

TECHNICAL FISHERY REPORT 94-11



Alaska Department of Fish and Game
Commercial Fisheries Management
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Age, Sex and Size Composition of Chinook, Sockeye, Coho, and Chum Salmon Returning to Upper Cook Inlet, Alaska in 1991

by

David L. Waltemyer

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ABSTRACT

In 1991, commercial harvests of chinook salmon *O. tshawytscha*, sockeye salmon *O. nerka*, coho salmon *O. kisutch*, and chum salmon *O. keta* and spawning escapements of sockeye salmon were sampled to estimate age, sex and length composition. Chinook salmon were represented by 11 age groups of which ages 1.2, 1.3, and 1.4 predominated. Sockeye salmon were characterized by 14 age groups, of which the predominant age groups were 1.2, 1.3, 2.2, and 2.3. The dominant age group, 1.3, contributed 49.0% to the overall commercial harvest and only 32.9% to the overall escapement of sockeye salmon. The second most important age group, 1.2, represented only 19.5% in the commercial catch total but 42.2% in the total escapement. Overall length composition and sex ratios generally favored males among escapements and were variable among the commercial gillnet fisheries. The overall exploitation rate of sockeye salmon for all age groups combined was 0.638. Coho salmon were represented by five age groups with age 1.1, 2.1, and 3.1 predominating. Overall length composition of coho salmon among the commercial gillnet fisheries was similar with sex ratios favoring males. Chum salmon were only sampled in the Central District drift gillnet fishery and included four age groups, the dominant age groups being 0.3 and 0.4. Length and sex ratio composition of chum salmon favored males.

KEY WORDS: Salmon, *Oncorhynchus*, age, length, weight, commercial catch, escapement, exploitation rate, Upper Cook Inlet, Alaska

INTRODUCTION

Major tributaries to Upper Cook Inlet (UCI) support the production of five species of Pacific salmon *Oncorhynchus* (Figure 1). Since 1968 the total production of salmon in number of fish harvested has averaged approximately 4.3 million fish representing 2.6 million sockeye *O. nerka*, 1.1 million even-year pink *O. gorbuscha*, 0.7 million chum *O. keta*, 0.4 million coho *O. kisutch*, 0.2 million odd-year pink, and 17,000 chinook *O. tshawytscha* salmon. This represents approximately 5% of the statewide commercial harvest (Ruesch and Fox 1992).

Age, sex, and size composition of sockeye salmon have been collected sporadically in UCI since 1964 (Davis and Tarbox 1985). This work was expanded in 1978 when the Alaska Department of Fish and Game (ADF&G) initiated annual sampling in conjunction with a stock separation project which included major commercial catches and escapements of sockeye salmon in UCI (Bethe et al. 1980; Cross and four coauthors 1981; Cross et al. 1982; Cross et al. 1983; Cross et al. 1985). Since 1983 AWL sampling of chinook, chum, and coho salmon in commercial harvests has been added (Cross 1985; Cross et al. 1987; Waltemyer 1989, 1990, 1991).

Because of need to develop stock-specific information, collection of age and size data has been an important integral component of the research being conducted in UCI. This information along with data from other programs could improve management strategies by developing stock-specific brood tables and long-term production and yield databases by river system.

This report is part of a continuing series intended to provide annual estimates of abundance, age, sex, and length composition of chinook, sockeye, coho, and chum salmon stocks returning to UCI. Specific objectives are to present (1) number of fish harvested in selected commercial, sport, subsistence, and personal use fisheries; (2) estimates of sockeye salmon spawners; and 3) estimates of age, sex, and size composition for monitored commercial catches and escapements.

METHODS

Abundance Data

Commercial, Subsistence, Personal Use, and Sport Harvest

Commercial catch statistics were compiled from ADF&G final fish ticket information. Commercial fishing districts and subdistricts locations are shown in Figure 2. Catches from the Tyonek subsistence fishery were provided by Subsistence Division personnel. The Kasilof personal use gillnet fishery was monitored by compiling personal interviews to estimate harvest. The Fish Creek dip net fishery catch was monitored by a cursory survey. The Central and Northern District personal use coho salmon fishery was monitored by aerial survey and telephone interviews. Locations of the subsistence and personal use fisheries are shown in Figure 3. Major sport fishery harvests were monitored by creel census.

Escapement

The Division of Commercial Fisheries (ADF&G) used Bendix Corporation¹ side-scanning sonar equipment to enumerate returns of sockeye salmon to the Kenai, Kasilof, Crescent, and Yentna Rivers in 1991. Sonar counts were apportioned to salmon species using species proportions from fish wheel catches.

The Division of Sport Fish (ADF&G) monitored salmon escapements in selected indicator streams throughout Cook Inlet using a variety of methods. Aerial surveys in conjunction with ground surveys were conducted in lower Kenai Peninsula chinook salmon stream index areas: Anchor River, Deep Creek. Chinook salmon escapement into the Kenai River was estimated using sonar equipment in the lower river. Sockeye salmon escapement in Russian River was determined from weir counts.

The ADF&G, Division of Fisheries Rehabilitation, Enhancement and Development (FRED) monitored chinook salmon escapement through a weir in Crooked Creek. Escapement of sockeye salmon was determined at a weir placed in Fish Creek.

Cook Inlet Aquaculture Association (CIAA) personnel monitored sockeye salmon escapements using weirs on Hidden Creek and Packers Creek. Gillnets were used to capture and mark adult sockeye salmon migrating into Chelatna Lake. A mark-recapture procedure (adjusted Peterson method; Ricker 1975) was used to estimate the escapement into Chelatna Lake.

Age, Sex, and Size Data

Measurements

Scales were taken from the left side of each fish sampled approximately two rows above the lateral line on the diagonal row which extends down from the posterior insertion of the dorsal fin (Koo 1955). Scales were mounted on gum cards and impressions made in cellulose acetate as described by Clutter and Whitesel (1956). Ages of salmon were determined by examining scales for annual growth marks using criteria established by Mosher (1969). Ages were recorded in European notation (Koo 1962).

Sex and length information was recorded for all species sampled. To determine sex of the fish, the primary morphological characteristic of jaw formation was used. Length was measured from mid-eye to fork-of-tail in millimeters. Weight was recorded to the nearest tenth of a kilogram. A subsample of weight information was collected at sites monitored by CIAA personnel.

¹ Use of a company's name does not constitute endorsement.

Commercial Harvest and Escapement

Age, sex, and size composition of the commercial catch was estimated using a stratified systematic sampling design (Cochran 1977). Based on current work (Thompson 1987), a minimum sample size of 403 readable scales was set for each species and strata to simultaneously estimate the proportion of each major age class in the harvest to within 5% of the true proportion 90% of the time. A sample size of 600 fish per strata for sockeye salmon harvested in the commercial fisheries was set to account for unreadable scales and stock identification needs (B. Cross, ADF&G, Anchorage, personal communication). For escapements a sample size of 500 fish per strata was formulated to account for unreadable scales and provide the same level of accuracy and precision.

The number of temporal and spatial strata selected for sampling differed among commercial fisheries, escapements, and species. In general, the number of temporal strata was set to detect changes in seasonal age composition. Spatial strata for commercial harvests were defined based on UCI management district or subdistrict designations. Frequency and priority of sampling were based on the relative catch contribution of a fishery to the total UCI commercial harvest. Temporal strata for the escapements were defined by approximate weekly intervals.

Subsistence, Personal Use and Sport Harvest

Age and size information was not obtained from subsistence, personal use, or sport harvests.

RESULTS

Abundance Data

The regular commercial fishing season commenced for the drift gillnet fishery and for most of the setnet fisheries on June 28 and for the Upper Subdistrict on July 1. Exceptions were the Kustatan Subdistrict sockeye fishery that began on May 25 and the Northern District chinook fishery that began on June 4. Specific dates and times and more details of the commercial fishery operations can be found in Ruesch and Fox (1992).

The total commercial salmon harvest for Upper Cook Inlet was 2,911,721 fish in 1991 (Table 1). This total was composed of 13,535 chinook, 2,177,576 sockeye, 425,724 coho, 14,663 pink, and 280,223 chum salmon. The chinook salmon catch was 16.1% below the long-term (1966–90) average of 16,131 fish and only 59.0% of the short-term (1980–90) average of 22,952 fish. The sockeye salmon harvest was 14.4% above the long-term average of 2,545,079 fish and only 67.8% of the short-term average of 4,293,260 fish. The coho harvest was 22.3% above the long-term average of 348,160 fish and 80.9% of the short-term average of 526,545 fish. The chum salmon catch was relatively poor: 41.7% of the long-term (672,355 fish) average and 39.1% of the short-term (717,375 fish) average. The odd-year pink salmon catch was

the lowest since 1966: 9.5% of the long-term (154,424 fish) and 15.9% of the short-term (92,511 fish) averages.

The subsistence fishery harvest was 1,392 chinook, 32,250 sockeye, 3,592 coho, 537 pink, and 1,598 chum salmon (Table 2). The majority of the harvest for all species came from the Upper Subdistrict set gillnet beach fisheries followed by the Kenai River dip net fishery.

Personal use fisheries harvested 68 chinook, 88,405 sockeye, 4,648 coho, and 4 pink salmon (Table 2). The largest personal use harvest, 72,060 sockeye salmon, occurred in the Hidden Creek dip net fishery, the first year of this fishery.

Sport catches for major fisheries contributed approximately 7,739 chinook, 306,449 sockeye, and 62,422 coho salmon (Table 2). The largest catch of chinook salmon (6,849 fish) was reported from the Kenai River late run. The largest sport harvest of sockeye salmon (184,716 fish) occurred in the Kenai River above river-mile 19.5 during the late run. The Kenai River contributed to the largest sport catch of coho salmon (62,422 fish; early and late runs combined).

Major spawning for chinook salmon, 37,740 fish, (early and late runs combined) occurred in the Kenai River (Table 3).

Major sockeye salmon spawning escapements occurred in the Kenai River (462,881 late run fish), the Kasilof River (229,419 fish), Crescent River (44,578 fish), Packers Creek (41,275 fish), Yentna River (109,632 fish), and Fish Creek (59,269 fish; Table 3). A grand total of 977,464 sockeye spawned in monitored streams and rivers. The Yentna River sonar estimates of 57,275 coho, 75,377 pink, and 21,655 chum salmon (Table 3) only represent indices of abundance, not absolute counts.

Age, Sex, and Size Data

A total of 1,291 chinook, 25,402 sockeye, 4,230 coho, and 1,065 chum salmon were sampled in UCI commercial harvests and escapements in 1991 (Table 4). Age, sex, and size data for each species sampled are presented below.

Chinook Salmon

Three major age groups were represented in three commercial fisheries which composed primarily age 1.4 (36.7%), age 1.3 (34.2%), and age 1.2 (27.0%) chinook salmon (Table 5). Age-1.4 fish represented the largest percentage of the Upper (38.5%) and Eastern (35.0%) Subdistricts catches, and age 1.3 fish represented the largest percentage (36.2%) in the General Subdistrict catch. There were no statistical differences ($\chi^2 = 2.82$, $P > 0.05$, $df=4$) observed in overall age composition among the three fisheries.

Chinook salmon sampled in the Upper Subdistrict were larger on average for all age groups than were those in the Eastern or General Subdistricts (Tables 6–8). The average length for age-1.4 fish in the Upper Subdistrict was 976 mm. In comparison, age-1.4 fish in the Eastern and General Subdistricts were 890 mm and 907 mm on average. The trend in average length for males by age group was the same in the Upper and Eastern Subdistricts where males were larger than females in ages 1.2 and 1.4 but smaller in age 1.3.

Male-female sex ratios were 0.9:1 and 1:1 in the Eastern and General Subdistricts and 1.6:1 in the Upper Subdistrict (Tables 6–8).

Sockeye Salmon

Four age groups of sockeye salmon represented 97.2% of the UCI commercial harvests and escapements combined (Table 9). Age 1.3 represented 43.2%, age 1.2 represented 27.7%, age 2.3 represented 15.4%, and age 2.2 represented 10.9% of the monitored total return (Table 9). Age-1.3 fish contributed from 28.8% in the Eastern Subdistrict to 69.0% in the General Subdistrict commercial gillnet harvests. The Central District commercial harvest of age 1.3 contributions ranged from 30.9% in the Coho/Ninilchik Beach set gillnet catch to 56.6% in the drift gillnet catch. Escapement contributions of age-1.3 fish ranged from 10.9% in Fish Creek to 50.4% in Crescent River. The Kenai River, which is the largest producer, contributed only 31.6% age-1.3 fish, the lowest estimate since 1984, which was 37.8%.

The average length of an age-1.2 and -1.3 fish in the combined commercial harvest was 492 mm and 549 mm (Table 9). The average length of age-1.2 and -1.3 fish in the combined escapement was 485 mm and 544 mm. Sockeye salmon by age group were larger on average in the combined commercial harvest total than in the combined escapement total; however, the differences were not significantly different.

Exploitation rates among age groups were quite variable, ranging from 0.058 for age 1.1 to 0.784 for age 1.4 (Table 9). The overall exploitation rate for all ages combined was 0.638.

Age-1.3 sockeye salmon represented 56.6% of the total drift gillnet catch (Table 10). The proportion of age-1.3 fish fluctuated slightly between 59.8% (June 28 to July 8) and 54.5% (29 July) during district-wide fishing periods (Figure 4). The lowest estimate of age-1.3 contribution occurred on July 12 (43.4%) where the drift fleet was restricted to a 3-m corridor along the Kenai Peninsula in the Upper Subdistrict. During this same time, the estimate of age-1.3 fish in the Kenai River escapement was 35.3% and was 24.8% in the Kasilof River. Age 1.2 progressively increased over time from 6.7% to 25.2%, and age 2.3 correspondingly decreased over time from 21.8% to 13.6% (Table 10).

Mean sockeye length-at-age generally increased during the season; age-1.3 sockeye salmon in the drift gillnet fishery increased slightly from 550 mm (June 28 to July 8) to 557 mm (July 29; Table 10).

Sex composition in the drift fishery changed slightly ranging from 1.06:1 on July 19 to 1.25:1 on July 29 (Table 10).

Age composition differences were more distinctive in the Cohoe/Ninilchik, Kalifonsky and Salamatof Beach fisheries than in the drift gillnet fishery (Tables 11-13; Figure 5). Age-1.3 fish contributed 61.1% to the Cohoe/Ninilchik Beach harvest on July 1 and gradually decreased to 26.8% during the July 15–21 period and, correspondingly, age 1.2 and 2.3 fish contributions increased (Table 11). The same trends existed in age composition of the Kalifonsky and Salamatof Beach fisheries (Tables 12 and 13).

Mean length-at-age was variable within the Upper Subdistrict set gillnet fisheries indicating no specific trends (Tables 11–13). However, the overall average length by age generally increased from Cohoe/Ninilchik Beach (504 mm) to Kalifonsky Beach (514 mm) to Salamatof Beach (541 mm).

Male-female sex ratios ranged from 0.83:1 to 1.76:1 in the set gillnet fisheries at Cohoe/Ninilchik Beach, from 0.79:1 to 1.44:1 at Kalifonsky Beach, and from 0.81:1 to 1.10:1 at Salamatof Beach (Tables 11–13). Chi-square tests showed significant differences in overall sex ratios between Cohoe/Ninilchik and Salamatof Beaches ($\chi^2 = 14.14, P < 0.05, df = 2$) and Kalifonsky and Salamatof Beaches ($\chi^2 = 6.83, P < 0.05, df = 2$). No significant differences in sex ratios were observed between Cohoe/Ninilchik and Kalifonsky Beach fisheries ($\chi^2 = 1.19, P > 0.05, df = 2$).

The majority of the Western Subdistrict commercial catch of sockeye salmon was represented by age groups 1.3, 2.3, and 2.2 contributing 47.7%, 31.3%, and 14.5% (Table 14). Overall mean length was 552 mm and the sex ratio was 1.22:1.

Sockeye caught in the General Subdistrict (Table 15) were larger on average by age group than fish caught in the Eastern Subdistrict (Table 16). The overall mean lengths for the General and Eastern Subdistricts were 549 mm and 505 mm. Male-female sex ratios varied little over time (overall 1.09:1) in the General Subdistrict (Table 15). In the Eastern Subdistrict, sex ratios were consistently represented by more females with an overall computed male:female ratio of 0.84:1 (Table 16).

Prominent age group contributor in major river systems escapements (Kenai, Kasilof, Yentna, and Crescent Rivers) varied (Table 9). Age-1.3 sockeye salmon contributed the most to the Kasilof (33.4%), Crescent (50.4%), and Yentna (43.6%) Rivers. Age-1.2 contributed the most to the Kenai River (48.2%) and age-1.3 was 31.6%. Age group 1.2 represented only 14.9% in the Crescent River and was highest in Fish Creek (76.8%). Age-2.3 fish ranged from 5.8% in the Kasilof River to 16.5% in Crescent River with Packers Creek contributing a high of 25.5% to the escapement there.

Age-1.3 composition in the Kenai River varied from 31.2% to 35.3% during the month of July but dropped to 20.7% in August (Table 17). In contrast, age 1.2 contributed from 42.3% (July 1–22) to 52.1% (July 28–31) and then increased to 62.0% in August. Age-2.3 fluctuated similar to age 1.3, but to a lesser degree.

Mean length-at-age for sockeye salmon in the Kenai River fluctuated with the change in age composition, decreasing through time (Table 17). Mean length of age-1.3 fish ranged from 545 mm to 553 mm.

Male-female ratios in the Kenai River fluctuated between 0.84:1 and 1.05:1 with an overall ratio of 0.96:1 (Table 17). This represented 330,407 females out of a total escapement of 647,597 fish.

Age composition in Hidden Creek, which is a tributary of the Kenai River, was 89.5% age 1.2, 7.0% age 1.3, and 3.3% age 2.2 (Table 18). Age-1.2 returns to Hidden Creek represented 32.4% of the estimated number of age-1.2 fish accounted for in the sonar escapement count at river mile 19 on the Kenai River.

The mean length-at-age for sockeye ages 1.2, 1.3, and 2.2 was relatively larger for Hidden Creek than for the Kenai River mainstem as a whole (Tables 17, 18). Male-female ratio for Hidden Creek was 0.60:1 (Table 18).

Overall sockeye age composition in the Kasilof River was divided among ages 1.2 (31.5%), 1.3 (33.4%), and 2.2 (29.0% fish; Table 19). Temporal trends in age composition were more striking in the Kasilof River than in the Kenai River. Age-1.3 fish in the Kasilof River represented 68.7% of the escapement during June 15–30 and dropped precipitously to 9.5% between July 21 and August 8. Conversely, ages 1.2 and 2.2 increased proportionately in the escapement.

Kasilof River sockeye salmon aged 1.3 were 537 mm (June 15–30) early in the season and 508 mm (July 21– August 8) late in the season (Table 19). Likewise, age-1.2, -2.2, and -2.3 fish were smaller on average than at the beginning of the season. Male-female ratios in the Kasilof River fluctuated between 0.86:1 and 1.75:1 with an overall ratio of 1.09:1.

Crescent River sockeye salmon were 50.4% age 1.3 with relatively equal contributions of ages 1.2 (14.9%), 2.2 (16.8%), and 2.3 (16.5%; Table 20). Mean lengths by age were 553 mm for age 1.3, 509 mm for age 1.2, 510 mm for age 2.2, and 550 mm for age 2.3. Male-female ratio was 1.66:1.

Packers Creek sockeye salmon were represented by ages 1.3 (34.0%), 1.2 (33.6%), and 2.3 (25.5%; Table 21). Mean lengths by age were 539 mm for age 1.3, 461 mm for age 1.2, and 545 mm for age 2.3. The overall male-female sex ratio was 1.30:1.

Yentna River sockeye salmon provided the 11 age groups with age 1.3 providing 43.6% of the estimated escapement (Table 22). Age 1.2 contributed 25.2%, age 2.3 11.0%, age 2.2 10.6%, and age 0.3 7.1% to the total river escapement. Age-1.3 proportions decreased from 46.1% (July 7–22) to 38.9% (July 31 – August 12). Conversely, ages 1.2 and 2.2 increased proportionately.

Mean length of age-1.3 sockeye salmon in the Yentna River ranged from 539 mm to 558 mm (Table 22). The range in mean length of age-1.3 fish for the Yentna River overlapped the range for the Kenai River. Generally, the mean length-at-age for Yentna River sockeye salmon fluctuated over time; the overall mean length was 523 mm. Male-female ratios ranged from 0.78:1 to 1.27:1.

The major age groups of sockeye entering Chelatna Lake, a tributary of the Yentna River, were age 1.3 (55.9%), age 1.2 (23.2%), and age 2.3 (14.9%; Table 23). Age compositions of Chelatna Lake and Yentna River were not statistically different ($\chi^2 = 5.88, P > 0.05, df = 2$) for the three major age groups. Mean length-at-age was generally larger for Chelatna Lake (554 mm) than for Yentna River (523 mm). The overall male-female ratio was 1.56:1 for Chelatna Lake, which was higher than the Yentna River.

Seasonal estimates of the major age groups in the mainstem Susitna River (river mile 80) were 68.3% age 1.3, 21.1% age 1.2, and 6.0% age 2.3 (Table 24). There were statistical differences ($\chi^2 = 91.99, P < 0.05, df = 2$) in age composition among the three major age groups of the Susitna mainstem and Yentna Rivers. Temporal changes in Susitna River age composition were also observed: age 1.3 decreased from 72.6% (July 15–23) to 59.4% (July 31 – August 3) and age 1.2 increased from 12.0% to 27.0% for the same time intervals.

Mean length-at-age of all sockeye salmon sampled at river mile 80 fluctuated over the course of the season, but generally decreased; the overall mean length was 536 mm (Table 24). Mean length of age-1.3 sockeye salmon in the Susitna River ranged from 536 mm to 562 mm. Male-female ratios ranged from 0.82:1 to 1.31:1.

Fish Creek age composition was represented primarily by age 1.2 (76.8%) and age 1.3 (10.9%; Table 25). Average length of age-1.3 fish was 528 mm; the overall average length was 481 mm for all ages combined. Male-female ratio was 0.64:1.

Coho Salmon

Commercial harvests sampled consisted of three major coho age groups and a total of five age groups represented (Table 26). Ages 2.1 (83.9%) and 1.1 (11.8%) accounted for the bulk of the areas sampled. Coho aged 2.1 contributed to the commercial catch, ranging from 81.6% in the Upper Subdistrict to 85.5% in the drift gillnet fishery. The next most important age group was 1.1; its contribution to the commercial catch ranged from 9.1% in drift gillnet fishery to 16.3% in the General Subdistrict set gillnet fishery.

Mean length of age 2.1 coho salmon was quite similar among the fisheries sampled ranging from 544 mm in the commercial drift gillnet fishery to 548 mm in the Upper Subdistrict set gillnet fishery (Table 26).

Coho salmon ages 1.1, 2.1, 3.1, and 2.2 in the commercial drift gillnet fishery were not significantly different ($\chi^2 = 1.82, P > 0.05, df = 3$) between the two sampling periods (Table 27). However, mean length-at-age differences were observed. Mean length of age 2.1 was 575 mm from June 28 to July 31 and 544 mm from August 1 to September 11; the overall mean length was 544 mm. The overall mean length of all coho sampled was 833 mm. Male-female ratios were similar between the two sampling periods averaging 1.73:1.

Age composition of coho salmon in the Upper Subdistrict fishery was not significantly different ($\chi^2 = 4.24, P > 0.05, df = 3$) between the two sampling periods (Table 28). Age 2.1 represented the major

portion (81.6%) of the total Upper Subdistrict commercial harvest followed by ages 1.1 (12.2%) and 3.1 (5.7%).

Overall mean length of age-2.1 coho salmon sampled in the Upper Subdistrict was 548 mm (Table 28). Male-female ratios changed from 1.88:1 (July 1 – August 6) to 1.19:1 (August 7–12) with an overall ratio of 1.64:1.

Age composition of coho salmon in the General Subdistrict fishery was not significantly different ($\chi^2 = 9.39, P > 0.05, df = 4$) among the three sample periods (Table 29). Age 2.1 represented the bulk (81.9%) of the total General Subdistrict commercial harvest, followed by age 1.1 (16.3%).

Mean length of age-2.1 coho salmon sampled in the General Subdistrict changed during the sampling periods from 533 mm (June 24 – July 20) to 553 mm (August 1 – September 18); the overall mean length was 546 mm (Table 29). Male-female ratios fluctuated from 1.03:1 to 1.41:1 with an overall ratio of 1.27:1.

Chum Salmon

Chum salmon in the commercial drift fishery were primarily age 0.3 (77.4%) and age 0.4 (13.8%; Table 30). Significant differences ($\chi^2 = 28.7, P < 0.05, df = 2$) in age composition were observed between the two sampling periods. Mean length-at-age and sex ratio differences were also observed between the two sampling periods. Overall mean lengths for age-0.3 and age-0.4 chum salmon were 562 mm and 582 mm. For all periods combined, the male-female ratio was 1.47:1.

DISCUSSION

Although chinook salmon age composition did not differ among the Upper, Eastern and General Subdistricts, size composition did. This would provide some credence to the hypothesis that size differences are due to the stocks of fish being harvested. The Kenai River chinook salmon tend to be larger relative to Susitna River stocks.

One of the most noticeable differences in the 1991 sockeye salmon return relative to previous years was the smaller than average size of age-1.3 fish. The range in mean length of age-1.3 fish for the Yentna and Susitna Rivers overlapped considerably with the Kenai River indicating a difficulty in differentiating between major stocks based on size which has been judiciously used in the past. The average size of fish was generally larger in the commercial harvest than in the associated escapement. In general, age composition of the commercial fisheries reflected the age composition of the associated river escapements. However, there were obvious differences in average length within an age group between commercial catches and their geographically associated escapements.

There were no temporal differences in coho salmon age composition within each commercial fishery; relatively slight changes in average size by period occurred. This indicates that the sampling strategy could be modified such that one sample period would provide enough resolve for estimating the age composition in each fishery.

Differences in chum salmon age composition in the drift gillnet fishery warranted continuation of the multiple sampling strategy used in the past.

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Table 1. Commercial salmon harvest by area and gear type, Upper Cook Inlet, Alaska, in 1991.

Fishery	Sockeye	Pink	Chum	Chinook	Coho	Total
Upper Cook Inlet Total	2,177,576	14,663	280,223	13,535	425,724	2,911,721
A. Northern District Total	116,201	5,153	39,393	6,859	132,270	299,876
1. General Subdistrict	81,909	4,223	34,862	5,750	104,896	231,640
a. Trading Bay 247-10	9,111	717	1,426	1,867	14,813	27,934
b. Tyonek 247-20	20,368	1,483	3,989	761	28,105	54,706
c. Beluga 247-30	19,237	1,241	11,638	2,277	31,091	65,484
d. Susitna Flat 247-41	10,631	472	5,458	477	10,296	27,334
e. Pt. Mackenzie 247-42	3,519	55	4,585	82	9,691	17,932
f. Fire Island 247-43	8,584	234	6,805	286	9,270	25,179
g. Knik Arm 247-50	10,459	21	961	0	1,630	13,071
2. Eastern Subdistrict	34,292	930	4,531	1,109	27,374	68,236
a. Pt. Possession 247-70	13,701	500	3,639	539	9,895	28,274
b. Birch Hill 247-80	8,789	206	649	314	5,673	15,631
c. Number 3 Bay 247-90	11,802	224	243	256	11,806	24,331
B. Central District Total	2,061,375	9,510	240,830	6,676	293,454	2,611,845
1. Upper Subdistrict	844,156	2,670	2,387	4,891	30,435	884,539
a. Salamatof 244-40	201,625	672	1,833	695	12,063	216,888
b. Kalifonsky Beach 244-30	242,048	244	264	1,833	7,414	251,803
c. Cohoe/Ninilchik	400,483	1,754	290	2,363	10,958	415,848
1. Cohoe 244-22	231,944	746	194	1,078	6,195	240,157
2. Ninilchik 244-21	168,539	1,008	96	1,285	4,763	175,691
2. Western Subdistrict	17,195	168	4,455	552	18,361	40,731
a. Little Jack Slough 245-50	2,031	4	81	106	663	2,885
b. Polly Creek 245-40	5,520	42	445	105	4,791	10,903
c. Tuxedni Bay 245-30	8,274	76	3,375	336	3,885	15,946
d. Silver Salmon 245-20	1,370	46	554	5	9,022	10,997
3. Kustatan Total	16,666	60	211	922	16,733	34,592
a. Big River 245-55	13,432	18	55	864	7,713	22,082
b. West Foreland 245-60	3,234	42	156	58	9,020	12,510
4. Kalgin Island Total	63,534	585	3,365	68	49,572	117,124
a. West Side 246-10	43,097	471	2,644	47	33,551	79,810
b. East Side 246-20	20,437	114	721	21	16,021	37,314
5. Chinitna Bay Total	2,314	236	14,943	2	3,302	20,797
a. Set 245-10	2,310	236	14,943	2	2,849	20,340
b. Drift 245-10	4	0	0	0	453	457
6. Central District Set Total	943,861	3,719	25,361	6,435	117,950	1,097,326
7. Central District Drift Total	1,117,514	5,791	215,469	241	175,504	1,514,519
a. West Side 245-70 80 90	266,433	1,124	32,553	50	45,834	345,994
b. East Side 244-50 60 70	851,077	4,667	182,916	191	129,217	1,168,068
c. Chinitna Bay 245-10	4	0	0	0	453	457

Table 2. Salmon harvest estimates from selected subsistence, personal use, and sport fisheries of Upper Cook Inlet, Alaska, in 1991.

Fishery	Species				
	Chinook	Sockeye	Coho	Pink	Chum
Subsistence Catch:					
NORTHERN DISTRICT					
Set Gillnet					
General ^a	59	1,089	943	84	389
Tyonek ^b	842	20	72		
Knik Arm ^a	21	2,952	1,698	339	1,139
Eastern ^a	33	294	66	6	10
CENTRAL DISTRICT					
Dip Net ^a					
Kenai River	44	10,468	146	17	2
Kasilof River	10	907	2	3	
Set Gillnet ^a					
Upper Subdistrict					
Ninilchik	62	705	18	11	
Cohoe	55	2,505	62	9	5
Kalifonsky	221	8,490	164	20	12
Salamatof	31	4,490	154	38	14
Kalgin	3	71	6		
Kustatan		12	70	1	
Western	11	247	151	9	27
Chinitna Bay			40		
Subtotal	1,392	32,250	3,592	537	1,598
Personal Use Catch:					
CENTRAL DISTRICT					
Dip Net					
Kasilof River			No Fishery		
Kenai River			No Fishery		
Hidden Creek ^c		72,060			
Set Gillnet					
Kasilof River ^d	34	8,380			
Kenai River					
Kenaitze ^e	34	2,965	1,945	4	
NORTHERN DISTRICT					
Dip Net					
Fish Creek ^f		5,000			
CENTRAL and NORTHERN DISTRICT					
Set Gillnet ^g			2,703		
Subtotal	68	88,405	4,648	4	

-Continued-

Table 2. (p. 2 of 2)

Fishery	Species				
	Chinook	Sockeye	Coho	Pink	Chum
Sport Catch:					
CENTRAL DISTRICT					
Kenai River					
early run	890 ^c		39,451		
late run	6,849 ^c		22,971		
below RM 19.5 ^c		24,894			
above RM 19.5 ^h		184,716			
Russian River ⁱ					
early run		65,390			
late run		31,449			
Subtotal	7,739	306,449	62,422		
Total	9,199	427,104	70,662	541	1,598

^a Subsistence fishery created by regulations promulgated by the Alaska Board of Fisheries for 1991 and open to areas of Upper Cook Inlet normally open to commercial set gillnet fishing.

^b Tyonek subsistence fishery created by court order in 1980. Originally open only to individuals domiciled in the village of Tyonek. In 1991 fishery was open to all Alaska residents.

^c Source: D. Nelson, ADF&G, Soldotna, personal communication.

^d Fishing limited to the beaches adjacent to the mouth of the Kasilof River inside the ADF&G commercial salmon fishing regulatory markers.

^e Kenaitze Tribe issued a single permit to operate a set gillnet in the Kenai River downstream from a point 1/4 mi above the Warren Ames Bridge and including marine waters adjacent to the river mouth normally closed to commercial salmon fishing.

^f Source: L. Engel, ADF&G, Palmer, personal communication. No formal creel survey conducted.

^g Central and Northern Districts coho salmon management plan was adopted by the Alaska Board of Fisheries in 1983. Open areas are defined as all areas along the Kenai Peninsula shoreline normally open to commercial set gillnet fishing from the Kasilof River north to Point Possession.

^h Source: B. King, ADF&G, Soldotna, personal communication.

ⁱ Source: L. Marsh, ADF&G, Soldotna, personal communication.

Table 3. Number of spawners estimated or indexed in selected streams and rivers of Upper Cook Inlet, Alaska, in 1991.

Location	Species				
	Chinook	Sockeye	Coho	Pink	Chum
Central District:					
Kenai River					
early run	9,800 ^a				
late run	27,940 ^a	462,881 ^{b,c}			
Russian River					
early run					
above weir		30,410 ^a			
late run					
above weir		78,175 ^b			
below falls		22,267 ^b			
Hidden Creek		35,576 ^d			
Kasilof River					
mainstem		229,419 ^{b,e}			
Crooked Creek	700 ^{a,f}				
Crescent River ^b		44,578	83 ^g	322 ^g	6,080 ^g
Packers Creek ^h		41,275	12	74	
Anchor River	729 ^a				
Deep Creek	478 ^a				
Subtotal	39,647	808,563 ⁱ	95 ^j	396 ^j	6,080
Northern District:					
Susitna River					
Yentna River ^b	204 ^g	109,632	57,275 ^g	75,377 ^g	21,655 ^g
Chelatna Lake ^k		7,689			
Fish Creek ^k		59,269			
Subtotal	204	168,901 ^m	57,275	75,377	21,655
Total	39,851 ^j	977,464	57,370 ^j	75,773 ^j	27,735 ^j

^a Source: D. Nelson, ADF&G, Soldotna, personal communication.

^b Source: B. King, ADF&G, Soldotna, personal communication.

^c Sonar count less sport harvest above sonar site.

^d Source: Fandrei (1991a); Hidden Creek.

^e Sonar count less egg take of 8,850 fish.

^f 350 females and 350 males were passed upstream for natural production; 171 females and 87 males were artificially spawned for hatchery production and 1,055 were harvested at the hatchery and sold to a processor.

^g Index count only.

^h Source: Fandrei (1991b); Packers Creek total escapement was 44,879 fish; 3,604 were harvested and sold to partially recover project costs.

ⁱ Subtotal excludes Russian River late run and Hidden Creek estimates of spawners which are components of the Kenai River late run estimate.

^j Subtotal included estimate and/or index count.

^k Source: Fandrei (1992); Escapement estimate based on the modified Peterson estimator of abundance.

^l Source: L. Peltz, ADF&G, Big Lake, personal communication.

^m Subtotal excludes Chelatna Lake spawner estimate which is a component of the Yentna River estimate.

Table 4. Number of salmon sampled from commercial harvests and escapements in Upper Cook Inlet, Alaska, in 1991.

Location ^a	Species			Chum
	Chinook	Sockeye	Coho	
Commercial Catch:				
<u>Central District</u>				
Drift		3,020	1,130	1,065
Upper Subdistrict	568 ^b		1,600 ^b	
Salamatof Beach		1,706		
Kalifonsky Beach		2,200		
Cohoe/Ninilchik Beach		3,000		
Western Subdistrict		300		
<u>Northern District</u>				
Eastern Subdistrict	291	1,044		
General Subdistrict	432	1,667	1,500	
Subtotal	1,291	12,937	4,230	1,065
Escapement:				
<u>Central District</u>				
Kenai River				
Mainstem late run		2,827		
Hidden Creek		951 ^c		
Kasilof River Mainstem		2,383		
Crescent River		438		
Packers Creek		1,064 ^c		
<u>Northern District</u>				
Susitna River				
Mainstem (Sunshine Station)		2,029		
Yentna River		1,815		
Chelatna Lake (Lake Creek)		438 ^c		
Fish Creek		520 ^d		
Subtotal		12,465		
Total	1,291	25,402	4,230	1,065

^a Specific locations not footnoted were sampled by Commercial Fisheries Division personnel, Alaska Department of Fish and Game (ADF&G).

^b Represents pooled samples from the Upper Subdistrict commercial set gillnet fisheries.

^c Samples collected by Cook Inlet Aquaculture Association (CIAA) personnel.

^d Samples collected by Fisheries Rehabilitation Enhancement and Development (FRED) Division personnel, ADF&G.

Table 5. Age and length composition of chinook salmon harvested in selected commercial set gillnet fisheries of Upper Cook Inlet, Alaska, in 1991.

Fishery	Age Group											Total
	0.2	1.1	1.2	2.1	0.4	1.3	2.2	1.4	2.3	1.5	2.4	
Central District												
Upper Subdistrict												
Number	11	33	1,218	11	22	1,568		1,885	33	99	11	4,891
Percent	0.22	0.67	24.90	0.22	0.45	32.06		38.54	0.67	2.02	0.22	100.00
Mean Length ^a	595	461	626	390	1,025	822		976	867	1,054	1,030	835
Sample Size	1	3	111	1	2	143		172	3	9	1	446
Northern District												
Eastern Subdistrict												
Number			322			362	23	388	9		5	1,109
Percent			29.04			32.64	2.07	34.99	0.81		0.45	100.00
Mean Length			571			771	574	890	780		890	751
Sample Size			71			80	5	86	2		1	245
General Subdistrict												
Number			1,628			2,084		2,038				5,750
Percent			28.31			36.24		35.44				100.00
Mean Length			568			790		907				769
Sample Size			107			137		134				378
Total												
Number	11	33	3,168	11	22	4,014	23	4,311	42	99	16	11,750
Percent	0.09	0.28	26.96	0.09	0.19	34.16	0.20	36.69	0.36	0.84	0.14	100.00
Mean Length	595	461	591	390	1,025	801	574	936	848	1,054	986	795
Sample Size	1	3	289	1	2	360	5	392	5	9	2	1,069

^a Mean length represented in mm.

Table 6. Age, sex and length composition of chinook salmon harvested in the Upper Subdistrict commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1991.

	Age Group										Total
	0.2	1.1	1.2	2.1	0.4	1.3	1.4	2.3	1.5	2.4	
Sample period:	1 July - 12 August										
Males		22	768		11	1,042	1,096	22	77	11	3,049
Percent		0.45	15.70		0.22	21.30	22.41	0.45	1.57	0.22	62.34
Sample Size		2	70		1	95	100	2	7	1	278
Mean Length ^a		394	629		1,070	815	984	930	1,070	1,030	835
Std. Error		9.00	9.99			10.18	7.81	150.00	25.98		5.28
Sample Size		2	70		1	95	100	2	7	1	278
Females	11	11	450	11	11	526	789	11	22		1,842
Percent	0.22	0.22	9.20	0.22	0.22	10.75	16.13	0.22	0.45		37.66
Sample Size	1	1	41	1	1	48	72	1	2		168
Mean Length	595	595	620	390	980	835	965	741	998		835
Std. Error			14.86			13.23	8.01		42.50		6.29
Sample Size	1	1	41	1	1	48	72	1	2		168
Both Sexes	11	33	1,218	11	22	1,568	1,885	33	99	11	4,891
Percent	0.22	0.67	24.90	0.22	0.45	32.06	38.54	0.67	2.02	0.22	100.00
Sample Size	1	3	111	1	2	143	172	3	9	1	446
Mean Length	595	461	626	390	1,025	822	976	867	1,054	1,030	835
Std. Error		9.00	8.36			8.09	5.64	150.00	22.31		4.06
Sample Size	1	3	111	1	2	143	172	3	9	1	446

^a Mean length represented in mm.

Table 7. Age, sex and length composition of chinook salmon harvested in the Eastern Subdistrict commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1991.

	Age Group						Total
	1.2	1.3	2.2	1.4	2.3	2.4	
Sample period:	3 June - 19 August						
Males	195	167	5	163			530
Percent	17.58	15.06	0.45	14.70			47.79
Sample Size	43	37	1	36			117
Mean Length ^a	575	756	520	911			735
Std. Error	7.75	8.92		11.86			5.42
Sample Size	43	37	1	36			117
Females	127	195	18	225	9	5	579
Percent	11.45	17.58	1.62	20.29	0.81	0.45	52.21
Sample Size	28	43	4	50	2	1	128
Mean Length	565	784	589	875	780	890	766
Std. Error	9.03	7.33	24.36	6.62	10.00		4.15
Sample Size	28	43	4	50	2	1	128
Both Sexes	322	362	23	388	9	5	1,109 ^b
Percent	29.04	32.64	2.07	34.99	0.81	0.45	100.00
Sample Size	71	80	5	86	2	1	245
Mean Length	571	771	574	890	780	890	751
Std. Error	5.89	5.70	24.36	6.29	10.00		3.38
Sample Size	71	80	5	86	2	1	245

^a Mean length represented in mm.

^b Sampling occurred during 3-17 June which represented 969 fish or 87% of the total harvest.

Table 8. Age, sex and length composition of chinook salmon harvested in the General Subdistrict commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1991.

	Age Group			Total
	1.2	1.3	1.4	
Sample period:	3 June - 30 August			
Males	1,522	745	608	2,875
Percent	26.47	12.96	10.57	50.00
Sample Size	100	49	40	189
Mean Length ^a	565	776	943	699
Std. Error	4.94	9.51	9.45	4.11
Sample Size	100	49	40	189
Females	106	1,339	1,430	2,875
Percent	1.84	23.29	24.87	50.00
Sample Size	7	88	94	189
Mean Length	619	798	892	838
Std. Error	12.70	5.97	5.63	3.98
Sample Size	7	88	94	189
Both Sexes	1,628	2,084	2,038	5,750 ^b
Percent	28.31	36.24	35.44	100.00
Sample Size	107	137	134	378
Mean Length	568	790	907	769
Std. Error	4.69	5.13	4.86	2.86
Sample Size	107	137	134	378

^a Mean length represented in mm.

^b Sampling occurred during 3-17 June which represented 5,004 fish or 87% of the total harvest.

Table 9. Age and length composition of sockeye salmon in selected commercial gillnet fisheries and escapements with overall exploitation rates by age, Upper Cook Inlet, Alaska, in 1991.

Fishery	Age Group														Total
	0.2	1.1	0.3	1.2	2.1	0.4	1.3	1.4	2.3	3.2	2.4	3.3	3.4		
COMMERCIAL CATCH															
Central District															
Central Drift															
Number		25,669	143,844		103	1,364	583,977	64,100	3,509	209,440		6		576	1,032,588
Percent		2.49	13.93		0.01	0.13	56.55	6.21	0.34	20.28		0.00		0.06	100.00
Mean Length		573	508		320	586	554	507	582	564		512		592	547
Sample Size		49	406		1	2	1,383	186	7	475		1		1	2,511
Cohoe/Ninilchik Beach															
Number	30	91	618	115,312			123,674	95,717	320	64,721					400,483
Percent	0.01	0.02	0.15	28.79			30.88	23.90	0.08	16.16					100.00
Mean Length	442	466	558	477			529	480	564	538					504
Sample Size	1	2	4	607			1,059	576	3	413					2,665
Kalifonsky Beach															
Number		3,915	65,197			97,549	34,479	320	40,588						242,048
Percent		1.62	26.94			40.30	14.24	0.13	16.77						100.00
Mean Length		545	479			537	478	625	542						514
Sample Size		15	404			949	348	1	294						2,011
Salamatof Beach															
Number	280		1,852	48,408	140	105,848	10,762	508	33,598		229				201,625
Percent	0.14		0.92	24.01	0.07	52.50	5.34	0.25	16.66		0.11				100.00
Mean Length	503		539	506	342	555	500	596	562		615				541
Sample Size	2		14	402	1	712	125	3	237		1				1,497
Western															
Number			1,007			8,195	2,485	134	5,374						17,195
Percent			5.86			47.66	14.45	0.78	31.25						100.00
Mean Length			495			561	527	573	559						552
Sample Size			15			122	37	2	80						256
Central Total															
Number	310	91	32,054	373,768	243	1,364	919,243	207,543	4,791	353,721		6	229	576	1,893,939
Percent	0.02	0.00	1.69	19.73	0.01	0.07	48.54	10.96	0.25	18.68		0.00	0.01	0.03	100.00
Mean Length	497	466	567	493	333	586	549	490	585	557		512	615	592	533
Sample Size	3	2	82	1,834	2	2	4,225	1,272	16	1,499		1	1	1	8,940

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Table 9. (p. 2 of 4)

Fishery	Age Group														Total
	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2	2.4	3.3	3.4	
COMMERCIAL CATCH															
Northern District															
General Subdistrict															
Number	97		4,715	6,128		63	56,541	3,786	252	10,167	97		63		81,909
Percent	0.12		5.76	7.48		0.08	69.03	4.62	0.31	12.41	0.12		0.08		100.00
Mean Length	468		556	491		600	557	500	620	556	450		531		549
Sample Size	1		86	92		1	920	63	5	175	1		1		1,345
Eastern Subdistrict															
Number	40	195	230	11,674	198		9,884	7,179	38	4,738	78		38		34,292
Percent	0.12	0.57	0.67	34.04	0.58		28.82	20.93	0.11	13.82	0.23		0.11		100.00
Mean Length	400	332	567	480	343		537	486	570	537	470		532		505
Sample Size	1	5	6	297	5		256	183	1	121	2		1		878
Northern Total															
Number	137	195	4,945	17,802	198	63	66,425	10,965	290	14,905	175		101		116,201
Percent	0.12	0.17	4.26	15.32	0.17	0.05	57.16	9.44	0.25	12.83	0.15		0.09		100.00
Mean Length	448	332	556	484	343	600	554	491	614	550	459		531		536
Sample Size	2	5	92	389	5	1	1,176	246	6	296	3		2		2,223
Commercial Catch Total															
Number	447	286	36,999	391,570	441	1,427	985,668	218,508	5,081	368,626	181	229	101	576	2,010,140
Percent	0.02	0.01	1.84	19.48	0.02	0.07	49.03	10.87	0.25	18.34	0.01	0.01	0.01	0.03	100.00
Mean Length	482	374	566	492	337	587	549	490	587	557	461	615	531	592	534
Sample Size	5	7	174	2,223	7	3	5,401	1,518	22	1,795	4	1	2	1	11,163

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Table 9. (p. 3 of 4)

Fishery	Age Group														Total
	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2	2.4	3.3	3.4	
ESCAPEMENT															
Central District															
Kenai River															
Number	145	716	13,914	312,405	2,874	573	204,662	36,602	988	74,051	428	239			647,597
Percent	0.02	0.11	2.15	48.24	0.44	0.09	31.60	5.65	0.15	11.43	0.07	0.04			100.00
Mean Length	523	412	560	492	358	604	549	491	580	558	529	600			519
Sample Size	1	3	41	1,190	11	2	798	157	5	292	1	1			2,502
Kasilof River															
Number	91		300	75,154	154		79,587	68,975	209	13,799					238,269
Percent	0.04		0.13	31.54	0.06		33.40	28.95	0.09	5.79					100.00
Mean Length	408		506	464	322		525	475	530	515					491
Sample Size	1		3	631	1		753	590	2	125					2,106
Crescent River															
Number			250	6,618			22,476	7,492	125	7,367	125	125			44,578
Percent			0.56	14.85			50.42	16.81	0.28	16.53	0.28	0.28			100.00
Mean Length			534	509			553	510	565	550	587	592			539
Sample Size			2	53			180	60	1	59	1	1			357
Packers Creek															
Number				13,870	140		14,052	2,691	12	10,510					41,275
Percent				33.60	0.34		34.04	6.52	0.03	25.46					100.00
Mean Length				461	330		539	477	565	545					510
Sample Size				211	2		325	46	1	256					841
Central Total															
Number	236	716	14,464	408,047	3,168	573	320,777	115,760	1,334	105,727	553	364			971,719
Percent	0.02	0.07	1.49	41.99	0.33	0.06	33.01	11.91	0.14	10.88	0.06	0.04			100.00
Mean Length	479	412	558	486	355	604	543	483	571	550	542	597			512
Sample Size	2	3	46	2,085	14	2	2,056	853	9	732	2	2			5,806

-Continued-

Table 9. (p. 4 of 4)

Fishery	Age Group													Total	
	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2	2.4	3.3		3.4
ESCAPEMENT															
Northern District															
Yentna River															
Number	2,316	145	11,629	27,661	154	81	47,773	7,728	68	12,009		68			109,632
Percent	2.11	0.13	10.61	25.23	0.14	0.07	43.58	7.05	0.06	10.95		0.06			100.00
Mean Length	452	335	558	468	346	600	551	478	570	547		605			523
Sample Size	32	2	159	383	2	1	657	107	1	164		1			1,509
Fish Creek															
Number		3,783		45,537			6,446	2,522		981					59,269
Percent		6.38		76.83			10.88	4.26		1.66					100.00
Mean Length		352		483			528	496		566					481
Sample Size		27		325			46	18		7					423
Northern Total															
Number	2,316	3,928	11,629	73,198	154	81	54,219	10,250	68	12,990		68			168,901
Percent	1.37	2.33	6.89	43.34	0.09	0.05	32.10	6.07	0.04	7.69		0.04			100.00
Mean Length	452	351	558	477	346	600	548	482	570	549		605			508
Sample Size	32	29	159	708	2	1	703	125	1	171		1			1,932
Escapement Total															
Number	2,552	4,644	26,093	481,245	3,322	654	374,996	126,010	1,402	118,717	553	432			1,140,620
Percent	0.22	0.41	2.29	42.19	0.29	0.06	32.88	11.05	0.12	10.41	0.05	0.04			100.00
Mean Length	454	361	558	485	355	603	544	483	571	550	542	598			512
Sample Size	34	32	205	2,793	16	3	2,759	978	10	903	2	3			7,738
Upper Cook Inlet Total															
Number	2,999	4,930	63,092	872,815	3,763	2,081	1,360,664	344,518	6,483	487,343	734	661	101	576	3,150,760
Percent	0.10	0.16	2.00	27.70	0.12	0.07	43.19	10.93	0.21	15.47	0.02	0.02	0.00	0.02	100.00
Sample Size	39	39	379	5,016	23	6	8,160	2,496	32	2,698	6	4	2	1	18,901
Exploitation Rate	.149	.058	.586	.449	.117	.686	.724	.634	.784	.756	.247	.346	--	--	.638

Table 10. Age, sex and length composition of sockeye salmon harvested in the Central District commercial drift gillnet fishery, Upper Cook Inlet, Alaska, in 1991.

	Age Group									Total	
	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2		3.4
Sample Period 1: 28 June - 8 July ^a											
Males	679	8,824			52,946	14,594	679	22,061			99,783
Percent	0.35	4.60			27.61	7.61	0.35	11.50			52.04
Sample Size	2	26			156	43	2	65			294
Mean Length ^b	597	499			555	495	574	564			544
Std. Error	9.50	5.40			2.51	4.27	4.00	4.64			1.86
Sample Size	2	26			156	43	2	65			294
Females	679	4,073			61,770	5,091	679	19,685			91,977
Percent	0.35	2.12			32.21	2.65	0.35	10.27			47.96
Sample Size	2	12			182	15	2	58			271
Mean Length	554	498			545	511	577	557			544
Std. Error	6.00	9.28			1.69	6.97	1.00	4.00			1.53
Sample Size	2	12			182	15	2	58			271
Both Sexes	1,358	12,897			114,716	19,685	1,358	41,746			191,760
Percent	0.71	6.73			59.82	10.27	0.71	21.77			100.00
Sample Size	4	38			338	58	4	123			565
Mean Length	575	499			550	499	576	561			544
Std. Error	5.62	4.71			1.47	3.64	2.06	3.09			1.21
Sample Size	4	38			338	58	4	123			565

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Table 10. (p. 2 of 6)

	Age Group										Total	
	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2	3.4		
Sample Period 2: 12 July ^c												
Males	216			322	216			117				871
Percent	13.29			19.82	13.29			7.20				53.60
Sample Size	35			52	35			19				141
Mean Length	501			543	500			553				523
Std. Error	4.93			5.33	5.34			8.72				2.92
Sample Size	35			52	35			19				141
Females	136			383	68			161	6			754
Percent	8.37			23.57	4.18			9.91	0.37			46.40
Sample Size	22			62	11			26	1			122
Mean Length	513			546	501			546	512			536
Std. Error	15.14			4.01	7.62			4.44				3.60
Sample Size	22			62	11			26	1			122
Both Sexes	352			705	284			278	6			1,625
Percent	21.66			43.38	17.48			17.11	0.37			100.00
Sample Size	57			114	46			45	1			263
Mean Length	506			545	500			549	512			529
Std. Error	6.59			3.27	4.46			4.48				2.29
Sample Size	57			114	46			45	1			263

-Continued-

Table 10. (p. 3 of 6)

	Age Group										Total
	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2	3.4	
Sample Period 3: 15 July ^a											
Males	7,877	46,477			121,315	22,057	1,575	49,628			248,929
Percent	1.67	9.85			25.71	4.67	0.33	10.52			52.75
Sample Size	10	59			154	28	2	63			316
Mean Length	581	505			562	511	591	574			550
Std. Error	8.18	3.26			2.71	6.02	19.00	4.40			1.80
Sample Size	10	59			154	28	2	63			316
Females	5,514	14,179		788	148,098	8,665		45,689			222,933
Percent	1.17	3.00		0.17	31.39	1.84		9.68			47.25
Sample Size	7	18		1	188	11		58			283
Mean Length	558	498		582	549	508		557			546
Std. Error	3.96	6.65			2.43	6.81		3.65			1.85
Sample Size	7	18		1	188	11		58			283
Both Sexes	13,391	60,656		788	269,413	30,722	1,575	95,317			471,862
Percent	2.84	12.85		0.17	57.10	6.51	0.33	20.20			100.00
Sample Size	17	77		1	342	39	2	121			599
Mean Length	572	503		582	555	510	591	566			548
Std. Error	5.08	2.94			1.81	4.73	19.00	2.88			1.29
Sample Size	17	77		1	342	39	2	121			599

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Table 10. (p. 4 of 6)

	Age Group										Total
	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2	3.4	
Sample Period 4: 19 July ^a											
Males	5,758	44,338		576	70,249	6,334	576	32,821			160,652
Percent	1.85	14.23		0.18	22.55	2.03	0.18	10.54			51.57
Sample Size	10	77		1	122	11	1	57			279
Mean Length	592	517		592	564	507	573	566			550
Std. Error	5.96	2.73			3.25	10.15		4.73			1.93
Sample Size	10	77		1	122	11	1	57			279
Females	4,031	11,516			98,463	4,607		31,670		576	150,863
Percent	1.29	3.70			31.61	1.48		10.17		0.18	48.43
Sample Size	7	20			171	8		55		1	262
Mean Length	558	504			549	510		564		592	548
Std. Error	6.31	14.29			1.65	7.70		2.87			1.67
Sample Size	7	20			171	8		55		1	262
Both Sexes	9,789	55,854		576	168,712	10,941	576	64,491		576	311,515
Percent	3.14	17.93		0.18	54.16	3.51	0.18	20.70		0.18	100.00
Sample Size	17	97		1	293	19	1	112		1	541
Mean Length	578	515		592	556	508	573	565		592	549
Std. Error	4.37	3.66			1.66	6.71		2.79			1.28
Sample Size	17	97		1	293	19	1	112		1	541

-Continued-

Table 10. (p. 5 of 6)

	Age Group										Total
	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2	3.4	
Sample Period 5: 29 July ^d											
Males	617	10,178	103		14,702	1,748		3,701			31,049
Percent	1.11	18.23	0.18		26.34	3.13		6.63			55.62
Sample Size	6	99	1		143	17		36			302
Mean Length	546	508	320		566	522		571			544
Std. Error	18.69	3.11			2.16	7.02		4.63			1.64
Sample Size	6	99	1		143	17		36			302
Females	514	3,907			15,729	720		3,907			24,777
Percent	0.92	7.00			28.18	1.29		7.00			44.38
Sample Size	5	38			153	7		38			241
Mean Length	543	508			548	507		555			541
Std. Error	13.23	3.78			1.78	7.09		4.01			1.47
Sample Size	5	38			153	7		38			241
Both Sexes	1,131	14,085	103		30,431	2,468		7,608			55,826
Percent	2.03	25.23	0.18		54.51	4.42		13.63			100.00
Sample Size	11	137	1		296	24		74			543
Mean Length	544	508	320		557	518		563			543
Std. Error	11.84	2.48			1.39	5.38		3.05			1.12
Sample Size	11	137	1		296	24		74			543

-Continued-

Table 10. (p. 6 of 6)

	Age Group										Total	
	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2	3.4		
All Periods Combined:												
Males	14,931	110,033	103	576	259,534	44,949	2,830	108,328				541,284
Percent	1.45	10.66	0.01	0.06	25.13	4.35	0.27	10.49				52.42
Sample Size	28	296	1	1	627	134	5	240				1,332
Mean Length	585	510	320	592	562	506	583	569				549
Std. Error	4.97	1.84			1.63	3.57	13.33	2.65				1.07
Sample Size	28	296	1	1	627	134	5	240				1,332
Females	10,738	33,811		788	324,443	19,151	679	101,112	6	576		491,304
Percent	1.04	3.27		0.08	31.42	1.85	0.07	9.79	0.00	0.06		47.58
Sample Size	21	110		1	756	52	2	235	1	1		1,179
Mean Length	557	501		582	548	509	577	559	512	592		546
Std. Error	3.21	5.74			1.26	4.05	1.00	2.04				1.03
Sample Size	21	110		1	756	52	2	235	1	1		1,179
Both Sexes	25,669	143,844	103	1,364	583,977	64,100	3,509	209,440	6	576		1,032,588 ^e
Percent	2.49	13.93	0.01	0.13	56.55	6.21	0.34	20.28	0.00	0.06		100.00
Sample Size	49	406	1	2	1,383	186	7	475	1	1		2,511
Mean Length	573	508	320	586	554	507	582	564	512	592		547
Std. Error	3.19	1.95			1.01	2.78	10.25	1.69				0.74
Sample Size	49	406	1	2	1,383	186	7	475	1	1		2,511

^a All areas open to fishing.

^b Mean length represented in mm.

^c South of Colliers within 3 miles.

^d All areas open to fishing except Western and Chinitna Bay Subdistricts.

^e Total does not include 50,917 fish harvested in the 3 mile corridor and 34,005 fish harvested in the district-wide openings after 29 July which equals a total of 1,117,510 fish.

Table 11. Age, sex and length composition of sockeye salmon harvested in the Coho/Ninilchik Beach commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1991.

	Age Group								Total
	0.2	1.1	0.3	1.2	1.3	2.2	1.4	2.3	
Sample Period 1:	1 July								
Males	30	30	30	1,699	5,366	1,252		984	9,391
Percent	0.19	0.19	0.19	10.51	33.21	7.75		6.09	58.12
Sample Size	1	1	1	57	180	42		33	315
Mean Length ^a	442	467	505	487	531	482		536	516
Std. Error				4.31	2.03	4.10		7.51	1.69
Sample Size	1	1	1	57	180	42		33	315
Females				1,133	4,501	686		447	6,767
Percent				7.01	27.86	4.25		2.77	41.88
Sample Size				38	151	23		15	227
Mean Length				480	520	480		524	510
Std. Error				5.28	2.17	3.58		6.84	1.79
Sample Size				38	151	23		15	227
Both Sexes	30	30	30	2,832	9,867	1,938		1,431	16,158
Percent	0.19	0.19	0.19	17.53	61.07	11.99		8.86	100.00
Sample Size	1	1	1	95	331	65		48	542
Mean Length	442	467	505	484	526	481		532	514
Std. Error				3.34	1.48	2.93		5.59	1.24
Sample Size	1	1	1	95	331	65		48	542

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Table 11. (p. 2 of 6)

	Age Group							Total	
	0.2	1.1	0.3	1.2	1.3	2.2	1.4		2.3
Sample Period 2: 5 - 6 July									
Males				2,281	5,762	2,821		2,581	13,445
Percent				7.71	19.47	9.53		8.72	45.44
Sample Size				38	96	47		43	224
Mean Length				481	531	487		553	517
Std. Error				5.09	2.80	4.63		4.97	2.01
Sample Size				38	96	47		43	224
Females				1,921	7,202	4,562	60	2,401	16,146
Percent				6.49	24.34	15.42	0.20	8.11	54.56
Sample Size				32	120	76	1	40	269
Mean Length				479	527	485	536	525	509
Std. Error				4.11	1.97	2.77		5.45	1.51
Sample Size				32	120	76	1	40	269
Both Sexes				4,202	12,964	7,383	60	4,982	29,591
Percent				14.20	43.81	24.95	0.20	16.84	100.00
Sample Size				70	216	123	1	83	493
Mean Length				480	529	486	536	540	513
Std. Error				3.34	1.66	2.46		3.68	1.23
Sample Size				70	216	123	1	83	493

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Table 11. (p. 3 of 6)

	Age Group							Total	
	0.2	1.1	0.3	1.2	1.3	2.2	1.4		2.3
Sample Period 3: 8 - 12 July									
Males		61	61	5,090	6,747	6,746		2,882	21,587
Percent	0.18		0.18	15.06	19.97	19.96		8.53	63.88
Sample Size	1	1	1	83	110	110		47	352
Mean Length	465		490	482	533	478		538	504
Std. Error				3.33	3.08	2.51		5.69	1.65
Sample Size	1		1	83	110	110		47	352
Females			61	1,411	5,826	2,821		2,085	12,204
Percent			0.18	4.18	17.24	8.35		6.17	36.12
Sample Size			1	23	95	46		34	199
Mean Length			545	484	522	485		524	510
Std. Error				4.74	2.47	3.37		5.03	1.74
Sample Size			1	23	95	46		34	199
Both Sexes		61	122	6,501	12,573	9,567		4,967	33,791
Percent	0.18		0.36	19.24	37.21	28.31		14.70	100.00
Sample Size	1		2	106	205	156		81	551
Mean Length	465		518	482	528	480		532	506
Std. Error				2.81	2.01	2.03		3.92	1.23
Sample Size	1		2	106	205	156		81	551

-Continued-

Table 11. (p. 4 of 6)

	Age Group							Total	
	0.2	1.1	0.3	1.2	1.3	2.2	1.4		2.3
Sample Period 4: 15 - 21 July									
Males				53,545	33,523	45,163		18,624	150,855
Percent				21.38	13.38	18.03		7.43	60.22
Sample Size				115	72	97		40	324
Mean Length				476	527	480		533	496
Std. Error				2.37	3.93	2.35		8.28	1.74
Sample Size				115	72	97		40	324
Females			466	27,005	33,522	19,555		19,090	99,638
Percent			0.19	10.78	13.38	7.81		7.62	39.78
Sample Size			1	58	72	42		41	214
Mean Length			572	475	522	479		532	503
Std. Error				3.08	6.01	4.42		4.16	2.48
Sample Size			1	58	72	42		41	214
Both Sexes			466	80,550	67,045	64,718		37,714	250,493
Percent			0.19	32.16	26.77	25.84		15.06	100.00
Sample Size			1	173	144	139		81	538
Mean Length			572	475	525	480		533	499
Std. Error				1.89	3.59	2.11		4.60	1.44
Sample Size			1	173	144	139		81	538

-Continued-

Table 11. (p. 5 of 6)

	Age Group							Total	
	0.2	1.1	0.3	1.2	1.3	2.2	1.4		2.3
Sample Period 5: 29 July - 12 August									
Males				11,851	7,813	6,511	130	6,902	33,207
Percent				16.82	11.09	9.24	0.18	9.80	47.14
Sample Size				91	60	50	1	53	255
Mean Length				485	555	485	610	573	520
Std. Error				3.84	3.96	5.38		5.27	2.25
Sample Size				91	60	50	1	53	255
Females				9,376	13,412	5,600	130	8,725	37,243
Percent				13.31	19.04	7.95	0.18	12.38	52.86
Sample Size				72	103	43	1	67	286
Mean Length				470	539	476	532	541	512
Std. Error				3.77	2.61	4.87		4.05	1.79
Sample Size				72	103	43	1	67	286
Both Sexes				21,227	21,225	12,111	260	15,627	70,450
Percent				30.13	30.13	17.19	0.37	22.18	100.00
Sample Size				163	163	93	2	120	541
Mean Length				478	545	481	571	555	516
Std. Error				2.71	2.20	3.67		3.25	1.42
Sample Size				163	163	93	2	120	541

-Continued-

Table 11. (p. 6 of 6)

	Age Group								Total
	0.2	1.1	0.3	1.2	1.3	2.2	1.4	2.3	
All Periods Combined:									
Males	30	91	91	74,466	59,211	62,493	130	31,973	228,485
Percent	0.01	0.02	0.02	18.59	14.78	15.60	0.03	7.98	57.05
Sample Size	1	2	2	384	518	346	1	216	1,470
Mean Length	442	466	495	478	532	481	610	544	502
Std. Error				1.84	2.34	1.82		5.00	1.21
Sample Size	1	2	2	384	518	346	1	216	1,470
Females			527	40,846	64,463	33,224	190	32,748	171,998
Percent			0.13	10.20	16.10	8.30	0.05	8.18	42.95
Sample Size			2	223	541	230	2	197	1,195
Mean Length			569	474	526	480	533	533	506
Std. Error				2.23	3.19	2.77		2.71	1.50
Sample Size			2	223	541	230	2	197	1,195
Both Sexes	30	91	618	115,312	123,674	95,717	320	64,721	400,483
Percent	0.01	0.02	0.15	28.79	30.88	23.90	0.08	16.16	100.00
Sample Size	1	2	4	607	1,059	576	3	413	2,665
Mean Length	442	466	558	477	529	480	564	538	504
Std. Error				1.42	2.00	1.53		2.83	0.95
Sample Size	1	2	4	607	1,059	576	3	413	2,665

^a Mean length represented in mm.

Table 12. Age, sex and length composition of sockeye salmon harvested in the Kalifonsky Beach commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1991.

	Age Group						Total
	0.3	1.2	1.3	2.2	1.4	2.3	
Sample Period 1:	1 July						
Males	55	523	2,479	744		386	4,187
Percent	0.58	5.52	26.16	7.85		4.07	44.19
Sample Size	2	19	90	27		14	152
Mean Length ^a	568	495	538	503		549	528
Std. Error	52.00	7.47	2.96	5.03		6.83	2.37
Sample Size	2	19	90	27		14	152
Females		413	3,829	634		413	5,289
Percent		4.36	40.41	6.69		4.36	55.81
Sample Size		15	139	23		15	192
Mean Length		495	528	493		530	522
Std. Error		7.95	1.90	4.88		7.18	1.71
Sample Size		15	139	23		15	192
Both Sexes	55	936	6,308	1,378		799	9,476
Percent	0.58	9.88	66.57	14.54		8.43	100.00
Sample Size	2	34	229	50		29	344
Mean Length	568	495	532	498		539	524
Std. Error	52.00	5.45	1.64	3.52		4.96	1.42
Sample Size	2	34	229	50		29	344

-Continued-

Table 12. (p. 2 of 5)

	Age Group						Total
	0.3	1.2	1.3	2.2	1.4	2.3	
Sample Period 2: 5 - 6 July							
Males	18	788	2,846	1,253		931	5,836
Percent	0.18	7.97	28.80	12.68		9.42	59.06
Sample Size	1	44	159	70		52	326
Mean Length	623	483	532	480		529	514
Std. Error		4.84	2.44	2.82		4.60	1.66
Sample Size	1	44	159	70		52	326
Females		251	2,899	251		644	4,045
Percent		2.54	29.34	2.54		6.52	40.94
Sample Size		14	162	14		36	226
Mean Length		478	519	495		523	516
Std. Error		7.72	1.97	10.53		4.21	1.76
Sample Size		14	162	14		36	226
Both Sexes	18	1,039	5,745	1,504		1,575	9,881
Percent	0.18	10.52	58.14	15.22		15.94	100.00
Sample Size	1	58	321	84		88	552
Mean Length	623	481	526	483		527	515
Std. Error		4.12	1.56	2.94		3.22	1.21
Sample Size	1	58	321	84		88	552

-Continued-

Table 12. (p. 3 of 5)

	Age Group					Total	
	0.3	1.2	1.3	2.2	1.4		2.3
Sample Period 3: 8 - 15 July							
Males		7,803	6,799	6,721		3,399	24,722
Percent		18.26	15.91	15.73		7.96	57.87
Sample Size		101	88	87		44	320
Mean Length		474	530	471		536	497
Std. Error		2.70	4.09	2.37		6.98	1.82
Sample Size		101	88	87		44	320
Females		3,863	6,644	5,022		2,472	18,001
Percent		9.04	15.55	11.75		5.79	42.13
Sample Size		50	86	65		32	233
Mean Length		472	524	478		535	501
Std. Error		4.88	2.50	2.78		6.27	1.81
Sample Size		50	86	65		32	233
Both Sexes		11,666	13,443	11,743		5,871	42,723
Percent		27.31	31.47	27.49		13.74	100.00
Sample Size		151	174	152		76	553
Mean Length		473	527	474		535	499
Std. Error		2.42	2.41	1.80		4.83	1.30
Sample Size		151	174	152		76	553

-Continued-

Table 12. (p. 4 of 5)

	Age Group						Total
	0.3	1.2	1.3	2.2	1.4	2.3	
Sample Period 4: 18 July - 12 August							
Males	1,921	28,820	33,626	9,927	320	14,730	89,344
Percent	1.07	16.01	18.68	5.52	0.18	8.18	49.64
Sample Size	6	90	105	31	1	46	279
Mean Length	560	478	544	482	625	549	517
Std. Error	16.63	6.26	4.20	7.05		5.97	2.88
Sample Size	6	90	105	31	1	46	279
Females	1,921	22,736	38,427	9,927		17,613	90,624
Percent	1.07	12.63	21.35	5.52		9.79	50.36
Sample Size	6	71	120	31		55	283
Mean Length	529	483	537	476		539	517
Std. Error	19.48	3.86	2.77	3.92		4.99	1.90
Sample Size	6	71	120	31		55	283
Both Sexes	3,842	51,556	72,053	19,854	320	32,343	179,968
Percent	2.13	28.65	40.04	11.03	0.18	17.97	100.00
Sample Size	12	161	225	62	1	101	562
Mean Length	544	480	540	479	625	544	517
Std. Error	12.81	3.89	2.45	4.04		3.84	1.72
Sample Size	12	161	225	62	1	101	562

-Continued-

Table 12. (p. 5 of 5)

	Age Group						Total
	0.3	1.2	1.3	2.2	1.4	2.3	
All Periods Combined:							
Males	1,994	37,934	45,750	18,645	320	19,446	124,089
Percent	0.82	15.67	18.90	7.70	0.13	8.03	51.27
Sample Size	9	254	442	215	1	156	1,077
Mean Length	560	477	541	479	625	546	513
Std. Error	16.23	4.79	3.15	3.86		4.69	2.11
Sample Size	9	254	442	215	1	156	1,077
Females	1,921	27,263	51,799	15,834		21,142	117,959
Percent	0.79	11.26	21.40	6.54		8.73	48.73
Sample Size	6	150	507	133		138	934
Mean Length	529	482	534	478		538	515
Std. Error	19.48	3.29	2.09	2.62		4.22	1.49
Sample Size	6	150	507	133		138	934
Both Sexes	3,915	65,197	97,549	34,479	320	40,588	242,048
Percent	1.62	26.94	40.30	14.24	0.13	16.77	100.00
Sample Size	15	404	949	348	1	294	2,011
Mean Length	545	479	537	478	625	542	514
Std. Error	12.65	3.11	1.85	2.41		3.15	1.30
Sample Size	15	404	949	348	1	294	2,011

^a Mean length represented in mm.

Table 13. Age, sex and length composition of sockeye salmon harvested in the Salamatof Beach commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1991.

	Age Group								Total	
	0.2	0.3	1.2	2.1	1.3	2.2	1.4	2.3		2.4
Sample Period 1: 1 - 8 July										
Males		32	1,178		1,130	653		557		3,550
Percent		0.45	16.70		16.02	9.26		7.90		50.34
Sample Size		2	74		71	41		35		223
Mean Length ^a		569	475		556	469		555		513
Std. Error		22.50	3.66		4.55	6.12		6.41		2.43
Sample Size		2	74		71	41		35		223
Females		16	955		1,448	462		621		3,502
Percent		0.23	13.54		20.53	6.55		8.81		49.66
Sample Size		1	60		91	29		39		220
Mean Length		498	476		541	482		546		516
Std. Error			3.61		3.16	7.95		5.41		2.17
Sample Size		1	60		91	29		39		220
Both Sexes		48	2,133		2,578	1,115		1,178		7,052
Percent		0.68	30.25		36.56	15.81		16.70		100.00
Sample Size		3	134		162	70		74		443
Mean Length		545	476		548	474		550		515
Std. Error		22.50	2.59		2.67	4.87		4.16		1.63
Sample Size		3	134		162	70		74		443

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Table 13. (p. 2 of 4)

	Age Group									Total
	0.2	0.3	1.2	2.1	1.3	2.2	1.4	2.3	2.4	
Sample Period 2: 12 - 19 July										
Males	140	419	13,683	140	18,149	2,513		3,351		38,395
Percent	0.19	0.57	18.70	0.19	24.81	3.43		4.58		52.48
Sample Size	1	3	98	1	130	18		24		275
Mean Length	431	539	506	342	557	490		559		533
Std. Error		18.22	3.92		2.96	7.33		9.87		2.22
Sample Size	1	3	98	1	130	18		24		275
Females	140	698	9,913		17,313	2,094	279	4,328		34,765
Percent	0.19	0.95	13.55		23.66	2.86	0.38	5.92		47.52
Sample Size	1	5	71		124	15	2	31		249
Mean Length	575	520	499		541	489	580	555		528
Std. Error		11.29	3.50		2.79	10.89	7.50	5.07		1.95
Sample Size	1	5	71		124	15	2	31		249
Both Sexes	280	1,117	23,596	140	35,462	4,607	279	7,679		73,160
Percent	0.38	1.53	32.25	0.19	48.47	6.30	0.38	10.50		100.00
Sample Size	2	8	169	1	254	33	2	55		524
Mean Length	503	527	503	342	549	490	580	557		530
Std. Error		9.82	2.71		2.04	6.36	7.50	5.17		1.49
Sample Size	2	8	169	1	254	33	2	55		524

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Table 13. (p. 3 of 4)

	Age Group									Total
	0.2	0.3	1.2	2.1	1.3	2.2	1.4	2.3	2.4	
Sample Period 3: 29 July - 12 August										
Males		229	12,829		28,405	2,291	229	10,080	229	54,292
Percent		0.19	10.57		23.40	1.89	0.19	8.30	0.19	44.72
Sample Size		1	56		124	10	1	44	1	237
Mean Length		546	516		574	513	615	577	615	558
Std. Error			4.04		2.56	6.59		4.84		1.90
Sample Size		1	56		124	10	1	44	1	237
Females		458	9,850		39,403	2,749		14,661		67,121
Percent		0.38	8.11		32.45	2.26		12.08		55.28
Sample Size		2	43		172	12		64		293
Mean Length		563	506		547	518		556		542
Std. Error		9.00	4.23		1.74	7.63		3.00		1.40
Sample Size		2	43		172	12		64		293
Both Sexes		687	22,679		67,808	5,040	229	24,741	229	121,413
Percent		0.57	18.68		55.85	4.15	0.19	20.38	0.19	100.00
Sample Size		3	99		296	22	1	108	1	530
Mean Length		557	512		558	515	615	565	615	549
Std. Error		9.00	2.94		1.47	5.13		2.65		1.15
Sample Size		3	99		296	22	1	108	1	530

-Continued-

Table 13. (p. 4 of 4)

	Age Group									Total
	0.2	0.3	1.2	2.1	1.3	2.2	1.4	2.3	2.4	
All Periods Combined:										
Males	140	680	27,690	140	47,684	5,457	229	13,988	229	96,237
Percent	0.07	0.34	13.73	0.07	23.65	2.71	0.11	6.94	0.11	47.73
Sample Size	1	6	228	1	325	69	1	103	1	735
Mean Length	431	543	509	342	567	497	615	572	615	547
Std. Error		17.00	2.70		1.90	4.42		4.22		1.39
Sample Size	1	6	228	1	325	69	1	103	1	735
Females	140	1,172	20,718		58,164	5,305	279	19,610		105,388
Percent	0.07	0.58	10.28		28.85	2.63	0.14	9.73		52.27
Sample Size	1	8	174		387	56	2	134		762
Mean Length	575	537	501		545	503	580	555		536
Std. Error		7.69	2.62		1.44	5.88	7.50	2.51		1.10
Sample Size	1	8	174		387	56	2	134		762
Both Sexes	280	1,852	48,408	140	105,848	10,762	508	33,598	229	201,625
Percent	0.14	0.92	24.01	0.07	52.50	5.34	0.25	16.66	0.11	100.00
Sample Size	2	14	402	1	712	125	3	237	1	1,497
Mean Length	503	539	506	342	555	500	596	562	615	541
Std. Error		7.31	1.91		1.17	3.67	7.50	2.29		0.88
Sample Size	2	14	402	1	712	125	3	237	1	1,497

^a Mean length represented in mm.

Table 14. Age, sex and length composition of sockeye salmon harvested in the Western Subdistrict commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1991.

	Age Group					Total
	1.2	1.3	2.2	1.4	2.3	
Sample period ^a :	17 June - 13 September					
Males	873	4,232	1,679		2,687	9,471
Percent	5.08	24.61	9.76		15.63	55.08
Sample Size	13	63	25		40	141
Mean Length ^b	495	572	531		572	557
Std. Error	12.14	3.45	6.14		5.20	2.64
Sample Size	13	63	25		40	141
Females	134	3,963	806	134	2,687	7,724
Percent	0.78	23.05	4.69	0.78	15.63	44.92
Sample Size	2	59	12	2	40	115
Mean Length	495	551	518	573	545	545
Std. Error	44.00	2.81	8.79	20.00	3.46	2.25
Sample Size	2	59	12	2	40	115
Both Sexes	1,007	8,195	2,485	134	5,374	17,195
Percent	5.86	47.66	14.45	0.78	31.25	100.00
Sample Size	15	122	37	2	80	256
Mean Length	495	561	527	573	559	552
Std. Error	12.04	2.24	5.03	20.00	3.12	1.77
Sample Size	15	122	37	2	80	256

^a Sample taken from fish harvested on 8 July only.

^b Mean length represented in mm.

Table 15. Age, sex and length composition of sockeye salmon harvested in the General Subdistrict commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1991.

	Age Group									Total	
	0.2	0.3	1.2	0.4	1.3	2.2	1.4	2.3	3.2		3.3
Sample Period 1: 3 June - 15 July											
Males	185	170		1,916	124	15		463			2,873
Percent	3.09	2.84		31.97	2.07	0.25		7.72			47.93
Sample Size	12	11		124	8	1		30			186
Mean Length ^a	577	495		571	488	609		572			564
Std. Error	8.45	12.88		2.72	9.47			4.58			2.21
Sample Size	12	11		124	8	1		30			186
Females	139	31		2,240	124	15		572			3,121
Percent	2.32	0.52		37.37	2.07	0.25		9.54			52.07
Sample Size	9	2		145	8	1		37			202
Mean Length	573	516		547	523	576		548			547
Std. Error	10.19	5.00		1.86	5.63			4.00			1.61
Sample Size	9	2		145	8	1		37			202
Both Sexes	324	201		4,156	248	30		1,035			5,994
Percent	5.41	3.35		69.34	4.14	0.50		17.27			100.00
Sample Size	21	13		269	16	2		67			388
Mean Length	576	499		558	506	593		559			555
Std. Error	6.51	10.92		1.61	5.51			3.02			1.35
Sample Size	21	13		269	16	2		67			388

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Table 15. (p. 2 of 4)

	Age Group										Total
	0.2	0.3	1.2	0.4	1.3	2.2	1.4	2.3	3.2	3.3	
Sample Period 2: 19 - 21 July											
Males	97	195	1,948		16,556	1,071	97	3,506			23,470
Percent	0.22	0.44	4.37		37.12	2.40	0.22	7.86			52.62
Sample Size	1	2	20		170	11	1	36			241
Mean Length	468	570	491		569	506	633	568			559
Std. Error		10.50	10.23		2.27	7.41		4.41			1.96
Sample Size	1	2	20		170	11	1	36			241
Females		682	779		15,875	584		3,116	97		21,133
Percent		1.53	1.75		35.59	1.31		6.99	0.22		47.38
Sample Size		7	8		163	6		32	1		217
Mean Length		558	507		546	511		543	450		543
Std. Error		5.34	12.41		1.53	4.59		3.45			1.35
Sample Size		7	8		163	6		32	1		217
Both Sexes	97	877	2,727		32,431	1,655	97	6,622	97		44,603
Percent	0.22	1.97	6.11		72.71	3.71	0.22	14.85	0.22		100.00
Sample Size	1	9	28		333	17	1	68	1		458
Mean Length	468	561	496		558	508	633	557	450		552
Std. Error		4.77	8.12		1.38	5.06		2.84			1.22
Sample Size	1	9	28		333	17	1	68	1		458

-Continued-

Table 15. (p. 3 of 4)

	Age Group										Total
	0.2	0.3	1.2	0.4	1.3	2.2	1.4	2.3	3.2	3.3	
Sample Period 3: 22 July - 6 September											
Males	1,820	2,322		63	9,725	1,318	125	1,067			16,440
Percent	5.81	7.42		0.20	31.06	4.21	0.40	3.41			52.50
Sample Size	29	37		1	155	21	2	17			262
Mean Length	563	486		600	566	497	617	568			550
Std. Error	5.88	6.54			2.31	8.19	11.00	5.92			1.93
Sample Size	29	37		1	155	21	2	17			262
Females	1,694	878			10,229	565		1,443		63	14,872
Percent	5.41	2.80			32.67	1.80		4.61		0.20	47.50
Sample Size	27	14			163	9		23		1	237
Mean Length	541	489			546	480		540		531	539
Std. Error	4.60	7.16			1.60	8.58		4.17			1.39
Sample Size	27	14			163	9		23		1	237
Both Sexes	3,514	3,200		63	19,954	1,883	125	2,510		63	31,312
Percent	11.22	10.22		0.20	63.73	6.01	0.40	8.02		0.20	100.00
Sample Size	56	51		1	318	30	2	40		1	499
Mean Length	552	486		600	556	492	617	552		531	544
Std. Error	3.77	5.14			1.39	6.28	11.00	3.48			1.21
Sample Size	56	51		1	318	30	2	40		1	499

-Continued-

Table 15. (p. 4 of 4)

	Age Group										Total
	0.2	0.3	1.2	0.4	1.3	2.2	1.4	2.3	3.2	3.3	
All Periods Combined:											
Males	97	2,200	4,440	63	28,197	2,513	237	5,036			42,783
Percent	0.12	2.69	5.42	0.08	34.42	3.07	0.29	6.15			52.23
Sample Size	1	43	68	1	449	40	4	83			689
Mean Length	468	565	488	600	568	500	623	569			556
Std. Error		5.00	5.66		1.56	5.35	11.00	3.34			1.32
Sample Size	1	43	68	1	449	40	4	83			689
Females		2,515	1,688		28,344	1,273	15	5,131	97	63	39,126
Percent		3.07	2.06		34.60	1.55	0.02	6.26	0.12	0.08	47.77
Sample Size		43	24		471	23	1	92	1	1	656
Mean Length		548	498		546	498	576	543	450	531	542
Std. Error		3.47	6.83		1.04	4.39		2.44			0.91
Sample Size		43	24		471	23	1	92	1	1	656
Both Sexes	97	4,715	6,128	63	56,541	3,786	252	10,167	97	63	81,909
Percent	0.12	5.76	7.48	0.08	69.03	4.62	0.31	12.41	0.12	0.08	100.00
Sample Size	1	86	92	1	920	63	5	175	1	1	1,345
Mean Length	468	556	491	600	557	500	620	556	450	531	549
Std. Error		2.98	4.52		0.94	3.85	11.00	2.06			0.81
Sample Size	1	86	92	1	920	63	5	175	1	1	1,345

^a Mean length represented in mm.

Table 16. Age, sex and length composition of sockeye salmon harvested in the Eastern Subdistrict commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1991.

	Age Group											Total
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	3.3	
Sample Period 1: 3 June - 19 July												
Males	40	120	40	3,612	160	1,564	2,326		1,324	40		9,226
Percent	0.20	0.59	0.20	17.62	0.78	7.63	11.35		6.46	0.20		45.01
Sample Size	1	3	1	90	4	39	58		33	1		230
Mean Length*	400	335	527	483	345	550	488		550	467		501
Std. Error		16.09		2.99	7.53	5.60	4.83		6.74			2.18
Sample Size	1	3	1	90	4	39	58		33	1		230
Females			40	4,492		2,607	2,447		1,685			11,271
Percent			0.20	21.92		12.72	11.94		8.22			54.99
Sample Size			1	112		65	61		42			281
Mean Length			573	476		534	488		531			500
Std. Error				2.80		3.49	3.37		3.97			1.67
Sample Size			1	112		65	61		42			281
Both Sexes	40	120	80	8,104	160	4,171	4,773		3,009	40		20,497
Percent	0.20	0.59	0.39	39.54	0.78	20.35	23.29		14.68	0.20		100.00
Sample Size	1	3	2	202	4	104	119		75	1		511
Mean Length	400	335	550	479	345	540	488		539	467		501
Std. Error		16.09		2.05	7.53	3.03	2.92		3.71			1.34
Sample Size	1	3	2	202	4	104	119		75	1		511

-Continued-

Table 16. (p. 2 of 3)

	Age Group										Total	
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2		3.3
Sample Period 2: 22 July - 13 September												
Males		75	150	1,879	38	2,293	1,316		639		38	6,428
Percent		0.54	1.09	13.62	0.28	16.62	9.54		4.63		0.28	46.60
Sample Size		2	4	50	1	61	35		17		1	171
Mean Length		327	576	479	335	538	483		547		532	508
Std. Error		13.00	5.50	5.87		4.56	5.33		8.22			2.74
Sample Size		2	4	50	1	61	35		17		1	171
Females				1,691		3,420	1,090	38	1,090	38		7,367
Percent				12.26		24.79	7.90	0.28	7.90	0.28		53.40
Sample Size				45		91	29	1	29	1		196
Mean Length				483		533	484	570	525	473		513
Std. Error				4.63		2.60	4.92		4.68			1.90
Sample Size				45		91	29	1	29	1		196
Both Sexes		75	150	3,570	38	5,713	2,406	38	1,729	38	38	13,795
Percent		0.54	1.09	25.88	0.28	41.41	17.44	0.28	12.53	0.28	0.28	100.00
Sample Size		2	4	95	1	152	64	1	46	1	1	367
Mean Length		327	576	481	335	535	484	570	533	473	532	511
Std. Error		13.00	5.50	3.79		2.40	3.67		4.23			1.63
Sample Size		2	4	95	1	152	64	1	46	1	1	367

-Continued-

Table 16. (p. 3 of 3)

	Age Group										Total	
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2		3.3
All Periods Combined:												
Males	40	195	190	5,491	198	3,857	3,642		1,963	40	38	15,654
Percent	0.12	0.57	0.55	16.01	0.58	11.25	10.62		5.72	0.12	0.11	45.65
Sample Size	1	5	5	140	5	100	93		50	1	1	401
Mean Length	400	332	565	482	343	543	486		549	467	532	504
Std. Error		11.09	5.50	2.81	7.53	3.54	3.64		5.28			1.71
Sample Size	1	5	5	140	5	100	93		50	1	1	401
Females			40	6,183		6,027	3,537	38	2,775	38		18,638
Percent			0.12	18.03		17.58	10.31	0.11	8.09	0.11		54.35
Sample Size			1	157		156	90	1	71	1		477
Mean Length			573	478		534	486	570	529	473		505
Std. Error				2.40		2.11	2.78		3.03			1.26
Sample Size			1	157		156	90	1	71	1		477
Both Sexes	40	195	230	11,674	198	9,884	7,179	38	4,738	78	38	34,292
Percent	0.12	0.57	0.67	34.04	0.58	28.82	20.93	0.11	13.82	0.23	0.11	100.00
Sample Size	1	5	6	297	5	256	183	1	121	2	1	878
Mean Length	400	332	567	480	343	537	486	570	537	470	532	505
Std. Error		11.09	5.50	1.83	7.53	1.89	2.30		2.82			1.04
Sample Size	1	5	6	297	5	256	183	1	121	2	1	878

^a Mean length represented in mm.

Table 17. Age, sex and length composition of sockeye salmon escapement in Kenai River, Upper Cook Inlet, Alaska, in 1991.

	Age Group											Total	
	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2		2.4
Sample Period 1:	1 - 22 July												
Males	145		1,012	35,982	145	145	26,591	4,913	289	13,151			82,373
Percent	0.09		0.60	21.28	0.09	0.09	15.73	2.91	0.17	7.78			48.72
Sample Size	1		7	249	1	1	184	34	2	91			570
Mean Length ^a	523		555	493	336	529	564	496	589	573			530
Std. Error			20.52	2.53			2.79	6.38	19.50	3.54			1.60
Sample Size	1		7	249	1	1	184	34	2	91			570
Females			723	35,839			33,094	6,503	289	10,260			86,708
Percent			0.43	21.20			19.57	3.85	0.17	6.07			51.28
Sample Size			5	248			229	45	2	71			600
Mean Length			528	484			537	482	541	551			513
Std. Error			11.52	2.07			2.09	5.11	29.00	3.81			1.32
Sample Size			5	248			229	45	2	71			600
Both Sexes	145		1,735	71,821	145	145	59,685	11,416	578	23,411			169,081
Percent	0.09		1.03	42.48	0.09	0.09	35.30	6.75	0.34	13.85			100.00
Sample Size	1		12	497	1	1	413	79	4	162			1,170
Mean Length	523		544	489	336	529	549	488	565	563			521
Std. Error			12.90	1.64			1.70	4.00	17.47	2.60			1.03
Sample Size	1		12	497	1	1	413	79	4	162			1,170

-Continued-

Table 17. (p. 2 of 5)

	Age Group											Total	
	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2		2.4
Sample Period 2: 23 - 27 July													
Males			3,856	41,560			31,276	4,713		12,853	428		94,686
Percent			2.09	22.51			16.94	2.55		6.96	0.23		51.28
Sample Size			9	97			73	11		30	1		221
Mean Length			575	490			564	484		573	529		529
Std. Error			12.91	3.60			3.50	16.13		3.11			2.22
Sample Size			9	97			73	11		30	1		221
Females			6,855	35,561		428	32,990	857		13,282			89,973
Percent			3.71	19.26		0.23	17.87	0.46		7.19			48.72
Sample Size			16	83		1	77	2		31			210
Mean Length			553	484		629	543	493		545			521
Std. Error			5.78	3.60			2.38	2.50		5.68			1.92
Sample Size			16	83		1	77	2		31			210
Both Sexes			10,711	77,121		428	64,266	5,570		26,135	428		184,659
Percent			5.80	41.76		0.23	34.80	3.02		14.15	0.23		100.00
Sample Size			25	180		1	150	13		61	1		431
Mean Length			561	487		629	553	485		559	529		525
Std. Error			5.94	2.55			2.09	13.65		3.27			1.47
Sample Size			25	180		1	150	13		61	1		431

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Table 17. (p. 3 of 5)

	Age Group												Total	
	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2	2.4		
Sample Period 3: 28 - 31 July														
Males			819	50,397	410		21,306	4,507	410	8,604				86,453
Percent			0.43	26.68	0.22		11.28	2.39	0.22	4.56				45.77
Sample Size			2	123	1		52	11	1	21				211
Mean Length			581	490	341		556	512	602	568				516
Std. Error			1.00	5.16			4.60	10.13		4.88				3.29
Sample Size			2	123	1		52	11	1	21				211
Females			410	47,938	410		37,695	5,327		10,653				102,433
Percent			0.22	25.38	0.22		19.96	2.82		5.64				54.23
Sample Size			1	117	1		92	13		26				250
Mean Length			535	529	391		539	493		538				531
Std. Error				39.36			2.57	8.02		5.45				18.46
Sample Size			1	117	1		92	13		26				250
Both Sexes			1,229	98,335	820		59,001	9,834	410	19,257				188,886
Percent			0.65	52.06	0.43		31.24	5.21	0.22	10.20				100.00
Sample Size			3	240	2		144	24	1	47				461
Mean Length			566	509	366		545	502	602	551				524
Std. Error			1.00	19.37			2.33	6.36		3.72				10.12
Sample Size			3	240	2		144	24	1	47				461

-Continued-

Table 17. (p. 4 of 5)

	Age Group											Total	
	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2		2.4
Sample Period 4: 1 - 12 August													
Males	716	239	34,353	1,193		11,451	2,863			2,624		239	53,678
Percent	0.68	0.23	32.73	1.14		10.91	2.73			2.50		0.23	51.14
Sample Size	3	1	144	5		48	12			11		1	225
Mean Length	412	590	478	367		559	498			569		600	498
Std. Error	37.45		5.10	5.98		5.95	11.05			18.36			3.70
Sample Size	3	1	144	5		48	12			11		1	225
Females			30,775	716		10,259	6,919			2,624			51,293
Percent			29.32	0.68		9.77	6.59			2.50			48.86
Sample Size			129	3		43	29			11			215
Mean Length			476	339		529	484			527			488
Std. Error			3.39	16.26		6.42	4.80			10.99			2.56
Sample Size			129	3		43	29			11			215
Both Sexes	716	239	65,128	1,909		21,710	9,782			5,248		239	104,971
Percent	0.68	0.23	62.04	1.82		20.68	9.32			5.00		0.23	100.00
Sample Size	3	1	273	8		91	41			22		1	440
Mean Length	412	590	477	356		545	488			548		600	493
Std. Error	37.45		3.13	7.15		4.36	4.69			10.70			2.27
Sample Size	3	1	273	8		91	41			22		1	440

-Continued-

Table 17. (p. 5 of 5)

	Age Group												Total
	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2	2.4	
All Periods Combined:													
Males	145	716	5,926	162,292	1,748	145	90,624	16,996	699	37,232	428	239	317,190
Percent	0.02	0.11	0.92	25.06	0.27	0.02	13.99	2.62	0.11	5.75	0.07	0.04	48.98
Sample Size	1	3	19	613	7	1	357	68	3	153	1	1	1,227
Mean Length	523	412	573	488	358	529	561	497	596	572	529	600	521
Std. Error		37.45	9.49	2.21	5.98		1.97	5.84	19.50	2.38			1.35
Sample Size	1	3	19	613	7	1	357	68	3	153	1	1	1,227
Females			7,988	150,113	1,126	428	114,038	19,606	289	36,819			330,407
Percent			1.23	23.18	0.17	0.07	17.61	3.03	0.04	5.69			51.02
Sample Size			22	577	4	1	441	89	2	139			1,275
Mean Length			550	497	358	629	539	486	541	543			517
Std. Error			5.34	12.63	16.26		1.38	3.24	29.00	2.90			5.77
Sample Size			22	577	4	1	441	89	2	139			1,275
Both Sexes	145	716	13,914	312,405	2,874	573	204,662	36,602	988	74,051	428	239	647,597
Percent	0.02	0.11	2.15	48.24	0.44	0.09	31.60	5.65	0.15	11.43	0.07	0.04	100.00
Sample Size	1	3	41	1,190	11	2	798	157	5	292	1	1	2,502
Mean Length	523	412	560	492	358	604	549	491	580	558	529	600	519
Std. Error		37.45	5.09	6.18	7.15		1.16	3.22	17.47	1.87			3.02
Sample Size	1	3	41	1,190	11	2	798	157	5	292	1	1	2,502

^a Mean length represented in mm.

Table 18. Age, sex and size composition of sockeye salmon escapement in Hidden Creek, Kenai River drainage, Upper Cook Inlet, Alaska, in 1991.

	Age Group				Total
	1.2	1.3	2.2	2.3	
Sample period:	16 July - 30 August				
Males	11,761	1,300	295	59	13,415
Percent	33.06	3.65	0.83	0.17	37.71
Sample Size	199	22	5	1	227
Mean Length ^a	523	566	550	550	528
Std. Error	1	6	11		1
Sample Size	199	22	5	1	227
Mean Weight ^b	1.89	2.48	2.24	2.20	1.96
Std. Error	0.02	0.08	0.13		0.02
Sample Size	199	22	5	1	227
Females	20,093	1,182	886		22,161
Percent	56.48	3.32	2.49		62.29
Sample Size	340	20	15		375
Mean Length	505	547	511		507
Std. Error	1	6	6		1
Sample Size	340	20	15		375
Mean Weight	1.62	2.12	1.68		1.65
Std. Error	0.01	0.07	0.06		0.01
Sample Size	340	20	15		375
Both Sexes	31,854	2,482	1,181	59	35,576 ^c
Percent	89.54	6.98	3.32	0.17	100.00
Sample Size	539	42	20	1	602
Mean Length	512	557	521	550	515
Std. Error	1	4	5		1
Sample Size	539	42	20	1	602
Mean Weight	1.72	2.31	1.82	2.20	1.76
Std. Error	0.01	0.05	0.06		0.01
Sample Size	539	42	20	1	602

^a Mean length represented in mm.

^b Mean weight represented in kg.

^c Total return was 112,792 fish with an escapement of 35,576 fish, a dip net harvest of 72,060 fish, instream mortality of 5,000 fish, and 156 fish given to charity.

Table 19. Age, sex and length composition of sockeye salmon escapement in Kasilof River, Upper Cook Inlet, Alaska, in 1991.

	Age Group							Total	
	0.2	0.3	1.2	2.1	1.3	2.2	1.4		2.3
Sample Period 1: 15 - 30 June									
Males			4,485		24,665	5,125	107	1,708	36,090
Percent			7.91		43.50	9.04	0.19	3.01	63.65
Sample Size			42		231	48	1	16	338
Mean Length ^a			498		541	497	530	551	530
Std. Error			4.92		1.80	3.67		5.37	1.49
Sample Size			42		231	48	1	16	338
Females		107	2,136		14,307	2,883		1,175	20,608
Percent		0.19	3.77		25.23	5.08		2.07	36.35
Sample Size		1	20		134	27		11	193
Mean Length		518	478		531	501		539	522
Std. Error			11.53		1.94	6.81		5.89	2.06
Sample Size		1	20		134	27		11	193
Both Sexes		107	6,621		38,972	8,008	107	2,883	56,698
Percent		0.19	11.68		68.74	14.12	0.19	5.08	100.00
Sample Size		1	62		365	75	1	27	531
Mean Length		518	492		537	498	530	546	527
Std. Error			5.00		1.34	3.39		3.99	1.21
Sample Size		1	62		365	75	1	27	531

-Continued-

Table 19. (p. 2 of 5)

	Age Group							Total	
	0.2	0.3	1.2	2.1	1.3	2.2	1.4		2.3
Sample Period 2: 1 - 10 July									
Males			4,788		10,493	6,928	102	1,936	24,247
Percent			9.46		20.72	13.68	0.20	3.82	47.89
Sample Size			47		103	68	1	19	238
Mean Length			467		521	472	530	514	496
Std. Error			3.75		2.75	3.13		5.41	1.72
Sample Size			47		103	68	1	19	238
Females		102	6,215		9,984	7,946		2,139	26,386
Percent		0.20	12.27		19.72	15.69		4.22	52.11
Sample Size		1	61		98	78		21	259
Mean Length		490	469		511	474		515	490
Std. Error			3.35		2.36	2.77		5.05	1.51
Sample Size		1	61		98	78		21	259
Both Sexes		102	11,003		20,477	14,874	102	4,075	50,633
Percent		0.20	21.73		40.44	29.38	0.20	8.05	100.00
Sample Size		1	108		201	146	1	40	497
Mean Length		490	468		516	473	530	514	493
Std. Error			2.50		1.82	2.08		3.69	1.14
Sample Size		1	108		201	146	1	40	497

-Continued-

Table 19. (p. 3 of 5)

	Age Group							Total	
	0.2	0.3	1.2	2.1	1.3	2.2	1.4		2.3
Sample Period 3: 11 - 20 July									
Males	91		9,728		5,456	6,638		1,455	23,368
Percent	0.18		19.35		10.85	13.20		2.89	46.47
Sample Size	1		107		60	73		16	257
Mean Length	408		472		516	471		509	484
Std. Error			3.08		3.34	3.05		6.26	1.78
Sample Size	1		107		60	73		16	257
Females		91	9,547		7,001	8,729		1,546	26,914
Percent		0.18	18.99		13.92	17.36		3.07	53.53
Sample Size		1	105		77	96		17	296
Mean Length		511	463		509	512		511	494
Std. Error			2.70		2.32	41.80		6.22	13.61
Sample Size		1	105		77	96		17	296
Both Sexes	91	91	19,275		12,457	15,367		3,001	50,282
Percent	0.18	0.18	38.33		24.77	30.56		5.97	100.00
Sample Size	1	1	212		137	169		33	553
Mean Length	408	511	467		512	495		510	489
Std. Error			2.05		1.96	23.78		4.41	7.33
Sample Size	1	1	212		137	169		33	553

-Continued-

Table 19. (p. 4 of 5)

	Age Group							Total	
	0.2	0.3	1.2	2.1	1.3	2.2	1.4		2.3
Sample Period 4: 21 July - 8 August									
Males			19,972	154	3,687	15,363		1,536	40,712
Percent			24.76	0.19	4.57	19.05		1.90	50.48
Sample Size			130	1	24	100		10	265
Mean Length			457	322	507	462		486	464
Std. Error			2.15		7.96	2.27		10.57	1.59
Sample Size			130	1	24	100		10	265
Females			18,283		3,994	15,363		2,304	39,944
Percent			22.67		4.95	19.05		2.86	49.52
Sample Size			119		26	100		15	260
Mean Length			455		509	460		501	465
Std. Error			2.10		3.87	2.09		5.31	1.35
Sample Size			119		26	100		15	260
Both Sexes			38,255	154	7,681	30,726		3,840	80,656
Percent			47.43	0.19	9.52	38.10		4.76	100.00
Sample Size			249	1	50	200		25	525
Mean Length			456	322	508	461		495	465
Std. Error			1.51		4.32	1.54		5.29	1.04
Sample Size			249	1	50	200		25	525

-Continued-

Table 19. (p. 5 of 5)

	Age Group							Total	
	0.2	0.3	1.2	2.1	1.3	2.2	1.4		2.3
All Periods Combined:									
Males	91		38,973	154	44,301	34,054	209	6,635	124,417
Percent	0.04		16.36	0.06	18.59	14.29	0.09	2.78	52.22
Sample Size	1		326	1	418	289	2	61	1,098
Mean Length	408		467	322	531	471	530	516	493
Std. Error			1.53		1.43	1.45		3.50	0.83
Sample Size	1		326	1	418	289	2	61	1,098
Females		300	36,181		35,286	34,921		7,164	113,852
Percent		0.13	15.18		14.81	14.66		3.01	47.78
Sample Size		3	305		335	301		64	1,008
Mean Length		506	461		518	480		514	488
Std. Error			1.56		1.21	10.52		2.81	3.29
Sample Size		3	305		335	301		64	1,008
Both Sexes	91	300	75,154	154	79,587	68,975	209	13,799	238,269
Percent	0.04	0.13	31.54	0.06	33.40	28.95	0.09	5.79	100.00
Sample Size	1	3	631	1	753	590	2	125	2,106
Mean Length	408	506	464	322	525	475	530	515	491
Std. Error			1.09		0.96	5.38		2.23	1.63
Sample Size	1	3	631	1	753	590	2	125	2,106

^a Mean length represented in mm.

Table 20. Age, sex and length composition of sockeye salmon escapement in Crescent River, Upper Cook Inlet, Alaska, in 1991.

	Age Group								Total
	0.3	1.2	1.3	2.2	1.4	2.3	3.2	2.4	
Sample period:	26 June - 7 August								
Males	125	4,495	13,112	5,244	125	4,495	125	125	27,846
Percent	0.28	10.08	29.41	11.76	0.28	10.08	0.28	0.28	62.47
Sample Size	1	36	105	42	1	36	1	1	223
Mean Length ^a	528	517	560	515	565	558	587	592	545
Std. Error		5.96	2.87	4.91		4.08			2.01
Sample Size	1	36	105	42	1	36	1	1	223
Females	125	2,123	9,364	2,248		2,872			16,732
Percent	0.28	4.76	21.01	5.04		6.44			37.53
Sample Size	1	17	75	18		23			134
Mean Length	540	490	543	498		537			529
Std. Error		8.14	3.18	5.78		3.51			2.28
Sample Size	1	17	75	18		23			134
Both Sexes	250	6,618	22,476	7,492	125	7,367	125	125	44,578
Percent	0.56	14.85	50.42	16.81	0.28	16.53	0.28	0.28	100.00
Sample Size	2	53	180	60	1	59	1	1	357
Mean Length	534	509	553	510	565	550	587	592	539
Std. Error		4.82	2.13	3.85		2.84			1.52
Sample Size	2	53	180	60	1	59	1	1	357

^a Mean length represented in mm.

Table 21. Age, sex and size composition of sockeye salmon escapement in Packers Creek, Kalgin Island, Upper Cook Inlet, Alaska, in 1991.

	Age Group						Total
	1.2	2.1	1.3	2.2	1.4	2.3	
Sample Period 1: 28 May - 30 June							
Males	141		860	71		931	2,003
Percent	3.98		24.25	2.00		26.25	56.49
Std. Error	0.21		0.08	0.15		0.13	
Sample Size	12		73	6		79	170
Mean Length ^a	500		543	524		546	541
Std. Error	13.25		3.24	16.71		3.07	2.28
Sample Size	12		73	6		79	170
Mean Weight ^b	2.18		2.75	2.42		2.74	2.69
Std. Error	0.17		0.05	0.23		0.05	0.03
Sample Size	12		73	6		79	170
Females	35		896	35	12	565	1,543
Percent	0.99		25.27	0.99	0.34	15.93	43.51
Std. Error	0.01		0.09	0.04	0.33	0.05	
Sample Size	3		76	3	1	48	131
Mean Length	495		528	513	565	533	529
Std. Error	40.00		2.41	14.53		4.13	2.28
Sample Size	3		76	3	1	48	131
Mean Weight	1.63		2.44	2.58	2.82	2.47	2.44
Std. Error	0.12		0.04	0.20		0.05	0.03
Sample Size	3		76	3	1	48	131
Both Sexes	176		1,756	106	12	1,496	3,546
Percent	4.96		49.52	2.99	0.34	42.19	100.00
Std. Error	0.23		0.17	0.19	0.33	0.18	
Sample Size	15		149	9	1	127	301
Mean Length	499		535	521	565	541	536
Std. Error	13.27		2.01	12.17		2.47	1.62
Sample Size	15		149	9	1	127	301
Mean Weight	2.07		2.59	2.47	2.82	2.64	2.58
Std. Error	0.14		0.03	0.17		0.03	0.02
Sample Size	15		149	9	1	127	301

-Continued-

Table 21. (p. 2 of 3)

	Age Group					Total	
	1.2	2.1	1.3	2.2	1.4		2.3
Sample Period 2: 1 July - 27 September							
Males	9,362	140	6,358	1,467		3,983	21,310
Percent	24.81	0.37	16.85	3.89		10.56	56.48
Std. Error	0.09	0.19	0.05	0.06		0.04	
Sample Size	134	2	91	21		57	305
Mean Length	459	330	547	477		554	503
Std. Error	3.72	10.00	3.53	11.53		3.96	2.23
Sample Size	134	2	91	21		57	305
Mean Weight	1.92	2.25	2.97	2.26		3.21	2.50
Std. Error	0.08	1.35	0.08	0.22		0.10	0.05
Sample Size	134	2	91	21		57	305
Females	4,332		5,938	1,118		5,031	16,419
Percent	11.48		15.74	2.96		13.33	43.52
Std. Error	0.02		0.04	0.03		0.06	
Sample Size	62		85	16		72	235
Mean Length	465		532	473		539	512
Std. Error	4.75		2.53	10.34		2.48	1.87
Sample Size	62		85	16		72	235
Mean Weight	2.06		2.55	2.24		2.57	2.41
Std. Error	0.13		0.06	0.24		0.04	0.05
Sample Size	62		85	16		72	235
Both Sexes	13,694	140	12,296	2,585		9,014	37,729
Percent	36.30	0.37	32.59	6.85		23.89	100.00
Std. Error	0.10	0.19	0.09	0.09		0.09	
Sample Size	196	2	176	37		129	540
Mean Length	461	330	540	476		545	507
Std. Error	2.96	10.00	2.20	7.93		2.23	1.50
Sample Size	196	2	176	37		129	540
Mean Weight	1.96	2.25	2.77	2.25		2.85	2.46
Std. Error	0.06	1.35	0.05	0.17		0.05	0.03
Sample Size	196	2	176	37		129	540

-Continued-

Table 21. (p. 3 of 3)

	Age Group						Total
	1.2	2.1	1.3	2.2	1.4	2.3	
All Periods Combined:							
Males	9,503	140	7,218	1,538		4,914	23,313
Percent	23.02	0.34	17.49	3.73		11.91	56.48
Std. Error	0.09	0.19	0.05	0.06		0.04	
Sample Size	146	2	164	27		136	475
Mean Length	459	330	547	480		552	507
Std. Error	3.67	10.00	3.13	11.03		3.26	2.05
Sample Size	146	2	164	27		136	475
Mean Weight	1.92	2.25	2.94	2.27		3.12	2.52
Std. Error	0.07	1.35	0.07	0.21		0.08	0.04
Sample Size	146	2	164	27		136	475
Females	4,367		6,834	1,153	12	5,596	17,962
Percent	10.58		16.56	2.79	0.03	13.56	43.52
Std. Error	0.02		0.04	0.03		0.06	
Sample Size	65		161	19	1	120	366
Mean Length	466		531	475	565	538	514
Std. Error	4.73		2.22	10.03		2.27	1.72
Sample Size	65		161	19	1	120	366
Mean Weight	2.06		2.54	2.25	2.82	2.56	2.41
Std. Error	0.12		0.06	0.24		0.04	0.04
Sample Size	55		161	19	1	120	366
Both Sexes	13,870	140	14,052	2,691	12	10,510	41,275 ^c
Percent	33.60	0.34	34.04	6.52	0.03	25.46	100.00
Std. Error	0.10	0.19	0.09	0.09		0.09	
Sample Size	211	2	325	46	1	256	841
Mean Length	461	330	539	477	565	545	510
Std. Error	2.92	10.00	1.94	7.63		1.94	1.38
Sample Size	211	2	325	46	1	256	841
Mean Weight	1.97	2.25	2.75	2.26	2.82	2.82	2.47
Std. Error	0.06	1.35	0.04	0.16		0.04	0.03
Sample Size	211	2	325	46	1	256	841

^a Mean length represented in mm.

^b Mean weight represented in kg.

^c Represents number of spawners. An additional 3,604 fish were taken for cost recovery by CIAA for a total escapement of 44,879 fish.

Table 22. Age, sex and length composition of sockeye salmon escapement in Yentna River (RM 4), Susitna River drainage, Upper Cook Inlet, Alaska, in 1991.

	Age Group										Total	
	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3		2.4
Sample Period 1: 7 - 22 July												
Males	646		1,535	5,250	81		8,159	1,050		1,777		18,498
Percent	1.95		4.63	15.85	0.24		24.64	3.17		5.37		55.85
Sample Size	8		19	65	1		101	13		22		229
Mean Length ^a	448		578	462	355		566	477		560		527
Std. Error	10.77		7.54	4.22			3.61	9.91		7.29		2.30
Sample Size	8		19	65	1		101	13		22		229
Females			3,069	1,373		81	7,109	646		2,342		14,620
Percent			9.27	4.15		0.24	21.47	1.95		7.07		44.15
Sample Size			38	17		1	88	8		29		181
Mean Length			552	482		600	550	488		538		540
Std. Error			3.26	8.71			2.93	8.13		3.91		1.92
Sample Size			38	17		1	88	8		29		181
Both Sexes	646		4,604	6,623	81	81	15,268	1,696		4,119		33,118
Percent	1.95		13.90	20.00	0.24	0.24	46.10	5.12		12.44		100.00
Sample Size	8		57	82	1	1	189	21		51		410
Mean Length	448		561	466	355	600	558	481		548		532
Std. Error	10.77		3.32	3.80			2.36	6.87		3.85		1.54
Sample Size	8		57	82	1	1	189	21		51		410

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Table 22. (p. 2 of 4)

	Age Group										Total	
	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3		2.4
Sample Period 2: 23 - 30 July												
Males	812		2,099	8,396			9,276	1,693		2,437	68	24,781
Percent	1.77		4.58	18.32			20.24	3.69		5.32	0.15	54.06
Sample Size	12		31	124			137	25		36	1	366
Mean Length	463		570	461			564	492		570	605	522
Std. Error	18.43		9.04	3.54			3.31	8.60		5.45		2.13
Sample Size	12		31	124			137	25		36	1	366
Females	203		3,182	3,047			11,307	1,286	68	1,964		21,057
Percent	0.44		6.94	6.65			24.67	2.81	0.15	4.28		45.94
Sample Size	3		47	45			167	19	1	29		311
Mean Length	500		550	488			544	483	570	542		533
Std. Error	45.09		2.48	3.84			2.00	6.27		4.23		1.45
Sample Size	3		47	45			167	19	1	29		311
Both Sexes	1,015		5,281	11,443			20,583	2,979	68	4,401	68	45,838
Percent	2.21		11.52	24.96			44.90	6.50	0.15	9.60	0.15	100.00
Sample Size	15		78	169			304	44	1	65	1	677
Mean Length	471		558	469			553	488	570	558	605	527
Std. Error	17.28		3.89	2.79			1.85	5.59		3.56		1.33
Sample Size	15		78	169			304	44	1	65	1	677

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Table 22. (p. 3 of 4)

	Age Group											Total
	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	2.4	
Sample Period	3: 31 July - 12 August											
Males	582	145	654	4,652	73		4,580	1,381		1,454		13,521
Percent	1.90	0.47	2.13	15.16	0.24		14.93	4.50		4.74		44.08
Sample Size	8	2	9	64	1		63	19		20		186
Mean Length	421	335	565	454	335		551	462		547		500
Std. Error	4.95		6.82	5.55			5.78	7.20		8.41		3.00
Sample Size	8	2	9	64	1		63	19		20		186
Females	73		1,090	4,943			7,342	1,672		2,035		17,155
Percent	0.24		3.55	16.11			23.93	5.45		6.63		55.92
Sample Size	1		15	68			101	23		28		236
Mean Length	475		542	481			531	468		526		510
Std. Error			5.51	3.04			2.50	4.79		5.30		1.63
Sample Size	1		15	68			101	23		28		236
Both Sexes	655	145	1,744	9,595	73		11,922	3,053		3,489		30,676
Percent	2.14	0.47	5.69	31.28	0.24		38.86	9.95		11.37		100.00
Sample Size	9	2	24	132	1		164	42		48		422
Mean Length	427	335	550	468	335		539	465		535		506
Std. Error	4.95		4.29	3.11			2.70	4.18		4.67		1.60
Sample Size	9	2	24	132	1		164	42		48		422

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Table 22. (p. 4 of 4)

	Age Group										Total	
	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3		2.4
All Periods Combined:												
Males	2,040	145	4,288	18,298	154		22,015	4,124		5,668	68	56,800
Percent	1.86	0.13	3.91	16.69	0.14		20.08	3.76		5.17	0.06	51.81
Sample Size	28	2	59	253	2		301	57		78	1	781
Mean Length	446	335	572	460	346		562	478		561	605	518
Std. Error	8.21		5.29	2.47			2.28	4.96		3.92		1.39
Sample Size	28	2	59	253	2		301	57		78	1	781
Females	276		7,341	9,363		81	25,758	3,604	68	6,341		52,832
Percent	0.25		6.70	8.54		0.07	23.49	3.29	0.06	5.78		48.19
Sample Size	4		100	130		1	356	50	1	86		728
Mean Length	493		550	484		600	542	477	570	536		527
Std. Error	45.09		1.92	2.40			1.39	3.47		2.59		0.95
Sample Size	4		100	130		1	356	50	1	86		728
Both Sexes	2,316	145	11,629	27,661	154	81	47,773	7,728	68	12,009	68	109,632
Percent	2.11	0.13	10.61	25.23	0.14	0.07	43.58	7.05	0.06	10.95	0.06	100.00
Sample Size	32	2	159	383	2	1	657	107	1	164	1	1,509
Mean Length	452	335	558	468	346	600	551	478	570	547	605	523
Std. Error	8.51		2.29	1.82			1.29	3.10		2.30		0.85
Sample Size	32	2	159	383	2	1	657	107	1	164	1	1,509

^a Mean length represented in mm.

Table 23. Age, sex and length composition of sockeye salmon escapement in Chelatna Lake (Lake Creek), Yentna River drainage, Upper Cook Inlet, Alaska, in 1991.

	Age Group					Total
	0.3	1.2	1.3	2.2	2.3	
Sample period:	9 July - 16 August					
Males	195	1,391	2,320	73	708	4,687
Percent	2.54	18.09	30.17	0.95	9.21	60.96
Sample Size	8	57	95	3	29	192
Mean Length ^a	563	539	572	504	567	560
Std. Error	6.38	3.80	2.13	19.32	4.27	1.72
Sample Size	8	57	95	3	29	192
Females	171	391	1,977	24	439	3,002
Percent	2.22	5.09	25.71	0.31	5.71	39.04
Sample Size	7	16	81	1	18	123
Mean Length	548	509	551	486	547	544
Std. Error	8.58	5.67	2.00		4.18	1.70
Sample Size	7	16	81	1	18	123
Both Sexes	366	1,782	4,297	97	1,147	7,689 ^b
Percent	4.76	23.18	55.89	1.26	14.92	100.00
Sample Size	15	73	176	4	47	315
Mean Length	556	532	562	500	559	554
Std. Error	5.26	3.22	1.47	19.32	3.08	1.24
Sample Size	15	73	176	4	47	315

^a Mean length represented in mm.

^b Total escapement estimate provided by CIAA using a modified Petersen estimator (Ricker 1975).

Table 24. Age, sex and length composition of sockeye salmon sampled at Sunshine Station (RM 80), Susitna River, Upper Cook Inlet, Alaska, in 1991.

	Age Group						Total	
	1.1	0.3	1.2	2.1	1.3	2.2		2.3
Sample Period 1: 15 - 23 July								
Males		1	35		218	5	37	296
Percent ^a		0.17	6.00		37.39	0.86	6.35	50.77
Sample Size		1	26		163	4	28	222
Mean Length ^b		580	479		579	481	581	566
Std. Error			9.50		2.28	12.65	5.34	2.14
Sample Size		1	26		163	4	28	222
Females			35		205	7	40	287
Percent			6.00		35.16	1.20	6.86	49.23
Sample Size			26		154	5	30	215
Mean Length			483		544	466	544	535
Std. Error			7.20		1.86	18.13	3.47	1.72
Sample Size			26		154	5	30	215
Both Sexes		1	70		423	12	77	583 ^c
Percent		0.17	12.01		72.56	2.06	13.21	100.00
Sample Size		1	52		317	9	58	437
Mean Length		580	481		562	472	562	550
Std. Error			5.96		1.48	11.81	3.14	1.38
Sample Size		1	52		317	9	58	437

-Continued-

Table 24. (p. 2 of 5)

	Age Group						Total	
	1.1	0.3	1.2	2.1	1.3	2.2		2.3
Sample Period 2: 24 - 26 July								
Males		1	69		180	2	5	257
Percent		0.22	15.20		39.65	0.44	1.10	56.61
Sample Size		1	59		154	2	4	220
Mean Length		562	493		578	513	590	554
Std. Error			6.36		2.44	22.50	13.39	2.43
Sample Size		1	59		154	2	4	220
Females		7	30		151	8	1	197
Percent		1.54	6.61		33.26	1.76	0.22	43.39
Sample Size		6	26		129	7	1	169
Mean Length		536	485		537	487	550	527
Std. Error		11.21	4.96		2.33	12.39		2.04
Sample Size		6	26		129	7	1	169
Both Sexes		8	99		331	10	6	454
Percent		1.76	21.81		72.91	2.20	1.32	100.00
Sample Size		7	85		283	9	5	389
Mean Length		539	491		559	492	583	543
Std. Error		11.21	4.68		1.70	10.88	13.39	1.64
Sample Size		7	85		283	9	5	389

-Continued-

Table 24. (p. 3 of 5)

	Age Group						Total	
	1.1	0.3	1.2	2.1	1.3	2.2		2.3
Sample Period 3: 27 - 30 July								
Males	1	1	68		147	8	5	230
Percent	0.20	0.20	13.71		29.64	1.61	1.01	46.37
Sample Size	1	1	51		109	6	4	172
Mean Length	310	545	493		566	529	594	542
Std. Error			6.89		2.81	13.00	9.44	2.76
Sample Size	1	1	51		109	6	4	172
Females		1	59		186	15	5	266
Percent		0.20	11.90		37.50	3.02	1.01	53.63
Sample Size		1	44		139	11	4	199
Mean Length		515	485		529	507	531	518
Std. Error			3.79		2.48	8.35	12.14	1.99
Sample Size		1	44		139	11	4	199
Both Sexes	1	2	127		333	23	10	496
Percent	0.20	0.40	25.60		67.14	4.64	2.02	100.00
Sample Size	1	2	95		248	17	8	371
Mean Length	310	530	489		545	515	563	529
Std. Error			4.09		1.86	7.08	7.69	1.67
Sample Size	1	2	95		248	17	8	371

-Continued-

Table 24. (p. 4 of 5)

	Age Group						Total	
	1.1	0.3	1.2	2.1	1.3	2.2		2.3
Sample Period 4: 31 July - 3 August								
Males			57		116	19	14	206
Percent			12.50		25.44	4.17	3.07	45.18
Sample Size			46		94	15	11	166
Mean Length			482		553	494	561	529
Std. Error			7.50		4.21	11.54	8.65	3.38
Sample Size			46		94	15	11	166
Females		1	66	1	155	15	12	250
Percent		0.22	14.47	0.22	33.99	3.29	2.63	54.82
Sample Size		1	53	1	124	12	10	201
Mean Length		520	472	475	523	481	530	507
Std. Error			3.48		2.11	6.55	5.06	1.66
Sample Size		1	53	1	124	12	10	201
Both Sexes		1	123	1	271	34	26	456
Percent		0.22	26.97	0.22	59.43	7.46	5.70	100.00
Sample Size		1	99	1	218	27	21	367
Mean Length		520	477	475	536	488	547	517
Std. Error			3.94		2.17	7.07	5.21	1.78
Sample Size		1	99	1	218	27	21	367

-Continued-

Table 24. (p. 5 of 5)

	Age Group							Total
	1.1	0.3	1.2	2.1	1.3	2.2	2.3	
All Periods Combined:								
Males	1	3	229		661	34	61	989
Percent	0.05	0.15	11.51		33.23	1.71	3.07	49.72
Sample Size	1	3	182		520	27	47	780
Mean Length	310	562	488		571	502	578	550
Std. Error			3.67		1.39	7.49	4.03	1.31
Sample Size	1	3	182		520	27	47	780
Females		9	190	1	697	45	58	1,000
Percent		0.45	9.55	0.05	35.04	2.26	2.92	50.28
Sample Size		8	149	1	546	35	45	784
Mean Length		532	480	475	534	488	540	522
Std. Error		11.21	2.28		1.10	5.03	2.87	0.93
Sample Size		8	149	1	546	35	45	784
Both Sexes	1	12	419	1	1,358	79	119	1,989 ^c
Percent	0.05	0.60	21.07	0.05	68.28	3.97	5.98	100.00
Sample Size	1	11	331	1	1,066	62	92	1,564 ^d
Mean Length	310	539	485	475	552	494	560	536
Std. Error		11.21	2.26		0.88	4.31	2.50	0.80
Sample Size	1	11	331	1	1,066	62	92	1,564

^a Percent based on the actual number of fish sampled.

^b Mean length represented in mm.

^c Actual number of fish sampled from fishwheel.

^d Number of readable scales.

Table 25. Age, sex and length composition of sockeye salmon escapement in Fish Creek, Upper Cook Inlet, Alaska, in 1991.

	Age Group					Total
	1.1	1.2	1.3	2.2	2.3	
Sample period:	9 July - 12 September					
Males	3,643	16,674	1,962	560	280	23,119
Percent	6.15	28.13	3.31	0.94	0.47	39.01
Sample Size	26	119	14	4	2	165
Mean Length ^a	353	492	539	493	643	476
Std. Error	3.47	3.41	8.23	26.29	17.50	2.70
Sample Size	26	119	14	4	2	165
Females	140	28,863	4,484	1,962	701	36,150
Percent	0.24	48.70	7.57	3.31	1.18	60.99
Sample Size	1	206	32	14	5	258
Mean Length	325	477	523	497	536	485
Std. Error		1.97	5.68	12.28	22.03	1.90
Sample Size	1	206	32	14	5	258
Both Sexes	3,783	45,537	6,446	2,522	981	59,269
Percent	6.38	76.83	10.88	4.26	1.66	100.00
Sample Size	27	325	46	18	7	423
Mean Length	352	483	528	496	566	481
Std. Error	3.47	1.77	4.68	11.19	16.51	1.56
Sample Size	27	325	46	18	7	423

^a Mean length represented in mm.

Table 26. Age and length composition of coho salmon harvested in selected commercial gillnet fisheries, Upper Cook Inlet, Alaska, in 1991.

Fishery	Age Group					Total
	1.1	2.1	3.1	1.2	2.2	
Central District						
Drift gillnet						
Number	15,930	149,746	8,042	284	1,049	175,051 ^a
Percent	9.10	85.54	4.59	0.16	0.60	100.00
Mean Length ^b	509	544	559	530	511	541
Sample Size	80	709	38	2	4	833
Upper Subdistrict set gillnet						
Number	3,725	24,829	1,740	50	91	30,435
Percent	12.24	81.58	5.72	0.16	0.30	100.00
Mean Length	514	548	567	515	536	545
Sample Size	150	992	76	2	5	1,225
Northern District						
General Subdistrict set gillnet						
Number	17,089	85,944	1,582	40	241	104,896
Percent	16.29	81.93	1.51	0.04	0.23	100.00
Mean Length	516	546	565	565	507	541
Sample Size	188	893	18	1	3	1,103
Total						
Number	36,744	260,519	11,364	374	1,381	310,382
Percent	11.84	83.93	3.66	0.12	0.44	100.00
Mean Length	513	545	561	531	512	541
Sample Size	418	2,594	132	5	12	3,161

^a Total does not include Chinitna Bay Subdistrict catch of 453 fish.

^b Mean length represented in mm.

Table 27. Age, sex and length composition of coho salmon harvested in the Central District commercial drift gillnet fishery, Upper Cook Inlet, Alaska, in 1991.

	Age Group					Total
	1.1	2.1	3.1	1.2	2.2	
Sample Period 1: 28 June - 31 July						
Males	6,248	47,000	2,272	142	284	55,946
Percent	7.37	55.44	2.68	0.17	0.34	66.00
Sample Size	44	331	16	1	2	394
Mean Length ^a	508	540	577	547	483	537
Std. Error	6.03	2.23	8.51		3.00	2.02
Sample Size	44	331	16	1	2	394
Females	2,414	24,707	1,562	142		28,825
Percent	2.85	29.15	1.84	0.17		34.00
Sample Size	17	174	11	1		203
Mean Length	489	536	573	512		534
Std. Error	6.08	2.81	8.87			2.51
Sample Size	17	174	11	1		203
Both Sexes	8,662	71,707	3,834	284	284	84,771
Percent	10.22	84.59	4.52	0.34	0.34	100.00
Sample Size	61	505	27	2	2	597
Mean Length	502	538	575	530	483	536
Std. Error	4.67	1.76	6.21		3.00	1.59
Sample Size	61	505	27	2	2	597
Sample Period 2: 1 August - 11 September						
Males	4,973	46,670	2,678		765	55,086
Percent	5.51	51.69	2.97		0.85	61.02
Sample Size	13	122	7		2	144
Mean Length	517	549	530		521	545
Std. Error	10.56	3.21	14.71		32.00	3.00
Sample Size	13	122	7		2	144
Females	2,295	31,369	1,530			35,194
Percent	2.54	34.75	1.69			38.98
Sample Size	6	82	4			92
Mean Length	519	549	567			547
Std. Error	13.45	2.55	10.97			2.48
Sample Size	6	82	4			92
Both Sexes	7,268	78,039	4,208		765	90,280
Percent	8.05	86.44	4.66		0.85	100.00
Sample Size	19	204	11		2	236
Mean Length	518	549	544		521	546
Std. Error	8.38	2.18	10.17		32.00	2.07
Sample Size	19	204	11		2	236

-Continued-

Table 27. (p. 2 of 2)

	Age Group					Total
	1.1	2.1	3.1	1.2	2.2	
All Periods Combined:						
Males	11,221	93,670	4,950	142	1,049	111,032
Percent	6.41	53.51	2.83	0.08	0.60	63.43
Sample Size	57	453	23	1	4	538
Mean Length	512	544	552	547	511	541
Std. Error	5.76	1.95	8.86		23.35	1.80
Sample Size	57	453	23	1	4	538
Females	4,709	56,076	3,092	142		64,019
Percent	2.69	32.03	1.77	0.08		36.57
Sample Size	23	256	15	1		295
Mean Length	503	543	570	512		541
Std. Error	7.26	1.89	7.04			1.77
Sample Size	23	256	15	1		295
Both Sexes	15,930	149,746	8,042	284	1,049	175,051
Percent	9.10	85.54	4.59	0.16	0.60	100.00
Sample Size	80	709	38	2	4	833
Mean Length	509	544	559	530	511	541
Std. Error	4.59	1.41	6.09		23.35	1.32
Sample Size	80	709	38	2	4	833

^a Mean length represented in mm.

Table 28. Age, sex and length composition of coho salmon harvested in the Upper Subdistrict commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1991.

	Age Group					Total
	1.1	2.1	3.1	1.2	2.2	
Sample Period 1: 1 July - 6 August						
Males	1,925	11,625	799			14,349
Percent	8.76	52.90	3.64			65.29
Sample Size	53	320	22			395
Mean Length ^a	502	546	574			541
Std. Error	5.73	2.36	9.88			2.13
Sample Size	53	320	22			395
Females	763	6,466	327	36	36	7,628
Percent	3.47	29.42	1.49	0.16	0.16	34.71
Sample Size	21	178	9	1	1	210
Mean Length	529	547	541	536	512	545
Std. Error	8.13	2.54	17.95			2.43
Sample Size	21	178	9	1	1	210
Both Sexes	2,688	18,091	1,126	36	36	21,977
Percent	12.23	82.32	5.12	0.16	0.16	100.00
Sample Size	74	498	31	1	1	605
Mean Length	509	546	565	536	512	543
Std. Error	4.71	1.77	8.74			1.63
Sample Size	74	498	31	1	1	605
Sample Period 2: 7 - 12 August						
Males	450	3,792	300	14	41	4,597
Percent	5.32	44.83	3.55	0.17	0.48	54.35
Sample Size	33	278	22	1	3	337
Mean Length	533	555	573	462	550	554
Std. Error	7.41	2.54	11.05		45.06	2.37
Sample Size	33	278	22	1	3	337
Females	587	2,946	314		14	3,861
Percent	6.94	34.83	3.71		0.17	45.65
Sample Size	43	216	23		1	283
Mean Length	523	551	572		555	549
Std. Error	5.58	2.43	10.31			2.21
Sample Size	43	216	23		1	283
Both Sexes	1,037	6,738	614	14	55	8,458
Percent	12.26	79.66	7.26	0.17	0.65	100.00
Sample Size	76	494	45	1	4	620
Mean Length	527	554	573	462	552	552
Std. Error	4.51	1.78	7.55		45.06	1.63
Sample Size	76	494	45	1	4	620

-Continued-

Table 28. (p. 2 of 2)

	Age Group					Total
	1.1	2.1	3.1	1.2	2.2	
All Periods Combined:						
Males	2,375	15,417	1,099	14	41	18,946
Percent	7.80	50.66	3.61	0.05	0.13	62.25
Sample Size	86	598	44	1	3	732
Mean Length	508	548	574	462	550	545
Std. Error	4.85	1.89	7.79		45.06	1.71
Sample Size	86	598	44	1	3	732
Females	1,350	9,412	641	36	50	11,489
Percent	4.44	30.92	2.11	0.12	0.16	37.75
Sample Size	64	394	32	1	2	493
Mean Length	526	548	556	536	524	546
Std. Error	5.20	1.91	10.46			1.78
Sample Size	64	394	32	1	2	493
Both Sexes	3,725	24,829	1,740	50	91	30,435
Percent	12.24	81.58	5.72	0.16	0.30	100.00
Sample Size	150	992	76	2	5	1,225
Mean Length	514	548	567	515	536	545
Std. Error	3.62	1.38	6.25		45.06	1.26
Sample Size	150	992	76	2	5	1,225

^a Mean length represented in mm.

Table 29. Age, sex and length composition of coho salmon harvested in the General Subdistrict commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1991.

	Age Group					Total
	1.1	2.1	3.1	1.2	2.2	
Sample Period 1: 24 June - 20 July						
Males	2,331	13,055	466			15,852
Percent	8.62	48.28	1.72			58.62
Sample Size	30	168	6			204
Mean Length ^a	510	532	558			530
Std. Error	6.93	2.95	23.72			2.72
Sample Size	30	168	6			204
Females	1,632	9,247	311			11,190
Percent	6.04	34.19	1.15			41.38
Sample Size	21	119	4			144
Mean Length	506	533	507			529
Std. Error	7.52	3.46	18.16			3.11
Sample Size	21	119	4			144
Both Sexes	3,963	22,302	777			27,042
Percent	14.65	82.47	2.87			100.00
Sample Size	51	287	10			348
Mean Length	508	533	538			529
Std. Error	5.12	2.25	15.98			2.05
Sample Size	51	287	10			348
Sample Period 2: 21 - 31 July						
Males	1,415	5,904	40	40	40	7,439
Percent	9.67	40.34	0.27	0.27	0.27	50.83
Sample Size	35	146	1	1	1	184
Mean Length	504	541	605	565	449	534
Std. Error	4.93	3.15				2.67
Sample Size	35	146	1	1	1	184
Females	1,577	5,458	121		40	7,196
Percent	10.78	37.29	0.83		0.27	49.17
Sample Size	39	135	3		1	178
Mean Length	515	534	591		502	531
Std. Error	5.09	2.89	9.50			2.46
Sample Size	39	135	3		1	178
Both Sexes	2,992	11,362	161	40	80	14,635
Percent	20.44	77.64	1.10	0.27	0.55	100.00
Sample Size	74	281	4	1	2	362
Mean Length	510	538	594	565	476	532
Std. Error	3.56	2.14	9.50			1.82
Sample Size	74	281	4	1	2	362

-Continued-

Table 29. (p. 2 of 2)

	Age Group					Total
	1.1	2.1	3.1	1.2	2.2	
Sample Period 3: 1 August - 18 September						
Males	6,595	28,312	483		161	35,551
Percent	10.43	44.78	0.76		0.25	56.23
Sample Size	41	176	3		1	221
Mean Length	523	555	593		522	549
Std. Error	5.51	2.73	11.15			2.40
Sample Size	41	176	3		1	221
Females	3,539	23,968	161			27,668
Percent	5.60	37.91	0.25			43.77
Sample Size	22	149	1			172
Mean Length	517	551	583			546
Std. Error	8.49	2.38				2.33
Sample Size	22	149	1			172
Both Sexes	10,134	52,280	644		161	63,219
Percent	16.03	82.70	1.02		0.25	100.00
Sample Size	63	325	4		1	393
Mean Length	521	553	591		522	548
Std. Error	4.65	1.84	11.15			1.69
Sample Size	63	325	4		1	393
All Periods Combined:						
Males	10,341	47,271	989	40	201	58,842
Percent	9.86	45.06	0.94	0.04	0.19	56.10
Sample Size	106	490	10	1	2	609
Mean Length	517	547	577	565	507	542
Std. Error	3.90	1.87	12.96			1.66
Sample Size	106	490	10	1	2	609
Females	6,748	38,673	593		40	46,054
Percent	6.43	36.87	0.57		0.04	43.90
Sample Size	82	403	8		1	494
Mean Length	514	544	545		502	540
Std. Error	4.95	1.74	13.34			1.64
Sample Size	82	403	8		1	494
Both Sexes	17,089	85,944	1,582	40	241	104,896
Percent	16.29	81.93	1.51	0.04	0.23	100.00
Sample Size	188	893	18	1	3	1,103
Mean Length	516	546	565	565	507	541
Std. Error	3.07	1.29	9.83			1.18
Sample Size	188	893	18	1	3	1,103

^a Mean length represented in mm.

Table 30. Age, sex and length composition of chum salmon harvested in the Central District commercial drift gillnet fishery, Upper Cook Inlet, Alaska, in 1991.

	Age Group				Total
	0.2	0.3	0.4	0.5	
Sample Period 1: 28 June - 15 July					
Males	845	13,779	4,419	65	19,108
Percent	2.51	40.85	13.10	0.19	56.65
Sample Size	13	212	68	1	294
Mean Length ^a	540	582	598	590	584
Std. Error	5.64	1.67	3.47		1.47
Sample Size	13	212	68	1	294
Females	130	10,593	3,835	65	14,623
Percent	0.39	31.40	11.37	0.19	43.35
Sample Size	2	163	59	1	225
Mean Length	538	575	594	608	580
Std. Error	7.50	2.06	2.99		1.69
Sample Size	2	163	59	1	225
Both Sexes	975	24,372	8,254	130	33,731
Percent	2.89	72.25	24.47	0.39	100.00
Sample Size	15	375	127	2	519
Mean Length	539	579	596	599	582
Std. Error	4.99	1.30	2.32		1.11
Sample Size	15	375	127	2	519

-Continued-

Table 30. (p. 2 of 3)

	Age Group				Total
	0.2	0.3	0.4	0.5	
Sample Period 2: 19 July - 28 August					
Males	8,931	84,840	15,629		109,400
Percent	4.91	46.68	8.60		60.20
Sample Size	20	190	35		245
Mean Length	518	559	569		557
Std. Error	5.20	1.67	4.13		1.48
Sample Size	20	190	35		245
Females	7,144	55,817	9,377		72,338
Percent	3.93	30.71	5.16		39.80
Sample Size	16	125	21		162
Mean Length	522	560	591		560
Std. Error	4.23	2.21	5.08		1.88
Sample Size	16	125	21		162
Both Sexes	16,075	140,657	25,006		181,738
Percent	8.85	77.40	13.76		100.00
Sample Size	36	315	56		407
Mean Length	520	559	577		558
Std. Error	3.45	1.33	3.21		1.16
Sample Size	36	315	56		407

-Continued-

Table 30. (p. 3 of 3)

	Age Group				Total
	0.2	0.3	0.4	0.5	
All Periods Combined:					
Males	9,776	98,619	20,048	65	128,508
Percent	4.54	45.77	9.30	0.03	59.64
Sample Size	33	402	103	1	539
Mean Length	520	562	575	590	561
Std. Error	4.78	1.45	3.31		1.28
Sample Size	33	402	103	1	539
Females	7,274	66,410	13,212	65	86,961
Percent	3.38	30.82	6.13	0.03	40.36
Sample Size	18	288	80	1	387
Mean Length	523	562	592	608	564
Std. Error	4.16	1.89	3.71		1.59
Sample Size	18	288	80	1	387
Both Sexes	17,050	165,029	33,260	130	215,469
Percent	7.91	76.59	15.44	0.06	100.00
Sample Size	51	690	183	2	926
Mean Length	521	562	582	599	562
Std. Error	3.26	1.15	2.48		1.00
Sample Size	51	690	183	2	926

^a Mean length represented in mm.

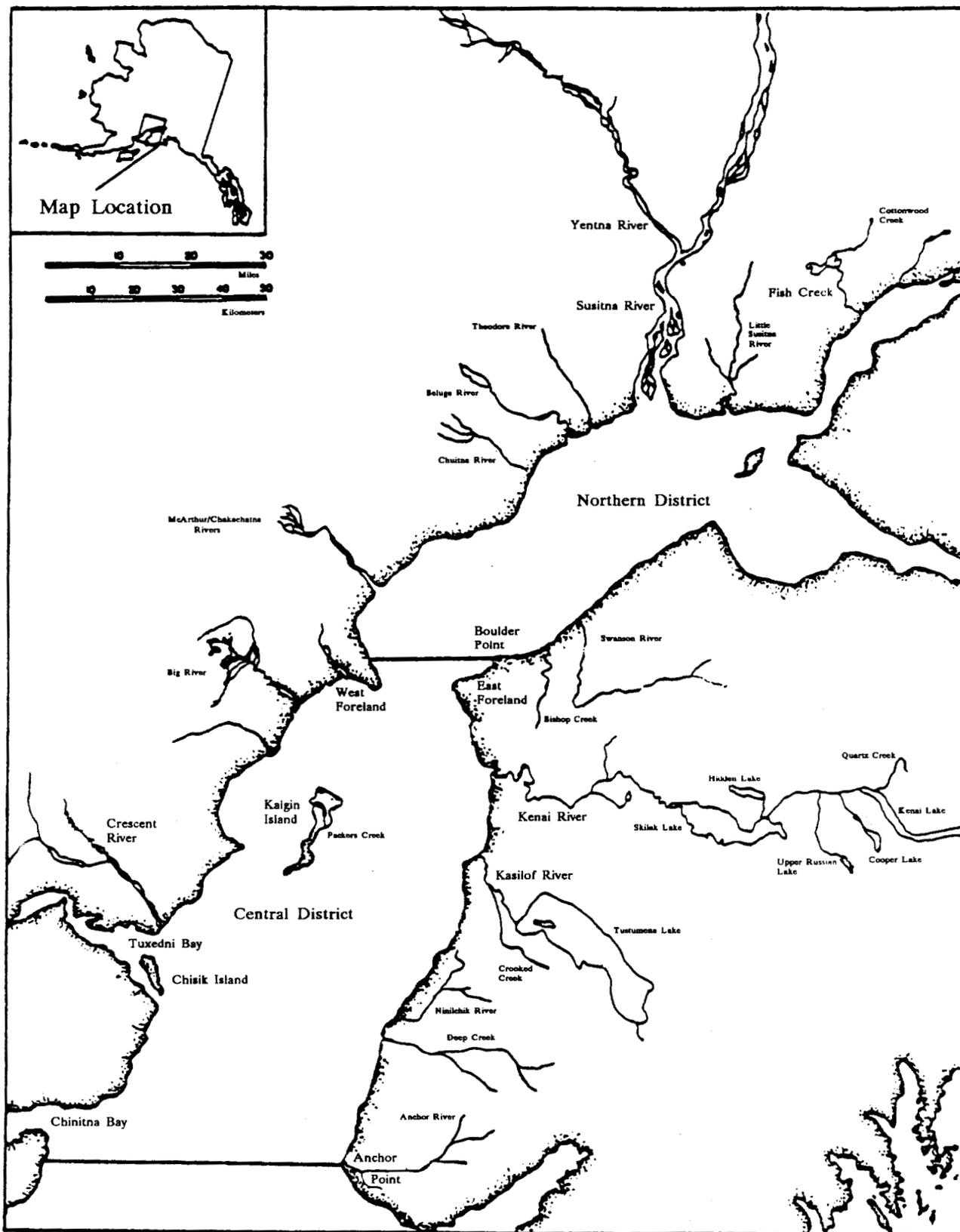


Figure 1. Map of Upper Cook Inlet showing locations of the Northern and Central Districts and the primary salmon spawning drainages.

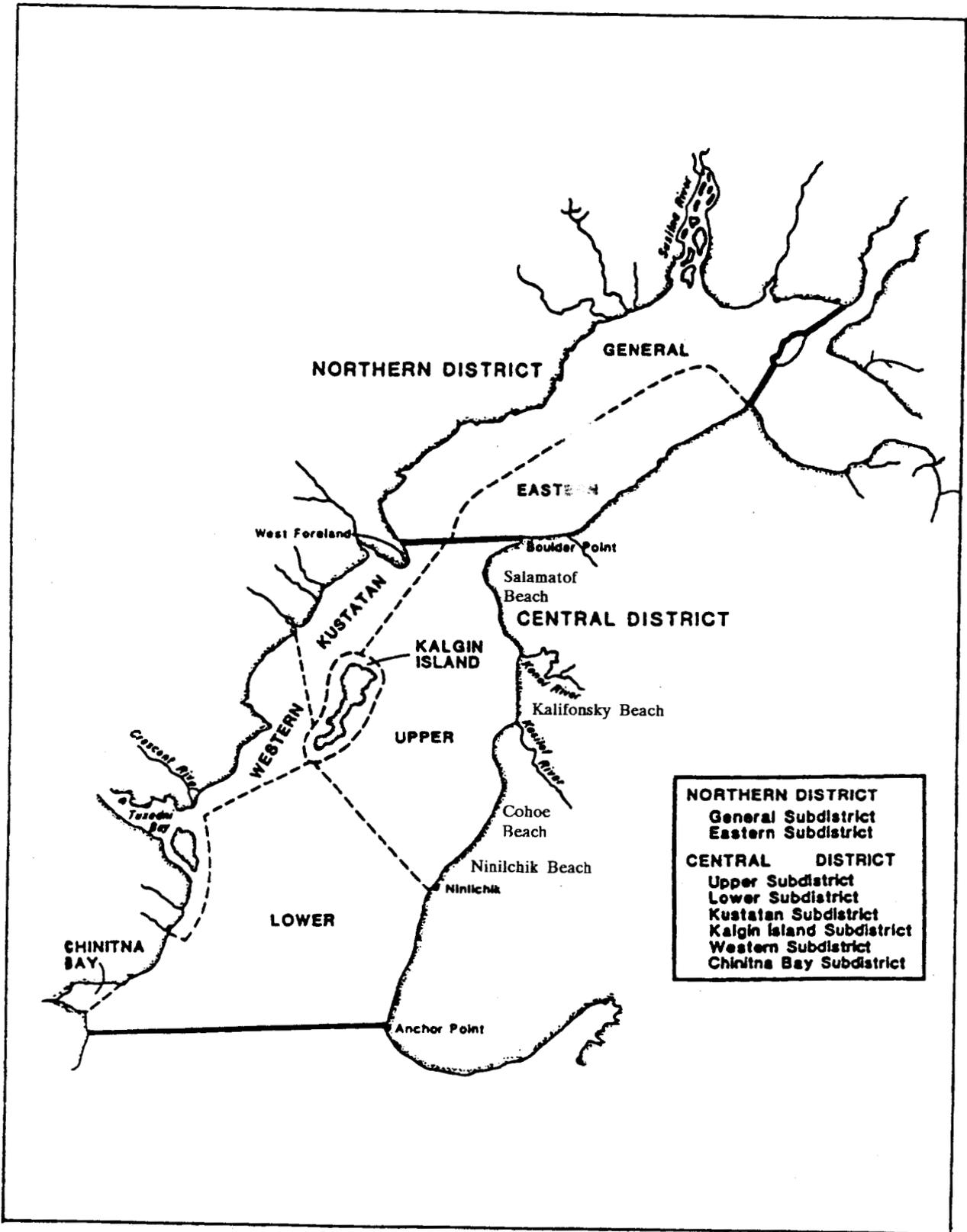


Figure 2. Map of Upper Cook Inlet showing the commercial fishing districts, subdistricts and Upper Subdistrict beach fisheries.

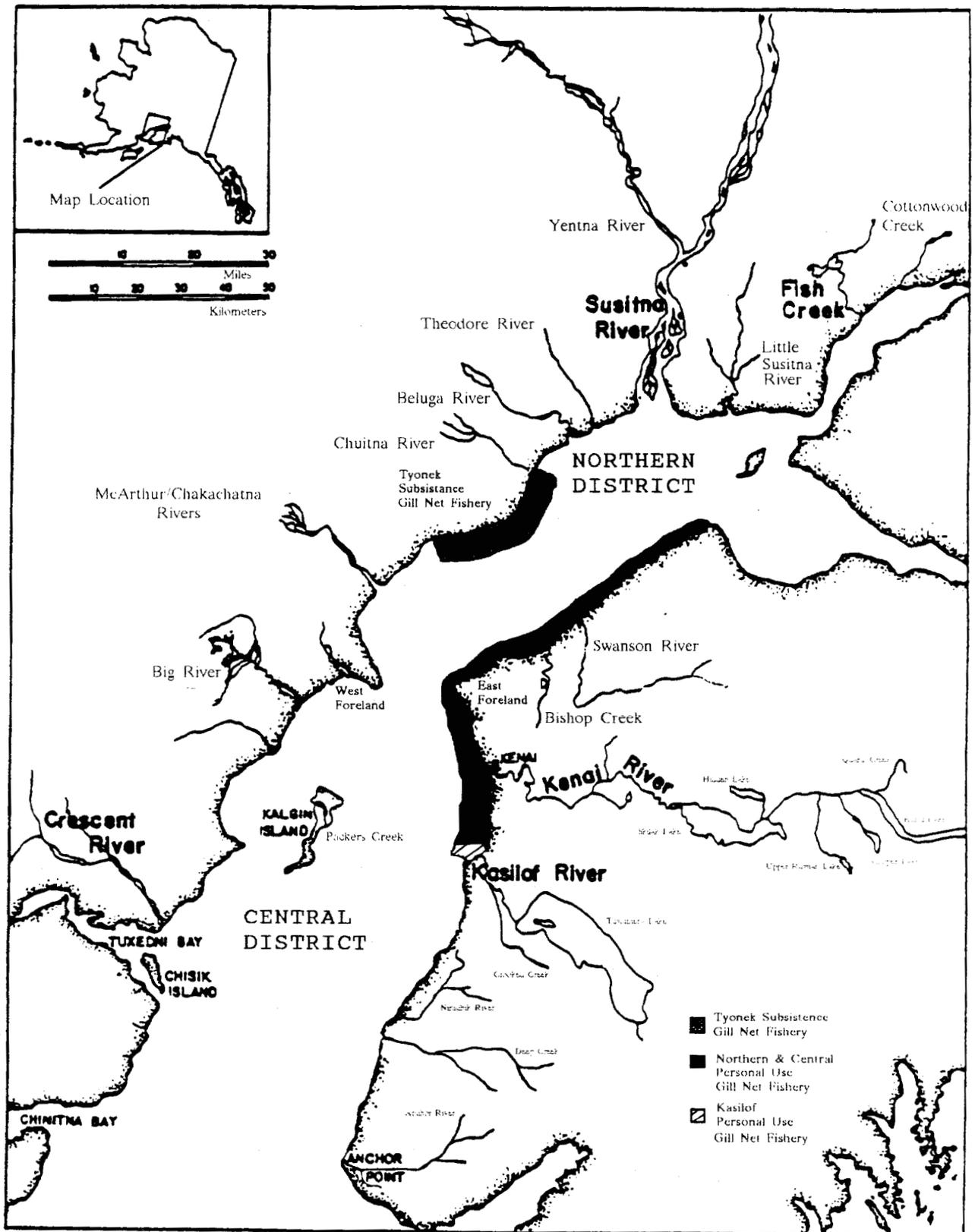
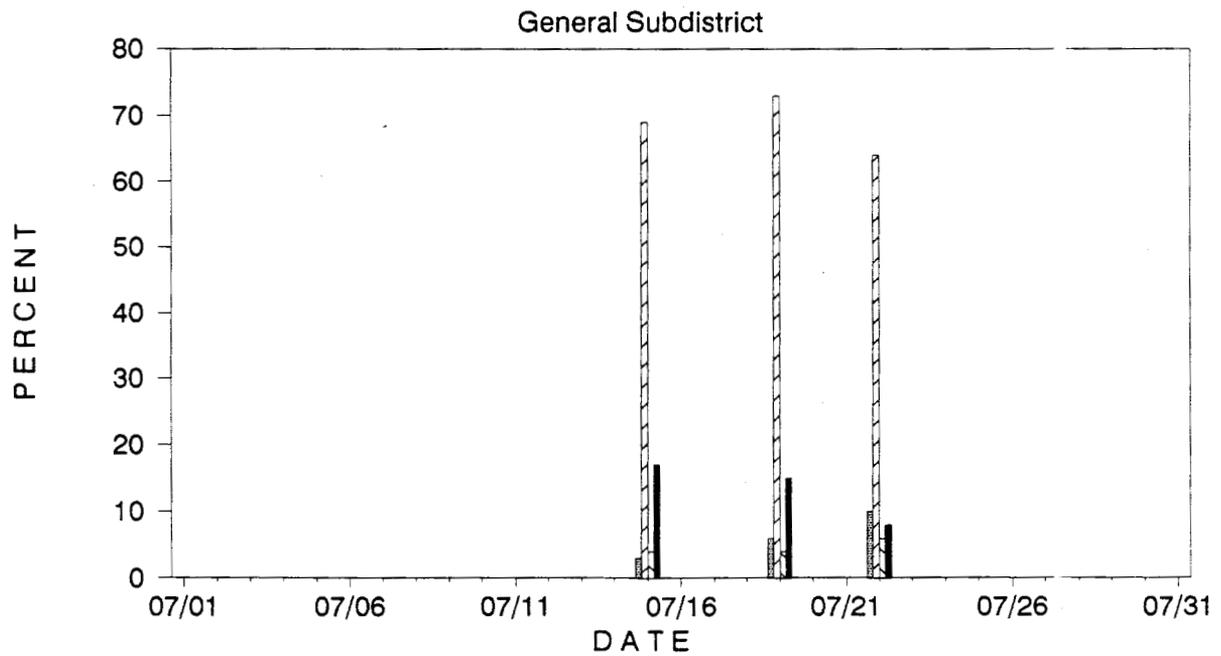
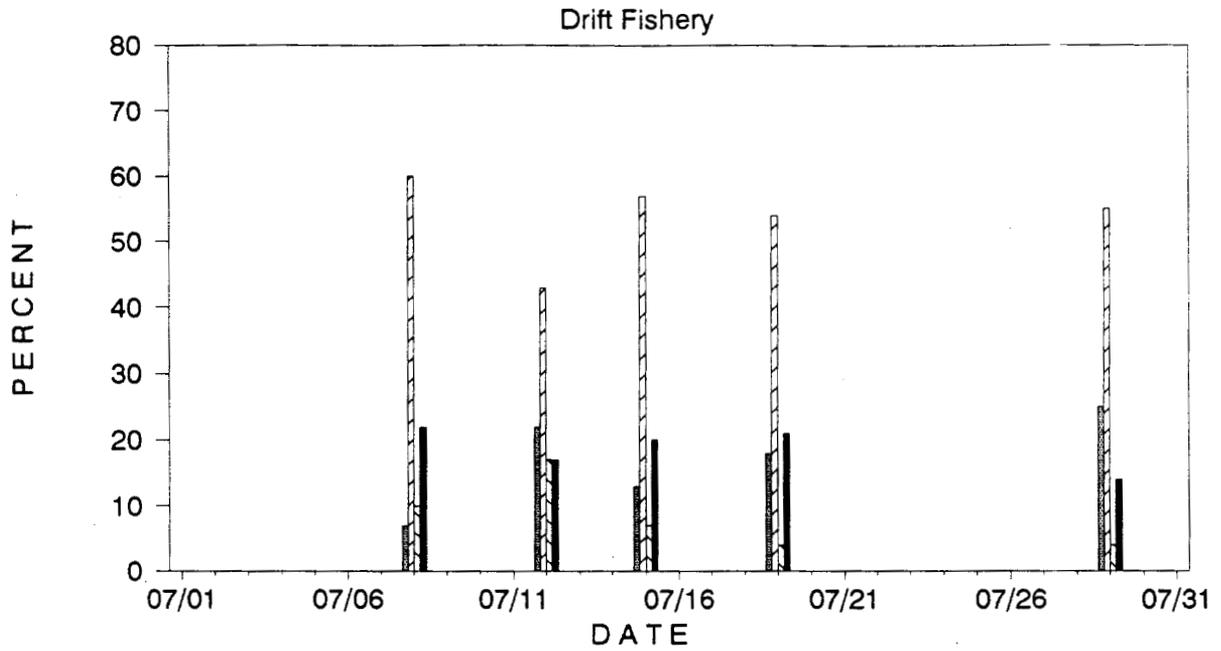


Figure 3. Map of Upper Cook Inlet showing locations of the subsistence and personal use fisheries.



Age-1.2
 Age-1.3
 Age-2.2
 Age-2.3

Figure 4. Major age class composition of sockeye salmon in the Central District drift gillnet and Northern District General Subdistrict set gillnet fisheries of Upper Cook Inlet, Alaska, in 1991.

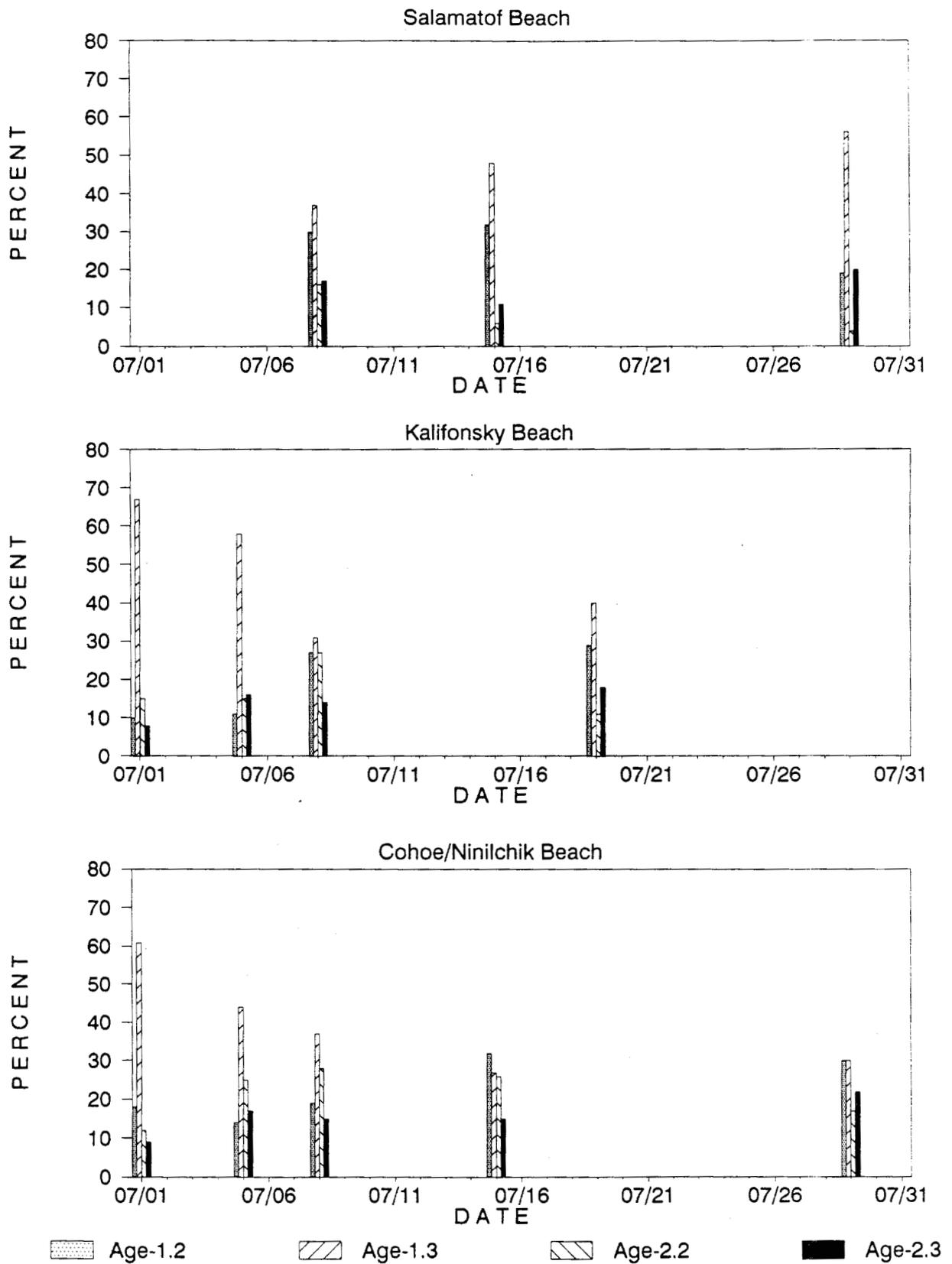


Figure 5. Major age class composition of sockeye salmon in the Salamatof, Kalifonsky, and Cohoe/Ninilchik Beach set gillnet fisheries of Upper Cook Inlet, Alaska, in 1991.

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