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ABUNDANCE, AGE, SEX AND SIZE OF CHINOOK, SOCKEYE, COHO, AND CHUM SALMON RETURNING TO UPPER COOK INLET, ALASKA, IN 1993

by

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ABSTRACT

The 1993 total return of sockeye salmon to Upper Cook Inlet (UCI) was 6,107,820 fish comprising a commercial harvest of 4,754,698 fish and an escapement into the major river systems of 1,301,294 fish with the remainder representing subsistence and personal use harvests. Subsistence and personal use harvests totalled 51,828 sockeye salmon. Four major age groups contributed 96.1% to the total combined UCI commercial sockeye salmon harvests and escapements. Age-1.2 fish represented 10.5% (625,646 fish), age-1.3 fish represented 34.9% (2,085,685 fish), age-2.2 fish represented 9.8% (587,745 fish), and age-2.3 fish represented 40.9% (2,440,124 fish) of the total monitored return. Age-1.2, -1.3, -2.2, and 2.3 sockeye salmon averaged 483 mm, 556 mm, 495 mm, and 561 mm, respectively in the total run. Sex composition for sockeye salmon favored females in the commercial harvests (53%) and escapements (54%). The overall exploitation rate for sockeye salmon was 0.78.

A total of 18,719 chinook salmon were commercially harvested in UCI. The Upper Subdistrict commercial set gillnet harvest of 13,977 fish which represented 74.7% of the total commercial harvest was represented by age-1.2 (13.0%), -1.3 (20.9%) and -1.4 (57.9%) chinook salmon. Age-1.2, -1.3, and -1.4 chinook averaged 627 mm, 906 mm, and 989 mm, respectively and sex composition favored males (57.8%) in the Upper Subdistrict harvest.

A total of 306,822 coho salmon were commercially harvested in UCI. Selected commercial gillnet harvests which represented 85.1% of the total commercial harvest were represented by age-1.1 (8.1%), -2.1 (81.1%) and -3.1 (10.8%) coho salmon. Age-1.1, -2.1 and -3.1 coho salmon averaged 517 mm, 537 mm, and 561 mm, respectively and sex ratios for coho salmon were approximately equal.

A total of 122,767 chum salmon were commercially harvested in UCI. The drift gillnet harvest was 88,823 fish or 72.4% of the total and mainly comprised age-0.3 (65.3%) and age-0.4 (31.5%) chum salmon. Female chum salmon composed 56.5% of the harvest.

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

INTRODUCTION

Upper Cook Inlet (UCI) supports the production of all five species of Pacific salmon *Oncorhynchus* (Figure 1). Since 1966 the total harvest of salmon in UCI averaged 4.4 million fish representing 2.8 million sockeye *O. nerka*, 1.1 million even-year pink *O. gorbuscha*, 0.1 million odd-year pink, 0.6 million chum *O. keta*, 0.4 million coho *O. kisutch*, and 16,000 chinook *O. tshawytscha* salmon. This represents approximately five percent of the statewide commercial harvest (Ruesch and Fox 1993).

Basic characteristics, crucial to understanding salmon production, are age, sex and size composition of adult salmon returning to UCI. Such information in conjunction with abundance data provides a basis for assessing yearly variations in production and effects of management strategies. The need to improve and develop stock specific production information is an essential part of managing salmon stocks.

The pioneering work of Davis and Kissner (1969) in UCI provided a framework from which age, sex and size data collection was instituted. Unfortunately in the early years (1964-78) the sample collection of commercial harvest and escapement data was sporadic and limited compared to the present. Information was published in annual technical reports from 1964 to 1978. Davis and Tarbox (1985) produced a compendium of information for the period 1964-1981 to summarize the yearly results. The series continued with the advent of stock separation studies in 1978 and has been in existence ever since (Bethe et al. 1980; Cross et al. 1981; Cross et al. 1982; Cross et al. 1983; Cross et al. 1985; Cross 1985; Cross et al. 1987; Waltemyer 1989, 1990, 1991, 1993). The major emphasis has been on sampling sockeye salmon in the commercial harvests and escapements. However, since 1983 chinook, coho, and chum salmon sampling in commercial harvests has been conducted.

This report is part of a continuing series. Specific objectives were: 1) document number of salmon harvested in selected commercial, subsistence, and personal use fisheries; 2) report the number of sockeye salmon spawners; and 3) estimate age, sex, and size composition of salmon in commercial harvests and escapements.

METHODS

Numerical Data

Harvest data were compiled in various ways. Commercial harvest statistics were compiled from ADF&G final fish ticket information. Commercial fishing district and subdistrict locations are shown in Figure 2. Harvest data from the Tyonek subsistence fishery were derived by extrapolating harvest data from the final number of permits returned (R. Miraglia, ADF&G, Anchorage, personal communication). The Kasilof personal use and Central and Northern Districts gillnet fishery harvests were derived by extrapolating catch per unit effort data based on number of nets fished and number of fish caught by

interviewing fishermen (J. Fox, ADF&G, Soldotna, personal communication). Numbers of nets fished were obtained by either aerial or ground survey counts. Interviews were conducted in person or by phone. Locations of the subsistence and personal use fisheries are shown in Figure 3. A court ordered educational permit was issued by ADF&G to the Kenaitze Indian Tribe for fishing one set gillnet in the Kenai River. Their catch was reported to ADF&G at the end of the season. The Fish Creek personal use dip net fishery harvest was based on a cursory field survey (L. Peltz, ADF&G, Big Lake, personal communication).

ADF&G personnel used Bendix Corporation [2] side-scanning sonar equipment to enumerate the adult salmon entering the Kenai, Kasilof, Crescent, and Yentna Rivers (Davis and King *in press*). There has been varied terminology for fish escaping the commercial fishery that, for purposes of this report, escapement means the number of fish entering each river, spawners means the number of fish that breed, and index means a minimum estimate of escapement. Sonar counts were apportioned to salmon species using species proportions from fish wheel catches. Chinook salmon escapement into the Kenai River was estimated using BioSonics [2] sonar equipment in the lower river (RM 8.5; D. Burwen, ADF&G, Anchorage, personal communication). Sockeye salmon escapement into Fish Creek (L. Peltz, ADF&G, Big Lake, personal communication) was determined by observing fish migrating through a weir. Also Cook Inlet Aquaculture Association (CIAA) personnel monitored sockeye salmon escapements using weirs on Hidden, Packers and Lake Creeks (Cheltna Lake; G. Fandrei, CIAA, Soldotna, personal communication).

Age, Sex, and Size Data

Fish scales were taken from the left side approximately two rows above the lateral line on the diagonal row that extends down from the posterior insertion of the dorsal fin to the anterior insertion of the anal 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 visual examination of scale impressions under moderate magnification (40X) using a microfiche viewer. Age was determined based upon criteria established by Mosher (1969). Ages were recorded in European notation (Koo 1962).

Sex and length information were recorded for all specimens sampled. Jaw formation was used to determine sex. Verification was made by observation of the gonad in cases where jaw formation was questioned. Length was measured from mid-eye to fork-of-tail in millimeters.

Age, sex and size compositions of the commercial catches were estimated using a stratified random sampling design (Cochran 1977). A minimum sample size of 403 readable scales was set for each species and strata to estimate simultaneously the proportion of each major

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[2] *Use of a company's name does not constitute endorsement.*

age class in the harvest within five percent of the true proportion 90% of the time (Thompson 1987). A sample size of 600 fish per strata for sockeye salmon harvested in the commercial fisheries was set to account for unreadable scales in the worst case. For escapements a single sample size of 600 fish was defined to provide the same level of precision. The sample was weighted over the duration of escapement enumeration by sampling a fixed proportion of fish captured by fish wheel or trap. Three scales were taken from coho salmon in the commercial harvests since regenerated scales are common. In all other cases only one scale was sampled from each fish. Age and size information were not obtained from subsistence or personal use harvests since these fisheries were outside the scope of this report.

The number of temporal and spatial strata selected for sampling differed among commercial fisheries, escapements and species. 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 was based on the relative harvest contribution of a fishery to the total UCI commercial harvest. Because the escapements were weighted through time apriori, no stratification was necessary.

RESULTS

A total of 1,179 chinook, 26,827 sockeye, 4,409 coho, and 1,315 chum salmon was sampled in selected UCI commercial gillnet harvests and escapements in 1993 (Table 1). Age, sex and size data for pertinent species sampled are presented below along with other harvest and escapement information.

Sockeye Salmon

Total Return

The minimum estimate of the 1993 total return of sockeye salmon to UCI was 6,107,820 fish (Table 2). Commercial harvests totalled 4,754,698 fish and escapements into the major river systems equalled 1,301,294 fish with the remainder representing subsistence and personal use harvests.

Four major age groups contributed 96.1% to the total combined UCI commercial sockeye salmon harvests and escapements (Table 3). Age-1.2 fish represented 10.5% (625,646 fish), age-1.3 fish represented 34.9% (2,085,685 fish), age-2.2 fish represented 9.8% (587,745 fish), and age-2.3 fish represented 40.9% (2,440,124 fish) of the total monitored return. The total commercial harvest contributions were: age 1.2 represented 8.3% (386,188 fish), age 1.3 represented 36.3% (1,693,096 fish), age 2.2 represented 9.6% (447,926 fish), and age 2.3 represented 42.9% (2,001,300 fish). Total escapement contributions were: age 1.2

represented 18.4% (239,458 fish), age 1.3 represented 30.2% (392,589 fish), age 2.2 represented 10.7% (139,819 fish), and age 2.3 represented 33.7% (438,824 fish).

Average lengths of the major age groups in the commercial harvests were: 484 mm (age 1.2), 556 mm (age 1.3), 495 mm (age 2.2), and 561 mm (age 2.3; Table 3). The average lengths of the respective age groups in the escapements were: 482 mm (age 1.2), 560 mm (age 1.3), 494 mm (age 2.2), and 564 mm (age 2.3).

The female contributions within the major age groups varied more in the commercial harvests (range 44% to 55%) than in the escapements (range 53% to 58%; Table 3).

Exploitation rates among the major age groups ranged from 0.617 for age 1.2 to 0.820 for age 2.3 with an overall of 0.782 (Table 3).

Subsistence And Personal Use Harvest

Subsistence and personal use harvests totalled 55,002 salmon (Table 2). Sockeye salmon represented 51,828 fish or 94.2% of the subsistence and personal use harvests. The largest sockeye harvests were taken from the personal use dip net fisheries in the Kenai River (25,588 fish) and Fish Creek (16,722 fish).

Commercial Harvest by Fishery

The Central District drift harvest historically averages 57.8% of the total UCI sockeye salmon harvest and in 1993 represented 53.8%. Age-1.3 and -2.3 fish were the predominant age groups contributing 38.0% (972,028 fish) and 43.2% (1,105,617 fish) to the total harvest (Table 4). Age-1.3 fish contributed more than age-2.3 fish in both number and percent to the individual fishing period harvests from 25 June through 14 July and contributed less from 16-29 July (Table 4; Figures 4 and 5). Age-1.2 and -2.2 fish represented 7.3% (187,804 fish) and 8.4% (213,537 fish) of the total harvest. Trends in number and percent of age-1.2 and -2.2 fish showed corresponding increases in the by period harvests peaking at 15.4% and 27.6%, respectively on 8 July and then gradual decreases to the end of the season (Table 4; Figures 6 and 7).

Overall sockeye salmon mean length in the Central District drift gillnet harvest fluctuated from 521 mm (8 July) to 563 (16, 27-28 July) mm during the season with age-1.3 sockeye salmon ranging from 537 mm (8 July) to 566 mm (27-28 July; Table 4). Age-2.3 fish mean length ranged from 547 mm (25 June) to 571 mm (16 July). Age-1.2 fish ranged in mean length from 467 mm (13-14 July) to 512 mm (16 July). Age-2.2 fish mean length ranged from 479 mm (17-18 July) to 538 mm (28 June).

Percent females in the drift harvest ranged from 39.8% (29 July) to 59.2% (12 July; Table 4).

The Cohoe/Ninilchik Beach set gillnet harvest historically averages 13.0% of the total UCI sockeye salmon harvest and in 1993 represented 9.3%. Age-1.3 and -2.3 fish represented

the bulk of the total harvest contributing 31.6% (139,765 fish) and 39.2% (173,633 fish), respectively (Table 5). Age-1.3 fish contributed more than age-2.3 fish in number and percent to the harvest during 28 June-2 July in contrast to 3-30 July (Table 5; Figures 4 and 5). Age-1.2 and -2.2 fish represented 9.0% (39,994 fish) and 16.4% (72,421 fish) of the total harvest. Trends in percent of age-1.2 and -2.2 fish showed corresponding increases by period peaking at 15.4% and 27.6%, respectively for the period 3-9 July and decreases to the end of the season (Table 5; Figures 6 and 7).

Overall sockeye salmon mean length in the Cohoe/Ninilchik Beach harvest fluctuated from 518 mm (10-16 July) to 550 mm (17-23 July; Table 5). Age-1.3 sockeye salmon ranged in mean length from 537 mm (3-9 July) to 562 mm (17-23 July). Age-2.3 fish mean length ranged from 539 mm (28 June-2 July) to 560 mm (24 July-13 August). Age-1.2 fish ranged in mean length from 472 mm (10-16 July) to 491 mm (17-23 July). Age-2.2 fish mean length ranged from 478 mm (10-16 July) to 504 mm (17-23 June).

Percent females in the Cohoe/Ninilchik Beach harvest ranged from 40.4% (24 July-13 August) to 57.2% (3-9 July; Table 5).

The Kalifonsky Beach set gillnet harvest historically averages 6.7% of the total UCI sockeye salmon harvest and in 1993 represented 14.3%. The harvest was composed of 272,238 age-2.3 fish (40.1%) followed by 197,071 age-1.3 fish (29.0%), 113,790 age-2.2 fish (16.8%), and 82,314 age-1.2 fish (12.1%; Table 6). Age-2.3 fish accounted for 35.7% (11-17 July) to 45.8% (25 July-13 August) of the by period harvest. Except for the period 28 June-10 July, age-2.3 fish were predominant by period increasing in importance as the season progressed (Figure 5). Age-1.2 and -2.2 fish followed a similar pattern of increasing percentage of harvest peaking on 19 July and then followed by decreasing percentage (Figures 6 and 7). Conversely, age-1.3 fish represented 43.8% in the sample taken on 5 July and decreased to 20.2% (19 July) followed by an increase in the 26 July sample (Figure 4).

Examination of overall mean length of sockeye salmon in the Kalifonsky Beach harvests varied from 523 mm (11-17 July) to 546 mm (25 July-13 August; Table 6). Age-1.3 sockeye salmon ranged in mean length from 540 mm (11-17 July) to 561 mm (25 July-13 August). Age-2.3 fish ranged from 543 mm (2-10 July) to 563 mm (18-24 July) in mean lenth. Age-1.2 fish ranged in mean length from 466 mm (25 July-13 August) to 488 mm (2-10 July). Age-2.2 fish ranged from 477 mm (18-24 July) to 492 mm (2-10 July) in mean length (Table 6).

Percent females in the Kalifonsky Beach harvest ranged from 52.0% (25 July-13 August) to 59.2% (11-17 July; Table 6).

The Salamatof Beach set gillnet harvest historically averages 9.6% of the total UCI sockeye salmon harvest and in 1993 represented 17.2%. Age-2.3 fish represented 50.9% (417,650 fish) of the total seasonal harvest followed by age-1.3 38.6% (316,794 fish), age-1.2 4.3% (35,485 fish), and age-2.2 3.1% (25,768 fish; Table 7). Shifts in age composition occurred among the four major age groups where age-2.3 fish represented from 43.9% to 52.5%, age-

1.3 fish represented from 35.5% to 40.2%, and age-1.2 fish represented from 2.9% to 9.6% of the by period harvest (Table 7; Figures 4-7).

Overall mean length of sockeye salmon in the Salamatof Beach harvests ranged from 542 mm (29 July-13 August) to 562 mm (14-20 July; Table 7). Age-2.3 fish mean length ranged from 558 mm to 568 mm. Age-1.3 fish ranged in mean length from 550 mm (2-13 July) to 563 mm (14-20 July). Age-1.2 fish mean length ranged from 465 mm (2-13 July) to 498 mm (14-20 July). Age-2.2 fish mean length ranged from 494 mm (14-20 July) to 504 mm (29 July-13 August).

Percent females in the Salamatof Beach harvest ranged from 45.5% (29 July-13 August) to 61.1% (2-13 July; Table 7).

Sockeye salmon sampled from the Kalifonsky Beach harvest were, on average, the smallest (533 mm overall) size of the three Upper Subdistrict beach fisheries (Tables 5-7). The largest (556 mm overall) fish, on average, were harvested in the Salamatof Beach fishery. Fish sampled in the Cohoe/Ninilchik Beach harvest were intermediate in average length (538 mm overall). Average length differences among the beach harvests were also the same among the four major age groups.

The Western Subdistrict set gillnet harvest historically averages 3.0% of the total UCI sockeye salmon harvest and in 1993 represented 0.5%. The majority of the Western Subdistrict sockeye salmon harvest was represented by age groups 1.2, 1.3, 2.2, and 2.3 contributing 18.8%, 35.9%, 29.3%, and 15.9% (Table 8). Overall mean length was 525 mm and the percent females in the harvest was 37.4%.

The Eastern Subdistrict set gillnet harvest historically averages 1.6% of the total UCI sockeye salmon harvest and in 1993 represented 0.6%. Age groups 1.2, 1.3, 2.2, and 2.3 contributed 44.5%, 19.6%, 18.3%, and 15.2% to the total commercial harvest (Table 9). Overall mean length was 488 mm and the percent females in the harvest was 56.8%.

The General Subdistrict set gillnet harvest historically averages 4.0% of the total UCI sockeye salmon harvest and in 1993 represented 2.5%. Sockeye salmon were represented by 12 age groups with the majority of the harvest composed of age-1.3 (44.8%), age-2.3 (20.3%) and age-1.2 (20.3%) fish (Table 10). The overall mean length of sockeye salmon was 530 mm. Females represented 51.8% of the harvest with slight variations over time.

Escapement

A minimum of 1,301,294 sockeye salmon entered the major rivers and streams of UCI of which 1,199,371 fish spawned (Tables 2 and 11-18). The major sockeye salmon spawning occurred in the Kenai River (695,835 late run fish), the Kasilof River (140,841 fish), Crescent River (37,556 fish), Packers Creek (37,595 fish), Yentna River (141,694 fish), and Fish Creek (117,619 fish).

The Yentna River sonar indexed 363 chinook, 37,752 coho, 227,171 pink and 28,021 chum salmon (Table 2).

Age-2.3 sockeye was the most predominant age group in the major river systems varying from 41.2% in the Kenai River to 56.2% in Packers Creek (Table 3; Figure 8).

Kenai River escapement of sockeye salmon was represented by age-1.2 (12.2%), age-1.3 (30.5%), age-2.2 (6.4%), and age-2.3 (41.2%) fish (Table 11). Five year old fish (primarily age-1.3) accounted for a significant proportion of the year class contributions since 1979 with a noticable reduction in 1993 (Figure 9). Mean lengths of the respective age groups were 477 mm (age 1.2), 566 mm (age 1.3), 517 mm (age 2.2), and 570 mm (age 2.3) with an overall mean length of 542 mm (Table 11). Females contributed 58.4% to the Kenai River escapement. This represented 475,000 fish out of a total escapement (sonar count) of 813,617 fish.

The age composition in Hidden Creek, a tributary of the Kenai River, was 79.9% age 1.2, 8.9% age 1.3, and 10.7% age 2.2 (Table 12). Hidden Creek age-1.2 fish accounted for only 9.3% (9,255 fish) of the total Kenai River escapement of age 1.2 fish. Female contribution to the escapement was 57.4%.

Age-1.3 (29.8%), -2.2 (28.0%), and -2.3 (25.2%) sockeye salmon were the major contributers to the Kasilof River escapement (Table 13). Since 1979 age-1.2 fish have shown a general increase in percent contribution through 1985 followed by a gradual decrease (Figure 10). Five year old fish have been a stable contributer to the escapement with six year old fish showing a gradual increase in escapement contribution (Figure 10). The overall mean length was 514 mm with age-1.3 fish representing the largest age group at 547 mm on average. Female sockeye represented 53.4% of the total escapement.

Crescent River escapement of sockeye salmon was represented by the following major age groups: age 1.2 (8.8%), age 1.3 (37.2%), and age 2.3 (46.9%; Table 14). Since 1979 year class composition has varied with some possible cycles occurring in the five and six year old components of the escapement (Figure 11). Mean lengths of the respective age groups were 487 mm (age 1.2), 568 mm (age 1.3), and 571 mm (age 2.3; Table 14). Females contributed 49.7% to the escapement.

Packers Creek sockeye salmon escapement was represented primarily by age 2.3 (56.2%), age 2.2 (24.6%), and age 1.3 (16.5%) fish (Table 15). The six year old component of the escapement represented a significant proportion of the year class composition since 1979 (Figure 12). Mean lengths for age-2.3, -2.2, and -1.3, fish were 536 mm, 454 mm, and 536 mm, respectively (Table 15). Females represented 47.3% of the total escapement.

Yentna River sockeye salmon escapement was represented by nine age groups with the four major age groups representing 93.8% of the total escapement (Table 16). Age group contributions were 32.1% (age 1.2), 35.5% (age 1.3), 11.7% (age 2.2), and 14.5% (age 2.3). Since 1984, year class composition has remained relatively stable with only moderate fluctuations (Figure 13). Mean lengths of the respective age groups were 472 mm (age 1.2),

554 mm (age 1.3), 481 mm (age 2.2), and 550 mm (age 2.3; Table 16). Female contribution to the escapement was 48.0%.

The major age groups of sockeye entering Chelatna Lake, a tributary of the Yentna River, were age-1.3 (63.8%) and age-1.2 (32.9%) fish (Table 17). Age composition between Chelatna Lake and Yentna River was statistically different ($\chi^2=96.2, P<0.05, df=2$) for ages 1.2, 1.3 and 2.3. Mean length-at-age of sockeye salmon was generally smaller for Chelatna Lake fish compared to Yentna River fish with overall mean lengths of 501 mm and 517 mm, respectively. Females represented 62.6% of the Chelatna Lake escapement.

Fish Creek sockeye age composition was predominantly age-1.2 (56.0%), age-1.3 (24.4%), and age-2.2 (14.3%) fish (Table 18). Since 1979 four year old fish have been the predominate year class with the exception of 1982 and 1990 (Figure 14). Average length for age-1.2, -1.3 and -2.2 fish was 496 mm, 532 mm and 494 mm with an overall average length of 505 mm (Table 18). Females represented 64.6% of the escapement.

Chinook Salmon

A subsistence harvest of 1,247 chinook salmon was taken in the Tyonek fishery and represented the largest harvest of chinook salmon (Table 2).

The total commercial harvest of chinook salmon was 18,719 fish in 1993 (Table 2). This harvest was above the long-term (1966-92) average of 16,074 fish and the highest since 1989 when 26,742 fish were harvested. Of the 18,719 chinook harvested, 13,977 fish or 74.7% were harvested in the Upper Subdistrict fishery. Chinook salmon sampled from the Upper Subdistrict set gillnet harvest were predominantly age-1.2 (13.0%), age-1.3 (20.9%), and age-1.4 (57.9%) fish (Table 19). The average length for age-1.2 fish was 627 mm, for age-1.3 fish was 906 mm, and for age-1.4 fish was 989 mm. Females accounted for 42.2% of the commercial harvest.

Late run chinook salmon entering the Kenai River numbered 49,674 fish (Table 2). A small population of chinook salmon (848 fish) was permitted to spawn in Crooked Creek, a tributary to the Kasilof River, above the Crooked Creek Hatchery. There are other chinook populations (i.e. Susitna River) that are sampled by ADF&G personnel and accounted for in separate reports.

Coho Salmon

The largest personal use harvest of 1,168 coho salmon occurred in the Central and Northern Districts set gillnet fishery (Table 2).

Four commercial harvests were sampled and comprised three major age groups (Table 20). Age-2.1 (81.1%) coho salmon accounted for the bulk of the harvests with age-1.1 (8.1%) and age-3.1 (10.8%) fish accounting for the remainder of the total monitored harvests. Age-2.1

coho salmon contributed 80.4% (97,902 fish) to the Central District drift, 79.7% (34,345 fish) to the Upper Subdistrict, 84.8% (7,793 fish) to the Western Subdistrict, and 82.5% (71,937 fish) to the General Subdistrict harvests (Tables 21-24).

Mean lengths for all three age groups combined were, on average, larger in the drift harvest (543 mm) than in the Upper Subdistrict (537 mm), Western Subdistrict (526 mm), and General Subdistrict (532 mm) harvests (Table 20).

Females represented from 46% in the drift harvest to 56% in the Upper Subdistrict harvest (Table 20).

Chum Salmon

Chum salmon were sampled in the commercial drift gillnet harvest only and comprised primarily age-0.3 (65.3%) and age-0.4 (31.5%) fish (Table 25). Age-0.3 fish increased from 56.6% (25 June - 16 July) to 67.1% (17 July - 23 August), with concurrent decreases in age-0.4 fish from 41.5% to 29.4% for the same intervals. Overall mean lengths for age-0.3 and age-0.4 chum salmon were 548 mm and 568 mm. For all periods combined, the percent females was 56.5%.

DISCUSSION

Age composition of sockeye salmon was estimated in seven commercial gillnet fisheries and six river escapements in 1993. One significant attribute of the 1993 sockeye return was the spectacular contribution of age-2.3 sockeye salmon to the Kenai River and to the total return as a whole. Typically, age-2.3 fish represented on average 11% (a high of 24% in 1990) of the total return, but in 1993 represented 40%. Smolt production from the Kenai river (brood year 1987) appears to be one reason for the observed large return of age-2.3 fish. The Kenai River produced 5.0 million age-2. sockeye smolt in 1990 which is the highest smolt emmigration recorded since smolting began in 1989 (King et al. 1990, 1991, 1994). Another reason for the high production of this age class was above average contributions to the Susitna, Crescent and Kasilof Rivers as well.

Percent females in both the sockeye commercial harvests and escapements were comparable to previous years. This year females contributed slightly more than males in both commercial harvests and escapements. An exception was in the Western Subdistrict harvest where females represented only 37% of the harvest. The exception, in this case, is usually the rule in other sockeye fisheries (i.e. Bristol Bay) because males tend to be larger and selected for in the commercial fishery. By harvesting more males in the commercial fisheries and allowing more females to escape to the spawning grounds, the production potential is enhanced as showed by Mathisen (1962). It appears that we have an overabundance of males in the major river escapements suggesting that modifications may be desirable to increase sockeye production in UCI.

Sockeye mean length by age class in commercial harvests and escapements were within the range of lengths recorded in previous years.

Chinook, coho and chum salmon age, sex and length compositions were comparable to previous years with no exceptions.

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Table 1. Number of salmon sampled from commercial harvests and escapements in Upper Cook Inlet, Alaska, in 1993.

Location[a]	Species			
	Chinook	Sockeye	Coho	Chum
Commercial Catch:				
Central District				
Drift		7,671	1,365	1,315
Upper Subdistrict	1,179[b]		1,358[b]	
Salamatof Beach		2,400		
Kalifonsky Beach		2,400		
Cohoe/Ninilchik Beach		3,000		
Western Subdistrict		1,205	587	
Northern District				
Eastern Subdistrict		1,200		
General Subdistrict		1,663	1,099	
Subtotal	1,179	19,539	4,409	1,315
Escapement:				
Central District				
Kenai River				
Mainstem late run		2,404		
Hidden Creek		229[c]		
Kasilof River				
Mainstem		637		
Crescent River		545		
Packers Creek		601[c]		
Northern District				
Susitna River				
Yentna River		1,729		
Chelatna Lake (Lake Creek)		611[c]		
Fish Creek		532[d]		
Subtotal		7,288		
Total	1,179	26,827	4,409	1,315

[a] Specific locations not footnoted were sampled by Commercial Fisheries Management and Development (CFM&D) 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 Sport Fish Division personnel, ADF&G.

Table 2. Subsistence, personal use and commercial salmon harvests by area and gear type and sockeye escapements, Upper Cook Inlet, Alaska, in 1993.

Fishery	CHINOOK	SOCKEYE	COHO	PINK	CHUM	TOTAL
Subsistence Harvest:						
NORTHERN DISTRICT						
Set Net						
Tyonek[a]	1,247	43	36	11	19	1,356
Subtotal	1,247	43	36	11	19	1,356
Personal Use Harvest:						
CENTRAL DISTRICT						
Dip Net[b]						
Kenai River		25,588				25,588
Set Gill Net[a]						
Kasilof River	47	7,942				7,989
Kenai River						
Kenaitze[c]	145	1,533	477	1		2,156
Central and Northern[d]			1,168	23		1,191
NORTHERN DISTRICT						
Dip Net						
Fish Creek[b]		16,722				16,722
Subtotal	192	51,785	1,645	24		53,646
Subsistence & Personal Use Total	1,439	51,828	1,681	35	19	55,002

-Continued-

Table 2. (p. 2 of 3)

Fishery		CHINOOK	SOCKEYE	COHO	PINK	CHUM	TOTAL
Commercial Harvest:							
A. Northern District Total		3,277	146,319	106,258	10,468	25,401	291,723
1. Northern District West		2,774	119,718	87,191	9,164	23,873	242,720
a. Trading Bay	247-10	730	5,968	7,169	1,043	490	15,400
b. Tyonek	247-20	1,290	11,692	15,529	1,325	2,422	32,258
c. Beluga	247-30	676	22,966	39,561	4,360	11,250	78,813
d. Susitna Flat	247-41	27	16,815	8,005	767	3,148	28,762
e. Pt. Mackenzie	247-42	0	7,074	5,917	375	1,788	15,154
f. Fire Island	247-43	51	7,452	10,179	1,265	3,789	22,732
g. Knik Arm	247-50	0	47,751	830	29	990	49,601
2. Northern District East		503	26,601	19,067	1,304	1,528	49,003
a. Pt. Possession	247-70	347	17,995	9,202	992	1,420	29,956
b. Birch Hill	247-80	112	2,971	4,115	176	32	7,406
c. Number 3 Bay	247-90	44	5,635	5,750	136	76	11,641
B. Central District Total		15,442	4,608,379	200,564	90,450	97,366	5,012,201
1. East Side Set Total		13,977	1,941,706	43,075	41,674	2,977	2,043,409
a. Salamatof	244-40	2,960	819,983	20,870	10,580	1,577	855,970
b. Kalifonsky Beach	244-30	5,954	678,731	13,320	9,265	542	707,812
d. Cohoe/Ninilchik		5,063	442,992	8,885	21,829	858	479,627
1. Cohoe	244-22	2,731	291,372	5,132	12,768	602	312,605
2. Ninilchik	244-21	2,332	151,620	3,753	9,061	256	167,022
2. West Side Set Total		223	23,930	9,195	941	3,433	37,722
a. Little Jack Slough	245-50	23	204	76	1	4	308
b. Polly Creek	245-40	28	10,206	3,208	195	267	13,904
c. Tuxedni Bay	245-30	154	11,827	2,597	348	2,884	17,810
d. Silver Salmon	245-20	18	1,693	3,314	397	278	5,700
3. Kustatan Total		424	18,656	7,579	272	48	26,979
a. Big River	245-55	400	16,307	3,315	39	7	20,068
b. West Foreland	245-60	24	2,349	4,264	233	41	6,911
4. Kalgin Island Total		66	64,121	16,826	1,003	1,621	83,637
a. West Side	246-10	52	32,082	10,118	632	1,020	43,904
b. East Side	246-20	14	32,039	6,708	371	601	39,733
5. Chinitna Bay Total		6	1,572	2,104	103	537	4,322
a. Set	245-10	6	1,474	2,061	97	464	4,102
b. Drift	245-10	0	98	43	6	73	220
6. Central District Set Total		14,696	2,049,887	78,736	43,987	8,543	2,195,849
7. Central District Drift Total		746	2,558,492	121,828	46,463	88,823	2,816,352
a. West Side	245-70,80,90	91	212,127	10,655	2,176	7,912	232,961
b. East Side	244-50,60,70	655	2,346,267	111,130	44,281	80,838	2,583,171
c. Chinitna Bay	245-10	0	98	43	6	73	220
Commercial Harvest Total		18,719	4,754,698	306,822	100,918	122,767	5,303,924

-Continued-

Table 2. (p. 3 of 3)

Fishery	CHINOOK	SOCKEYE	COHO	PINK	CHUM	TOTAL
ESCAPEMENT:						
a. Kenai River	49,674[e]	813,617[f]				863,291
b. Kasilof River	848[g]	149,939				150,787
c. Crescent River		37,556				37,556
d. Packers Creek		40,869				40,869
e. Yentna River[h]	363	141,694	37,752	227,171	28,021	435,001
f. Fish Creek		117,619				117,619
Escapement Total	50,885	1,301,294	37,752	227,171	28,021	1,645,123
Upper Cook Inlet Total	71,043	6,107,820	346,255	328,124	150,807	7,004,049

[a] Source: J. Fox, ADF&G, Soldotna, personal communication. Numbers are preliminary
as only 16% of the late season permits have been returned as of 12/8/93.
[b] Source: Mills (*in press*)
[c] Kenaitze Tribe issued a court ordered permit to operate a set gill net in the Kenai River downstream from a point one-quarter mile above the Warren Ames Bridge and including marine waters adjacent to the river mouth normally closed to commercial salmon fishing.
[d] Kasilof River to Point Possession on the Kenai Peninsula.
[e] Source: S. Hammarstrom, ADF&G, Soldotna, personal communication.
[f] Sockeye sport harvests (Mills *in press*) above escapement enumerated at mile 19 site totalled 117,782 fish which resulted in 695,835 late run spawners.
[g] Source: G. Fandrei, CIAA, Soldotna, personal communication.
[h] Davis and King (*in press*). Chinook, coho, pink, and chum salmon escapements represent minimum indices of abundance only.

Table 3. Age, length and sex composition of sockeye salmon in selected commercial gillnet harvests and river escapements with overall exploitation rates by age, Upper Cook Inlet, Alaska, in 1993.

	Age Group													
Fishery	0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
COMMERCIAL CATCH														
Central District														
Central Drift[a]														
Number	767	2	31,519	187,804	353	972,028	213,537	2	41,787	1,105,617	259	4,413	306	2,558,394
Percent	.03	.00	1.23	7.34	.01	37.99	8.35	.00	1.63	43.22	.01	.17	.01	100.00
Sample Size	3	1	85	875	4	3,782	1,281	1	144	4,263	5	19	3	10,466
Mean Length[b]	439	495	557	492	400	556	503	370	581	562	541	596	604	550
% Female	32	100	53	41	33	56	46		58	57	71	65	99	55
Sample Size	3	1	85	875	4	3,782	1,281	1	144	4,263	5	19	3	10,466
Cohoe/Ninilchik Beach														
Number			2,175	39,994	792	139,765	72,421		11,148	173,633	288	2,306	470	442,992
Percent			.49	9.03	.18	31.55	16.35		2.52	39.20	.07	.52	.11	100.00
Sample Size			9	247	4	860	456		52	1,002	1	10	2	2,643
Mean Length			550	483	395	553	490		580	555	560	583	594	538
% Female			74	43	26	50	48		41	49		47		48
Sample Size			9	247	4	860	456		52	1,002	1	10	2	2,643
Kalifonsky Beach														
Number	360		2,782	82,314	494	197,071	113,790		7,575	272,238		1,708	399	678,731
Percent	.05		.41	12.13	.07	29.04	16.77		1.12	40.11		.25	.06	100.00
Sample Size	1		7	240	1	689	367		19	838		4	2	2,168
Mean Length	425		538	470	365	552	483		584	558		599	580	533
% Female			39	54		58	49		68	57		21	90	56
Sample Size	1		7	240	1	689	367		19	838		4	2	2,168

-Continued-

Table 3. (p. 2 of 6)

Fishery	Age Group 0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
COMMERCIAL CATCH														
Central District (continued)														
Salamatof Beach														
Number		13	3,302	35,485	1,569	316,794	25,768	13	17,192	417,650		2,184	13	819,983
Percent		.00	.40	4.33	.19	38.63	3.14	.00	2.10	50.93		.27	.00	100.00
Sample Size		1	9	132	7	800	83	1	39	1,020		6	1	2,099
Mean Length		495	530	481	384	559	498	370	581	564		577	560	556
% Female		100	99	42	70	52	50		52	51		79		51
Sample Size		1	9	132	7	800	83	1	39	1,020		6	1	2,099
Western														
Number				4,506		8,598	7,011			3,802	13			23,930
Percent				18.83		35.93	29.30			15.89	.05			100.00
Sample Size				207		369	296			168	1			1,041
Mean Length				495		548	500			554	495			525
% Female				39		36	41			33				37
Sample Size				207		369	296			168	1			1,041
District Total														
Number	1,127	15	39,778	350,103	3,208	1,634,256	432,527	15	77,702	1,972,940	560	10,611	1,188	4,524,030
Percent	.02	.00	.88	7.74	.07	36.12	9.56	.00	1.72	43.61	.01	.23	.03	100.00
Sample Size	4	2	110	1,701	16	6,500	2,483	2	254	7,291	7	39	8	18,417
Mean Length	435	495	553	484	385	556	495	370	581	561	549	590	592	547
% Female	22	100	57	44	44	55	47		55	55	33	57	56	53
Sample Size	4	2	110	1,701	16	6,500	2,483	2	254	7,291	7	39	8	18,417

-Continued-

Table 3. (p. 3 of 6)

Fishery	Age Group 0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
Northern District														
Eastern Subdistrict														
Number	82	168	134	11,824	177	5,204	4,866		98	4,048				26,601
Percent	.31	.63	.50	44.45	.67	19.56	18.29		.37	15.22				100.00
Sample Size	2	7	4	408	13	191	195		6	188				1,014
Mean Length	438	340	541	465	353	519	478		563	538				488
% Female	50	93	61	54	81	63	61		23	49				57
Sample Size	2	7	4	408	13	191	195		6	188				1,014
General Subdistrict														
Number	218	52	6,114	24,261	166	53,636	10,533		208	24,312	114	52	52	119,718
Percent	.18	.04	5.11	20.27	.14	44.80	8.80		.17	20.31	.10	.04	.04	100.00
Sample Size	3	1	66	253	2	631	115		4	307	1	1	1	1,385
Mean Length	450	320	545	487	330	547	500		571	546	540	550	520	530
% Female		100	66	43	100	52	49		75	57	100		100	52
Sample Size	3	1	66	253	2	631	115		4	307	1	1	1	1,385
District Total														
Number	300	220	6,248	36,085	343	58,840	15,399		306	28,360	114	52	52	146,319
Percent	.21	.15	4.27	24.66	.23	40.21	10.52		.21	19.38	.08	.04	.04	100.00
Sample Size	5	8	70	661	15	822	310		10	495	1	1	1	2,399
Mean Length	447	336	545	480	342	544	493		569	545	540	550	520	522
% Female	14	95	66	47	90	53	53		58	56	100		100	53
Sample Size	5	8	70	661	15	822	310		10	495	1	1	1	2,399
Commercial Catch Total[c]														
Number	1,427	235	46,026	386,188	3,551	1,693,096	447,926	15	78,008	2,001,300	674	10,663	1,240	4,670,349
Percent	.03	.01	.99	8.27	.08	36.25	9.59	.00	1.67	42.85	.01	.23	.03	100.00
Sample Size	9	10	180	2,362	31	7,322	2,793	2	264	7,786	8	40	9	20,816
Mean Length	437	346	552	484	381	556	495	370	581	561	548	589	589	546
% Female	20	95	58	44	49	55	47		55	55	44	57	58	53
Sample Size	9	10	180	2,362	31	7,322	2,793	2	264	7,786	8	40	9	20,816

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Table 3. (p. 4 of 6)

Fishery	Age Group 0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
ESCAPEMENT														
Central District														
Kenai River														
Number	390	2,338	2,338	99,365	51,046	248,216	52,214	390	21,431	335,109	390	390		813,617
Percent	.05	.29	.29	12.21	6.27	30.51	6.42	.05	2.63	41.19	.05	.05		100.00
Sample Size	1	6	6	255	131	637	134	1	55	860	1	1		2,088
Mean Length	465	358	532	477	380	566	517	385	588	570	495	605		542
% Female		67	67	52	59	61	57		58	58		100		58
Sample Size	1	6	6	255	131	637	134	1	55	860	1	1		2,088
Kasilof River														
Number		525		24,421	526	44,640	42,014			37,813				149,939
Percent		.35		16.29	.35	29.77	28.02			25.22				100.00
Sample Size		2		93	2	170	160			144				571
Mean Length		415		479	385	547	482			537				514
% Female		100		57	50	41	64			54				53
Sample Size		2		93	2	170	160			144				571
Crescent River														
Number		81		3,311	323	13,972	2,180			17,608		81		37,556
Percent		.22		8.82	.86	37.20	5.80			46.88		.22		100.00
Sample Size		1		41	4	173	27			218		1		465
Mean Length		303		487	340	568	486			571		603		555
% Female				32		53	41			52		100		50
Sample Size		1		41	4	173	27			218		1		465
Packers Creek														
Number				994	110	6,738	10,052			22,975				40,869
Percent				2.43	.27	16.49	24.60			56.22				100.00
Sample Size				9	1	61	91			208				370
Mean Length				450	360	536	454			536				513
% Female				11	100	62	23			55				47
Sample Size				9	1	61	91			208				370

-Continued-

Table 3. (p. 5 of 6)

Fishery	Age Group 0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
District Total														
Number	390	2,944	2,338	128,091	52,005	313,566	106,460	390	21,431	413,505	390	471		1,041,981
Percent	.04	.28	.22	12.29	4.99	30.09	10.22	.04	2.06	39.68	.04	.05		100.00
Sample Size	1	9	6	398	138	1,041	412	1	55	1,430	1	2		3,494
Mean Length	465	367	532	478	380	563	496	385	588	565	495	605		537
% Female		71	67	52	58	58	56		58	58		100		57
Sample Size	1	9	6	398	138	1,041	412	1	55	1,430	1	2		3,494
Northern District														
Yentna River														
Number	1,427	102	6,524	45,465	510	50,357	16,514			20,591		204		141,694
Percent	1.01	.07	4.60	32.09	.36	35.54	11.65			14.53		.14		100.00
Sample Size	14	1	64	446	5	494	162			202		2		1,390
Mean Length	460	340	553	472	335	554	481			550		540		517
% Female	14		47	37	60	54	43			63		100		48
Sample Size	14	1	64	446	5	494	162			202		2		1,390
Fish Creek														
Number		887		65,902	591	28,666	16,845			4,728				117,619
Percent		.75		56.03	.50	24.37	14.32			4.02				100.00
Sample Size		3		223	2	97	57			16				398
Mean Length		350		496	375	532	494			538				505
% Female		33		67		67	51			75				65
Sample Size		3		223	2	97	57			16				398
District Total														
Number	1,427	989	6,524	111,367	1,101	79,023	33,359			25,319		204		259,313
Percent	.55	.38	2.52	42.95	.42	30.47	12.86			9.76		.08		100.00
Sample Size	14	4	64	669	7	591	219			218		2		1,788
Mean Length	460	349	553	486	356	546	488			548		540		511
% Female	14	30	47	55	28	59	47			66		100		56
Sample Size	14	4	64	669	7	591	219			218		2		1,788

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Table 3. (p. 6 of 6)

Fishery	Age Group 0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
Escapement Total														
Number	1,817	3,933	8,862	239,458	53,106	392,589	139,819	390	21,431	438,824	390	675		1,301,294
Percent	.14	.30	.68	18.40	4.08	30.17	10.74	.03	1.65	33.72	.03	.05		100.00
Sample Size	15	13	70	1,067	145	1,632	631	1	55	1,648	1	4		5,282
Mean Length	461	362	547	482	379	560	494	385	588	564	495	585		532
% Female	11	61	52	53	58	58	54		58	58		100		57
Sample Size	15	13	70	1,067	145	1,632	631	1	55	1,648	1	4		5,282
Upper Cook Inlet Total														
Number	3,244	4,168	54,888	625,646	56,657	2,085,685	587,745	405	99,439	2,440,124	1,064	11,338	1,240	5,971,643
Percent	.05	.07	.92	10.48	.95	34.93	9.84	.01	1.67	40.86	.02	.19	.02	100.00
Sample Size	24	23	250	3,429	176	8,954	3,424	3	319	9,434	9	44	9	26,098
Mean Length	450	361	551	483	379	556	495	384	583	561	528	589	589	543
% Female	15	62	57	48	57	56	49		56	55	28	59	58	54
Sample Size	24	23	250	3,429	176	8,954	3,424	3	319	9,434	9	44	9	26,098
Exploitation Rate														
Percent	43.99	5.64	83.85	61.73	6.27	81.18	76.21	3.70	78.45	82.02	63.35	94.05	100.00	78.21

[a] Total does not include Chinitna Bay Subdistrict harvest of 98 fish.
[b] Mean length in mm.
[c] Total does not include Chinitna Bay, Kustatan, and Kalgin Island harvests which equals 84,349 fish. No age composition was collected.

Table 4. Age, sex and length composition of sockeye salmon in the Central District commercial drift gillnet harvest, Upper Cook Inlet, Alaska, in 1993.

	Age Group													
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
Sample Period 1: 25 June														
Males			20	415		2,293	534			1,403				4,665
Percent			0.18	3.79		20.94	4.88			12.81				42.60
Mean Length[a]			592	505		551	522			548				543
Std. Error				5		3	5			3				2
Sample Size			1	21		116	27			71				236
Females			20	277		3,141	1,028		20	1,759	40			6,285
Percent			0.18	2.53		28.68	9.39		0.18	16.06	0.37			57.40
Mean Length			506	507		549	524		597	546	540			542
Std. Error				5		2	3			2	2			1
Sample Size			1	14		159	52		1	89	2			318
Both Sexes			40	692		5,434	1,562		20	3,162	40			10,950
Percent			0.37	6.32		49.63	14.26		0.18	28.88	0.37			100.00
Mean Length			549	506		550	523		597	547	540			542
Std. Error				3		2	3			2	2			1
Sample Size			2	35		275	79		1	160	2			554
Sample Period 2: 28 June														
Males			76	1,740		7,562	3,026		76	4,766	76			17,322
Percent			0.19	4.45		19.34	7.74		0.19	12.19	0.19			44.29
Mean Length			562	518		552	541		580	552	549			547
Std. Error				7		3	4			3				2
Sample Size			1	23		100	40		1	63	1			229
Females			151	1,135		10,136	2,799		76	7,413	76			21,786
Percent			0.39	2.90		25.92	7.16		0.19	18.96	0.19			55.71
Mean Length			544	520		547	535		599	551	546			546
Std. Error				9		2	5			3				1
Sample Size			2	15		134	37		1	98	1			288
Both Sexes			227	2,875		17,698	5,825		152	12,179	152			39,108
Percent			0.58	7.35		45.25	14.89		0.39	31.14	0.39			100.00
Mean Length			550	519		549	538		590	551	548			546
Std. Error				6		2	3			2				1
Sample Size			3	38		234	77		2	161	2			517

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Table 4. (p. 2 of 10)

	Age Group													
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
Sample Period 3: 2 July														
Males				3,171		17,718	5,409			13,056				39,354
Percent				3.25		18.16	5.55			13.38				40.34
Mean Length				497		540	511			549				536
Std. Error				7		3	8			4				2
Sample Size				17		95	29			70				211
Females			187	1,865		29,095	4,103			22,568		187	187	58,192
Percent			0.19	1.91		29.83	4.21			23.14		0.19	0.19	59.66
Mean Length			545	504		543	520			550		585	620	543
Std. Error				13		3	7			2				2
Sample Size			1	10		156	22			121		1	1	312
Both Sexes			187	5,036		46,813	9,512			35,624		187	187	97,546
Percent			0.19	5.16		47.99	9.75			36.52		0.19	0.19	100.00
Mean Length			545	499		542	515			550		585	620	540
Std. Error				7		2	5			2				1
Sample Size			1	27		251	51			191		1	1	523
Sample Period 4: 5 July														
Males			246	5,669		24,402	10,598			20,211		246		61,372
Percent			0.19	4.49		19.34	8.40			16.02		0.19		48.63
Mean Length			520	494		550	499			552		591		537
Std. Error				7		3	5			5				2
Sample Size			1	23		99	43			82		1		249
Females	246		246	6,162		21,690	7,394		739	28,345				64,822
Percent	0.19		0.19	4.88		17.19	5.86		0.59	22.46				51.37
Mean Length	445		576	496		538	511		574	546				535
Std. Error				4		3	6		6	3				2
Sample Size	1		1	25		88	30		3	115				263
Both Sexes	246		492	11,831		46,092	17,992		739	48,556		246		126,194
Percent	0.19		0.39	9.38		36.52	14.26		0.59	38.48		0.19		100.00
Mean Length	445		548	495		544	504		574	549		591		536
Std. Error				4		2	4		6	2				1
Sample Size	1		2	48		187	73		3	197		1		512

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Table 4. (p. 3 of 10)

	Age Group													
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
Sample Period 5: 8 July[b]														
Males				105		134	181		5	126				551
Percent				8.15		10.40	14.05		0.39	9.78				42.78
Mean Length				487		542	487		583	555				517
Std. Error				3		4	4		18	5				2
Sample Size				44		56	76		2	53				231
Females			2	93		219	174			247		2		737
Percent			0.16	7.22		17.00	13.51			19.18		0.16		57.22
Mean Length			520	483		534	498			548		580		524
Std. Error				4		3	3			3				2
Sample Size			1	39		92	73			103		1		309
Both Sexes			2	198		353	355		5	373		2		1,288
Percent			0.16	15.37		27.41	27.56		0.39	28.96		0.16		100.00
Mean Length			520	485		537	492		583	550		580		521
Std. Error				3		2	3		18	3				1
Sample Size			1	83		148	149		2	156		1		540
Sample Period 6: 9 July[c]														
Males			4	127	2	273	177	2	12	277			2	876
Percent			0.19	5.93	0.09	12.74	8.26	0.09	0.56	12.93			0.09	40.88
Mean Length			563	479	330	549	489	370	588	560			560	530
Std. Error			3	4		3	4		5	3				1
Sample Size			2	63	1	136	88	1	6	138			1	436
Females		2	4	129		444	175		10	499		4		1,267
Percent		0.09	0.19	6.02		20.72	8.17		0.47	23.29		0.19		59.12
Mean Length		495	545	477		542	497		586	552		573		533
Std. Error			25	4		2	3		10	2		8		1
Sample Size		1	2	64		221	87		5	249		2		631
Both Sexes		2	8	256	2	717	352	2	22	776		4	2	2,143
Percent		0.09	0.37	11.95	0.09	33.46	16.43	0.09	1.03	36.21		0.19	0.09	100.00
Mean Length		495	554	478	330	544	493	370	587	555		573	560	532
Std. Error			13	3		1	2		5	1		8		1
Sample Size		1	4	127	1	357	175	1	11	387		2	1	1,067

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Table 4. (p. 4 of 10)

	Age Group													
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
Sample Period 7: 12 July														
Males			1,010	33,317		82,786	21,201		3,029	82,787				224,130
Percent			0.18	6.07		15.07	3.86		0.55	15.07				40.81
Mean Length			575	490		558	518		584	564				547
Std. Error				4		3	8		20	3				2
Sample Size			1	33		82	21		3	82				222
Females			6,058	20,192		147,399	12,115		3,029	135,286		1,010		325,089
Percent			1.10	3.68		26.84	2.21		0.55	24.63		0.18		59.19
Mean Length			555	496		552	522		563	557		600		550
Std. Error			6	7		2	9		9	2				1
Sample Size			6	20		146	12		3	134		1		322
Both Sexes			7,068	53,509		230,185	33,316		6,058	218,073		1,010		549,219
Percent			1.29	9.74		41.91	6.07		1.10	39.71		0.18		100.00
Mean Length			558	492		554	519		574	560		600		549
Std. Error			6	4		2	6		11	2				1
Sample Size			7	53		228	33		6	216		1		544
Sample Period 8: 13 - 14 July[d]														
Males			497	8,454		13,925	15,168		746	16,659				55,449
Percent			0.37	6.23		10.26	11.17		0.55	12.27				40.84
Mean Length			503	472		542	486		572	560				522
Std. Error			3	5		4	4		19	5				2
Sample Size			2	34		56	61		3	67				223
Females				10,443		25,363	11,935		746	31,828				80,315
Percent				7.69		18.68	8.79		0.55	23.44				59.16
Mean Length				464		539	490		585	543				524
Std. Error				4		2	4		14	3				1
Sample Size				42		102	48		3	128				323
Both Sexes			497	18,897		39,288	27,103		1,492	48,487				135,764
Percent			0.37	13.92		28.94	19.96		1.10	35.71				100.00
Mean Length			503	467		540	488		578	549				523
Std. Error			3	3		2	3		12	2				1
Sample Size			2	76		158	109		6	195				546

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Table 4. (p. 5 of 10)

	Age Group													
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
Sample Period 9: 16 July[e]														
Males			3,375	7,595		40,083	2,954		1,688	40,084				95,779
Percent			1.52	3.43		18.09	1.33		0.76	18.10				43.24
Mean Length			573	514		570	522		606	583				570
Std. Error			7	9		3	8		4	5				2
Sample Size			8	18		95	7		4	95				227
Females			2,110	4,641		48,944	4,641		4,219	61,181				125,736
Percent			0.95	2.10		22.10	2.10		1.90	27.62				56.76
Mean Length			549	508		558	517		583	564				558
Std. Error			7	9		2	12		4	2				1
Sample Size			5	11		116	11		10	145				298
Both Sexes			5,485	12,236		89,027	7,595		5,907	101,265				221,515
Percent			2.48	5.52		40.19	3.43		2.67	45.71				100.00
Mean Length			564	512		563	519		589	571				563
Std. Error			5	6		2	8		3	2				1
Sample Size			13	29		211	18		14	240				525
Sample Period 10: 17 - 18 July[f]														
Males	117			10,783	234	22,270	17,933		820	34,462		117		86,736
Percent	0.06			5.66	0.12	11.70	9.42		0.43	18.10		0.06		45.57
Mean Length	425			473	415	563	477		579	570		610		536
Std. Error				3	50	2	2		11	2				1
Sample Size	1			92	2	190	153		7	294		1		740
Females			703	9,260	117	31,998	15,706		1,524	43,720		469	117	103,614
Percent			0.37	4.86	0.06	16.81	8.25		0.80	22.97		0.25	0.06	54.43
Mean Length			540	477	370	549	480		583	553		580	580	534
Std. Error			5	3		2	2		5	1		10		1
Sample Size			6	79	1	273	134		13	373		4	1	884
Both Sexes	117		703	20,043	351	54,268	33,639		2,344	78,182		586	117	190,350
Percent	0.06		0.37	10.53	0.18	28.51	17.67		1.23	41.07		0.31	0.06	100.00
Mean Length	425		540	475	400	554	479		581	560		586	580	535
Std. Error			5	2	50	1	1		5	1		10		1
Sample Size	1		6	171	3	463	287		20	667		5	1	1,624

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Table 4. (p. 6 of 10)

	Age Group													
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
Sample Period 11: 19 July														
Males			4,623	16,952		62,414	17,722		2,312	67,036				171,059
Percent			1.14	4.20		15.46	4.39		0.57	16.60				42.37
Mean Length			575	498		568	499		580	574				557
Std. Error			12	8		3	8		33	3				2
Sample Size			6	22		81	23		3	87				222
Females			3,853	6,935		92,465	14,640		3,853	110,186		771		232,703
Percent			0.95	1.72		22.90	3.63		0.95	27.29		0.19		57.63
Mean Length			549	501		551	518		593	560		610		553
Std. Error			5	8		2	7		9	2				1
Sample Size			5	9		120	19		5	143		1		302
Both Sexes			8,476	23,887		154,879	32,362		6,165	177,222		771		403,762
Percent			2.10	5.92		38.36	8.02		1.53	43.89		0.19		100.00
Mean Length			563	499		558	508		588	565		610		554
Std. Error			7	6		2	5		14	2				1
Sample Size			11	31		201	42		8	230		1		524
Sample Period 12: 20 - 22 July[9]														
Males			359	5,391		20,846	6,829		719	40,975				75,119
Percent			0.22	3.23		12.50	4.09		0.43	24.57				45.04
Mean Length			570	480		574	467		603	571				556
Std. Error				9		4	12		13	2				2
Sample Size			1	15		58	19		2	114				209
Females			719	6,110		30,910	11,501		1,438	40,615		359		91,652
Percent			0.43	3.66		18.53	6.90		0.86	24.35		0.22		54.96
Mean Length			543	477		552	487		560	551		565		538
Std. Error			3	8		2	5		15	2				1
Sample Size			2	17		86	32		4	113		1		255
Both Sexes			1,078	11,501		51,756	18,330		2,157	81,590		359		166,771
Percent			0.65	6.90		31.03	10.99		1.29	48.92		0.22		100.00
Mean Length			552	478		561	480		574	561		565		546
Std. Error			3	6		2	5		11	1				1
Sample Size			3	32		144	51		6	227		1		464

-Continued-

Table 4. (p. 7 of 10)

	Age Group													
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
Sample Period 13: 23 July[1]														
Males	404		1,211	5,247		40,359	5,650		1,211	54,888		404		109,374
Percent	0.19		0.58	2.50		19.23	2.69		0.58	26.15		0.19		52.12
Mean Length	440		585	502		573	521		587	575		575		567
Std. Error			3	8		2	5		6	2				1
Sample Size	1		3	13		100	14		3	136		1		271
Females			1,211	3,632		38,341	4,440		2,825	50,045				100,494
Percent			0.58	1.73		18.27	2.12		1.35	23.85				47.88
Mean Length			542	502		555	535		576	555				553
Std. Error			10	7		2	7		8	2				1
Sample Size			3	9		95	11		7	124				249
Both Sexes	404		2,422	8,879		78,700	10,090		4,036	104,933		404		209,868
Percent	0.19		1.15	4.23		37.50	4.81		1.92	50.00		0.19		100.00
Mean Length	440		563	502		564	528		580	565		575		560
Std. Error			5	5		2	4		6	1				1
Sample Size	1		6	22		195	25		10	260		1		520
Sample Period 14: 24 July[1]														
Males			10	150		581	190		20	1,142				2,093
Percent			0.22	3.23		12.51	4.09		0.43	24.58				45.05
Mean Length			570	480		574	467		603	571				556
Std. Error				9		4	12		13	2				2
Sample Size			1	15		58	19		2	114				209
Females			20	170		861	320		40	1,132		10		2,553
Percent			0.43	3.66		18.53	6.89		0.86	24.37		0.22		54.95
Mean Length			543	477		552	487		560	551		565		538
Std. Error			3	8		2	5		15	2				1
Sample Size			2	17		86	32		4	113		1		255
Both Sexes			30	320		1,442	510		60	2,274		10		4,646
Percent			0.65	6.89		31.04	10.98		1.29	48.95		0.22		100.00
Mean Length			552	478		561	480		574	561		565		546
Std. Error			3	6		2	5		11	1				1
Sample Size			3	32		144	51		6	227		1		464

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Table 4. (p. 8 of 10)

	Age Group													
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
Sample Period 15: 26 July														
Males			983	7,374		58,008	5,408		3,933	60,466		492		136,664
Percent			0.39	2.89		22.74	2.12		1.54	23.70		0.19		53.56
Mean Length			540	501		573	532		593	570		600		567
Std. Error			5	9		2	7		6	3				2
Sample Size			2	15		118	11		8	123		1		278
Females			492	2,950		44,244	3,933		4,424	62,431				118,474
Percent			0.19	1.16		17.34	1.54		1.73	24.47				46.44
Mean Length			550	522		549	531		564	554				551
Std. Error				18		2	6		12	2				1
Sample Size			1	6		90	8		9	127				241
Both Sexes			1,475	10,324		102,252	9,341		8,357	122,897		492		255,138
Percent			0.58	4.05		40.08	3.66		3.28	48.17		0.19		100.00
Mean Length			543	507		562	532		578	562		600		559
Std. Error			5	8		2	5		7	2				1
Sample Size			3	21		208	19		17	250		1		519
Sample Period 16: 27 - 28 July[j]														
Males			135	674		6,402	809		809	7,412		67		16,308
Percent			0.41	2.04		19.39	2.45		2.45	22.45		0.20		49.39
Mean Length			583	499		579	529		593	580		650		575
Std. Error			3	10		2	4		7	2				2
Sample Size			2	10		95	12		12	110		1		242
Females			67	809		5,863	674		337	8,828	67	67		16,712
Percent			0.20	2.45		17.76	2.04		1.02	26.74	0.20	0.20		50.61
Mean Length			540	502		552	535		568	556	525	610		551
Std. Error				6		2	8		11	2				1
Sample Size			1	12		87	10		5	131	1	1		248
Both Sexes			202	1,483		12,265	1,483		1,146	16,240	67	134		33,020
Percent			0.61	4.49		37.14	4.49		3.47	49.18	0.20	0.41		100.00
Mean Length			568	500		566	531		585	567	525	630		563
Std. Error			3	5		2	4		6	1				1
Sample Size			3	22		182	22		17	241	1	2		490

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Table 4. (p. 9 of 10)

	Age Group													
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
Sample Period 17: 29 July - 3 September														
Males			2,293	3,544		23,348	2,502		2,085	32,937		208		66,917
Percent			2.06	3.19		21.01	2.25		1.88	29.64		0.19		60.22
Mean Length			548	511		572	514		589	574		625		567
Std. Error			6	5		2	6		9	2				1
Sample Size			11	17		112	12		10	158		1		321
Females			834	2,293		17,511	1,668		1,042	20,847				44,195
Percent			0.75	2.06		15.76	1.50		0.94	18.76				39.78
Mean Length			534	487		549	514		576	553				547
Std. Error			7	8		2	13		3	2				2
Sample Size			4	11		84	8		5	100				212
Both Sexes			3,127	5,837		40,859	4,170		3,127	53,784		208		111,112
Percent			2.81	5.25		36.77	3.75		2.81	48.41		0.19		100.00
Mean Length			544	502		562	514		585	566		625		559
Std. Error			5	4		1	7		6	1				1
Sample Size			15	28		196	20		15	258		1		533
All Periods Combined:														
Males	521		14,842	110,708	236	423,404	116,291	2	17,465	478,687	76	1,534	2	1,163,768
Percent	0.02		0.58	4.33	0.01	16.55	4.55	0.00	0.68	18.71	0.00	0.06	0.00	45.49
Mean Length	437		565	492	414	564	501	370	589	570	549	598	560	554
Std. Error			5	2	50	1	2		6	1				1
Sample Size	2		42	475	3	1,647	655	1	66	1,857	1	6	1	4,756
Females	246	2	16,677	77,096	117	548,624	97,246		24,322	626,930	183	2,879	304	1,394,626
Percent	0.01	0.00	0.65	3.01	0.00	21.44	3.80		0.95	24.50	0.01	0.11	0.01	54.51
Mean Length	445	495	549	490	370	550	507		576	555	537	594	605	547
Std. Error			3	2		1	2		3	1	2	10		0
Sample Size	1	1	43	400	1	2,135	626		78	2,406	4	13	2	5,710
Both Sexes	767	2	31,519	187,804	353	972,028	213,537	2	41,787	1,105,617	259	4,413	306	2,558,394
Percent	0.03	0.00	1.23	7.34	0.01	37.99	8.35	0.00	1.63	43.22	0.01	0.17	0.01	100.00
Mean Length	439	495	557	492	400	556	503	370	581	562	541	596	604	550
Std. Error			3	2	50	1	1		3	1	2	10		0
Sample Size	3	1	85	875	4	3,782	1,281	1	144	4,263	5	19	3	10,466

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Table 4. (p. 10 of 10)

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[a] Mean length in mm.
[b] 3 mi. corridor south of Blanchard line. Used 7/9 Cohoe/Ninilchik beach set gillnet scale samples.
[c] 3 mi. corridor. Used weighted 7/9 Cohoe/Ninilchik and Salamatof Beach set gillnet scale samples.
[d] 3 mi. corridor. Used 7/12 Kalifornsky Beach set gillnet scale samples.
[e] south of Clam Gulch latitude & within 3 mi. corridor.
[f] 3 mi. corridor. Used weighted 7/16 Cohoe/Ninilchik and Salamatof Beach and 7/19 Kalifornsky Beach set gillnet scale samples.
[g] 3 mi. corridor on 7/22 north of Blanchard Line.
[h] south of latitude of north Kalgin point.
[i] 3 mi. corridor north of Blanchard Line. Used 7/20 3 mi. corridor period drift scale samples.
[j] 3 mi. corridor north of Blanchard Line.

Table 5. Age, sex and length composition of sockeye salmon in the Cohoe/Ninilchik Beach commercial set gillnet harvest, Upper Cook Inlet, Alaska, in 1993.

	Age Group										
	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	Total
Sample Period 1: 28 June - 2 July											
Males		1,380		7,358	2,168		5,584				16,490
Percent		4.13		22.05	6.50		16.73				49.41
Mean Length[a]		484		545	489		538				530
Std. Error		5		2	4		3				2
Sample Size		21		112	33		85				251
Females	66	788		6,832	1,445	66	7,687				16,884
Percent	0.20	2.36		20.47	4.33	0.20	23.03				50.59
Mean Length	565	490		537	496	580	540				533
Std. Error		6		2	5		2				1
Sample Size	1	12		104	22	1	117				257
Both Sexes	66	2,168		14,190	3,613	66	13,271				33,374
Percent	0.20	6.50		42.52	10.83	0.20	39.76				100.00
Mean Length	565	486		541	492	580	539				531
Std. Error		4		2	3		2				1
Sample Size	1	33		216	55	1	202				508
Sample Period 2: 3 - 9 July											
Males		4,217		5,367	7,283	192	5,079				22,138
Percent		8.15		10.37	14.07	0.37	9.81				42.78
Mean Length		487		542	487	583	555				517
Std. Error		3		4	4	18	5				2
Sample Size		44		56	76	2	53				231
Females	96	3,738		8,817	6,996		9,871		96		29,614
Percent	0.19	7.22		17.04	13.52		19.07		0.19		57.22
Mean Length	520	483		534	498		548		580		524
Std. Error		4		3	3		3				2
Sample Size	1	39		92	73		103		1		309
Both Sexes	96	7,955		14,184	14,279	192	14,950		96		51,752
Percent	0.19	15.37		27.41	27.59	0.37	28.89		0.19		100.00
Mean Length	520	485		537	492	583	550		580		521
Std. Error		3		2	3	18	3				1
Sample Size	1	83		148	149	2	156		1		540

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Table 5. (p. 2 of 3)

	Age Group										
	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	Total
Sample Period 3: 10 - 16 July											
Males		9,361	407	7,936	16,076	203	14,448				48,431
Percent		8.80	0.38	7.46	15.11	0.19	13.58				45.51
Mean Length		470	415	552	478	590	553				511
Std. Error		5	50	5	3		4				2
Sample Size		46	2	39	79	1	71				238
Females		3,663	203	18,518	12,820	407	21,978		407		57,996
Percent		3.44	0.19	17.40	12.05	0.38	20.65		0.38		54.49
Mean Length		476	370	541	479	578	542		563		524
Std. Error		4		3	3	23	3		3		1
Sample Size		18	1	91	63	2	108		2		285
Both Sexes		13,024	610	26,454	28,896	610	36,426		407		106,427
Percent		12.24	0.57	24.86	27.15	0.57	34.23		0.38		100.00
Mean Length		472	400	544	478	582	546		563		518
Std. Error		4	50	2	2	23	2		3		1
Sample Size		64	3	130	142	3	179		2		523
Sample Period 4: 17 - 23 July											
Males	575	6,039		28,759	7,477	2,588	35,949	288	863	288	82,826
Percent	0.38	3.95		18.80	4.89	1.69	23.50	0.19	0.56	0.19	54.14
Mean Length	560	487		570	497	592	569	560	597	590	558
Std. Error		9		3	6	7	2		7		2
Sample Size	2	21		100	26	9	125	1	3	1	288
Females	1,438	6,615		20,994	7,765	2,588	30,197		575		70,172
Percent	0.94	4.32		13.72	5.08	1.69	19.74		0.38		45.86
Mean Length	548	494		550	511	559	551		563		541
Std. Error	11	7		3	7	6	2		3		2
Sample Size	5	23		73	27	9	105		2		244
Both Sexes	2,013	12,654		49,753	15,242	5,176	66,146	288	1,438	288	152,998
Percent	1.32	8.27		32.52	9.96	3.38	43.23	0.19	0.94	0.19	100.00
Mean Length	551	491		562	504	575	561	560	583	590	550
Std. Error	11	6		2	4	5	2		4		1
Sample Size	7	44		173	53	18	230	1	5	1	532

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Table 5. (p. 3 of 3)

	Age Group										
	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	Total
Sample Period 5: 24 July - 13 August											
Males		1,641	182	20,782	4,740	3,646	27,162		365	182	58,700
Percent		1.67	0.18	21.11	4.82	3.70	27.59		0.37	0.18	59.63
Mean Length		484	380	566	495	595	571		608	600	562
Std. Error		12		3	7	5	2		8		2
Sample Size		9	1	114	26	20	149		2	1	322
Females		2,552		14,402	5,651	1,458	15,678				39,741
Percent		2.59		14.63	5.74	1.48	15.93				40.37
Mean Length		491		543	496	556	540				532
Std. Error		9		3	6	8	2				2
Sample Size		14		79	31	8	86				218
Both Sexes		4,193	182	35,184	10,391	5,104	42,840		365	182	98,441
Percent		4.26	0.18	35.74	10.56	5.18	43.52		0.37	0.18	100.00
Mean Length		488	380	557	496	584	560		608	600	550
Std. Error		7		2	4	4	2		8		1
Sample Size		23	1	193	57	28	235		2	1	540
All Periods Combined:											
Males	575	22,638	589	70,202	37,744	6,629	88,222	288	1,228	470	228,585
Percent	0.13	5.11	0.13	15.85	8.52	1.50	19.92	0.07	0.28	0.11	51.60
Mean Length	560	480	404	562	486	593	564	560	600	594	543
Std. Error		3	50	2	2	4	1		5		1
Sample Size	2	141	3	421	240	32	483	1	5	2	1,330
Females	1,600	17,356	203	69,563	34,677	4,519	85,411		1,078		214,407
Percent	0.36	3.92	0.05	15.70	7.83	1.02	19.28		0.24		48.40
Mean Length	547	487	370	543	494	560	546		564		532
Std. Error	11	3		1	2	5	1		2		1
Sample Size	7	106	1	439	216	20	519		5		1,313
Both Sexes	2,175	39,994	792	139,765	72,421	11,148	173,633	288	2,306	470	442,992
Percent	0.49	9.03	0.18	31.55	16.35	2.52	39.20	0.07	0.52	0.11	100.00
Mean Length	550	483	395	553	490	580	555	560	583	594	538
Std. Error	11	2	50	1	1	3	1		3		1
Sample Size	9	247	4	860	456	52	1,002	1	10	2	2,643

[a] Mean length in mm.

Table 6. Age, sex and length composition of sockeye salmon in the Kalifonsky Beach commercial set gillnet harvest, Upper Cook Inlet, Alaska, in 1993.

	Age Group										
	0.2	0.3	1.2	2.1	1.3	2.2	1.4	2.3	2.4	3.3	Total
Sample Period 1: 28 June - 10 July											
Males			663		3,898	1,325		3,001		39	8,926
Percent			3.17		18.62	6.33		14.34		0.19	42.64
Mean Length[a]			492		555	493		547		580	539
Std. Error			8		3	4		4			2
Sample Size			17		100	34		77		1	229
Females			507		5,262	1,676	39	4,521			12,005
Percent			2.42		25.14	8.01	0.19	21.60			57.36
Mean Length			483		545	491	615	541			533
Std. Error			8		2	4		2			1
Sample Size			13		135	43	1	116			308
Both Sexes			1,170		9,160	3,001	39	7,522		39	20,931
Percent			5.59		43.76	14.34	0.19	35.94		0.19	100.00
Mean Length			488		549	492	615	543		580	536
Std. Error			6		2	3		2			1
Sample Size			30		235	77	1	193		1	537
Sample Period 2: 11 - 17 July											
Males		715	12,156		20,022	21,809	1,073	23,954			79,729
Percent		0.37	6.23		10.26	11.17	0.55	12.27			40.84
Mean Length		503	472		542	486	572	560			522
Std. Error		3	5		4	4	19	5			2
Sample Size		2	34		56	61	3	67			223
Females			15,016		36,468	17,161	1,073	45,765			115,483
Percent			7.69		18.68	8.79	0.55	23.44			59.16
Mean Length			464		539	490	585	543			524
Std. Error			4		2	4	14	3			1
Sample Size			42		102	48	3	128			323
Both Sexes		715	27,172		56,490	38,970	2,146	69,719			195,212
Percent		0.37	13.92		28.94	19.96	1.10	35.71			100.00
Mean Length		503	467		540	488	578	549			523
Std. Error		3	3		2	3	12	2			1
Sample Size		2	76		158	109	6	195			546

-Continued-

Table 6. (p. 2 of 3)

	Age Group										
	0.2	0.3	1.2	2.1	1.3	2.2	1.4	2.3	2.4	3.3	Total
Sample Period 3: 18 - 24 July											
Males	360		12,592		16,549	23,025	360	31,297	360		84,543
Percent	0.18		6.41		8.42	11.72	0.18	15.93	0.18		43.04
Mean Length	425		471		554	473	585	577	610		528
Std. Error			6		6	3		3			2
Sample Size	1		35		46	64	1	87	1		235
Females		1,079	20,146		23,025	24,104	1,079	41,732	360	360	111,885
Percent		0.55	10.26		11.72	12.27	0.55	21.25	0.18	0.18	56.96
Mean Length		543	474		546	481	587	552	600	580	522
Std. Error		3	4		3	3	7	3			2
Sample Size		3	56		64	67	3	116	1	1	311
Both Sexes	360	1,079	32,738		39,574	47,129	1,439	73,029	720	360	196,428
Percent	0.18	0.55	16.67		20.15	23.99	0.73	37.18	0.37	0.18	100.00
Mean Length	425	543	473		549	477	586	563	605	580	525
Std. Error		3	3		3	2	7	2			1
Sample Size	1	3	91		110	131	4	203	2	1	546
Sample period 4: 25 July - 13 August											
Males		988	12,839	494	41,479	11,851	988	58,268	988		127,895
Percent		0.37	4.82	0.19	15.58	4.45	0.37	21.89	0.37		48.05
Mean Length		558	458	365	572	472	600	574	595		552
Std. Error		18	5		3	6	25	3	25		2
Sample Size		2	26	1	84	24	2	118	2		259
Females			8,395		50,368	12,839	2,963	63,700			138,265
Percent			3.15		18.92	4.82	1.11	23.93			51.95
Mean Length			478		551	495	580	550			541
Std. Error			8		2	7	10	2			2
Sample Size			17		102	26	6	129			280
Both Sexes		988	21,234	494	91,847	24,690	3,951	121,968	988		266,160
Percent		0.37	7.98	0.19	34.51	9.28	1.48	45.83	0.37		100.00
Mean Length		558	466	365	561	484	585	561	595		546
Std. Error		18	4		2	4	10	2	25		1
Sample Size		2	43	1	186	50	8	247	2		539

-Continued-

Table 6. (p. 3 of 3)

	Age Group										
	0.2	0.3	1.2	2.1	1.3	2.2	1.4	2.3	2.4	3.3	Total
All Periods Combined:											
Males	360	1,703	38,250	494	81,948	58,010	2,421	116,520	1,348	39	301,093
Percent	0.05	0.25	5.64	0.07	12.07	8.55	0.36	17.17	0.20	0.01	44.36
Mean Length	425	534	467	365	561	478	585	571	599	580	537
Std. Error		10	3		2	2	15	2	25		1
Sample Size	1	4	112	1	286	183	6	349	3	1	946
Females		1,079	44,064		115,123	55,780	5,154	155,718	360	360	377,638
Percent		0.16	6.49		16.96	8.22	0.76	22.94	0.05	0.05	55.64
Mean Length		543	471		546	487	583	548	600	580	530
Std. Error		3	3		1	2	7	1			1
Sample Size		3	128		403	184	13	489	1	1	1,222
Both Sexes	360	2,782	82,314	494	197,071	113,790	7,575	272,238	1,708	399	678,731
Percent	0.05	0.41	12.13	0.07	29.04	16.77	1.12	40.11	0.25	0.06	100.00
Mean Length	425	538	470	365	552	483	584	558	599	580	533
Std. Error		6	2		1	2	6	1	25		1
Sample Size	1	7	240	1	689	367	19	838	4	2	2,168

[a] Mean length in mm.

Table 7. Age, sex and length composition of sockeye salmon in the Salamatof Beach commercial set gillnet harvest, Upper Cook Inlet, Alaska, in 1993.

	Age Group											
	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	2.4	3.3	Total
Sample Period 1: 2 - 13 July												
Males		27	255	13	1,073	161	13	54	1,141		13	2,750
Percent		0.38	3.61	0.18	15.18	2.28	0.18	0.76	16.14		0.18	38.90
Mean Length[a]		563	462	330	553	497	370	590	564		560	545
Std. Error		3	7		3	11		2	3			2
Sample Size		2	19	1	80	12	1	4	85		1	205
Females	13	13	335		1,730	188		67	1,960	13		4,319
Percent	0.18	0.18	4.74		24.47	2.66		0.95	27.73	0.18		61.10
Mean Length	495	570	467		547	495		586	555	565		543
Std. Error			9		2	6		10	2			1
Sample Size	1	1	25		129	14		5	146	1		322
Both Sexes	13	40	590	13	2,803	349	13	121	3,101	13	13	7,069
Percent	0.18	0.57	8.35	0.18	39.65	4.94	0.18	1.71	43.87	0.18	0.18	100.00
Mean Length	495	565	465	330	550	496	370	588	558	565	560	544
Std. Error		3	6		2	6		6	2			1
Sample Size	1	3	44	1	209	26	1	9	231	1	1	527
Sample Period 2: 14 - 20 July												
Males			9,482		90,506	8,620		4,310	117,227			230,145
Percent			1.98		18.92	1.80		0.90	24.50			48.11
Mean Length			494		570	496		575	574			567
Std. Error			10		3	8		15	3			2
Sample Size			11		105	10		5	136			267
Females		2,586	4,310		101,712	3,448		6,896	128,432	862		248,246
Percent		0.54	0.90		21.26	0.72		1.44	26.85	0.18		51.89
Mean Length		537	508		556	489		583	561	595		558
Std. Error		10	10		2	12		7	2			1
Sample Size		3	5		118	4		8	149	1		288
Both Sexes		2,586	13,792		192,218	12,068		11,206	245,659	862		478,391
Percent		0.54	2.88		40.18	2.52		2.34	51.35	0.18		100.00
Mean Length		537	498		563	494		580	568	595		562
Std. Error		10	8		2	7		7	2			1
Sample Size		3	16		223	14		13	285	1		555

-Continued-

Table 7. (p. 2 of 3)

	Age Group											
	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	2.4	3.3	Total
Sample Period 3: 21 - 28 July												
Males			5,574		39,879	2,573		3,002	56,602			107,630
Percent			2.51		17.95	1.16		1.35	25.48			48.46
Mean Length			463		567	493		597	569			562
Std. Error			10		3	12		9	2			2
Sample Size			13		93	6		7	132			251
Females			4,717	429	42,023	5,146		1,286	60,031	858		114,490
Percent			2.12	0.19	18.92	2.32		0.58	27.03	0.39		51.54
Mean Length			473	405	546	503		578	548	553		542
Std. Error			12		2	5		12	2	3		1
Sample Size			11	1	98	12		3	140	2		267
Both Sexes			10,291	429	81,902	7,719		4,288	116,633	858		222,120
Percent			4.63	0.19	36.87	3.48		1.93	52.51	0.39		100.00
Mean Length			467	405	556	499		591	558	553		552
Std. Error			8		2	5		7	1	3		1
Sample Size			24	1	191	18		10	272	2		518
Sample Period 4: 29 July - 13 August												
Males			5,406	451	21,850	1,577		901	30,634	451		61,270
Percent			4.81	0.40	19.44	1.40		0.80	27.25	0.40		54.51
Mean Length			467	373	561	504		564	567	590		553
Std. Error			7	8	3	21		14	2	20		2
Sample Size			24	2	97	7		4	136	2		272
Females		676	5,406	676	18,021	4,055		676	21,623			51,133
Percent		0.60	4.81	0.60	16.03	3.61		0.60	19.24			45.49
Mean Length		503	477	378	539	504		567	545			530
Std. Error		23	7	3	3	4		9	2			2
Sample Size		3	24	3	80	18		3	96			227
Both Sexes		676	10,812	1,127	39,871	5,632		1,577	52,257	451		112,403
Percent		0.60	9.62	1.00	35.47	5.01		1.40	46.49	0.40		100.00
Mean Length		503	472	376	551	504		565	558	590		542
Std. Error		23	5	4	2	6		9	2	20		1
Sample Size		3	48	5	177	25		7	232	2		499

-Continued-

Table 7. (p. 3 of 3)

	Age Group											
	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	2.4	3.3	Total
All Periods Combined:												
Males		27	20,717	464	153,308	12,931	13	8,267	205,604	451	13	401,795
Percent		0.00	2.53	0.06	18.70	1.58	0.00	1.01	25.07	0.06	0.00	49.00
Mean Length		563	478	371	568	496	370	582	572	590	560	563
Std. Error		3	6	8	2	6		9	2	20		1
Sample Size		2	67	3	375	35	1	20	489	2	1	995
Females	13	3,275	14,768	1,105	163,486	12,837		8,925	212,046	1,733		418,188
Percent	0.00	0.40	1.80	0.13	19.94	1.57		1.09	25.86	0.21		51.00
Mean Length	495	530	484	389	551	499		581	556	574		550
Std. Error		9	5	3	1	4		5	1	3		1
Sample Size	1	7	65	4	425	48		19	531	4		1,104
Both Sexes	13	3,302	35,485	1,569	316,794	25,768	13	17,192	417,650	2,184	13	819,983
Percent	0.00	0.40	4.33	0.19	38.63	3.14	0.00	2.10	50.93	0.27	0.00	100.00
Mean Length	495	530	481	384	559	498	370	581	564	577	560	556
Std. Error		9	4	4	1	4		5	1	7		1
Sample Size	1	9	132	7	800	83	1	39	1,020	6	1	2,099

[a] Mean length in mm.

Table 8. Age, sex and length composition of sockeye salmon in the Western Subdistrict commercial set gillnet harvest, Upper Cook Inlet, Alaska, in 1993.

	Age Group					
	1.2	1.3	2.2	2.3	3.2	Total
Sample Period 1:	18 June - 19 July					
Males	1,859	3,784	3,286	1,627		10,556
Percent	10.77	21.92	19.04	9.43		61.15
Mean Length[a]	505	558	506	560		533
Std. Error	3	2	2	3		1
Sample Size	56	114	99	49		318
Females	1,162	2,523	1,959	1,062		6,706
Percent	6.73	14.62	11.35	6.15		38.85
Mean Length	487	536	494	553		518
Std. Error	2	2	3	4		1
Sample Size	35	76	59	32		202
Both Sexes	3,021	6,307	5,245	2,689		17,262
Percent	17.50	36.54	30.38	15.58		100.00
Mean Length	498	549	502	557		527
Std. Error	2	2	2	3		1
Sample Size	91	190	158	81		520
Sample Period 2:	18 July - 13 September					
Males	896	1,715	857	934	13	4,415
Percent	13.44	25.72	12.85	14.01	0.19	66.21
Mean Length	495	549	501	548	495	529
Std. Error	2	2	2	3		1
Sample Size	70	134	67	73	1	345
Females	589	576	909	179		2,253
Percent	8.83	8.64	13.63	2.68		33.79
Mean Length	477	530	486	538		499
Std. Error	2	3	2	4		1
Sample Size	46	45	71	14		176
Both Sexes	1,485	2,291	1,766	1,113	13	6,668
Percent	22.27	34.36	26.48	16.69	0.19	100.00
Mean Length	488	544	493	547	495	519
Std. Error	2	2	1	3		1
Sample Size	116	179	138	87	1	521

-Continued-

Table 8. (p. 2 of 2)

	Age Group					
	1.2	1.3	2.2	2.3	3.2	Total
All Periods Combined:						
Males	2,755	5,499	4,143	2,561	13	14,971
Percent	11.51	22.98	17.31	10.70	0.05	62.56
Mean Length	502	555	505	556	495	532
Std. Error	2	2	2	2		1
Sample Size	126	248	166	122	1	663
Females	1,751	3,099	2,868	1,241		8,959
Percent	7.32	12.95	11.98	5.19		37.44
Mean Length	484	535	491	551		513
Std. Error	2	2	2	3		1
Sample Size	81	121	130	46		378
Both Sexes	4,506	8,598	7,011	3,802	13	23,930
Percent	18.83	35.93	29.30	15.89	0.05	100.00
Mean Length	495	548	500	554	495	525
Std. Error	2	1	1	2		1
Sample Size	207	369	296	168	1	1,041

[a] Mean length in mm.

Table 9. Age, sex and length composition of sockeye salmon in the Eastern Subdistrict commercial set gillnet harvest, Upper Cook Inlet, Alaska, in 1993.

	Age Group									
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	Total
Sample Period 1: 25 June - 19 July										
Males	41		41	4,698		1,471	1,389	41	1,348	9,029
Percent	0.20		0.20	22.46		7.03	6.64	0.20	6.44	43.16
Mean Length[a]	445		560	466		528	469	540	545	489
Std. Error				2		6	4		6	2
Sample Size	1		1	115		36	34	1	33	221
Females	41	123	82	5,270	41	2,737	2,288		1,307	11,889
Percent	0.20	0.59	0.39	25.19	0.20	13.08	10.94		6.25	56.84
Mean Length	430	343	530	464	330	507	483		520	483
Std. Error		7	5	2		3	4		5	2
Sample Size	1	3	2	129	1	67	56		32	291
Both Sexes	82	123	123	9,968	41	4,208	3,677	41	2,655	20,918
Percent	0.39	0.59	0.59	47.65	0.20	20.12	17.58	0.20	12.69	100.00
Mean Length	438	343	540	465	330	515	478	540	533	485
Std. Error		7	5	2		3	3		4	1
Sample Size	2	3	3	244	1	103	90	1	65	512
Sample Period 2: 20 July - 13 September										
Males		11	11	691	34	453	498	34	725	2,457
Percent		0.19	0.19	12.16	0.60	7.97	8.76	0.60	12.76	43.23
Mean Length		330	550	464	348	545	483	583	560	511
Std. Error				3	6	6	4	7	3	2
Sample Size		1	1	61	3	40	44	3	64	217
Females		34		1,165	102	543	691	23	668	3,226
Percent		0.60		20.50	1.79	9.55	12.16	0.40	11.75	56.77
Mean Length		333		465	364	528	477	575	533	488
Std. Error		2		2	18	4	4	10	3	2
Sample Size		3		103	9	48	61	2	59	285
Both Sexes		45	11	1,856	136	996	1,189	57	1,393	5,683
Percent		0.79	0.19	32.66	2.39	17.53	20.92	1.00	24.51	100.00
Mean Length		333	550	464	360	536	480	580	547	498
Std. Error		2		2	14	3	3	6	2	1
Sample Size		4	1	164	12	88	105	5	123	502

-Continued-

Table 9. (p. 2 of 2)

	Age Group									
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	Total
All Periods Combined:										
Males	41	11	52	5,389	34	1,924	1,887	75	2,073	11,486
Percent	0.15	0.04	0.20	20.26	0.13	7.23	7.09	0.28	7.79	43.18
Mean Length	445	330	558	466	348	532	473	560	550	494
Std. Error				2	6	5	3	7	4	2
Sample Size	1	1	2	176	3	76	78	4	97	438
Females	41	157	82	6,435	143	3,280	2,979	23	1,975	15,115
Percent	0.15	0.59	0.31	24.19	0.54	12.33	11.20	0.09	7.42	56.82
Mean Length	430	341	530	464	354	511	482	575	524	484
Std. Error		5	5	2	18	3	3	10	4	1
Sample Size	1	6	2	232	10	115	117	2	91	576
Both Sexes	82	168	134	11,824	177	5,204	4,866	98	4,048	26,601
Percent	0.31	0.63	0.50	44.45	0.67	19.56	18.29	0.37	15.22	100.00
Mean Length	438	340	541	465	353	519	478	563	538	488
Std. Error		5	5	1	14	3	2	6	3	1
Sample Size	2	7	4	408	13	191	195	6	188	1,014

[a] Mean length in mm.

Table 10. Age, sex and length composition of sockeye salmon in the General Subdistrict commercial set gillnet harvest, Upper Cook Inlet, Alaska, in 1993.

	Age Group												
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	Total
Sample Period 1: 21 June - 16 July													
Males	104		363	2,336		7,422	1,090	52	3,582		52		15,001
Percent	0.32		1.13	7.26		23.06	3.39	0.16	11.13		0.16		46.61
Mean Length[a]	478		539	468		564	485	560	562		550		542
Std. Error	18		14	7		2	8		3				2
Sample Size	2		7	45		143	21	1	69		1		289
Females		52	831	1,557	52	7,994	1,090	156	5,398			52	17,182
Percent		0.16	2.58	4.84	0.16	24.84	3.39	0.48	16.77			0.16	53.39
Mean Length		320	558	470	340	546	505	575	545			520	536
Std. Error			5	7		2	8	30	3				1
Sample Size		1	16	30	1	154	21	3	104			1	331
Both Sexes	104	52	1,194	3,893	52	15,416	2,180	208	8,980		52	52	32,183
Percent	0.32	0.16	3.71	12.10	0.16	47.90	6.77	0.65	27.90		0.16	0.16	100.00
Mean Length	478	320	552	469	340	555	495	571	552		550	520	538
Std. Error	18		6	5		1	6	30	2				1
Sample Size	2	1	23	75	1	297	42	4	173		1	1	620
Sample Period 2: 17 July - 30 August													
Males	114		1,716	11,557		18,194	4,234		6,865				42,680
Percent	0.13		1.96	13.20		20.78	4.84		7.84				48.76
Mean Length	425		560	493		553	503		550				531
Std. Error			7	3		2	4		5				2
Sample Size	1		15	101		159	37		60				373
Females			3,204	8,811	114	20,026	4,119		8,467	114			44,855
Percent			3.66	10.07	0.13	22.88	4.71		9.67	0.13			51.24
Mean Length			535	488	325	535	498		537	540			522
Std. Error			4	3		2	4		3				1
Sample Size			28	77	1	175	36		74	1			392
Both Sexes	114		4,920	20,368	114	38,220	8,353		15,332	114			87,535
Percent	0.13		5.62	23.27	0.13	43.66	9.54		17.52	0.13			100.00
Mean Length	425		544	491	325	544	501		543	540			527
Std. Error			4	2		1	3		3				1
Sample Size	1		43	178	1	334	73		134	1			765

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Table 10. (p. 2 of 2)

	Age Group												
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	Total
All Periods Combined:													
Males	218		2,079	13,893		25,616	5,324	52	10,447		52		57,681
Percent	0.18		1.74	11.60		21.40	4.45	0.04	8.73		0.04		48.18
Mean Length	450		556	488		557	499	560	554		550		534
Std. Error	18		7	3		2	4		3				1
Sample Size	3		22	146		302	58	1	129		1		662
Females		52	4,035	10,368	166	28,020	5,209	156	13,865	114		52	62,037
Percent		0.04	3.37	8.66	0.14	23.41	4.35	0.13	11.58	0.10		0.04	51.82
Mean Length		320	540	485	330	538	500	575	540	540		520	526
Std. Error			4	3		1	4	30	2				1
Sample Size		1	44	107	2	329	57	3	178	1		1	723
Both Sexes	218	52	6,114	24,261	166	53,636	10,533	208	24,312	114	52	52	119,718
Percent	0.18	0.04	5.11	20.27	0.14	44.80	8.80	0.17	20.31	0.10	0.04	0.04	100.00
Mean Length	450	320	545	487	330	547	500	571	546	540	550	520	530
Std. Error	18		3	2		1	3	30	2				1
Sample Size	3	1	66	253	2	631	115	4	307	1	1	1	1,385

[a] Mean length in mm.

Table 11. Age, sex and length composition of sockeye salmon escapement into Kenai River, Upper Cook Inlet, Alaska, in 1993.

	Age Group												
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	Total
Sample period:	1 July - 13 August												
Males	390	779	779	47,929	21,042	96,247	22,600	390	8,962	139,109	390		338,617
Percent	0.05	0.10	0.10	5.89	2.59	11.83	2.78	0.05	1.10	17.10	0.05		41.62
Mean Length[a]	465	373	535	474	380	583	514	385	597	583	495		550
Std. Error		18	10	4	3	2	5		7	2			1
Sample Size	1	2	2	123	54	247	58	1	23	357	1		869
Females		1,559	1,559	51,436	30,004	151,969	29,614		12,469	196,000		390	475,000
Percent		0.19	0.19	6.32	3.69	18.68	3.64		1.53	24.09		0.05	58.38
Mean Length		351	530	481	380	556	519		582	560		605	536
Std. Error		18	14	4	3	2	3		4	1			1
Sample Size		4	4	132	77	390	76		32	503		1	1,219
Both Sexes	390	2,338	2,338	99,365	51,046	248,216	52,214	390	21,431	335,109	390	390	813,617[b]
Percent	0.05	0.29	0.29	12.21	6.27	30.51	6.42	0.05	2.63	41.19	0.05	0.05	100.00
Mean Length	465	358	532	477	380	566	517	385	588	570	495	605	542
Std. Error		13	10	3	2	1	3		4	1			1
Sample Size	1	6	6	255	131	637	134	1	55	860	1	1	2,088

[a] Mean length in mm.
[b] Total escapement was 813,617 fish, of which 89,551 fish were taken in the sport harvest above the sonar site realizing 724,066 spawning fish.

Table 12. Age, sex and length composition of sockeye salmon escapement into Hidden Creek, Kenai River drainage, Upper Cook Inlet, Alaska, in 1993.

	Age Group				
	1.2	1.3	2.2	2.3	Total
Sample period:	27 July - 16 August				
Males	3,839	617	480		4,936
Percent	33.13	5.33	4.14		42.60
Mean Length[a]	541	579	534		545
Std. Error	4	15	9		4
Sample Size	56	9	7		72
Females	5,416	411	754	69	6,650
Percent	46.75	3.55	6.51	0.60	57.40
Mean Length	521	552	537	620	525
Std. Error	3	13	6		3
Sample Size	79	6	11	1	97
Both Sexes	9,255	1,028	1,234	69	11,586
Percent	79.88	8.87	10.65	0.60	100.00
Mean Length	529	568	536	620	534
Std. Error	2	10	5		2
Sample Size	135	15	18	1	169

[a] Mean length in mm.

Table 13. Age, sex and length composition of sockeye salmon escapement into Kasilof River, Upper Cook Inlet, Alaska, in 1993.

	Age Group						
	1.1	1.2	2.1	1.3	2.2	2.3	Total
Sample period:	12 June -	5 August					
Males		10,504	263	26,521	15,230	17,331	69,849
Percent		7.01	0.18	17.69	10.16	11.56	46.58
Sample Size		40	1	101	58	66	266
Mean Length[a]		479	390	550	486	542	523
Std. Error		4		3	3	3	2
Sample Size		40	1	101	58	66	266
Females	525	13,917	263	18,119	26,784	20,482	80,090
Percent	0.35	9.28	0.18	12.08	17.86	13.66	53.42
Sample Size	2	53	1	69	102	78	305
Mean Length	415	479	380	542	480	533	507
Std. Error	75	3		3	2	3	1
Sample Size	2	53	1	69	102	78	305
Both Sexes	525	24,421	526	44,640	42,014	37,813	149,939[b]
Percent	0.35	16.29	0.35	29.77	28.02	25.22	100.00
Sample Size	2	93	2	170	160	144	571
Mean Length	415	479	385	547	482	537	514
Std. Error	75	2		2	2	2	1
Sample Size	2	93	2	170	160	144	571

[a] Mean length in mm.
[b] Total escapement was 149,939 fish, of which 9,098 fish were taken for egg-take at Bear Creek, Tustumena Lake realizing 140,841 spawning fish.

Table 14. Age, sex and length composition of sockeye salmon escapement into Crescent River, Upper Cook Inlet, Alaska, in 1993.

	Age Group							
	1.1	1.2	2.1	1.3	2.2	2.3	2.4	Total
Sample period:	1 July - 2 August							
Males	81	2,261	323	6,542	1,292	8,400		18,899
Percent	0.22	6.02	0.86	17.42	3.44	22.37		50.32
Sample Size	1	28	4	81	16	104		234
Mean Length[a]	303	484	340	578	479	585		558
Std. Error		6	10	3	5	2		2
Sample Size	1	28	4	81	16	104		234
Females		1,050		7,430	888	9,208	81	18,657
Percent		2.80		19.78	2.36	24.52	0.22	49.68
Sample Size		13		92	11	114	1	231
Mean Length		495		559	497	558	603	552
Std. Error		6		2	6	2		1
Sample Size		13		92	11	114	1	231
Both Sexes	81	3,311	323	13,972	2,180	17,608	81	37,556
Percent	0.22	8.82	0.86	37.20	5.80	46.88	0.22	100.00
Sample Size	1	41	4	173	27	218	1	465
Mean Length	303	487	340	568	486	571	603	555
Std. Error		5	10	2	4	1		1
Sample Size	1	41	4	173	27	218	1	465

[a] Mean length in mm.

Table 15. Age, sex and size composition of sockeye salmon escapement into Packers Creek, Kalgin Island, Upper Cook Inlet, Alaska, in 1993.

	Age Group					
	1.2	2.1	1.3	2.2	2.3	Total
Sample period:	20 June - 31 July					
Males	884		2,541	7,732	10,382	21,539
Percent	2.16		6.22	18.92	25.40	52.70
Sample Size	8		23	70	94	195
Mean Length[a]	449		548	446	542	504
Std. Error	6		4	4	3	2
Sample Size	8		23	70	94	195
Mean Weight[b]	1.29		2.72	1.51	2.58	2.16
Std. Error	0.06		0.06	0.05	0.04	0.03
Sample Size	8		23	70	94	195
Females	110	110	4,197	2,320	12,593	19,330
Percent	0.27	0.27	10.27	5.68	30.81	47.30
Sample Size	1	1	38	21	114	175
Mean Length	455	360	529	478	532	523
Std. Error			4	7	2	2
Sample Size	1	1	38	21	114	175
Mean Weight	1.90	0.70	2.30	1.77	2.38	2.28
Std. Error			0.06	0.07	0.03	0.02
Sample Size	1	1	38	21	114	175
Both Sexes	994	110	6,738	10,052	22,975	40,869[c]
Percent	2.43	0.27	16.49	24.60	56.22	100.00
Sample Size	9	1	61	91	208	370
Mean Length	450	360	536	454	536	513
Std. Error	6		3	4	2	1
Sample Size	9	1	61	91	208	370
Mean Weight	1.36	0.70	2.46	1.57	2.47	2.22
Std. Error	0.06		0.04	0.04	0.02	0.02
Sample Size	9	1	61	91	208	370

[a] Mean length in mm.
[b] Mean weight in kg.
[c] Total escapement was 40,869 fish, of which 3,274 fish were taken for egg-take realizing 37,595 spawning fish. A commerical harvest of 17,092 fish was conducted prior to fish arriving at the weir as part of CIAA recover efforts.

Table 16. Age, sex and length composition of sockeye salmon escapement into Yentna River (RM 4.0), Susitna River drainage, Upper Cook Inlet, Alaska, in 1993.

	Age Group									
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	2.3	2.4	Total
Sample period:	7 July - 7 August									
Males	1,223	102	3,466	28,441	204	23,242	9,480	7,543		73,701
Percent	0.86	0.07	2.45	20.07	0.14	16.40	6.69	5.32		52.01
Mean Length[a]	453	340	555	465	328	561	476	562		510
Std. Error	6		7	2	3	2	4	3		1
Sample Size	12	1	34	279	2	228	93	74		723
Females	204		3,058	17,024	306	27,115	7,034	13,048	204	67,993
Percent	0.14		2.16	12.01	0.22	19.14	4.96	9.21	0.14	47.99
Mean Length	498		551	484	340	549	487	544	540	524
Std. Error	68		3	2	13	1	3	2	10	1
Sample Size	2		30	167	3	266	69	128	2	667
Both Sexes	1,427	102	6,524	45,465	510	50,357	16,514	20,591	204	141,694
Percent	1.01	0.07	4.60	32.09	0.36	35.54	11.65	14.53	0.14	100.00
Mean Length	460	340	553	472	335	554	481	550	540	517
Std. Error	11		4	1	8	1	3	2	10	1
Sample Size	14	1	64	446	5	494	162	202	2	1,390

[a] Mean length in mm.

Table 17. Age, sex and size composition of sockeye salmon escapement into Chelatna Lake (Lake Creek), Yentna River drainage, Upper Cook Inlet, Alaska, in 1993.

	Age Group					
	0.3	1.2	1.3	2.2	2.3	Total
Sample period:	23 July - 5 August					
Males	82	1,193	6,005	41	247	7,568
Percent	0.41	5.90	29.68	0.20	1.22	37.40
Mean Length[a]	575	490	555	470	545	544
Std. Error	10	3	2		11	2
Sample Size	2	29	146	1	6	184
Mean Weight[b]		2.54	3.47		3.43	3.32
Std. Error		0.11	0.05		0.40	0.05
Sample Size		7	41		3	51
Females	41	5,470	6,909	41	206	12,667
Percent	0.20	27.03	34.14	0.20	1.02	62.60
Mean Length	490	445	497	540	494	475
Std. Error		4	2		12	2
Sample Size	1	133	168	1	5	308
Mean Weight		2.41	2.87			2.67
Std. Error		0.13	0.04			0.06
Sample Size		18	63			81
Both Sexes	123	6,663	12,914	82	453	20,235
Percent	0.61	32.93	63.82	0.41	2.24	100.00
Mean Length	547	453	524	505	522	501
Std. Error	10	3	1		8	1
Sample Size	3	162	314	2	11	492
Mean Weight		2.43	3.15		3.43	2.91
Std. Error		0.11	0.03		0.40	0.04
Sample Size		25	104		3	132

[a] Mean length in mm.
[b] Mean weight in kg.

Table 18. Age, sex and length composition of sockeye salmon escapement into Fish Creek, Upper Cook Inlet, Alaska, in 1993.

	Age Group						
	1.1	1.2	2.1	1.3	2.2	2.3	Total
Sample period:	8 July - 20 August						
Males	591	21,573	591	9,457	8,275	1,182	41,669
Percent	0.50	18.34	0.50	8.04	7.04	1.00	35.43
Mean Length[a]	325	496	375	549	501	554	506
Std. Error	15	4	15	4	6	5	2
Sample Size	2	73	2	32	28	4	141
Females	296	44,329		19,209	8,570	3,546	75,950
Percent	0.25	37.69		16.33	7.29	3.01	64.57
Mean Length	400	496		524	488	533	504
Std. Error		2		3	3	6	1
Sample Size	1	150		65	29	12	257
Both Sexes	887	65,902	591	28,666	16,845	4,728	117,619
Percent	0.75	56.03	0.50	24.37	14.32	4.02	100.00
Mean Length	350	496	375	532	494	538	505
Std. Error	15	2	15	2	3	5	1
Sample Size	3	223	2	97	57	16	398

[a] Mean length in mm.

Table 19. Age, sex and length composition of chinook salmon in the Upper Subdistrict commercial set gillnet harvest, Upper Cook Inlet, Alaska, in 1993.

	Age Group								
	1.1	1.2	1.3	2.2	1.4	2.3	1.5	2.4	Total
Sample period:	28 June - 13 August								
Males	382	1,146	1,802	15	4,338	46	321	31	8,081
Percent	2.73	8.20	12.89	0.11	31.04	0.33	2.30	0.22	57.82
Sample Size	25	75	118	1	284	3	21	2	529
Mean Length[a]	421	618	886	615	1,008	887	1,083	978	899
Std. Error	5	8	65		4	54	12	23	15
Sample Size	25	75	118	1	284	3	21	2	529
Females	31	672	1,115		3,757	46	244	31	5,896
Percent	0.22	4.81	7.98		26.88	0.33	1.75	0.22	42.18
Sample Size	2	44	73		246	3	16	2	386
Mean Length	393	644	937		968	772	1,553	953	945
Std. Error	8	8	99		4	69	550	23	30
Sample Size	2	44	73		246	3	16	2	386
Both Sexes	413	1,818	2,917	15	8,095	92	565	62	13,977
Percent	2.95	13.01	20.87	0.11	57.92	0.66	4.04	0.44	100.00
Sample Size	27	119	191	1	530	6	37	4	915
Mean Length	419	627	906	615	989	829	1,286	965	918
Std. Error	5	6	55		3	44	238	16	15
Sample Size	27	119	191	1	530	6	37	4	915

[a] Mean length in mm.

Table 20. Age, length and sex composition of coho salmon in selected commercial gillnet harvests, Upper Cook Inlet, Alaska, in 1993.

Fishery	Age Group 1.1	2.1	3.1	Total
COMMERCIAL CATCH				
Central District				
Central Drift				
Number	7,750	97,902	16,133	121,785[a]
Percent	6.36	80.39	13.25	100.00
Mean Length[b]	520	541	564	543
% Female	43	47	47	46
Sample Size	87	828	149	1,064
Upper Subdistrict				
Number	3,762	34,345	4,968	43,075
Percent	8.73	79.73	11.53	100.00
Mean Length	509	538	556	537
% Female	64	56	56	56
Sample Size	98	873	127	1,098
Western				
Number	1,239	7,793	163	9,195
Percent	13.47	84.75	1.77	100.00
Mean Length	506	529	554	526
% Female	32	52	78	50
Sample Size	68	428	9	505
District Total				
Number	12,751	140,040	21,264	174,055
Percent	7.33	80.46	12.22	100.00
Mean Length	515	540	562	541
% Female	48	49	49	49
Sample Size	253	2,129	285	2,667

-Continued-

Table 20. (p. 2 of 2)

Fishery	Age Group 1.1	2.1	3.1	Total
Northern District				
General Subdistrict				
Number	8,432	71,937	6,822	87,191
Percent	9.67	82.51	7.82	100.00
Mean Length	519	531	556	532
% Female	65	54	46	55
Sample Size	89	692	68	849
District Total				
Number	8,432	71,937	6,822	87,191
Percent	9.67	82.51	7.82	100.00
Mean Length	519	531	556	532
% Female	65	54	46	55
Sample Size	89	692	68	849
Commercial Catch Total				
Number	21,183	211,977	28,086	261,246
Percent	8.11	81.14	10.75	100.00
Mean Length	517	537	561	538
% Female	55	51	49	51
Sample Size	342	2,821	353	3,516
Upper Cook Inlet Total				
Number	21,183	211,977	28,086	261,246
Percent	8.11	81.14	10.75	100.00
Mean Length	517	537	561	538
% Female	55	51	49	51
Sample Size	342	2,821	353	3,516

[a] Total does not include Chinitna Bay Subdistrict harvest of 2,104 fish.
[b] Mean length in mm.

Table 21. Age, sex and length composition of coho salmon in the Central District commercial drift gillnet harvest, Upper Cook Inlet, Alaska, in 1993.

	Age Group			
	1.1	2.1	3.1	Total[a]
Sample Period 1: 25 June - 18 July				
Males	542	4,355	750	5,647
Percent	5.65	45.44	7.82	58.91
Mean Length[b]	523	549	562	548
Std. Error	8	3	7	3
Sample Size	26	209	36	271
Females	521	2,709	708	3,938
Percent	5.44	28.26	7.39	41.09
Mean Length	528	542	569	545
Std. Error	9	3	4	3
Sample Size	25	130	34	189
Both Sexes	1,063	7,064	1,458	9,585
Percent	11.09	73.70	15.21	100.00
Mean Length	525	546	565	547
Std. Error	6	2	4	2
Sample Size	51	339	70	460
Sample Period 2: 19 July - 3 September				
Males	3,901	47,926	7,802	59,629
Percent	3.48	42.71	6.95	53.15
Mean Length	530	546	570	548
Std. Error	7	2	6	2
Sample Size	21	258	42	321
Females	2,786	42,912	6,873	52,571
Percent	2.48	38.25	6.13	46.85
Mean Length	505	535	557	536
Std. Error	8	3	6	2
Sample Size	15	231	37	283
Both Sexes	6,687	90,838	14,675	112,200
Percent	5.96	80.96	13.08	100.00
Mean Length	519	541	564	542
Std. Error	5	2	4	2
Sample Size	36	489	79	604

-Continued-

Table 21. (p. 2 of 2)

	Age Group			
	1.1	2.1	3.1	Total
All Periods Combined:				
Males	4,443	52,281	8,552	65,276
Percent	3.65	42.93	7.02	53.60
Mean Length	529	546	569	548
Std. Error	7	2	6	2
Sample Size	47	467	78	592
Females	3,307	45,621	7,581	56,509
Percent	2.72	37.46	6.22	46.40
Mean Length	509	535	558	537
Std. Error	7	3	5	2
Sample Size	40	361	71	472
Both Sexes	7,750	97,902	16,133	121,785
Percent	6.36	80.39	13.25	100.00
Mean Length	520	541	564	543
Std. Error	5	2	4	1
Sample Size	87	828	149	1,064

[a] Total does not include Chinitna Bay Subdistrict harvest of 2,104 fish.
[b] Mean length in mm.

Table 22. Age, sex and length composition of coho salmon in the Upper Subdistrict commercial set gillnet harvest, Upper Cook Inlet, Alaska, in 1993.

	Age Group			
	1.1	2.1	3.1	Total
Sample Period 1:	2 - 30 July			
Males	390	7,243	911	8,544
Percent	1.82	33.87	4.26	39.96
Mean Length[a]	514	536	560	538
Std. Error	11	3	8	3
Sample Size	9	167	21	197
Females	1,041	10,322	1,475	12,838
Percent	4.87	48.27	6.90	60.04
Mean Length	526	532	536	532
Std. Error	7	2	16	3
Sample Size	24	238	34	296
Both Sexes	1,431	17,565	2,386	21,382
Percent	6.69	82.15	11.16	100.00
Mean Length	523	534	545	534
Std. Error	6	2	10	2
Sample Size	33	405	55	493
Sample Period 2:	31 July - 13 August			
Males	968	8,032	1,255	10,255
Percent	4.46	37.03	5.79	47.27
Mean Length	505	545	577	545
Std. Error	6	3	6	2
Sample Size	27	224	35	286
Females	1,363	8,748	1,327	11,438
Percent	6.28	40.33	6.12	52.73
Mean Length	497	539	557	536
Std. Error	8	3	8	2
Sample Size	38	244	37	319
Both Sexes	2,331	16,780	2,582	21,693
Percent	10.75	77.35	11.90	100.00
Mean Length	500	542	566	540
Std. Error	5	2	5	2
Sample Size	65	468	72	605

-Continued-

Table 22. (p. 2 of 2)

	Age Group			
	1.1	2.1	3.1	Total
All Periods Combined:				
Males	1,358	15,275	2,166	18,799
Percent	3.15	35.46	5.03	43.64
Mean Length	507	541	570	542
Std. Error	5	2	5	2
Sample Size	36	391	56	483
Females	2,404	19,070	2,802	24,276
Percent	5.58	44.27	6.50	56.36
Mean Length	509	535	546	534
Std. Error	5	2	9	2
Sample Size	62	482	71	615
Both Sexes	3,762	34,345	4,968	43,075
Percent	8.73	79.73	11.53	100.00
Mean Length	509	538	556	537
Std. Error	4	1	5	1
Sample Size	98	873	127	1,098

[a] Mean length in mm.

Table 23. Age, sex and length composition of coho salmon in the Western Subdistrict commercial set gillnet harvest, Upper Cook Inlet, Alaska, in 1993.

	Age Group			
	1.1	2.1	3.1	Total
Sample period:	2 July - 13 September			
Males	838	3,733	36	4,607
Percent	9.11	40.60	0.39	50.10
Mean Length[a]	502	526	560	522
Std. Error	5	3	40	3
Sample Size	46	205	2	253
Females	401	4,060	127	4,588
Percent	4.36	44.15	1.38	49.90
Mean Length	513	532	553	531
Std. Error	7	2	13	2
Sample Size	22	223	7	252
Both Sexes	1,239	7,793	163	9,195
Percent	13.47	84.75	1.77	100.00
Mean Length	506	529	554	526
Std. Error	4	2	13	2
Sample Size	68	428	9	505

[a] Mean length in mm.

Table 24. Age, sex and length composition of coho salmon in the General Subdistrict commercial set gillnet harvest, Upper Cook Inlet, Alaska, in 1993.

	Age Group			
	1.1	2.1	3.1	Total
Sample Period 1:	5 - 26 July			
Males	1,829	11,430	1,241	14,500
Percent	6.24	38.97	4.23	49.44
Mean Length[a]	528	539	559	540
Std. Error	5	3	8	2
Sample Size	28	175	19	222
Females	1,829	11,757	1,241	14,827
Percent	6.24	40.09	4.23	50.56
Mean Length	514	524	556	525
Std. Error	5	3	8	2
Sample Size	28	180	19	227
Both Sexes	3,658	23,187	2,482	29,327
Percent	12.47	79.06	8.46	100.00
Mean Length	521	531	558	532
Std. Error	4	2	6	2
Sample Size	56	355	38	449
Sample Period 2:	27 July - 13 September			
Males	1,157	21,410	2,459	25,026
Percent	2.00	37.00	4.25	43.25
Mean Length	533	535	562	537
Std. Error	10	3	6	3
Sample Size	8	148	17	173
Females	3,617	27,340	1,881	32,838
Percent	6.25	47.25	3.25	56.75
Mean Length	512	528	545	527
Std. Error	6	2	7	2
Sample Size	25	189	13	227
Both Sexes	4,774	48,750	4,340	57,864
Percent	8.25	84.25	7.50	100.00
Mean Length	517	531	555	532
Std. Error	5	2	4	2
Sample Size	33	337	30	400

-Continued-

Table 24. (p. 2 of 2)

	Age Group			
	1.1	2.1	3.1	Total
All Periods Combined:				
Males	2,986	32,840	3,700	39,526
Percent	3.42	37.66	4.24	45.33
Sample Size	36	323	36	395
Mean Length	530	536	561	538
Std. Error	5	2	5	2
Sample Size	36	323	36	395
Females	5,446	39,097	3,122	47,665
Percent	6.25	44.84	3.58	54.67
Sample Size	53	369	32	454
Mean Length	512	527	549	527
Std. Error	4	2	5	2
Sample Size	53	369	32	454
Both Sexes	8,432	71,937	6,822	87,191
Percent	9.67	82.51	7.82	100.00
Sample Size	89	692	68	849
Mean Length	519	531	556	532
Std. Error	3	1	4	1
Sample Size	89	692	68	849

[a] Mean length in mm.

Table 25. Age, sex and length composition of chum salmon in the Central District commercial drift gillnet harvest, Upper Cook Inlet, Alaska, in 1993.

	Age Group				
	0.2	0.3	0.4	0.5	Total[a]
Sample Period 1: 25 June - 16 July					
Males	89	4,006	2,048	89	6,232
Percent	0.58	26.16	13.37	0.58	40.70
Mean Length[b]	520	552	577	613	561
Std. Error	14	2	3	6	2
Sample Size	3	135	69	3	210
Females		4,659	4,303	119	9,081
Percent		30.43	28.10	0.78	59.30
Mean Length		554	572	558	562
Std. Error		2	2	23	1
Sample Size		157	145	4	306
Both Sexes	89	8,665	6,351	208	15,313
Percent	0.58	56.59	41.47	1.36	100.00
Mean Length	520	553	573	581	562
Std. Error	14	1	2	13	1
Sample Size	3	292	214	7	516
Sample Period 2: 17 July - 23 August					
Males	707	21,689	9,784	236	32,416
Percent	0.96	29.53	13.32	0.32	44.14
Mean Length	520	547	568	568	553
Std. Error	6	2	3	8	1
Sample Size	6	184	83	2	275
Females	1,061	27,583	11,788	589	41,021
Percent	1.44	37.56	16.05	0.80	55.86
Mean Length	534	546	566	584	552
Std. Error	14	1	3	11	1
Sample Size	9	234	100	5	348
Both Sexes	1,768	49,272	21,572	825	73,437
Percent	2.41	67.09	29.37	1.12	100.00
Mean Length	528	547	567	579	553
Std. Error	9	1	2	8	1
Sample Size	15	418	183	7	623

-Continued-

Table 25. (p. 2 of 2)

	Age Group				
	0.2	0.3	0.4	0.5	Total
All Periods Combined:					
Males	796	25,695	11,832	325	38,648
Percent	0.90	28.95	13.33	0.37	43.55
Mean Length	520	548	570	580	554
Std. Error	5	2	2	6	1
Sample Size	9	319	152	5	485
Females	1,061	32,242	16,091	708	50,102
Percent	1.20	36.33	18.13	0.80	56.45
Mean Length	534	547	567	580	554
Std. Error	14	1	2	10	1
Sample Size	9	391	245	9	654
Both Sexes	1,857	57,937	27,923	1,033	88,750
Percent	2.09	65.28	31.46	1.16	100.00
Mean Length	528	548	568	580	554
Std. Error	9	1	1	7	1
Sample Size	18	710	397	14	1,139

[a] Total does not include Chinitna Bay Subdistrict harvest of 537 fish.
[b] Mean length in mm.

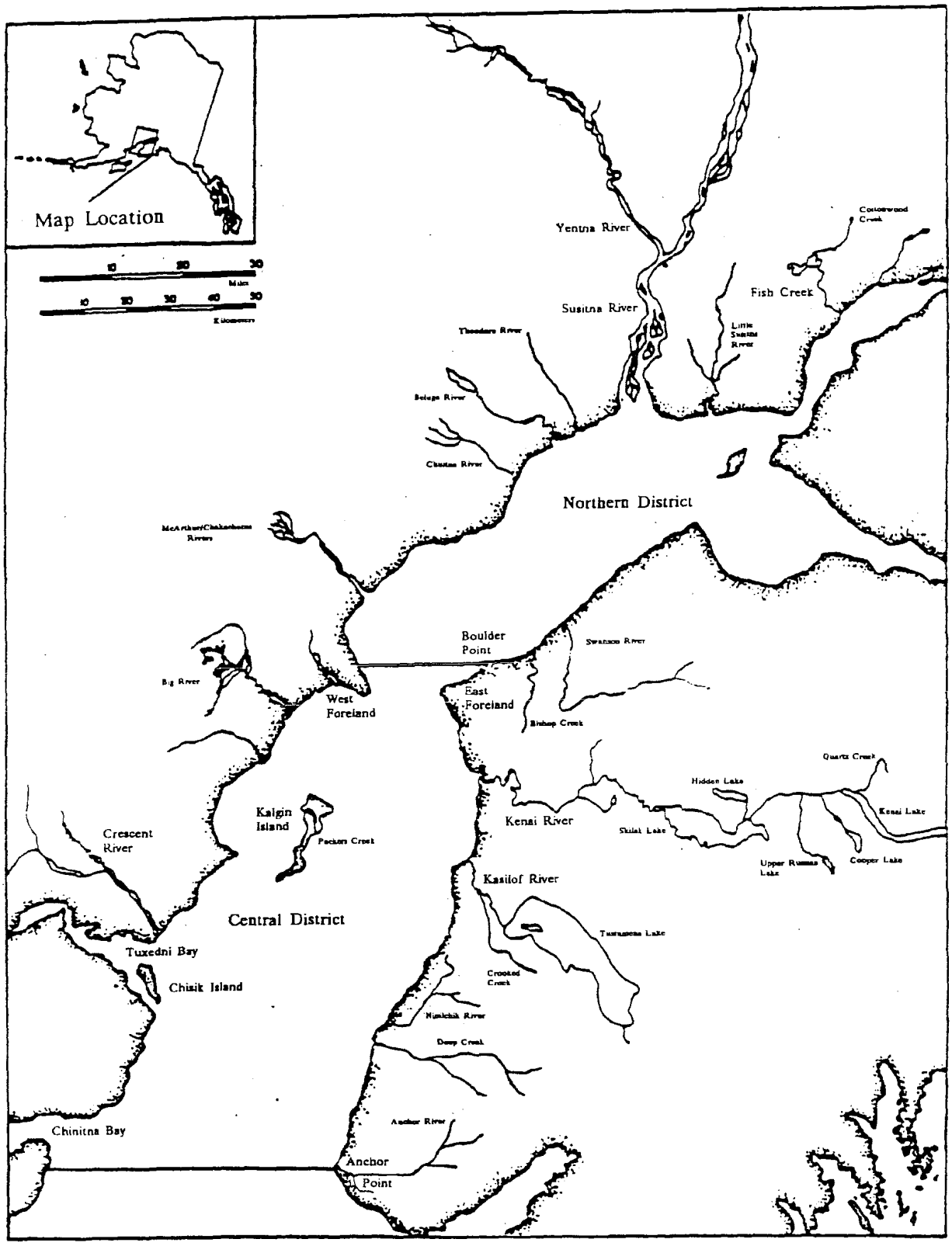

Figure 1. Map of Upper Cook Inlet showing locations of the Northern and Central Districts and the primary salmon spawning drainages.

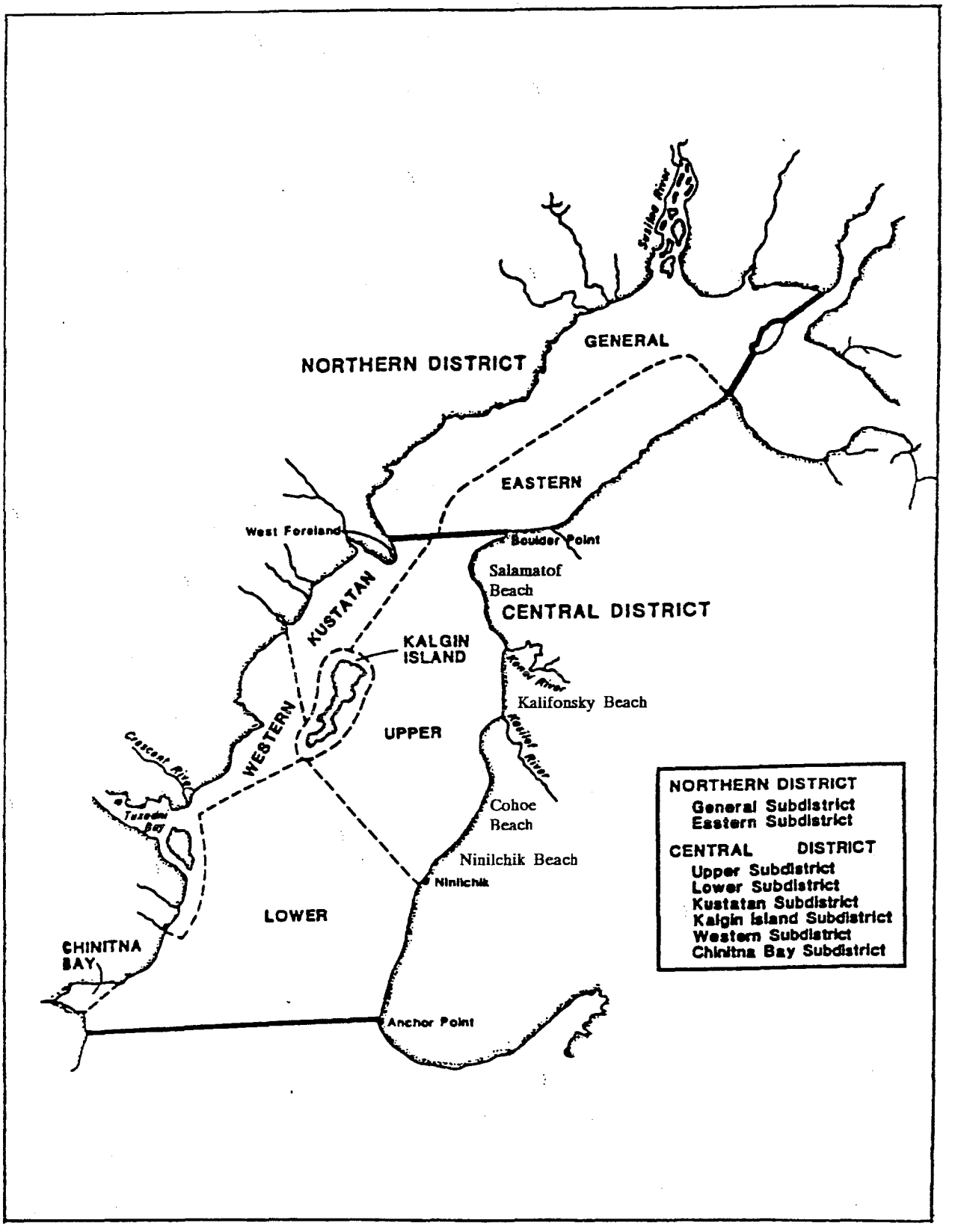

Figure 2. Map of Upper Cook Inlet showing the commercial fishing districts, subdistricts and Upper Subdistrict beach fisheries.

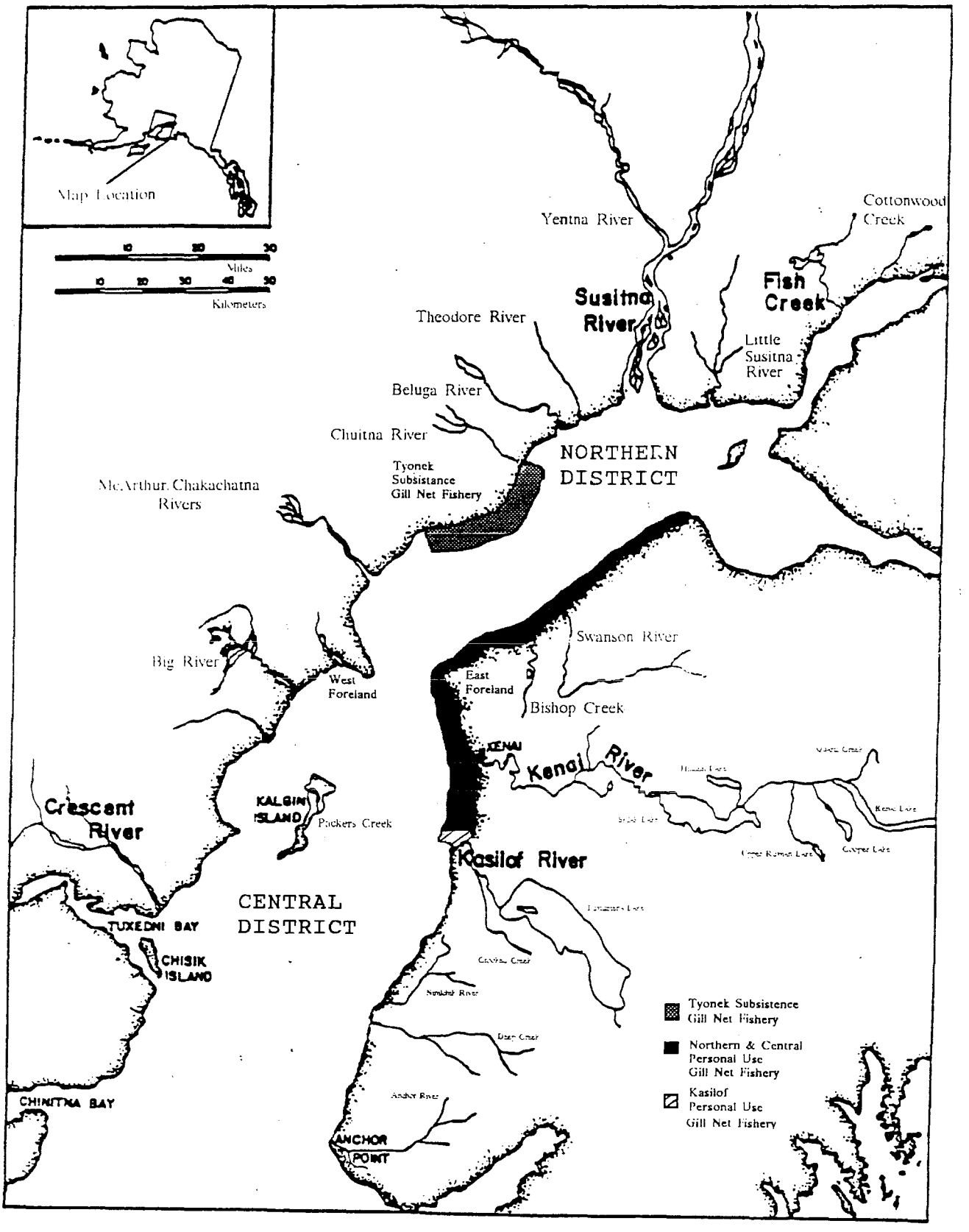

Figure 3. Map of Upper Cook Inlet showing locations of the subsistence and personal use fisheries.

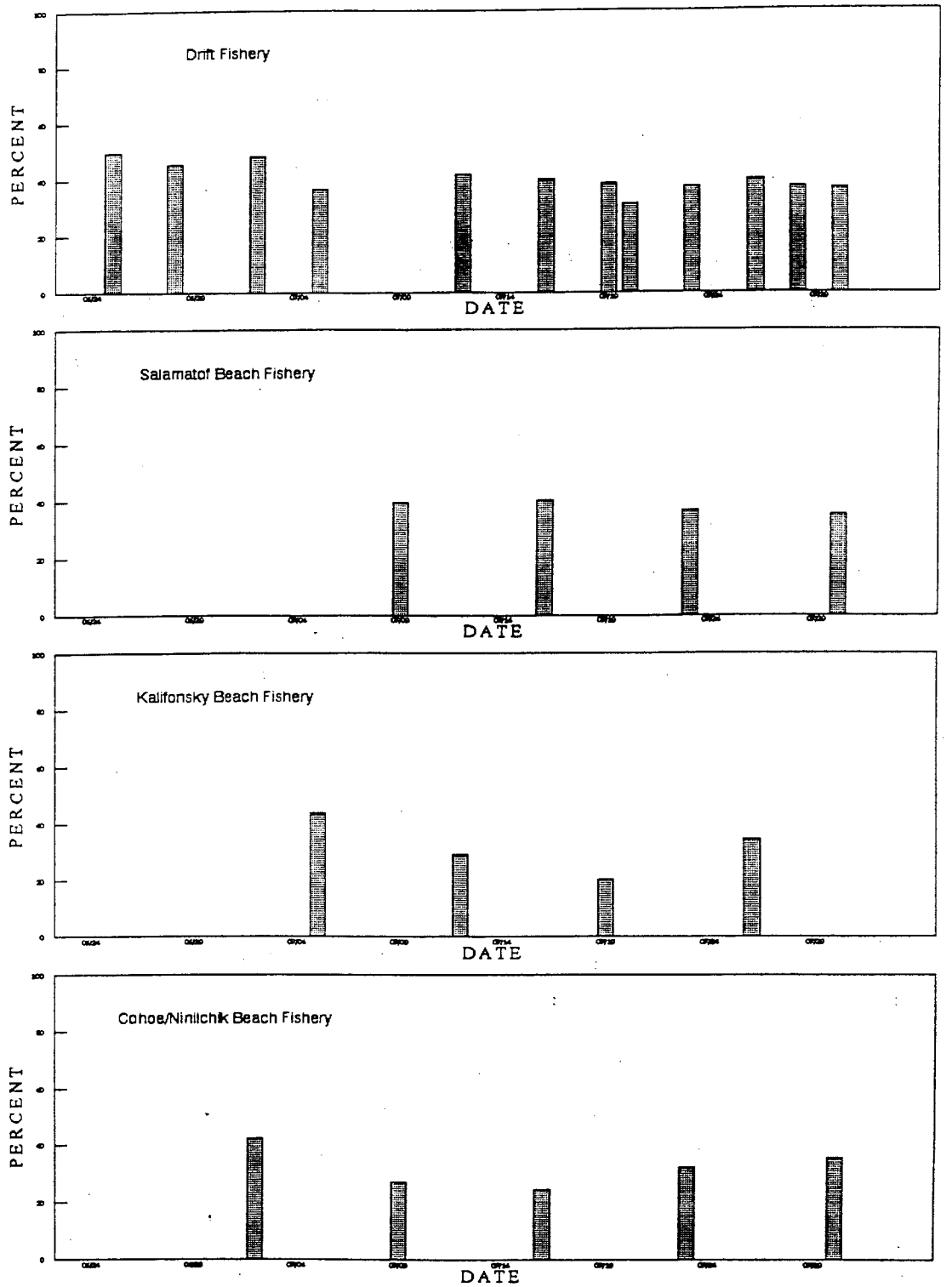

Figure 4. Trends in age–1.3 sockeye salmon composition in the Central District drift gillnet and Upper Subdistrict (Salamatof, Kalifonsky, and Cohoe/Ninilchik Beaches) set gillnet harvests, Upper Cook Inlet, Alaska, in 1993.

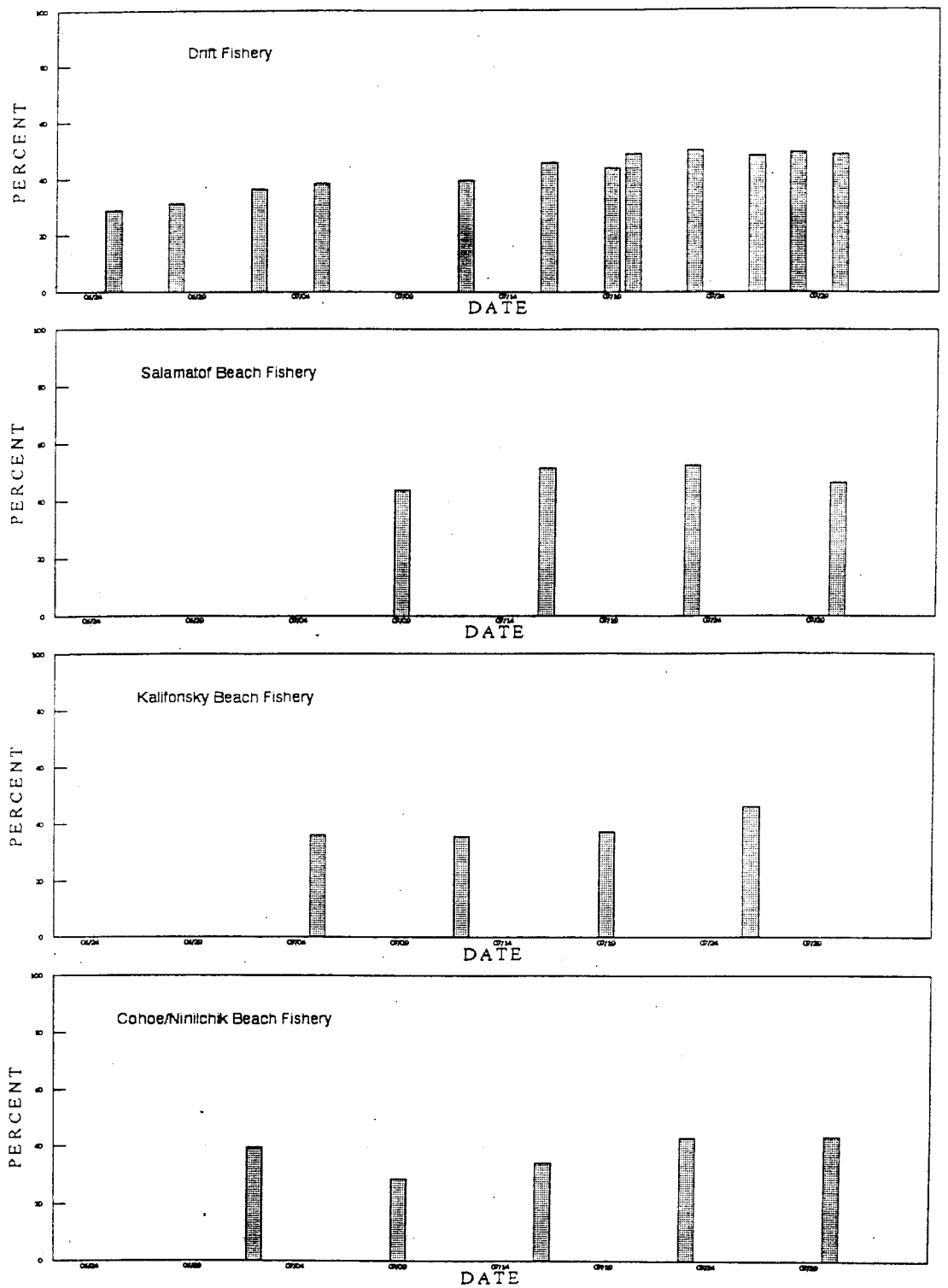

Figure 5. Trends in age–2.3 sockeye salmon composition in the Central District drift gillnet and Upper Subdistrict (Salamatof, Kalifonsky, and Cohoe/Ninilchik Beaches) set gillnet harvests, Upper Cook Inlet, Alaska, in 1993.

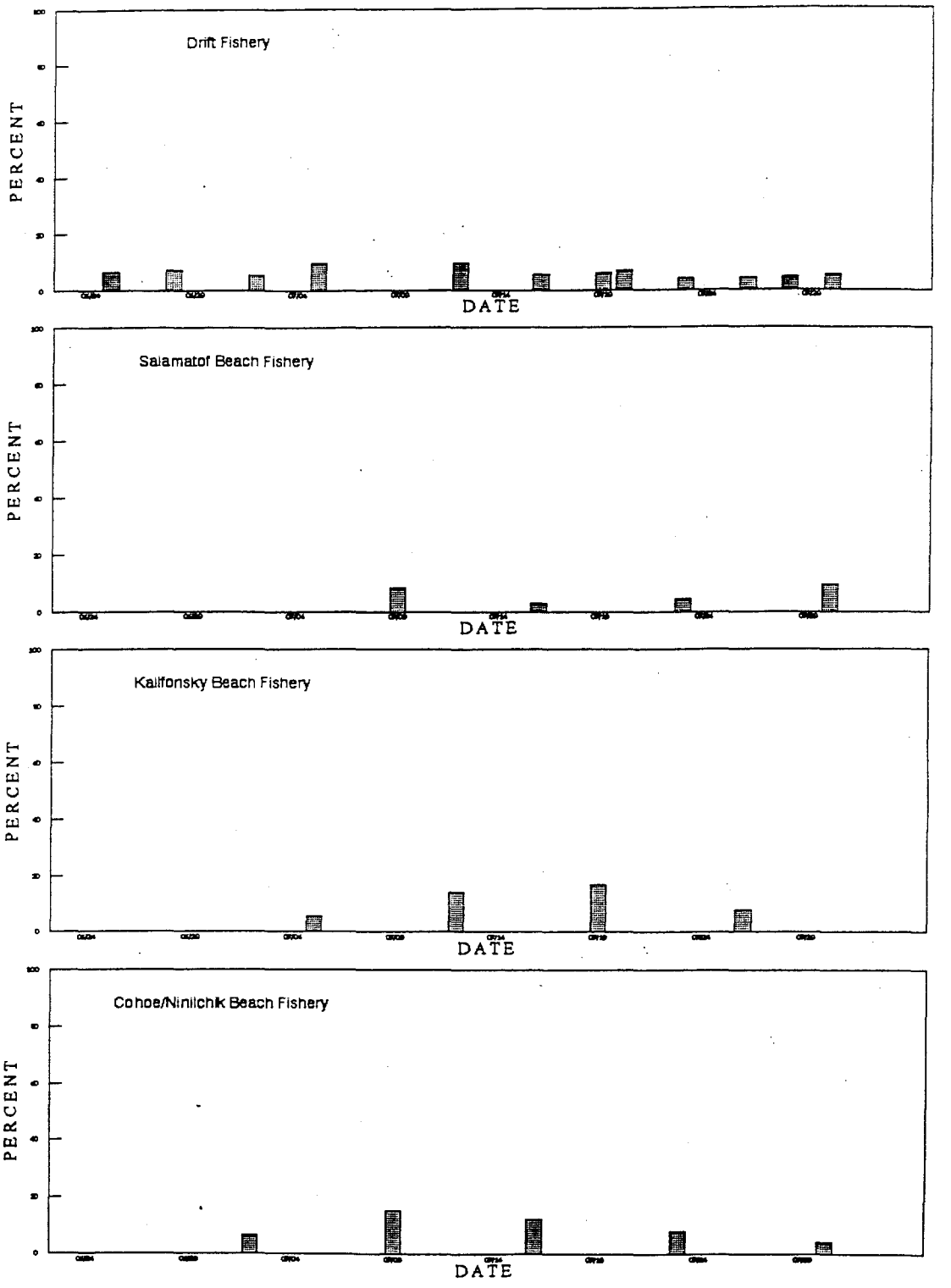

Figure 6. Trends in age–1.2 sockeye salmon composition in the Central District drift gillnet and Upper Subdistrict (Salamatof, Kalifonsky, and Cohoe/Ninilchik Beaches) set gillnet harvests, Upper Cook Inlet, Alaska, in 1993.

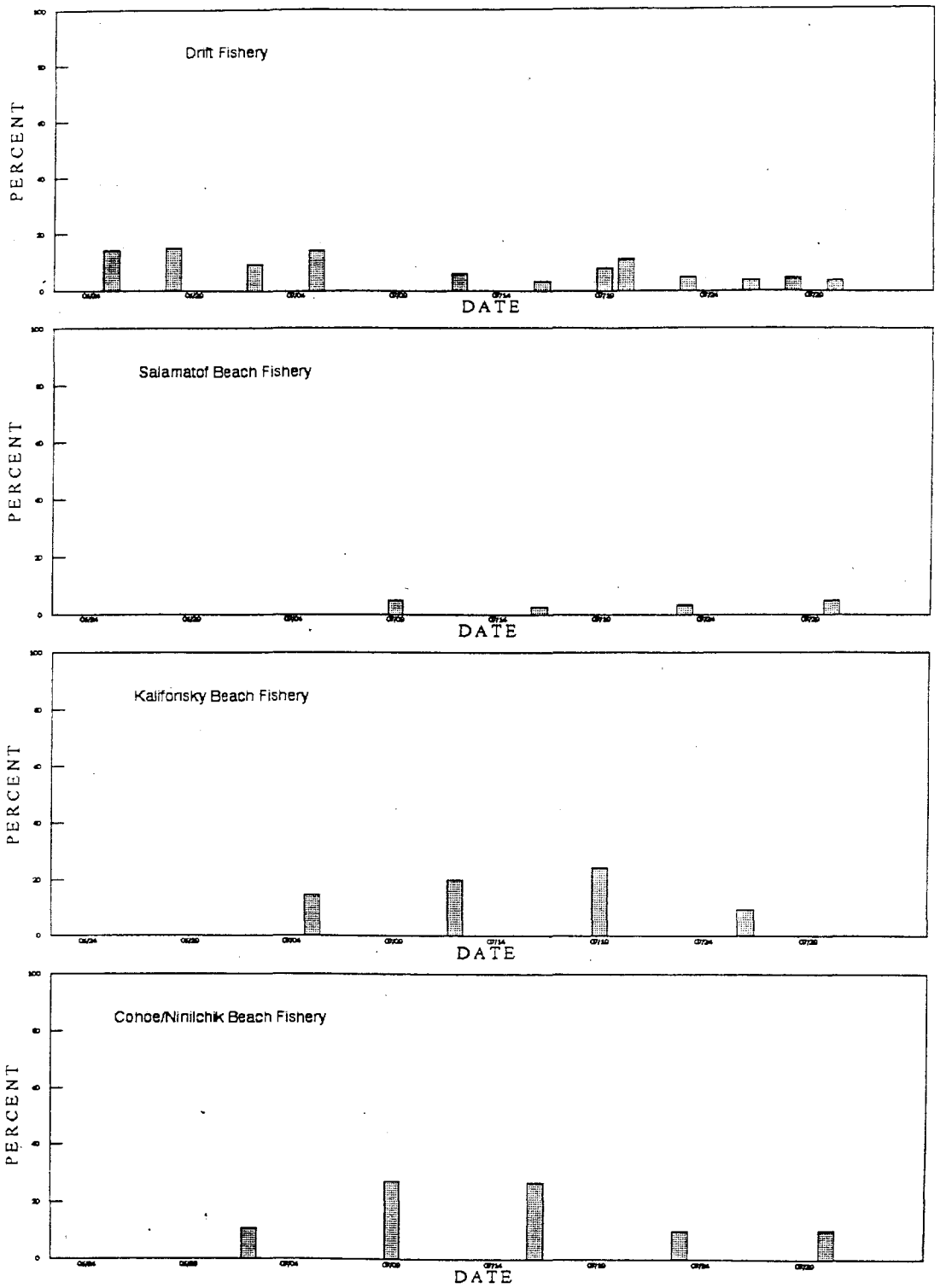

Figure 7. Trends in age–2.2 sockeye salmon composition in the Central District drift gillnet and Upper Subdistrict (Salamatof, Kalifonsky, and Cohoe/Ninilchik Beaches) set gillnet harvests, Upper Cook Inlet, Alaska, in 1993.

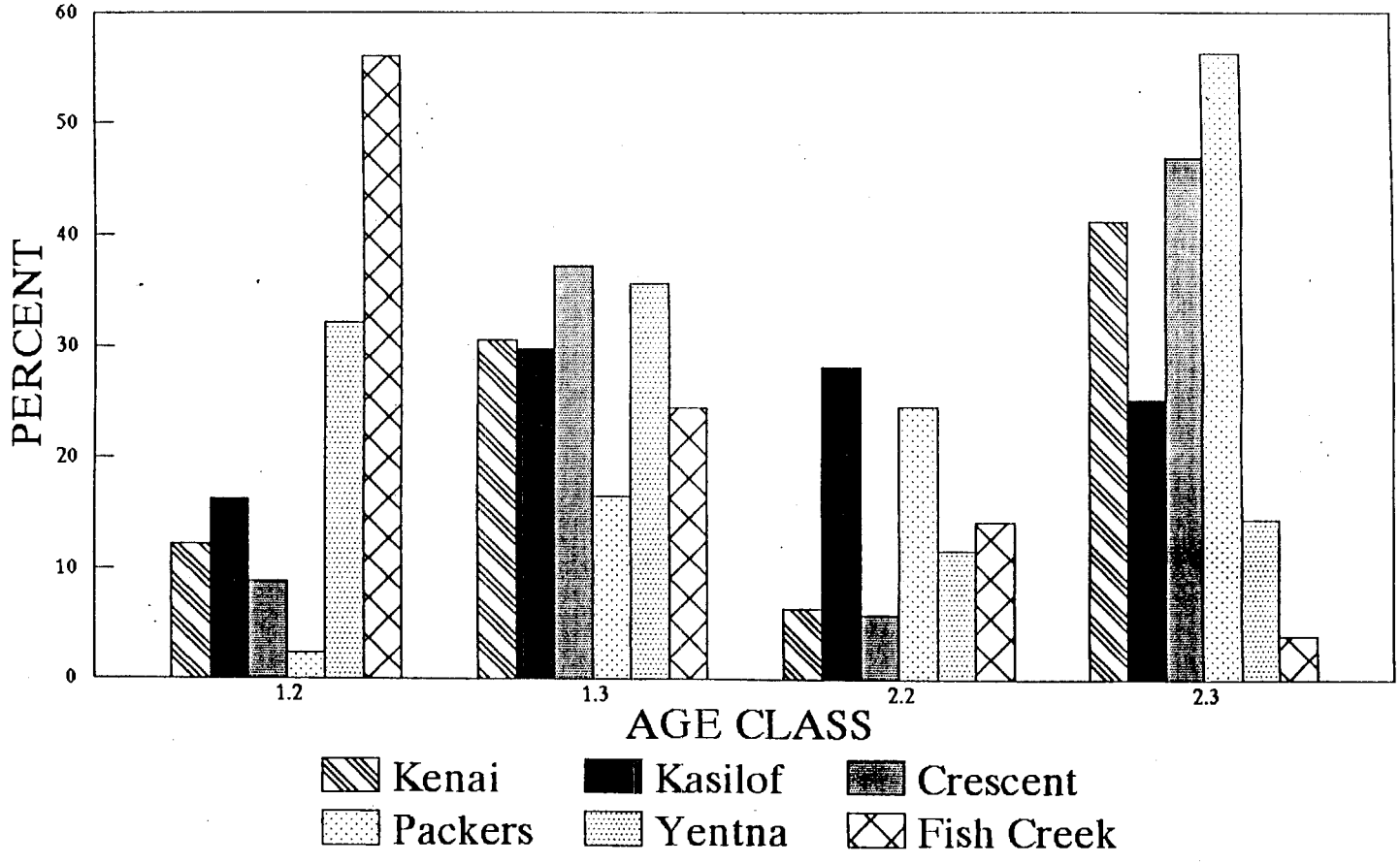

Figure 8. Age composition of sockeye salmon escapements into the Kenai, Kasilof, Crescent, and Yentna Rivers and Packers and Fish Creeks, Upper Cook Inlet, Alaska, in 1993.

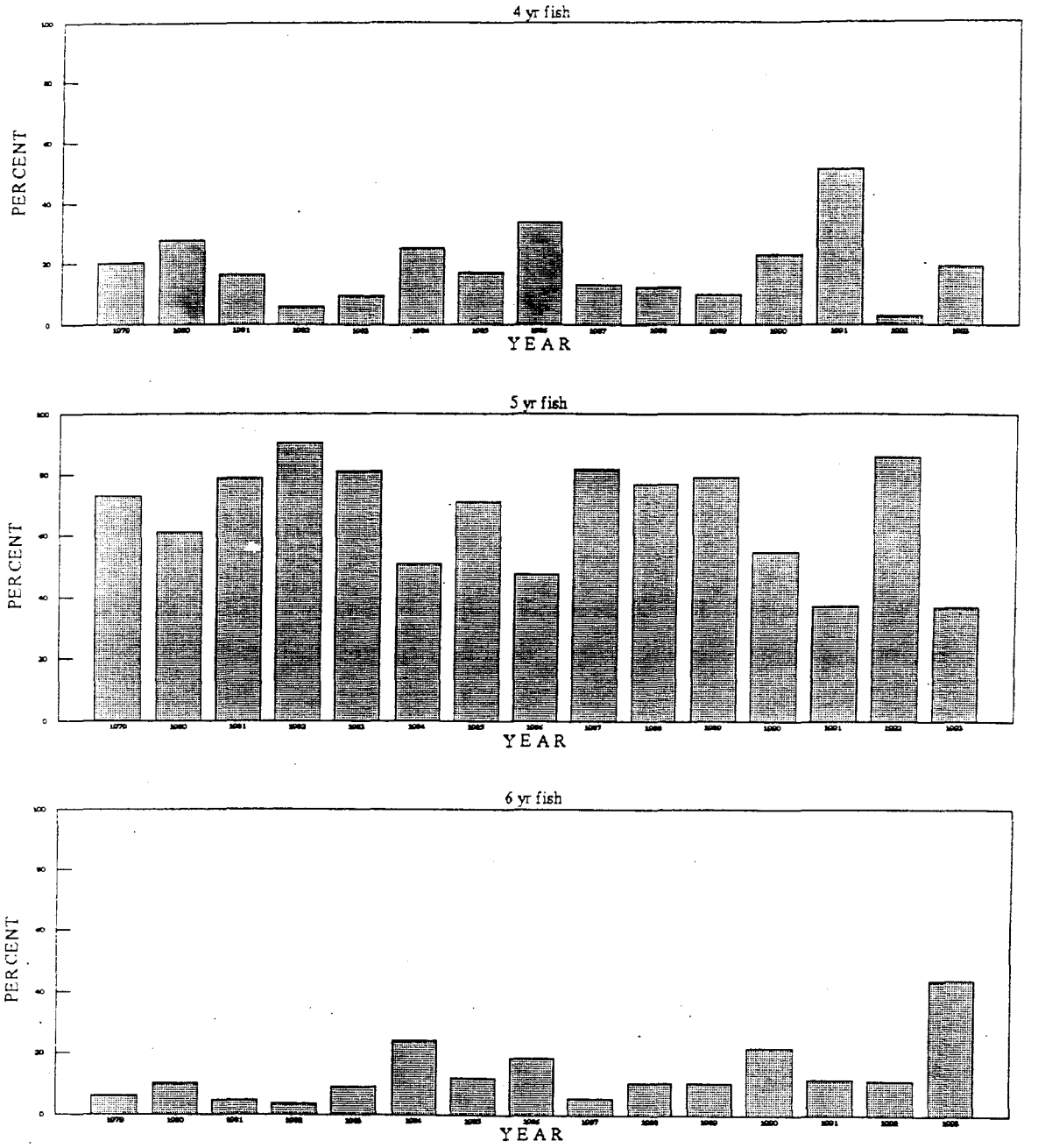

Figure 9. Total age composition of sockeye salmon in the Kenai River escapement, Upper Cook Inlet, Alaska, 1979–93.

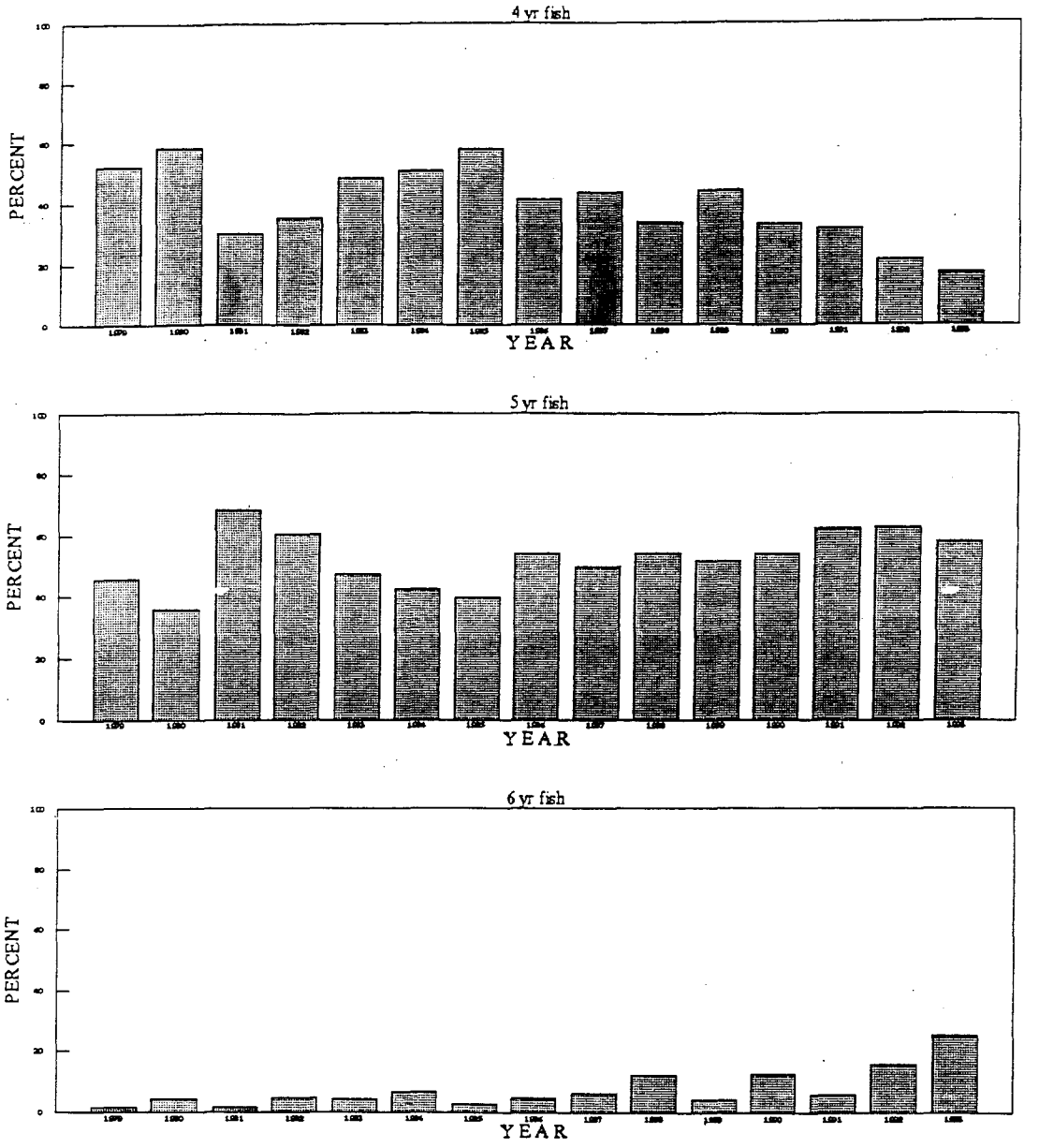

Figure 10. Total age composition of sockeye salmon in the Kasilof River escapement, Upper Cook Inlet, Alaska, 1979–93.

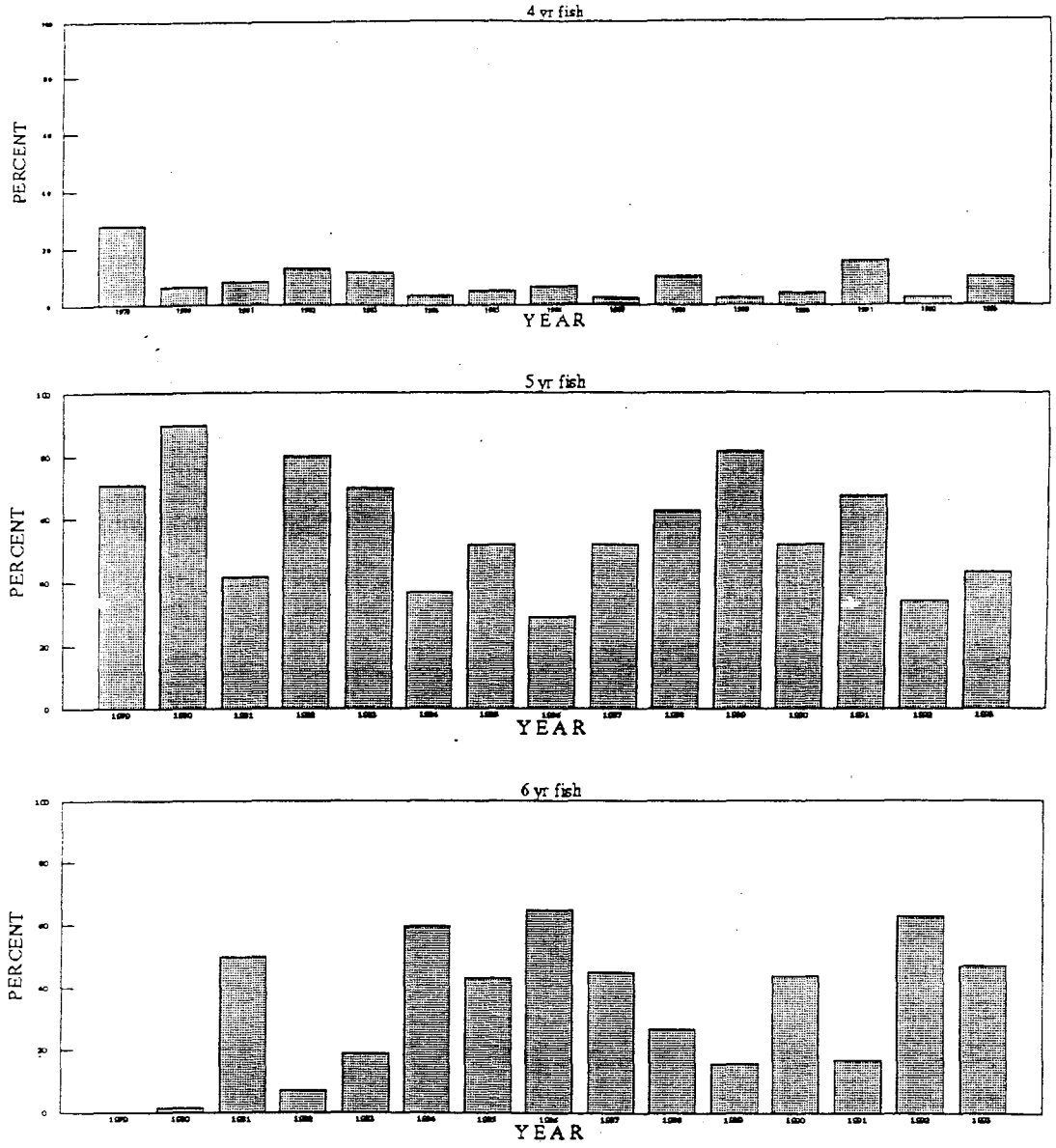

Figure 11. Total age composition of sockeye salmon in the Crescent River escapement, Upper Cook Inlet, Alaska, 1979–93.

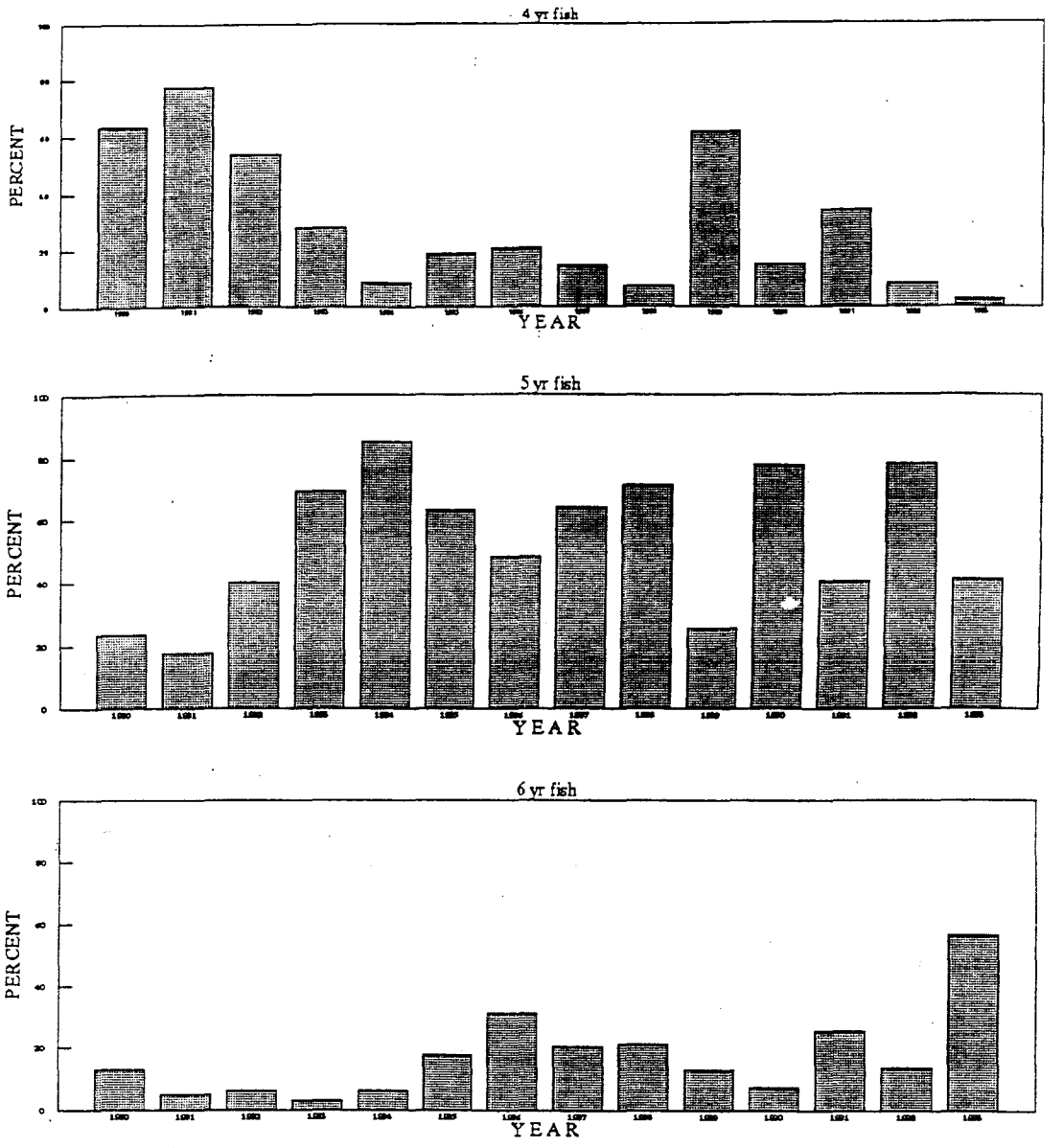

Figure 12. Total age composition of sockeye salmon in Packers Creek escapement, Kalgin Island, Upper Cook Inlet, Alaska, 1979–93.

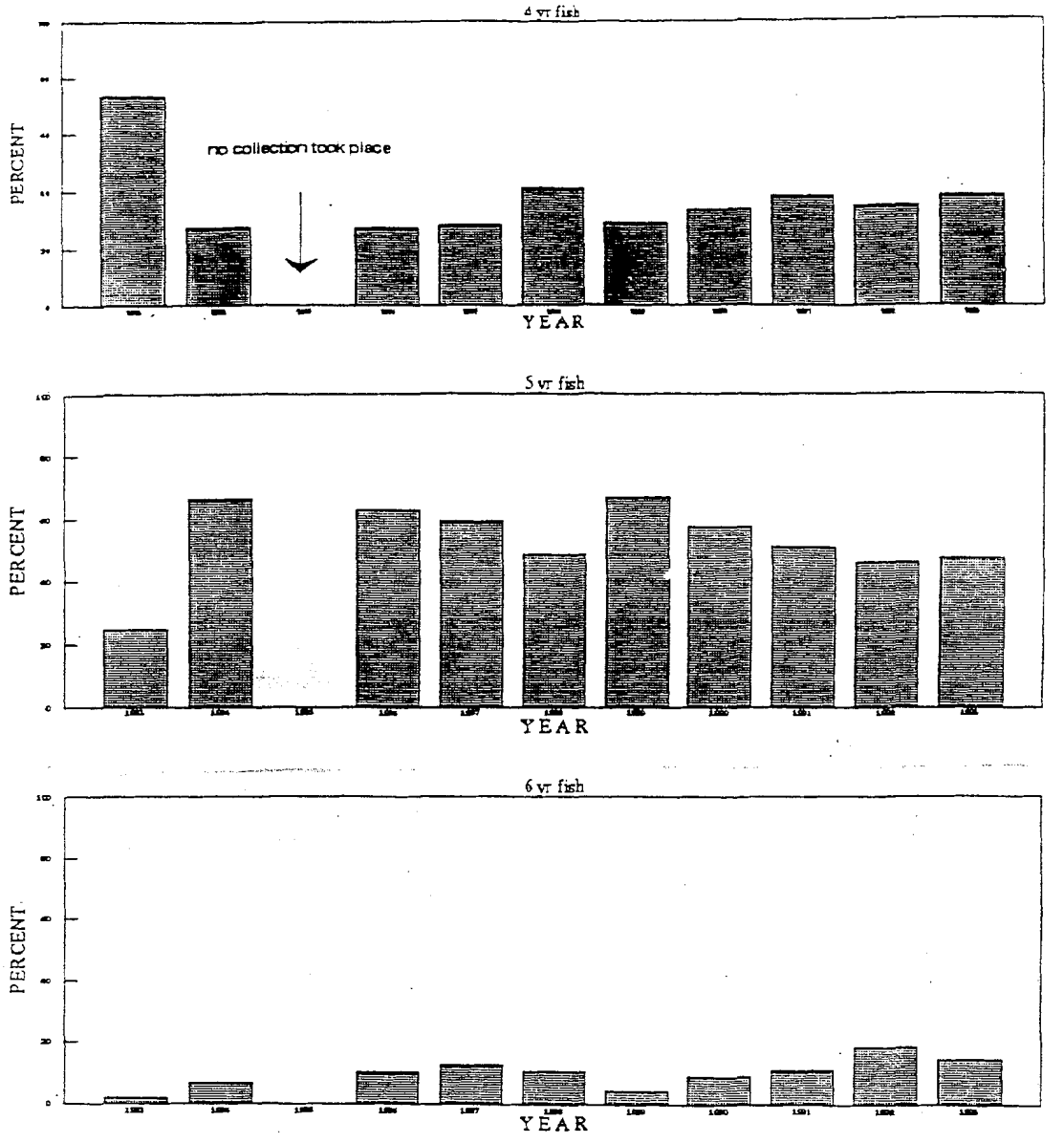

Figure 13. Total age composition of sockeye salmon in the Yentna River escapement, Susitna River drainage, Upper Cook Inlet, Alaska, 1983–93.

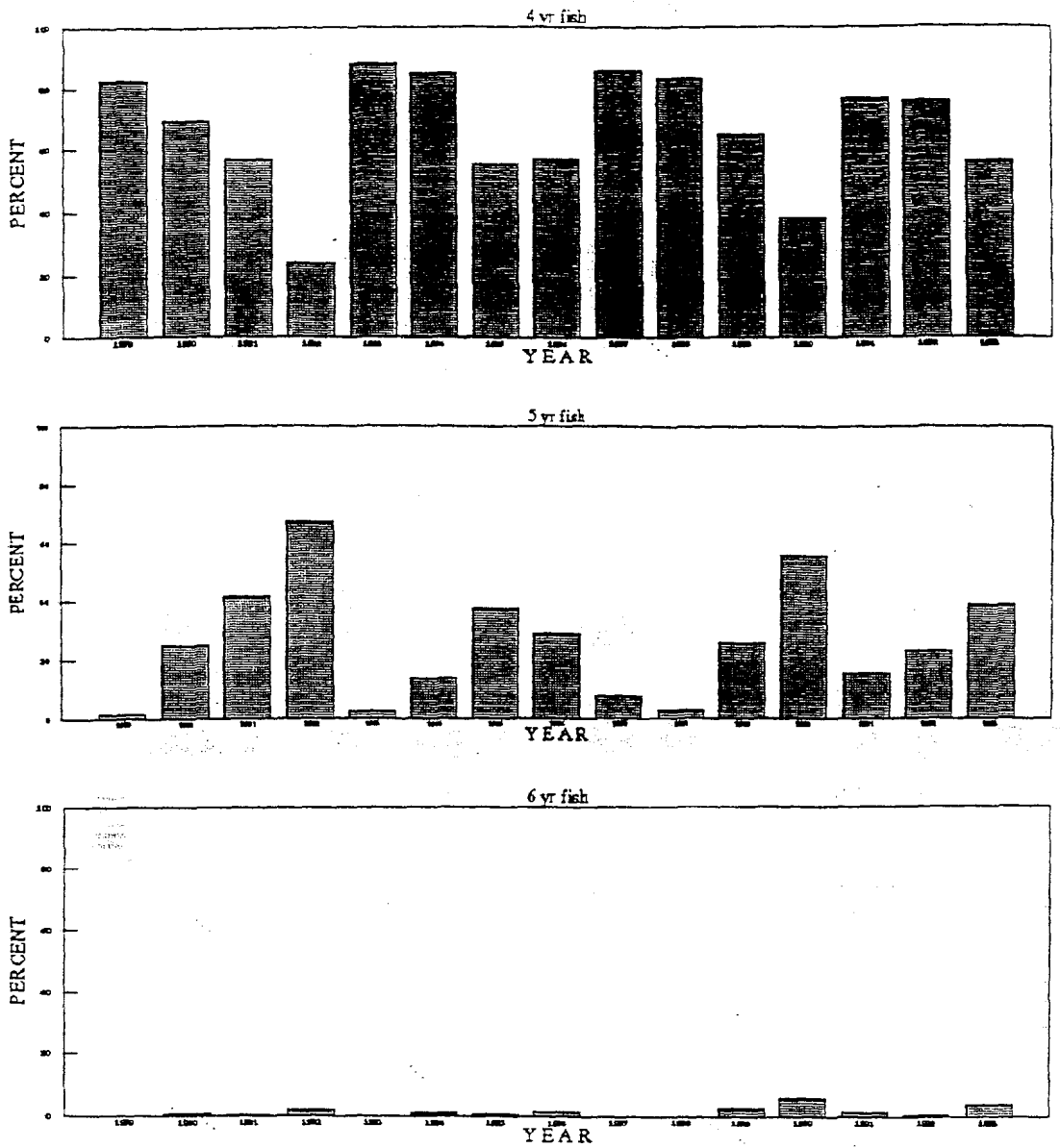

Figure 14. Total age composition of sockeye salmon in the Fish Creek escapement, Upper Cook Inlet, Alaska, 1979–93.

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