockfish are harvested throughout the region incidental to fisheries for halibut, sablefish, and salmon. A regulation adopted in 1989 allows for the unrestricted retention of all demersal shelf rockfish landed during halibut fisheries. In fisheries for other species or when fishing in and area closed to directed fishing for DSR, DSR may be retained only in amounts up to 10%, by weight, of all species on board a vessel. Fishermen may not target DSR while fishing groundfish for bait, and no more than 10% by weight of all species on board any vessel taken for bait purposes may be DSR. These provisions are designed to discourage targeting while still allowing for some reasonable level of retention. Allowed retention tends to minimize waste of these valuable species which, due to their physiology are usually 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 numbers of vessels participating in the target DSR fishery prior to 1990 is very difficult to quantify since several fisheries shared the same miscellaneous saltwater finfish longline permit cards (M61B and M06B). In 1990, the CFEC issued a separate permit card (Y61A or Y06A) for DSR longline fisheries in the Southeast District. However, since the DSR season is managed from October of one year through September of the next, all first quarter landing of the 1989/90 season were reported on "M" cards. Many fishermen were initially unaware of the change and fish tickets landings continued to be imprinted with "M" cards in some instances throughout 1990. For the purposes of this report "Y" cards (longline only) were used to define the directed DSR fishery in 1991.

Longline gear is the predominant method of harvest for this group of fishes. Snap-on longline gear using 4 to 6 foot spacing and circle hooks is most common. Jigging machines, hand trolling, and dinglebar gear is also used, but to a lesser extent.

Management

Several new regulations were implemented for the directed DSR fishery at the 1989 winter Board meeting. The fishery is split into three seasonal components. The intent of this provision is 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. Also during the 1989 meeting, the Board implemented regulations requiring mandatory logbooks, established guideline harvest ranges for each of the five management sections of the Southeast District, it implemented a trip limit of 7,500 lbs per five-day period, and it closed a portion of Sitka Sound and the waters surrounding Ketchikan to directed fishing.

During the 1991 Board of Fisheries meetings, a closure in the vicinity of Craig and Klawock was adopted, and the guideline harvest ranges for all management areas were adjusted downward by a considerable amount. The current seasonal guideline harvest ranges for the directed DSR fishery are shown in Table 2.

Primary management action for the Southeast DSR fisheries centers around catch and effort monitoring. Management areas are closed when fish ticket data indicates that seasonal harvest objectives will be reached. Port samplers working in 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 confirm and supplement mandatory logbook entries.

During the 1989/90 season the harvest objectives were not reached and there were no inseason closures. However, the outside districts closed on May 29, 1990 when NMFS closed the entire Gulf of Alaska to longlining for all groundfish because the prohibited species cap (PSC) for halibut had been reached. On August 14, 1990 the outside districts were reopened to DSR fishing under an emergency rule issued by NMFS. The emergency rule exempted the DSR longline fishery from the Gulf of Alaska halibut PSC closure under the assumption that, although the bycatch rate is quite high, the mortality of bycatch halibut in this fishery is very low.

During the spring of 1991, the 1990-91 winter/spring guideline harvest limits and the carry-over from the fall 1990 season were taken in all areas, and the fishery was closed prior to May 15 to remain within the harvest objectives. However, the 1991 summer harvest limits were not met in the outside waters because all longline fishing was closed on July 8, 1991 when the PSC for halibut was reached. There was no exemption for the DSR fishery in 1991, and the Southeast Outside District remained closed through the remainder of the year.

1990/91 Season Summary

The 1989/90 and 1990/91 harvests of DSR are listed in Table 2. The harvest of "other" rockfish and the incidental catch of DSR in fisheries for other groundfish species is listed in Table 3. During the 1990/91

season the target fishery for DSR landed 775,001 lbs (351.5 mt) round weight. Additionally, 306,842 lbs (139 mt) were landed in other fisheries. During 1991, 296,381 lbs (134 mt) of "other rockfish" were landed in internal waters.

Yelloweye rockfish (*S. ruberrimus*) accounted for 76% of the recorded DSR catch by weight. The percentage was actually higher, however, since yelloweye are also recorded as red snapper or unspecified demersal shelf rockfish on the fish tickets. Other species of rockfish, Pacific cod, lingcod and skate are routinely harvested as bycatch in the DSR fishery. During the 1990/91 season, 17,000 lbs of Pacific cod, 50,000 lbs of lingcod, and 33,000 tons of rockfish species other than DSR were landed on longline gear using a "Y" permit.

Pounds per landing decreased slightly in the NSEO and SSEO sections and decreased markedly in the SSEI subdistrict between the 1989/90 and 1990/91 seasons. There was a slight increase in pounds/landing in the NSEI subdistrict, and a marked increase in pounds/landing in the CSEO section between the past two seasons (Table 4).

Reported landings of DSR totaled 480,690 lbs (218 mt) in the East and West Yakutat Districts combined. This was a significant increase over the previous record of 127,890 lbs (58 mt) landed during the 1988/89 season. The East and West Yakutat Districts were also closed to longlining on July 8 when the halibut PSC was reached and they remained closed for the rest of 1991.

Projection

Recent catches and CPUE have increased in the Sitka (CSEO) area. The shortened seasons promulgated by the halibut PSC closures should not occur in the future because the NPFMC is acting to set aside 10 mt of halibut PSC for the DSR fishery. An increase in effort is also anticipated in the East Yakutat District.

It is difficult to project catch and effort for the SSEO area, as its harvest appears influenced to a great extent by processor interest. The fleet in the area is capable of taking the entire harvest limit if there is processor demand.

Fisheries in the NSEI and SSEI subdistricts continue to show poor performance levels. It seems likely that the stocks are so low that they can not support much directed effort.

FLATFISH TRAWL FISHERIES

By regulation, the state managed trawl fisheries in Region I occur exclusively in the waters of the two Southeast inside management sections. All recent effort has been directed at flatfish which inhabit three shallow estuaries in the central portion of the internal waters of Southeast Alaska.

Fishing Gear

Trawl permits were issued to eight vessels during the 1990/91 season. Otter trawls rigged for on-bottom fishing was the predominant gear type.

Management

Trawl fisheries in state waters of Region I are managed under the terms of a special permit issued by staff biologists under authority of the Commissioner. All permits are required to be cleared with the Regional Groundfish Biologist before they are issued. This requirement is to maintain consistency of permit terms 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 return of completed pages from ADF&G-furnished log books. This requirement is listed as a condition of the permit.

During the 1989 Board meetings, regulations were adopted which restrict flatfish trawling to four relatively small areas of the region. These areas are defined in the Commercial Groundfish Fishing Regulations. Guideline harvest ranges and seasons were established for each trawl management area (Table 5). Harvests within the newly adopted guideline harvest ranges justified closures of two areas last spring. The Stikine Flats management area has not been opened to flatfish trawling for the past three seasons because of poor stock conditions.

The Board also established seasons for flatfish trawling at the 1989 meeting. Two of the trawl management areas, Anita Bay, and the Stikine Flats (when fishing is allowed in this area) are open from October 1 through April 15, or until the seasonal harvest objective has been obtained. The other two trawl

management areas, Duncan Canal, and Port Camden, are open from October 1 to November 15, and again from February 15 to April 15, or until the seasonal harvest objective has been reached.

1990/91 Season Summary

The flatfish trawl harvest during the 1990/91 season was distributed similarly to the past few seasons. Most of the harvest (93%) was from the SSEI section (Duncan Canal and Anita Bay), with the remaining 7% from the NSEI section (Port Camden).

Trawl landings during the 1990/91 season totaled 340,633 lbs (154.5 mt). The total harvest in each of the past three seasons was considerably below the 829,962 lbs (376 mt) reported during the 1987/88 season.

Trawl fisheries occur primarily during the fall and winter. However, the Duncan Canal area was closed early in the 1990/91 season for conservation reasons when the seasonal harvest objective was taken. Most of the 1990/91 seasonal harvest came from that one area and there was very little additional trawl harvest from inside waters during the winter and spring of 1991.

Starry flounder accounted for 97% (330,819 lbs) of the flatfish trawl landings. The remaining 3% was comprised of rex, flathead, and rock sole.

Projection

The flatfish fisheries in Southeast Alaska are restrained 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, hence fishing is not productive over much of the year.

Samples collected from the Stikine Flats in 1990 indicated that its flatfish stock is still in very poor condition. Much of the remaining population consists of immature fish. This is likely the result of over-harvest during the early to mid-1980s. The area will remain closed to fishing until evidence of improved stock conditions is apparent.

The fishery in lower Duncan Canal went through a low cycle for several years, but has produced well the past three seasons. It is unknown if these cycles are the result of exploitation or occur naturally. The

fishery in the area will be monitored closely to determine if the relatively high harvests of recent years can be sustained.

Port Camden is another major area which remained open for trawling under the new regulations. Harvest from that area has shifted from primarily a fall fishery to a late winter and early spring fishery over the past several seasons. It is not known whether the fish taken later in the year are from the same stock of fish as those harvested in the fall. Harvests have been minimal the past two years compared to historic averages. Part of the reduction can be attributed to lack of effort. However, the limited effort which has occurred has not been particularly successful. It is unknown whether the area will be a major producer of flatfish in the future.

The fourth area which has remained open is in a portion of Zimovia Strait, including Anita Bay. The stock is considered quite small, and there is some indication that fish which are found in the area 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 in the future.

Each year department staff receive numerous requests for information concerning the potential for additional trawl fisheries within the region. The productive shelf area is very limited within Southeast Alaska, and the shelf area that does exist is exploited by other commercial species. During experimental trawl fisheries conducted between 1978 and 1990 it was estimated, from extensive observer coverage, that the value of prohibited species, primarily crab, exceeded the value of the target groundfish landed. For this reason, Southeast Alaska appears to have very limited potential for additional trawl production without impacting other resources. The Board made it clear during the 1989 meeting that on-bottom trawling should be restricted to the four areas which remain open under current regulations, and that experimental fishing outside of those areas would not be allowed. Unless that position changes, groundfish trawl fisheries will be restricted to target fisheries for flatfish in the four areas left open by regulation, and harvests will remain at low levels.

PACIFIC COD FISHERIES

Most of the Region I Pacific cod harvest comes from the two inside areas which are managed by the state (82% in 1991). The NSEI section is the most productive, with 71% of the 1991 regional harvest, and 87% of the harvest reported from the inside waters. The modest harvests reported from the Outside Southeast Subdistrict and East and West Yakutat Districts are counted against the Total Allowable Catch

(TAC) limit set annually by the NPFMC. The reported harvest from the two Yakutat Districts totalled only 37,745 lbs (17 mt), or 7% of the 1991 Region I production.

Management

There are currently no regulations in effect for the Pacific cod fisheries in the internal waters of Southeast Alaska. Pacific cod fisheries along the outer coast of the Southeast District and in the East and West Yakutat Districts are managed in conjunction with the NPFMC and are subject to regulations affecting either the cod fishery or specific gear groups in these areas.

Much of the Pacific cod are landed in small amounts incidental to other fisheries, or they are sold at sea as bait, making it difficult to collect biological data from the catch. Therefore, little is known about stock conditions.

1991 Season Summary

Pacific cod landings from the entire region totaled approximately 507,000 lbs (230 mt) during 1991, a substantial increase from the 270,000 lbs (122 mt) reported in 1990.

Most of the harvest (439,450 lbs) was reported from the NSEI section, and most of the production from both inside areas occurred during the first half of the year. Over 78% of the NSEI section harvest, and 68% of the SSEI section harvest, was taken prior to July. February was the peak month of harvest in NSEI, while the harvest was highest in March, April and December in SSEI.

Much of the harvest in the NSEI section is sold as bait to crab fishermen on the fishing grounds. It is presumed that at least some of the sales go unreported. In addition, many fishermen catch Pacific cod for their own use as bait. Even though current regulations require that bait landings be reported, it is assumed that much of it is not. Consequently, the actual Pacific cod harvest is believed to be much greater than the reported catch would indicate.

Besides the catch from the directed fisheries, Pacific cod are also landed incidentally from salmon troll, halibut longline, and flatfish trawl fisheries. The incidental landings from the troll fishery are in the salmon fish ticket database and are not included in this report.

Projection

The amount of Pacific cod landed annually depends to a large extent on market conditions. When markets are weak there is very little directed fishing; most of the harvest is in conjunction with target fisheries for other species. Much of the cod is discarded or used as bait in fisheries for other species. Consequently, annual catch projections are difficult to make. Reported landings over the past several years are high compared to the historic average. Much of the increase can likely be attributed to better catch reporting. A high demand for Pacific cod as an off-season target species is expected to continue as long as markets remain favorable.

Beginning in 1991, fishermen taking groundfish for their own use as bait were required to report their catch to the department. That regulatory requirement has largely failed and compliance is not expected to improve without a concerted educational and enforcement effort.

LINGCOD FISHERIES

Regionwide, 1,066,000 lbs (499 mt) of lingcod were landed during 1991. Most of the Region's lingcod harvest occurred in nearshore waters along the outer coast. Nearly 64% of the harvest was from state waters (within three miles of shore), the directed fishery accounted for over 487,000 lbs (221 mt).

Historically, most of the harvest has been incidental to fisheries targeting on other species. Beginning in 1986, however, directed fisheries for lingcod were reported for the first time. As a result of the directed effort, total landings have increased dramatically in recent years.

Fishing Gear

Lingcod are predominantly harvested by longline gear, mechanical jigging machines, and incidental to the salmon power troll fishery. The majority of longline landings of lingcod are incidental to fisheries targeting on demersal shelf rockfish and halibut.

Very few fishermen target on lingcod with longline gear; most of the target catch is attributed to "mechanical jigging machines". The jigging machine fishery is conducted primarily by troll vessels using

modified troll gear referred to as "dingle bar" gear. 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, the proximity of the gear to the bottom when fished, the fact that the lines are deployed directly off the gurdies, and that trolling poles are normally not used. Dingle bar gear must be licensed as "mechanical jigging machines" since there is no legal designation for power troll gear in the groundfish regulations.

In 1991, mechanical jig gear (dinglebar) accounted for 45% of the total lingcod harvest. This was followed by longline gear with 44% of the total catch. Landings made incidental to the salmon troll fishery accounted for the remaining 9%.

Management

Lingcod are not included in the Federal Groundfish Fisheries Management Plan. Therefore, the state has assumed management responsibility for this species in all waters of the Eastern Gulf of Alaska.

A staff proposal for a seasonal closure to protect nest guarding males was rejected by the Board during its 1989 meeting because of a lack of conclusive information on spawn timing in Southeast Alaska. Preliminary data collected by the department in 1989 and 1990 suggests peak spawning activity may occur between mid-February and mid-March. Males guard egg masses throughout the incubation period, which is reported to be 5 to 11 weeks, with an average of 7 weeks. In Sitka Sound, two viable egg masses were observed on April 2 and one egg mass remained unhatched through May 25.

At its 1991 meeting the Board implemented two management regulations for lingcod: 1) a complete closure to retention of lingcod inside the surfline between January 1 and May 31, and 2) a 300,000 to 500,000 lb guideline harvest limit for the directed fishery in the Southeast District (east of 137° W. longitude). The surfline closure was a compromise position to the department's proposal to close all directed fishing for lingcod between January and May in order to protect nest-guarding males from harvest. The department will be conducting submersible work during the spring of 1992, in part to determine the distribution of nesting lingcod, and to evaluate the effectiveness of the surfline closure.

Little is known about population biomass, sustainable harvest levels, or even the basic biological parameters of lingcod in Southeast Alaska. The staff is examining catch trends and the distribution of harvests to see if fishing effort is consistent in the more productive areas from year to year.

1991 Season Summary

The 1991 regional harvest totaled nearly 1,066,000 lbs (485 mt) round weight (Table 6). It included both directed and incidental harvest from all Southeast and Yakutat Districts, and represented a 37% increase from the 1990 annual harvest of 776,000 lbs (352 mt). The increase was due primarily to increased harvests in the directed (dinglebar) fishery.

The 1991 directed harvest was over 487,000 lbs (221 mt), a 59% increase from the 1990 harvest of 307,000 lbs (139 mt). Approximately 95% of the directed harvest was reported from state waters. The fishery was closed on November 27 when it appeared that the upper end of the 500,000 lb guideline harvest level would be reached.

Landings from the CSEO section dominated the Southeast District harvest again, with 48% of the total regional harvest. Landings from the East Yakutat and the NSEO sections were also significant, with 23% and 15% of the region's total, respectively. Lingcod landings by management area and gear type are shown in Table 6.

Projection

The 1991 catch figures show a historic high lingcod harvest in Southeast Alaska. This was due, largely, because of increased effort in the directed dinglebar fishery, which increased from 232 landings in 1990 to 296 in 1991. Salmon trollers can participate in the dinglebar fishery with minimal investment in gear, which make it an attractive alternative fishery during the off-season. As long as salmon troll seasons remain short, markets for lingcod remain stable throughout the year, and lingcod stocks remain strong, it is likely that effort will continue to increase.

During 1991 approximately 32% of the directed harvest of lingcod occurred between January 1 and May 31. In 1992 the January 1 through May 31 surfline closure will go into effect and will probably result in a seasonal shift in monthly production.

OTHER GROUND FISH SPECIES

A major target trawl fishery for pollock in the Southeast District, which averaged over 1,000,000 lbs of annual production from 1978 through 1981, has been essentially non-existent in recent years. Pollock are now included in the "other groundfish" species category. Additional species in this category are dogfish sharks, skates, hagfish, sculpins, salmon sharks, giant wrymouths, and greenlings. Because of the way the state catch data is grouped, species such as squid, octopus, and eulachon, also fall into the "other species" grouping for fish ticket accounting. These species are not, however, included in the "other groundfish" category in Table 1.

Management

There are currently no regulations regarding seasons or harvest levels for other groundfish species in state-managed waters of Region I. With the exception of an experimental target fishery for hagfish, and some target effort for sharks, most of the "other groundfish" harvest is incidental to fisheries for other species. For this reason, independent management of these species would be difficult.

1991 Season Summary

Landings of other groundfish species were low again during 1991 with slightly over 31,000 lbs reported from internal state waters. For the first time in recent years pollock was landed in Southeast, although the amount was extremely limited. 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, though with the short crab and halibut seasons, the demand for fresh bait has been reduced. Also, reporting of the groundfish catch by species has improved. This places much of the Pacific cod, flatfish, and unspecified rockfish catch that was previously reported in the general groundfish category into the appropriate individual species categories. In addition, experimental trawl fisheries for flatfish and other target species such as Pacific cod, and trawl fisheries for pollock and miscellaneous groundfish for bait, which harvested a large portion of the other groundfish in the past, were eliminated by the new trawl regulations implemented in 1989.

Projection

Reported landings of other groundfish in the Southeast District have been linked, to a large extent, to demand for bait or to specialty markets. Increased harvests of other groundfish species for bait are not expected to increase substantially unless the crab and halibut seasons are extended. Harvests of other species for food fish or other uses are not expected to increase substantially unless markets improve. There is currently some interest in expanded target fisheries for dogfish, hagfish, and salmon shark, but little actual production has been documented. The future of these fisheries will depend on market demand and increased prices for the products.

Table 1. Total groundfish landings (pounds landed weight x 1,000) and estimated exvessel value (\$ x 1,000) from State of Alaska managed fisheries in the Eastern Gulf of Alaska by major species, or species groups for calendar years 1989-1991.

Species	1989		1990		1991	
	Catch	Value	Catch	Value	Catch	Value
Sablefish	3,056	\$3,636	2,570	\$4,132	2,962	\$7,515
Demersal Shelf Rockfish	1,247	748	971	572	1,020	555
Other Rockfish	99	35	85	35	296	77
Flatfish	258	62	298	71	341	80
Pacific Cod	340	129	255	102	605	209
Lingcod	410	214	497	316	768	426
Other Species	13	3	41	10	32	9
Total	5,423	\$ 4,827	4,717	\$ 5,238	6,027	\$ 8,870

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

Demersal Shelf 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. Harvest limits and season harvests for 1989/1990 and 1990/1991, in metric tons round weight, in the Southeast Alaska directed demersal shelf rockfish longline fishery.

Management Area	1989/90		1990/91	
	Guideline Harvest Range ^{a/}	Harvest	Guideline Harvest Range ^{a/}	Harvest
NSEO	25 - <u>50</u>	37	25 - 50	37
CSEO	<u>150</u> - 200	86	100 - 150	102
NSEI	35 - 60	40	35 - 60	42
SSEO	125 - <u>170</u>	106	100 - 150	103
SSEI	<u>100</u> - 150	58	50 - 100	67
Southeast ^{b/}		1		0
Total		327		351

^{a/} Underlined value is the seasonal harvest objective. The harvest objective for the NSEI area is the midpoint of the range.

^{b/} Not specified by management area.

Table 3. Total "other" rockfish catch and incidental demersal shelf rockfish harvested in fisheries for other species during 1991, in metric tons round weight.

Management Area	Incidental DSR	"Other" Rockfish
NSEO	16.3	-
CSEO	46.8	-
NSEI	21.1	45.9
SSEO	24.9	-
SSEI	29.5	25.5
W. Yakutat	4.3	-
E. Yakutat	214.4 ^{1/}	-
Southeast ^{2/}	3.6	-
Total	336.0	71.4

^{1/} This catch was targeted DSR, however in 1991 DSR west of 137° W. longitude was not recognized as a distinct species group and was included in the "Other rockfish" category.

^{2/} Not specified by management area.

Table 4. Pounds per landing in the directed fishery for demersal shelf rockfish for the 1989/90 and 1990/91 seasons.

Management Area	1989/1990	1990/1991
NSEO	1,091	1,018
CSEO	1,289	2,000
NSEI	927	970
SSEO	2,205	2,169
SSEI	1,323	984

Table 5. Guideline harvest ranges and seasonal harvest objectives for flatfish trawl fisheries in the four flatfish trawl management areas in Southeast Alaska for the 1990-91 season.

Management Area Objective	Guideline Harvest Range In Pounds	Seasonal Harvest In Pounds
Stikine Flats	0 to 150,000	-0-
Sumner Strait/ Duncan Canal	100,000 to 350,000	300,000
Zimovia Strait/ Anita Bay	20,000 to 100,000	70,000
Keku Strait/ Port Camden	100,000 to 350,000	250,000

Table 6. Preliminary lingcod harvests (lbs round weight x 1,000) by ADF&G groundfish management area and gear type, 1990-91.

Management Area	Longline		Jig		Troll ^{a/}		Total	
	90	91	90	91	90	91	90	91
WYAK	32	0	0	11				
EYAK	88	212	1	12				
NSEO	61	53	56	92				
CSEO	93	43	237	376				
NSEI	14	19	3	19				
SSEO	49	57	8	2				
SSEI	20	22	2	0				
Total	357	474 ^{b/}	307	501	112	91	776	1066

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

^{b/} Includes 4,000 lbs of lingcod reported for Southeast Alaska.

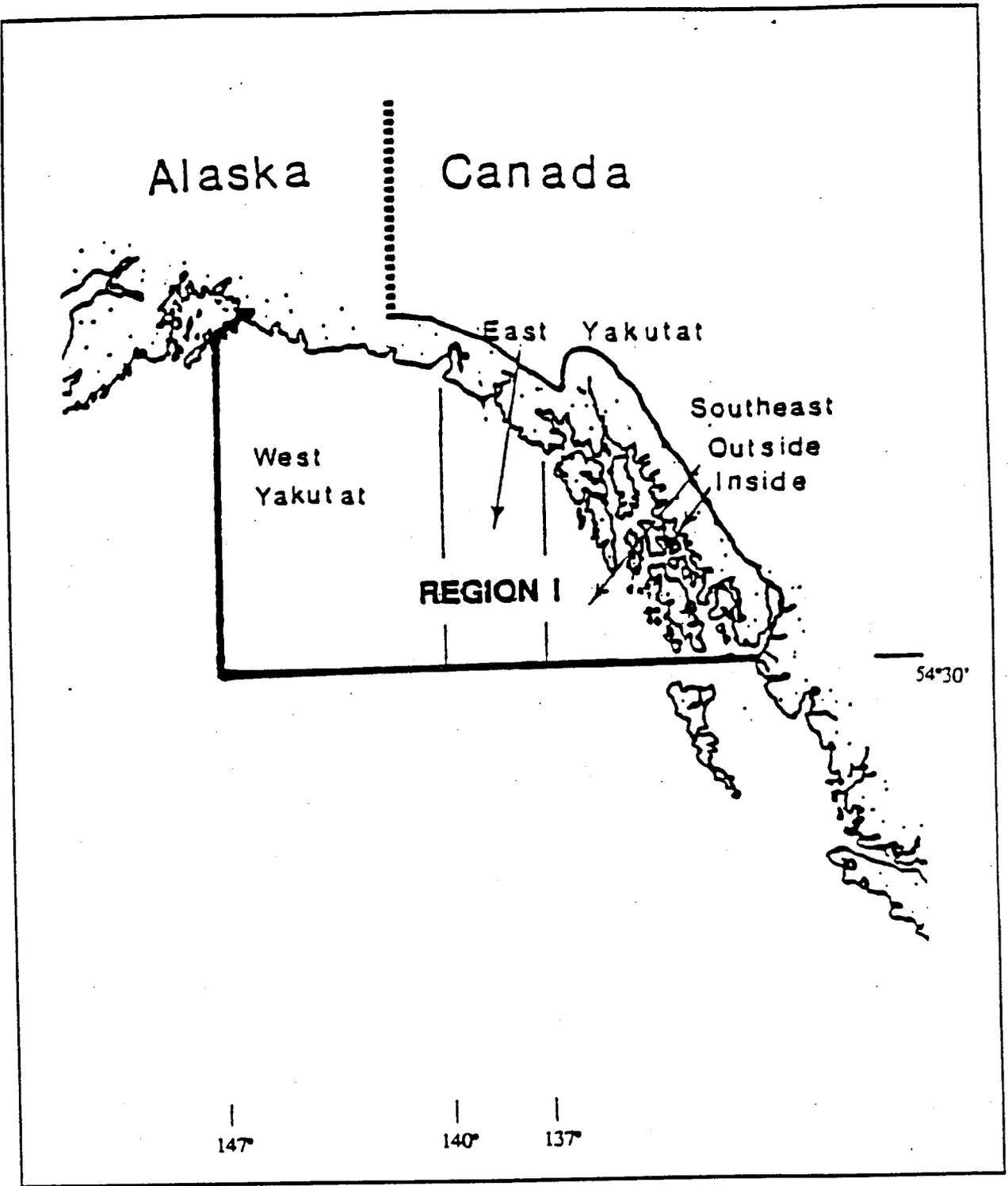


Figure 1. Alaska Department of Fish and Game Region 1 boundaries and groundfish management areas in the Eastern Gulf of Alaska.

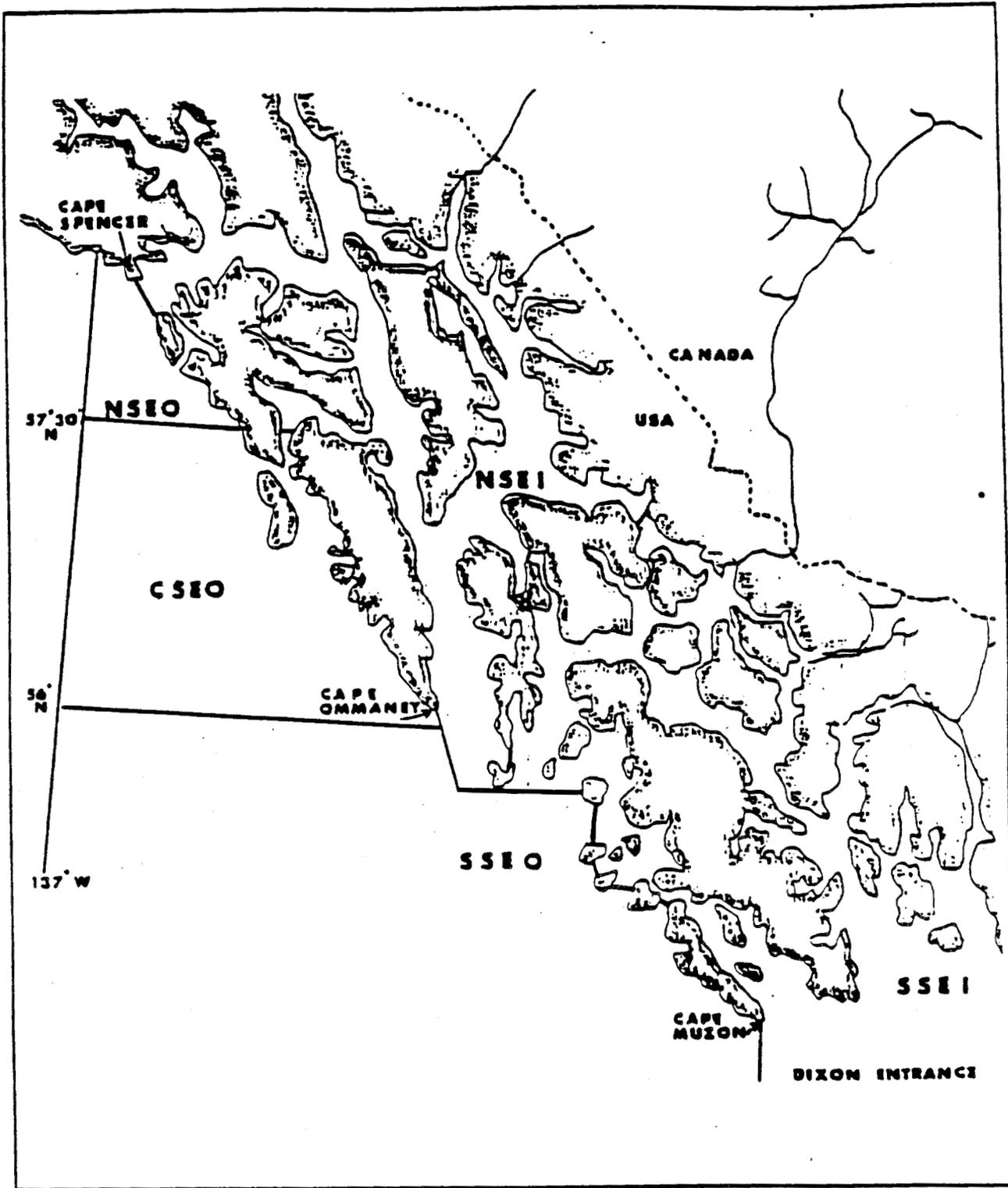


Figure 2. The Southeast Alaska coastline showing Alaska Department of Fish and Game groundfish management areas.

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