

SOUTHEAST ALASKA TROLL FISHERY PERFORMANCE MONITORING

1987

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ABSTRACT

The commercial troll fishery in Southeast Alaska is monitored to allow estimation of in-season catch in a timely manner. Approximately 10% of the fishery landings are sampled in various ports throughout the region to determine catch per standardized day. Aerial surveys using light aircraft are conducted to determine the number of vessels fishing per area. Region catches are calculated by multiplying the numbers of vessels observed times the catch per day times the number of days of the open fishing period.

Fish tickets are collected from all buyers in the region and sent to the Sitka troll management office where they are edited, collated and keyed into a micro-computer using customized programming. Preliminary catches are compared to estimated catches to determine if additional fishery openings or closures are required.

INTRODUCTION

The commercial troll fishery in Southeast Alaska occurs in waters under both State and Federal jurisdiction east of the longitude of Cape Suckling. All other waters of Alaska including the Fisheries Conservation Zone (FCZ) west of Cape Suckling are closed to commercial trolling.

The Alaska Board of Fisheries promulgates State fishing regulations while the Secretary of Commerce is the Federal counterpart for regulating fishing activities in the FCZ. The Board of Fisheries and the North Pacific Fishery Management Council meet annually to insure that compatible management measures are employed to the greatest extent possible.

Although less than 10 percent of the troll chinook and coho salmon catch is normally reported from outer coastal areas beyond three miles of the surfline which constitutes the Federal FCZ waters, coordination of State and Federal regulations is required to minimize confusion for fishermen fishing both areas.

Management of Alaska's commercial fisheries is based on policies and regulations promulgated by the Board of Fisheries. Authority to issue in-season emergency orders to adjust fishing seasons and areas is delegated through the Commissioner of the Alaska Department of Fish and Game (ADF&G) to Department fisheries management biologists. This provides the necessary flexibility to regulate fisheries in response to in-season assessment of resource availability. A similar system exists in the Federal management agency where the National Marine Fisheries Service has authority to institute in-season regulatory changes.

Salmon Stocks

The commercial troll fishery targets primarily on chinook and coho salmon stocks. While some targeting occurs on pink salmon in certain localized areas, pink, chum and sockeye salmon harvested by trollers are normally considered incidental to the taking of the two primary target species. The troll fishery normally accounts for 80% - 90% of the chinook salmon and 50% - 75% of the coho salmon taken in Southeast Alaska fisheries.

Native chinook and coho salmon stocks occur throughout Southeast Alaska. Chinook salmon spawn primarily in large mainland rivers and their tributaries, the most important of which are the Alsek, Taku, Stikine, (the trans-boundary rivers) and the Behm Canal rivers. In total, 34 systems in Southeast Alaska are known to produce runs of chinook salmon.

Current information indicates that a majority of the chinook salmon presently harvested in the Alaska troll fishery are produced from spawning streams and hatcheries in Canada and the Pacific Northwest. Several age classes of mature spawners and immature chinook salmon are harvested by trollers during

any one fishing season. A minimum size limit of 28 inches (measured from tip of snout to tip of tail) applies to chinook salmon harvested by troll gear.

Coho salmon occur in most of the approximately 2,000 anadromous fish streams in Southeast Alaska and spawn during the fall and early winter months. Most of the coho salmon harvested by trollers are of Alaskan origin and are harvested in the year of spawning. There is not minimum size limit for coho salmon.

Southeast Alaska chinook and coho salmon stocks are generally depressed from historical production levels although coho salmon returns in 1982-86 were unusually strong, probably as a result of recent mild winters. Many non-Alaska chinook salmon stocks contributing to Southeast Alaska fisheries are also depressed. A fifteen-year rebuilding program begun in 1981 for Southeast Alaska chinook salmon stocks combined with coastwide chinook salmon conservation measures implemented under the U.S./Canada Salmon Treaty are expected to significantly improve natural runs.

Since statehood, annual commercial catches by all Southeast Alaska gear types have often exceeded 300,000 chinook and 1,000,000 coho salmon, although chinook salmon catches have been below 300,000 since 1981 as a result of imposed catch ceilings. These harvests, though substantial, are considerably lower than levels produced between 1930 and 1950. Peak historical harvest levels most likely occurred partially at the expense of spawning escapements, and hence were not sustainable. Some southern U.S. chinook salmon stocks have declined due to habitat degradation, though depressed catch levels during the 1960's and 1970's are probably less than natural stocks are capable of producing given adequate escapements.

Chinook Salmon Fishery Management

Rebuilding of Southeast Alaska chinook salmon stocks and participation in coastwide natural chinook salmon stock conservation efforts have required new management and regulatory approaches in recent years. The long term management approach for Southeast Alaska and transboundary chinook salmon includes a 15-year stock rebuilding program begun in 1981. This long term rebuilding schedule was established to spread out the socio-economic impact of catch reductions on the trolling industry which derives about half of its income from the harvest of chinook salmon.

While annual chinook salmon spawning escapements to Southeast Alaskan systems have generally remained below desired management goals, significant improvements have occurred since 1981 and the rebuilding schedule is generally being met. This has been primarily the result of spring trolling closures initiated since 1981 and continuation of extensive troll, net and sport fishery restrictions implemented during the mid-1970's in inside waters and terminal areas. Guideline harvest levels set by the U.S./Canada Pacific Salmon Commission are used to control catch levels of chinook salmon in the Southeast Alaska troll fishery. Opening fishing dates are established by the Alaska Board of Fisheries. When the guideline harvest level is reached the

fishery is closed to the taking of chinook salmon. A system of in-season catch estimation developed by the department in 1979 is used to estimate the chinook salmon catch by area and predict the date the guideline harvest level will be reached. This system provides more timely catch data than sales receipts (fish tickets) because of the delay in processing tickets from all the remote buying stations in Southeast Alaska.

Coho Salmon Fishery Management

The troll coho salmon season normally occurs from June 15 through September 20 although the major portion of the catch generally occurs from mid-July through early September. Troll coho salmon catches generally peak near mid-August while catches in inside gillnet fisheries peak approximately one month later near mid-September; migrations into spawning streams peak between late September and mid-October. Southeast Alaska coho salmon fisheries are managed on in-season run strength and are regulated to achieve conservation objectives and Board of Fisheries established allocation policies. The coho salmon fishery is not managed under harvest guidelines as is the chinook salmon fishery.

One of the major problems complicating effective management of the coho salmon fishery is the recent shift of troll fishing effort from inside to outer coastal management areas. This has increased the mixed stock nature of the coho salmon fishery. Management problems have resulted because a major portion of the coho salmon catch is now occurring in outer coastal fishing areas before coho salmon are available in inside water fishing districts where individual run strength can be better assessed. Also as a result of increased effort by the troll fishery in outer coastal areas, inside fisheries, including troll, have experienced reduced opportunities for coho salmon harvest.

Management of the coho salmon troll fishery is based upon in-season assessment of run strength as determined troll fishery performance in relation to previous seasons. Coho salmon fishing success of terminal area drift gillnet fisheries and some inside recreational fisheries is used to provide information concerning escapement rates of coho salmon through the troll fishing areas and as general indicator of escapements to some mainland spawning streams.

METHODS

Estimation of the in-season troll catch of chinook and coho salmon is accomplished by multiplying the number of boats observed fishing times the catch rate derived from dockside sampling. (Tables 1 & 2) In order to account for the variability in catch rates throughout Southeast Alaska, the

region is divided into six areas that closely correspond to fleet fishing patterns (Figure 1):

- Area 1 - Waters north and west of Cape Suckling.
- Area 2 - Waters west of Baranof Island and Chichagof Island between Cape Spencer and Cape Ommaney.
- Area 3 - Waters west of Prince of Wales Island between Cape Muzon and Cape Ommaney.
- Area 4 - Waters of Icy Strait, North Chatham Strait, Lynn Canal and Stephens Passage.
- Area 5 - Waters of Frederick Sound, South Chatham Strait, and Sumner Strait.
- Area 6 - Waters of Clarence Strait and Dixon Entrance.

Catch rates for each of these areas are calculated weekly using information gathered from dockside interviews at the time the fisherman sells his catch. (Table 1) The number of interviews each week is primarily determined by practicality. Sample goals are set for each port based on a percentage of historical landings but those goals may not be achieved if landings do not meet expectations.

A minimum goal of 2,280 valid data points for a 12 week season is apportioned though the region by port (major ports have more samples, minor ports have fewer samples) in order to obtain a goal of ten percent of expected total landings. Past years' data is used to evaluate each new year's sampling goals. Sampling goals for each port are minimum expectations; and higher numbers of data points for each port are encouraged if the number of vessel landings allow. (Table 1) The variability in fishing effort by area for the troll fishery prevents precise sampling expectations by port or by statistical area. Troll fishermen tend to move to areas of higher catch rates, and those areas of concentrated effort may differ from week to week, and from year to year. The intent is to maintain an overall ten percent sample of the troll landings. The ten percent figure is derived as being a representative sub-sample of the landings, and as being logistically feasible.

Interviews are normally conducted while cold storage personnel sort and grade the catch. Chinook and coho salmon are counted by the sampler. A sample form is completed for each interview (Figure 1). Completed forms are mailed to the Sitka troll management office weekly from each port.

The number of boats fishing in each area is determined by aerial surveys using light aircraft. Surveys of the entire region are attempted weekly but are weather dependent.

The following information (Tables 1-6) is produced from the completed samples:

1. Average catch per boat day. (Table 2)
2. Catch per boat day. A boat day is a non-standardized day in which a boat reported that fishing occurred. (Table 1)

3. Estimated catch per day. This is found by multiplying the average catch per boat day for each area times the aerial survey boat count for each area. (Table 2)
4. Estimated catch for week. This is found by multiplying the estimated catch per day times the number of available days. In some instances only 2 or 3 days may be available if a fishing period opens in the middle of a calendar week. In a normal Sunday - Saturday calendar week 6 days are used to calculate catch because of time involved in offloading or fishing time lost due to bad weather. (Table 3 & 5)
5. Estimated region catch by day and week. This is found by adding the estimated catch from each area. (Tables 2 & 4)
6. In recent years chinook seasons have tended to become shortened. This has made calculations of weekly catches difficult. Therefore the staff has explored calculating period catches based on fleet landing patterns. (Tables 2 & 4)

Actual catches of chinook and coho salmon are tallied from fish tickets (sales receipts) that are completed by the buyers at the time of landing. This process can not be completed in a timely manner to allow in-season use of this data. The catch summaries generated from the fish ticket files are necessary to check the actual catch against the estimated in-season catch and to provide accurate catches by area and time to compute coded wire tag contributions.

Fish tickets from all landing ports in Southeast Alaska are shipped to Sitka via mail service. Fish ticket editors check the tickets for accuracy and completeness and enter the data on a micro computer using a customized program. Approximately 25,000 tickets are processed for the summer season and 2,000 - 3,000 tickets are processed for the winter season.

RESULTS

Chinook Fishery Monitoring

The pre-season management plan for the 1987 troll fishing season included a summer season troll target harvest of 193,000 chinook salmon. This target was determined by subtracting a winter catch of 28,400, a pre-season estimated net fisheries catch of 20,000, and a recreational fishery pre-season projection of 22,000 from the established all-gear base catch ceiling of 263,000 chinook salmon. (These pre-season projections did not include projected catches of new Alaska hatchery production which were to be estimated inseason from coded wire tag returns.) The number of chinook taken by the troll fishery that were estimated to be new hatchery production was 11,700 fish. This number added to the base summer target of 193,000 gave an allowable catch of 204,700 chinook. The actual summer catch was 209,400 chinook which was 5,000 chinook or about 2.4% above the target catch. This

overage was compensated for by smaller than expected recreational and incidental net catches of chinook salmon.

In-Season Management

The 1987 general summer troll chinook season opened June 20 and continued for 23 days through July 12. (Figure 3) In response to high chinook catch rates, five outer coastal areas of high chinook abundance were closed from July 4 through July 12 in an effort to slow the chinook catch rate. (Figure 3) This was intended to extend the chinook fishery, and reduce the duration of chinook non-retention occurring after the chinook catch ceiling was reached and the troll fishery remained open to other species. In spite of the area closures, high chinook catch rates continued and the chinook fishery was closed beginning July 13. Troll harvest of non-chinook species during the general summer season included: 1.04 million cohos, 487,000 pinks, 13,000 chums and 10,000 sockeye. (Table 6)

The 23-day summer season in 1987 was the shortest on record, and was nearly 11 days shorter than the previous shortest summer season of 33.6 days in 1985. (Figure 4) Chinook catch rates during the 1987 23-day summer chinook season increased to 9,100 chinook per fleet day, or approximately 50 % above the 6,000 rate which occurred during a similar structured summer season in 1986. (Figure 5) This continued the trend of increasing chinook catch rates during the past several summer seasons.

Coho Fishery Monitoring

The troll coho salmon season normally occurs from June 15 through September 20, although the major portion of the catch generally occurs from mid-July through early September. Troll coho catches generally peak near mid-August while catches in inside gillnet fisheries peak approximately one month later near mid-September; migrations into spawning streams peak about mid-October. During the past several years, however, a higher proportion of the troll catch has occurred earlier in the season. (Figure 6) While the recent early chinook closures, and subsequent increases in coho targeting, have contributed to this pattern, it also appears that other factors such as run timing or effort shift may also have contributed.

Southeast Alaska coho salmon fisheries are managed on in-season run strength and are regulated to achieve conservation objectives and allocation policies established by the Board of fisheries. The coho fishery is not managed under harvest guidelines as is the chinook fishery.

Existing Board regulations specify a 10-day closure during the coho season, if necessary, to move more coho into inshore and terminal areas. The primary purpose of this closure is to allow coho to segregate into more distinct stock units to facilitate run strength assessment, ensure adequate escape-ments and to better maintain the historical allocation balance to inside

fisheries. A trend in recent years for more of the troll effort to be expended in outer coastal areas has resulted in more of the harvest being taken by outside fisheries with a resulting decrease in harvest opportunities for inside fisheries. The 10-day closure has been implemented each year since 1980.

Opening of the 1987 troll season was delayed from the normal June 15 opening date until June 20 to correspond to the opening of chinook summer season. Normally less than 1% of the seasonal troll catch of coho occurs prior to June 20. The fishery was open for coho June 20 through September 20 except for one 10-day closure period August 3 - 12. In addition, several areas along the coast were closed to trolling beginning July 4 to reduce the incidental hook and release of chinook.

Following the chinook closure at midnight July 12, trollers were required to off-load any chinook aboard before continuing to fish for cohos and other species. Approximately 86% of the season's coho catch occurred after the chinook closure.

From the beginning of the summer season on June 20, troll landings of coho appear to be substantially below recent average levels for most outside areas. Following the midnight July 12 closure for chinook salmon, the Department closely monitored coho catch rates to assess run strength. By late July inseason catch rate information continued to indicate the coho return was below recent year, average levels. A decision was made at that point to begin the ten-day closure one week earlier on August 3 instead of August 12, the tentative date used for pre-season planning. This earlier closure was intended to provide more flexibility for assessing run strength and implementing additional coho conservation measures if needed later in the season.

The troll fishery was closed to all fishing for ten days, August 3-12, and reopened August 13 for all species except chinook. This closure was implemented to ensure adequate spawning of coho salmon. Post-season fish ticket data indicated that the troll coho catch prior to the closure was about 652,000, or about 63% of the season's total. (Table 8)

Following the ten-day closure, coho catch rates in inside troll, net and recreational fisheries increased, indicating improved movement of coho to inside areas. Trolling remained open to the taking of coho and other species, except chinook salmon, through the normal September 20 closing date. However, select areas closed to all trolling following the July 13 chinook closure to minimize hook and release of chinook salmon remained closed during this period. (Figure 2) Additionally, portions of Lynn Canal were closed to trolling for the last week of the season, (September 14-20), to prevent the harvest of milling coho salmon in the vicinity of Berners River.

The 1987 coho salmon returns to Southeast Alaska were weaker than returns in recent years. Both natural and hatchery returns were weaker than anticipated. The troll fishery harvest of 1 million was approximately half of the 1986 troll harvest of 2.1 million and about 62% of the 1985 troll coho

harvest of 1.6 million. By comparison, the 1971-80 average troll coho catch was 654,000, while the 1980-85 average troll coho catch was 1.1 million coho.

The proportion of the total commercial coho harvest taken by troll gear in 1987 was approximately 71% compared to 66% in 1986 and an average of 60% for 1971-80. (Table 8)

DISCUSSION

Monitoring of the chinook and coho salmon troll fishery in Southeast Alaska has provided fishery managers with timely catch rate and effort information since 1979. This information has become increasingly important as catch limits and allocation decisions have prompted manipulation of seasons, fishing areas and restrictions designed to comply with directives of the Alaska Board of Fisheries and the Pacific Salmon Commission.

The basic procedures used to determine catch rates has remained the same since 1979. However, implementation of the program has required continuous changes and updating of methods and standardized units as effort levels and run sizes have fluctuated.

One primary source of error in catch estimation may be the aerial survey boat count. Incomplete counts for the region have been a continuous problem since inception of the program. Weather, particularly poor visibility or high wind velocities often contribute to incomplete surveys. Attempting to survey 500 linear miles of coastline in one or two days may be too ambitious. However, with shorter seasons fleet dispersal and redistribution is presently so commonplace that it is felt that any longer period may not accurately reflect actual fishing patterns. Another contributing factor to incomplete boat counts is lack of funds to continue the surveys throughout the season, especially in late August and September.

Accuracy of catch estimation is also effected by sampling levels. It is often impossible for the port samplers to sample at adequate levels when several hundred boats attempt to land their catch within a one or two day period.

It is anticipated that changes will continue to be made in the procedures of the troll fishery monitoring program as changes occur in fishery patterns and management directives.

Table 1.

Alaska Department of Fish and Game
1987 Troll Fishery Performance Data Summary
by Stat. Week by Big Six Area

Page 1

STAT. WEEK 26

Area	Number of Area Efforts	Boat Days Sampled	Number Chinook Sampled	Chinook Per Boat Day	Number Coho Sampled	Coho Per Boat Day
1	2	3.5	57	16.3	69	19.7
2	29	135.5	1,882	13.9	668	4.9
3	11	42	696	16.6	0	0.0
4	0	0	0	0.0	0	0.0
5	28	99.75	1,650	16.5	87	0.9
6	10	34	441	13.0	103	3.0
Region ->	80	314.75	4,726	15.0	927	2.9

STAT. WEEK 27

Area	Number of Area Efforts	Boat Days Sampled	Number Chinook Sampled	Chinook Per Boat Day	Number Coho Sampled	Coho Per Boat Day
1	13	79	2,286	28.9	374	4.7
2	56	269	4,622	17.2	2,417	9.0
3	31	85.5	1,308	15.3	1,073	12.5
4	17	20	79	4.0	61	3.1
5	16	59	2,045	34.7	10	0.2
6	7	25.75	263	10.2	201	7.8
Region ->	140	538.25	10,603	19.7	4,136	7.7

STAT. WEEK 28

Area	Number of Area Efforts	Boat Days Sampled	Number Chinook Sampled	Chinook Per Boat Day	Number Coho Sampled	Coho Per Boat Day
1	11	54.5	1,532	28.1	200	3.7
2	81	418	7,237	17.3	4,316	10.3
3	53	141	1,809	12.8	2,612	18.5
4	45	77.5	306	3.9	518	6.7
5	33	150	2,665	17.8	612	4.1
6	15	49.5	335	6.8	1,948	39.4
Region ->	238	890.5	13,884	15.6	10,206	11.5

Table 1. (Cont.)

Alaska Department of Fish and Game
1987 Troll Fishery Performance Data Summary
by Stat. Week by Big Six Area

Page 2

STAT. WEEK 29

Area	Number of Area Efforts	Boat Days Sampled	Number Chinook Sampled	Chinook Per Boat Day	Number Coho Sampled	Coho Per Boat Day
1	25	186.5	5,629	30.2	1,929	10.3
2	80	432	7,029	16.3	6,416	14.9
3	17	42.5	329	7.7	1,896	44.6
4	27	40.5	16	0.4	514	12.7
5	15	66	1,128	17.1	1,019	15.4
6	16	59.5	279	4.7	2,507	42.1
Region ->	180	827	14,410	17.4	14,281	17.3

STAT. WEEK 30

Area	Number of Area Efforts	Boat Days Sampled	Number Chinook Sampled	Chinook Per Boat Day	Number Coho Sampled	Coho Per Boat Day
1	12	31	0	0.0	886	28.6
2	39	155	0	0.0	5,018	32.4
3	52	163	0	0.0	6,893	42.3
4	37	50.5	0	0.0	676	13.4
5	8	39	0	0.0	771	19.8
6	18	73	0	0.0	4,530	62.1
Region ->	166	511.5	0	0.0	18,774	36.7

STAT. WEEKS 31 and 32

Area	Number of Area Efforts	Boat Days Sampled	Number Chinook Sampled	Chinook Per Boat Day	Number Coho Sampled	Coho Per Boat Day
1	47	290.5	0	0.0	12,819	44.1
2	75	310	0	0.0	11,177	36.1
3	71	271	0	0.0	16,186	59.7
4	61	142	0	0.0	3,251	22.9
5	25	99.5	0	0.0	4,912	49.4
6	39	179.5	0	0.0	7,234	40.3
Region ->	318	1,292.5	0	0.0	55,579.0	43.0

Alaska Department of Fish and Game
1987 Troll Fishery Performance Data Summary
by Stat. Week by Big Six Area

STAT. WEEKS 33 and 34

Area	Number of Area Efforts	Boat Days Sampled	Number Chinook Sampled	Chinook Per Boat Day	Number Coho Sampled	Coho Per Boat Day
1	22	80.5	0	0.0	4,526	56.2
2	71	282	0	0.0	13,764	48.8
3	48	144	0	0.0	5,325	37.0
4	94	163	0	0.0	3,240	19.9
5	71	134	0	0.0	2,959	22.1
6	16	74	0	0.0	1,359	18.4
Region ->	322	877.5	0	0.0	31,173	35.5

STAT. WEEK 35

Area	Number of Area Efforts	Boat Days Sampled	Number Chinook Sampled	Chinook Per Boat Day	Number Coho Sampled	Coho Per Boat Day
1	26	128	0	0.0	6,131	47.9
2	49	149	0	0.0	3,872	26.0
3	50	106.5	0	0.0	2,746	25.8
4	38	76.7	0	0.0	1,317	17.2
5	11	32.5	0	0.0	750	23.1
6	11	46	0	0.0	357	7.8
Region ->	185	538.7	0	0.0	15,173	28.2

STAT. WEEK 36

Area	Number of Area Efforts	Boat Days Sampled	Number Chinook Sampled	Chinook Per Boat Day	Number Coho Sampled	Coho Per Boat Day
1	18	86	0	0.0	2,999	34.9
2	29	88	0	0.0	4,029	45.8
3	54	114	0	0.0	1,507	13.2
4	49	110	0	0.0	1,871	17.0
5	9	19	0	0.0	226	11.9
6	5	14	0	0.0	175	12.5
Region ->	164	431	0	0.0	10,807	25.1

Table 1. (Cont.)

Alaska Department of Fish and Game
1987 Troll Fishery Performance Data Summary
by Stat. Week by Big Six Area

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STAT. WEEK 37

Area	Number of Area Efforts	Boat Days Sampled	Number Chinook Sampled	Chinook Per Boat Day	Number Coho Sampled	Coho Per Boat Day
1	11	64.5	0	0.0	3,143	48.7
2	3	8.5	0	0.0	184	21.6
3	3	24	0	0.0	447	18.6
4	42	84	0	0.0	909	10.8
5	5	19	0	0.0	77	4.1
6	12	45.5	0	0.0	711	15.6
Region ->	76	245.5	0	0.0	5,471	22.3

STAT. WEEK 38

Area	Number of Area Efforts	Boat Days Sampled	Number Chinook Sampled	Chinook Per Boat Day	Number Coho Sampled	Coho Per Boat Day
1	0	0	0	ERR	0	ERR
2	0	0	0	ERR	0	ERR
3	0	0	0	ERR	0	ERR
4	24	67	0	0.0	1,137	17.0
5	1	2	0	0.0	36	18.0
6	10	41	0	0.0	661	16.1
Region ->	35	110	0	0.0	1,834	16.7

Table 2.

Alaska Department of Fish and Game
1987 Troll Fishery Performance Data
Catch Estimations for Chinook by Period by BigSix Area

Page 1

PROJECTED CATCH THRU JULY 12: 186,915

Period 1: June 20 thru July 4

Big Six Area	Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	28.4	61	11	19,056	1,732
2	16.1	321	11	56,849	5,168
3	12.1	31	12	11,761	980
4	4.0	43	12	2,038	170
5	23.8	79	12	22,562	1,880
6	11.8	16	12	2,266	189
Region Figures ----->		601		114,533	10,119

Sampling Profile for Period 1

Big Six Area	Number Vessels Sampled	Number Days Fished	Total Catch Sampled	Catch Per Boat Day
1	15	82.5	2,343	28.4
2	85	404	6,504	16.1
3	3	7	85	12.1
4	17	20	79	4.0
5	42	147	3,503	23.8
6	17	59.7	704	11.8

Period 2: July 5 thru July 12

Big Six Area	Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	29.7	8	7	1,663	238
2	16.5	359	7	41,465	5,924
3	10.2	79	7	5,641	806
4	1.7	42	7	500	71
5	19.9	155	7	21,592	3,085
6	8.7	25	7	1,522	217
Region Figures ----->		668		72,382	10,340

Sampling Profile for Period 2

Big Six Area	Number Vessels Sampled	Number Days Fished	Total Catch Sampled	Catch Per Boat Day
1	5	33	980	29.7
2	52	260	4,281	16.5
3	58	163.5	1,661	10.2
4	3	6	10	1.7
5	8	44	877	19.9
6	10	33.5	335	8.7

Alaska Department of Fish and Game
 1987 Troll Fishery Performance Data
 Listing of Standardized C.P.U.E. and C.P.U.E. Var
 FOR CHINOOK SALMON ONLY

STAT. WEEK 26

Big Six Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	21.7	13.50	2
2	13.6	7.26	29
3	14.3	8.20	11
4	-	-	0
5	13.6	10.06	28
6	12.9	9.40	10
Region ->	-	-	80

STAT. WEEK 27

Big Six Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	21.6	9.47	13
2	14.6	5.97	56
3	15.9	12.56	31
4	6.0	5.29	17
5	19.3	14.26	16
6	7.2	6.47	7
Region ->	-	-	140

STAT. WEEK 28

Big Six Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	19.9	14.31	11
2	14.5	7.71	81
3	9.9	10.29	53
4	4.8	4.33	45
5	15.0	8.39	33
6	6.9	5.58	15
Region ->	-	-	238

STAT. WEEK 29

Big Six Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	21.8	12.71	25
2	13.8	6.03	80
3	6.3	6.59	17
4	0.9	3.58	27
5	14.6	7.18	15
6	3.9	4.09	16

Table 4.

Alaska Department of Fish and Game
1987 Troll F.P.D. Coho Catch Estimations
By Stat. Week and Big Six Area

Page 1

STAT. WEEKS 25 and 26

Big Six Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	19.7	61	7	8,412	1,202
2	4.9	321	7	11,010	1,573
3	0.0	81	7	0	0
4	0.0	43	7	0	0
5	0.9	79	7	498	71
6	3.0	16	7	336	48
Region Figures -----		601		20,256	2,894

STAT. WEEK 27

Big Six Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	4.7	61	6	1,720	287
2	9.0	321	6	17,334	2,889
3	12.5	81	6	6,075	1,013
4	3.1	43	6	800	133
5	0.2	79	6	95	16
6	7.8	16	6	749	125
Region Figures -----		601		26,773	4,462

STAT. WEEK 28

Big Six Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	3.7	8	6	178	3
2	10.3	359	6	22,186	3,69
3	18.5	79	6	8,769	1,46
4	6.7	42	6	1,688	28
5	4.1	155	6	3,832	63
6	39.4	25	6	5,910	98
Region Figures -----		668		42,563	7,09

Table 4. (Cont.)

Alaska Department of Fish and Game
1987 Troll F.P.D. Coho Catch Estimations
By Stat. Week and Big Six Area

Page 2

STAT. WEEK 29

Big Six Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	10.3	40	6	2,472	412
2	14.9	114	6	10,192	1,699
3	44.6	62	6	16,591	2,765
4	12.7	44	6	3,353	559
5	15.4	105	6	9,702	1,617
6	42.1	60	6	15,156	2,526
Region Figures -----		425		57,466	9,578

STAT. WEEK 30

Big Six Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	28.6	63	6	10,811	1,802
2	32.4	128	6	24,883	4,147
3	42.3	101	6	25,634	4,272
4	13.4	82	6	6,593	1,099
5	19.8	100	6	11,880	1,980
6	62.1	51	6	19,003	3,167
Region Figures -----		525		98,803	16,467

STAT. WEEKS 31 and 32

Big Six Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	44.2	63	7	19,492	2,785
2	35.4	128	7	31,718	4,531
3	64.5	200	7	90,300	12,900
4	16.0	82	7	9,184	1,312
5	50.0	75	7	26,250	3,750
6	40.3	51	7	14,387	2,055
Region Figures -----		599		191,332	27,332

Table 4. (Cont.)

Alaska Department of Fish and Game
1987 Troll F.P.D. Coho Catch Estimations
By Stat. Week and Big Six Area

Page 3

STAT. WEEKS 33 and 34

Big Six Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	56.2	208	9	105,206	11,690
2	48.8	136	9	59,731	6,637
3	37.0	87	9	28,971	3,219
4	19.9	96	9	17,194	1,910
5	22.1	15	9	2,984	332
6	18.4	33	9	5,465	607
Region Figures -----		575		219,551	24,395

STAT. WEEK 35

Big Six Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	51.3	208	6	64,022	10,670
2	26.4	136	6	21,542	3,590
3	27.7	87	6	14,459	2,410
4	20.8	96	6	11,981	1,997
5	21.8	15	6	1,962	327
6	9.3	33	6	1,841	307
Region Figures -----		575		115,808	19,301

STAT. WEEK 36

Big Six Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	34.9	208	6	43,555	7,259
2	45.8	136	6	37,373	6,229
3	13.2	87	6	6,890	1,148
4	17.0	96	6	9,792	1,632
5	11.9	15	6	1,071	179
6	12.5	14	6	1,050	175
Region Figures -----		556		99,731	16,622

Table 4. (Cont.)

Alaska Department of Fish and Game
1987 Troll F.P.D. Coho Catch Estimations
By Stat. Week and Big Six Area

Page 4

STAT. WEEK 37

Big Six Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	48.7	208	6	60,778	10,130
2	21.6	136	6	17,626	2,938
3	18.6	87	6	9,709	1,618
4	10.8	96	6	6,221	1,037
5	4.1	15	6	369	61
6	15.6	14	6	1,310	218
Region Figures -----		556		96,013	16,002

STAT. WEEK 38

Big Six Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	-	-	7	0	0
2	-	-	7	0	0
3	-	-	7	0	0
4	17.0	96	7	11,424	1,632
5	18.0	15	7	1,890	270
6	16.1	14	7	1,578	225
Region Figures -----		125		14,892	2,127

Table 5.

Alaska Department of Fish and Game
1987 Troll Fishery Performance Data
Listing of Standardized C.P.U.E. and C.P.U.E. Variance
FOR COHO SALMON ONLY

Page 1

STAT. WEEK 26

Big Six Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	32	29.65	2
2	4.5	3.75	29
3	-	-	11
4	-	-	0
5	0.7	2.92	28
6	3.4	3.85	10
Region ->	-	-	80

STAT. WEEK 27

Big Six Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	3.6	7.59	13
2	7.8	7.67	56
3	19.4	25.44	31
4	4.6	4.98	17
5	0.3	0.89	16
6	21.4	36.20	7
Region ->	-	-	140

STAT. WEEK 28

Big Six Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	4.2	5.57	11
2	9.5	8.55	81
3	20.5	14.45	53
4	10.1	11.69	45
5	6.3	9.92	33
6	35.9	38.02	15
Region ->	-	-	238

Table 5. (Cont.)

Alaska Department of Fish and Game
1987 Troll Fishery Performance Data
Listing of Standardized C.P.U.E. and C.P.U.E. Variance
FOR COHO SALMON ONLY

Page 2

STAT. WEEK 29

Big Six Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	17.3	20.24	25
2	14.4	10.52	80
3	58.7	38.69	17
4	16.7	9.37	27
5	14.4	17.85	15
6	39.7	35.45	16

Region ->	-	-	180

STAT. WEEK 30

Big Six Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	32.8	12.97	12
2	31.9	14.98	39
3	41.7	25.97	52
4	16.5	14.19	37
5	21.3	6.19	8
6	57.3	15.21	18

Region ->	-	-	166

STAT. WEEKS 31 and 32

Big Six Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	40.4	13.84	47
2	34.2	20.56	75
3	51.4	32.35	71
4	23.9	14.28	61
5	42.8	20.43	25
6	37.9	19.81	39

Region ->	-	-	318

Table 5. (Cont.)

Alaska Department of Fish and Game
1987 Troll Fishery Performance Data
Listing of Standardized C.P.U.E. and C.P.U.E. Variance
FOR COHO SALMON ONLY

Page 3

STAT. WEEKS 33 and 34

Big Six Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	52.4	32.26	22
2	45.9	28.12	71
3	34.9	20.59	48
4	23.3	13.19	94
5	20.6	14.40	71
6	21.4	10.69	16
Region ->	-	-	322

STAT. WEEK 35

Big Six Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	48.6	23.72	26
2	23.6	12.93	49
3	25.3	22.06	50
4	17.4	10.49	38
5	21.1	11.06	11
6	7.8	4.84	11
Region ->	-	-	185

STAT. WEEK 36

Big Six Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	32.2	14.27	18
2	29.9	32.53	29
3	13.9	8.20	54
4	19.4	12.29	49
5	11.0	9.84	9
6	13.3	7.75	5
Region ->	-	-	164

Table 5. (Cont.)

Alaska Department of Fish and Game
1987 Troll Fishery Performance Data
Listing of Standardized C.P.U.E. and C.P.U.E. Variance
FOR COHO SALMON ONLY

Page 4

STAT. WEEK 37

Big Six Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	40.9	16.42	11
2	29.3	8.45	3
3	16.9	5.33	3
4	14.5	8.62	42
5	7.3	4.37	5
6	16.7	6.72	12
Region ->	-	-	76

STAT. WEEK 38

Big Six Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	-	-	0
2	-	-	0
3	-	-	0
4	18.3	8.78	24
5	24.7	-	1
6	19.5	8.59	10
Region ->	-	-	35

Table 6.

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES
SOUTHEASTERN REGION

TROLL

PRELIMINARY IN-SEASON COMMERCIAL HARVEST REPORT
SHOWING NUMBER of SALMON
REPORT SELECTED B--** 1987 Summer Troll Summary **

REPORT DATE 05/10/1988

LOCATION	LAST PERIOD REPORTED		PERMITS	LAND-INGS	CATCH-CUMULATIVE THROUGH LAST PERIOD REPORTED					SALMON
					CHINOOK	SOCKEYE	COHO	PINK	CHUM	
DISTRICT	101	00	167	578	2,196	171	39,631	10,536	391	52,925
DISTRICT	102	00	110	259	2,973	184	22,797	6,589	134	32,677
DISTRICT	103	00	251	1,221	2,027	133	56,462	8,946	165	67,733
DISTRICT	104	00	389	3,151	29,112	1,296	239,027	59,332	1,902	330,669
DISTRICT	105	00	175	364	3,363	107	16,623	4,073	77	24,243
DISTRICT	106	00	153	467	2,254	58	6,677	2,756	9	11,754
DISTRICT	107	00	57	393	1,024	47	1,740	1,561	30	4,402
DISTRICT	108	00	9	10	79	7	61			147
DISTRICT	109	00	388	2,275	17,423	374	89,522	35,740	687	143,746
DISTRICT	110	00	114	258	12,690	17	776	2,056	85	15,624
DISTRICT	111	00	11	20	1,033	2	143	120	5	1,303
DISTRICT	112	00	115	1,302	2,135	42	12,255	7,486	286	22,204
DISTRICT	113	00	766	6,290	93,309	2,322	264,277	124,456	4,231	488,595
DISTRICT	114	00	406	3,791	4,354	3,555	80,902	198,559	3,447	290,817
DISTRICT	115	00	5	7	23	10	445	10	6	494
DISTRICT	116	00	263	693	6,039	848	68,130	8,112	613	83,742
DISTRICT	150	00	21	34		15	6,164	1,641	37	7,857
DISTRICT	152	00	88	104	364	113	26,542	6,535	263	33,817
DISTRICT	154	00	95	140	8,776	106	15,116	6,148	242	30,388
DISTRICT	156	00	41	52	4,410	63	9,574	619	77	14,743
DISTRICT	157	00	38	43	7,900	52	1,520	702	28	10,202
DISTRICT	181	00	134	380	2,488	69	49,288	330	51	52,226
DISTRICT	183	00	39	127	519	28	3,430	97	21	4,095
DISTRICT	186	00	5	5	389	3	622	20	6	1,040
DISTRICT	189	00	73	107	3,717	77	27,424	632	55	31,905
DISTRICT	191	00	10	11	802	13	3,115	8	4	3,942
TOTALS			1,557	22,082	209,399	9,712	1,042,263	487,064	12,852	1,761,290

CAUTIONARY NOTE: IN-SEASON CATCH DATA SHOWN ABOVE SHOULD BE CONSIDERED VERY PRELIMINARY CHANGES MAY OCCUR DAILY AS DATA IS EDITED AND UPDATED. DATA IS COMPUTED IN THIS FORM PRIMARILY FOR IN-SEASON MANAGEMENT USE AND GENERAL CATCH REPORTING.

Table 7.

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES
SOUTHEASTERN REGION

REPORT DATE 05/10/1988

SALMON, COHO

PRELIMINARY IN-SEASON COMMERCIAL HARVEST REPORT
CATCH in NUMBERS and (PERCENT)
REPORT SELECTED E---** 1987 PT Coho vs. HT Coho **

LANDING WEEK		POWER TROLL	HAND TROLL	TRAPS	TRAPS	TRAPS	OTHER GEARS	TOTAL
								63(100)
06/13	24							908(100)
06/20	25	684(75)		224(25)				27,938(100)
06/27	26	23,559(84)		4,379(16)				38,858(100)
07/04	27	31,572(81)		7,286(19)				68,063(100)
07/11	28	49,441(73)		18,622(27)				127,359(100)
07/18	29	103,904(82)		23,455(18)				118,942(100)
07/25	30	97,355(82)		21,587(18)				156,210(100)
08/01	31	126,709(81)		29,501(19)				112,849(100)
08/08	32	104,145(92)		8,704(8)				21,359(100)
08/15	33	14,219(67)		7,140(33)				152,156(100)
08/22	34	127,582(84)		24,574(16)				107,560(100)
08/29	35	88,406(82)		19,154(18)				63,162(100)
09/05	36	51,832(82)		11,330(18)				33,564(100)
09/12	37	28,782(86)		4,782(14)				8,955(100)
09/19	38	6,806(76)		2,149(24)				4,380(100)
09/26	39	3,983(91)		397(9)				150(100)
10/03	40	139(93)		11(7)				
TOTAL		859,118(82)	183,358(18)					1,042,476(100)

CAUTIONARY NOTE: IN-SEASON CATCH DATA SHOWN ABOVE SHOULD BE CONSIDERED VERY PRELIMINARY CHANGES MAY OCCUR DAILY AS DATA IS EDITED AND UPDATED. DATA IS COMPUTED IN THIS FORM PRIMARILY FOR IN-SEASON MANAGEMENT USE AND GENERAL CATCH REPORTING.

**ALASKA DEPARTMENT OF FISH AND GAME
COMMERCIAL TROLL FISHERY
FISHERY PERFORMANCE DATA FORM**

Interview Number: 010500

Port: _____

Date of Interview: ____/____/____

Interviewer: _____

ADF&G Number: _____

Name of Vessel: _____

Power Troll: _____ Hand Troll: _____

	Name of Placed Fished	Stat. Area	Days Fished	Hours Per Day	Catch		
					King	Coho	Pink
1.	_____	_____	_____	_____	_____	_____	
2.	_____	_____	_____	_____	_____	_____	
3.	_____	_____	_____	_____	_____	_____	
4.	_____	_____	_____	_____	_____	_____	
5.	_____	_____	_____	_____	_____	_____	
		Total:	_____		Totals:	_____	_____

Trip Dates: ____/____/____ through ____/____/____

Freezing Fish this Trip: ___Yes ___No

Fishermen Comments:

Figure 1.

CAPE SUCKLING

Area 1
Northern Outside

Yakutat

Cape Spencer

Area 2
Central Outside

JunEAU

Area 4
Northern Inside

N

Area 5
Central Inside

Area 3
Southern Outside

Sitka

Petersburg

Ketchikan

Area 6
Southern Inside

Cape Muzon

DIXON ENTRANCE

Figure 2.

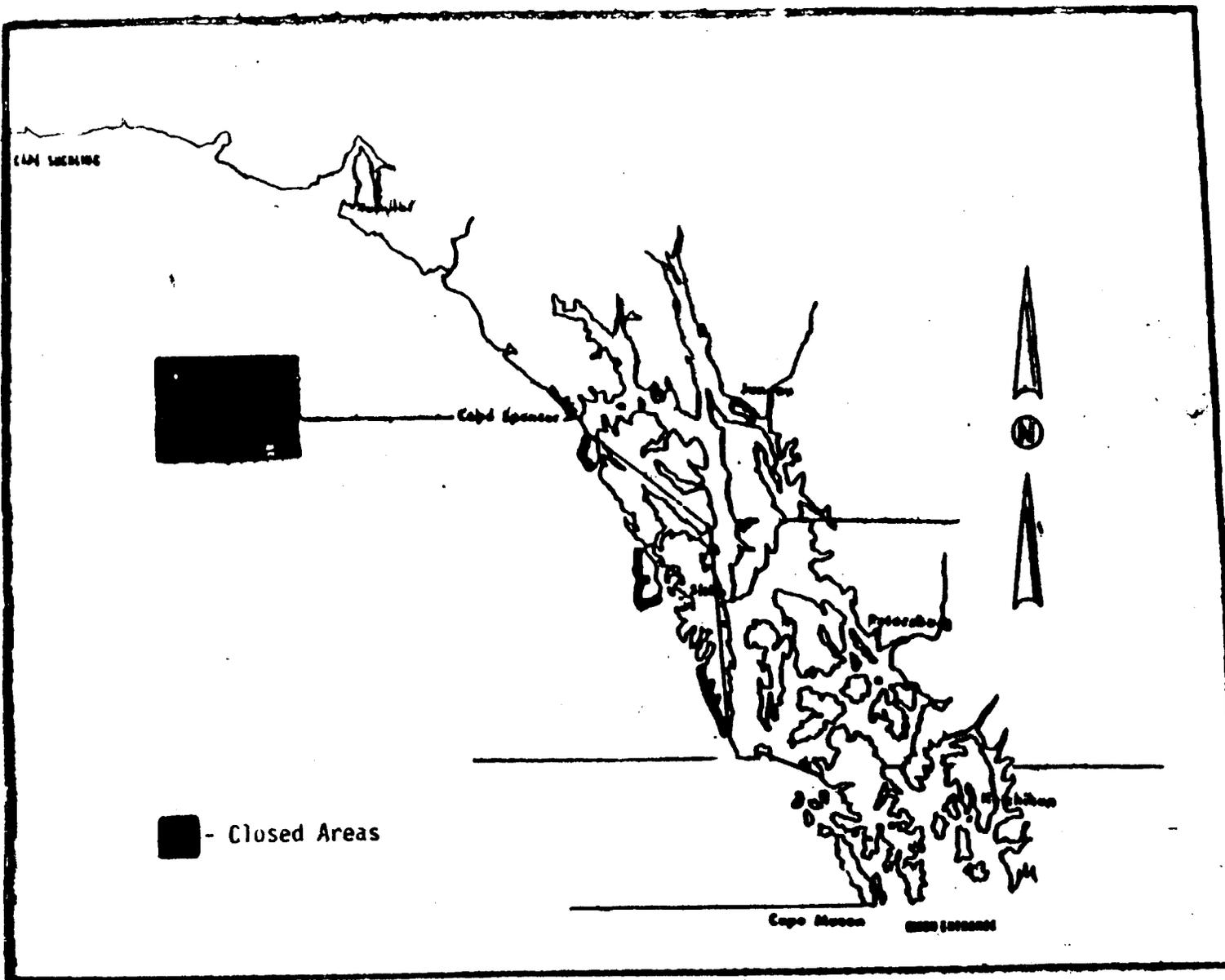


Figure 3. Map of Southeast Alaska showing areas closed to trolling for all species during the 1987 season after July 4 to reduce incidental hook and release of chinook salmon during chinook only closures.

S.E. ALASKA SUMMER TROLL SEASON

DAYS OPEN FOR CHINOOK FISHING

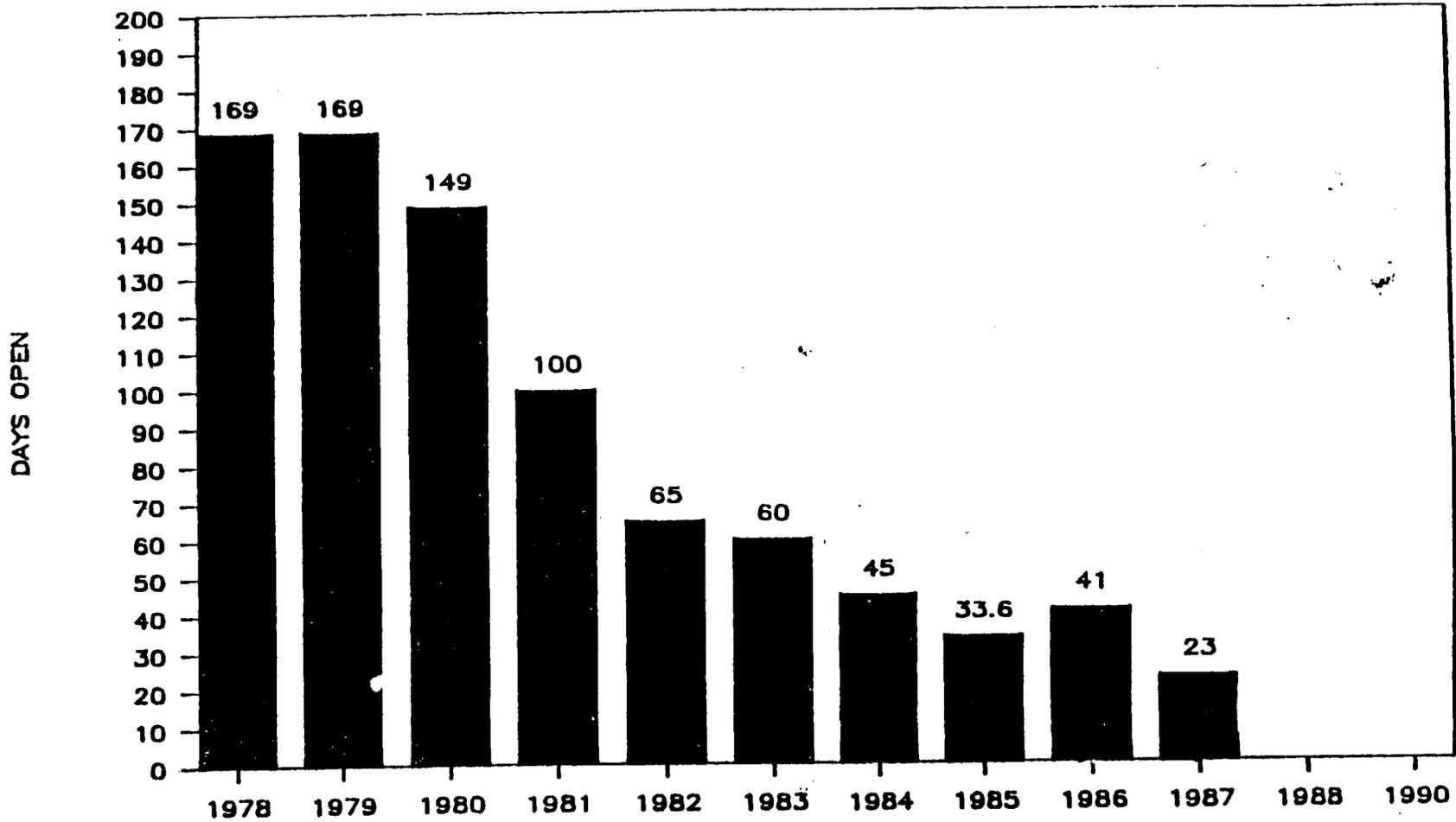


Figure 4. Number of days Southeast Alaska troll fishery open to chinook salmon fishing during the summer season; April 15 through September 30, 1978 to present.

S.E. ALASKA SUMMER TROLL FISHERY

JUNE/JULY CHINOOK CATCH RATES

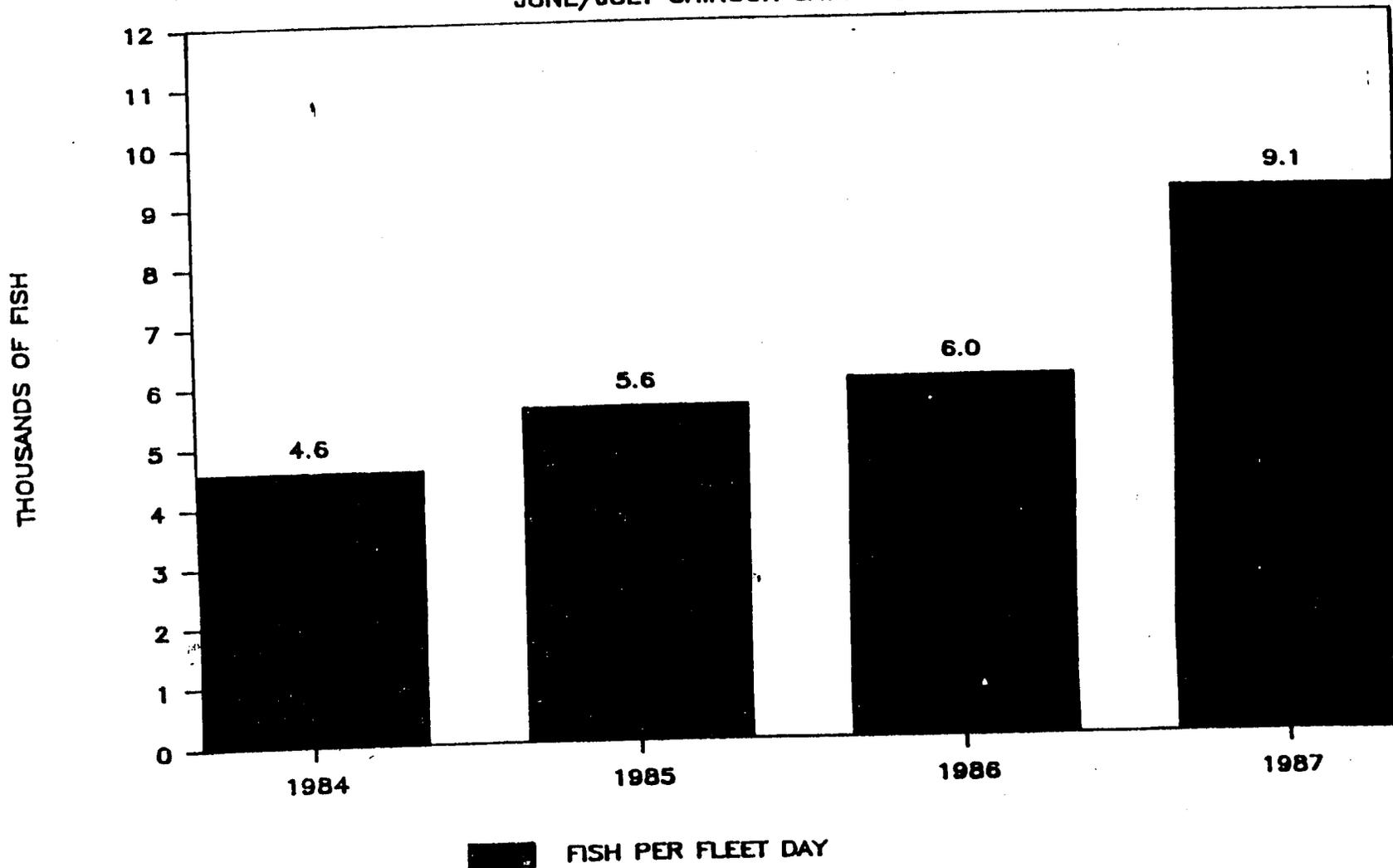


Figure 5. Chinook salmon catch rates for fleet day during comparable periods in June and July for the Southeast Alaska troll fishery, 1984-87.

Average Weekly Troll Catch of Coho Salmon in Southeast Alaska

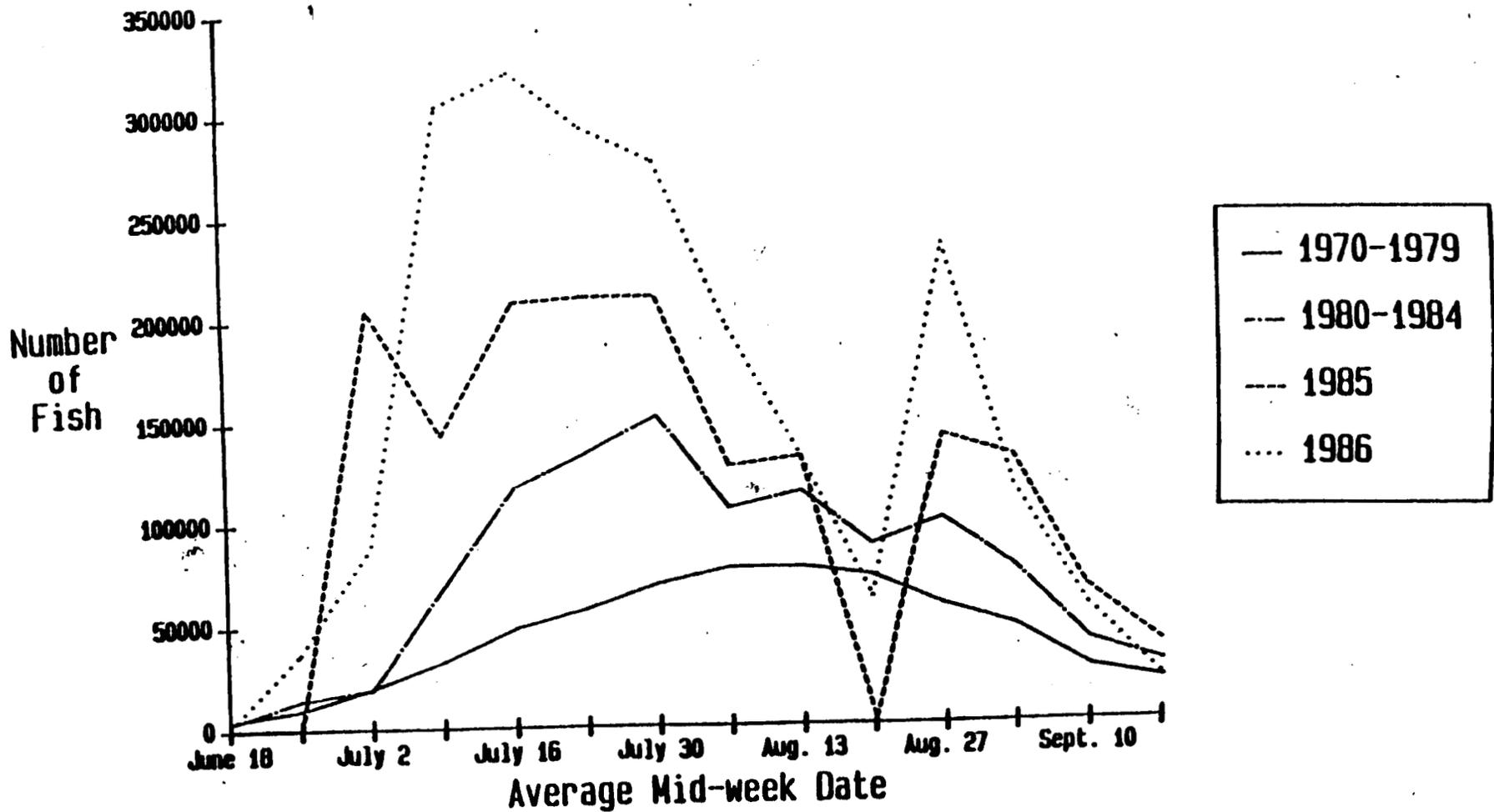


Figure 6. Changes in timing of coho salmon catches by the Southeast Alaska troll fishery.