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ORIGINS OF SOCKEYE SALMON IN THE UPPER COOK INLET FISHERY OF 1979 BASED ON SCALE PATTERN ANALYSIS

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Ronald O. Skoog
Commissioner

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ABSTRACT

Linear discriminant function analysis of scale pattern of age 5_2 and age 4_2 sockeye salmon *(Oncorhynchus nerka)* sampled from the escapements and from the commercial harvest of Upper Cook Inlet, Alaska provided the basis for apportioning the catch into component stocks. The five component stocks are: Susitna River, Kenai River, Kasilof River, Crescent River, and Fish Creek. The total return of sockeye salmon to Upper Cook Inlet in 1979 was estimated to be 1,658,640, of which 923,518 (55.7%) were harvested and 735,122 escaped to spawn. The total return and exploitation rates for the principal stocks contributing to the return were: Kenai River 597,884 (0.525); Kasilof River 442,893 (0.675); Susitna River 376,831 (0.583); Crescent River 123,454 (0.339); and Fish Creek 117,578 (0.584).

INTRODUCTION

Upper Cook Inlet encompasses the marine waters north of Anchor Point (Figure 1) and is divided into two fishing districts, the Northern and Central. Within these districts eight distinct fisheries can be identified. In the Northern District there are two set net beach fisheries: the Northern District East-side and Northern District West-side. In the Central District there is a drift net fishery and six set net beach fisheries; Salamatof Beach, Kalifonsky Beach, Cohoe/Ninilchik Beach, Kalgin Island East-side, Kalgin Island West-side, and the Central District West-side.

In Upper Cook Inlet, commercial harvests of sockeye salmon *(Oncorhynchus nerka)* have averaged 1.1 million fish in the last 10 years. The major producers of sockeye salmon in Upper Cook Inlet are the Kenai, Susitna, and Kasilof Rivers, followed in magnitude by the Crescent River and Fish Creek (outlet stream of Big Lake). Several other systems are known to produce smaller runs of sockeye salmon (Namtvedt et al. 1978).

The commercial fishery in Upper Cook Inlet harvests mixed stocks of sockeye salmon. Estimation of the numbers of fish harvested by stock is essential to sound management. Catch apportionment by stock coupled with escapement estimates provides estimates of total return by brood year. Total return estimates can subsequently be used to model spawner-recruit relationships, to estimate optimum escapements, and to forecast returning run size. Finally, the knowledge of the distribution and relative abundance by stock allows the fishery manager to protect and/or selectively harvest individual stocks.

Previous investigations in Upper Cook Inlet have documented the feasibility of using scale pattern recognition techniques as a method of identifying the various sockeye salmon stocks (Bethe and Krasnowski 1979; Bethe, Krasnowski, and Marshall 1980). The purpose of this study is to provide estimates of the 1979 return by stock of sockeye salmon of Upper Cook Inlet.

While several minor stocks contribute to the annual harvest (Namtvedt et al. 1978) we have no data which will permit allocation. The reader should remain cognizant that all fish harvested were allocated to one of the five principal stocks, making these estimates somewhat liberal.

METHODS

Numbers of Fish

Estimation of the numbers of fish returning to Upper Cook Inlet requires that both catch and escapement numbers be derived. Compilation of catch statistics is facilitated by the State of Alaska's fish ticket program. Estimation of escapement to the rivers of Upper Cook Inlet is complicated by turbid waters. In most cases hydroacoustic techniques provide estimates of escapement.

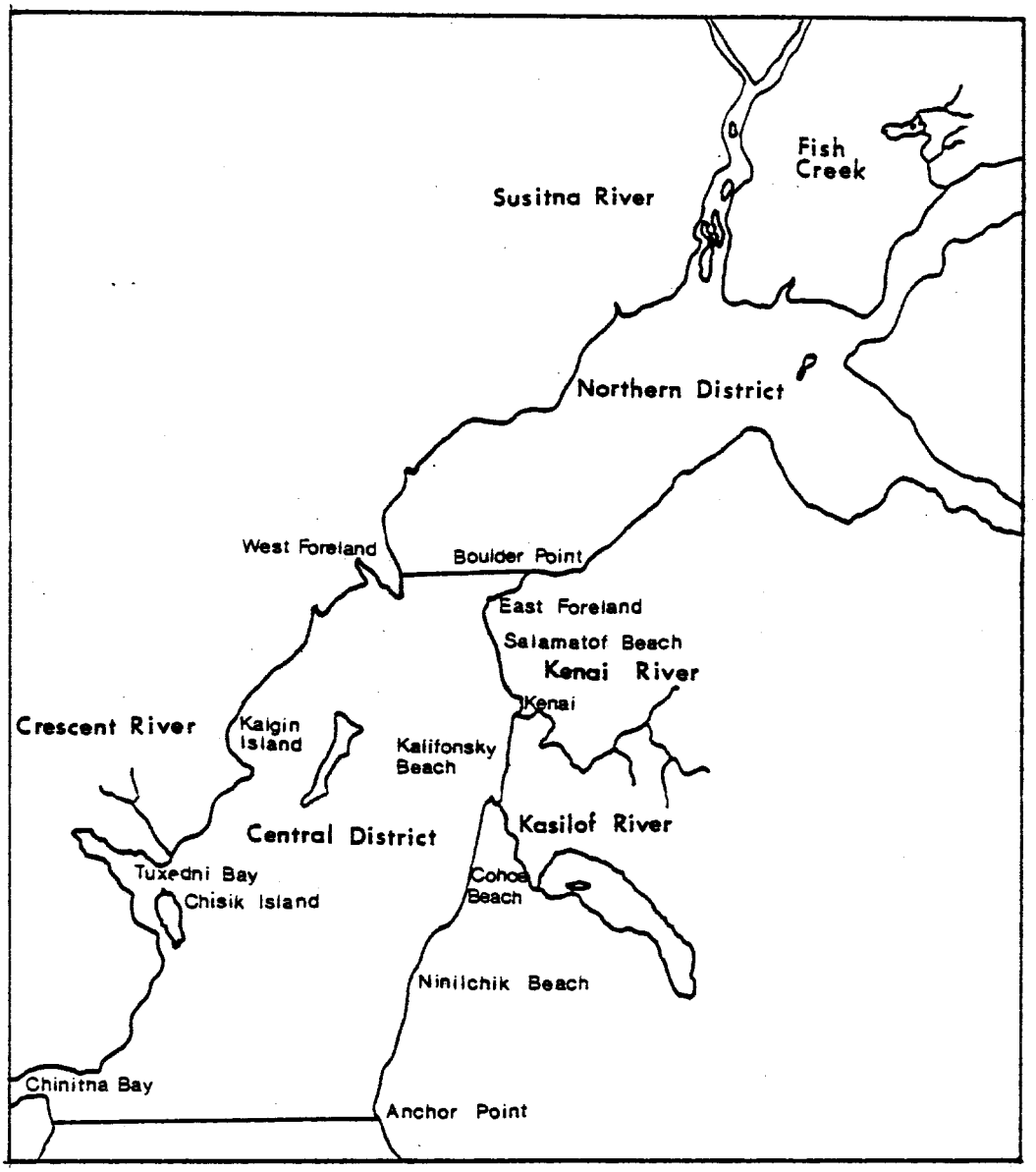

Figure 1. The Upper Cook Inlet area showing the locations of the Northern and Central Districts and the major sockeye salmon spawing drainages.

Catch:

Catch statistics reported in this paper represent the total number of sockeye salmon harvest in each fishery by date according to Alaska Department of Fish and Game preliminary fish ticket summaries as of October 1980.

Escapement:

Sockeye salmon escapements into the Susitna, Kenai, Kasilof, and Crescent Rivers were enumerated by Bendix sonar salmon counters. Two side scanning sonar adult counters (one on each river bank) were employed at each of the Susitna, Kenai, and Kasilof Rivers. At the Crescent River one side scanning counter and one 1974 model multiple transducer counter was operated. Sonar units were located on the Susitna River approximately 25 mi upstream from the mouth and operated from 1 July through 29 August 1979. Sonar units on the Kenai River were located 15 mi upstream of the river mouth and enumeration of the late run of salmon occurred from 22 June through 14 August. The late salmon run into the Kasilof River was counted from 22 June through 13 August by sonar counters installed 17 mi upstream. Escapement into the Crescent River was monitored from 1 July through 12 August with sonar counters situated 20 mi upstream of the river mouth. Fishwheel catch data was used to apportion sonar counts for each salmon species on the Susitna, Kenai, and Kasilof Rivers. On the Crescent River trip seine catch data was used for apportionment of sonar counts. Methods used in 1979 for the installation and operation of the sonar counters were similar to those used in 1978 and are documented by Waltemyer et al. (1980). Escapement into Fish Creek was enumerated by means of an adult salmon weir located approximately 0.5 mi upstream of the river mouth. The design and operation of the weir is detailed by Chulpach (1979).

Age Composition

Sockeye salmon ages were determined through examination of scale samples. Scales were collected from the preferred area of the fish which is on the left side of the body two rows above the lateral line in the diagonal scale row downward from the posterior edge of the dorsal fin (INPFC 1961). Scales were mounted on gum cards and impressions made in cellulose acetate (Clutter and Whitese 1956). Ages were recorded in Gilbert-Rich[1] notation.

Commercial Catch Samples:

Scales were collected from the commercial fisheries each fishing period from 22 June until 27 July. We attempted to collect 200-250 samples per fishing period from each of the nine fisheries. Catch samples were taken at local fish processing plants for the following fisheries: Northern District East-side, Northern District West-side, Central District Drift,

[1] Gilbert-Rich formula: Total years of life at maturity (superscript) - Year of life at outmigration from freshwater (subscript).

Central District West-side, Kalgin Island East-side, and Kalgin Island West-side. Samples were taken directly from set net sites along Salamatof, Kalifonsky, and Cohoe/Ninilchik beaches. Scales were taken, length (mid-eye to fork of tail) measured, and sex recorded for fish sampled at the processing facilities. Only scales were taken from fish sampled along the beaches in order to reduce collection time and allow more fish to be sampled.

Age composition estimates for each fishery were computed by fishing dates. For those dates in which scale samples were not taken for a particular fishery, the age composition estimates of the nearest date for the same fishery were applied to the catch in question.

Escapement Samples:

Sockeye salmon returning to five river systems were sampled for sex, length (mid-eye to fork of tail), and for scales. Fish were collected from the Susitna, Kenai, and Kasilof Rivers by fishwheels which operated at the sonar enumeration site on each of the rivers. Additionally, sockeye salmon were collected from the Kenai River from 29 June through 5 July by fishing two 10 fm variable mesh gill nets and one 30 fm 5¼" mesh gill net approximated 13 mi upstream of the river mouth.

Crescent River fish were collected by a trip seine operated at the sonar location, with the exception of samples taken on 6 July and 7 July which were collected with a 30 fm 5¼" mesh gill net.

The number and periodicity of scale samples from each river varied, however, the first 300 sockeye salmon captured at each river were sampled. After this initial sample, efforts were reduced to sampling a maximum of 40 fish per day from each river.

Age composition estimates for the Susitna, Kenai, Kasilof, and Crescent Rivers were calculated by time periods. Three time periods were used: period 1 that included scale samples collected from 22 June through 10 July; period 2 included scale samples taken from 11 July through 22 July; and period 3 included scale samples collected after 22 July.

Age composition estimates for Fish Creek were computed over the entire sampling period which extended from 11 July through 12 August.

Stock Identification

Estimates of the proportion of the catch by district originating from each stock were made utilizing discriminant function analysis of scale patterns or age composition information. In this section we explain each technique and elaborate how each method was implemented on a district by district basis.

Scale Measurements:

Scale impressions were projected at 100X magnification using equipment similar to that described by Bilton (1970) and later modified by Ryan and

Christie (1976). Measurements were taken along an axis which is approximately 20° off the primary axis and perpendicular to the sculptured field. Age 4_2 and age 5_2 scales taken from Susitna, Kenai, and Kasilof escapements were measured. Age 4_2 scales collected from Fish Creek's escapement and age 5_2 scales sampled from the Crescent River escapement were measured. The age class analyzed from each commercial catch depended upon which age class was dominant. Age 4_2 scales were measured from the fisheries in the Northern District and from the Central District drift. Age 5_2 scales were measured from all the fisheries in the Central District.

The variables measured from age 5_2 scales and entered into the discriminant analysis procedure are diagrammed in Figure 2. The variables measured from age 4_2 scales were identical to those measured from age 5_2 scales with the exception that only the first ocean zone was measured on age 4_2 scales.

Discriminant Function Analysis:

Linear discriminant function analysis (Fisher 1936; Nie et al. 1975) of scale measurements was used to identify the origin of sockeye salmon sampled from the commercial fisheries. Stepwise discriminant function analysis was used and the F level set at 1. Whichever variables were accepted by stepwise procedure were used in the analysis.

Scale measurement from fish of known origin sampled from the escapements were used as standards to build the classification models, i.e., the discriminant functions. A second discrete sample from each of the escapements was classified by the discriminant functions and estimates of accuracy and misclassification were calculated. The standard and test samples representing each escapement were interchanged and a second associated classification model was built and tested. The classification accuracy estimates of the two associated models were averaged to determine the final overall classification accuracy.

Scale measurements from fish of unknown origin, i.e., commercial catch samples, were classified and stock composition estimates of each catch estimated. Stock estimates were corrected for misclassification error rates using the procedures of Cook and Lord (1978). The variance and 90% confidence intervals were computed using the methods of Pella and Robertson (1979). Catch samples were classified by each of the associated identification models. Corrected stock estimates were averaged to produce the final stock estimates and 90% confidence intervals.

Age 5_2 Analyses:

A four-way stock identification model was constructed from age 5_2 scale measurements representing Susitna, Kenai, Kasilof, and Crescent Rivers. All commercial catch samples from the Central District were classified with the four-way model and estimates of stock proportions for the 5_2 age class developed. A catch sample was reclassified with a model representing fewer stocks if the final proportion estimate or the estimate's lower

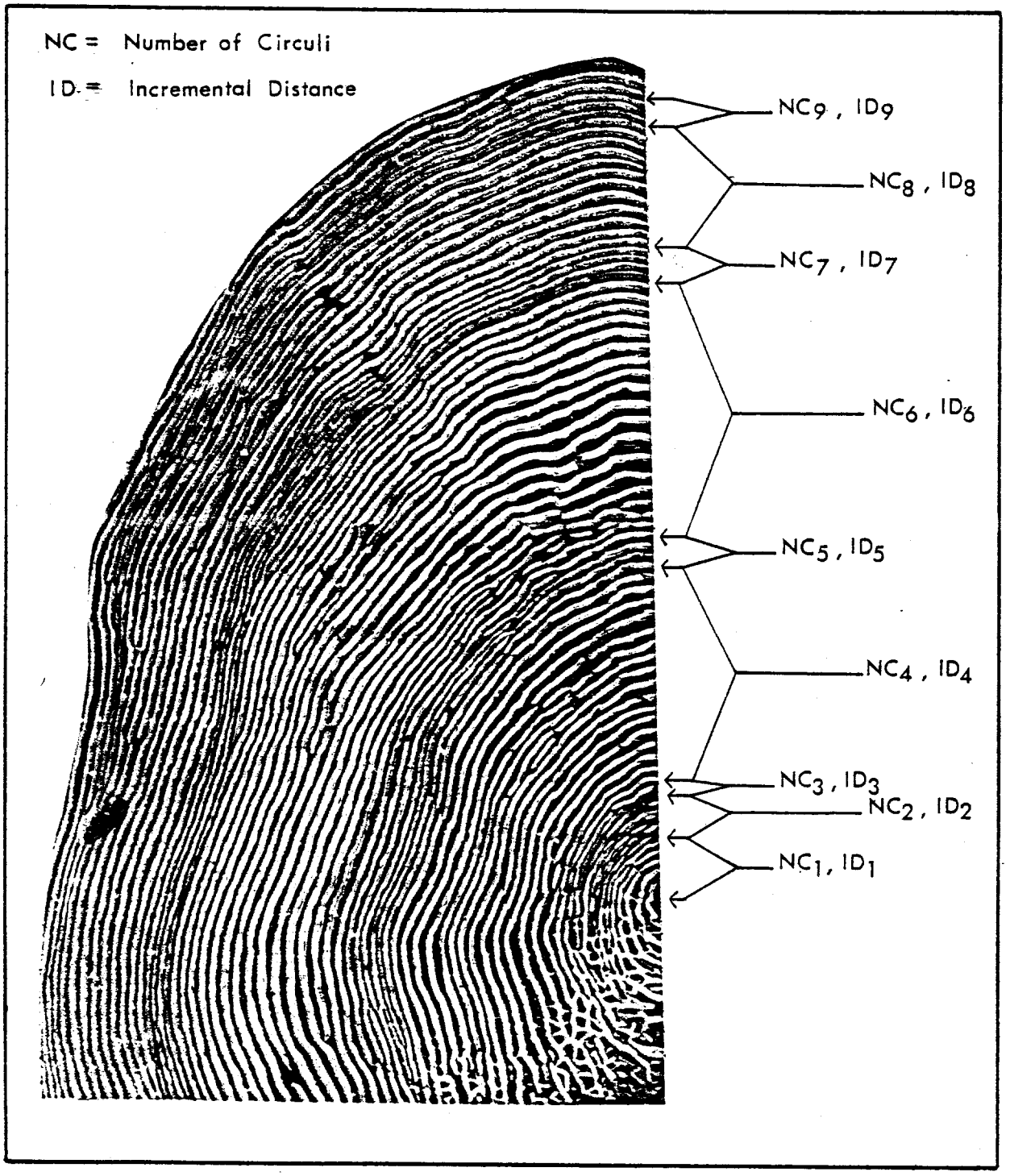

Figure 2. Age 5_2 sockeye salmon scale showing scale characteristics used in discriminant analysis.

boundary of the 10% confidence interval was less than or equal to zero for the stock in question.

Age 5_2 proportion estimates for the Central District fisheries were calculated by fishing period with the exception of Kalgin Island's fisheries. One age 5_2 stock estimate for the entire season was computed for each of the Kalgin Island East-side and the Kalgin Island West-side fisheries.

Age 4_2 Analyses:

Age 4_2 scale patterns were analyzed so that the contribution of Fish Creek to the Northern District and Central District drift harvests could be examined.

A four-way stock identification model was constructed from age 4_2 scale measurements representing Susitna, Kenai, Kasilof, and Fish Creek stocks. The ability of this model to correctly classify Susitna and Kenai fish was low, 44% and 73% respectively; while classification accuracy for Fish Creek (96%) was high. Because of the poor separability between Susitna and Kenai scale patterns and the distinctiveness of Fish Creek scales, we decided to pool Susitna, Kenai, and Kasilof stocks into a single category for further analyses.

We made the assumption that Kasilof River stocks did not contribute significantly to the Northern District set net catches. Northern District catch samples were classified with a two-way model which included Fish Creek as one category and combined Susitna and Kenai stocks as the other category. Stock estimates were calculated for Northern District East-side and Northern District West-side catches for two time periods, 2 July through 13 July and 16 July through 27 July.

Susitna, Kenai, and Kasilof measurements were pooled as one category and Fish Creek scale measurements made up the other category of the two-way model used to classify Central District drift catch samples. Age 4_2 stock estimates were calculated from Central District drift catch samples representing two time periods, 25 June through 9 July and 13 July through 22 July.

Catch Apportionment:

Each fishery of Upper Cook Inlet poses unique problems in catch apportionment. Differences exist in the contributing stocks, in age composition of the catch, and in the power of discriminant models to identify the various possible stock mixtures. In this section we present the specific techniques used to apportion the catch on a district by district basis.

Central District Set Net Fisheries. Sockeye salmon catches from the Central District set net fisheries were apportioned by age class and river system. Catch apportionment figures are based upon a combination of scale analysis and age composition techniques. Scale pattern analysis was used to estimate the proportions of age 5_2 fish in the Central District set net catch by river system. Allocation by stock of the other age classes was based upon age 5_2 stock estimates and the ratios of the proportion of each age class to the 5_2 age class from the respective escapements. An age 5_2 stock estimate for a given catch was expanded to estimate the stock proportion for another age

class using the following formula:

$$\hat{S}_{ij} = \frac{P_{i5_2} \times A_{ij} / A_{i5_2}}{\sum_{i=1}^{N} (P_{i5_2} \times A_{ij} / A_{i5_2})}$$

Where:

$\hat{S}_{ij}$ = Estimated proportion of stock i to the harvest of age j.

P_{i5_2} = Estimated proportion of stock i in the harvest of age 5_2 fish.

A_{ij} = Proportion of age j in stock i's escapement.

A_{i5_2} = Proportion of age 5_2 in stock i's escapement.

N = Number of stocks.

Migration times were added to catch dates when calculating age class ratios in the rivers so that the escapement composition would best represent the population of fish being harvested earlier by the fishery. The age class ratios applied to a specific catch on date K equaled the proportion of age classes observed in the river on date K plus migration time. The estimated number of days from the mouth of each river to its counting site is: Susitna 6 days, Kenai 1-2 days, Kasilof 1-2 days, and Crescent 10 days (Bruce King, Dave Waltemyer personal communication). To calculate the additional migration time from the fishery to the river mouth we used a migration rate of 20 miles per day (Dahlberg 1968; French et al. 1976). The migration times used from the fisheries to each of the river's counting sites can be found by referring to Table 23.

Central District Drift Net Fisheries. Central District drift net sockeye salmon catches were also apportioned by age class and river system. Methods used to apportion the drift catch to Susitna, Kenai, and Kasilof Rivers were similar to those outlined above.

Scale pattern analysis was also used to estimate the proportion of the 4_2 catch of Fish Creek origin. The allocation of Fish Creek stocks for the other

age classes was calculated by the following formula:

$$\hat{N}_j = (\hat{N}_{4_2})\ (P_{4_2} / P_j)$$

Where:

$\hat{N}_j$ = Estimated number of age j Fish Creek sockeye in the catch.

$\hat{N}_{4_2}$ = Estimated number of age 4_2 Fish Creek sockeye in the catch from scale patterns analysis.

P_{4_2} = Proportion of age 4_2 sockeye in the escapement to Fish Creek.

P_j = Proportion of age j sockeye in the escapement to Fish Creek.

Migration times were not added to catch dates when applying the age class ratios because the age composition data for Fish Creek was not calculated by date.

Northern District Set Net Fisheries. Northern District East-side and Northern District West-side set net sockeye salmon harvests were apportioned by age class and river system. Scale pattern analysis was used to estimate the proportion of the 4_2 catch contributed by Fish Creek. Methods used to allocate the contribution of Fish Creek to the other age classes were similar to those used for the Central District drift net catch described above. Northern District set net catches were apportioned to the Susitna and Kenai Rivers by comparing the age composition of the catch with that of the escapements through time.

The formula used to estimate the catch by stock for one age class and one fishery is:

$$C_{ij} = C_{i.} \times \frac{E_j}{T_e}$$

where:

C_{ij} = catch of the age class in question from river system j on day i

C_{ix} = total daily catch for the age class in question

E_j = escapement of the age class in question to river j

T_e = combined escapement of the age class in question to the Susitna and Kenai Rivers

Rather than using a single annual stock proportion by age class $\left(\frac{E_j}{T_e}\right)$ stock proportions were calculated through time. The Northern District set net catches were broken into five time periods: 25 June through 1 July, 2 July through 8 July, 9 July through 15 July, 16 July through 22 July, and all catch dates after 22 July. The migration times from the fisheries to the Susitna and Kenai counting sites were added to the catch dates. This resulted in five corresponding time periods for each of the escapements. Migration times used were: Susitna 8 days and Kenai 3 days. Stock proportions by age class were calculated for each of the five time periods. Numbers of fish by stock for a time period equaled the total escapement into each river during the corresponding lagged escapement time period. Age class proportions calculated from scale data were applied to these numbers to estimate numbers of fish by age class for each river. Fish by age class by river were summed and stock proportions by age class and time period developed.

Total Return

Estimation of total return on a daily basis requires that catches by stock be combined with escapement estimates. Migration time was taken into account by adjusting all catch dates to correspond with escapement dates.

RESULTS

Number of Fish

This section summarizes the numbers of fish harvested by district and in the spawning escapement to each river. The reader should remain cognizant that in this report we were only able to address the contribution of the principal runs of sockeye salmon. Assessment of the contributions of minor stocks is not possible at this time.

Catch:

A total of 923,518 sockeye salmon was harvested in Upper Cook Inlet in 1979 (Table 1). Almost one-half of these (454,428 or 49.2%) were taken by the

Table 1. Sockeye salmon commercial catch in numbers of fish by fishery and date, Upper Cook Inlet, 1979[1].

Date	Northern District East-side Set Net	Northern District West-side Set Net	Central District Drift Net	Central District West-side Set Net	Kalgin Island East Set Net	Kalgin Island West Set Net
6/18	Closed	Closed	Closed	3,003	Closed	Closed
6/22	Closed	Closed	Closed	2,635	Closed	Closed
6/25	583	151	8,031	3,388	776	1,306
6/29	1,141	193	30,841	5,558	929	2,037
7/02	579	315	57,405	4,901	651	1,753
7/06	11,418	9,647	48,796	5,607	678	4,528
7/09	1,194	980	110,810	5,039	1,116	1,961
7/13	2,300	2,740	92,389	5,990	890	1,761
7/16	5,363	4,272	Closed	5,508	2,049	3,188
7/18	14,784	Closed	Closed	6,275	Closed	Closed
7/20	17,078	21,160	67,056	4,443	1,600	2,014
7/22	Closed	Closed	Closed	1,555	Closed	Closed
7/23	2,697	7,667	19,990	2,004	1,665	2,076
7/25	Closed	Closed	Closed	1,883	Closed	Closed
7/27	1,614	2,717	12,062	1,246	1,194	2,656
7/30-9/17	2,161	1,696	7,048	4,407	5,166	4,976
Total	60,912	51,538	454,428	63,442	16,714	28,256

-Continued-

Table 1. Sockeye salmon commercial catch in numbers of fish by fishery and date, Upper Cook Inlet, 1979[1] (continued).

Date	Salamatof Beach Set Net	Kalifonsky Beach Set Net	Cohoe/Ninilchik Beach Set Net	Total
6/18	Closed	Closed	Closed	3,003
6/22	Closed	Closed	Closed	2,635
6/25	876	2,679	13,912	31,702
6/29	882	3,710	10,793	56,084
7/02	571	903	11,217	78,295
7/06	19,783	10,545	24,558	135,560
7/09	1,837	2,851	7,914	133,702
7/13	3,704	7,958	11,495	129,227
7/16	Closed	Closed	Closed	20,380
7/18	Closed	Closed	Closed	21,059
7/20	40,028	10,733	15,861	179,973
7/22	Closed	Closed	5,752	7,307
7/23	7,437	3,314	7,666	54,516
7/25	Closed	Closed	3,058	4,941
7/27	2,065	2,845	2,383	28,782
7/30-9/17	3,218	2,057	5,623	36,352
Total	80,401	47,595	120,232	923,518

[1] Catch figures were summarized from preliminary Alaska Department of Fish and Game statistics as of 7/16/80.

Central District drift net fleet. The Central District East-side set net fisheries accounted for 26.9% of the harvest. The remaining 23.9% of the harvest was taken in the Northern District and by the West-side set net fisheries.

Escapement:

The estimated total escapement of the principal sockeye salmon stocks in Upper Cook Inlet in 1979 was 735,122. The numbers by principal river systems can be found in Table 2. The escapements of sockeye salmon to these systems were: Kenai River 283,880; Susitna River 157,000; Kasilof River 143,920; Crescent River 81,600; and Fish Creek 68,722.

Age Composition

Significant differences in age composition are evident for the various river's escapement. Differences are also evident between many of the fishing districts. Age data, by themself have provided insights to stock composition of catches during the fishing season.

Escapement Samples:

The number of sockeye salmon sampled in the escapement to Susitna River, Kenai River, Kasilof River, and Crescent River are shown by date, age class, and sex in Tables 3-6, respectively. In Table 7 we show the age composition of the escapement by stock and period.

In the Susitna River age 4_2 sockeye predominated (61.0%) and age 5_2's comprised 20.6% (Table 7). In the Kenai River age 5_2 sockeye were the most abundant (61.1%) followed by age 4_2 fish (20.2%). In the Kasilof River age 4_2 sockeye were more common than age 5_2 (52.2% vs 37.2%, respectively). The Crescent River exhibited a preponderance of age 5_2 sockeye (70.1%) followed by age 4_2 sockeye 27.8%. In Fish Creek most (90.0%) sockeye were age 4_2.

Commercial Catch Samples:

Age composition of the commercial catches by district and date are shown in Tables 8-16. Age 5_2 sockeye salmon comprised 45.9% of the total catch, age 4_2 36.6%, age 5_3 11.6%, age 6_3 4.4%, and others 1.5%.

Stock Identification

In this section we summarize the pertinent data which were used to make final estimates of the contribution of each stock to the commercial harvest of sockeye salmon in 1979. Estimates of classification accuracy and confidence coefficients for the age specific stock composition estimates are of particular importance since these factors define the power of the analysis.

Summary Statistics for Scale Measurements:

Summary statistics for variables measured from scale samples of age 5_2 and 4_2 sockeye salmon are shown in Tables 17 and 18, respectively. Summary

Table 2. Sockeye salmon escapement by date and system, Upper Cook Inlet, 1979[1].

	Susitna		Kenai		Kasilof		Crescent		Fish Creek	
Date	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
6/22			404	404	824	824				
6/23			381	785	912	1,736				
6/24			802	1,587	1,709	3,445				
6/25			614	2,201	2,508	5,953				
6/26			683	2,884	2,153	8,106				
6/27			414	3,298	2,689	10,795				
6/28			410	3,708	4,227	15,022				
6/29			501	4,209	2,395	17,417				
6/30			498	4,707	4,118	21,535				
7/01	100	100	612	5,319	5,058	26,593				
7/02	100	200	485	5,804	2,851	29,444				
7/03	100	300	793	6,597	5,132	34,576				
7/04	0	300	450	7,047	6,584	41,160	300	300		
7/05	0	300	1,405	8,452	7,464	48,624	1,900	2,200		
7/06	100	400	5,857	14,309	4,552	53,176	1,000	3,200		
7/07	200	600	4,908	19,217	8,294	61,470	1,200	4,400		
7/08	400	1,000	2,686	21,903	2,327	63,797	700	5,100		
7/09	400	1,400	1,529	23,432	3,373	67,170	800	5,900	333	333
7/10	300	1,700	1,046	24,478	1,956	69,126	900	6,800	670	670
7/11	500	2,200	950	25,428	1,606	70,732	1,100	7,900	1,456	2,459
7/12	600	2,800	814	26,242	1,956	72,688	1,400	9,300	1,430	3,889
7/13	500	3,300	918	27,160	2,819	75,507	6,500	15,800	1,060	4,949
7/14	1,600	4,900	1,220	28,380	4,333	79,840	7,400	23,000	715	5,664
7/15	400	5,300	7,515	35,895	7,559	87,399	5,100	28,100	717	6,381
7/16	300	5,600	12,329	48,224	2,194	89,593	5,900	34,200	1,084	7,465
7/17	2,600	8,400	19,529	67,853	4,780	94,373	2,500	36,700	671	8,136
7/18	700	9,100	29,629	97,482	4,398	98,771	3,300	40,000	740	8,876
7/19	2,400	11,500	46,210	143,692	4,128	102,899	2,200	42,200	1,211	10,087
7/20	15,200	27,700	47,237	190,359	3,749	106,648	2,300	44,200	2,324	12,311
7/21	31,000	58,700	35,496	226,455	1,752	108,400	2,300	46,500	6,854	19,465
7/22	37,000	95,700	13,097	239,552	2,180	110,580	3,000	49,500	9,702	29,167
7/23	12,000	107,700	8,912	248,464	10,281	120,861	3,300	52,800	8,407	37,574
7/24	6,300	114,600	4,655	253,119	1,701	122,562	5,500	58,300	7,434	45,008
7/25	7,500	122,100	6,971	260,090	2,363	124,925	5,100	63,400	6,279	51,287
7/26	7,400	129,500	3,613	263,703	3,178	128,103	4,100	67,500	4,426	55,713
7/27	8,300	137,800	1,520	265,223	2,138	130,241	2,500	70,000	3,705	59,418
7/28	7,700	145,500	1,103	266,326	3,018	133,259	600	70,600	1,718	61,136
7/29	1,900	147,400	1,293	267,619	1,641	134,900	500	71,100	1,348	63,484
7/30	300	147,700	1,859	269,478	1,028	135,928	800	71,900	1,249	63,733
7/31	300	148,000	1,291	270,769	967	136,895	1,700	73,600	797	64,530
8/01	1,700	149,700	755	271,524	491	137,386	1,200	74,800	736	65,266
8/02	100	149,800	723	272,247	927	138,313	1,000	75,800	625	65,891
8/03	100	149,900	862	273,109	458	138,771	1,000	76,800	274	66,165
8/04	300	150,200	826	273,935	378	139,149	500	77,300	503	66,668
8/05	200	150,400	1,000	274,935	1,762	140,911	700	78,000	451	67,119
8/06	100	150,500	898	275,833	477	141,388	700	78,700	308	67,427
8/07	100	150,600	897	276,730	386	141,774	800	79,500	297	67,724
8/08	300	150,900	605	277,335	400	142,174	700	80,200	171	67,895
8/09	300	151,200	1,050	278,385	446	142,620	500	80,700	125	68,020
8/10	100	151,300	1,285	279,670	369	142,989	400	81,100	59	68,079
8/11	600	151,900	1,687	281,357	562	143,551	300	81,400	17	68,096
8/12	100	152,000	1,582	282,939	305	143,856	200	81,600	33	68,129
8/13	1,500	153,500	661	283,600	64	143,920			122	68,251
8/14	1,200	154,700	280	283,880					100	68,351
8/15	500	155,200							57	68,408
8/16	100	155,300							53	68,461
8/17	100	155,400							67	68,528
8/18	200	155,600							17	68,545
8/19	200	155,800							28	68,573
8/20	200	156,000							26	68,599
8/21	300	156,300							22	68,621
8/22	300	156,600							26	68,647
8/23	200	156,800							32	68,679
8/24	200	157,000							36	68,715
8/25									7	68,722

[1] Susitna River escapement figures represent final apportioned sonar counts rounded to the nearest 100 fish. Kenai River and Kasilof River escapement figures represent final apportioned sonar counts to the nearest fish. Crescent River escapement figures represent final apportioned sonar counts combined with visual counts rounded to the nearest 100 fish. Fish Creek escapement figures represent weir counts.

Table 3. Age and sex composition of sockeye salmon sampled from the Susitna River, Upper Cook Inlet, 1979.

Date	4_2			5_2			5_3			6_3			Other			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
7/01	1		1													1		1
7/05		1	1														1	1
7/07													1		1	1		1
7/08	10	2	12	10	8	18					1	1	1		1	21	11	32
7/09	26	6	32	15	35	50	1	1	2		1	1		5	5	42	48	90
7/10	40	7	47	12	32	44	3	5	8	1		1		5	5	56	49	105
7/01-7/10																		
Numbers [1]	77	16	93	37	75	112	4	6	10	1	2	3	2	10	12	121	109	230
Percent	82.8	17.2	40.4	33.0	67.0	48.7	40.0	60.0	4.4	33.3	66.7	1.3	16.7	83.3	5.2	52.6	47.4	
7/11	14	2	16	5	16	21							3	1	4	22	19	41
7/12	6	1	7	1	1	2							1		1	8	2	10
7/13	4	3	7		2	2							1	1	2	5	6	11
7/14	7		7	2	2	4							1		1	10	2	12
7/15	19	9	28	2	4	6	2	1	3				3	2	5	26	16	42
7/17	16	8	24	4	3	7		2	2		1	1	3		3	23	14	37
7/18	15	9	24	4	4	8		1	1				5		5	24	14	38
7/19	13	4	17	8	8	16							1	3	4	22	15	37
7/20	12	10	22		11	11					1	1		1	1	12	23	35
7/21	14	8	22	4	9	13	1		1	1		1		2	2	20	19	39
7/11-7/21																		
Numbers [1]	120	54	174	30	60	90	3	4	7	1	2	3	18	10	28	172	130	302
Percent	69.0	31.0	57.6	33.3	66.7	29.8	42.9	57.1	2.3	33.3	66.7	1.0	64.3	35.7	9.3	57.0	43.0	
7/22	5	6	11	2	3	5										7	9	16
7/23	22	12	34	5	6	11		1	1	1		1	1		1	29	19	48
7/24	16	6	22	3	4	7		2	2							19	12	31
7/25	14	9	23	1	3	4	1		1							16	12	28
7/26	7	6	13		4	4	2		2	1		1				10	10	20
7/27	6	3	9		5	5										6	8	14
7/28	2	4	6				1	3	4							3	7	10
7/29	5	1	6	1	1	2		1	1	1		1	1		1	8	3	11
7/30	1	8	9		1	1										1	9	10
7/31	3	5	8	1		1							1		1	5	5	10
8/01	4	9	13					1	1				5	1	6	9	11	20
8/02	4	8	12		1	1	1	2	3				3		3	8	11	19
8/03	4	2	6		1	1	1	1	2				10	8	18	15	12	27
8/04	7	7	14	1	1	2							4		4	12	8	20
8/05	2	1	3				3	1	4				7		7	12	2	14
7/22-8/05																		
Numbers [1]	102	87	189	14	30	44	9	12	21	3		3	32	9	41	160	138	298
Percent	54.0	46.0	63.4	31.8	68.2	14.8	42.9	57.1	7.0	100.0		1.0	78.0	22.0	13.8	53.7	46.3	

[1] Figures represent the percent of each age class which are males and females, and the percent each age class represents of the total sample for the time period.

Table 4. Age and sex composition of sockeye salmon sampled from the Kenai River, Upper Cook Inlet, 1979.

Date	4_2			5_2			5_3			6_3			Other			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
6/29				2	2	4										2	2	4
6/30	2	2	4	4	5	9										6	7	13
7/01	7	3	10	5	7	12	1		1	1	1	2				14	11	25
7/02		1	1	6	4	10	1	3	4	1	3	4				8	11	19
7/03	8	3	11	9	12	21	4	11	15	2	3	5				23	29	52
7/04	2	3	5	11	12	23	6	7	13	2	2	4				21	24	45
7/05	1	6	6	17	22	39	2	3	5	2	2	4				22	32	54
7/09	2	1	3	2	2	4	1		1							5	3	8
7/10	2		2	3		3										5	0	5
6/29-7/10																		
Numbers	24	18	42	59	66	125	15	24	39	8	11	19				106	119	225
Percent [1]	57.1	42.9	18.7	47.2	52.8	55.6	38.5	61.5	17.3	42.1	57.9	8.4				47.1	52.9	
7/11										1		1				1		1
7/17	4	1	5	14	15	29	1	1	2	4	3	7				23	20	43
7/18	4	2	6	18	15	33	4	3	7	8	2	10				34	22	56
7/19	7	7	14	26	21	47	2	11	13	3	2	5				38	41	79
7/20	9	9	18	30	42	72	7	4	11							46	55	101
7/11-7/20																		
Numbers	24	19	43	88	93	181	14	19	33	16	7	23				142	138	280
Percent [1]	55.8	44.2	15.4	48.6	51.4	64.6	42.4	57.6	11.8	69.6	30.4	8.2				50.7	49.3	
7/21	8	7	15	16	7	23		1	1							24	15	39
7/22	1		1	2	3	5	1		1							4	3	7
7/23	1		1	1		1										2	0	2
7/24	1	1	2	1	2	3										2	3	5
7/25				1	1	2	1		1	1		1				3	1	4
7/26	1	5	6	5	6	11	2		2	1		1		1	1	9	12	21
7/27		1	1	2	2	4										2	3	5
7/28				3	1	4		2	2							3	3	6
7/29		1	1					1	1							0	2	2
8/04		1	1	1		1	1	1	2				1		1	3	2	5
7/21-8/04																		
Numbers	12	16	28	32	22	54	5	5	10	2		2	1	1	2	52	44	96
Percent [1]	42.9	57.1	29.2	59.3	40.7	56.2	50.0	50.0	10.4	100.0		2.1	50.0	50.0	2.1	54.2	45.8	

[1] Figures represent the percent of each age class which are males and females, and the percent each age class represents of the total sample for the time period.

Table 5. Age and sex composition of sockeye salmon sampled from the Kasilof River, Upper Cook Inlet, 1979.

Date	4_2			5_2			5_3			6_3			Other			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
6/29	2	1	3	6	5	11	1		1							9	6	15
6/30	1	1	2	6	11	17	1	1	2		1	1				8	14	22
7/01				4	6	10	1		1							5	6	11
7/02	4	1	5	6	8	14										10	9	19
7/03	2	3	5	11	3	14										13	6	19
7/04	1		1	1	1	2		1	1							2	2	4
7/06	2		2	5	2	7										7	2	9
7/07	4	2	6	7	8	15	1		1							12	10	22
7/08	10	4	14	3	4	7				1	1	2				14	9	23
7/09	5	3	8	3	6	9	1		1							9	9	18
6/29-7/09																		
Numbers	31	15	46	52	54	106	5	2	7	1	2	3				89	73	162
Percent[1]	67.4	32.6	28.4	49.1	50.9	65.4	71.4	28.6	4.3	33.3	66.7	1.9				54.9	45.1	
7/11	9	5	14	2	10	12	3	3	6		1	1				14	19	33
7/12	4	4	8		2	2		1	1		1	1				4	8	12
7/13	1	4	5	1	1	2										2	5	7
7/14	10	10	20	1	2	3		1	1							11	13	24
7/15	9	8	17	2		2	1	1	2							12	9	21
7/17	11	11	22	4	2	6	3	5	8	2	1	3	1	2	3	21	21	42
7/18	4	9	13	1	1	2										5	10	15
7/19	16	8	24	1		1	1	5	6							18	13	31
7/20	13	4	17	1	3	4	2		2		1	1				16	8	24
7/21	11	9	20	1		1	6	3	9				1		1	19	12	31
7/11-7/21																		
Numbers	88	72	160	14	21	35	16	19	35	2	4	6	2	2	4	122	118	240
Percent[1]	55.0	45.0	66.7	40.0	60.0	14.6	45.7	54.3	14.6	33.3	66.7	2.5	50.0	50.0	1.6	50.8	49.2	
7/22	11	6	17	2	1	3	2	3	5							15	10	25
7/23	10	12	22	2	1	3										12	13	25
7/24	6	6	12													6	6	12
7/25	11	8	19					2	2							11	10	21
7/26	6	10	16	1	3	4										7	13	20
7/27	2	2	4													2	2	4
7/28	6	10	16		1	1	2	1	3							8	12	20
7/29	6	3	9				1		1							7	3	10
7/30	6	7	13					1	1							6	8	14
7/31	6	4	10				1	3	4							7	7	14
8/01	1	4	5					1	1							1	5	6
8/03	1	5	6		2	2		1	1							1	8	9
8/04	4	2	6	1		1					1	1				5	3	8
7/22-8/04																		
Numbers	76	79	155	6	8	14	6	12	18		1	1				88	100	188
Percent[1]	49.0	51.0	82.5	42.9	57.1	7.4	33.3	66.7	9.6		100.0	100.0				46.8	53.2	

[1] Figures represent the percent of each age class which are males and females, and the percent each age class represents of the total sample for the time period.

Table 6. Age and sex composition of sockeye salmon sampled from the Crescent River, Upper Cook Inlet, 1979.

	4_2			5_2			5_3			6_3			Other			Total		
Date	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
7/06	12	6	18	33	27	60	1		1	1		1				47	33	80
7/07	8	2	10	27	33	60					2	2				35	37	72
7/11	3	3	6	15	37	52										18	40	58
7/06-7/11																		
Numbers[1]	23	11	34	75	97	172	1		1	1	2	3				100	110	210
Percent[1]	67.6	32.3	16.2	43.6	56.4	81.9	100.0		0.5	33.3	66.7	1.4				47.6	52.4	
7/12	3	3	6	14	17	31		1	1							17	21	38
7/13		1	1	9	14	23										9	15	24
7/14	1	1	2	14	26	40										15	27	42
7/15	6		6	14	32	46										20	32	52
7/17	4	3	7	5	14	19		1	1							9	18	27
7/18	5	5	10	9	8	17								1	1	14	14	28
7/21	3	3	6	6	17	23										9	20	29
7/12-7/21																		
Numbers	22	16	38	71	128	199		2	2					1	1	93	147	240
Percent[1]	57.9	42.1	15.9	35.7	64.3	82.9		100.0	0.8					100.0	0.4	38.8	61.2	
7/22	2	4	6	9	8	17							1		1	12	12	24
7/25	1	1	2	3	9	12										4	10	14
7/26	3	6	9		3	3							1		1	4	9	13
7/27	2	6	8	4	3	7										6	9	15
7/28	7	6	13	6	8	14										13	14	27
7/29	4	3	7	3	7	10							2		2	9	10	19
7/30	6	1	7	6	7	13										12	8	20
7/31	4	3	7	8	3	11										12	6	18
8/01	4	3	7	8	3	11										12	6	18
8/02	9	9	18	3	2	5		1	1					1	1	12	13	25
7/22-8/02																		
Numbers[1]	42	42	84	50	53	103		1	1				4	1	5	96	97	193
Percent	50.0	50.0	43.5	48.5	51.5	53.4		100.0	0.5				80.0	20.0	2.6	49.7	50.3	

[1] Figures represent the percent of each age class which are males and females, and the percent each age class represents of the total sample for the time period.

Table 7. Age composition by river of sockeye salmon escapement in numbers of fish, Upper Cook Inlet, 1979.

River	Date	Sample Size		4_2	5_2	5_3	6_3	Other	Total
Susitna River	Period 1 7/01-7/10	230	Numbers	687	828	75	22	88	1,700
			Percent	40.4	48.7	4.4	1.3	5.2	100.0
	Period 2 7/11-7/21	302	Numbers	32,832	16,986	1,311	570	5,301	57,000
			Percent	57.6	29.8	2.3	1.0	9.3	100.0
	Period 3 7/22-8/24	298	Numbers	62,322	14,548	6,881	983	13,566	98,300
			Percent	63.4	14.8	7.0	1.0	13.8	100.0
	Total	830	Numbers	95,841	32,362	8,267	1,575	18,955	157,000
			Percent	61.0	20.6	5.3	1.0	12.1	100.0
Kenai River	Period 1 6/22-7/10	225	Numbers	4,577	13,610	4,235	2,056	0	24,478
			Percent	18.7	55.6	17.3	8.4	0	100.0
	Period 2 7/11-7/20	280	Numbers	25,638	107,547	19,645	13,651	0	166,481
			Percent	15.4	64.6	11.8	8.2	0	100.0
	Period 3 7/21-8/14	96	Numbers	27,133	52,222	9,664	1,951	1,951	92,921
			Percent	29.2	56.2	10.4	2.1	2.1	100.0
	Total	601	Numbers	57,348	173,379	33,544	17,658	1,951	283,880
			Percent	20.2	61.1	11.8	6.2	0.7	100.0

-Continued-

Table 7. Age composition by river of sockeye salmon escapement in numbers of fish, Upper Cook Inlet, 1979 (continued).

River	Date	Sample Size		4_2	5_2	5_3	6_3	Other	Total
Kasilof River	Period 1 6/22-7/10	162	Numbers	19,632	45,208	2,973	1,313	0	69,126
			Percent	28.4	65.4	4.3	1.9	0	100.0
	Period 2 7/11-7/21	240	Numbers	26,196	5,734	5,734	982	628	39,274
			Percent	66.7	14.6	14.6	2.5	1.6	100.0
	Period 3 7/22-8/13	188	Numbers	29,304	2,628	3,410	178	0	35,520
			Percent	82.5	7.4	9.6	0.5	0	100.0
	Total	590	Numbers	75,132	53,570	12,117	2,473	628	143,920
			Percent	52.2	37.2	8.4	1.7	0.5	100.0
Crescent River	Period 1 7/04-7/11	210	Numbers	1,280	6,470	39	111	0	7,900
			Percent	16.2	81.9	0.5	1.4	0	100.0
	Period 2 7/12-7/21	240	Numbers	6,138	31,999	309	0	154	38,600
			Percent	15.9	82.9	0.8	0	0.4	100.0
	Period 3 7/22-8/12	193	Numbers	15,268	18,743	176	0	913	35,100
			Percent	43.5	53.4	0.5	0	2.6	100.0
	Total	643	Numbers	22,686	57,212	524	111	1,067	81,600
			Percent	27.8	70.1	0.7	0.1	1.3	100.0
Fish Creek	Total 7/11-8/20	895	Numbers	61,850	1,374	687	0	4,811	68,722
			Percent	90.0	2.0	1.0	0	7.0	100.0

Table 8. Age composition by date of the Northern District East-side set net sockeye salmon harvest, Upper Cook Inlet, 1979.

Date	Sample Size		4_2	5_2	5_3	6_3	Other	Total
Prior 7/02 [1]	0	Numbers	1,433	167	124	0	0	1,724
		Percent	83.1	9.7	7.2	0	0	
7/02	124	Numbers	481	56	42	0	0	579
		Percent	83.1	9.7	7.2	0	0	
7/06	178	Numbers	10,390	320	708	0	0	11,418
		Percent	91.0	2.8	6.2	0	0	
7/09	127	Numbers	978	94	122	0	0	1,194
		Percent	81.9	7.9	10.2	0	0	
7/13	125	Numbers	1,822	276	110	74	18	2,300
		Percent	79.2	12.0	4.8	3.2	0.8	
7/16	130	Numbers	3,385	493	1,405	80	0	5,363
		Percent	63.1	9.2	26.2	1.5	0	
7/18	137	Numbers	10,955	2,336	1,064	222	207	14,784
		Percent	74.1	15.8	7.2	1.5	1.4	
7/20	151	Numbers	11,544	4,970	564	0	0	17,078
		Percent	67.6	29.1	3.3	0	0	
7/23	121	Numbers	2,430	156	22	0	89	2,697
		Percent	90.1	5.8	0.8	0	3.3	
7/27	135	Numbers	1,326	228	36	0	24	1,614
		Percent	82.2	14.1	2.2	0	1.5	
After 7/27 [1]	0	Numbers	1,776	305	48	0	32	2,161
		Percent	82.2	14.1	2.2	0	1.5	
Total	1,228	Numbers	46,520	9,401	4,245	376	370	60,912
		Percent	76.4	15.4	7.0	0.6	0.6	

[1] Scale samples were not collected prior to 7/02 or after 7/27. Age composition estimates from 7/02 were applied to those catches made prior to that date, similarly age composition estimates from 7/27 were applied to catches made after 7/27.

Table 9. Age composition by date of the Northern District West-side set net sockeye salmon harvest, Upper Cook Inlet, 1979.

Date	Sample Size		4_2	5_2	5_3	6_3	Other	Total
Prior 7/02 [1]	0	Numbers	163	55	122	0	4	344
		Percent	47.1	16.1	35.6	0	1.2	
7/02	87	Numbers	148	51	112	0	4	315
		Percent	47.1	16.1	35.6	0	1.2	
7/06	121	Numbers	2,634	5,026	878	955	154	9,647
		Percent	27.3	52.1	9.1	9.9	1.6	
7/09	59	Numbers	698	199	83	0	0	980
		Percent	71.2	20.3	8.5	0	0	
7/13	129	Numbers	1,658	827	129	41	85	2,740
		Percent	60.5	30.2	4.7	1.5	3.1	
7/16	132	Numbers	2,137	713	940	192	290	4,272
		Percent	50.0	16.7	22.0	4.5	6.8	
7/20	109	Numbers	8,738	5,819	4,846	783	973	21,160
		Percent	41.3	27.5	22.9	3.7	4.6	
7/23	128	Numbers	5,513	1,855	0	61	238	7,667
		Percent	71.9	24.2	0	0.8	3.1	
7/27	128	Numbers	2,144	467	22	22	62	2,717
		Percent	78.9	17.2	0.8	0.8	2.3	
After 7/27 [1]	0	Numbers	1,337	292	14	14	39	1,696
		Percent	78.9	17.2	0.8	0.8	2.3	
Total	893	Numbers	25,171	15,304	7,146	2,068	1,849	51,538
		Percent	48.8	29.7	13.9	4.0	3.6	

[1] Scale samples were not collected prior to 7/02 or after 7/27. Age composition estimates from 7/02 were applied to those catches made prior to that date, similarly age composition estimates from 7/27 were applied to catches made after 7/27.

Table 10. Age composition by date of the Central District drift net sockeye salmon harvest, Upper Cook Inlet, 1979.

Date	Sample Size		4_2	5_2	5_3	6_3	Other	Total
6/25	141	Numbers	1,823	3,815	2,168	225	0	8,031
		Percent	22.7	47.5	27.0	2.8	0	
6/29	174	Numbers	8,327	14,711	6,384	1,419	0	30,841
		Percent	27.0	47.7	20.7	4.6	0	
7/02	187	Numbers	16,246	25,487	12,572	3,100	0	57,405
		Percent	28.3	44.4	21.9	5.4	0	
7/06	167	Numbers	10,198	23,959	6,734	6,734	1,171	48,796
		Percent	20.9	49.1	13.8	13.8	2.4	
7/09	171	Numbers	31,138	51,859	16,843	10,970	0	110,810
		Percent	28.1	46.8	15.2	9.9	0	
7/13	225	Numbers	27,901	54,602	4,989	2,033	2,864	92,389
		Percent	30.2	59.1	5.4	2.2	3.1	
7/20	221	Numbers	20,050	37,887	2,749	1,207	5,163	67,056
		Percent	29.9	56.5	4.1	1.8	7.7	
7/23	207	Numbers	7,536	10,615	1,059	100	680	19,990
		Percent	37.7	53.1	5.3	0.5	3.4	
7/27	220	Numbers	5,754	5,428	603	60	217	12,062
		Percent	47.7	45.0	5.0	0.5	1.8	
After 7/27[1]	0	Numbers	3,362	3,172	352	35	127	7,048
		Percent	47.7	45.0	5.0	0.5	1.8	
Total	1,713	Numbers	132,335	231,535	54,453	25,883	10,222	454,428
		Percent	29.1	51.0	12.0	5.7	2.2	

[1] Scale samples were not collected after 7/27. The age composition estimates from 7/27 were applied to the total catch made after that date.

Table 11. Age composition by date of the Central District West-side set net sockeye salmon harvest, Upper Cook Inlet, 1979.

Date	Sample Size		4_2	5_2	5_3	6_3	Other	Total
6/18 [1]	0	Numbers	102	2,748	120	33	0	3,003
		Percent	3.4	91.5	4.0	1.1	0	
6/22	176	Numbers	90	2,411	105	29	0	2,635
		Percent	3.4	91.5	4.0	1.1	0	
6/25	153	Numbers	376	2,436	356	220	0	3,388
		Percent	11.1	71.9	10.5	6.5	0	
6/29	178	Numbers	717	3,718	906	217	0	5,558
		Percent	12.9	66.9	16.3	3.9	0	
7/02	188	Numbers	755	4,121	25	0	0	4,901
		Percent	15.4	84.1	0.5	0	0	
7/06	167	Numbers	807	3,992	606	202	0	5,607
		Percent	14.4	71.2	10.8	3.6	0	
7/09	249	Numbers	1,194	3,603	121	101	20	5,039
		Percent	23.7	71.5	2.4	2.0	0.4	
7/13	209	Numbers	1,575	4,331	84	0	0	5,990
		Percent	26.3	72.3	1.4	0	0	
7/16	223	Numbers	1,184	4,296	28	0	0	5,508
		Percent	21.5	78.0	0.5	0	0	
7/18	176	Numbers	2,209	3,532	320	176	38	6,275
		Percent	35.2	56.3	5.1	2.8	0.6	
7/20	182	Numbers	2,123	1,782	489	22	27	4,443
		Percent	47.8	40.1	11.0	0.5	0.6	
7/22 [1]	0	Numbers	704	778	73	0	0	1,555
		Percent	45.3	50.0	4.7	0	0	
7/23	148	Numbers	908	1,002	94	0	0	2,004
		Percent	45.3	50.0	4.7	0	0	
7/25	187	Numbers	1,339	523	0	0	21	1,883
		Percent	71.1	27.8	0	0	1.1	
7/27	187	Numbers	939	207	80	6	14	1,246
		Percent	75.4	16.6	6.4	0.5	1.1	
After 7/27 [1]	0	Numbers	3,323	732	282	22	48	4,407
		Percent	75.4	16.6	6.4	0.5	1.1	
Total	2,423	Numbers	18,345	40,212	3,689	1,028	168	63,442
		Percent	28.9	63.4	5.8	1.6	0.3	

[1] Scale samples were not collected on 6/18, 7/22 or after 7/27. Age composition estimates from 6/22 were applied to the catch made on 6/18, age composition estimates for 7/23 were applied to the 7/22 catch, and estimates from 7/27 were applied to catches made after that date.

Table 12. Age composition by date of the Kalgin Island East-side set net sockeye salmon harvest, Upper Cook Inlet, 1979.

Date	Sample Size		4_2	5_2	5_3	6_3	Other	Total
Prior 7/02[1]	0	Numbers	853	419	406	27	0	1,705
		Percent	50.0	24.6	23.8	1.6	0	
7/02	126	Numbers	326	160	155	10	0	651
		Percent	50.0	24.6	23.8	1.6	0	
7/06[2]	0	Numbers	300	212	136	23	7	678
		Percent	44.3	31.2	20.0	3.4	1.1	
7/09[2]	0	Numbers	495	348	223	38	12	1,116
		Percent	44.3	31.2	20.0	3.4	1.1	
7/13[2]	0	Numbers	394	278	178	30	10	890
		Percent	44.3	31.2	20.0	3.4	1.1	
7/16	135	Numbers	788	775	334	107	45	2,049
		Percent	38.5	37.8	16.3	5.2	2.2	
7/20	85	Numbers	357	339	640	264	0	1,600
		Percent	22.3	21.2	40.0	16.5	0	
7/23	69	Numbers	676	506	435	48	0	1,665
		Percent	40.6	30.4	26.1	2.9	0	
7/27	0	Numbers	484	363	312	35	0	1,194
		Percent	40.6	30.4	26.1	2.9	0	
After 7/27[3]	0	Numbers	2,098	1,570	1,348	150	0	5,166
		Percent	40.6	30.4	26.1	2.9	0	
Total	415	Numbers	6,771	4,970	4,167	732	74	16,714
		Percent	40.6	29.7	24.9	4.4	0.4	

[1] Scales were not collected prior to 7/02, age composition estimates from 7/02 were applied to the total catch made prior to 7/02.

[2] Scales were not collected on 7/06, 7/09, or 7/13. Age composition estimates from 7/02 and 7/16 were averaged and the average figures used as age composition estimates for 7/06, 7/09, 7/13.

[3] Scales were not collected after 7/27. Age composition estimates from 7/27 were applied to the total catch made after 7/27.

Table 13. Age composition by date of the Kalgin Island West-side set net sockeye salmon harvest, Upper Cook Inlet, 1979.

Date	Sample Size		4_2	5_2	5_3	6_3	Other	Total
Prior 7/02 [1]	0	Numbers	1,197	1,297	772	77	0	3,343
		Percent	35.8	38.8	23.1	2.3	0	
7/02	134	Numbers	628	680	405	40	0	1,753
		Percent	35.8	38.8	23.1	2.3	0	
7/06 [2]	0	Numbers	1,422	2,010	851	245	0	4,528
		Percent	31.4	44.4	18.8	5.4	0	
7/09	152	Numbers	529	981	284	167	0	1,961
		Percent	27.0	50.0	14.5	8.5	0	
7/13	176	Numbers	601	889	160	41	70	1,761
		Percent	34.1	50.5	9.1	2.3	4.0	
7/16	91	Numbers	1,260	1,157	526	175	70	3,188
		Precent	39.5	36.3	16.5	5.5	2.2	
7/20	74	Numbers	598	655	598	163	0	2,014
		Percent	29.7	32.5	29.7	8.1	0	
7/23	72	Numbers	863	837	318	58	0	2,076
		Percent	41.6	40.3	15.3	2.8	0	
7/27	99	Numbers	1,960	590	53	53	0	2,656
		Percent	73.8	22.2	2.0	2.0	0	
After 7/27 [3]	0	Numbers	3,671	1,105	100	100	0	4,976
		Percent	73.8	22.2	2.0	2.0	0	
Total	798	Numbers	12,729	10,201	4,067	1,119	140	28,256
		Percent	45.0	36.1	14.4	4.0	0.5	

[1] Scales were not collected prior to 7/02. Age composition estimates from 7/02 were applied to the total catch made prior to 7/02.

[2] Scales were not collected on 7/06. Age composition estimates from 7/02 and 7/09 were averaged and the average age compositions applied to the 7/06 catch.

[3] Scales were not collected after 7/27. Age composition estimates from 7/27 were applied to the total catch made after 7/27.

Table 14. Age composition by date of the Salamatof Beach set net sockeye salmon harvest, Upper Cook Inlet, 1979.

Date	Sample Size		4_2	5_2	5_3	6_3	Other	Total
Prior 7/02 [1]	0	Numbers	1,059	295	360	33	11	1,758
		Percent	60.2	16.8	20.5	1.9	0.6	
7/02	161	Numbers	344	96	117	11	3	571
		Percent	60.2	16.8	20.5	1.9	0.6	
7/06	478	Numbers	7,478	8,902	2,117	1,246	40	19,783
		Percent	37.8	45.0	10.7	6.3	0.2	
7/09	406	Numbers	819	814	132	59	13	1,837
		Percent	44.6	44.3	7.2	3.2	0.7	
7/13	482	Numbers	2,119	900	378	200	107	3,704
		Percent	57.2	24.3	10.2	5.4	2.9	
7/20	475	Numbers	10,447	23,097	4,203	2,121	160	40,028
		Percent	26.1	57.7	10.5	5.3	0.4	
7/23	453	Numbers	2,908	3,606	476	231	216	7,437
		Percent	39.1	48.5	6.4	3.1	2.9	
7/27	467	Numbers	1,415	491	120	0	39	2,065
		Percent	68.5	23.8	5.8	0	1.9	
After 7/27 [1]	0	Numbers	2,204	766	187	0	61	3,218
		Percent	68.5	23.8	5.8	0	1.9	
Total	2,922	Numbers	28,793	38,967	8,090	3,901	650	80,401
		Percent	35.8	48.5	10.1	4.8	0.8	

[1] Scales were not collected prior to 7/02 or after 7/27. Age composition estimates from 7/02 were applied to the total catch made prior to that date, similarly age composition estimates from 7/27 were applied to the total catch made after 7/27.

Table 15. Age composition by date of the Kalifonsky Beach set net sockeye salmon harvest, Upper Cook Inlet, 1979.

Date	Sample Size		4_2	5_2	5_3	6_3	Other	Total
Prior 7/02 [1]	0	Numbers	3,085	2,651	518	109	26	6,389
		Percent	48.3	41.5	8.1	1.7	0.4	
7/02	234	Numbers	436	375	73	15	4	903
		Percent	48.3	41.5	8.1	1.7	0.4	
7/06	353	Numbers	3,311	6,243	812	179	0	10,545
		Percent	31.4	59.2	7.7	1.7	0	
7/09	287	Numbers	1,075	1,092	507	168	9	2,851
		Percent	37.7	38.3	17.8	5.9	0.3	
7/13	378	Numbers	4,059	2,968	780	127	24	7,958
		Percent	51.0	37.3	9.8	1.6	0.3	
7/20	276	Numbers	4,594	4,626	1,395	43	75	10,733
		Percent	42.8	43.1	13.0	0.4	0.7	
7/23	364	Numbers	1,657	1,355	229	63	10	3,314
		Percent	50.0	40.9	6.9	1.9	0.3	
7/27	369	Numbers	1,312	1,416	85	9	23	2,845
		Percent	46.1	49.8	3.0	0.3	0.8	
After 7/27 [1]	0	Numbers	948	1,025	62	6	16	2,057
		Percent	46.1	49.8	3.0	0.3	0.8	
Total	2,261	Numbers	20,477	21,751	4,461	719	187	47,595
		Percent	43.0	45.7	9.4	1.5	0.4	

[1] Scales were not collected prior to 7/02 or after 7/27. Age composition estimates from 7/02 were applied to the total catch made prior to 7/02, similarly age composition estimates from 7/27 were applied to the total catch made after 7/27.

Table 16. Age composition by date of the Cohoe/Ninilchik Beach set net sockeye salmon harvest, Upper Cook Inlet, 1979.

Date	Sample Size		4_2	5_2	5_3	6_3	Other	Total
Prior 7/02[1]	0	Numbers	6,152	13,934	3,656	963	0	24,705
		Percent	24.9	56.4	14.8	3.9	0	
7/02	257	Numbers	2,793	6,327	1,660	437	0	11,217
		Percent	24.9	56.4	14.8	3.9	0	
7/06	335	Numbers	6,164	11,935	4,322	1,842	295	24,558
		Percent	25.1	48.6	17.6	7.5	1.2	
7/09	315	Numbers	3,442	2,715	1,353	380	24	7,914
		Percent	43.5	34.3	17.1	4.8	0.3	
7/13	326	Numbers	5,506	3,460	1,828	632	69	11,495
		Percent	47.9	30.1	15.9	5.5	0.6	
7/20	291	Numbers	9,596	4,409	1,745	0	111	15,861
		Percent	60.5	27.8	11.0	0	0.7	
7/22	378	Numbers	2,514	2,312	805	75	46	5,752
		Percent	43.7	40.2	14.0	1.3	0.8	
7/23	369	Numbers	3,949	2,675	958	61	23	7,666
		Percent	51.5	34.9	12.5	0.8	0.3	
7/25	370	Numbers	1,908	908	199	0	43	3,058
		Percent	62.4	29.7	6.5	0	1.4	
7/27	346	Numbers	1,461	813	83	0	26	2,383
		Percent	61.3	34.1	3.5	0	1.1	
After 7/27[1]	0	Numbers	3,447	1,917	197	0	62	5,623
		Percent	61.3	34.1	3.5	0	1.1	
Total	2,987	Numbers	46,932	51,405	16,806	4,390	699	120,232
		Percent	39.0	42.7	14.0	3.7	0.6	

[1] Scales were not collected prior to 7/02 or after 7/27. Age composition estimates from 7/02 were applied to total catch made prior to that date, similarly age composition estimates from 7/27 were applied to the catches after 7/27.

Table 17. Sample size, mean ($\bar{x}$), and standard deviation (s) for each variable measured from age 5_2 sockeye salmon scales collected from spawning locations in Cook Inlet, 1979.

Number of Circuli		Length		NC1		NC2		NC3		NC4		NC5		NC6		NC7		NC8	
Spawning Location	Sample Size	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s
Susitna River	100	578.95	22.72	7.37	2.22	3.02	0.75	2.19	1.33	18.70	2.53	6.01	1.49	15.70	3.26	5.12	1.12	12.79	2.68
Kenai River	211	595.69	26.01	6.68	2.44	3.13	0.82	3.53	2.25	19.99	2.86	6.01	1.39	18.31	2.84	5.78	1.13	13.62	2.05
Kasilof River	116	571.40	31.09	7.95	1.38	3.92	1.13	2.97	1.74	18.43	2.61	6.62	1.51	17.14	2.91	5.41	1.21	12.13	2.22
Crescent River	200	581.78	23.03	7.32	1.54	3.29	0.86	1.88	1.21	19.52	2.21	5.82	1.55	17.37	2.94	5.46	1.18	12.94	2.11

Incremental Distance		ID1		ID2		ID3		ID4		ID5		ID6		ID7		ID8	
Spawning Location	Sample Size	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s
Susitna River	100	62.75	15.83	17.43	4.91	14.86	9.35	205.03	31.37	54.74	12.86	163.78	32.47	37.38	8.31	134.55	26.88
Kenai River	211	57.84	14.83	16.97	4.76	24.82	16.06	222.66	30.44	55.19	12.97	195.26	32.45	40.96	8.31	146.79	22.04
Kasilof River	116	71.70	10.80	21.44	5.91	19.54	12.19	198.84	26.82	57.86	13.25	174.56	28.57	36.69	8.42	120.70	22.51
Crescent River	200	51.75	8.18	15.34	3.99	11.79	7.94	214.05	26.04	54.22	14.31	183.00	31.28	38.34	8.18	135.46	21.70

Table 18. Sample size, mean ($\bar{x}$), and standard deviation (s) for each variable measured from age 4_2 sockeye salmon scales collected from spawning locations in Cook Inlet, 1979.

Number of Circuli		Length		NC1		NC2		NC3		NC4		NC5	
Spawning Location	Sample Size	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s
Susitna River	93	481.45	35.64	8.89	3.35	3.44	0.93	2.59	1.56	17.22	2.36	5.85	1.12
Kenai River	65	494.89	45.35	9,55	3.66	3.60	0.92	2.17	1.39	19.20	2.37	6.05	1.26
Kasilof River	93	488.33	24.12	8.74	1.77	3.38	0.75	1.38	0.82	18.03	2.16	6.11	1.05
Fish Creek	86	511.16	30.73	16.58	2.04	3.91	0.78	3.33	1.15	16.34	3.26	5.50	1.19

Incremental Distance		ID1		ID2		ID3		ID4		ID5	
Spawning Location	Sample Size	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s
Susitna River	93	111.06	36.46	28.34	8.85	28.48	18.58	280.31	41.98	76.01	14.59
Kenai River	65	117.77	34.60	27.52	8.80	22.02	13.72	313.52	38.83	76.03	17.10
Kasilof River	93	118.90	20.00	28.18	6.63	15.15	10.31	296.33	36.29	80.13	16.21
Fish Creek	86	205.34	25.11	40.02	7.96	40.70	14.05	279.34	57.69	70.87	17.72

statistics are provided regardless of whether or not the variable was used in subsequent discriminant analysis. These data show that the largest relative differences in scale patterns between stocks are found in the freshwater growth zones. Relative differences between stocks in the ocean growth zones are less pronounced.

Classification Accuracy:

Table 19 summarizes the 4-way, 3-way, and 2-way test classification matrices generated from the discriminant analysis of age 5_2 sockeye salmon. Table 20 shows similar data for age 4_2 sockeye salmon.

Average overall classification accuracy for all 4-way, 3-way, and 2-way classification models for age 5_2 fish was 67.9%, 75.9%, and 81.7%, respectively. Susitna River stocks typically showed the poorest classification accuracy and Crescent River stocks the best. Kenai and Kasilof stocks were intermediate in accuracy and very similar.

The ability of scale patterns to identify the origins of age 4_2 fish was in general poorer than that for age 5_2 fish. The exception being that the Fish Creek stock is quite unique; the models were able to correctly identify better than 95% of these fish.

Age Specific Stock Composition Estimates:

Stock composition estimates and 90% confidence coefficients by subdistrict for the Central District based on scale patterns of age 5_2 sockeye salmon are shown in Table 21. In Table 22 we show stock composition estimates and 90% confidence coefficients for the Northern District and Central District drift net fleet based on scale patterns of age 4_2 sockeye salmon.

Confidence coefficients for age specific stock composition estimates based on scale pattern analysis of age 5_2 sockeye salmon typically fell within the range of 0.1 to 0.3. Confidence coefficients based on an analysis of age 4_2 fish were less than 0.10.

Migration Rates:

Estimates of the migration time, in days, from each fishery to each contributing river's enumeration and sampling site is shown in Table 23. These data suggest that Susitna River, Crescent River, and Fish Creek stocks require a substantial amount of time to travel from the various fisheries of Upper Cook Inlet to the Department's enumeration and sampling sites. Migration times for the Kenai River and Kasilof River stocks are, on the contrary, much shorter.

Catch Apportionment

This section summarizes estimates of the contribution of each stock to the commercial harvest of sockeye salmon to the commercial harvest of sockeye salmon in 1979. Estimates are provided by age class and date for each fishery.

Table 19. Average test classification matrices from discriminant analyses of Susitna, Kenai, Kasilof, and Crescent River age 5_2 sockeye salmon, 1979.

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length included as a variable)			
		Susitna	Kenai	Kasilof	Crescent
Susitna	50	.500	.140	.190	.170
Kenai	106	.147	.678	.095	.080
Kasilof	58	.147	.069	.767	.017
Crescent	100	.070	.100	.050	.825

Overall correctly classified = .692

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length not included as a variable)			
		Susitna	Kenai	Kasilof	Crescent
Susitna	50	.450	.140	.210	.200
Kenai	106	.147	.678	.099	.076
Kasilof	58	.190	.095	.698	.017
Crescent	100	.075	.085	.000	.840

Overall correctly classified = .666

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length included as a variable)		
		Susitna	Kenai	Kasilof
Susitna	50	.590	.190	.220
Kenai	106	.175	.725	.100
Kasilof	58	.155	.086	.759

Overall correctly classified = .691

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length not included as a variable)		
		Susitna	Kenai	Kasilof
Susitna	50	.640	.190	.170
Kenai	106	.185	.711	.104
Kasilof	58	.207	.103	.690

Overall correctly classified = .680

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Table 19. Average test classification matrices from discriminant analyses of Susitna, Kenai, Kasilof, and Crescent River age 5_2 sockeye salmon, 1979 (continued).

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length included as a variable)		
		Susitna	Kenai	Crescent
Susitna	50	.580	.210	.210
Kenai	106	.180	.739	.081
Crescent	100	.075	.060	.865

Overall correctly classified = .728

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length included as a variable)		
		Susitna	Kasilof	Crescent
Susitna	50	.530	.240	.230
Kasilof	58	.173	.310	.017
Crescent	100	.080	.015	.905

Overall correctly classified = .748

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length included as a variable)		
		Kenai	Kasilof	Crescent
Kenai	106	.749	.147	.104
Kasilof	58	.078	.905	.017
Crescent	100	.085	.000	.915

Overall correctly classified = .856

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length not included as a variable)		
		Kenai	Kasilof	Crescent
Kenai	106	.768	.156	.076
Kasilof	58	.121	.871	.080
Crescent	100	.090	.000	.910

Overall correctly classified = .850

-Continued-

Table 19. Average test classification matrices from discriminant analyses of Susitna, Kenai, Kasilof, and Crescent River age 5_2 sockeye salmon, 1979 (continued).

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length included as a variable)	
		Susitna	Kenai
Susitna	50	.710	.290
Kenai	106	.223	.777
		Overall correctly classified = .744	

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length not included as a variable)	
		Susitna	Kenai
Susitna	50	.710	.290
Kenai	106	.220	.780
		Overall correctly classified = .750	

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length included as a variable)	
		Susitna	Kasilof
Susitna	50	.710	.290
Kasilof	58	.241	.759
		Overall correctly classified = .735	

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length not included as a variable)	
		Susitna	Kasilof
Susitna	50	.720	.280
Kasilof	58	.250	.750
		Overall correctly classified = .735	

-Continued-

Table 19. Average test classification matrices from discriminant analyses of Susitna, Kenai, Kasilof, and Crescent River age 52 sockeye salmon, 1979 (continued).

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length included as a variable)	
		Susitna	Crescent
Susitna	50	.790	.210
Crescent	100	.080	.920
		Overall correctly classified = .855	

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length included as a variable)	
		Kenai	Kasilof
Kenai	106	.839	.161
Kasilof	58	.095	.905
		Overall correctly classified = .872	

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length not included as a variable)	
		Kenai	Kasilof
Kenai	106	.834	.166
Kasilof	58	.147	.853
		Overall correctly classified = .844	

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length included as a variable)	
		Kenai	Crescent
Kenai	106	.891	.109
Crescent	100	.075	.925
		Overall correctly classified = .908	

Actual Group of Origin	Sample Size	Classified Group of Origin (Fish length not included as a variable)	
		Kenai	Crescent
Kenai	106	.891	.109
Crescent	100	.070	.930
		Overall correctly classified = .910	

Table 20. Average test classification matrices from discriminant analysis of Susitna River, Kenai River, Kasilof River, and Fish Creek age 4_2 sockeye salmon, 1979.

Actual Group of Origin	Sample Size	Classified Group of Origin			
		Susitna	Kenai	Kasilof	Fish
Susitna	47	.441	.247	.237	.075
Kenai	33	.369	.369	.246	.016
Kasilof	47	.118	.129	.753	.000
Fish	43	.012	.023	.000	.965

Overall correctly classified = .632

Actual Group of Origin	Sample Size	Classified Group of Origin		
		Susitna	Kenai	Fish
Susitna	47	.602	.323	.075
Kenai	33	.431	.538	.031
Fish	43	.012	.011	.977

Overall correctly classified = .706

Actual Group of Origin	Sample Size	Classifed Group of Origin	
		Fish	Other (Susitna, Kenai, Kasilof)
Fish	43	.977	.023
Other (Susitna, Kenai, Kasilof)	43	.023	.977

Overall correctly classified = .977

Actual Group of Origin	Sample Size	Classified Group of Origin	
		Fish	Other (Susitna, Kenai)
Fish	43	.977	.023
Other (Susitna, Kenai)	43	.023	.977

Overall correctly classified = .977

NOTE: Underlined proportions represent proportion correctly classified, all other proportions are misclassified.

Table 21. Stock composition estimates and 90% confidence coefficients calculated from scale pattern analysis of age 5_2 sockeye salmon by fishery and date for the Central District, Upper Cook Inlet, 1979.

Fishery	Date	Susitna	Kenai	Kasilof	Crescent
Central District Drift Net	6/25	.066 ± .291		.934 ± .291	
	6/29	.556 ± .255		.444 ± .255	
	7/02	.192 ± .325	.151 ± .218	.657 ± .284	
	7/06	.057 ± .301	.400 ± .251	.543 ± .266	
	7/09	.095 ± .299	.617 ± .265	.288 ± .228	
	7/13	.430 ± .306	.364 ± .230	.206 ± .211	
	7/20	.352 ± .295	.534 ± .235	.114 ± .187	
	7/23	.181 ± .213	.819 ± .213		
	7/27		..900 ± .150	.100 ± .150	
Central District Westside Set Net	6/22	.344 ± .252	.044 ± .178		.612 ± .181
	6/25	.309 ± .344	.106 ± .218	.046 ± .173	.539 ± .219
	6/29	.232 ± .309	.114 ± .201	.174 ± .186	.480 ± .206
	7/02	.329 ± .336	.064 ± .203	.050 ± .172	.557 ± .205
	7/06	.212 ± .197			.788 ± .197
	7/09	.244 ± .178			.756 ± .178
	7/13		.123 ± .089		.877 ± .089

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Table 21. Stock composition estimates and 90% confidence coefficients calculated from scale pattern analysis of age 5_2 sockeye salmon by fishery and date for the Central District, Upper Cook Inlet, 1979 (continued).

Fishery	Date	Susitna	Kenai	Kasilof	Crescent
Kalifonsky Beach Set Net	7/02	.132 ± .254		.868 ± .254	
	7/06		.301 ± .186	.674 ± .174	.025 ± .062
	7/09		.450 ± .153	.550 ± .153	
	7/13		.668 ± .143	.332 ± .143	
	7/20		.961 ± .132	.039 ± .132	
	7/23		.950 ± .092		.050 ± .092
	7/27	.090 ± .197	.910 ± .197		
Cohoe/Ninilchik Beach Set Net	7/02	.042 ± .264		.958 ± .264	
	7/06	.226 ± .239		.774 ± .239	
	7/09	.179 ± .294	.466 ± .246	.355 ± .246	
	7/13		.722 ± .148	.278 ± .148	
	7/20		.870 ± .159	.130 ± .159	
	7/22		.926 ± .120	.074 ± .120	
	7/23		1.000 ± .198		
	7/25	.153 ± .266	.777 ± .246	.070 ± .181	
	7/27		.775 ± .140	.225 ± .140	

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Table 21. Stock composition estimates and 90% confidence coefficients calculated from scale pattern analysis of age 5_2 sockeye salmon by fishery and date for the Central District, Upper Cook Inlet, 1979 (continued).

Fishery	Date	Susitna	Kenai	Kasilof	Crescent
Central District Westside Set Net	7/16	.162 ± .108			.838 ± .108
	7/18	.137 ± .119			.863 ± .119
	7/20		.178 ± .116		.822 ± .116
	7/23	.133 ± .129			.867 ± .129
	7/25	.038 ± .333		.201 ± .244	.761 ± .257
	7/27		.291 ± .195		.709 ± .195
Salamatof Beach Set Net	7/02	.388 ± .404		.612 ± .404	
	7/06	.118 ± .280	.409 ± .232	.473 ± .252	
	7/09	.154 ± .261	.726 ± .239	.120 ± .182	
	7/13		.803 ± .132	.197 ± .132	
	7/20	.201 ± .264	.695 ± .239	.104 ± .181	
	7/23		.862 ± .130	.138 ± .130	
	7/27	.272 ± .304	.642 ± .265	.086 ± .202	

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Table 21. Stock composition estimates and 90% confidence coefficients calculated from scale pattern analysis of age 5_2 sockeye salmon by fishery and date for the Central District, Upper Cook Inlet, 1979.

Fishery	Date	Susitna	Kenai	Kasilof	Crescent
Kalgin Island East Set Net	7/02-7/27		.377 ± .167	.458 ± .148	.165 ± .107
Kalgin Island West Set Net	7/02-7/27	.610 ± .359	.278 ± .252	.112 ± .234	

Table 22. Stock composition estimates and 90% confidence coefficients calculated from scale pattern analysis for age 4_2 sockeye salmon by fishery and dates, Upper Cook Inlet, 1979.

Fishery	Date	Fish Creek	Other[1]
Northern District East-side Set Net	7/02-7/13	.086 ± .064	.914 ± .064
Northern District East-side Set Net	7/16-7/27	.288 ± .086	.712 ± .086
Northern District West-side Set Net	7/02-7/13	.146 ± .073	.854 ± .073
Northern District West-side Set Net	7/16-7/27	.092 ± .066	.908 ± .066
Central District Drift Net	6/25-7/09	.206 ± .071	.794 ± .071
Central District Drift Net	7/13-7/27	.284 ± .079	.716 ± .079

[1] The "other" category for classification of Northern District catches represents a pooled sample of equal numbers of Susitna and Kenai River scale measurements. For classification on Central District drift catches the "other" category represents a pooled sample of equal numbers of Susitna, Kenai, and Kasilof River scale measurements.

Table 23. Estimated migration times from the commercial fisheries of Upper Cook Inlet to the contributary river's counting locations in number of days.

Fishery	Susitna	Kenai	Kasilof	Crescent	Fish
Northern District East-side	8	3	4	14	8
Northern District West-side	7	3	4	14	7
Central District Drift	11	3	3	11	11
Central District West-side	11	4	4	10	11
Kalgin Island East-side	10	3	3	11	10
Kalgin Island West-side	10	3	3	11	10
Salamatof Beach	9	2	2	13	9
Kalifonsky Beach	9	2	1	12	9
Cohoe/Ninilchik Beach	10	3	2	12	10

In addition, a summary table provides estimates of the total catch by stock and fishery.

Regulatory District Summary:

Estimates of the number of fish by stock and age contributing to each fishery by date is shown in Tables 24-32.

In the Northern District East-side set net fishery (Table 24), 60,912 sockeye salmon were harvested of which: 51.6% were Kenai River, 30.3% Susitna River, and 18.1% Fish Creek.

In the Northern District West-side set net fishery (Table 25) 51,538 sockeye salmon were harvested of which 65.5% were Kenai River, 28.9% Susitna River, and 5.6% Fish Creek.

In the Central District drift net fishery (Table 26), 454,428 sockeye salmon were harvested of which 34.1% were Kasilof River, 32.1% Kenai River, 26.1% Susitna River, and 7.7% Fish Creek.

In the Central District West-side set net fishery (Table 27), 63,442 sockeye salmon were harvested of which 63.6% were Crescent River, 24.1% Susitna River, 8.5% Kenai River, and 3.8% Kasilof River.

In the Kalgin Island East-side set net fishery (Table 28), 16,714 sockeye salmon were harvested of which 70.4% were Kasilof River, 22.7% Kenai River, and 6.9% Crescent River.

In the Kalgin Island West-side set net fishery (Table 29), 28,256 sockeye salmon were harvested, of which 64.0% were Susitna River, 18.9% Kenai River, and 17.1% Kasilof River.

In the Salamatof Beach set net fishery (Table 30), 80,401 sockeye salmon were harvested, of which 45.4% were Kenai River, 31.5% Kasilof River, and 23.1% Susitna River.

In the Kalifonsky Beach set net fishery (Table 31), 47,595 sockeye salmon were harvested of which 49.0% were Kenai River, 43.4% Kasilof River, 6.8% Susitna River, and 0.8% Crescent River.

In the Cohoe/Ninilchik Beach set net fishery (Table 32), 120,232 sockeye salmon were harvested, of which 65.6% were Kasilof River, 23.8% Kenai River, and 10.6% Susitna River.

Stock Summary:

The total return of sockeye salmon to Upper Cook Inlet in 1979 was estimated at 1,658,640 (Table 33), of which 923,518 (55.7%) were harvested and 735,122 escaped to spawn.

Table 24. Stock composition estimates of sockeye salmon catches by age class and date for the Northern District East-side set net fishery, Upper Cook Inlet, 1979.

Date	System	4_2		5_2		5_3		6_3		Other		Total	
		%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers
Prior	Susitna	31.5	451	17.4	29	5.6	7	0	0	0	0	28.2	487
7/02	Kenai	59.9	859	80.8	135	93.6	116	0	0	0	0	64.4	1,110
	Fish	8.6	123	1.8	3	.8	1	0	0	0	0	7.4	127
	Total	100.0	1,433	100.0	167	100.0	124	0	0	0	0	100.0	1,724
7/02	Susitna	37.8	182	12.5	7	4.8	2	0	0	0	0	33.0	191
	Kenai	53.7	258	85.7	48	95.2	40	0	0	0	0	59.8	346
	Fish	8.5	41	1.8	1	0	0	0	0	0	0	7.2	42
	Total	100.0	481	100.0	56	100.0	42	0	0	0	0	100.0	579
7/06	Susitna	37.8	3,922	11.6	37	3.5	25	0	0	0	0	34.9	3,984
	Kenai	53.6	5,574	82.2	263	95.1	673	0	0	0	0	57.0	6,510
	Fish	8.6	894	6.2	20	1.4	10	0	0	0	0	8.1	924
	Total	100.0	10,390	100.0	320	100.0	708	0	0	0	0	100.0	11,418
7/09	Susitna	81.4	796	42.6	40	42.6	52	0	0	0	0	74.4	888
	Kenai	10.0	98	55.3	52	56.6	69	0	0	0	0	18.3	219
	Fish	8.6	84	2.1	2	.8	1	0	0	0	0	7.3	87
	Total	100.0	978	100.0	94	100.0	122	0	0	0	0	100.0	1,194
7/13	Susitna	81.3	1,482	42.7	118	41.8	46	20.3	15	33.3	6	72.5	1,667
	Kenai	10.1	183	56.2	155	56.4	62	79.7	59	0	0	20.0	459
	Fish	8.6	157	1.1	3	1.8	2	0	0	66.7	12	7.5	174
	Total	100.0	1,822	100.0	276	100.0	110	100.0	74	100.0	18	100.0	2,300
7/16	Susitna	33.4	1,130	6.1	30	14.6	205	3.8	3	0	0	25.5	1,368
	Kenai	37.8	1,280	89.4	441	84.6	1,189	96.2	77	0	0	55.7	2,987
	Fish	28.8	975	4.5	22	.8	11	0	0	0	0	18.8	1,008
	Total	100.0	3,385	100.0	493	100.0	1,405	100.0	80	0	0	100.0	5,363

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Table 24. Stock composition estimates of sockeye salmon catches by age class and date for the Northern District East-side set net fishery, Upper Cook Inlet, 1979 (continued).

Date	System	4_2		5_2		5_3		6_3		Other		Total	
		%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers
7/18	Susitna	33.4	3,658	6.1	143	14.2	151	4.5	10	0	0	26.8	3,962
	Kenai	37.8	4,142	90.9	2,123	82.5	878	95.5	212	0	0	49.7	7,355
	Fish	28.8	3,155	3.0	70	3.3	35	0	0	100.0	207	23.5	3,467
	Total	100.0	10.955	100.0	2,336	100.0	1,064	100.0	222	100.0	207	100.0	14,784
7/20	Susitna	33.4	3,855	6.2	308	13.6	77	0	0	0	0	24.8	4,240
	Kenai	37.8	4,364	92.3	4,588	79.8	450	0	0	0	0	55.1	9,402
	Fish	28.8	3,325	1.5	74	6.6	37	0	0	0	0	20.1	3,436
	Total	100.0	11,544	100.0	4,970	100.0	564	0	0	0	0	100.0	17,078
7/23	Susitna	28.8	699	7.0	11	9.1	2	0	0	27.0	24	27.3	736
	Kenai	42.4	1,031	82.7	129	54.5	12	0	0	12.3	11	43.9	1,183
	Fish	28.8	700	10.3	16	36.4	8	0	0	60.7	54	28.8	778
	Total	100.0	2,430	100.0	156	100.0	22	0	0	100.0	89	100.0	2,697
7/27	Susitna	28.7	381	7.5	17	16.7	6	0	0	0	0	25.0	404
	Kenai	42.5	563	89.0	203	72.2	26	0	0	0	0	49.1	792
	Fish	28.8	382	3.5	8	11.1	4	0	0	100.0	24	25.9	418
	Total	100.0	1,326	100.0	228	100.0	36	0	0	100.0	24	100.0	1,614
After 7/27	Susitna	28.8	511	7.2	22	14.6	7	0	0	0	0	25.0	540
	Kenai	42.4	754	89.2	272	72.9	35	0	0	0	0	49.1	1,061
	Fish	28.8	511	3.6	11	12.5	6	0	0	100.0	32	25.9	560
	Total	100.0	1,776	100.0	305	100.0	48	0	0	100.0	32	100.0	2,161
Total	Susitna	36.7	17,067	8.1	762	13.7	580	7.4	28	8.1	30	30.3	18,467
	Kenai	41.1	19,106	89.5	8,409	83.6	3,550	92.6	348	3.0	11	51.6	31,424
	Fish	22.2	10,347	2.4	230	2.7	115	0	0	88.9	329	18.1	11,021
	Total	100.0	46,520	100.0	9,401	100.0	4,245	100.0	376	100.0	370	100.0	60,912

Table 25. Stock composition estimates of sockeye salmon catches by age class and date for the Northern District West-side set net fishery, Upper Cook Inlet, 1979.

Date	System	4_2		5_2		5_3		6_3		Other		Total	
		%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers
Prior	Susitna	29.5	48	18.2	10	5.7	7	0	0	50.0	2	19.5	67
7/02	Kenai	55.8	91	81.8	45	94.3	115	0	0	0	0	73.0	251
	Fish	14.7	24	0	0	0	0	0	0	50.0	2	7.5	26
	Total	100.0	163	100.0	55	100.0	122	0	0	100.0	4	100.0	344
7/02	Susitna	35.1	52	11.8	6	3.6	4	0	0	50.0	2	20.3	64
	Kenai	50.0	74	88.2	45	96.4	108	0	0	0	0	72.1	227
	Fish	14.9	22	0	0	0	0	0	0	50.0	2	7.6	24
	Total	100.0	148	100.0	51	100.0	112	0	0	100.0	4	100.0	315
7/06	Susitna	35.3	929	12.4	622	3.5	31	2.9	28	80.5	124	18.0	1,734
	Kenai	50.1	1,321	87.5	4,396	96.0	843	97.1	927	0	0	77.6	7,487
	Fish	14.6	384	.1	8	.5	4	0	0	19.5	30	4.4	426
	Total	100.0	2,634	100.0	5,026	100.0	878	100.0	955	100.0	154	100.0	9,647
7/09	Susitna	75.9	530	42.7	85	42.2	35	0	0	0	0	66.3	650
	Kenai	9.5	66	56.3	112	56.6	47	0	0	0	0	23.0	225
	Fish	14.6	102	1.0	2	1.2	1	0	0	0	0	10.7	105
	Total	100.0	698	100.0	199	100.0	83	0	0	0	0	100.0	980
7/13	Susitna	76.0	1,260	42.9	355	41.9	54	19.5	8	77.6	66	63.6	1,743
	Kenai	9.4	156	56.5	467	55.8	72	80.5	33	0	0	26.6	728
	Fish	14.6	242	.6	5	2.3	3	0	0	22.4	19	9.8	269
	Total	100.0	1,658	100.0	827	100.0	129	100.0	41	100.0	85	100.0	2,740
7/16	Susitna	42.6	910	6.3	45	14.7	138	4.2	8	80.0	232	31.2	1,333
	Kenai	48.2	1,030	93.1	664	85.1	800	95.8	184	14.8	43	63.7	2,721
	Fish	9.2	197	.6	4	.2	2	0	0	5.2	15	5.1	218
	Total	100.0	2,137	100.0	713	100.0	940	100.0	192	100.0	290	100.0	4,272
7/20	Susitna	42.6	3,722	6.3	365	14.7	711	4.3	34	79.0	769	26.5	5,601
	Kenai	48.2	4,213	93.4	5,436	85.1	4,126	95.7	749	14.5	141	69.3	14,665
	Fish	9.2	804	.3	18	.2	9	0	0	6.5	63	4.2	894
	Total	100.0	8,739	100.0	5,819	100.0	4,846	100.0	783	100.0	973	100.0	21,160
7/23	Susitna	36.7	2,022	7.5	140	0	0	13.1	8	56.3	134	30.0	2,304
	Kenai	54.1	2,984	91.9	1,704	0	0	86.9	53	27.3	65	62.7	4,806
	Fish	9.2	507	.6	11	0	0	0	0	16.4	39	7.3	557
	Total	100.0	5,513	100.0	1,855	0	0	100.0	61	100.0	238	100.0	7,667
7/27	Susitna	36.7	787	7.5	35	13.6	3	13.6	3	51.6	32	31.7	860
	Kenai	54.1	1,160	91.6	428	77.3	17	86.4	19	24.2	15	60.3	1,639
	Fish	9.2	197	.9	4	9.1	2	0	0	24.2	15	8.0	218
	Total	100.0	2,144	100.0	467	100.0	22	100.0	22	100.0	62	100.0	2,717
After 7/27	Susitna	36.6	490	7.5	22	14.3	2	14.3	2	48.8	19	31.5	535
	Kenai	54.2	724	91.5	267	78.6	11	85.7	12	25.6	10	60.4	1,024
	Fish	9.2	123	1.0	3	7.1	1	0	0	25.6	10	8.1	137
	Total	100.0	1,337	100.0	292	100.0	14	100.0	14	100.0	39	100.0	1,696
Total	Susitna	42.7	10,750	11.0	1,685	13.8	985	4.4	91	74.6	1,380	28.9	14,891
	Kenai	47.0	11,819	88.6	13,564	85.9	6,139	95.6	1,977	14.8	274	65.5	33,773
	Fish	10.3	2,602	.4	55	.3	22	0	0	10.6	195	5.6	2,874
	Total	100.0	25,171	100.0	15,304	100.0	7,146	100.0	2,068	100.0	1,849	100.0	51,538

Table 26. Stock composition estimates of sockeye salmon catches by age class and date for the Central District drift net fishery, Upper Cook Inlet, 1979.

Date	System	4_2		5_2		5_3		6_3		Other		Total	
		%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers
6/25	Susitna	9.4	172	6.6	251	8.9	193	6.2	14	0	0	7.9	630
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	70.0	1,276	93.2	3,556	90.9	1,971	93.8	211	0	0	87.3	7,014
	Fish	20.6	375	.2	8	.2	4	0	0	0	0	4.8	387
	Total	100.0	1,823	100.0	3,815	100.0	2,168	100.0	225	0	0	100.0	8,031
6/29	Susitna	56.0	4,663	55.4	8,158	63.0	4,024	53.4	758	0	0	57.1	17,603
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	23.4	1,949	44.3	6,515	36.7	2,341	46.6	661	0	0	37.2	11,466
	Fish	20.6	1,715	.3	38	.3	19	0	0	0	0	5.7	1,772
	Total	100.0	8,327	100.0	14,711	100.0	6,384	100.0	1,419	0	0	100.0	30,841
7/02	Susitna	41.7	6,770	19.1	4,879	14.1	1,767	13.3	411	0	0	24.1	13,827
	Kenai	5.7	926	15.1	3,837	44.6	5,611	47.2	1,463	0	0	20.6	11,837
	Kasilof	32.0	5,203	65.5	16,697	41.0	5,157	39.5	1,226	0	0	49.3	28,283
	Fish	20.6	3,347	.3	74	.3	37	0	0	0	0	6.0	3,458
	Total	100.0	16,246	100.0	25,487	100.0	12,572	100.0	3,100	0	0	100.0	57,405
7/06	Susitna	18.2	1,857	5.7	1,363	2.7	179	2.4	164	86.1	1,008	9.4	4,571
	Kenai	22.2	2,266	39.9	9,565	75.4	5,076	77.4	5,208	0	0	45.3	22,115
	Kasilof	39.0	3,974	54.2	12,984	21.6	1,456	20.2	1,362	0	0	40.5	19,776
	Fish	20.6	2,101	.2	47	.3	23	0	0	13.9	163	4.8	2,334
	Total	100.0	10,198	100.0	23,959	100.0	6,734	100.0	6,734	100.0	1,171	100.0	48,796
7/09	Susitna	8.9	2,757	9.5	4,913	1.8	300	2.4	269	0	0	7.4	8,239
	Kenai	7.1	2,210	61.5	31,909	27.5	4,633	59.9	6,567	0	0	40.9	45,319
	Kasilof	63.4	19,757	28.7	14,895	70.3	11,839	37.7	4,134	0	0	45.7	50,625
	Fish	20.6	6,414	.3	142	.4	71	0	0	0	0	6.0	6,627
	Total	100.0	31,138	100.0	51,859	100.0	16,843	100.0	10,970	0	0	100.0	110,810
7/13	Susitna	45.9	12,822	42.9	23,403	42.0	2,095	26.3	535	74.3	2,128	44.4	40,983
	Kenai	2.2	605	36.3	19,811	13.7	685	41.8	849	0	0	23.8	21,950
	Kasilof	23.5	6,550	20.5	11,212	42.5	2,121	31.9	649	4.2	120	22.3	20,652
	Fish	28.4	7,924	.3	176	1.8	88	0	0	21.5	616	9.5	8,804
	Total	100.0	27,901	100.0	54,602	100.0	4,989	100.0	2,033	100.0	2,864	100.0	92,389
7/20	Susitna	35.3	7,083	35.1	13,292	39.4	1,083	46.2	558	86.2	4,449	39.5	26,465
	Kenai	6.5	1,304	53.2	20,164	23.3	642	38.9	469	5.2	271	34.1	22,850
	Kasilof	29.8	5,969	11.4	4,305	35.0	961	14.9	180	0	0	17.0	11,415
	Fish	28.4	5,694	.3	126	2.3	63	0	0	8.6	443	9.4	6,326
	Total	100.0	20,050	100.0	37,887	100.0	2,749	100.0	1,207	100.0	5,163	100.0	67,056
7/23	Susitna	46.2	3,484	18.0	1,913	35.3	374	28.0	28	64.0	435	31.2	6,234
	Kenai	25.4	1,912	81.5	8,655	62.4	661	72.0	72	11.6	79	56.9	11,379
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Fish	28.4	2,140	.5	47	2.3	24	0	0	24.4	166	11.9	2,377
	Total	100.0	7,536	100.0	10,615	100.0	1,059	100.0	100	100.0	680	100.0	19,990

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Table 26. Stock composition estimates of sockeye salmon catches by age class and date for the Central District drift net fishery, Upper Cook Inlet, 1979 (continued).

Date	System	4_2		5_2		5_3		6_3		Other		Total	
		%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers
7/27	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	21.2	1,217	89.4	4,853	54.6	329	83.3	50	41.5	90	54.2	6,539
	Kasilof	50.4	2,903	9.9	539	42.4	256	16.7	10	0	0	30.7	3,708
	Fish	28.4	1,634	.7	36	3.0	18	0	0	58.5	127	15.1	1,815
	Total	100.0	5,754	100.0	5,428	100.0	603	100.0	60	100.0	217	100.0	12,062
After 7/27	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	21.2	711	89.4	2,836	54.6	192	82.9	29	41.7	53	54.2	3,821
	Kasilof	50.4	1,696	9.9	315	42.3	149	17.1	6	0	0	30.7	2,166
	Fish	28.4	955	.7	21	3.1	11	0	0	58.3	74	15.1	1,061
	Total	100.0	3,362	100.0	3,172	100.0	352	100.0	35	100.0	127	100.0	7,048
Total	Susitna	29.9	39,608	25.1	58,172	18.4	10,015	10.6	2,737	78.5	8,020	26.1	118,552
	Kenai	8.4	11,151	43.9	101,630	32.7	17,829	56.8	14,707	4.8	493	32.1	145,810
	Kasilof	37.3	49,277	30.7	71,018	48.2	26,251	32.6	8,439	1.2	120	34.1	155,105
	Fish	24.4	32,299	.3	715	.7	358	0	0	15.5	1,589	7.7	34.961
	Total	100.0	132,335	100.0	231,535	100.0	54,453	100.0	25,883	100.0	10,222	100.0	454,428

Table 27. Stock composition estimates of sockeye salmon catches by age class and date for the Central District West-side set net fishery, Upper Cook Inlet, 1979.

Date	System	4_2		5_2		5_3		6_3		Other		Total	
		%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers
6/18 [1]	Susitna	67.8	69	34.4	945	64.1	77	35.0	12	0	0	36.7	1,103
	Kenai	3.5	4	4.4	121	28.3	34	25.1	8	0	0	5.6	167
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	28.7	29	61.2	1,682	7.6	9	39.9	13	0	0	57.7	1,733
	Total	100.0	102	100.0	2,748	100.0	120	100.0	33	0	0	100.0	3,003
6/22	Susitna	67.8	61	34.4	829	64.1	67	35.0	10	0	0	36.7	967
	Kenai	3.5	3	4.4	106	28.3	30	25.1	7	0	0	5.6	146
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	28.7	26	61.2	1,476	7.6	8	39.9	12	0	0	57.7	1,522
	Total	100.0	90	100.0	2,411	100.0	105	100.0	29	0	0	100.0	2,635
6/25	Susitna	61.2	230	30.9	753	41.5	148	23.6	52	0	0	34.9	1,183
	Kenai	8.5	32	10.6	258	49.1	175	46.1	102	0	0	16.7	567
	Kasilof	4.8	18	4.6	112	4.5	16	3.8	8	0	0	4.6	154
	Crescent	25.5	96	53.9	1,313	4.9	17	26.5	58	0	0	43.8	1,484
	Total	100.0	376	100.0	2,436	100.0	356	100.0	220	0	0	100.0	3,388
6/29	Susitna	48.0	344	23.2	862	29.6	268	16.9	37	0	0	27.2	1,511
	Kenai	9.5	68	11.4	424	50.2	455	46.9	102	0	0	18.9	1,049
	Kasilof	18.8	135	17.4	647	16.1	146	13.9	30	0	0	17.2	958
	Crescent	23.7	170	48.0	1,785	4.1	37	22.3	48	0	0	36.7	2,040
	Total	100.0	717	100.0	3,718	100.0	906	100.0	217	0	0	100.0	5,558
7/02	Susitna	80.9	611	32.9	1,356	47.0	12	0	0	0	0	40.4	1,979
	Kenai	2.7	20	6.4	264	36.9	9	0	0	0	0	6.0	293
	Kasilof	2.8	21	5.0	206	6.1	1	0	0	0	0	4.6	228
	Crescent	13.6	103	55.7	2,295	10.0	3	0	0	0	0	49.0	2,401
	Total	100.0	755	100.0	4,121	100.0	25	0	0	0	0	100.0	4,901

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Table 27. Stock composition estimates of sockeye salmon catches by age class and date for the Central District West-side set net fishery, Upper Cook Inlet, 1979 (continued)

Date	System	4_2		5_2		5_3		6_3		Other		Total	
		%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers
7/06	Susitna	73.1	590	21.2	846	68.3	414	100.0	202	0	0	36.6	2,052
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	26.9	217	78.8	3,146	31.7	192	0	0	0	0	63.4	3,555
	Total	100.0	807	100.0	3,992	100.0	606	100.0	202	0	0	100.0	5,607
7/09	Susitna	76.5	913	24.4	879	72.0	87	100.0	101	95.5	19	39.7	1,999
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	23.5	281	75.6	2,724	28.0	34	0	0	4.5	1	60.3	3,040
	Total	100.0	1,194	100.0	3,603	100.0	121	100.0	101	100.0	20	100.0	5,039
7/13	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	3.9	61	12.3	533	73.3	62	0	0	0	0	11.0	656
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	96.1	1,514	87.7	3,798	26.7	22	0	0	0	0	89.0	5,334
	Total	100.0	1,575	100.0	4,331	100.0	84	0	0	0	0	100.0	5,990
7/16	Susitna	50.4	597	16.2	696	90.6	25	0	0	0	0	23.9	1,318
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	49.6	587	83.8	3,600	9.4	3	0	0	0	0	76.1	4,190
	Total	100.0	1,184	100.0	4,296	100.0	28	0	0	0	0	100.0	5,508
7/18	Susitna	45.5	1,005	13.7	484	88.9	284	100.0	176	75.2	29	31.5	1,978
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	54.5	1,204	86.3	3,048	11.1	36	0	0	24.8	9	68.5	4,297
	Total	100.0	2,209	100.0	3,532	100.0	320	100.0	176	100.0	38	100.0	6,275

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Table 27. Stock composition estimates of sockeye salmon catches by age class and date for the Central District West-side set net fishery, Upper Cook Inlet, 1979 (continued).

Date	System	4_2		5_2		5_3		6_3		Other		Total	
		%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers
7/20	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	12.1	257	17.8	317	81.0	396	100.0	22	14.4	4	22.4	996
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	87.9	1,866	82.2	1,465	19.0	93	0	0	85.6	23	77.6	3,447
	Total	100.0	2,123	100.0	1,782	100.0	489	100.0	22	100.0	27	100.0	4,443
7/22[1]	Susitna	44.6	314	13.3	103	88.6	65	0	0	0	0	31.0	482
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	55.4	390	86.7	675	11.4	8	0	0	0	0	69.0	1,073
	Total	100.0	704	100.0	778	100.0	73	0	0	0	0	100.0	1,555
7/23	Susitna	44.6	405	13.3	133	88.6	83	0	0	0	0	31.0	621
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	55.4	503	86.7	869	11.4	11	0	0	0	0	69.0	1,383
	Total	100.0	908	100.0	1,002	100.0	94	0	0	0	0	100.0	2,004
7/25	Susitna	5.4	72	3.8	20	0	0	0	0	48.8	10	5.4	102
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	74.1	992	20.1	105	0	0	0	0	0	0	58.3	1,097
	Crescent	20.5	275	76.1	398	0	0	0	0	51.2	11	36.3	684
	Total	100.0	1,339	100.0	523	0	0	0	0	100.0	21	100.0	1,883
7/27	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	20.8	195	29.1	60	88.9	71	100.0	6	24.0	3	26.9	335
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	79.2	744	70.9	147	11.1	9	0	0	76.0	11	73.1	911
	Total	100.0	939	100.0	207	100.0	80	100.0	6	100.0	14	100.0	1,246
After 7/27	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	20.8	691	29.1	213	88.9	251	100.0	22	24.0	12	26.9	1,189
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	79.2	2,632	70.9	519	11.1	31	0	0	76.0	36	73.1	3,218
	Total	100.0	3,323	100.0	732	100.0	282	100.0	22	100.0	48	100.0	4,407
Total	Susitna	28.4	5,211	19.6	7,906	41.5	1,530	57.4	590	34.5	58	24.1	15,295
	Kenai	7.2	1,331	5.7	2,296	40.2	1,483	26.2	269	11.3	19	8.5	5,398
	Kasilof	6.4	1,166	2.7	1,070	4.4	163	3.7	38	0	0	3.8	2,437
	Crescent	58.0	10,637	72.0	28,940	13.9	513	12.7	131	54.2	91	63.6	40,312
	Total	100.0	18,345	100.0	40,212	100.0	3,689	100.0	1,028	100.0	168	100.0	63,442

[1] Scale samples were not collected on 6/18, 7/22 or after 7/27. Stock composition estimates from 6/22 were applied to the catch made on 6/18, stock composition estimates from 7/23 were applied to the 7/22 catch, and estimates from 7/27 were applied to catches made after that date.

Table 28. Stock composition estimates of sockeye salmon catches by age class and date for the Kalgin Island East-side set net fishery, Upper Cook Inlet, 1979.

Date	System	4_2 %	4_2 Numbers	5_2 %	5_2 Numbers	5_3 %	5_3 Numbers	6_3 %	6_3 Numbers	Other %	Other Numbers	Total %	Total Numbers
Prior 7/02	Kenai	35.5	303	37.7	158	78.7	320	81.1	22	0	0	47.1	803
	Kasilof	55.7	475	45.8	192	20.2	82	18.9	5	0	0	44.2	754
	Crescent	8.8	75	16.5	69	1.1	4	0	0	0	0	8.7	148
	Total	100.0	853	100.0	419	100.0	406	100.0	27	0	0	100.0	1,705
7/02	Kenai	35.5	116	37.7	60	78.7	122	81.1	8	0	0	47.0	306
	Kasilof	55.7	181	45.8	73	20.2	31	18.9	2	0	0	44.1	287
	Crescent	8.8	29	16.5	27	1.1	2	0	0	0	0	8.9	58
	Total	100.0	326	100.0	160	100.0	155	100.0	10	0	0	100.0	651
7/06	Kenai	35.5	107	37.7	80	78.7	107	81.1	19	0	0	46.2	313
	Kasilof	55.7	167	45.8	97	20.2	27	18.9	4	0	0	43.5	295
	Crescent	8.8	26	16.5	35	1.1	2	0	0	100.0	7	10.3	70
	Total	100.0	300	100.0	212	100.0	136	100.0	23	100.0	7	100.0	678
7/09	Kenai	4.1	20	37.7	131	13.0	29	37.9	14	0	0	17.4	194
	Kasilof	94.5	468	45.8	159	86.7	193	62.1	24	100.0	12	76.7	856
	Crescent	1.4	7	16.5	58	.3	1	0	0	0	0	5.9	66
	Total	100.0	495	100.0	348	100.0	223	100.0	38	100.0	12	100.0	1,116
7/13	Kenai	4.1	15	37.7	105	13.0	23	37.9	11	0	0	17.3	154
	Kasilof	94.5	356	45.8	127	86.7	154	62.1	19	86.3	9	74.7	665
	Crescent	1.4	23	16.5	46	.3	1	0	0	13.7	1	8.0	71
	Total	100.0	394	100.0	278	100.0	178	100.0	30	100.0	10	100.0	890

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Table 28. Stock composition estimates of sockeye salmon catches by age class and date for the Kalgin Island East-side set net fishery, Upper Cook Inlet, 1979 (continued).

Date	System	4_2 %	4_2 Numbers	5_2 %	5_2 Numbers	5_3 %	5_3 Numbers	6_3 %	6_3 Numbers	Other %	Other Numbers	Total %	Total Numbers
7/16	Kenai	3.9	31	37.7	292	13.0	43	37.9	41	0	0	19.9	407
	Kasilof	90.3	711	45.8	355	86.7	290	62.1	66	86.3	39	71.3	1,461
	Crescent	5.8	46	16.5	128	.3	1	0	0	13.7	6	8.8	181
	Total	100.0	788	100.0	775	100.0	334	100.0	107	100.0	45	100.0	2,049
7/20	Kenai	3.6	13	37.7	128	10.5	67	31.3	83	0	0	18.2	291
	Kasilof	93.9	335	45.8	155	89.3	571	68.7	181	0	0	77.6	1,242
	Crescent	2.5	9	16.5	56	.2	2	0	0	0	0	4.2	67
	Total	100.0	357	100.0	339	100.0	640	100.0	264	0	0	100.0	1,600
7/23	Kenai	3.6	24	37.7	191	10.5	46	31.3	15	0	0	16.6	276
	Kasilof	93.9	635	45.8	232	89.3	388	68.7	33	0	0	77.3	1,288
	Crescent	2.5	17	16.5	83	.2	1	0	0	0	0	6.1	101
	Total	100.0	676	100.0	506	100.0	435	100.0	48	0	0	100.0	1,665
7/27	Kenai	3.6	17	37.7	137	10.5	33	31.3	11	0	0	16.6	198
	Kasilof	93.9	455	45.8	166	89.3	278	68.7	24	0	0	77.3	923
	Crescent	2.5	12	16.5	60	.2	1	0	0	0	0	6.1	73
	Total	100.0	484	100.0	363	100.0	312	100.0	35	0	0	100.0	1,194
After 7/27	Kenai	3.6	76	37.7	592	10.5	141	31.3	47	0	0	16.6	856
	Kasilof	93.9	1,970	45.8	719	89.3	1,204	68.7	103	0	0	77.3	3,996
	Crescent	2.5	52	16.5	259	.2	3	0	0	0	0	6.1	314
	Total	100.0	2,098	100.0	1,570	100.0	1,348	100.0	150	0	0	100.0	5,166
Total	Kenai	10.6	722	37.7	1,874	22.4	931	37.0	271	0	0	22.7	3,798
	Kasilof	85.0	5,753	45.8	2,275	77.2	3,218	63.0	461	81.1	60	70.4	11,767
	Crescent	4.4	296	16.5	821	.4	18	0	0	18.9	14	6.9	1,149
	Total	100.0	6,771	100.0	4,970	100.0	4,167	100.0	732	100.0	74	100.0	16,714

Table 29. Stock composition estimates of sockeye salmon catches by age class and date for the Kalgin Island West-side set net fishery, Upper Cook Inlet, 1979.

Date	System	4_2 %	4_2 Numbers	5_2 %	5_2 Numbers	5_3 %	5_3 Numbers	6_3 %	6_3 Numbers	Other %	Other Numbers	Total %	Total Numbers
Prior 7/02	Susitna	89.2	1,068	61.0	791	33.4	258	31.2	24	0	0	64.0	2,141
	Kenai	7.1	85	27.8	361	61.3	473	63.8	49	0	0	29.0	968
	Kasilof	3.7	44	11.2	145	5.3	41	5.0	4	0	0	7.0	234
	Total	100.0	1,197	100.0	1,297	100.0	772	100.0	77	0	0	100.0	3,343
7/02	Susitna	89.2	560	61.0	415	33.4	135	31.2	12	0	0	64.0	1,122
	Kenai	7.1	45	27.8	189	61.3	248	63.8	26	0	0	29.0	508
	Kasilof	3.7	23	11.2	76	5.3	22	5.0	2	0	0	7.0	123
	Total	100.0	628	100.0	680	100.0	405	100.0	40	0	0	100.0	1,753
7/06	Susitna	89.2	1,268	61.0	1,226	33.4	284	31.2	77	0	0	63.1	2,855
	Kenai	7.1	101	27.8	559	61.3	522	63.8	156	0	0	29.5	1,338
	Kasilof	3.7	53	11.2	225	5.3	45	5.0	12	0	0	7.4	335
	Total	100.0	1,422	100.0	2,010	100.0	851	100.0	245	0	0	100.0	4,528
7/09	Susitna	67.1	355	61.0	598	22.4	63	27.3	45	0	0	54.1	1,061
	Kenai	3.8	20	27.8	273	24.2	69	47.1	79	0	0	22.5	441
	Kasilof	29.1	154	11.2	110	53.4	152	25.6	43	0	0	23.4	459
	Total	100.0	529	100.0	981	100.0	284	100.0	167	0	0	100.0	1,961
7/13	Susitna	81.9	492	61.0	542	63.9	102	43.0	18	97.9	69	69.5	1,223
	Kenai	2.1	13	27.8	247	11.3	18	36.9	15	0	0	16.6	293
	Kasilof	16.0	96	11.2	100	24.8	40	20.1	8	2.1	1	13.9	245
	Total	100.0	601	100.0	889	100.0	160	100.0	41	100.0	70	100.0	1,761
7/16	Susitna	81.9	1,032	61.0	706	63.9	336	43.0	75	97.9	69	69.6	2,218
	Kenai	2.1	26	27.8	322	11.3	59	36.9	65	0	0	14.8	472
	Kasilof	16.0	202	11.2	129	24.8	131	20.1	35	2.1	1	15.6	498
	Total	100.0	1,260	100.0	1,157	100.0	526	100.0	175	100.0	70	100.0	3,188

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Table 29. Stock composition estimates of sockeye salmon catches by age class and date for the Kalgin Island West-side set net fishery, Upper Cook Inlet, 1979 (continued).

Date	System	4_2 %	4_2 Numbers	5_2 %	5_2 Numbers	5_3 %	5_3 Numbers	6_3 %	6_3 Numbers	Other %	Other Numbers	Total %	Total Numbers
7/20	Susitna	65.2	390	61.0	400	59.5	356	69.6	113	0	0	62.5	1,259
	Kenai	3.6	21	27.8	182	10.6	63	17.6	29	0	0	14.7	295
	Kasilof	31.2	187	11.2	73	29.9	179	12.8	21	0	0	22.8	460
	Total	100.0	598	100.0	655	100.0	598	100.0	163	0	0	100.0	2,014
7/23	Susitna	65.2	563	61.0	510	59.5	189	69.6	40	0	0	62.7	1,302
	Kenai	3.6	31	27.8	233	10.6	34	17.6	10	0	0	14.8	308
	Kasilof	31.2	269	11.2	94	29.9	95	12.8	8	0	0	22.5	466
	Total	100.0	863	100.0	837	100.0	318	100.0	58	0	0	100.0	2,076
7/27	Susitna	65.2	1,278	61.0	360	59.5	31	69.6	37	0	0	64.2	1,706
	Kenai	3.6	71	27.8	164	10.6	6	17.6	9	0	0	9.4	250
	Kasilof	31.2	611	11.2	66	29.9	16	12.8	7	0	0	26.4	700
	Total	100.0	1,960	100.0	590	100.0	53	100.0	53	0	0	100.0	2,656
After 7/27	Susitna	65.2	2,394	61.0	674	59.5	59	69.6	70	0	0	64.2	3,197
	Kenai	3.6	132	27.8	307	10.6	11	17.6	17	0	0	9.4	467
	Kasilof	31.2	1,145	11.2	124	29.9	30	12.8	13	0	0	26.4	1,312
	Total	100.0	3,671	100.0	1,105	100.0	100	100.0	100	0	0	100.0	4,976
Total	Susitna	73.8	9,400	61.0	6,222	44.6	1,813	45.7	511	97.9	138	64.0	18,084
	Kenai	4.3	545	27.8	2,837	36.9	1,503	40.6	455	0	0	18.9	5,340
	Kasilof	21.9	2,784	11.2	1,142	18.5	751	13.7	153	2.1	2	17.1	4,832
	Total	100.0	12,729	100.0	10,201	100.0	4,067	100.0	1,119	100.0	140	100.0	28,256

Table 30. Stock composition estimates of sockeye salmon catches by age class and date for the Salamatof Beach set net fishery, Upper Cook Inlet, 1979.

Date	System	4_2		5_2		5_3		6_3		Other		Total	
		%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers
Prior 7/02[1]	Susitna	73.8	782	38.8	114	42.6	153	42.2	14	100.0	11	61.1	1,074
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	26.2	277	61.2	181	57.4	207	57.8	19	0	0	38.9	684
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	1,059	100.0	295	100.0	360	100.0	33	100.0	11	100.0	1,758
7/02	Susitna	73.8	254	38.8	37	42.6	50	42.2	5	100.0	3	61.1	349
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	26.2	90	61.2	59	57.4	67	57.8	6	0	0	38.9	222
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	344	100.0	96	100.0	117	100.0	11	100.0	3	100.0	571
7/06	Susitna	39.9	2,984	11.8	1,050	5.4	114	5.0	62	100.0	40	21.5	4,250
	Kenai	24.1	1,802	40.9	3,641	76.0	1,609	77.6	967	0	0	40.5	8,019
	Kasilof	36.0	2,692	47.3	4,211	18.6	394	17.4	217	0	0	38.0	7,514
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	7,478	100.0	8,902	100.0	2,117	100.0	1,246	100.0	40	100.0	19,783
7/09	Susitna	27.3	224	15.4	125	3.3	5	3.8	2	78.5	10	19.9	366
	Kenai	22.4	183	72.6	591	63.1	83	81.0	48	0	0	49.3	905
	Kasilof	50.3	412	12.0	98	33.6	44	15.2	9	21.5	3	30.8	566
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	819	100.0	814	100.0	132	100.0	59	100.0	13	100.0	1,837
7/13	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	17.5	371	80.3	723	42.7	161	75.2	150	0	0	37.9	1,405
	Kasilof	82.5	1,748	19.7	177	57.3	217	24.8	50	100.0	107	62.1	2,299
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	2,119	100.0	900	100.0	378	100.0	200	100.0	107	100.0	3,704

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Table 30. Stock composition estimates of sockeye salmon catches by age class and date for the Salamatof Beach set net fishery, Upper Cook Inlet, 1979 (continued).

Date	System	4_2		5_2		5_3		6_3		Other		Total	
		%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers
7/20	Susitna	36.1	3,771	20.1	4,643	26.5	1,114	29.2	619	87.8	140	25.7	10,287
	Kenai	15.2	1,588	69.5	16,052	35.9	1,509	55.8	1,184	12.2	20	50.8	20,353
	Kasilof	48.7	5,088	10.4	2,402	37.6	1,580	15.0	318	0	0	23.5	9,388
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	10,447	100.0	23,097	100.0	4,203	100.0	2,121	100.0	160	100.0	40,028
7/23	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	22.6	657	86.2	3,108	47.1	224	77.6	179	100.0	216	58.9	4,384
	Kasilof	77.4	2,251	13.8	498	52.9	252	22.4	52	0	0	41.1	3,053
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	2,908	100.0	3,606	100.0	476	100.0	231	100.0	216	100.0	7,437
7/27	Susitna	47.4	671	27.2	134	35.8	43	0	0	91.4	36	42.8	884
	Kenai	13.6	192	64.2	315	33.1	40	0	0	8.6	3	26.6	550
	Kasilof	39.0	552	8.6	42	31.1	37	0	0	0	0	30.6	631
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	1,415	100.0	491	100.0	120	0	0	100.0	39	100.0	2,065
After 7/27[1]	Susitna	47.4	1,045	27.2	208	35.8	67	0	0	91.4	56	42.8	1,376
	Kenai	13.6	300	64.2	492	33.1	62	0	0	8.6	5	26.7	859
	Kasilof	39.0	859	8.6	66	31.1	58	0	0	0	0	30.5	983
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	2,204	100.0	766	100.0	187	0	0	100.0	61	100.0	3,218
Total	Susitna	33.8	9,731	16.2	6,311	19.1	1,546	18.0	702	45.6	296	23.1	18,586
	Kenai	17.7	5,093	64.0	24,922	45.6	3,688	64.8	2,528	37.5	244	45.4	36,475
	Kasilof	48.5	13,969	19.8	7,734	35.3	2,856	17.2	671	16.9	110	31.5	25,340
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	28,793	100.0	38,967	100.0	8,090	100.0	3,901	100.0	650	100.0	80,401

[1] Scales were not collected prior to 7/02 or after 7/27. Stock composition estimates from 7/02 were applied to the total catch made prior to 7/02, similarly stock composition estimates from 7/27 were applied to the total catch made after 7/27.

Table 31. Stock composition estimates of sockeye salmon catches by age class and date for the Kalifonsky Beach set net fishery, Upper Cook Inlet, 1979.

Date	System	4_2		5_2		5_3		6_3		Other		Total	
		%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers
Prior 7/02[1]	Susitna	40.4	1,246	13.2	350	15.2	79	14.8	16	100.0	26	26.9	1,717
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	59.6	1,839	86.8	2,301	84.8	439	85.2	93	0	0	73.1	4,672
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	3,085	100.0	2,651	100.0	518	100.0	109	100.0	26	100.0	6,389
7/02	Susitna	40.4	176	13.2	50	15.2	11	14.8	2	100.0	4	26.9	243
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	59.6	260	86.8	325	84.8	62	85.2	13	0	0	73.1	660
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	436	100.0	375	100.0	73	100.0	15	100.0	4	100.0	903
7/06	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	25.4	841	30.1	1,879	67.8	550	69.9	125	0	0	32.2	3,395
	Kasilof	73.4	2,430	67.4	4,208	32.1	261	30.1	54	0	0	65.9	6,953
	Crescent	1.2	40	2.5	156	0.1	1	0	0	0	0	1.9	197
	Total	100.0	3,311	100.0	6,243	100.0	812	100.0	179	0	0	100.0	10,545
7/09	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	38.8	417	45.0	491	79.5	403	81.0	136	0	0	50.8	1,447
	Kasilof	61.2	658	55.0	601	20.5	104	19.0	32	100.0	9	49.2	1,404
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	1,075	100.0	1,092	100.0	507	100.0	168	100.0	9	100.0	2,851
7/13	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	9.5	386	66.8	1,983	26.9	210	59.9	76	0	0	33.4	2,655
	Kasilof	90.5	3,673	33.2	985	73.1	570	40.1	51	100.0	24	66.6	5,303
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	4,059	100.0	2,968	100.0	780	100.0	127	100.0	24	100.0	7,958

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Table 31. Stock composition estimates of sockeye salmon catches by age class and date for the Kalifonsky Beach set net fishery, Upper Cook Inlet, 1979 (continued).

Date	System	4_2		5_2		5_3		6_3		Other		Total	
		%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers
7/20	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	73.7	3,386	96.1	4,446	82.0	1,144	84.3	36	89.3	67	84.6	9,079
	Kasilof	26.3	1,208	3.9	180	18.0	251	15.7	7	10.7	8	15.4	1,654
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	4,594	100.0	4,626	100.0	1,395	100.0	43	100.0	75	100.0	10,733
7/23	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	92.4	1,531	95.0	1,287	99.7	228	100.0	63	93.7	9	94.1	3,118
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	7.6	126	5.0	68	.3	1	0	0	6.3	1	5.9	196
	Total	100.0	1,657	100.0	1,355	100.0	229	100.0	63	100.0	10	100.0	3,314
7/27	Susitna	44.9	589	9.0	127	20.2	17	15.2	1	71.2	16	26.4	750
	Kenai	55.1	723	91.0	1,289	79.8	68	84.8	8	28.8	7	73.6	2,095
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	1,312	100.0	1,416	100.0	85	100.0	9	100.0	23	100.0	2,845
After 7/27 [1]	Susitna	44.9	426	9.0	92	20.2	13	15.2	1	71.2	11	26.4	543
	Kenai	55.1	522	91.0	933	79.8	49	84.8	5	28.8	5	73.6	1,514
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	948	100.0	1,025	100.0	62	100.0	6	100.0	16	100.0	2,057
Total	Susitna	11.9	2,437	2.9	619	2.7	120	2.8	20	30.5	57	6.8	3,253
	Kenai	38.1	7,806	56.6	12,308	59.4	2,652	62.4	449	47.1	88	49.0	23,303
	Kasilof	49.2	10,068	39.5	8,600	37.8	1,687	34.8	250	21.9	41	43.4	20,646
	Crescent	0.8	166	1.0	224	.1	2	0	0	.5	1	.8	393
	Total	100.0	20,477	100.0	21,751	100.0	4,461	100.0	719	100.0	187	100.0	47,595

[1] Scales were not collected prior to 7/02 or after 7/27. Stock composition estimates from 7/02 were applied to the total catch made prior to 7/02, similarly stock composition estimates from 7/27 were applied to the total catch made after 7/27.

Table 32. Stock composition estimates of sockeye salmon catches by age class and date for the Cohoe/Ninilchik Beach set net fishery, Upper Cook Inlet, 1979.

Date	System	4_2		5_2		5_3		6_3		Other		Total	
		%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers
Prior 7/02[1]	Susitna	16.3	1,003	4.2	585	4.8	175	4.8	46	0	0	7.3	1,809
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	83.7	5,149	95.8	13,349	95.2	3,481	95.2	917	0	0	92.7	22,896
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	6,152	100.0	13,934	100.0	3,656	100.0	963	0	0	100.0	24,705
7/02	Susitna	16.3	455	4.2	266	4.8	80	4.8	21	0	0	7.3	822
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	83.7	2,338	95.8	6,061	95.2	1,580	95.2	416	0	0	92.7	10,395
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	2,793	100.0	6,327	100.0	1,660	100.0	437	0	0	100.0	11,217
7/06	Susitna	56.5	3,483	22.6	2,697	25.5	1,102	25.2	464	100.0	295	32.7	8,041
	Kenai	0	0	0	0	0	0	0	0	0	0	0	0
	Kasilof	43.5	2,681	77.4	9,238	74.5	3,220	74.8	1,378	0	0	67.3	16,517
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	6,164	100.0	11,935	100.0	4,322	100.0	1,842	100.0	295	100.0	24,558
7/09	Susitna	16.6	571	17.9	486	3.0	41	4.8	18	59.0	14	14.3	1,130
	Kenai	5.4	186	46.6	1,265	18.8	254	46.9	178	0	0	23.8	1,883
	Kasilof	78.0	2,685	35.5	964	78.2	1,058	48.3	184	41.0	10	61.9	4,901
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	3,442	100.0	2,715	100.0	1,353	100.0	380	100.0	24	100.0	7,914
7/13	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	11.9	655	72.2	2,498	32.2	589	65.8	416	0	0	36.2	4,158
	Kasilof	88.1	4,851	27.8	962	67.8	1,239	34.2	216	100.0	69	63.8	7,337
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	5,506	100.0	3,460	100.0	1,828	100.0	632	100.0	69	100.0	11,495

-Continued-

Table 32. Stock composition estimates of sockeye salmon catches by age class and date for the Cohoe/Ninilchik Beach set net fishery, Upper Cook Inlet, 1979 (continued).

Date	System	4_2		5_2		5_3		6_3		Other		Total	
		%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers	%	Numbers
7/20	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	23.8	2,284	87.0	3,836	48.8	852	0	0	100.0	111	44.7	7,083
	Kasilof	76.2	7,312	13.0	573	51.2	893	0	0	0	0	55.3	8,778
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	9,596	100.0	4,409	100.0	1,745	0	0	100.0	111	100.0	15,861
7/22	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	36.8	925	92.6	2,141	64.1	516	87.4	66	100.0	46	64.2	3,694
	Kasilof	63.2	1,589	7.4	171	35.9	289	12.6	9	0	0	35.8	2,058
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	2,514	100.0	2,312	100.0	805	100.0	75	100.0	46	100.0	5,752
7/23	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	100.0	3,949	100.0	2,675	100.0	958	100.0	61	100.0	23	100.0	7,666
	Kasilof	0	0	0	0	0	0	0	0	0	0	0	0
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	3,949	100.0	2,675	100.0	958	100.0	61	100.0	23	100.0	7,666
7/25	Susitna	35.6	679	15.3	139	23.6	47	0	0	83.1	36	29.5	901
	Kenai	22.0	420	77.7	705	46.8	93	0	0	16.9	7	40.0	1,225
	Kasilof	42.4	809	7.0	64	29.6	59	0	0	0	0	30.5	932
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	1,908	100.0	908	100.0	199	0	0	100.0	43	100.0	3,058
7/27	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	13.8	202	77.5	630	32.9	27	0	0	100.0	26	37.1	885
	Kasilof	86.2	1,259	22.5	183	67.1	56	0	0	0	0	62.9	1,498
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	1,461	100.0	813	100.0	83	0	0	100.0	26	100.0	2,383
After 7/27[1]	Susitna	0	0	0	0	0	0	0	0	0	0	0	0
	Kenai	13.8	476	77.5	1,486	32.9	65	0	0	100.0	62	37.1	2,089
	Kasilof	86.2	2,971	22.5	431	67.1	132	0	0	0	0	62.9	3,534
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	3,447	100.0	1,917	100.0	197	0	0	100.0	62	100.0	5,623
Total	Susitna	13.2	6,191	8.1	4,173	8.6	1,445	12.5	549	49.4	345	10.6	12,703
	Kenai	19.4	9,097	29.6	15,236	20.0	3,354	16.4	721	39.3	275	23.8	28,683
	Kasilof	67.4	31,644	62.3	31,996	71.4	12,007	71.1	3,120	11.3	79	65.6	78,846
	Crescent	0	0	0	0	0	0	0	0	0	0	0	0
	Total	100.0	46,932	100.0	51,405	100.0	16,806	100.0	4,390	100.0	699	100.0	120,232

[1] Scales were not collected prior to 7/02 or after 7/27. Stock composition estimates from 7/02 were applied to the total catch made prior to that date, similarly stock estimates from 7/27 were applied to the catches made 7/27.

Table 33. Catch, escapement, and total return of sockeye salmon by age class and stock, Upper Cook Inlet, 1979.

Stock		Catch					
		4_2	5_2	5_3	6_3	Other	Total
Susitna	Numbers	100,395	85,850	18,034	5,228	10,324	219,831
	Percent	45.7	39.0	8.2	2.4	4.7	100.0
Kenai	Numbers	66,670	183,076	41,129	21,725	1,404	314,004
	Percent	21.2	58.3	13.1	6.9	.5	100.0
Kasilof	Numbers	114,661	123,835	46,933	13,132	412	298,973
	Percent	38.4	41.4	15.7	4.4	.1	100.0
Crescent	Numbers	11,099	29,985	533	131	106	41,854
	Percent	26.5	71.6	1.3	.3	.3	100.0
Fish	Numbers	45,248	1,000	495	0	2,113	48,856
	Percent	92.6	2.1	1.0	0	4.3	100.0
Total	Numbers	338,073	423,746	107,124	40,216	14,359	923,518
	Percent	36.6	45.9	11.6	4.3	1.6	100.0

Stock		Escapement					
		4_2	5_2	5_3	6_3	Other	Total
Susitna	Numbers	95,841	32,362	8,267	1,575	18,955	157,000
	Percent	61.0	20.6	5.3	1.0	12.1	100.0
Kenai	Numbers	57,348	173,379	33,544	17,658	1,951	283,880
	Percent	20.2	61.1	11.8	6.2	.7	100.0
Kasilof	Numbers	75,132	53,570	12,117	2,473	628	143,920
	Percent	52.2	37.2	8.4	1.7	.5	100.0
Crescent	Numbers	22,686	57,212	524	111	1,067	81,600
	Percent	27.8	70.1	.7	.1	1.3	100.0
Fish	Numbers	61,850	1,374	687	0	4,811	68,722
	Percent	90.0	2.0	1.0	0	7.0	100.0
Total	Numbers	312,857	317,897	55,139	21,817	27,412	735,122
	Percent	42.6	43.2	7.5	3.0	3.7	100.0

Stock		Total Return					
		4_2	5_2	5_3	6_3	Other	Total
Susitna	Numbers	196,236	118,212	26,301	6,803	29,279	376,831
	Percent	52.1	31.4	7.0	1.8	7.7	100.0
Kenai	Numbers	124,018	356,455	75,673	39,383	3,355	597,884
	Percent	20.7	59.6	12.5	6.6	.6	100.0
Kasilof	Numbers	189,793	177,405	59,050	15,605	1,040	442,893
	Percent	42.9	40.1	13.3	3.5	.2	100.0
Crescent	Numbers	33,785	87,197	1,057	242	1,173	123,454
	Percent	27.4	70.6	.9	.2	.9	100.0
Fish	Numbers	107,098	2,374	1,182	0	6,924	117,578
	Percent	91.1	2.0	1.0	0	5.9	100.0
Total	Numbers	650,930	741,643	162,263	62,033	41,771	1,658,640
	Percent	39.3	44.7	9.8	3.7	2.5	100.0

The Kenai River's estimated total return of 597,884 accounted for 36.0% of total run to Upper Cook Inlet (Table 33). The majority of the Kenai River run (59.6%) were age 5_2 fish. Age 4_2 comprised 20.7% of the return followed by age 5_3 (12.5%), 6_3 (6.6%), and all others (0.6%). The exploitation rate for the Kenai River run was 0.525. The Central District drift net fishery accounted for almost one-half (46.5%) of the Kenai River run harvest (Table 34). Central District East-side set net fisheries accounted for 28.1% of the Kenai River run harvest. The Northern District accounted for 20.8%. Few Kenai River fish were harvested on the west side of the Central District or on Kalgin Island.

The total return of sockeye salmon to the Kasilof River in 1979 was estimated at 442,893, and accounted for 26.7% of the return to Upper Cook Inlet. Two principal age classes of sockeye salmon 4_2 (42.9%) and 5_2 (40.1%) comprised the total return (Table 33). The remaining fish were ages 5_3 (13.3%), 6_3 (3.5%), and others (0.2%). The exploitation rate for the Kasilof River runs was 0.675. The Central District drift net fishery accounted for 51.9% of the total harvest of 298,973 (Table 34). The Cohoe/Ninilchik Beach set net fishery took 26.4% of the Kasilof River harvest. We assumed that the Northern District did not intercept any Kasilof River fish. Most of the remaining harvest was taken on the other East-side set net fisheries.

The total return of 376,831 sockeye salmon to the Susitna River accounted for 22.7% of the total return to Upper Cook Inlet (Table 33). Susitna River sockeye exhibited the most variable age composition. Age 4_2 dominated (52.1%), followed by ages 5_2 (31.4%), others (7.7%), 5_3 (7.0%), and 6_3 (1.8%). The exploitation rate of the Susitna River run was 0.583. The Central District drift net fishery accounted for over one-half (53.8%) of the Susitna River run harvest (Table 34). The Kalgin Island East-side set net fishery was the only fishery which did not intercept Susitna River sockeye salmon. The remaining 46.2% of the Susitna harvest was spread out fairly equally between the remaining fisheries.

The total return of 123,545 sockeye salmon to Crescent River accounted for 7.4% of the return to Upper Cook Inlet in 1979. Age 5_2 sockeye predominated the return (70.6%); age 4_2 accounted for 27.4% (Table 33). Ages 5_3 (0.9%), other (0.9%), and 6_3 (0.2%) composed the remainder of the return. The exploitation rate of the Crescent River run was 0.339. Essentially all (96.4%) of the harvest was taken in the Central District West-side set net fishery (Table 34).

The total return of 117,578 sockeye salmon to Fish Creek accounted for 7.1% of the return to Upper Cook Inlet in 1979 (Table 33). Age 4_2 fish were the most abundant in the return accounting for 91.0%. The remaining fish were age 5_2 (2.0%), 5_3 (1.0%), and other (5.9%). The exploitation rate of this run was 0.584. We estimated that the majority of these fish were harvested by the Central District drift fishery (71.5%), the remaining harvest was in the Northern Districts (Table 34).

Run Timing

In Tables 35-39 we summarized the daily and cumulative run of sockeye salmon to Upper Cook Inlet by stock. For each stock, the catches and escapements

Table 34. Summary of the catch by district and stock for sockeye salmon returning to Upper Cook Inlet in 1979.

Stock	FISHERY									
	Northern District East-side Set Net	Northern District West-side Set Net	Central District drift net	Central District West-side Set Net	Kalgin Island East-side Set Net	Kalgin Island West-side Set Net	Salamatof Beach Set Net	Kalifonsky Beach Set Net	Cohoe/Ninilchik Beach Set Net	Total
Susitna R.										
Numbers	18,467	14,891	118,552	15,295	0	18,084	18,586	3,253	12,703	219,831
Percent	8.4	6.8	53.8	7.0	0	8.2	8.5	1.5	5.8	100.0
Kenai R.										
Numbers	31,424	33,773	145,810	5,398	3,798	5,340	36,475	23,303	28,683	314,004
Percent	10.0	10.8	46.5	1.7	1.2	1.7	11.6	7.4	9.1	100.0
Kasilof R.										
Numbers	0	0	155,105	2,437	11,767	4,832	25,340	20,646	78,846	298,973
Percent	0	0	51.9	0.8	3.9	1.6	8.5	6.9	26.4	100.0
Crescent R.										
Numbers	0	0	0	40,312	1,149	0	0	393	0	41,854
Percent	0	0	0	96.4	2.7	0	0	0.9	0	100.0
Fish Creek										
Numbers	11,021	2,874	34,961	0	0	0	0	0	0	48,856
Percent	22.6	5.9	71.5	0	0	0	0	0	0	100.0

Table 35. Summary of daily and cumulative return of sockeye salmon to the Susitna River, Upper Cook Inlet, 1979[1].

Date	Numbers of Fish				Proportion	
	Escapement	Catch	Daily Return	Cumulative Return	Daily Proportion	Cumulative Proportion
Prior 7/01		1,103	1,103	1,103	.003	.003
7/01	100		100	1,203	.000	.003
7/02	100	996	1,096	2,299	.003	.006
7/03	100	164	264	2,563	.001	.007
7/04	0	1,254	1,254	3,817	.003	.010
7/05	0	1,855	1,855	5,672	.005	.005
7/06	100	1,851	1,951	7,623	.005	.020
7/07	200	323	523	8,146	.001	.021
7/08	400	1,537	1,937	10,083	.005	.026
7/09	400	2,159	2,559	12,642	.007	.033
7/10	300	19,305	19,605	32,247	.052	.085
7/11	500	592	1,092	33,339	.003	.088
7/12	600	1,944	2,544	35,883	.007	.095
7/13	500	17,540	18,040	53,923	.048	.143
7/14	1,600	3,984	5,584	59,507	.015	.158
7/15	400	4,250	4,650	64,157	.012	.170
7/16	500	11,546	12,046	76,203	.032	.202
7/17	2,600	7,511	10,111	86,314	.027	.229
7/18	700	366	1,066	87,380	.003	.232
7/19	2,400	10,430	12,830	100,210	.034	.266
7/20	16,200	3,742	19,942	120,152	.053	.319
7/21	31,000	1,667	32,667	152,819	.087	.406
7/22	37,000		37,000	189,819	.098	.504
7/23	12,000	2,556	14,556	204,375	.039	.543
7/24	6,900	42,351	49,251	253,626	.131	.674
7/25	7,500		7,500	261,126	.020	.694
7/26	7,400	6,180	13,580	274,706	.036	.730
7/27	8,300	6,919	15,219	289,925	.040	.770
7/28	7,700	4,240	11,940	301,865	.032	.802
7/29	1,900	12,265	14,165	316,030	.037	.839
7/30	300	3,563	3,863	319,893	.010	.849
7/31	300	27,201	27,501	347,394	.073	.922

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Table 35. Summary of daily and cumulative return of sockeye salmon to the Susitna River, Upper Cook Inlet, 1979[1] (continued).

Date	Numbers of Fish				Proportion	
	Escapement	Catch	Daily Return	Cumulative Return	Daily Proportion	Cumulative Proportion
8/01	1,700		1,700	349,094	.004	.926
8/02	100	1,784	1,884	350,978	.005	.931
8/03	100	7,715	7,815	358,793	.021	.952
8/04	300	1,305	1,605	360,398	.004	.956
8/05	200	1,736	1,936	362,334	.005	.961
8/06	100	2,031	2,131	364,465	.006	.967
8/07	100	285	385	364,850	.001	.968
8/08	300	1,177	1,477	366,327	.004	.972
8/09	300	1,205	1,505	367,832	.004	.976
8/10	100	114	214	368,046	.001	.977
8/11	600	151	751	368,797	.002	.979
8/12	100	383	483	369,280	.001	.980
8/13	1,500	433	1,933	371,213	.005	.985
8/14	1,200	74	1,274	372,487	.003	.988
8/15	500	237	737	373,224	.002	.990
8/16	100	518	618	373,842	.002	.992
8/17	100	53	153	373,995	.000	.992
8/18	200	9	209	374,204	.001	.993
8/19	200	88	288	374,492	.001	.994
8/20	200	422	622	375,114	.002	.996
8/21	300	21	321	375,435	.001	.997
8/22	300	34	334	375,769	.001	.998
8/23	200	310	510	376,279	.001	.999
8/24	200		200	376,479	.000	.999
After 8/24		352	352	376,831	.001	1.000
Total	157,000	219,831	376,831	376,831	1.000	1.000

[1] Dates represent escapement dates, i.e., the return of fish to the river counting site. Catch dates were adjusted to account for migration time to the river. Lag times used for each fishery to the Susitna River were: 11 days for Central District West-side and Central District drift; 10 days for Kalgin Island East-side, Kalgin Island West-side, and Cohoe/Ninilchik Beach; 9 days for Salamatof and Kalifonsky Beach; 8 days for Northern District East-side; and 7 days for Northern District West-side.

Table 36. Summary of daily and cumulative return of sockeye salmon to the Kenai River, Upper Cook Inlet, 1979[1].

Date	Numbers of Fish				Proportion	
	Escapement	Catch	Daily Return	Cumulative Return	Daily Proportion	Cumulative Proportion
6/22	404	167	571	571	.001	.001
6/23	381		381	952	.001	.002
6/24	802		802	1,754	.001	.003
6/25	614		614	2,368	.001	.004
6/26	683	146	829	3,197	.001	.005
6/27	414		414	3,611	.001	.006
6/28	410	1,228	1,638	5,249	.003	.009
6/29	501	567	1,068	6,317	.002	.011
6/30	498		498	6,815	.001	.012
7/01	612		612	7,427	.001	.013
7/02	485	1,904	2,389	9,816	.004	.017
7/03	793	1,049	1,842	11,658	.003	.020
7/04	450		450	12,108	.001	.021
7/05	1,405	13,224	14,629	26,737	.024	.045
7/06	5,857	293	6,150	32,887	.010	.055
7/07	4,908		4,908	37,795	.008	.063
7/08	2,686	11,414	14,100	51,895	.024	.087
7/09	1,529	37,763	39,292	91,187	.066	.153
7/10	1,046		1,046	92,233	.002	.155
7/11	950	2,352	3,302	95,535	.006	.161
7/12	814	48,281	49,095	144,630	.082	.243
7/13	918		918	145,548	.002	.245
7/14	1,220		1,220	146,768	.002	.247
7/15	7,615	4,060	11,675	158,443	.020	.267
7/16	12,329	28,398	40,727	199,170	.068	.335
7/17	19,529		19,529	218,699	.032	.367
7/18	29,629		29,629	248,328	.050	.417
7/19	46,210	6,587	52,797	301,125	.088	.505
7/20	47,267		47,267	348,392	.079	.584
7/21	35,496	7,355	42,851	391,243	.072	.656
7/22	13,097	29,432	42,529	433,772	.071	.727
7/23	8,912	54,586	63,498	497,270	.106	.833
7/24	4,655	996	5,651	502,921	.009	.842
7/25	6,971	11,196	18,167	521,088	.030	.872
7/26	3,613	25,618	29,231	550,319	.049	.921
7/27	1,520		1,520	551,839	.003	.924
7/28	1,103	1,225	2,328	554,167	.004	.928
7/29	1,293	2,645	3,938	558,105	.007	.935
7/30	1,859	10,638	12,497	570,602	.021	.956
7/31	1,291		1,291	571,893	.002	.958

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Table 36. Summary of daily and cumulative return of sockeye salmon to the Kenai River, Upper Cook Inlet, 1979[1] (continued).

Date	Numbers of Fish				Proportion	
	Escapement	Catch	Daily Return	Cumulative Return	Daily Proportion	Cumulative Proportion
8/01	755	1,474	2,229	574,122	.004	.962
8/02	723	4,378	5,101	579,223	.009	.971
8/03	862	447	1,309	580,532	.002	.973
8/04	826		826	581,358	.001	.974
8/05	1,000	498	1,498	582,856	.002	.976
8/06	898	1,778	2,676	585,532	.004	.980
8/07	897	660	1,557	587,089	.003	.983
8/08	605	258	863	587,952	.001	.984
8/09	1,050	932	1,982	589,934	.003	.987
8/10	1,285	120	1,405	591,339	.002	.989
8/11	1,687		1,687	593,026	.003	.992
8/12	1,582	104	1,686	594,712	.003	.995
8/13	661	1,401	2,062	596,774	.003	.998
8/14	280	19	299	597,073	.001	.999
After 8/14		811	811	597,884	.001	1.000
Total	283,880	314,004	597,884	597,884	1.000	1.000

[1] Dates represent escapement dates, i.e., the return of fish to the river counting site. Catch dates were adjusted to account for migration time to the river. Lag times between each fishery and the Kenai River are: 3 days for the Northern District East-side, Northern District West-side, Central District drift, Kalgin Island East-side, Kalgin Island West-side, and Cohoe/Ninilchik Beach; 4 days for the Central District West-side; and 2 days for Salamatof and Kalifonsky Beach.

Table 37. Summary of daily and cumulative return of sockeye salmon to the Kasilof River, Upper Cook Inlet, 1979[1].

Date	Numbers of Fish				Proportion	
	Escapement	Catch	Daily Return	Cumulative Return	Daily Proportion	Cumulative Proportion
6/22	824		824	824	.002	.002
6/23	912		912	1,736	.002	.004
6/24	1,709		1,709	3,445	.004	.008
6/25	2,508		2,508	5,953	.006	.014
6/26	2,153	1,958	4,111	10,064	.009	.023
6/27	2,689	13,231	15,920	25,984	.036	.059
6/28	4,227	7,448	11,675	37,659	.026	.085
6/29	2,395	154	2,549	40,208	.006	.091
6/30	4,118	2,714	6,832	47,040	.015	.106
7/01	5,058	10,349	15,407	62,447	.035	.141
7/02	2,851	12,020	14,871	77,318	.034	.175
7/03	5,132	1,618	6,750	84,068	.015	.190
7/04	6,584	10,617	17,201	101,269	.039	.229
7/05	7,464	28,693	36,157	137,426	.082	.311
7/06	4,552	228	4,780	142,206	.011	.322
7/07	8,294	6,953	15,247	157,453	.034	.356
7/08	2,327	24,031	26,358	183,811	.060	.416
7/09	3,373	20,406	23,779	207,590	.054	.470
7/10	1,956	1,404	3,360	210,950	.008	.478
7/11	1,606	5,467	7,073	218,023	.016	.494
7/12	1,956	51,940	53,896	271,919	.122	.616
7/13	2,819		2,819	274,738	.006	.622
7/14	4,333	5,303	9,636	284,374	.022	.644
7/15	7,559	9,636	17,195	301,569	.039	.683
7/16	2,194	21,562	23,756	325,325	.054	.737
7/17	4,780		4,780	330,105	.011	.748
7/18	4,398		4,398	334,503	.010	.758
7/19	4,128	1,959	6,087	340,590	.014	.772
7/20	3,749		3,749	344,339	.008	.780

-Continued-

Table 37. Summary of daily and cumulative return of sockeye salmon to the Kasilof River, Upper Cook Inlet, 1979[1] (continued).

Date	Numbers of Fish				Proportion	
	Escapement	Catch	Daily Return	Cumulative Return	Daily Proportion	Cumulative Proportion
7/21	1,752	1,654	3,406	347,745	.008	.788
7/22	2,180	18,166	20,346	368,091	.046	.834
7/23	10,281	13,117	23,398	391,489	.053	.887
7/24	1,701	2,058	3,759	395,248	.008	.895
7/25	2,363	3,053	5,416	400,664	.012	.907
7/26	3,178	1,754	4,932	405,596	.011	.918
7/27	2,138	932	3,070	408,666	.007	.925
7/28	3,018		3,018	411,684	.007	.932
7/29	1,641	3,226	4,867	416,551	.011	.943
7/30	1,028	5,331	6,359	422,910	.014	.957
7/31	967		967	423,877	.002	.959
8/01	491	1,526	2,017	425,894	.004	.963
8/02	927	2,689	3,616	429,510	.008	.971
8/03	458		458	429,968	.001	.972
8/04	378		378	430,346	.001	.973
8/05	1,762	563	2,325	432,671	.005	.978
8/06	477	2,161	2,638	435,309	.006	.984
8/07	386		386	435,695	.001	.985
8/08	400	253	653	436,348	.001	.986
8/09	446	1,512	1,958	438,306	.004	.990
8/10	369		369	438,675	.001	.991
8/11	562		562	439,237	.001	.992
8/12	305	2,110	2,415	441,652	.005	.997
8/13	64	173	237	441,889	.001	.998
After 8/13		1,004	1,004	442,893	.002	1.000
Total	143,920	298,973	442,893	442,893	1.000	1.000

[1] Dates represent escapement dates, i.e., the return of fish to the river counting site. Catch dates were adjusted to account for migration time to the river. Lag times used for each fishery to the Kasilof River were: 4 days for the Northern District East-side, the Northern District West-side, the Central District East-side; 3 days for the Central District drift, Kalgin Island East-side, Kalgin Island West-side; 2 days for Salamatof and Cohoe/Ninilchik Beach; and 1 day for Kalifonsky Beach.

Table 38. Summary of daily and cumulative return of sockeye salmon to the Crescent River, Upper Cook Inlet, 1979[1].

Date	Numbers of Fish				Proportion	
	Escapement	Catch	Daily Return	Cumulative Return	Daily Proportion	Cumulative Proportion
Prior 7/04		3,255	3,255	3,255	.026	.026
7/04	300		300	3,555	.002	.028
7/05	1,900	1,484	3,384	6,939	.027	.055
7/06	1,000	67	1,067	8,006	.009	.064
7/07	1,200		1,200	9,206	.010	.074
7/08	700		700	9,906	.006	.080
7/09	800	2,121	2,921	12,827	.024	.104
7/10	900		900	13,727	.007	.111
7/11	1,100		1,100	14,827	.009	.120
7/12	1,400	2,401	3,801	18,628	.031	.151
7/13	6,500	58	6,558	25,186	.053	.204
7/14	7,400		7,400	32,586	.060	.264
7/15	5,100		5,100	37,686	.041	.305
7/16	5,900	3,555	9,455	47,141	.077	.382
7/17	2,500	70	2,570	49,711	.021	.403
7/18	3,300	197	3,497	53,208	.028	.431
7/19	2,200	3,040	5,240	58,448	.042	.473
7/20	2,000	66	2,066	60,514	.017	.490
7/21	2,300		2,300	62,814	.018	.508
7/22	3,000		3,000	65,814	.024	.532
7/23	3,300	5,334	8,634	74,448	.070	.602
7/24	5,500	71	5,571	80,019	.045	.647
7/25	5,100		5,100	85,119	.041	.688
7/26	4,100	4,190	8,290	93,409	.067	.755
7/27	2,500	181	2,681	96,090	.022	.777
7/28	600	4,297	4,897	100,987	.040	.817
7/29	500		500	101,487	.004	.821
7/30	800	3,447	4,247	105,734	.034	.855
7/31	1,700	67	1,767	107,501	.014	.869
8/01	1,200	1,073	2,273	109,774	.019	.888
8/02	1,000	1,383	2,383	112,157	.019	.907
8/03	1,000	101	1,101	113,258	.009	.916
8/04	500	880	1,380	114,638	.011	.927
8/05	700		700	115,338	.006	.933
8/06	700	911	1,611	116,949	.013	.946
8/07	800	73	873	117,822	.007	.953
8/08	700		700	118,522	.006	.959
8/09	500	1,210	1,710	120,232	.014	.973
8/10	400	71	471	120,703	.004	.977
8/11	300		300	121,003	.003	.980
8/12	200		200	121,203	.002	.982
After 8/12		2,251	2,251	123,454	.018	1.000
Total	81,600	41,854	123,454	123,454	1.000	1.000

[1] Dates represent escapement dates, i.e., the return of fish to the river counting site. Catch dates were adjusted to account for migration time to the river. Lag times used were: 12 days for Kalifonsky Beach, 11 days for Kalgin Island East-side, and 10 days for the Central District West-side.

Table 39. Summary of daily and cumulative return of sockeye salmon to Fish Creek, Upper Cook Inlet, 1979[1].

Date	Numbers of Fish				Proportion	
	Escapement	Catch	Daily Return	Cumulative Return	Daily Proportion	Cumulative Proportion
Prior 7/09		540	540	540	.005	.005
7/09	333	24	357	897	.003	.008
7/10	670	1,814	2,484	3,381	.021	.029
7/11	1,456		1,456	4,837	.012	.041
7/12	1,430		1,430	6,267	.012	.053
7/13	1,060	3,884	4,944	11,211	.042	.095
7/14	715	924	1,639	12,850	.014	.109
7/15	717		717	13,567	.006	.115
7/16	1,084	105	1,189	14,756	.010	.125
7/17	671	2,421	3,092	17,848	.026	.151
7/18	740		740	18,588	.006	.157
7/19	1,211		1,211	19,799	.010	.167
7/20	2,524	6,896	9,420	29,219	.080	.247
7/21	6,854	174	7,028	36,247	.060	.307
7/22	9,702		9,702	45,949	.083	.390
7/23	8,407	218	8,625	54,574	.073	.463
7/24	7,434	9,812	17,246	71,820	.147	.610
7/25	6,279		6,279	78,099	.053	.663
7/26	4,426	3,467	7,893	85,992	.067	.730
7/27	3,705	894	4,599	90,591	.039	.769
7/28	1,718	3,436	5,154	95,745	.044	.813
7/29	1,348		1,348	97,093	.012	.825
7/30	1,249	557	1,806	98,899	.015	.840
7/31	797	7,104	7,901	106,800	.067	.907
8/01	736		736	107,536	.006	.913
8/02	625		625	108,161	.005	.918
8/03	274	2,595	2,869	111,030	.024	.942
8/04	503	418	921	111,951	.008	.950
8/05	451		451	112,402	.004	.954
8/06	308	83	391	112,793	.003	.957
8/07	297	2,110	2,407	115,200	.021	.978
8/08	171		171	115,371	.002	.980
8/09	125		125	115,496	.001	.981
8/10	59	661	720	116,216	.006	.987
8/11	17	157	174	116,390	.002	.989
8/12	33		33	116,423	.000	.989
8/13	122	11	133	116,556	.001	.990
8/14	100	351	451	117,007	.004	.994
8/15	57		57	117,064	.001	.995
8/16	53		53	117,117	.001	.996
8/17	67	102	169	117,286	.001	.997
After 8/17	194	98	292	117,578	.003	1.000
Total	68,722	48,856	117,578	117,578	1.000	1.000

[1] Dates represent escapement dates, i.e., the return of the fish to the river counting site. Catch dates were adjusted to account for migration time to the river. Lag times used were: 11 days for the Central District drifts, 8 days for the Northern District East-side, and 7 days for the Northern District West-side.

have been combined by accounting for lag times between the various fishing districts and the escapement enumeration sites. In Table 40 we summarize the mean Julian date and the variance of the runs by stock. The return to the Kasilof River in 1979 was the earliest (mean = 192.9) and also the most protracted (variance = 100.3). The return to Fish Creek was the latest (mean = 204.9) and also the shortest in duration (variance = 45.0). Little difference in mean dates were evident for the Kenai River (199.6), Crescent River (202.0) or the Susitna River (203.7). The Crescent River did show a more protracted run (variance = 85.2) than either the Kenai River (57.1) or the Susitna River (62.0).

Table 40. The mean date (Julian) and variance of the runs of sockeye salmon to Upper Cook Inlet, by stock, 1979.

Stock	Mean	Variance
Susitna River	203.7	62.0
Kenai River	199.6	57.1
Kasilof River	192.9	100.3
Crescent River	202.0	85.2
Fish Creek	204.9	45.0

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LITERATURE CITED

Bethe, M. and P. Krasnowski. 1979. Stock separation studies of Cook Inlet sockeye salmon based on scale pattern analysis, 1977. Alaska Department of Fish and Game, Informational Leaflet No. 180, 31 p.

Bethe, M., P. Krasnowski, and S. Marshall. 1980. Origins of sockeye salmon in Upper Cook Inlet fishery of 1978 based on scale pattern analysis. Alaska Department of Fish and Game, Informational Leaflet No. 186, 45 p.

Bilton, H. 1970. Data and computations used in racial analyses of age 1.2 and 1.3 North American sockeye on the basis of their scale characters. Fish. Res. Bd. Can. Tech. Rpt. No. 223, 57 p.

Chlupach, R. S. 1979. Enumeration of 1979 adult salmon immigration into Big Lake watershed. Alaska Department of Fish and Game, Division of Fisheries Rehabilitation and Enhancement. 15 p. (unpublished manuscript).

Clutter, R. and L. Whitesel. 1956. Collection and interpretation of sockeye salmon scales. Bull. Int. Pac. Salmon Fish. Comm., No. 9, 159 p.

Cook, R. and G. Lord. 1978. Identification of stocks of Bristol Bay sockeye salmon by evaluating scale patterns with a polynomial discriminant method. U.S. Fish and Wildlife Serv., Fish. Bull. 76(2): 415-423.

Dalhberg, M. 1968. Analysis of the dynamcis of sockeye salmon returns to the Chignik Lakes, Alaska. Ph.D. Dissertation, Univ. Washington, Seattle. 337 pp.

Fisher, R. 1936. The use of multiple measurements in taxonomic problems. Ann. Eugenics 7:179-188.

French, R., H. Bilton, M. Osako, and A. Hart. 1976. Distribution and origin of sockeye salmon (Oncorhynchus nerka) in offshore waters of the North Pacific Ocean. Int. North Pac. Fish. Comm., Bull. 34:57-60.

International North Pacific Fisheries Commission. 1963. Annual Report 1961: 167 p.

Namtvedt, T., N. Friese, D. Waltemyer, K. Webster. 1978. Investigations of Cook Inlet sockeye salmon. Alaska Department of Fish and Game. Completion Report for Period July 1, 1974 to June 30, 1977. Project No. AFC-53. Anadromous Fish Conservation Act. 123 p.

LITERATURE CITED (Continued)

Nie, N., C. Hull, J. Jenkins, K. Steinbrenner, and D. Bent. 1975. Statistical package for the social sciences. McGraw-Hill Book Co., 675 p.

Pella, J. and T. Robertson. 1979. Assessment of composition of stock mixtures. Fishery Bull. 77(2): 387-398.

Ryan, P. and M. Christie. 1976. Scale reading equipment. Fisheries and Marine Service, Canada, Technical Report No. PAC/T - 75-8, 38 p.

Waltemyer, D., T. Namtvedt, B. King. 1980. Cook Inlet sockeye salmon studies. Alaska Department of Fish and Game Technical Data Report for period July 1, 1978 to June 30, 1979. Project No. AFC-62-2. Anadromous Fish Conservation Act. 58 p.

PERSONAL COMMUNICATIONS

King, B. E. 1980. Alaska Department of Fish and Game. Soldotna, Alaska.

Waltemyer, D. L. 1980. Alaska Department of Fish and Game. Soldotna, Alaska.

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