

## TECHNICAL FISHERY REPORT 95-04

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Alaska Department of Fish and Game  
Commercial Fisheries Management  
and Development Division  
P.O. Box 25526  
Juneau, Alaska 99802-5526

November 1995

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### **Abundance, Age, Sex, and Size of Chinook, Sockeye, Coho, and Chum Salmon Returning to Upper Cook Inlet, Alaska, in 1992**

**by**

**David L. Waltemyer**

The Technical Fishery Report Series was established in 1987, replacing the Technical Data Report Series. The scope of this new series has been broadened to include reports that may contain data analysis, although data oriented reports lacking substantial analysis will continue to be included. The new series maintains an emphasis on timely reporting of recently gathered information, and this may sometimes require use of data subject to minor future adjustments. Reports published in this series are generally interim, annual, or iterative rather than final reports summarizing a completed study or project. They are technically oriented and intended for use primarily by fishery professionals and technically oriented fishing industry representatives. Publications in this series have received several editorial reviews and at least one *blind* peer review refereed by the division's editor and have been determined to be consistent with the division's publication policies and standards.

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## ABSTRACT

Commercial harvests of chinook *Oncorhynchus tshawytscha*, sockeye *O. nerka*, coho *O. kisutch*, and chum *O. keta* salmon and spawning escapements of sockeye salmon in Upper Cook Inlet (UCI) were sampled in 1992 to estimate age, sex, and length composition. The commercial harvest was 17,171 chinook, 9,108,340 sockeye (second highest harvest on record), 468,911 coho, and 274,303 chum salmon. Age-1.2 (20.6%), -1.3 (29.6%), and -1.4 (40.4%) chinook salmon predominated in the Upper Subdistrict set gillnet harvest. Size of chinook salmon harvested was smaller relative to recent years. Sex composition of chinook salmon was 65% males in the 1992 Upper Subdistrict commercial harvest. Sockeye salmon were sampled in 6 commercial gillnet fisheries. Predominate age groups were age 1.3 and 2.3. Sockeye salmon escaping into 4 major river systems were predominately ages 1.3, 2.2, and 2.3. Age-1.3 sockeye salmon contributed 80.6% to the UCI commercial harvest and 62.7% to the escapement. The second most abundant age group, 2.3, represented 9.7% of the UCI commercial harvest and 13.6% of the escapement. A decrease in size-at-age of sockeye salmon in the commercial harvests was observed during the period 1987-1989. Sex composition of sockeye salmon was predominately female in the 1992 commercial harvests (53%) and escapements (61%), except for the Yentna River escapement (37%). The overall exploitation rate of sockeye salmon was 0.86. Coho salmon were represented in the commercial harvest by 5 age groups with age 1.1 (11.5%), 2.1 (83.4%), and 3.1 (4.1%) predominating. Length composition of coho salmon was more similar in the drift and Upper Subdistrict harvests than in the Western and General Subdistrict harvests. Sex ratios of coho salmon in the commercial harvests were approximately equal. Chum salmon were only sampled in the Central District drift gillnet harvest and represented essentially age groups 0.3 (67.2%) and 0.4 (32.2%). Male chum salmon were larger than females, but females composed 62% of the harvest.

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

## INTRODUCTION

Freshwater systems draining into Upper Cook Inlet (UCI) support the production of all 5 species of Pacific salmon (Figure 1). Since 1968 the total UCI harvest has averaged 4,500,000 salmon composed of 2,900,000 sockeye *Oncorhynchus nerka*, 1,000,000 even-year pink *O. gorbuscha*, 200,000 odd-year pink, 700,000 chum *O. keta*, 400,000 coho *O. kisutch*, and 17,000 chinook *O. tshawytscha* salmon. This represents approximately 5% of the statewide commercial salmon harvest (Ruesch and Fox 1993).

Sampling commercial harvests and escapements of salmon for age, sex, and size composition has been done since 1964 (Davis and Tarbox 1985). Initially, sample collection was intermittent and sporadic. However, in 1978 the Alaska Department of Fish and Game (ADF&G) initiated a comprehensive sockeye salmon age, length, and weight (AWL) sampling program in conjunction with stock separation studies (Bethe et al. 1980; Cross et al. 1981, 1982, 1983, 1985). In 1983 AWL sampling of chinook, chum, and coho salmon in commercial harvests was added to the program (Cross 1985; Cross et al. 1987; Waltemyer 1989, 1990, 1991, 1993).

The need to improve and develop stock-specific production information is an essential part of managing salmon stocks returning to UCI. These AWL data are used with abundance data to develop brood tables, estimate long-term production, and build yield models for individual river systems. This information is critical for development and evaluation of inseason management strategies.

Objectives for this report are to continue to document (1) the number of salmon harvested in selected commercial, subsistence, and personal use fisheries; (2) the number of sockeye salmon spawners; and (3) estimates of age, sex, and size composition of salmon in commercial harvests and escapements.

## METHODS

### *Abundance and Harvest Enumeration*

#### **Commercial, Subsistence, and Personal Use**

Commercial harvest statistics for districts and subdistricts were compiled from ADF&G final fish ticket information (Figure 2). Harvests from the Tyonek subsistence fishery and Kasilof personal use gillnet fishery, and Central and Northern District personal use coho salmon harvest were obtained from Ruesch and Fox (1993; Figure 3). Fish Creek personal use dip net fishery harvest information was supplied by L. Peltz (ADF&G, Palmer, personal communication).

## Escapement

ADF&G personnel used Bendix Corporation<sup>1</sup> side-scanning sonar equipment to enumerate returns of sockeye salmon to the Kenai, Kasilof, Crescent, and Yentna Rivers (Davis et al. 1994). Sonar counts were designated to salmon species using species proportions from fish wheel catches. Chinook salmon escapement into the Kenai River was estimated using BioSonics<sup>1</sup> sonar equipment in the lower river (RM 8.5; D. Burwen, ADF&G, Anchorage, personal communication). Sockeye salmon escapements into Russian River (L. Marsh, ADF&G, Soldotna, personal communication) and Fish Creek (L. Peltz, ADF&G, Palmer, personal communication) were determined by counting salmon migrating through weirs.

Cook Inlet Aquaculture Association (CIAA) personnel monitored sockeye salmon escapements using weirs on Hidden Creek and Packers Creek (Fandrei 1993a). A single fish wheel with a small mesh net leader was used to capture adult sockeye salmon for marking as they migrated into Chelatna Lake. A mark-recapture procedure (adjusted Petersen method; Ricker 1975) was then used to estimate the escapement into Chelatna Lake (Fandrei 1993b).

## *Age, Sex, and Size Determination*

### Measurements

Scales were taken from the left side of each salmon sampled from the area approximately two rows above the lateral line in an area transected by a diagonal 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) on a microfiche viewer. Age was determined using criteria established by Mosher (1969) and were recorded in European notation (Koo 1962).

Sex and length information were recorded for all specimens sampled. Jaw morphology was used to determine sex. Observation of the gonads to determine sex was only used when jaw morphology was questionable. Length was measured from mid-eye to fork-of-tail in millimeters.

### Harvests and Escapements

Age, sex, and size compositions of commercial catches were estimated using a stratified systematic sampling design (Cochran 1977). A minimum sample size of 403 readable scales was set for each species and strata to simultaneously estimate the proportion of each major age class in the harvest within 5% of

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<sup>1</sup> Use of a company's name does not constitute endorsement.

the true proportion 90% of the time (Thompson 1987). A sample size of 600 sockeye salmon per strata was used for commercial fisheries samples to account for unreadable scales and provide for stock identification needs (B. Cross, ADF&G, Anchorage, personal communication). For escapements, a sample size of 500 sockeye salmon per strata was used to provide the same level of accuracy and precision. Three scales were sampled from sockeye salmon in escapements and coho salmon in commercial harvests because regenerated scales are common. In all other cases only 1 scale was sampled from each salmon.

The number of temporal and spatial strata selected for sampling differed among commercial fisheries, escapements, and species. Temporal strata for commercial harvests were set to detect changes in age composition among fishing periods. 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. Temporal strata for escapements were set at approximate weekly intervals to detect changes in seasonal age composition. Age and size information were not obtained from subsistence or personal use harvests.

## RESULTS

### *Abundance and Harvest Enumeration*

The 1992 UCI commercial fishery harvest was 10,564,584 salmon, composed of 17,171 chinook, 9,108,340 sockeye, 468,911 coho, 695,859 pink, and 274,303 chum salmon (Table 1). The chinook salmon harvest was slightly above the 1966–1991 average of 16,000 chinook salmon. The sockeye salmon harvest was the second highest on record, exceeded only by the 1987 harvest of 9,500,000 sockeye salmon, and was 3.5 times the long-term average of 2,500,000 sockeye salmon. The coho harvest was 33.5% above the 1966–1991 average of 351,000 coho salmon. The chum salmon catch was relatively poor, 41.8% of the 1966–1990 average of 656,000 chum salmon. The even-year pink salmon harvest was 61.4% of the 1966–1990 average of 1,133,000 pink salmon.

The subsistence fishery harvest consisted of 2,010 chinook, 46,507 sockeye, 10,481 coho, 1,828 pink, and 1,855 chum salmon (Table 2). Most of the harvest came from the Upper Subdistrict set gillnet beach fisheries followed in abundance by the Kenai River (18,545 salmon) dip net fishery, the Knik Arm (8,982 salmon) set gillnet fishery, and the General Subdistrict (6,634 salmon) set gillnet fisheries.

Personal use fisheries contributed an additional harvest of 55 chinook, 22,828 sockeye, 3 coho, and 3 pink salmon (Table 2). The largest personal use harvest of sockeye salmon, 12,103, occurred in the Fish Creek dip net fishery.

Chinook salmon escapement was monitored in the Kenai and Yentna Rivers (Table 3). A total of 8,558 chinook salmon spawned in the Kenai River in the early run and 23,326 chinook salmon spawned in the late run (Table 3). A small population, 750 chinook salmon, was permitted to migrate above the Crooked

Creek Hatchery to spawn in Crooked Creek. A total of 107 chinook salmon were estimated to have traveled past the Yentna River sonar site. This count represents an index rather than a total escapement estimate.

A minimum documented total of 1,234,000 sockeye salmon spawned in streams and rivers of UCI (Table 3). Most spawning occurred in 6 systems: 798,000 late-run sockeye salmon in the Kenai River, 178,000 sockeye salmon in the Kasilof River, 58,000 sockeye salmon in the Crescent River, 30,000 sockeye salmon in Packers Creek, 66,000 sockeye salmon in the Yentna River, and 72,000 sockeye salmon in Fish Creek.

The Yentna River sonar index counts of 29,072 coho, 239,362 pink, and 30,061 chum salmon were also obtained (Table 3). The counts do not represent an estimate of total escapement for these species because the Yentna sonar project has been designed to enumerate sockeye salmon.

### *Age, Sex, and Size Determination*

A total of 775 chinook, 28,276 sockeye, 4,127 coho, and 1,800 chum salmon were sampled in selected UCI commercial harvests and escapements in 1992 (Table 4). Age, sex, and size data for each species sampled are presented below.

#### **Chinook Salmon**

Chinook salmon were only sampled in the Upper Subdistrict set gillnet fishery, which contributed 62.4% to the total UCI harvest. Age-1.2 (20.6%), -1.3 (29.6%), and -1.4 (40.4%) chinook salmon predominated in these harvest samples (Table 5). Significant ( $\chi^2=33.06$ ,  $P<0.005$ ,  $df=3$ ) differences in age composition between 3 and 20 July and between 21 July and 14 August were due to a decrease in age-1.2 (21% to 8%) chinook salmon and a corresponding increase in age-1.4 (40% to 60%) chinook salmon. Average lengths were 601 mm for age-1.2, 736 mm for age-1.3, and 967 mm for age-1.4 chinook salmon. Females composed 34.9% of the total harvest sample.

#### **Sockeye Salmon**

Four major age groups composed 99.3% of the total combined UCI commercial sockeye salmon harvest and escapement samples (Table 6). Age-1.3 sockeye salmon were estimated to represent 78.1% (8,171,127), age-2.3 10.2% (1,071,392), age-2.2 6.3% (658,455), and age-1.2 4.8% (504,652) of the total monitored return. Age-1.3 sockeye salmon contributions ranged from 44.6% (12,120) of the Western Subdistrict set gillnet harvest sample to 83.9% (5,090,211) of the Central District drift gillnet harvest. Escapement contributions of age-1.3 sockeye salmon ranged from 5.0% (3,574) for Fish Creek to 79.9% (794,827) for Kenai River samples. Sockeye salmon samples taken independently during a

genetics study (Tarbox et al. 1994) had similar age-composition estimates by location to results of the present study (Table 7).

Average lengths of the major age groups in commercial harvest samples were 565 mm for age-1.3, 556 mm for age-2.3, 490 mm for age-2.2, and 483 mm for age-1.2 sockeye salmon (Table 6). Average lengths of the respective age groups in escapement samples were 554 mm for age-1.3, 551 mm for age-2.3, 474 mm for age-2.2, and 469 mm for age-1.2 sockeye salmon. Sockeye salmon within each age group were larger, on average, in commercial harvests than in the escapement samples (ANOVA,  $F=34.46$ ,  $P>0.001$ ).

Exploitation rates among age groups were quite variable and for major age groups ranged from 0.682 for age-1.2 to 0.887 for age-1.3 sockeye salmon (Table 6). The overall exploitation rate for the total population was 0.859.

The Central District drift gillnet harvest has, on average, accounted for 57.8% of the total UCI sockeye salmon harvest and represented 66.6% of the total UCI harvest in 1992. Age-1.3 sockeye salmon dominated harvest samples, ranging from a low of 52.6% during 26–28 June to a high of 90.2% during 16–18 July (Table 8; Figure 4). The proportion of age-1.2 sockeye salmon in the harvest rose to a peak of 16.2% during 29–30 June and then decreased to a low of 1.3% by 27–30 July. During the same time interval, the percentage of age-2.2 (8.0% to 3.6%) and age-2.3 (13.3% to 9.7%) sockeye salmon in the harvest declined.

Overall sockeye salmon mean length-at-age in the drift gillnet fishery generally increased during the season (Table 8). For example, age-1.3 sockeye salmon mean length increased from 543 mm for 26–28 June to 572 mm for 13–15 July.

The percentage of females in the drift fishery ranged from 46.0% for 26–28 June to 60.2% for 27–30 July (Table 8).

The Coho/Ninilchik Beach set gillnet harvest has, on average, accounted for 13.0% of the total UCI sockeye salmon harvest and represented 8.8% of the total UCI harvest in 1992. Age-1.3 sockeye salmon predominated harvest samples, ranging from 53.1% to 65.2% of the harvest by period and representing 62.4% of the harvest for all periods combined (Table 9; Figure 5). The greatest number and percentage of age-1.3 sockeye salmon occurred during 18–24 July. Age-1.2, -2.2, and -2.3 sockeye salmon contributed 5.8%, 10.8%, and 20.6%, respectively, to the total harvest.

The Kalifonsky Beach set gillnet harvest has, on average, accounted for 6.7% of the total UCI sockeye salmon harvest and represented 10.6% of the total UCI harvest in 1992. The harvest was primarily composed of age-1.3 (74.8%), age-2.2 (11.7%), and age-2.3 (8.2%) sockeye salmon (Table 10). Age-1.3 sockeye salmon dominated harvest samples, contributing from 49.7% (30 June–5 July) to 82.3% (20–26 July) of each harvest period. Age-2.2, -2.3, and -1.2 sockeye salmon percentages decreased as the season progressed (Figure 6).

The Salmatof Beach set gillnet harvest has, on average, accounted for 9.6% of the total UCI sockeye salmon harvest and represented 11.8% of the total UCI harvest in 1992. The harvest was primarily composed of age-1.3 (82.5%), age-1.2 6.9%, age-2.2 (6.2%), and age-2.3 (3.1%) sockeye salmon (Table 11). Major shifts in age composition occurred between 3–14 July and 15–20 July when the percentage of age-1.3 sockeye salmon rose from 27.3% to 90.6%, while the contribution of age-1.2 sockeye salmon declined from 37.4% to 2.7% and that of age-2.2 sockeye salmon declined from 26.7% to 2.9% (Table 11; Figure 7).

Mean length-at-age of sockeye salmon in Cohoe/Ninilchik, Kalifonsky, and Salmatof Beach harvest samples generally increased as the season progressed (Tables 9–11). Mean lengths ranged from 523 mm (11–17 July) to 557 mm (18–24 July) in Cohoe/Ninilchik Beach samples; from 519 mm (30 June–5 July) to 553 mm (20–26 July) in Kalifonsky Beach samples; and from 492 mm (3–14 July) to 567 mm (15–20 July) in Salmatof Beach samples. The overall mean length-at-age of sockeye salmon in the harvest increased in a northerly direction from 543 mm (Cohoe/Ninilchik Beach) to 547 mm (Kalifonsky Beach) to 553 mm (Salmatof Beach; Table 6).

Female contribution ranged from 65.4% (30 June–3 July) to 50.2% (11–17 July) in the Cohoe/Ninilchik Beach harvest, from 48.5% (30 June–5 July) to 58.8% (6–12 July) in the Kalifonsky Beach harvest, and from 51.9% (15–20 July) to 44.2% (3–14 July) in the Salmatof Beach harvest (Tables 9–11). Significant differences in overall sex ratios were found between harvests from Cohoe/Ninilchik and Salmatof Beaches ( $\chi^2=16.20$ ,  $P<0.05$ ,  $df=1$ ) and Kalifonsky and Salmatof Beaches ( $\chi^2=6.39$ ,  $P<0.05$ ,  $df=1$ ). No significant differences in sex ratios were observed between Cohoe/Ninilchik and Kalifonsky Beach harvests ( $\chi^2=2.55$ ,  $P>0.05$ ,  $df=1$ ).

The Western Subdistrict set gillnet harvest has, on average, accounted for 3.0% of the total UCI sockeye salmon harvest and represented 0.3% of the total UCI harvest in 1992. Most of the Western Subdistrict harvest was composed of age-1.3 (44.6%), age-2.3 (31.7%), and age-1.2 (13.6%) sockeye salmon (Table 12). Overall mean length of all sockeye salmon harvested in this subdistrict was 532 mm. Females accounted for 43.4% of the harvest.

The General Subdistrict set gillnet harvest has, on average, accounted for 4.0% of the total UCI sockeye salmon harvest and represented 0.6% of the total UCI harvest in 1992. Most of the General Subdistrict harvest was composed of age-1.3 (68.4%) and age-2.3 (13.5%) sockeye salmon (Table 13). Overall mean length of all sockeye salmon harvested in this subdistrict was 547 mm. Females represented 56.3% of the harvest.

Sockeye salmon age composition in the 4 major spawning systems (Kenai, Kasilof, Yentna, and Crescent Rivers) varied substantially. Age-1.3 sockeye salmon were the predominate age group in the Kenai River (79.9%) escapement but only a minor component of the Fish Creek (5.0%) escapement (Table 6). Age-1.2 sockeye salmon were the predominate age group of the Fish Creek (75.7%) escapement but only a minor component of the Crescent River (2.6%) escapement. Age-2.2 sockeye salmon contributed most to the Kasilof River (35.3%) and the least to the Kenai River (5.9%) escapement. Age-2.3 sockeye salmon contributed most to the Crescent River (61.9%) and the least to the Fish Creek (0.65%) escapement.

The contribution of Kenai River age-1.3 sockeye salmon in escapement samples ranged from 86.8% (1–26 July) to 69.0% (27 July–13 August; Table 14). Age-2.3 sockeye salmon contributed 5.0% to 20.5%. An increasing trend in age-2.2 composition was also noted. Age-1.2 (27,116 sockeye salmon) represented only 3.4% and 1.6% for the same periods. Age composition of sockeye salmon returning to Hidden Creek, a tributary of the Kenai River, was 81.5% age 1.2, 13.4% age 1.3, and 4.6% age 2.2 (Table 15). Hidden Creek age-1.2 sockeye salmon accounted for 99.0% of the total Kenai River escapement of this age class.

Mean length-at-age of sockeye salmon in the Kenai River generally decreased during the season. For example, age-1.3 sockeye salmon mean length decreased from 560 mm for 1–26 July to 552 mm for 27 July–13 August (Table 14).

The percentage of females in the Kenai River fluctuated slightly from 65.0% for 1–26 July to 66.4% for 27 July–13 August (Table 14). This represented 652,195 females out of a total escapement (sonar count) of 994,798 fish. The Hidden Creek escapement was 60.9% female.

Major shifts in age-1.2, -1.3, -2.2, and -2.3 sockeye salmon composition occurred in the Kasilof River escapement with precipitous decreases in age-1.3 (53.6% to 8.2%) and age-2.3 (28.3% to 4.7%) compositions between 15–30 June and 16 July–2 August. Corresponding increases were observed in age-1.2 (10.5% to 30.3%) and age-2.2 (7.6% to 56.3%) compositions during the same time intervals (Table 16; Figure 8).

Kasilof River age-1.3 sockeye salmon averaged 537 mm in length for 15–30 June and averaged 515 mm for 16 July–2 August (Table 16). Likewise, age-1.2, -2.2, and -2.3 sockeye salmon were smaller, on average, at the beginning of the season. Female sockeye salmon in the escapement initially represented 46.1% for 15–30 June and increased to 62.1% for 16 July–2 August.

Age compositions of sockeye salmon returning to Crescent River were 2.6% age 1.2, 21.7% age 1.3, 12.4% age 2.2, and 61.9% age 2.3 (Table 17). Mean lengths of the respective age groups were 487 mm for age-1.2, 546 mm for age-1.3, 490 mm for age-2.2, and 559 mm for age-2.3 sockeye salmon. Females contributed 50.5% to the escapement.

Age compositions of sockeye salmon returning to Packers Creek were 55.2% age-1.3, 22.9% age-2.2, 13.6% age-2.3, and 8.1% age-1.2 sockeye salmon (Table 18). Length composition was 540 mm for age-1.3, 468 mm for age-2.2, 530 mm for age-2.3, and 466 mm for age-1.2 sockeye salmon. Female sockeye salmon contributed 53.6% to the escapement.

Yentna River sockeye salmon escapement samples included 8 age groups with 4 age groups representing 95.8% of the total escapement (Table 19). Age-class contributions were 31.4% age-1.2, 29.2% age-1.3, 18.2% age-2.3, and 17.1% age-2.2 sockeye salmon. Mean length of age-1.3 sockeye salmon ranged from 538 mm for 30 July–11 August to 549 mm for 7–18 July. The percentage of females in the escapement deviated from 34.9% to 41.3% with an overall composition of 37.2%.

The major age groups of sockeye salmon entering Chelatna Lake, a tributary of the Yentna River, were 53.5% age 1.3 and 41.2% age 1.2 (Table 20). Age composition between Chelatna Lake and the Yentna River was statistically different ( $\chi^2=5.99$ ,  $P<0.05$ ,  $df=1$ ) for the 2 major age groups. Mean length-at-age of Chelatna Lake sockeye salmon was generally larger than Yentna River sockeye salmon with overall mean lengths of 535 mm and 496 mm, respectively. Females represented 48.5% of the Chelatna Lake escapement.

The major age groups in the mainstem Susitna River (Sunshine Station, river mile 80) were 23.2% age-1.2, 37.5% age-1.3, 25.6% age-2.2, and 13.2% age-2.3 sockeye salmon (Table 21). There were statistical differences ( $\chi^2=51.19$ ,  $P<0.05$ ,  $df=2$ ) in age composition among the 3 major age groups (ages 1.2, 1.3, and 2.3) between the Susitna mainstem and Yentna Rivers.

Mean length-at-age of sockeye salmon sampled at Sunshine Station was 476 mm for age-1.2, 543 mm for age-1.3, 479 mm for age-2.2, and 546 mm for age-2.3 sockeye salmon; the overall mean length was 511 mm (Table 21). Females represented 59.1% of the sampled escapement.

Age composition of sockeye salmon returning to Fish Creek was 75.7% age 1.2 and 17.9% age 2.2 (Table 22). Average length was 477 mm for both age-1.2 and age-2.2 sockeye salmon; the overall average length was 480 mm. Females represented 53.5% of the escapement.

### **Coho Salmon**

Commercial harvest samples consisted of 2 major coho salmon age groups and a total of 5 age groups were represented (Tables 23–27). Age-2.1 (83.5%) and age-1.1 (11.6%) coho salmon accounted for most of the harvest. Age-2.1 coho salmon represented 70.6% of the Western Subdistrict catch and 84.8% of the Central District drift harvest. Age-1.1 coho salmon represented 9.8% of the drift harvest and 24.8% of the Western Subdistrict harvest. Age-2.1 coho salmon were the most abundant age group in every sampling period for the Central District drift (range, 78.9% to 88.0%), Upper Subdistrict (range, 68.2% to 83.4%), and General Subdistrict (range, 81.4% to 85.2%) harvests.

Mean lengths of age-2.1 coho salmon were similar among the fisheries sampled in the Central District (553 mm to 557 mm) and smaller (542 mm) than those in fisheries sampled in the Northern District and General Subdistrict (Table 23). The proportion of males and females were approximately equal in all fisheries sampled.

### **Chum Salmon**

Chum salmon in the commercial drift gillnet harvest were primarily age 0.3 (67.2%) and age 0.4 (32.2%; Table 28). The percentage of age-0.3 chum salmon increased from 34.2% (26 June–8 July) to 73.1% (16 July–26 August), while age-0.4 chum salmon decreased from 64.7% to 26.3% during the same time

intervals. Overall mean lengths for age-0.3 chum salmon were 559 mm and for age-0.4 586 mm. For all periods combined, females represented 61.7% of the total harvest.

## DISCUSSION

AWL data has been collected intermittently on chinook, sockeye, coho, and chum salmon returning to UCI since 1964, but only since 1978 have sockeye salmon been sampled extensively in commercial harvests and major river escapements. Chinook, coho, and chum salmon databases include some commercial harvest and river escapement sampling between 1964 and 1988, but since 1988 only the major commercial harvests of chinook, coho, and chum salmon were sampled for AWL data.

Generally, sockeye salmon age-composition fluctuations in commercial harvests are due to differences in annual relative production of the major spawning systems, particularly the Kenai River. The 1992 commercial harvest of 9,100,000 sockeye salmon was the second largest harvest in the history of the fishery, surpassed only by the 1987 harvest of 9,500,000 (Ruesch and Fox 1993). The predominate age class of sockeye salmon in the 1992 run was age 1.3. The percentage contribution of this age class in 1992 (78%) was almost twice that observed in 1990 and 1991. This age class generally contributed > 50% to the yearly total returns prior to 1990. The predominance of age-1.3 fish (~6,800,000 based on age-composition analysis) in 1992 was mostly due to Kenai River production resulting from an emigration of approximately 23,800,000 sockeye salmon smolts in 1989 (King et al. 1990).

Mean size of fish observed in the major commercial harvests and escapements of chinook and sockeye salmon since 1987 showed no apparent trends (Figures 9-17). Chinook salmon tend to have less variability associated with mean size-at-age than sockeye salmon.

The weighted female sockeye salmon contributions to the major spawning escapements have been quite variable (Figure 18). In 1992 the lowest female contribution of the 4 major river escapements was observed in the Yentna River (37%) and was the lowest observed since 1987, except for the Crescent River (35%) in 1990.

Exploitation rates for the 4 major age groups of sockeye salmon for all of UCI have been estimated and have been quite variable (0.449 to 0.887; Figure 18). In 1992 the overall exploitation rate was the highest recorded since 1990. This can be attributed to the largest return (10,500,000 fish) recorded since 1990. By comparison, the smallest return (3,500,000 fish) was observed in 1991, which was also represented by the smallest overall exploitation rate since 1990. In general, age-1.2 and -2.2 sockeye salmon tend to be harvested at lower rates (range, 0.449 to 0.727) than age-1.3 and -2.3 sockeye salmon (range, 0.724 to 0.887). Age-1.3 sockeye salmon have been harvested at the highest average annual rate (0.819). This was the result of age-1.3 fish being predominate in 1990 and 1992 and the bulk of them returning to the Kenai River, which typically drives the management of UCI commercial fisheries.

Coho salmon have been sampled annually in the drift gillnet fishery since 1983, except for 1989 when no fishing occurred. From 1983 through 1990 age-2.1 coho salmon represented 56%–78% of the harvest, whereas in 1991 and 1992 this age group represented approximately 85%. This trend is also obvious in Upper Subdistrict harvests and to a lesser degree in the Northern District and General Subdistrict harvests. It is absent in the Western Subdistrict harvest. Sex ratios in annual drift gillnet harvests have generally been skewed toward males (60%). The absence of seasonal differences in coho salmon age composition within General Subdistrict commercial harvest samples indicated that temporal stratification is not needed to estimate the age composition for this fishery. However, seasonal age-composition differences in the drift and Upper Subdistrict harvests would warrant the continuation of multiple period sampling.

Chum salmon have been sampled annually in the drift gillnet fishery since 1983. Age-0.3 and -0.4 chum salmon have consistently represented over 87% of the drift gillnet harvest each year. Females are generally more abundant than males in samples. Even though the same 2 dominant age groups occur each year, seasonal differences in chum salmon age composition warrants the continuation of multiple period sampling.

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Table 1. Commercial salmon harvest by area and gear type, Upper Cook Inlet, Alaska, in 1992.

Fishery		Chinook	sockeye	Coho	Pink	Chum	Total
<b>Upper Cook Inlet Total</b>		17,171	9,108,340	468,911	695,859	274,303	10,564,584
<b>A. Northern District Total</b>		4,554	69,478	91,133	23,805	25,301	214,271
1. <i>Northern District West</i>		3,808	54,024	68,159	17,419	24,292	167,702
a. Trading Bay	247-10	1,670	6,037	7,702	932	1,217	17,558
b. Tyonek	247-20	800	6,837	12,786	1,484	3,150	25,057
c. Beluga	247-30	895	15,791	25,847	9,345	12,285	64,163
d. Susitna Flat	247-41	233	2,256	3,659	847	1,217	8,212
e. Pt. Mackenzie	247-42	19	5,624	6,000	1,624	2,288	15,555
f. Fire Island	247-43	191	6,731	10,348	2,614	2,846	22,730
g. Knik Arm	247-50	0	10,748	1,817	573	1,289	14,427
2. <i>Northern District East</i>		746	15,454	22,974	6,386	1,009	46,569
a. Pt. Possession	247-70	388	7,728	9,304	3,951	832	22,203
b. Birch Hill	247-80	150	2,956	6,701	1,527	134	11,468
c. Number 3 Bay	247-90	208	4,770	6,969	908	43	12,898
<b>B. Central District Total</b>		12,617	9,038,862	377,778	672,054	249,002	10,350,313
1. <i>East Side Set Total</i>		10,718	2,838,076	57,078	244,068	2,867	3,152,807
a. Salamatof	244-40	2,346	1,070,683	26,770	82,946	2,162	1,184,907
b. Kalifonsky Beach	244-30	3,994	962,640	12,103	71,311	175	1,050,223
d. Cohoe/Ninilchik		4,378	804,753	18,205	89,811	530	917,677
1. Cohoe	244-22	2,382	660,580	10,897	59,870	414	734,143
2. Ninilchik	244-21	1,996	144,173	7,308	29,941	116	183,534
2. <i>West Side Set Total</i>		253	27,180	16,055	631	6,122	50,241
a. Little Jack Slough	245-50	5	718	236	0	74	1,033
b. Polly Creek	245-40	68	8,622	4,375	174	926	14,165
c. Tuxedni Bay	245-30	170	14,289	5,777	317	4,763	25,316
d. Silver Salmon	245-20	10	3,551	5,667	140	359	9,727
3. <i>Kustatan Total</i>		963	9,640	11,166	139	131	22,039
a. Big River	245-55	938	4,598	5,718	18	11	11,283
b. West Foreland	245-60	25	5,042	5,448	121	120	10,756
4. <i>Kalgin Island Total</i>		65	93,489	23,127	3,370	3,615	123,666
a. West Side	246-10	42	59,332	15,839	2,650	2,877	80,740
b. East Side	246-20	23	34,157	7,288	720	738	42,926
5. <i>Chinitna Bay Total</i>		3	1,002	4,932	114	3,562	9,613
a. Set	245-10	3	982	3,052	108	3,312	7,457
b. Drift	245-10	0	20	1,880	6	250	2,156
6. <i>Central District Set Total</i>		12,002	2,969,367	110,478	248,316	16,047	3,356,210
7. <i>Central District Drift Total</i>		615	6,069,495	267,300	423,738	232,955	6,994,103
a. West Side	245-70, 80, 90	72	482,622	21,171	21,353	16,087	541,305
b. East Side	245-50, 60, 70	543	5,586,853	244,249	402,379	216,618	6,450,642
c. Chinitna Bay	245-10	0	20	1,880	6	250	2,156

Table 2. Salmon harvest estimates from selected subsistence and personal use fisheries of Upper Cook Inlet, Alaska, in 1992.

Fishery	Species					Total
	Chinook	Sockeye	Coho	Pink	Chum	
<b>Subsistence Catch<sup>a</sup>:</b>						
<i>Northern District</i>						
Set Gillnet						
General	344	3,236	2,182	300	572	6,634
Tyonek <sup>b</sup>	872	88	161	10	28	1,159
Knik Arm	132	5,203	2,328	354	965	8,982
Eastern	4	497	329	16	4	850
<i>Central District</i>						
Dip Net						
Kenai River	158	16,240	1,475	598	74	18,545
Kasilof River	24	1,230	24	3	0	1,281
Set Gillnet						
Upper Subdistrict						
Ninilchik	55	1,277	153	45	1	1,531
Cohoe	147	4,610	683	88	12	5,540
Kalifonsky	189	9,541	1,920	273	154	12,077
Salamatof	71	3,911	1,009	132	24	5,147
Kalgin	8	226	24	0	3	261
Kustatan	0	31	36	0	3	70
Western	6	417	157	9	15	604
Chinitna Bay	0	0	0	0	0	0
Subtotal	2,010	46,507	10,481	1,828	1,855	62,681
<b>Personal Use Catch<sup>a</sup>:</b>						
<i>Central District</i>						
Dip Net <sup>c</sup>						
Kasilof River			No fishery due to subsistence			
Kenai River	0	8,700	0	0	0	8,700
Set Gillnet						
Kasilof River			No fishery due to subsistence			
Kenai River						
Kenaitze <sup>d</sup>	55	2,025	3	3	0	2,086
<i>Central &amp; Northern Districts</i>						
No fishery due to subsistence						
<i>Northern District</i>						
Dip Net						
Fish Creek <sup>e</sup>	0	12,103	0	0	0	12,103
Subtotal	55	22,828	3	3	0	22,889
<b>Total</b>	<b>2,065</b>	<b>69,335</b>	<b>10,484</b>	<b>1,831</b>	<b>1,855</b>	<b>85,570</b>

<sup>a</sup> Source: J. Fox, ADF&G, Soldotna, personal communication.

<sup>b</sup> Ruesch and Fox (1993).

<sup>c</sup> Source: D. Nelson, ADF&G, Soldotna, personal communication.

<sup>d</sup> Kenaitze Tribe issued a court-ordered permit to operate a set gillnet in the Kenai River downstream from a point 0.25-mi above the Warren Ames Bridge and including marine waters adjacent to the river mouth normally closed to commercial salmon fishing.

<sup>e</sup> Source: C. Whitmore, ADF&G, Anchorage, personal communication.

Table 3. Number of spawners estimated or indexed in selected streams and rivers of Upper Cook Inlet, Alaska, in 1992.

Location	Species				
	Chinook	Sockeye	Coho	Pink	Chum
<b>Central District:</b>					
<i>Kenai River</i>					
early run	8,558 <sup>a</sup>				
late run	23,326 <sup>a</sup>	798,422 <sup>bc</sup>			
<i>Russian River</i>					
early run					
above weir		31,117 <sup>a</sup>			
late run					
above weir		63,478 <sup>b</sup>			
below falls		4,980 <sup>b</sup>			
Hidden Creek		32,912 <sup>d</sup>			
<i>Kasilof River</i>					
mainstem		177,628 <sup>bc</sup>			
Crooked Creek	750 <sup>af</sup>				
<i>Crescent River</i> <sup>b</sup>		58,229	289 <sup>g</sup>	714 <sup>g</sup>	6,701 <sup>g</sup>
<i>Packers Creek</i> <sup>h</sup>		30,143			
Subtotal	32,634	1,095,539 <sup>i</sup>	289	714	6,701
<b>Northern District:</b>					
<i>Susitna River</i>					
Yentna River <sup>b</sup>	107 <sup>g</sup>	66,074	29,072 <sup>g</sup>	239,362 <sup>g</sup>	30,061 <sup>g</sup>
Chelatna Lake <sup>j</sup>		20,000			
<i>Fish Creek</i> <sup>k</sup>		72,108			
Subtotal	107	138,182 <sup>l</sup>	29,072	239,362	30,061
<b>Total</b>	32,741 <sup>m</sup>	1,233,721	29,361 <sup>m</sup>	240,076 <sup>m</sup>	36,762 <sup>m</sup>

<sup>a</sup> Source: D. Nelson, ADF&G, Soldotna, personal communication.

<sup>b</sup> Source: B. King, ADF&G, Soldotna, personal communication.

<sup>c</sup> Sonar count less sport harvest above sonar site.

<sup>d</sup> Source: G. Fandrei, Cook Inlet Aquaculture Association, Soldotna, personal communication.

<sup>e</sup> Sonar count less egg take of 6,550 fish.

<sup>f</sup> In addition, 267 fish were utilized in the egg take for hatchery production and 2,196 were harvested at the hatchery and sold to a processor.

<sup>g</sup> Index count only.

<sup>h</sup> Source: Fandrei (1993a); total escapement was 39,341 fish; 9,198 were harvested and sold to partially recover project costs.

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

<sup>j</sup> Source: Fandrei (1993b); escapement estimate based on the modified Peterson estimator of abundance.

<sup>k</sup> Source: L. Peltz, ADF&G, Big Lake, personal communication.

<sup>l</sup> Subtotal excludes Chelatna Lake spawner estimate which is a component of the Yentna River estimate.

<sup>m</sup> Total includes estimate and/or index counts.

Table 4. Number of salmon sampled from commercial harvests and escapements in Upper Cook Inlet, Alaska, in 1992.

Location <sup>a</sup>	Species			
	Chinook	Sockeye	Coho	Chum
<b>Commercial Catch:</b>				
<i>Central District</i>				
Drift		7,692	1,664	1,800
Upper Subdistrict	775 <sup>b</sup>		1,531 <sup>b</sup>	
Salamatof Beach		2,277		
Kalifonsky Beach		3,000		
Cohoe/Ninilchik Beach		3,000		
Western Subdistrict		1,586	182	
<i>Northern District</i>				
Eastern Subdistrict		No samples obtained		
General Subdistrict		1,800	750	
Subtotal	775	19,355	4,127	1,800
<b>Escapement:</b>				
<i>Central District</i>				
Kenai River				
Mainstem late run		1,418		
Hidden Creek		698 <sup>c</sup>		
Kasilof River				
Mainstem		1,809		
Crescent River		240		
Packers Creek		694 <sup>c</sup>		
<i>Northern District</i>				
Susitna River				
Mainstem (Sunshine Station)		1,323		
Yentna River		1,802		
Chelatna Lake (Lake Creek)		327 <sup>c</sup>		
Fish Creek		610 <sup>d</sup>		
Subtotal		8,921		
<b>Total</b>	<b>775</b>	<b>28,276</b>	<b>4,127</b>	<b>1,800</b>

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

<sup>b</sup> Represents pooled samples from the Upper Subdistrict commercial set gillnet fisheries.

<sup>c</sup> Samples collected by Cook Inlet Aquaculture Association (CIAA) personnel.

<sup>d</sup> Samples collected by Fisheries Rehabilitation, Enhancement and Development (FRED) Division personnel, ADF&G.

Table 5. Age, sex, and length composition of chinook salmon in the Upper Subdistrict commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1992.

	Age Group								Total
	1.1	1.2	1.3	2.2	1.4	2.3	1.5	2.4	
<i>Sample Period 1: 3-20 July</i>									
Males	147	752	1,062	29	1,344	59	147		3,540
Percent	2.63	13.45	19.00	0.52	24.04	1.06	2.63		63.33
Sample Size	10	51	72	2	91	4	10		240
Mean Length <sup>a</sup>	416	597	730	785	975	884	1,111		801
Std. Error	10	16	15	115	17	13	20		9
Sample Size	10	51	72	2	91	4	10		240
Females	74	398	590	29	915		44		2,050
Percent	1.32	7.12	10.55	0.52	16.37		0.79		36.67
Sample Size	5	27	40	2	62		3		139
Mean Length	410	607	746	718	954		1,010		805
Std. Error	5	16	18	42	11		15		8
Sample Size	5	27	40	2	62		3		139
Both Sexes	221	1,150	1,652	58	2,259	59	191		5,590
Percent	3.95	20.57	29.55	1.04	40.41	1.06	3.42		100.00
Sample Size	15	78	112	4	153	4	13		379
Mean Length	414	601	736	751	967	884	1,088		802
Std. Error	7	12	12	61	11	13	16		6
Sample Size	15	78	112	4	153	4	13		379

- continued -

Table 5. (Page 2 of 3).

	Age Group								Total	
	1.1	1.2	1.3	2.2	1.4	2.3	1.5	2.4		
<i>Sample Period 2: 21 July-14 August</i>										
Males	17	332	863		2,057	17	149			3,435
Percent	0.33	6.47	16.83		40.11	0.33	2.91			66.99
Sample Size	1	20	52		124	1	9			207
Mean Length	445	638	853		987	645	1,044			917
Std. Error		14	13		8		31			6
Sample Size	1	20	52		124	1	9			207
Females	17	83	431		1,062	17	66	17		1,693
Percent	0.33	1.62	8.40		20.71	0.33	1.29	0.33		33.01
Sample Size	1	5	26		64	1	4	1		102
Mean Length	855	710	855		968	770	955	940		923
Std. Error		36	23		13		30			10
Sample Size	1	5	26		64	1	4	1		102
Both Sexes	34	415	1,294		3,119	34	215	17		5,128
Percent	0.66	8.09	25.23		60.82	0.66	4.19	0.33		100.00
Sample Size	2	25	78		188	2	13	1		309
Mean Length	650	653	854		980	708	1,017	940		919
Std. Error		13	12		7		23			5
Sample Size	2	25	78		188	2	13	1		309

- continued -

Table 5. (Page 3 of 3).

	Age Group								Total
	1.1	1.2	1.3	2.2	1.4	2.3	1.5	2.4	
<i>All Periods Combined:</i>									
Males	164	1,084	1,925	29	3,401	76	296		6,975
Percent	1.53	10.11	17.96	0.27	31.73	0.71	2.76		65.08
Sample Size	11	71	124	2	215	5	19		447
Mean Length	419	610	785	785	982	830	1,077		858
Std. Error	10	12	10	115	8	13	19		5
Sample Size	11	71	124	2	215	5	19		447
Females	91	481	1,021	29	1,977	17	110	17	3,743
Percent	0.85	4.49	9.53	0.27	18.45	0.16	1.03	0.16	34.92
Sample Size	6	32	66	2	126	1	7	1	241
Mean Length	493	625	792	718	962	770	977	940	858
Std. Error	5	15	14	42	9		19		6
Sample Size	6	32	66	2	126	1	7	1	241
Both Sexes	255	1,565	2,946	58	5,378	93	406	17	10,718
Percent	2.38	14.60	27.49	0.54	50.18	0.87	3.79	0.16	100.00
Sample Size	17	103	190	4	341	6	26	1	688
Mean Length	445	614	788	751	975	819	1,050	940	858
Std. Error	7	9	8	61	6	13	15		4
Sample Size	17	103	190	4	341	6	26	1	688

<sup>a</sup> Mean length in millimeters.

Table 6. Age and length composition of sockeye salmon in selected commercial gillnet fisheries and river escapements with overall exploitation rates by age, Upper Cook Inlet, Alaska, in 1992.

Fishery	Age Group											Total	
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4		3.3
<b>Commercial Catch</b>													
<i>Central District</i>													
<i>Central Drift<sup>a</sup></i>													
Number	65		19,301	167,034		5,090,211	207,929	6,657	576,381		1,897		6,069,475
Percent	0.00		0.32	2.75		83.87	3.43	0.11	9.50		0.03		100.00
Sample Size	1		24	312		5,258	358	10	814		2		6,779
Mean Length <sup>b</sup>	423		555	493		566	503	616	558		560		561
Sample Size	1		24	311		5,258	358	10	814		2		6,778
<i>Cohoe/Ninilchik Beach</i>													
Number	506	282	1,012	46,612	1,113	502,080	86,975		165,891			282	804,753
Percent	0.06	0.04	0.13	5.79	0.14	62.39	10.81		20.61			0.04	100.00
Sample Size	1	1	2	198	4	1,613	325		505			1	2,650
Mean Length	473	360	547	475	399	556	483		555			536	543
Sample Size	1	1	2	198	4	1,613	325		505			1	2,650
<i>Kalifonsky Beach</i>													
Number			1,147	48,103	901	719,997	112,734		79,293		465		962,640
Percent			0.12	5.00	0.09	74.79	11.71		8.24		0.05		100.00
Sample Size			3	192	2	1,771	338		353		2		2,661
Mean Length			559	473	392	563	479		548		578		547
Sample Size			3	192	2	1,771	338		353		2		2,661
<i>Salamatof Beach</i>													
Number	1,954	1,714	5,003	73,932	1,714	883,721	66,560	1,907	33,182		996		1,070,683
Percent	0.18	0.16	0.47	6.91	0.16	82.54	6.22	0.18	3.10		0.09		100.00
Sample Size	5	5	10	198	5	1,641	165	3	69		2		2,103
Mean Length	438	347	561	472	353	566	481	582	553		602		553
Sample Size	5	5	10	198	5	1,641	165	3	69		2		2,103

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Table 6. (Page 2 of 5).

Fishery	Age Group											Total	
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4		3.3
<b>Commercial Catch (continued)</b>													
<i>Western</i>													
Number		27	14	3,692	27	12,120	2,675		8,625				27,180
Percent		0.10	0.05	13.58	0.10	44.59	9.84		31.73				100.00
Sample Size		1	1	157	1	629	131		431				1,351
Mean Length		324	554	481	375	546	496		546				532
Sample Size		1	1	157	1	629	131		431				1,351
<i>Central District Total</i>													
Number	2,525	2,023	26,477	339,373	3,755	7,208,129	476,873	8,564	863,372		3,358	282	8,934,731
Percent	0.03	0.02	0.30	3.80	0.04	80.68	5.34	0.10	9.66		0.04	0.00	100.00
Sample Size	7	7	40	1,057	12	10,912	1,317	13	2,172		6	1	15,544
Mean Length	445	348	556	483	376	565	490	608	557		575	536	557
Sample Size	7	7	40	1,056	12	10,912	1,317	13	2,172		6	1	15,543
<i>Northern District</i>													
<i>General Subdistrict</i>													
Number	256		2,531	4,763	158	36,928	1,846	256	7,266		20		54,024
Percent	0.47		4.68	8.82	0.29	68.35	3.42	0.47	13.45		0.04		100.00
Sample Size	7		63	157	4	1,031	60	6	211		1		1,540
Mean Length	462		557	492	357	556	492	608	553		590		547
Sample Size	7		63	157	4	1,031	60	6	211		1		1,540
<b>Commercial Harvest Total</b>													
Number	2,781	2,023	29,008	344,136	3,913	7,245,057	478,719	8,820	870,638		3,378	282	8,988,755
Percent	0.03	0.02	0.32	3.83	0.04	80.60	5.33	0.10	9.69		0.04	0.00	100.00
Sample Size	14	7	103	1,214	16	11,943	1,377	19	2,383		7	1	17,083
Mean Length	446	348	556	483	375	565	490	608	556		575	536	557
Sample Size	14	7	103	1,213	16	11,943	1,377	19	2,383		7	1	17,083

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Table 6. (Page 3 of 5).

Fishery	Age Group											Total	
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4		3.3
<b>Escapement</b>													
<i>Central District</i>													
<i>Kenai River</i>													
Number	674			27,116	2,447	794,827	58,227	2,235	109,272				994,798
Percent	0.07			2.73	0.25	79.90	5.85	0.22	10.98				100.00
Sample Size	1			38	3	1,084	75	3	134				1,338
Mean Length	419			468	372	557	485	594	555				550
Sample Size	1			38	3	1,084	75	3	134				1,338
<i>Kasilof River</i>													
Number				38,852	348	50,556	65,030		29,392				184,178
Percent				21.09	0.19	27.45	35.31		15.96				100.00
Sample Size				396	4	392	691		234				1,717
Mean Length				467	385	531	464		533				494
Sample Size				396	4	392	691		234				1,717
<i>Crescent River</i>													
Number				1,500		12,607	7,203		36,019	600		300	58,229
Percent				2.58		21.65	12.37		61.86	1.03		0.52	100.00
Sample Size				5		42	24		120	2		1	194
Mean Length				487		546	490		559	503		540	545
Sample Size				5		42	24		120	2		1	194
<i>Packers Creek</i>													
Number				3,192		21,705	9,017	80	5,347				39,341
Percent				8.11		55.17	22.92	0.20	13.59				100.00
Sample Size				40		272	113	1	67				493
Mean Length				466		540	468		530				515
Sample Size				40		233	104		43				420
<i>Central District Total</i>													
Number	674			70,660	2,795	879,695	139,477	2,315	180,030	600		300	1,276,546
Percent	0.05			5.54	0.22	68.91	10.93	0.18	14.10	0.05		0.02	100.00
Sample Size	1			479	7	1,790	903	4	555	2		1	3,669
Mean Length	419			467	374	555	475	573	551	503		540	540
Sample Size	1			479	7	1,751	894	3	531	2		1	3,669

- continued -

Table 6. (Page 4 of 5).

Fishery	Age Group												Total
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	
<b>Escapement (continued)</b>													
<i>Northern District</i>													
<i>Yentna River</i>													
Number	1,079	630	432	20,732	285	19,286	11,268	44	11,998	261	59		66,074
Percent	1.63	0.95	0.65	31.38	0.43	29.19	17.05	0.07	18.16	0.40	0.09		100.00
Sample Size	24	15	10	475	6	430	234	1	249	5	2		1,451
Mean Length	430	339	544	450	371	544	456	580	551	488	583		496
Sample Size	24	15	10	475	6	430	234	1	249	5	2		1,451
<i>Sunshine Station<sup>c</sup></i>													
Number	57	71	71	14,575		23,515	16,093		8,260		57	71	62,770
Percent	0.09	0.11	0.11	23.22		37.46	25.64		13.16		0.09	0.11	100.00
Sample Size	1	1	1	228		380	253		130		1	1	996
Mean Length	490	355	537	476		543	479		546		616	544	511
Sample Size	1	1	1	228		380	253		130		1	1	996
<i>Fish Creek</i>													
Number		155		54,549	311	3,574	12,898		466	155			72,108
Percent		0.21		75.65	0.43	4.96	17.89		0.65	0.21			100.00
Sample Size		1		351	2	23	83		3	1			464
Mean Length		400		477	405	528	477		520	510			480
Sample Size		1		351	2	23	83		3	1			464
<i>Northern District Total</i>													
Number	1,136	856	503	89,856	596	46,375	40,259	44	20,724	416	116	71	200,952
Percent	0.57	0.43	0.25	44.72	0.30	23.08	20.03	0.02	10.31	0.21	0.06	0.04	100.00
Sample Size	25	17	11	1,054	8	833	570	1	382	6	3	1	2,911
Mean Length	433	352	543	471	389	542	472	580	549	496	599	544	495
Sample Size	25	17	11	1,054	8	833	570	1	382	6	3	1	2,911
<i>Escapement Total</i>													
Number	1,810	856	503	160,516	3,391	926,070	179,736	2,359	200,754	1,016	116	371	1,477,498
Percent	0.12	0.06	0.03	10.86	0.23	62.68	12.16	0.16	13.59	0.07	0.01	0.03	100.00
Sample Size	26	17	11	1,533	15	2,623	1,473	5	937	8	3	2	6,653
Mean Length	428	352	543	469	376	554	474	573	551	500	599	541	534
Sample Size	26	17	11	1,533	15	2,584	1,464	4	913	8	3	2	6,580

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Table 6. (Page 5 of 5).

Fishery	Age Group												Total
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	
<b>Upper Cook Inlet Total<sup>d</sup></b>													
Number	4,591	2,879	29,511	504,652	7,304	8,171,127	658,455	11,179	1,071,392	1,016	3,494	653	10,466,253
Percent	0.04	0.03	0.28	4.82	0.07	78.07	6.29	0.11	10.24	0.01	0.03	0.01	100.00
Sample Size	40	24	114	2,747	31	14,566	2,850	24	3,320	8	10	3	23,737
Mean Length	439	349	556	479	376	564	486	601	555	500	576	539	554
Sample Size	40	24	114	2,746	31	14,527	2,841	23	3,296	8	10	3	23,663
<b>Exploitation Rate</b>	0.606	0.703	0.983	0.682	0.536	0.887	0.727	0.789	0.813	---	0.967	0.432	0.859

<sup>a</sup> Total does not include Chinitna Bay Subdistrict harvest.

<sup>b</sup> Mean length in millimeters.

<sup>c</sup> Estimate of total escapement derived from the average ratio of Sunshine Station to Yentna River escapements during years of comparable operation (1981–1985). A fishwheel was operated at this site to provide age composition only.

<sup>d</sup> Total does not include Chinitna Bay, Kustatan, Kalgin Island, and Eastern Subdistrict harvests which equal 118,603 fish. No age composition information was collected.

Table 7. Age composition of sockeye salmon sampled for genetic tissues in Upper Cook Inlet, Alaska, in 1992.

Date	Location	Sample Size	Age Class <sup>a</sup>										
			1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.2	3.3	Unreadable
<b>Central District</b>													
<b><i>Kasilof River Drainage</i></b>													
7/02	Kasilof River (sonar site)	200		15.0	32.5				22.0	30.5			
7/22	Kasilof River (sonar site)	200		35.5	4.5			1.0	57.5	1.5			
7/29	Nikolai Creek	100		13.0	37.0				20.0	30.0			
8/10	Moose Creek	100		10.0	12.0				67.0	11.0			
8/11	Glacier Flats Creek	100		17.0	23.0				49.0	10.0			1.0
8/12	Bear Creek	100		37.0	9.0			1.0	46.0	7.0			
<b><i>Kenai River Drainage</i></b>													
7/01	Russian River (early run)	100			5.0				7.0	88.0			
8/06	Russian River (late run)	100	1.0	1.0				4.0	87.0	2.0		5.0	
7/13	Kenai River (sonar site)	200		2.5	90.0				4.0				
8/03	Hidden Creek	100		78.0	16.0				6.0				
8/13	Quartz Creek	100			79.0				1.0	19.0			
8/18	between Skilak/Kenai Lakes	100		3.0	66.0				2.0	28.0			
8/19	Skilak Lake outlet	100		4.0	72.0					23.0			1.0
8/31	Ptarmigan Creek	100		1.0	80.0				14.0	5.0			
9/01	Tern Lake	50		22.0	40.0				8.0	28.0			2.0
7/02-28	Crescent River	200		3.5	25.5				12.5	56.0		0.5	1.0
7/15	Packers Creek	100		2.0	59.0				29.0	7.0		1.0	2.0
<b><i>Commercial Fishery</i></b>													
7/13	Drift gillnet fishery	200		4.0	81.5				2.5	10.5	1.0		1.0
7/20	Drift gillnet fishery	160		2.0	88.0				3.0	8.0			

- continued -

Table 7. (Page 2 of 2).

Date	Location	Sample Size	Age Class <sup>a</sup>										
			1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.2	3.3	Unreadable
<b><u>Northern District</u></b>													
<b><i>Bishop Creek Drainage</i></b>													
9/02	Daniels Lake	100	4.0	89.0	4.0				3.0				
<b><i>Beluga River Drainage</i></b>													
9/11	Coal Creek	100			23.0				10.0	63.0		4.0	
<b><i>Chakachatna River Drainage</i></b>													
9/18	Chilligan River	100			3.0				7.0	82.0	1.0	7.0	
7/22	Fish Creek	100	10.0	77.0				1.0	11.0				1.0
<b><i>Susitna River Drainage</i></b>													
<b><i>Mainstem</i></b>													
7/26	Sunshine Station (mile 80)	200		47.0	39.5				25.0	11.5	0.5		
8/04	Sunshine Station (mile 80)	114		32.5	24.0				32.5	12.0			
8/20	Larson Creek	100		38.0	37.0				20.0	5.0			
<b><i>Yentna River drainage</i></b>													
7/15	Yentna River (sonar site)	200		38.0	26.5				13.0	22.0			
7/24	Yentna River (sonar site)	200		27.0	17.0			0.5	24.0	30.0			1.5
8/20	Chelatna Lake	100		30.0	65.0				1.0	4.0			
8/24	Judd Lake	100		3.0	24.0	1.0			11.0	59.0		2.0	
8/24	Hewitt Lake	50		8.0	18.0	2.0			12.0	60.0			
8/25	Shell Lake	100		10.0	57.0				10.0	23.0			
8/25	Trinity Lake	100		10.0	42.0	1.0			7.0	40.0			
9/09	West Fork Yentna River	100		22.0	49.0				12.0	15.0	1.0		1.0

<sup>a</sup> Each sample included scales and otoliths. Ages were determined by combining best results from scales and otoliths.

Table 8. Age, sex, and length composition of sockeye salmon harvested in the Central District commercial drift gillnet fishery, Upper Cook Inlet, Alaska, in 1992.

	Age Group								Total <sup>a</sup>
	0.2	0.3	1.2	1.3	2.2	1.4	2.3	2.4	
<b>Sample Period 1: 26-28 June</b>									
Males			600	2,606	750		1,594		5,550
Percent			5.83	25.32	7.29		15.49		53.92
Sample Size			32	139	40		85		296
Mean Length <sup>b</sup>			492	546	495		535		530
Std. Error			5	2	5		3		2
Sample Size			32	139	40		85		296
Females		37	225	2,812	469	19	1,181		4,743
Percent		0.36	2.19	27.32	4.56	0.18	11.47		46.08
Sample Size		2	12	150	25	1	63		253
Mean Length		589	500	540	503	554	534		533
Std. Error		8	7	2	4		3		2
Sample Size		2	12	150	25	1	63		253
Both Sexes		37	825	5,418	1,219	19	2,775		10,293
Percent		0.36	8.02	52.64	11.84	0.18	26.96		100.00
Sample Size		2	44	289	65	1	148		549
Mean Length		589	494	543	498	554	534		532
Std. Error		8	4	2	4		2		1
Sample Size		2	44	289	65	1	148		549
<b>Sample Period 2: 29-30 June</b>									
Males	65	65	4,282	9,148	1,882		2,595		18,037
Percent	0.18	0.18	11.85	25.31	5.21		7.18		49.91
Sample Size	1	1	66	141	29		40		278
Mean Length	423	540	485	543	492		545		524
Std. Error			3	3	5		5		2
Sample Size	1	1	66	141	29		40		278
Females		65	1,557	12,911	1,298	65	2,206		18,102
Percent		0.18	4.31	35.73	3.59	0.18	6.10		50.09
Sample Size		1	24	199	20	1	34		279
Mean Length		556	489	548	501	548	532		538
Std. Error			4	2	8		5		2
Sample Size		1	24	199	20	1	34		279
Both Sexes	65	130	5,839	22,059	3,180	65	4,801		36,139
Percent	0.18	0.36	16.16	61.04	8.80	0.18	13.28		100.00
Sample Size	1	2	90	340	49	1	74		557
Mean Length	423	548	486	546	495	548	539		531
Std. Error			2	2	4		4		1
Sample Size	1	2	90	340	49	1	74		557

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Table 8. (Page 2 of 7).

	Age Group								Total
	0.2	0.3	1.2	1.3	2.2	1.4	2.3	2.4	
<b>Sample Period 3: 3 July</b>									
Males			2,422	10,695	3,229		3,229		19,575
Percent			5.01	22.13	6.68		6.68		40.50
Sample Size			24	106	32		32		194
Mean Length			486	560	506		547		540
Std. Error			7	3	8		7		3
Sample Size			24	106	32		32		194
Females			807	19,879	1,917	101	6,054		28,758
Percent			1.67	41.13	3.97	0.21	12.53		59.50
Sample Size			8	197	19	1	60		285
Mean Length			477	551	510	601	550		546
Std. Error			7	2	10		3		2
Sample Size			8	197	19	1	60		285
Both Sexes			3,229	30,574	5,146	101	9,283		48,333
Percent			6.68	63.26	10.65	0.21	19.21		100.00
Sample Size			32	303	51	1	92		479
Mean Length			484	554	508	601	549		544
Std. Error			6	2	6		3		1
Sample Size			32	303	51	1	92		479
<b>Sample Period 4: 6 July</b>									
Males		1,258	11,955	100,678	16,989		15,102		145,982
Percent		0.38	3.60	30.30	5.11		4.55		43.94
Sample Size		2	19	160	27		24		232
Mean Length		562	506	562	496		555		549
Std. Error		3	8	4	6		6		3
Sample Size		2	19	160	27		24		232
Females		629	7,551	151,017	10,068		16,989		186,254
Percent		0.19	2.27	45.45	3.03		5.11		56.06
Sample Size		1	12	240	16		27		296
Mean Length		549	515	557	509		543		551
Std. Error			12	2	4		6		2
Sample Size		1	12	240	16		27		296
Both Sexes		1,887	19,506	251,695	27,057		32,091		332,236
Percent		0.57	5.87	75.76	8.14		9.66		100.00
Sample Size		3	31	400	43		51		528
Mean Length		557	509	559	501		549		550
Std. Error		3	7	2	4		4		2
Sample Size		3	31	400	43		51		528

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Table 8. (Page 3 of 7).

	Age Group								Total
	0.2	0.3	1.2	1.3	2.2	1.4	2.3	2.4	
<b>Sample Period 5: 10 July</b>									
Males			20,160	142,131	27,217		41,329		230,837
Percent			3.88	27.33	5.23		7.95		44.38
Sample Size			20	141	27		41		229
Mean Length			485	567	489		559		549
Std. Error			8	3	7		6		2
Sample Size			20	141	27		41		229
Females		2,016	10,080	206,646	8,064		62,497		289,303
Percent		0.39	1.94	39.73	1.55		12.02		55.62
Sample Size		2	10	205	8		62		287
Mean Length		555	490	560	482		553		554
Std. Error		24	11	2	11		4		2
Sample Size		2	10	205	8		62		287
Both Sexes		2,016	30,240	348,777	35,281		103,826		520,140
Percent		0.39	5.81	67.05	6.78		19.96		100.00
Sample Size		2	30	346	35		103		516
Mean Length		555	486	563	487		555		552
Std. Error		24	7	2	6		3		1
Sample Size		2	30	346	35		103		516
<b>Sample Period 6: 13-14 July</b>									
Males			4,848	230,271	8,484	1,212	25,451		270,266
Percent			0.77	36.40	1.34	0.19	4.02		42.72
Sample Size			4	190	7	1	21		223
Mean Length			483	582	501	621	566		577
Std. Error			18	2	12		7		2
Sample Size			4	190	7	1	21		223
Females			4,848	311,472	7,272		37,571	1,212	362,375
Percent			0.77	49.23	1.15		5.94	0.19	57.28
Sample Size			4	257	6		31	1	299
Mean Length			451	564	513		567	563	562
Std. Error			65	1	7		3		1
Sample Size			3	257	6		31	1	298
Both Sexes			9,696	541,743	15,756	1,212	63,022	1,212	632,641
Percent			1.53	85.63	2.49	0.19	9.96	0.19	100.00
Sample Size			8	447	13	1	52	1	522
Mean Length			467	572	507	621	567	563	568
Std. Error			34	1	7		4		1
Sample Size			7	447	13	1	52	1	521

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Table 8. (Page 4 of 7).

	Age Group							Total	
	0.2	0.3	1.2	1.3	2.2	1.4	2.3		2.4
<b>Sample Period 7: 15 July</b>									
Males			5,249	213,113	8,399	3,149	12,598		242,508
Percent			0.97	39.49	1.56	0.58	2.33		44.94
Sample Size			5	203	8	3	12		231
Mean Length			501	583	504	624	569		578
Std. Error			9	2	12	18	10		2
Sample Size			5	203	8	3	12		231
Females		1,050	6,299	269,803	6,299		13,648		297,099
Percent		0.19	1.17	50.00	1.17		2.53		55.06
Sample Size		1	6	257	6		13		283
Mean Length		572	496	563	520		561		561
Std. Error			9	1	7		6		1
Sample Size		1	6	257	6		13		283
Both Sexes		1,050	11,548	482,916	14,698	3,149	26,246		539,607
Percent		0.19	2.14	89.49	2.72	0.58	4.86		100.00
Sample Size		1	11	460	14	3	25		514
Mean Length		572	498	572	510	624	565		569
Std. Error			7	1	8	18	6		1
Sample Size		1	11	460	14	3	25		514
<b>Sample Period 8: 16-18 July</b>									
Males			15,415	320,631	13,874		23,123		373,043
Percent			1.96	40.70	1.76		2.94		47.36
Sample Size			10	208	9		15		242
Mean Length			514	579	488		564		572
Std. Error			5	2	9		10		2
Sample Size			10	208	9		15		242
Females		1,542	6,166	389,999	1,542		15,415		414,664
Percent		0.20	0.78	49.51	0.20		1.96		52.64
Sample Size		1	4	253	1		10		269
Mean Length		554	518	562	528		551		561
Std. Error			12	1	7		7		1
Sample Size		1	4	253	1		10		269
Both Sexes		1,542	21,581	710,630	15,416		38,538		787,707
Percent		0.20	2.74	90.22	1.96		4.89		100.00
Sample Size		1	14	461	10		25		511
Mean Length		554	515	570	492		559		566
Std. Error			5	1	9		7		1
Sample Size		1	14	461	10		25		511

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Table 8. (Page 5 of 7).

	Age Group								Total
	0.2	0.3	1.2	1.3	2.2	1.4	2.3	2.4	
<b>Sample Period 9: 20-22 July</b>									
Males			28,933	518,383	26,522		57,866		631,704
Percent			2.24	40.11	2.05		4.48		48.88
Sample Size			12	215	11		24		262
Mean Length			481	572	505		564		564
Std. Error			8	2	9		7		2
Sample Size			12	215	11		24		262
Females		2,411	2,411	590,716	2,411		62,688		660,637
Percent		0.19	0.19	45.71	0.19		4.85		51.12
Sample Size		1	1	245	1		26		274
Mean Length		524	510	557	480		553		556
Std. Error				1			5		1
Sample Size		1	1	245	1		26		274
Both Sexes		2,411	31,344	1,109,099	28,933		120,554		1,292,341
Percent		0.19	2.43	85.82	2.24		9.33		100.00
Sample Size		1	13	460	12		50		536
Mean Length		524	483	564	503		558		560
Std. Error			8	1	9		4		1
Sample Size		1	13	460	12		50		536
<b>Sample Period 10: 24-26 July</b>									
Males		2,960	11,101	302,686	11,101	740	21,462		350,050
Percent		0.39	1.47	40.22	1.47	0.10	2.85		46.51
Sample Size		4	15	409	15	1	29		473
Mean Length		577	498	582	516	606	570		576
Std. Error		13	8	1	10		6		1
Sample Size		4	15	409	15	1	29		473
Females		3,700	5,180	353,751	11,101		28,862		402,594
Percent		0.49	0.69	47.00	1.47		3.83		53.49
Sample Size		5	7	478	15		39		544
Mean Length		551	495	556	515		553		554
Std. Error		10	19	1	9		4		1
Sample Size		5	7	478	15		39		544
Both Sexes		6,660	16,281	656,437	22,202	740	50,324		752,644
Percent		0.88	2.16	87.22	2.95	0.10	6.69		100.00
Sample Size		9	22	887	30	1	68		1,017
Mean Length		562	497	568	515	606	560		564
Std. Error		8	8	1	7		4		1
Sample Size		9	22	887	30	1	68		1,017

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Table 8. (Page 6 of 7).

	Age Group								Total
	0.2	0.3	1.2	1.3	2.2	1.4	2.3	2.4	
<b>Sample Period 11: 27-30 July</b>									
Males		2,883	8,650	247,963	12,975		28,833		301,304
Percent		0.38	1.14	32.70	1.71		3.80		39.73
Sample Size		2	6	172	9		20		209
Mean Length		555	476	577	510		571		571
Std. Error		25	20	2	5		6		2
Sample Size		2	6	172	9		20		209
Females			1,442	396,452	14,416		44,691		457,001
Percent			0.19	52.28	1.90		5.89		60.27
Sample Size			1	275	10		31		317
Mean Length			536	552	511		555		551
Std. Error				1	14		4		1
Sample Size			1	275	10		31		317
Both Sexes		2,883	10,092	644,415	27,391		73,524		758,305
Percent		0.38	1.33	84.98	3.61		9.70		100.00
Sample Size		2	7	447	19		51		526
Mean Length		555	484	562	511		561		559
Std. Error		25	20	1	8		3		1
Sample Size		2	7	447	19		51		526
<b>Sample Period 12: 31 July-28 August</b>									
Males		685	4,797	131,574	4,797	1,371	20,559		163,783
Percent		0.19	1.34	36.64	1.34	0.38	5.73		45.61
Sample Size		1	7	192	7	2	30		239
Mean Length		564	504	574	518	603	573		571
Std. Error			10	2	6	6	5		2
Sample Size		1	7	192	7	2	30		239
Females			2,056	154,874	6,853		30,838	685	195,306
Percent			0.57	43.13	1.91		8.59	0.19	54.39
Sample Size			3	226	10		45	1	285
Mean Length			497	548	508		546	554	546
Std. Error			6	2	7		4		1
Sample Size			3	226	10		45	1	285
Both Sexes		685	6,853	286,448	11,650	1,371	51,397	685	359,089
Percent		0.19	1.91	79.77	3.24	0.38	14.31	0.19	100.00
Sample Size		1	10	418	17	2	75	1	524
Mean Length		564	502	560	512	603	557	554	557
Std. Error			7	1	5	6	3		1
Sample Size		1	10	418	17	2	75	1	524

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Table 8. (Page 7 of 7).

	Age Group								Total
	0.2	0.3	1.2	1.3	2.2	1.4	2.3	2.4	
<b>All Periods Combined:</b>									
Males	65	7,851	118,412	2,229,879	136,219	6,472	253,741		2,752,639
Percent	0.00	0.13	1.95	36.74	2.24	0.11	4.18		45.35
Sample Size	1	10	220	2,276	221	7	373		3,108
Mean Length	423	565	492	576	500	617	564		568
Std. Error		11	3	1	3	13	2		1
Sample Size	1	10	220	2,276	221	7	373		3,108
Females		11,450	48,622	2,860,332	71,710	185	322,640	1,897	3,316,836
Percent		0.19	0.80	47.13	1.18	0.00	5.32	0.03	54.65
Sample Size		14	92	2,982	137	3	441	2	3,671
Mean Length		548	497	558	508	578	554	560	555
Std. Error		11	8	0	4		2		0
Sample Size		14	91	2,982	137	3	441	2	3,670
Both Sexes	65	19,301	167,034	5,090,211	207,929	6,657	576,381	1,897	6,069,475
Percent	0.00	0.32	2.75	83.87	3.43	0.11	9.50	0.03	100.00
Sample Size	1	24	312	5,258	358	10	814	2	6,779
Mean Length	423	555	493	566	503	616	558	560	561
Std. Error		8	3	0	2	13	1		0
Sample Size	1	24	311	5,258	358	10	814	2	6,778

<sup>a</sup> Total does not include the Chinitna Bay Subdistrict harvest of 20 fish.

<sup>b</sup> Mean length in millimeters.

Table 9. Age, sex, and length composition of sockeye salmon harvested in the Coho/Ninilchik Beach commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1992.

	Age Group							Total		
	0.2	1.1	0.3	1.2	2.1	1.3	2.2		2.3	3.3
<b>Sample Period 1: 30 June-3 July</b>										
Males				543		4,388	877	1,964		7,772
Percent				2.42		19.56	3.91	8.75		34.64
Sample Size				13		105	21	47		186
Mean Length <sup>a</sup>				495		550	489	534		535
Std. Error				11		3	8	4		2
Sample Size				13		105	21	47		186
Females				1,504	42	7,521	2,131	3,468		14,666
Percent				6.70	0.19	33.52	9.50	15.46		65.36
Sample Size				36	1	180	51	83		351
Mean Length				476	350	539	482	529		521
Std. Error				4		2	4	3		1
Sample Size				36	1	180	51	83		351
Both Sexes				2,047	42	11,909	3,008	5,432		22,438
Percent				9.12	0.19	53.08	13.41	24.21		100.00
Sample Size				49	1	285	72	130		537
Mean Length				481	350	543	484	531		526
Std. Error				4		2	4	2		1
Sample Size				49	1	285	72	130		537
<b>Sample Period 2: 4-10 July</b>										
Males				1,064		4,976	1,132	824		7,996
Percent				5.89		27.57	6.27	4.57		44.30
Sample Size				31		145	33	24		233
Mean Length				457		555	482	535		530
Std. Error				5		3	6	10		2
Sample Size				31		145	33	24		233
Females				927		6,554	1,338	1,235		10,054
Percent				5.14		36.31	7.41	6.84		55.70
Sample Size				27		191	39	36		293
Mean Length				467		545	475	523		526
Std. Error				5		2	4	5		2
Sample Size				27		191	39	36		293
Both Sexes				1,991		11,530	2,470	2,059		18,050
Percent				11.03		63.88	13.68	11.41		100.00
Sample Size				58		336	72	60		526
Mean Length				462		549	478	528		527
Std. Error				4		2	3	5		1
Sample Size				58		336	72	60		526

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Table 9. (Page 2 of 3).

	Age Group									Total
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	2.3	3.3	
<b>Sample Period 3: 11-17 July</b>										
Males	506		506	17,197	506	72,836	27,313	15,174		134,038
Percent	0.19		0.19	6.39	0.19	27.07	10.15	5.64		49.81
Sample Size	1		1	34	1	144	54	30		265
Mean Length	473		555	465	404	559	476	530		526
Std. Error				4		3	4	6		2
Sample Size	1		1	34	1	144	54	30		265
Females			506	16,691		85,481	20,738	11,633		135,049
Percent			0.19	6.20		31.77	7.71	4.32		50.19
Sample Size			1	33		169	41	23		267
Mean Length			539	478		539	474	524		520
Std. Error				4		2	4	6		2
Sample Size			1	33		169	41	23		267
Both Sexes	506		1,012	33,888	506	158,317	48,051	26,807		269,087
Percent	0.19		0.38	12.59	0.19	58.83	17.86	9.96		100.00
Sample Size	1		2	67	1	313	95	53		532
Mean Length	473		547	472	404	548	475	527		523
Std. Error				3		2	3	4		1
Sample Size	1		2	67	1	313	95	53		532
<b>Sample Period 4: 18-24 July</b>										
Males				1,991		112,186	9,293	46,467		169,937
Percent				0.58		32.69	2.71	13.54		49.52
Sample Size				3		169	14	70		256
Mean Length				465		573	493	572		567
Std. Error				24		2	10	3		2
Sample Size				3		169	14	70		256
Females				1,328		111,522	6,638	53,769		173,257
Percent				0.39		32.50	1.93	15.67		50.48
Sample Size				2		168	10	81		261
Mean Length				562		547	503	553		548
Std. Error				4		5	11	3		3
Sample Size				2		168	10	81		261
Both Sexes				3,319		223,708	15,931	100,236		343,194
Percent				0.97		65.18	4.64	29.21		100.00
Sample Size				5		337	24	151		517
Mean Length				504		560	497	562		557
Std. Error				14		3	7	2		2
Sample Size				5		337	24	151		517

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Table 9. (Page 3 of 3).

	Age Group									Total
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	2.3	3.3	
<b>Sample Period 5: 25 July-14 August</b>										
Males				3,390		42,375	9,605	14,690	282	70,342
Percent				2.23		27.88	6.32	9.67	0.19	46.28
Sample Size				12		150	34	52	1	249
Mean Length				481		576	494	576	536	560
Std. Error				11		3	6	5		2
Sample Size				12		150	34	52	1	249
Females		282		1,977	565	54,241	7,910	16,667		81,642
Percent		0.19		1.30	0.37	35.69	5.20	10.97		53.72
Sample Size		1		7	2	192	28	59		289
Mean Length		360		483	399	551	487	553		542
Std. Error				6	5	2	6	3		2
Sample Size		1		7	2	192	28	59		289
Both Sexes		282		5,367	565	96,616	17,515	31,357	282	151,984
Percent		0.19		3.53	0.37	63.57	11.52	20.63	0.19	100.00
Sample Size		1		19	2	342	62	111	1	538
Mean Length		360		482	399	562	491	564	536	550
Std. Error				7	5	2	5	3		1
Sample Size		1		19	2	342	62	111	1	538
<b>All Periods Combined:</b>										
Males	506		506	24,185	506	236,761	48,220	79,119	282	390,085
Percent	0.06		0.06	3.01	0.06	29.42	5.99	9.83	0.04	48.47
Sample Size	1		1	93	1	713	156	223	1	1,189
Mean Length	473		555	468	404	568	483	563	536	550
Std. Error				4		2	3	2		1
Sample Size	1		1	93	1	713	156	223	1	1,189
Females		282	506	22,427	607	265,319	38,755	86,772		414,668
Percent		0.04	0.06	2.79	0.08	32.97	4.82	10.78		51.53
Sample Size		1	1	105	3	900	169	282		1,461
Mean Length		360	539	483	396	545	482	548		536
Std. Error				3	5	2	3	2		1
Sample Size		1	1	105	3	900	169	282		1,461
Both Sexes	506	282	1,012	46,612	1,113	502,080	86,975	165,891	282	804,753
Percent	0.06	0.04	0.13	5.79	0.14	62.39	10.81	20.61	0.04	100.00
Sample Size	1	1	2	198	4	1,613	325	505	1	2,650
Mean Length	473	360	547	475	399	556	483	555	536	543
Std. Error				2	5	1	2	1		1
Sample Size	1	1	2	198	4	1,613	325	505	1	2,650

<sup>a</sup> Mean length in millimeters.

Table 10. Age, sex, and length composition of sockeye salmon harvested in the Kalifonsky Beach commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1992.

	Age Group						Total	
	0.3	1.2	2.1	1.3	2.2	2.3		2.4
<b>Sample Period 1: 30 June-5 July</b>								
Males		1,212		2,839	1,570	1,625		7,246
Percent		8.61		20.17	11.15	11.54		51.47
Sample Size		44		103	57	59		263
Mean Length <sup>a</sup>		469		541	475	533		513
Std. Error		4		3	3	4		2
Sample Size		44		103	57	59		263
Females		386		4,160	661	1,625		6,832
Percent		2.74		29.55	4.70	11.54		48.53
Sample Size		14		151	24	59		248
Mean Length		471		536	485	528		525
Std. Error		4		4	7	3		3
Sample Size		14		151	24	59		248
Both Sexes		1,598		6,999	2,231	3,250		14,078
Percent		11.35		49.72	15.85	23.09		100.00
Sample Size		58		254	81	118		511
Mean Length		469		538	478	530		519
Std. Error		3		3	3	2		2
Sample Size		58		254	81	118		511
<b>Sample Period 2: 6-12 July</b>								
Males		277		1,954	477	646	15	3,369
Percent		3.39		23.88	5.83	7.89	0.18	41.17
Sample Size		18		127	31	42	1	219
Mean Length		479		551	498	538	511	535
Std. Error		8		3	7	5		2
Sample Size		18		127	31	42	1	219
Females	15	569		2,799	554	877		4,814
Percent	0.18	6.95		34.21	6.77	10.72		58.83
Sample Size	1	37		182	36	57		313
Mean Length	565	479		536	488	526		522
Std. Error		7		3	7	4		2
Sample Size	1	37		182	36	57		313
Both Sexes	15	846		4,753	1,031	1,523	15	8,183
Percent	0.18	10.34		58.08	12.60	18.61	0.18	100.00
Sample Size	1	55		309	67	99	1	532
Mean Length	565	479		542	493	531	511	527
Std. Error		5		2	5	3		2
Sample Size	1	55		309	67	99	1	532

- continued -

Table 10. (Page 2 of 3).

	Age Group						Total
	0.3	1.2	2.1	1.3	2.2	2.3	
<b>Sample Period 3: 13-19 July</b>							
Males		15,857		104,289	26,835	12,198	159,179
Percent		4.84		31.84	8.19	3.72	48.60
Sample Size		26		171	44	20	261
Mean Length		472		575	484	554	548
Std. Error		4		3	5	10	2
Sample Size		26		171	44	20	261
Females		6,709		126,855	21,956	12,807	168,327
Percent		2.05		38.73	6.70	3.91	51.40
Sample Size		11		208	36	21	276
Mean Length		480		561	479	547	546
Std. Error		9		2	3	6	2
Sample Size		11		208	36	21	276
Both Sexes		22,566		231,144	48,791	25,005	327,506
Percent		6.89		70.58	14.90	7.63	100.00
Sample Size		37		379	80	41	537
Mean Length		475		567	482	551	547
Std. Error		4		2	3	6	1
Sample Size		37		379	80	41	537
<b>Sample Period 4: 20-26 July</b>							
Males		8,190		149,464	21,157	8,872	187,683
Percent		2.21		40.33	5.71	2.39	50.64
Sample Size		12		219	31	13	275
Mean Length		468		573	478	552	557
Std. Error		8		2	5	12	2
Sample Size		12		219	31	13	275
Females	682	4,095		155,607	11,602	10,920	182,906
Percent	0.18	1.10		41.99	3.13	2.95	49.36
Sample Size	1	6		228	17	16	268
Mean Length	574	476		557	473	540	549
Std. Error		7		2	5	8	1
Sample Size	1	6		228	17	16	268
Both Sexes	682	12,285		305,071	32,759	19,792	370,589
Percent	0.18	3.31		82.32	8.84	5.34	100.00
Sample Size	1	18		447	48	29	543
Mean Length	574	471		565	477	545	553
Std. Error		6		1	4	7	1
Sample Size	1	18		447	48	29	543

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Table 10. (Page 3 of 3).

	Age Group							Total
	0.3	1.2	2.1	1.3	2.2	2.3	2.4	
<b>Sample Period 5: 27 July-14 August</b>								
Males		4,954		76,107	11,259	13,060		105,380
Percent		2.04		31.41	4.65	5.39		43.49
Sample Size		11		169	25	29		234
Mean Length		466		571	470	574		556
Std. Error		7		2	5	7		2
Sample Size		11		169	25	29		234
Females	450	5,854	901	95,923	16,663	16,663	450	136,904
Percent	0.19	2.42	0.37	39.59	6.88	6.88	0.19	56.51
Sample Size	1	13	2	213	37	37	1	304
Mean Length	537	477	392	545	479	530	580	531
Std. Error		10	19	2	5	5		2
Sample Size	1	13	2	213	37	37	1	304
Both Sexes	450	10,808	901	172,030	27,922	29,723	450	242,284
Percent	0.19	4.46	0.37	71.00	11.52	12.27	0.19	100.00
Sample Size	1	24	2	382	62	66	1	538
Mean Length	537	472	392	556	475	549	580	542
Std. Error		6	19	1	4	4		1
Sample Size	1	24	2	382	62	66	1	538
<b>All Periods Combined:</b>								
Males		30,490		334,653	61,298	36,401	15	462,857
Percent		3.17		34.76	6.37	3.78	0.00	48.08
Sample Size		111		789	188	163	1	1,252
Mean Length		470		573	479	560	511	552
Std. Error		3		1	3	5		1
Sample Size		111		789	188	163	1	1,252
Females	1147	17,613	901	385,344	51,436	42,892	450	499,783
Percent	0.12	1.83	0.09	40.03	5.34	4.46	0.05	51.92
Sample Size	3	81	2	982	150	190	1	1,409
Mean Length	559	478	392	555	478	538	580	543
Std. Error		5	19	1	3	3		1
Sample Size	3	81	2	982	150	190	1	1,409
Both Sexes	1147	48,103	901	719,997	112,734	79,293	465	962,640
Percent	0.12	5.00	0.09	74.79	11.71	8.24	0.05	100.00
Sample Size	3	192	2	1,771	338	353	2	2,661
Mean Length	559	473	392	563	479	548	578	547
Std. Error		3	19	1	2	3		1
Sample Size	3	192	2	1,771	338	353	2	2,661

<sup>a</sup> Mean length in millimeters.

Table 11. Age, sex, and length composition of sockeye salmon harvested in the Salamatof Beach commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1992.

	Age Group										Total
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	2.4	
<b>Sample Period 1: 3-14 July</b>											
Males	343	1,714	686	36,332	1,714	14,053	24,337		4,456	343	83,978
Percent	0.23	1.14	0.46	24.14	1.14	9.34	16.17		2.96	0.23	55.81
Sample Size	1	5	2	106	5	41	71		13	1	245
Mean Length <sup>a</sup>	434	347	505	460	353	569	463		529	579	479
Std. Error		8	20	4	6	6	4		12		2
Sample Size	1	5	2	106	5	41	71		13	1	245
Females				19,881		27,079	15,767		3,770		66,497
Percent				13.21		18.00	10.48		2.51		44.19
Sample Size				58		79	46		11		194
Mean Length				468		559	471		531		509
Std. Error				3		3	5		8		2
Sample Size				58		79	46		11		194
Both Sexes	343	1,714	686	56,213	1,714	41,132	40,104		8,226	343	150,475
Percent	0.23	1.14	0.46	37.36	1.14	27.33	26.65		5.47	0.23	100.00
Sample Size	1	5	2	164	5	120	117		24	1	439
Mean Length	434	347	505	463	353	562	466		530	579	492
Std. Error		8	20	3	6	3	3		7		2
Sample Size	1	5	2	164	5	120	117		24	1	439
<b>Sample Period 2: 15-20 July</b>											
Males	1,611			3,625		93,054	4,028		4,028		106,346
Percent	0.73			1.64		42.08	1.82		1.82		48.09
Sample Size	4			9		231	10		10		264
Mean Length	439			483		583	503		582		574
Std. Error	23			15		2	11		7		2
Sample Size	4			9		231	10		10		264
Females			1,208	2,417		106,750	2,417		2,014		114,806
Percent			0.55	1.09		48.27	1.09		0.91		51.91
Sample Size			3	6		265	6		5		285
Mean Length			561	505		562	509		551		560
Std. Error			5	3		1	13		15		1
Sample Size			3	6		265	6		5		285
Both Sexes	1,611		1,208	6,042		199,804	6,445		6,042		221,152
Percent	0.73		0.55	2.73		90.35	2.91		2.73		100.00
Sample Size	4		3	15		496	16		15		549
Mean Length	439		561	492		572	505		572		567
Std. Error	23		5	9		1	8		7		1
Sample Size	4		3	15		496	16		15		549

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Table 11. (Page 2 of 3).

	Age Group										Total
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	2.4	
<i>Sample Period 3: 21-27 July</i>											
Males				4,206		152,615	6,609	601	3,004		167,035
Percent				1.25		45.52	1.97	0.18	0.90		49.82
Sample Size				7		254	11	1	5		278
Mean Length				501		574	496	570	566		569
Std. Error				21		2	9		14		2
Sample Size				7		254	11	1	5		278
Females			1,803	4,206		153,815	3,605		4,807		168,236
Percent			0.54	1.25		45.88	1.08		1.43		50.18
Sample Size			3	7		256	6		8		280
Mean Length			546	506		553	504		531		550
Std. Error			5	9		1	8		10		1
Sample Size			3	7		256	6		8		280
Both Sexes			1,803	8,412		306,430	10,214	601	7,811		335,271
Percent			0.54	2.51		91.40	3.05	0.18	2.33		100.00
Sample Size			3	14		510	17	1	13		558
Mean Length			546	504		563	499	570	545		559
Std. Error			5	11		1	7		8		1
Sample Size			3	14		510	17	1	13		558
<i>Sample Period 4: 28 July-14 August</i>											
Males			1,306	653		167,851	6,531		5,878	653	182,872
Percent			0.36	0.18		46.14	1.80		1.62	0.18	50.27
Sample Size			2	1		257	10		9	1	280
Mean Length			610	490		577	500		574	614	574
Std. Error			15			2	13		7		2
Sample Size			2	1		257	10		9	1	280
Females				2,612		168,504	3,266	1,306	5,225		180,913
Percent				0.72		46.32	0.90	0.36	1.44		49.73
Sample Size				4		258	5	2	8		277
Mean Length				508		552	521	587	557		551
Std. Error				15		2	9	9	9		1
Sample Size				4		258	5	2	8		277
Both Sexes			1,306	3,265		336,355	9,797	1,306	11,103	653	363,785
Percent			0.36	0.90		92.46	2.69	0.36	3.05	0.18	100.00
Sample Size			2	5		515	15	2	17	1	557
Mean Length			610	505		564	507	587	566	614	563
Std. Error			15	15		1	9	9	6		1
Sample Size			2	5		515	15	2	17	1	557

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Table 11. (Page 3 of 3).

	Age Group										Total
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	2.4	
<b>All Periods Combined:</b>											
Males	1,954	1,714	1,992	44,816	1,714	427,573	41,505	601	17,366	996	540,231
Percent	0.18	0.16	0.19	4.19	0.16	39.93	3.88	0.06	1.62	0.09	50.46
Sample Size	5	5	4	123	5	783	102	1	37	2	1,067
Mean Length	438	347	574	466	353	577	478	570	563	602	558
Std. Error	23	8	12	4	6	1	4		5		1
Sample Size	5	5	4	123	5	783	102	1	37	2	1,067
Females			3,011	29,116		456,148	25,055	1,306	15,816		530,452
Percent			0.28	2.72		42.60	2.34	0.12	1.48		49.54
Sample Size			6	75		858	63	2	32		1,036
Mean Length			552	480		555	486	587	542		547
Std. Error			4	3		1	4	9	5		1
Sample Size			6	75		858	63	2	32		1,036
Both Sexes	1,954	1,714	5,003	73,932	1,714	883,721	66,560	1,907	33,182	996	1,070,683
Percent	0.18	0.16	0.47	6.91	0.16	82.54	6.22	0.18	3.10	0.09	100.00
Sample Size	5	5	10	198	5	1,641	165	3	69	2	2,103
Mean Length	438	347	561	472	353	566	481	582	553	602	553
Std. Error	23	8	5	3	6	1	3	9	3		1
Sample Size	5	5	10	198	5	1,641	165	3	69	2	2,103

<sup>a</sup> Mean length in millimeters.

Table 12. Age, sex, and length composition of sockeye salmon harvested in the Western Subdistrict commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1992.

	Age Group						Total	
	1.1	0.3	1.2	2.1	1.3	2.2		2.3
<b>Sample Period 1: 19 June-10 July</b>								
Males			222		1,541	514	1,014	3,291
Percent			3.39		23.56	7.86	15.50	50.31
Sample Size			16		111	37	73	237
Mean Length <sup>a</sup>			461		558	496	563	544
Std. Error			9		3	4	3	2
Sample Size			16		111	37	73	237
Females		14	167		1,958	153	958	3,250
Percent		0.21	2.55		29.93	2.34	14.65	49.69
Sample Size		1	12		141	11	69	234
Mean Length		554	482		539	487	538	534
Std. Error			6		2	6	3	1
Sample Size		1	12		141	11	69	234
Both Sexes		14	389		3,499	667	1,972	6,541
Percent		0.21	5.95		53.49	10.20	30.15	100.00
Sample Size		1	28		252	48	142	471
Mean Length		554	470		548	494	551	539
Std. Error			6		2	3	2	1
Sample Size		1	28		252	48	142	471
<b>Sample Period 2: 11-24 July</b>								
Males			579		3,309	621	2,317	6,826
Percent			5.47		31.24	5.86	21.88	64.45
Sample Size			28		160	30	112	330
Mean Length			489		554	503	558	545
Std. Error			5		2	6	3	2
Sample Size			28		160	30	112	330
Females			103		1,925	186	1,551	3,765
Percent			0.97		18.18	1.76	14.64	35.55
Sample Size			5		93	9	75	182
Mean Length			473		536	486	539	533
Std. Error			14		2	6	3	2
Sample Size			5		93	9	75	182
Both Sexes			682		5,234	807	3,868	10,591
Percent			6.44		49.42	7.62	36.52	100.00
Sample Size			33		253	39	187	512
Mean Length			486		547	499	550	541
Std. Error			5		2	5	2	1
Sample Size			33		253	39	187	512

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Table 12. (Page 2 of 2).

	Age Group							Total
	1.1	0.3	1.2	2.1	1.3	2.2	2.3	
<b>Sample Period 3: 25 July-11 September</b>								
Males			1,338		1,802	628	1,502	5,270
Percent			13.32		17.93	6.25	14.95	52.45
Sample Size			49		66	23	55	193
Mean Length			491		552	503	542	528
Std. Error			3		3	6	4	2
Sample Size			49		66	23	55	193
Females	27		1,283	27	1,585	573	1,283	4,778
Percent	0.27		12.77	0.27	15.77	5.70	12.77	47.55
Sample Size	1		47	1	58	21	47	175
Mean Length	324		470	375	529	486	531	506
Std. Error			2		3	7	3	2
Sample Size	1		47	1	58	21	47	175
Both Sexes	27		2,621	27	3,387	1,201	2,785	10,048
Percent	0.27		26.08	0.27	33.71	11.95	27.72	100.00
Sample Size	1		96	1	124	44	102	368
Mean Length	324		481	375	541	495	537	518
Std. Error			2		2	5	2	1
Sample Size	1		96	1	124	44	102	368
<b>All Periods Combined:</b>								
Males			2,139		6,652	1,763	4,833	15,387
Percent			7.87		24.47	6.49	17.78	56.61
Sample Size			93		337	90	240	760
Mean Length			487		554	501	554	539
Std. Error			3		2	3	2	1
Sample Size			93		337	90	240	760
Females	27	14	1,553	27	5,468	912	3,792	11,793
Percent	0.10	0.05	5.71	0.10	20.12	3.36	13.95	43.39
Sample Size	1	1	64	1	292	41	191	591
Mean Length	324	554	472	375	535	486	536	522
Std. Error			2		1	5	2	1
Sample Size	1	1	64	1	292	41	191	591
Both Sexes	27	14	3,692	27	12,120	2,675	8,625	27,180
Percent	0.10	0.05	13.58	0.10	44.59	9.84	31.73	100.00
Sample Size	1	1	157	1	629	131	431	1,351
Mean Length	324	554	481	375	546	496	546	532
Std. Error			2		1	3	1	1
Sample Size	1	1	157	1	629	131	431	1,351

<sup>a</sup> Mean length in millimeters.

Table 13. Age, sex, and length composition of sockeye salmon harvested in the General Subdistrict commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1992.

	Age Group									Total
	0.2	0.3	1.2	2.1	1.3	2.2	1.4	2.3	2.4	
<b>Sample Period 1: 1 June-16 July</b>										
Males	20	99	993	20	2,999	338		457		4,926
Percent	0.19	0.94	9.40	0.19	28.38	3.20		4.32		46.62
Sample Size	1	5	50	1	151	17		23		248
Mean Length <sup>a</sup>	513	565	460	360	563	483		558		535
Std. Error		15	6		3	13		7		2
Sample Size	1	5	50	1	151	17		23		248
Females		139	338		4,270	79		795	20	5,641
Percent		1.32	3.20		40.41	0.75		7.52	0.19	53.38
Sample Size		7	17		215	4		40	1	284
Mean Length		559	469		553	466		548	590	546
Std. Error		5	7		2	13		4		1
Sample Size		7	17		215	4		40	1	284
Both Sexes	20	238	1,331	20	7,269	417		1,252	20	10,567
Percent	0.19	2.25	12.60	0.19	68.79	3.95		11.85	0.19	100.00
Sample Size	1	12	67	1	366	21		63	1	532
Mean Length	513	562	462	360	557	480		551	590	541
Std. Error		7	5		2	11		4		1
Sample Size	1	12	67	1	366	21		63	1	532
<b>Sample Period 2: 17-25 July</b>										
Males	53	637	796	106	8,752	318	106	1,220		11,988
Percent	0.19	2.30	2.87	0.38	31.55	1.15	0.38	4.40		43.21
Sample Size	1	12	15	2	165	6	2	23		226
Mean Length	474	567	525	343	568	508	616	570		562
Std. Error		11	10	3	3	9	26	6		2
Sample Size	1	12	15	2	165	6	2	23		226
Females	53	1,008	530		12,094	106	53	1,910		15,754
Percent	0.19	3.63	1.91		43.59	0.38	0.19	6.88		56.79
Sample Size	1	19	10		228	2	1	36		297
Mean Length	445	554	508		553	516	574	557		552
Std. Error		5	12		2	20		3		1
Sample Size	1	19	10		228	2	1	36		297
Both Sexes	106	1,645	1,326	106	20,846	424	159	3,130		27,742
Percent	0.38	5.93	4.78	0.38	75.14	1.53	0.57	11.28		100.00
Sample Size	2	31	25	2	393	8	3	59		523
Mean Length	460	559	518	343	560	510	602	562		556
Std. Error		5	8	3	1	8	26	3		1
Sample Size	2	31	25	2	393	8	3	59		523

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Table 13. (Page 2 of 2).

	Age Group									Total
	0.2	0.3	1.2	2.1	1.3	2.2	1.4	2.3	2.4	
<b>Sample Period 1: 1 June-16 July</b>										
Males	65	259	875	32	3,532	551	65	1,296		6,675
Percent	0.41	1.65	5.57	0.20	22.48	3.51	0.41	8.25		42.48
Sample Size	2	8	27	1	109	17	2	40		206
Mean Length	466	558	493	405	555	495	634	550		540
Std. Error	11	13	6		4	13	11	5		3
Sample Size	2	8	27	1	109	17	2	40		206
Females	65	389	1,231		5,281	454	32	1,588		9,040
Percent	0.41	2.48	7.83		33.60	2.89	0.20	10.10		57.52
Sample Size	2	12	38		163	14	1	49		279
Mean Length	446	546	498		540	484	585	538		531
Std. Error	39	5	5		2	10		4		2
Sample Size	2	12	38		163	14	1	49		279
Both Sexes	130	648	2,106	32	8,813	1,005	97	2,884		15,715
Percent	0.83	4.12	13.40	0.20	56.08	6.40	0.62	18.35		100.00
Sample Size	4	20	65	1	272	31	3	89		485
Mean Length	456	551	496	405	546	490	618	543		535
Std. Error	20	6	4		2	8	11	3		1
Sample Size	4	20	65	1	272	31	3	89		485
<b>All Periods Combined:</b>										
Males	138	995	2,664	158	15,283	1,207	171	2,973		23,589
Percent	0.26	1.84	4.93	0.29	28.29	2.23	0.32	5.50		43.66
Sample Size	4	25	92	4	425	40	4	86		680
Mean Length	476	565	490	357	564	495	623	559		550
Std. Error	11	8	4	3	2	7	17	3		1
Sample Size	4	25	92	4	425	40	4	86		680
Females	118	1,536	2,099		21,645	639	85	4,293	20	30,435
Percent	0.22	2.84	3.89		40.07	1.18	0.16	7.95	0.04	56.34
Sample Size	3	38	65		606	20	2	125	1	860
Mean Length	445	552	496		550	487	578	548	590	545
Std. Error	39	4	4		1	8		2		1
Sample Size	3	38	65		606	20	2	125	1	860
Both Sexes	256	2,531	4,763	158	36,928	1,846	256	7,266	20	54,024
Percent	0.47	4.68	8.82	0.29	68.35	3.42	0.47	13.45	0.04	100.00
Sample Size	7	63	157	4	1,031	60	6	211	1	1,540
Mean Length	462	557	492	357	556	492	608	553	590	547
Std. Error	20	4	3	3	1	5	17	2		1
Sample Size	7	63	157	4	1,031	60	6	211	1	1,540

<sup>a</sup> Mean length in millimeters.

Table 14. Age, sex, and length composition of sockeye salmon escapement in Kenai River, Upper Cook Inlet, Alaska, in 1992.

	Age Group						Total	
	0.2	1.2	2.1	1.3	2.2	1.4		2.3
<b>Sample Period 1: 1-26 July</b>								
Males	674	8,094		180,765	10,792	674	12,141	213,140
Percent	0.11	1.33		29.68	1.77	0.11	1.99	34.99
Sample Size	1	12		268	16	1	18	316
Mean Length <sup>a</sup>	419	486		573	489	637	571	565
Std. Error		10		2	7		6	2
Sample Size	1	12		268	16	1	18	316
Females		12,815	674	348,041	15,513	674	18,211	395,928
Percent		2.10	0.11	57.14	2.55	0.11	2.99	65.01
Sample Size		19	1	516	23	1	27	587
Mean Length		461	345	552	486	588	555	547
Std. Error		9		1	9		4	1
Sample Size		19	1	516	23	1	27	587
Both Sexes	674	20,909	674	528,806	26,305	1,348	30,352	609,068
Percent	0.11	3.43	0.11	86.82	4.32	0.22	4.98	100.00
Sample Size	1	31	1	784	39	2	45	903
Mean Length	419	471	345	560	487	613	561	553
Std. Error		7		1	6		4	1
Sample Size	1	31	1	784	39	2	45	903
<b>Sample Period 2: 27 July-13 August</b>								
Males		887		90,446	13,301		24,829	129,463
Percent		0.23		23.45	3.45		6.44	33.56
Sample Size		1		102	15		28	146
Mean Length		421		571	482		570	561
Std. Error				3	7		5	2
Sample Size		1		102	15		28	146
Females		5,320	1,773	175,575	18,621	887	54,091	256,267
Percent		1.38	0.46	45.52	4.83	0.23	14.02	66.44
Sample Size		6	2	198	21	1	61	289
Mean Length		463	383	541	485	565	544	535
Std. Error		12	3	2	4		3	1
Sample Size		6	2	198	21	1	61	289
Both Sexes		6,207	1,773	266,021	31,922	887	78,920	385,730
Percent		1.61	0.46	68.97	8.28	0.23	20.46	100.00
Sample Size		7	2	300	36	1	89	435
Mean Length		457	383	552	484	565	552	544
Std. Error		12	3	2	4		3	1
Sample Size		7	2	300	36	1	89	435

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Table 14. (Page 2 of 2).

	Age Group							Total
	0.2	1.2	2.1	1.3	2.2	1.4	2.3	
<b>All Periods Combined:</b>								
Males	674	8,981		271,211	24,093	674	36,970	342,603
Percent	0.07	0.90		27.26	2.42	0.07	3.72	34.44
Sample Size	1	13		370	31	1	46	462
Mean Length	419	480		573	485	637	570	564
Std. Error		10		2	5		4	1
Sample Size	1	13		370	31	1	46	462
Females		18,135	2,447	523,616	34,134	1,561	72,302	652,195
Percent		1.82	0.25	52.64	3.43	0.16	7.27	65.56
Sample Size		25	3	714	44	2	88	876
Mean Length		462	372	549	485	575	547	542
Std. Error		7	3	1	5		2	1
Sample Size		25	3	714	44	2	88	876
Both Sexes	674	27,116	2,447	794,827	58,227	2,235	109,272	994,798
Percent	0.07	2.73	0.25	79.90	5.85	0.22	10.98	100.00
Sample Size	1	38	3	1,084	75	3	134	1,338
Mean Length	419	468	372	557	485	594	555	550
Std. Error		6	3	1	3		2	1
Sample Size	1	38	3	1,084	75	3	134	1,338

<sup>a</sup> Mean length in millimeters.

Table 15. Age, sex, and length composition of sockeye salmon escapement in Hidden Creek, Kenai River drainage, Upper Cook Inlet, Alaska, in 1992.

	Age Group				Total
	1.2	1.3	2.2	2.3	
<i>Sample Period: 20 July-14 August</i>					
Males	9,066	3,040	629	105	12,840
Percent	27.55	9.24	1.91	0.32	39.01
Sample Size	173	58	12	2	245
Mean Length <sup>a</sup>	516	558	518	568	526
Std. Error	2	3	9	18	2
Sample Size	173	58	12	2	245
Females	17,766	1,363	891	52	20,072
Percent	53.98	4.14	2.71	0.16	60.99
Sample Size	339	26	17	1	383
Mean Length	500	537	510	542	503
Std. Error	1	4	4		1
Sample Size	339	26	17	1	383
Both Sexes	26,832	4,403	1,520	157	32,912
Percent	81.53	13.38	4.62	0.48	100.00
Sample Size	512	84	29	3	628
Mean Length	505	551	513	559	512
Std. Error	1	2	4	18	1
Sample Size	512	84	29	3	628

<sup>a</sup> Mean length in millimeters.

Table 16. Age, sex, and length composition of sockeye salmon escapement in Kasilof River, Upper Cook Inlet, Alaska, in 1992.

	Age Group					Total
	1.2	2.1	1.3	2.2	2.3	
<b>Sample Period 1: 15-30 June</b>						
Males	4,491		15,880	3,208	8,502	32,081
Percent	7.55		26.68	5.39	14.29	53.91
Sample Size	28		99	20	53	200
Mean Length <sup>a</sup>	492		541	496	540	529
Std. Error	6		3	6	3	2
Sample Size	28		99	20	53	200
Females	1,764		16,042	1,283	8,341	27,430
Percent	2.96		26.96	2.16	14.02	46.09
Sample Size	11		100	8	52	171
Mean Length	496		532	505	537	530
Std. Error	10		2	8	3	2
Sample Size	11		100	8	52	171
Both Sexes	6,255		31,922	4,491	16,843	59,511
Percent	10.51		53.64	7.55	28.30	100.00
Sample Size	39		199	28	105	371
Mean Length	493		537	499	538	530
Std. Error	5		2	5	2	1
Sample Size	39		199	28	105	371
<b>Sample Period 2: 1-15 July</b>						
Males	6,105		6,411	8,548	3,663	24,727
Percent	11.65		12.23	16.31	6.99	47.18
Sample Size	60		63	84	36	243
Mean Length	472		528	464	534	493
Std. Error	4		3	4	5	2
Sample Size	60		63	84	36	243
Females	4,579		6,309	11,295	5,495	27,678
Percent	8.74		12.04	21.55	10.49	52.82
Sample Size	45		62	111	54	272
Mean Length	468		523	470	528	493
Std. Error	3		3	2	3	1
Sample Size	45		62	111	54	272
Both Sexes	10,684		12,720	19,843	9,158	52,405
Percent	20.39		24.27	37.86	17.48	100.00
Sample Size	105		125	195	90	515
Mean Length	470		525	467	531	493
Std. Error	2		2	2	3	1
Sample Size	105		125	195	90	515

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Table 16. (Page 2 of 2).

	Age Group					Total
	1.2	2.1	1.3	2.2	2.3	
<b>Sample Period 3: 16 July-2 August</b>						
Males	8,348	261	2,870	13,913	2,000	27,392
Percent	11.55	0.36	3.97	19.25	2.77	37.91
Sample Size	96	3	33	160	23	315
Mean Length	452	392	519	456	512	465
Std. Error	2	26	7	2	10	2
Sample Size	96	3	33	160	23	315
Females	13,565	87	3,044	26,783	1,391	44,870
Percent	18.77	0.12	4.21	37.06	1.92	62.09
Sample Size	156	1	35	308	16	516
Mean Length	461	365	510	461	518	466
Std. Error	2		4	1	8	1
Sample Size	156	1	35	308	16	516
Both Sexes	21,913	348	5,914	40,696	3,391	72,262
Percent	30.32	0.48	8.18	56.32	4.69	100.00
Sample Size	252	4	68	468	39	831
Mean Length	457	385	515	459	514	465
Std. Error	1	26	4	1	7	1
Sample Size	252	4	68	468	39	831
<b>All Periods Combined:</b>						
Males	18,944	261	25,161	25,669	14,165	84,200
Percent	10.29	0.14	13.66	13.94	7.69	45.72
Sample Size	184	3	195	264	112	758
Mean Length	468	392	535	464	534	498
Std. Error	2	26	2	2	3	1
Sample Size	184	3	195	264	112	758
Females	19,908	87	25,395	39,361	15,227	99,978
Percent	10.81	0.05	13.79	21.37	8.27	54.28
Sample Size	212	1	197	427	122	959
Mean Length	465	365	527	465	532	491
Std. Error	2		2	1	2	1
Sample Size	212	1	197	427	122	959
Both Sexes	38,852	348	50,556	65,030	29,392	184,178
Percent	21.09	0.19	27.45	35.31	15.96	100.00
Sample Size	396	4	392	691	234	1,717
Mean Length	467	385	531	464	533	494
Std. Error	1	26	1	1	2	1
Sample Size	396	4	392	691	234	1,717

<sup>a</sup> Mean length in millimeters.

Table 17. Age, sex, and length composition of sockeye salmon escapement in Crescent River, Upper Cook Inlet, Alaska, in 1992.

	Age Group						Total
	1.2	1.3	2.2	2.3	3.2	3.3	
<b>Sample Period: 1 July-2 August</b>							
Males	600	7,204	3,001	17,409	600		28,814
Percent	1.03	12.37	5.15	29.90	1.03		49.48
Sample Size	2	24	10	58	2		96
Mean Length <sup>a</sup>	473	555	486	572	503		555
Std. Error	37	9	12	4	18		4
Sample Size	2	24	10	58	2		96
Females	900	5,403	4,202	18,610		300	29,415
Percent	1.55	9.28	7.22	31.96		0.52	50.52
Sample Size	3	18	14	62		1	98
Mean Length	497	535	492	547		540	535
Std. Error	14	5	5	3			2
Sample Size	3	18	14	62		1	98
Both Sexes	1,500	12,607	7,203	36,019	600	300	58,229
Percent	2.58	21.65	12.37	61.86	1.03	0.52	100.00
Sample Size	5	42	24	120	2	1	194
Mean Length	487	546	490	559	503	540	545
Std. Error	17	6	6	2	18		2
Sample Size	5	42	24	120	2	1	194

<sup>a</sup> Mean length in millimeters.

Table 18. Age, sex, and length composition of sockeye salmon escapement in Packers Creek, Kalgin Island, Upper Cook Inlet, Alaska, in 1992.

	Age Group					Total
	1.2	1.3	2.2	1.4	2.3	
<i>Sample Period: 17 June-13 August</i>						
Males	2,554	7,979	5,586	80	2,075	18,274
Percent	6.49	20.28	14.20	0.20	5.27	46.45
Sample Size	32	100	70	1	26	229
Mean Length <sup>a</sup>	461	545	455		532	502
Std. Error	8	4	5		15	3
Sample Size	32	82	65		12	191
Females	638	13,726	3,431		3,272	21,067
Percent	1.62	34.89	8.72		8.32	53.55
Sample Size	8	172	43		41	264
Mean Length	490	537	490		529	527
Std. Error	13	2	5		6	2
Sample Size	8	151	39		31	229
Both Sexes	3,192	21,705	9,017	80	5,347	39,341 <sup>b</sup>
Percent	8.11	55.17	22.92	0.20	13.59	100.00
Sample Size	40	272	113		67	492
Mean Length	466	540	468		530	516
Std. Error	7	2	3		7	2
Sample Size	40	233	104		43	420

<sup>a</sup> Mean length in millimeters.

<sup>b</sup> Total escapement was 39,341 fish, of which 9,198 were harvested and sold to partially recover project (CIAA) costs, realizing 30,143 spawning fish.

Table 19. Age, sex, and length composition of sockeye salmon escapement in Yentna River (RM 4.0), Susitna River drainage, Upper Cook Inlet, Alaska, in 1992.

	Age Group										Total	
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2		2.4
<b>Sample Period 1: 7-18 July</b>												
Males	29		15	1,557		728	612		408			3,349
Percent	0.51		0.27	27.56		12.88	10.83		7.22			59.27
Sample Size	2		1	107		50	42		28			230
Mean Length <sup>a</sup>	433		520	453		558	449		552			487
Std. Error	23			3		6	4		10			2
Sample Size	2		1	107		50	42		28			230
Females		15		510		931	233		597		15	2,301
Percent		0.27		9.03		16.48	4.12		10.57		0.27	40.73
Sample Size		1		35		64	16		41		1	158
Mean Length		388		460		543	462		535		620	514
Std. Error				5		5	7		5			3
Sample Size		1		35		64	16		41		1	158
Both Sexes	29	15	15	2,067		1,659	845		1,005		15	5,650
Percent	0.51	0.27	0.27	36.58		29.36	14.96		17.79		0.27	100.00
Sample Size	2	1	1	142		114	58		69		1	388
Mean Length	433	388	520	455		549	452		542		620	498
Std. Error	23			3		4	3		5			2
Sample Size	2	1	1	142		114	58		69		1	388
<b>Sample Period 2: 19-29 July</b>												
Males	259			10,147	65	5,106	7,174		4,977	129		27,857
Percent	0.60			23.68	0.15	11.92	16.74		11.61	0.30		65.01
Sample Size	4			157	1	79	111		77	2		431
Mean Length	435			441	395	547	449		565	480		485
Std. Error	16			3		6	4		4	20		2
Sample Size	4			157	1	79	111		77	2		431
Females			65	2,456		6,592	1,228		4,654			14,995
Percent			0.15	5.73		15.38	2.87		10.86			34.99
Sample Size			1	38		102	19		72			232
Mean Length			540	469		546	470		539			525
Std. Error				6		3	9		4			2
Sample Size			1	38		102	19		72			232
Both Sexes	259		65	12,603	65	11,698	8,402		9,631	129		42,852
Percent	0.60		0.15	29.41	0.15	27.30	19.61		22.48	0.30		100.00
Sample Size	4		1	195	1	181	130		149	2		663
Mean Length	435		540	447	395	546	452		553	480		499
Std. Error	16			2		3	3		3	20		1
Sample Size	4		1	195	1	181	130		149	2		663

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Table 19. (Page 2 of 2).

	Age Group											Total
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	
<b>Sample Period 3: 30 July-11 August</b>												
Males	659	439	88	4,217	220	2,592	1,230	44	791	44		10,324
Percent	3.75	2.50	0.50	24.00	1.25	14.75	7.00	0.25	4.50	0.25		58.75
Sample Size	15	10	2	96	5	59	28	1	18	1		235
Mean Length	425	339	575	446	364	541	467	580	559	475		475
Std. Error	4	4	25	4	10	6	9		8			3
Sample Size	15	10	2	96	5	59	28	1	18	1		235
Females	132	176	264	1,845		3,337	791		571	88	44	7,248
Percent	0.75	1.00	1.50	10.50		18.99	4.50		3.25	0.50	0.25	41.25
Sample Size	3	4	6	42		76	18		13	2	1	165
Mean Length	442	338	537	475		537	476		532	505	570	507
Std. Error	19	3	10	5		3	5		11	10		2
Sample Size	3	4	6	42		76	18		13	2	1	165
Both Sexes	791	615	352	6,062	220	5,929	2,021	44	1,362	132	44	17,572
Percent	4.50	3.50	2.00	34.50	1.25	33.74	11.50	0.25	7.75	0.75	0.25	100.00
Sample Size	18	14	8	138	5	135	46	1	31	3	1	400
Mean Length	428	338	546	455	364	538	471	580	548	495	570	488
Std. Error	5	3	10	3	10	3	6		7	10		2
Sample Size	18	14	8	138	5	135	46	1	31	3	1	400
<b>All Periods Combined:</b>												
Males	947	439	103	15,921	285	8,426	9,016	44	6,176	173		41,530
Percent	1.43	0.66	0.16	24.10	0.43	12.75	13.65	0.07	9.35	0.26		62.85
Sample Size	21	10	3	360	6	188	181	1	123	3		896
Mean Length	428	339	567	444	371	546	452	580	564	479		483
Std. Error	5	4	25	2	10	4	3		3	20		1
Sample Size	21	10	3	360	6	188	181	1	123	3		896
Females	132	191	329	4,811		10,860	2,252		5,822	88	59	24,544
Percent	0.20	0.29	0.50	7.28		16.44	3.41		8.81	0.13	0.09	37.15
Sample Size	3	5	7	115		242	53		126	2	2	555
Mean Length	442	341	537	470		543	471		538	505	583	519
Std. Error	19	3	10	3		2	5		4	10		1
Sample Size	3	5	7	115		242	53		126	2	2	555
Both Sexes	1,079	630	432	20,732	285	19,286	11,268	44	11,998	261	59	66,074
Percent	1.63	0.95	0.65	31.38	0.43	29.19	17.05	0.07	18.16	0.40	0.09	100.00
Sample Size	24	15	10	475	6	430	234	1	249	5	2	1,451
Mean Length	430	339	544	450	371	544	456	580	551	488	583	496
Std. Error	5	3	10	2	10	2	3		2	13		1
Sample Size	24	15	10	475	6	430	234	1	249	5	2	1,451

\* Mean length in millimeters.

Table 20. Age, sex, and length composition of sockeye salmon escapement in Chelatna Lake (Lake Creek), Yentna River drainage, Upper Cook Inlet, Alaska, in 1992.

	Age Group								Total
	0.2	0.3	1.2	2.1	1.3	2.2	1.4	2.3	
<i>Sample Period: 20 July–20 August</i>									
Males		77	3,154	77	6,846			154	10,308
Percent		0.39	15.77	0.39	34.23			0.77	51.54
Sample Size		1	41	1	89			2	134
Mean Length <sup>a</sup>		600	518	540	576			595	559
Std. Error			5		4			5	3
Sample Size		1	41	1	88			2	133
Females	77	308	5,076		3,846	154	77	154	9,692
Percent	0.39	1.54	25.38		19.23	0.77	0.39	0.77	48.46
Sample Size	1	4	66		50	2	1	2	126
Mean Length	470	555	491		532	465	510	495	509
Std. Error		10	3		4	5		65	2
Sample Size	1	4	66		50	2	1	2	126
Both Sexes	77	385	8,230	77	10,692	154	77	308	20,000
Percent	0.39	1.93	41.15	0.39	53.46	0.77	0.39	1.54	100.00
Sample Size	1	5	107	1	139	2	1	4	260
Mean Length	470	564	501	540	560	465	510	545	535
Std. Error		10	3		3	5		33	2
Sample Size	1	5	107	1	138	2	1	4	259

<sup>a</sup> Mean length in millimeters.

Table 21. Age, sex, and length composition of sockeye salmon sampled at Sunshine Station (RM 80.0), Susitna River, Upper Cook Inlet, Alaska, in 1992.

	Age Group								Total	
	0.2	1.1	0.3	1.2	1.3	2.2	2.3	2.4		3.3
<b>Sample Period 1: 14-27 July</b>										
Males				3,361	4,727	4,215	1,538	57		13,898
Percent				10.71	15.06	13.43	4.90	0.18		44.28
Sample Size				59	83	74	27	1		244
Mean Length <sup>a</sup>				470	558	479	560	616		513
Std. Error				7	4	5	8			3
Sample Size				59	83	74	27	1		244
Females	57			2,962	9,057	3,133	2,278			17,487
Percent	0.18			9.44	28.86	9.98	7.26			55.72
Sample Size	1			52	159	55	40			307
Mean Length	490			483	537	479	544			518
Std. Error				4	2	3	4			1
Sample Size	1			52	159	55	40			307
Both Sexes	57			6,323	13,784	7,348	3,816	57		31,385
Percent	0.18			20.15	43.92	23.41	12.16	0.18		100.00
Sample Size	1			111	242	129	67	1		551
Mean Length	490			476	544	479	550	616		516
Std. Error				4	2	3	4			1
Sample Size	1			111	242	129	67	1		551
<b>Sample Period 2: 28 July-6 August</b>										
Males		71		3,103	3,385	3,385	1,834			11,778
Percent		0.23		9.89	10.79	10.79	5.84			37.53
Sample Size		1		44	48	48	26			167
Mean Length		355		469	551	473	559			507
Std. Error				7	6	5	6			3
Sample Size		1		44	48	48	26			167
Females			71	5,149	6,346	5,360	2,610		71	19,607
Percent			0.23	16.41	20.22	17.08	8.32		0.23	62.47
Sample Size			1	73	90	76	37		1	278
Mean Length			537	479	536	484	531		544	506
Std. Error				2	3	3	4			1
Sample Size			1	73	90	76	37		1	278
Both Sexes		71	71	8,252	9,731	8,745	4,444		71	31,385
Percent		0.23	0.23	26.29	31.01	27.86	14.16		0.23	100.00
Sample Size		1	1	117	138	124	63		1	445
Mean Length		355	537	475	541	480	543		544	507
Std. Error				3	3	3	3			1
Sample Size		1	1	117	138	124	63		1	445

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Table 21. (Page 2 of 2).

	Age Group									Total
	0.2	1.1	0.3	1.2	1.3	2.2	2.3	2.4	3.3	
<b>All Periods Combined:</b>										
Males		71		6,464	8,112	7,600	3,372	57		25,676
Percent		0.11		10.30	12.92	12.11	5.37	0.09		40.90
Sample Size		1		103	131	122	53	1		411
Mean Length		355		470	555	477	559	616		511
Std. Error				5	3	4	5			2
Sample Size		1		103	131	122	53	1		411
Females	57		71	8,111	15,403	8,493	4,888		71	37,094
Percent	0.09		0.11	12.92	24.54	13.53	7.79		0.11	59.10
Sample Size	1		1	125	249	131	77		1	585
Mean Length	490		537	481	537	482	537		544	512
Std. Error				2	2	2	3			1
Sample Size	1		1	125	249	131	77		1	585
Both Sexes	57	71	71	14,575	23,515	16,093	8,260	57	71	62,770 <sup>b</sup>
Percent	0.09	0.11	0.11	23.22	37.46	25.64	13.16	0.09	0.11	100.00
Sample Size	1	1	1	228	380	253	130	1	1	996
Mean Length	490	355	537	476	543	479	546	616	544	511
Std. Error				2	2	2	3			1
Sample Size	1	1	1	228	380	253	130	1	1	996

<sup>a</sup> Mean length in millimeters.

<sup>b</sup> Estimate derived from the average ratio of Sunshine Station to Yentna River escapements during years of comparable operation (1981–1985). A fishwheel was operated at this site to provide age composition only.

Table 22. Age, sex, and length composition of sockeye salmon escapement in Fish Creek, Upper Cook Inlet, Alaska, in 1992.

	Age Group							Total
	1.1	1.2	2.1	1.3	2.2	2.3	3.2	
<b>Sample Period: 10 July–15 September</b>								
Males		24,866		2,642	5,905	155		33,568
Percent		34.48		3.66	8.19	0.21		46.55
Sample Size		160		17	38	1		216
Mean Length <sup>a</sup>		472		531	466	500		476
Std. Error		2		8	5			2
Sample Size		160		17	38	1		216
Females	155	29,683	311	932	6,993	311	155	38,540
Percent	0.21	41.16	0.43	1.29	9.70	0.43	0.21	53.45
Sample Size	1	191	2	6	45	2	1	248
Mean Length	400	482	405	521	485	530	510	483
Std. Error		2	5	11	3	10		2
Sample Size	1	191	2	6	45	2	1	248
Both Sexes	155	54,549	311	3,574	12,898	466	155	72,108
Percent	0.21	75.65	0.43	4.96	17.89	0.65	0.21	100.00
Sample Size	1	351	2	23	83	3	1	464
Mean Length	400	477	405	528	477	520	510	480
Std. Error		2	5	7	3	10		1
Sample Size	1	351	2	23	83	3	1	464

<sup>a</sup> Mean length in millimeters.

Table 23. Age and length composition of coho salmon harvested in selected commercial gillnet fisheries, Upper Cook Inlet, Alaska, in 1992.

Fishery	Age Group					Total
	1.1	2.1	3.1	1.2	2.2	
<b>Commercial Catch</b>						
<i>Central District</i>						
<i>Central Drift</i>						
Number	26,222	225,079	11,008	1,188	1,923	265,420 <sup>a</sup>
Percent	9.88	84.80	4.15	0.45	0.72	100.00
Sample Size	138	1,104	76	4	11	1,333
Mean Length <sup>b</sup>	535	553	568	555	551	552
Sample Size	138	1,104	76	4	11	1,333
<i>Upper Subdistrict</i>						
Number	8,216	45,871	2,972		19	57,078
Percent	14.39	80.37	5.21		0.03	100.00
Sample Size	191	1,002	67		1	1,261
Mean Length	538	557	582		502	556
Sample Size	191	1,002	67		1	1,261
<i>Western</i>						
Number	3,987	11,333	630	105		16,055
Percent	24.83	70.59	3.92	0.65		100.00
Sample Size	38	108	6	1		153
Mean Length	523	554	567	550		547
Sample Size	38	108	6	1		153
<i>Northern District</i>						
<i>General Subdistrict</i>						
Number	8,578	57,230	2,233		118	68,159
Percent	12.59	83.97	3.28		0.17	100.00
Sample Size	73	487	19		1	580
Mean Length	529	542	558		559	541
Sample Size	73	487	19		1	580
<b>Commercial Catch Total</b>						
Number	47,003	339,513	16,843	1,293	2,060	406,712
Percent	11.56	83.48	4.14	0.32	0.51	100.00
Sample Size	440	2,701	168	5	13	3,327
Mean Length	533	552	569	554	551	550
Sample Size	440	2,701	168	5	13	3,327

<sup>a</sup> Total does not include Chinitna Bay Subdistrict harvest.

<sup>b</sup> Mean length in millimeters.

Table 24. Age, sex, and length composition of coho salmon harvested in the Central District commercial drift gillnet fishery, Upper Cook Inlet, Alaska, in 1992.

	Age Group					Total <sup>a</sup>
	1.1	2.1	3.1	1.2	2.2	
<b>Sample Period 1: 26 June–15 July</b>						
Males	2,481	15,784	1,585		345	20,195
Percent	6.02	38.29	3.85		0.84	49.00
Sample Size	36	229	23		5	293
Mean Length <sup>b</sup>	526	541	553		560	541
Std. Error	7	3	9		10	3
Sample Size	36	229	23		5	293
Females	2,275	16,749	1,930		69	21,023
Percent	5.52	40.64	4.68		0.17	51.00
Sample Size	33	243	28		1	305
Mean Length	512	539	562		515	538
Std. Error	8	2	6			2
Sample Size	33	243	28		1	305
Both Sexes	4,756	32,533	3,515		414	41,218
Percent	11.54	78.93	8.53		1.00	100.00
Sample Size	69	472	51		6	598
Mean Length	519	540	558		553	539
Std. Error	5	2	5		10	2
Sample Size	69	472	51		6	598
<b>Sample Period 2: 16–22 July</b>						
Males	1,910	26,468	1,091		546	30,015
Percent	2.89	40.08	1.65		0.83	45.45
Sample Size	7	97	4		2	110
Mean Length	559	569	590		543	568
Std. Error	14	4	18		57	4
Sample Size	7	97	4		2	110
Females	1,910	31,652	1,910	546		36,018
Percent	2.89	47.93	2.89	0.83		54.55
Sample Size	7	116	7	2		132
Mean Length	521	553	559	550		552
Std. Error	12	4	12	20		3
Sample Size	7	116	7	2		132
Both Sexes	3,820	58,120	3,001	546	546	66,033
Percent	5.78	88.02	4.54	0.83	0.83	100.00
Sample Size	14	213	11	2	2	242
Mean Length	540	560	570	550	543	559
Std. Error	9	3	10	20	57	2
Sample Size	14	213	11	2	2	242

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Table 24. (Page 2 of 2).

	Age Group					Total
	1.1	2.1	3.1	1.2	2.2	
<b>Sample Period 3: 23 July–26 August</b>						
Males	9,304	63,845	1,925		642	75,716
Percent	5.88	40.37	1.22		0.41	47.87
Sample Size	29	199	6		2	236
Mean Length	534	557	579		563	554
Std. Error	5	3	13		37	2
Sample Size	29	199	6		2	236
Females	8,342	70,581	2,567	642	321	82,453
Percent	5.27	44.62	1.62	0.41	0.20	52.13
Sample Size	26	220	8	2	1	257
Mean Length	542	550	570	559	537	550
Std. Error	5	2	11	18		2
Sample Size	26	220	8	2	1	257
Both Sexes	17,646	134,426	4,492	642	963	158,169
Percent	11.16	84.99	2.84	0.41	0.61	100.00
Sample Size	55	419	14	2	3	493
Mean Length	538	553	574	559	554	552
Std. Error	4	2	8	18	37	2
Sample Size	55	419	14	2	3	493
<b>All Periods Combined:</b>						
Males	13,695	106,097	4,601		1,533	125,926
Percent	5.16	39.97	1.73		0.58	47.44
Sample Size	72	525	33		9	639
Mean Length	536	557	573		555	556
Std. Error	4	2	7		26	2
Sample Size	72	525	33		9	639
Females	12,527	118,982	6,407	1,188	390	139,494
Percent	4.72	44.83	2.41	0.45	0.15	52.56
Sample Size	66	579	43	4	2	694
Mean Length	533	549	565	555	533	548
Std. Error	4	2	6	14		1
Sample Size	66	579	43	4	2	694
Both Sexes	26,222	225,079	11,008	1,188	1,923	265,420
Percent	9.88	84.80	4.15	0.45	0.72	100.00
Sample Size	138	1,104	76	4	11	1,333
Mean Length	535	553	568	555	551	552
Std. Error	3	1	5	14	26	1
Sample Size	138	1,104	76	4	11	1,333

<sup>a</sup> Total does not include Chinitna Bay Subdistrict harvest of 1,800 fish.

<sup>b</sup> Mean length in millimeters.

Table 25. Age, sex, and length composition of coho salmon harvested in the Upper Subdistrict commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1992.

	Age Group				Total
	1.1	2.1	3.1	2.2	
<b>Sample Period 1: 30 June-7 August</b>					
Males	2,460	17,279	840		20,579
Percent	6.03	42.35	2.06		50.44
Sample Size	41	288	14		343
Mean Length <sup>a</sup>	540	556	580		555
Std. Error	6	3	14		3
Sample Size	41	288	14		343
Females	2,160	16,740	1,320		20,220
Percent	5.29	41.03	3.24		49.56
Sample Size	36	279	22		337
Mean Length	537	552	588		553
Std. Error	6	3	8		2
Sample Size	36	279	22		337
Both Sexes	4,620	34,019	2,160		40,799
Percent	11.32	83.38	5.29		100.00
Sample Size	77	567	36		680
Mean Length	539	554	585		554
Std. Error	4	2	7		2
Sample Size	77	567	36		680
<b>Sample Period 2: 8-10 August</b>					
Males	1,246	2,879	129		4,254
Percent	13.55	31.31	1.40		46.26
Sample Size	29	67	3		99
Mean Length	520	570	613		556
Std. Error	6	5	6		4
Sample Size	29	67	3		99
Females	1,289	3,394	258		4,941
Percent	14.02	36.91	2.81		53.74
Sample Size	30	79	6		115
Mean Length	546	561	574		558
Std. Error	5	4	16		3
Sample Size	30	79	6		115
Both Sexes	2,535	6,273	387		9,195
Percent	27.57	68.22	4.21		100.00
Sample Size	59	146	9		214
Mean Length	533	565	587		557
Std. Error	4	3	11		3
Sample Size	59	146	9		214

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Table 25. (Page 2 of 2).

	Age Group				Total
	1.1	2.1	3.1	2.2	
<b>Sample Period 3: 11-14 August</b>					
Males	598	2,664	174		3,436
Percent	8.44	37.61	2.46		48.50
Sample Size	31	138	9		178
Mean Length	541	570	567		565
Std. Error	8	4	14		3
Sample Size	31	138	9		178
Females	463	2,915	251	19	3,648
Percent	6.54	41.15	3.54	0.27	51.50
Sample Size	24	151	13	1	189
Mean Length	547	563	559	502	560
Std. Error	8	4	12		3
Sample Size	24	151	13	1	189
Both Sexes	1,061	5,579	425	19	7,084
Percent	14.98	78.75	6.00	0.27	100.00
Sample Size	55	289	22	1	367
Mean Length	544	566	563	502	562
Std. Error	6	3	9		2
Sample Size	55	289	22	1	367
<b>All Periods Combined:</b>					
Males	4,304	22,822	1,143		28,269
Percent	7.54	39.98	2.00		49.53
Sample Size	101	493	26		620
Mean Length	535	560	581		557
Std. Error	4	2	10		2
Sample Size	101	493	26		620
Females	3,912	23,049	1,829	19	28,809
Percent	6.85	40.38	3.20	0.03	50.47
Sample Size	90	509	41	1	641
Mean Length	541	555	582	502	555
Std. Error	4	2	7		2
Sample Size	90	509	41	1	641
Both Sexes	8,216	45,871	2,972	19	57,078
Percent	14.39	80.37	5.21	0.03	100.00
Sample Size	191	1,002	67	1	1,261
Mean Length	538	557	582	502	556
Std. Error	3	2	6		1
Sample Size	191	1,002	67	1	1,261

<sup>a</sup> Mean length in millimeters.

Table 26. Age, sex, and length composition of coho salmon harvested in the Western Subdistrict commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1992.

	Age Group				Total
	1.1	2.1	3.1	1.2	
<b>Sample Period: 22 June-14 August</b>					
Males	2,413	5,772	210	105	8,500
Percent	15.03	35.95	1.31	0.65	52.94
Sample Size	23	55	2	1	81
Mean Length <sup>a</sup>	514	557	524	550	544
Std. Error	9	5	42		4
Sample Size	23	55	2	1	81
Females	1,574	5,561	420		7,555
Percent	9.80	34.64	2.62		47.06
Sample Size	15	53	4		72
Mean Length	536	550	588		550
Std. Error	9	5	16		4
Sample Size	15	53	4		72
Both Sexes	3,987	11,333	630	105	16,055
Percent	24.83	70.59	3.92	0.65	100.00
Sample Size	38	108	6	1	153
Mean Length	523	554	567	550	547
Std. Error	6	4	18		3
Sample Size	38	108	6	1	153

<sup>a</sup> Mean length in millimeters.

Table 27. Age, sex, and length composition of coho salmon harvested in the General Subdistrict commercial set gillnet fishery, Upper Cook Inlet, Alaska, in 1992.

	Age Group				Total
	1.1	2.1	3.1	2.2	
<i>Sample Period: 1 June-14 September</i>					
Males	3,760	27,028	1,058	118	31,964
Percent	5.52	39.65	1.55	0.17	46.90
Sample Size	32	230	9	1	272
Mean Length <sup>a</sup>	530	552	559	559	549
Std. Error	7	3	20		3
Sample Size	32	230	9	1	272
Females	4,818	30,202	1,175		36,195
Percent	7.07	44.31	1.72		53.10
Sample Size	41	257	10		308
Mean Length	529	533	557		533
Std. Error	6	3	11		2
Sample Size	41	257	10		308
Both Sexes	8,578	57,230	2,233	118	68,159
Percent	12.59	83.97	3.28	0.17	100.00
Sample Size	73	487	19	1	580
Mean Length	529	542	558	559	541
Std. Error	5	2	11		2
Sample Size	73	487	19	1	580

<sup>a</sup> Mean length in millimeters.

Table 28. Age, sex, and length composition of chum salmon harvested in the Central District commercial drift gillnet fishery, Upper Cook Inlet, Alaska

	Age Group					Total <sup>a</sup>
	0.2	0.3	0.4	1.3	1.4	
<b>Sample Period 1: 26 June–8 July</b>						
Males		1,412	2,148	31		3,591
Percent		17.30	26.31	0.38		43.99
Sample Size		46	70	1		117
Mean Length <sup>b</sup>		580	606	612		596
Std. Error		13	3			5
Sample Size		46	70	1		117
Females		1,381	3,130	31	31	4,573
Percent		16.92	38.34	0.38	0.38	56.01
Sample Size		45	102	1	1	149
Mean Length		592	599	473	583	596
Std. Error		5	3			2
Sample Size		45	102	1	1	149
Both Sexes		2,793	5,278	62	31	8,164
Percent		34.21	64.65	0.76	0.38	100.00
Sample Size		91	172	2	1	266
Mean Length		586	602	543	583	596
Std. Error		7	2			3
Sample Size		91	172	2	1	266
<b>Sample Period 2: 9–15 July</b>						
Males		8,644	11,060			19,704
Percent		21.53	27.55			49.09
Sample Size		118	151			269
Mean Length		578	601			591
Std. Error		3	2			2
Sample Size		118	151			269
Females		10,255	10,182			20,437
Percent		25.55	25.37			50.91
Sample Size		140	139			279
Mean Length		578	592			585
Std. Error		2	2			2
Sample Size		140	139			279
Both Sexes		18,899	21,242			40,141
Percent		47.08	52.92			100.00
Sample Size		258	290			548
Mean Length		578	597			588
Std. Error		2	2			1
Sample Size		258	290			548

– continued –

Table 28. (Page 2 of 2).

	Age Group					Total
	0.2	0.3	0.4	1.3	1.4	
<b>Sample Period 3: 16 July–26 August</b>						
Males	230	47,135	18,394			65,759
Percent	0.12	25.56	9.98			35.66
Sample Size	1	205	80			286
Mean Length	520	560	582			566
Std. Error		2	3			2
Sample Size	1	205	80			286
Females	920	87,601	30,120			118,641
Percent	0.50	47.51	16.33			64.34
Sample Size	4	381	131			516
Mean Length	541	553	577			559
Std. Error	14	1	2			1
Sample Size	4	381	131			516
Both Sexes	1,150	134,736	48,514			184,400
Percent	0.62	73.07	26.31			100.00
Sample Size	5	586	211			802
Mean Length	536	555	579			562
Std. Error	14	1	2			1
Sample Size	5	586	211			802
<b>All Periods Combined:</b>						
Males	230	57,191	31,602	31		89,054
Percent	0.10	24.58	13.58	0.01		38.27
Sample Size	1	369	301	1		672
Mean Length	520	563	590	612		573
Std. Error		2	2			1
Sample Size	1	369	301	1		672
Females	920	99,237	43,432	31	31	143,651
Percent	0.40	42.64	18.66	0.01	0.01	61.73
Sample Size	4	566	372	1	1	944
Mean Length	541	556	582	473	583	564
Std. Error	14	1	2			1
Sample Size	4	566	372	1	1	944
Both Sexes	1,150	156,428	75,034	62	31	232,705
Percent	0.49	67.22	32.24	0.03	0.01	100.00
Sample Size	5	935	673	2	1	1,616
Mean Length	536	559	586	543	583	567
Std. Error	14	1	1			1
Sample Size	5	935	673	2	1	1,616

<sup>a</sup> Total does not include Chinitna Bay Subdistrict harvest of 250 fish.

<sup>b</sup> Mean length in millimeters.

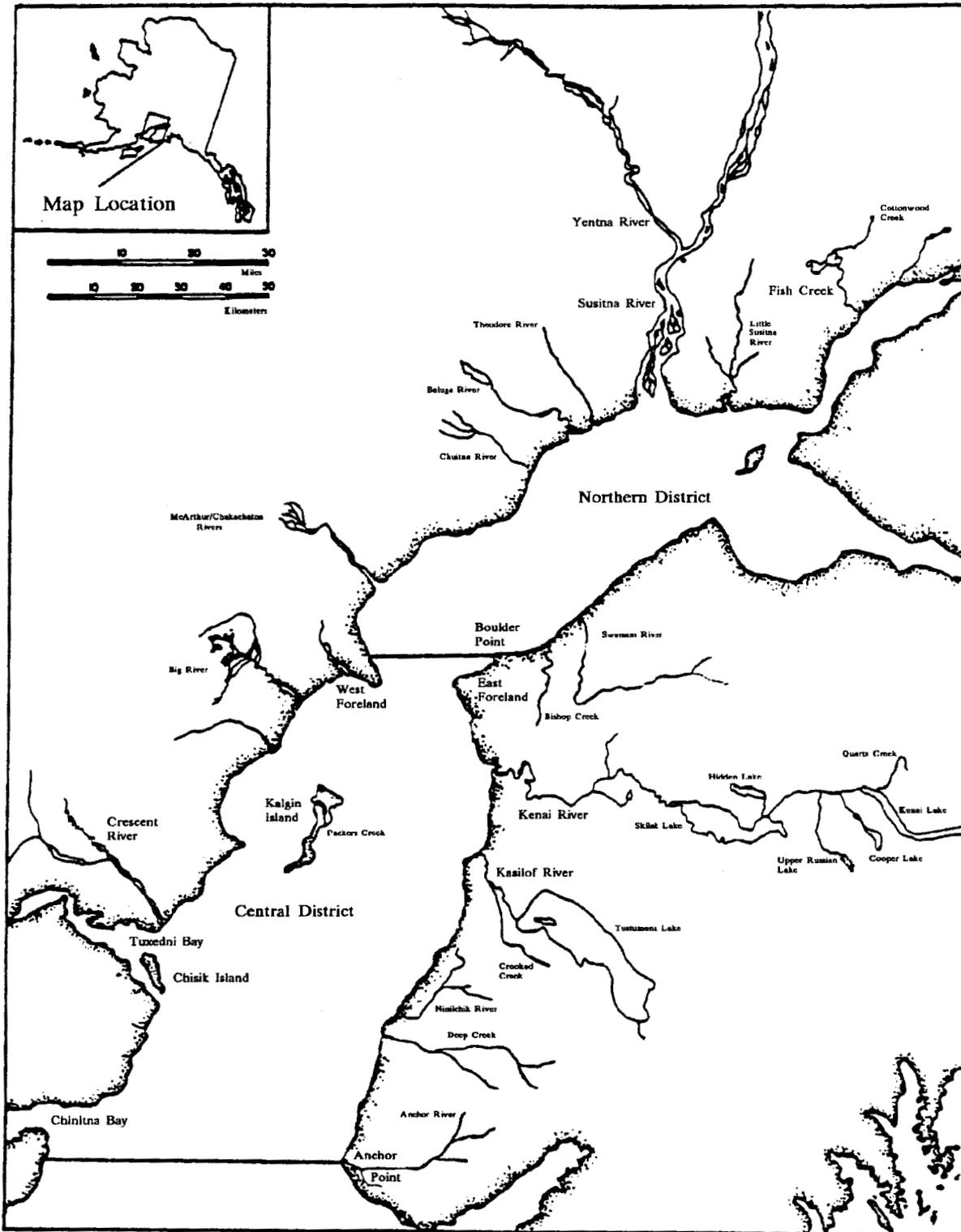


Figure 1. Map of Upper Cook Inlet showing locations of the Northern and Central Districts and the primary salmon spawning drainages.

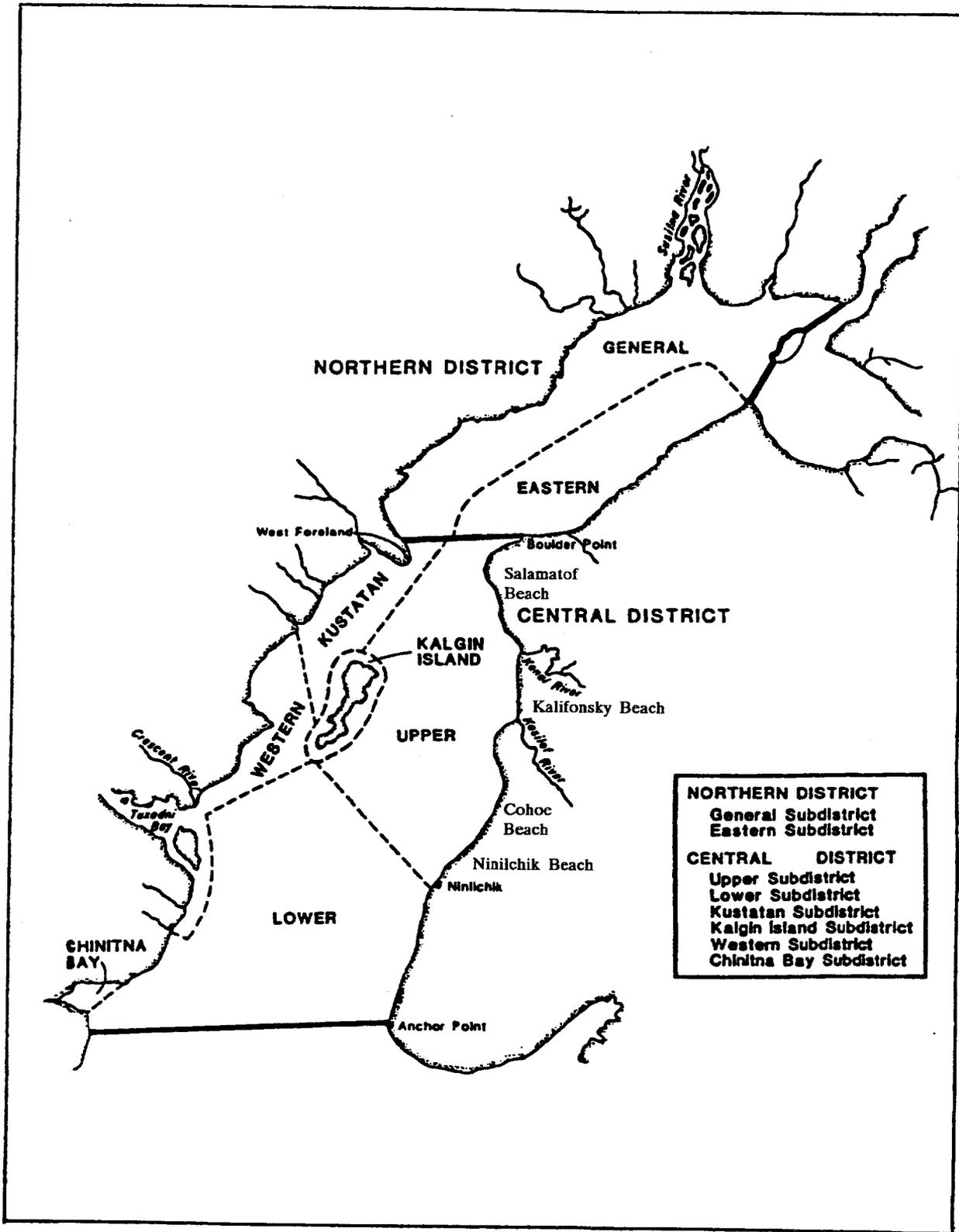


Figure 2. Map of Upper Cook Inlet showing the commercial fishing districts, subdistricts, and Upper Subdistrict beach fisheries.

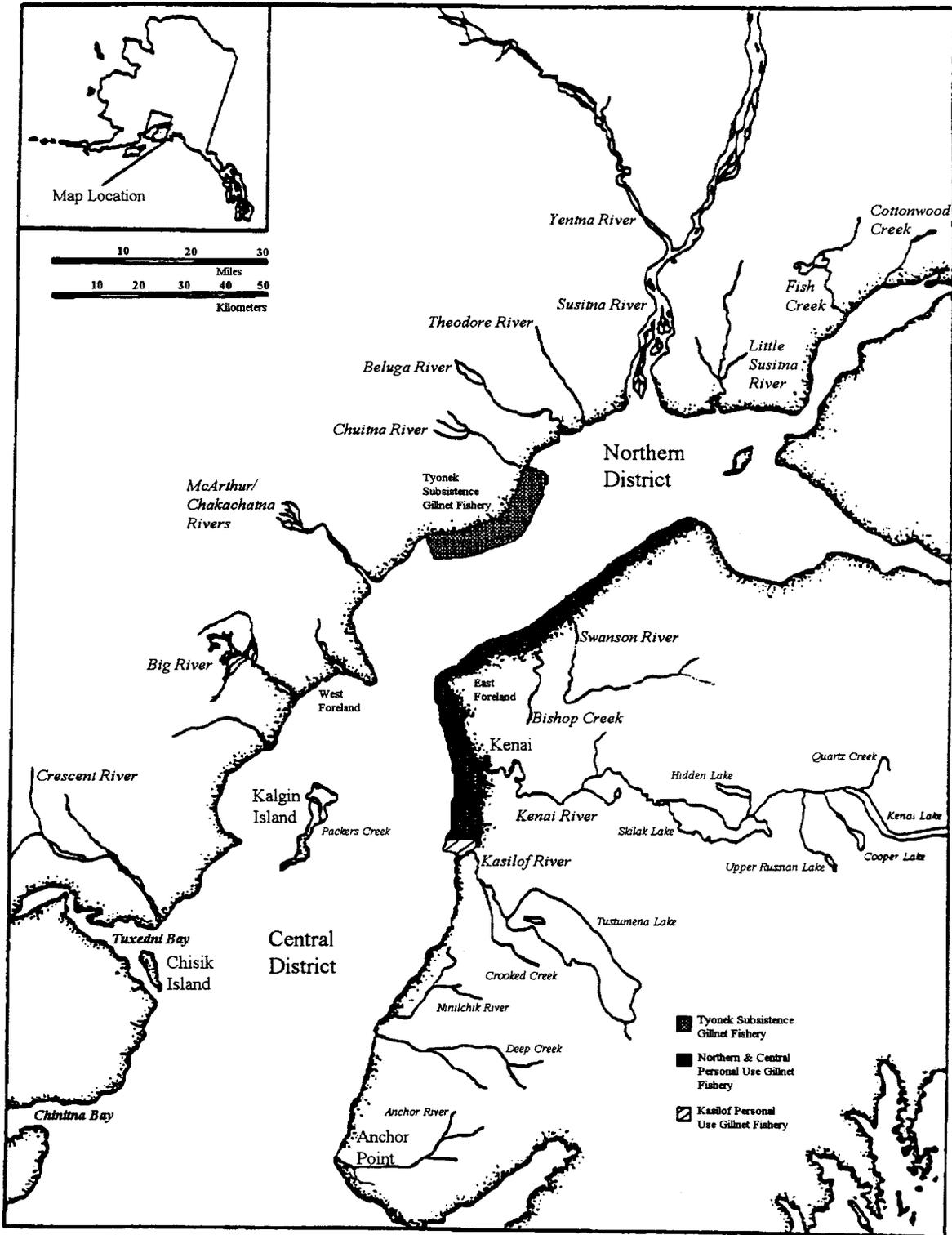


Figure 3. Map of Upper Cook Inlet showing locations of the subsistence and personal use fisheries.

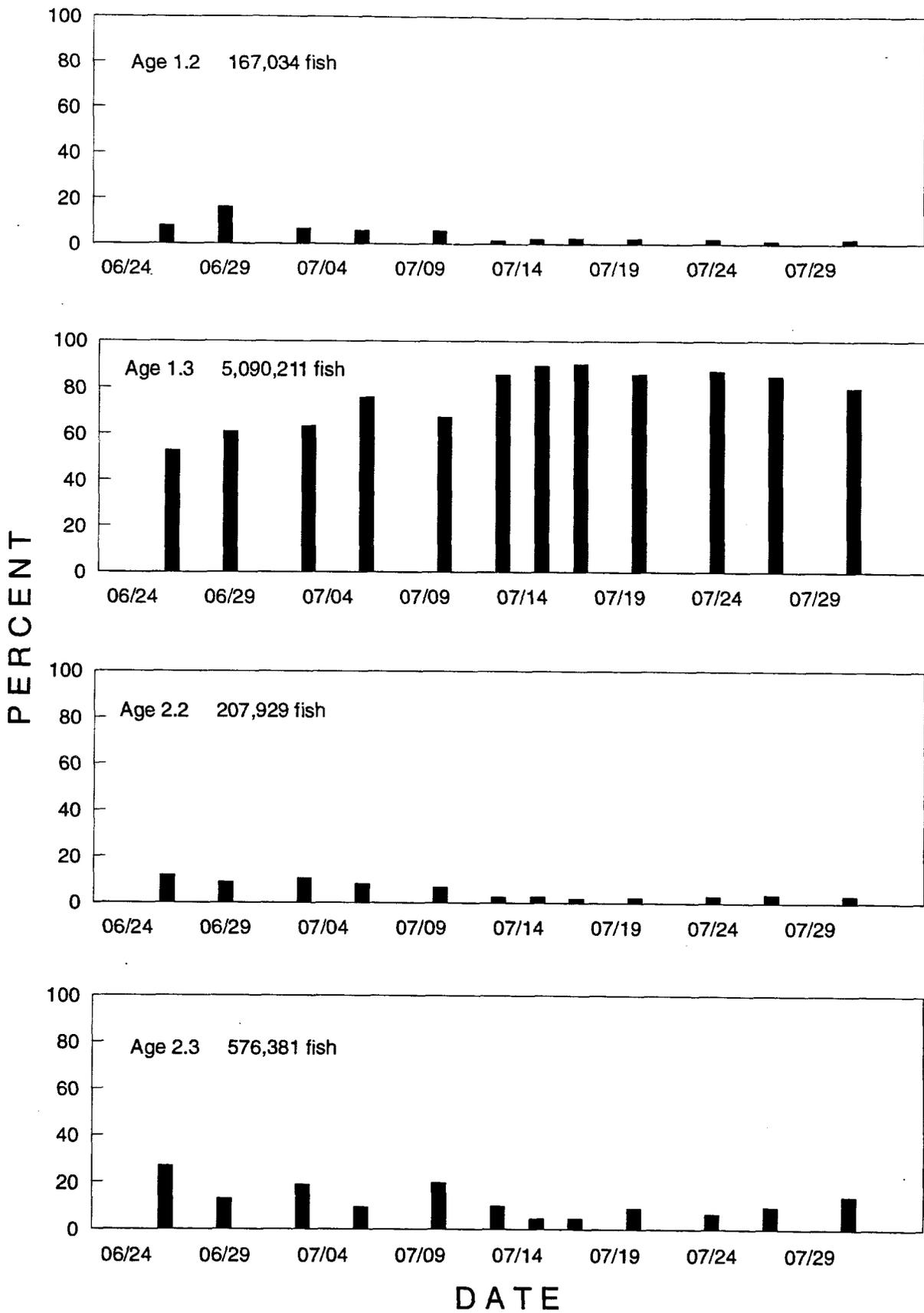


Figure 4. Major age-class composition trends of sockeye salmon in the Central District drift gillnet fishery, Upper Cook Inlet, Alaska, in 1992.

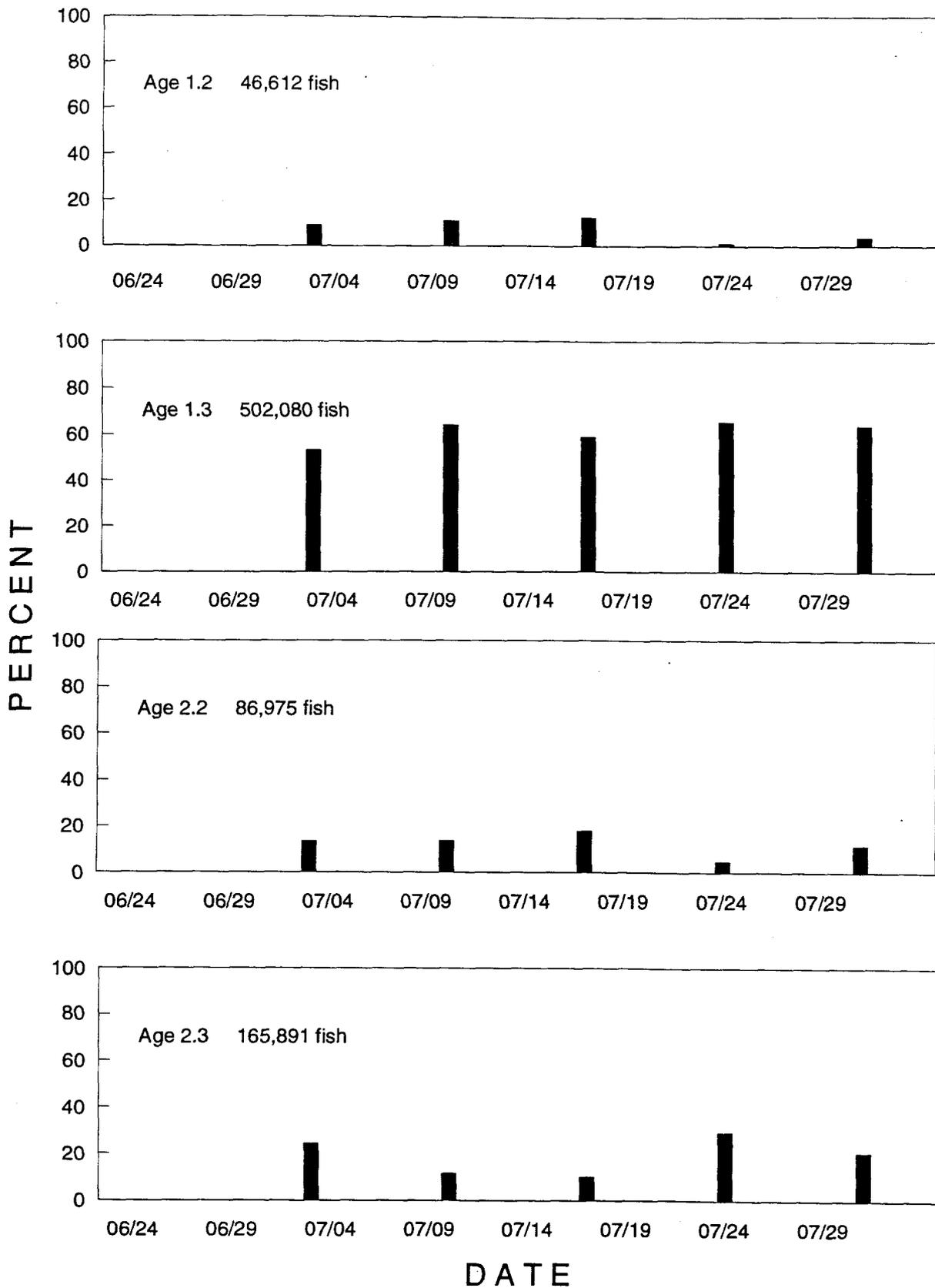


Figure 5. Major age-class composition trends of sockeye salmon in the Central District Cohoe/ Ninilchik Beach set gillnet fishery, Upper Cook Inlet, Alaska, in 1992.

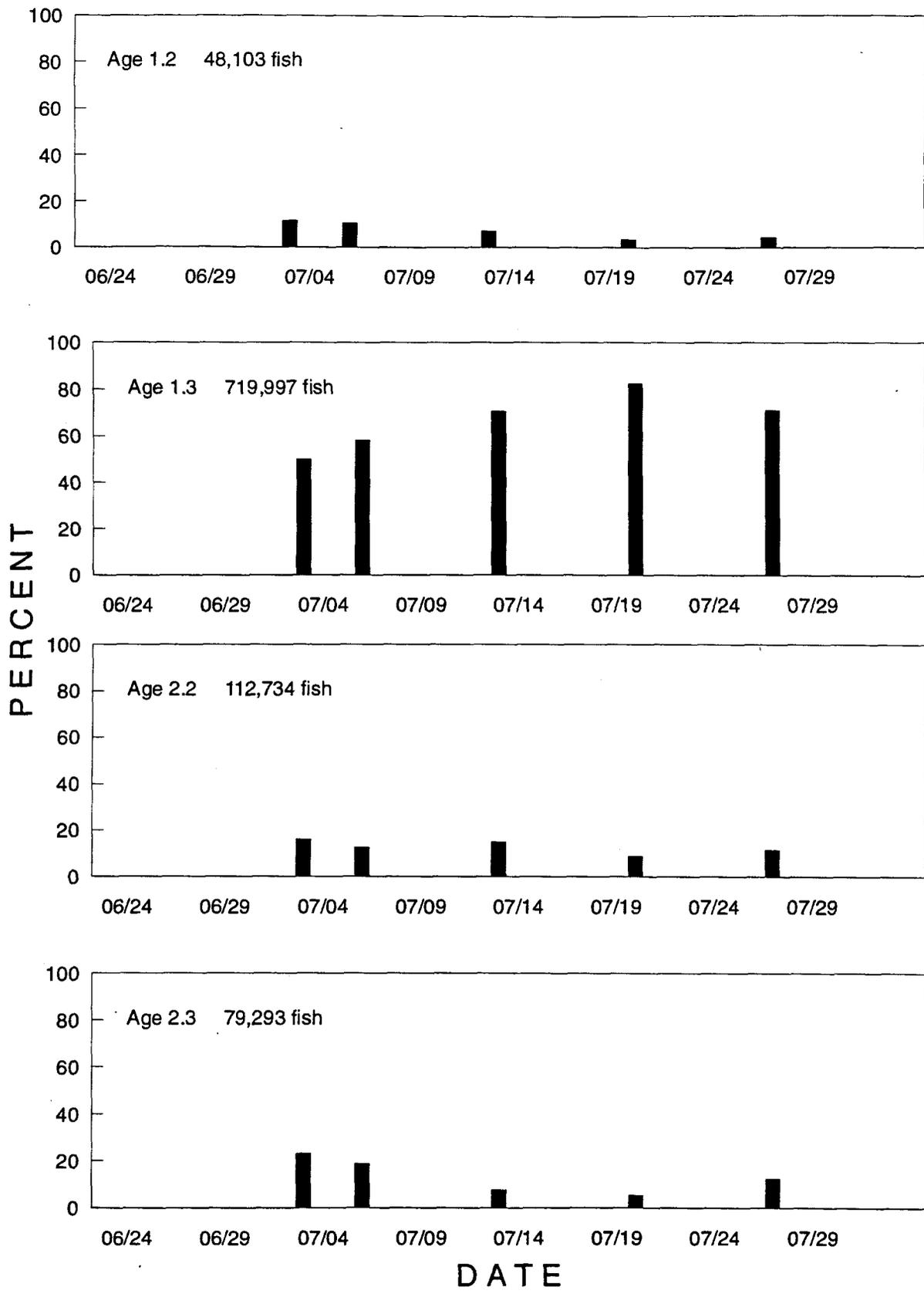


Figure 6. Major age-class composition trends of sockeye salmon in the Central District Kalifonsky Beach set gillnet fishery, Upper Cook Inlet, Alaska, in 1992.

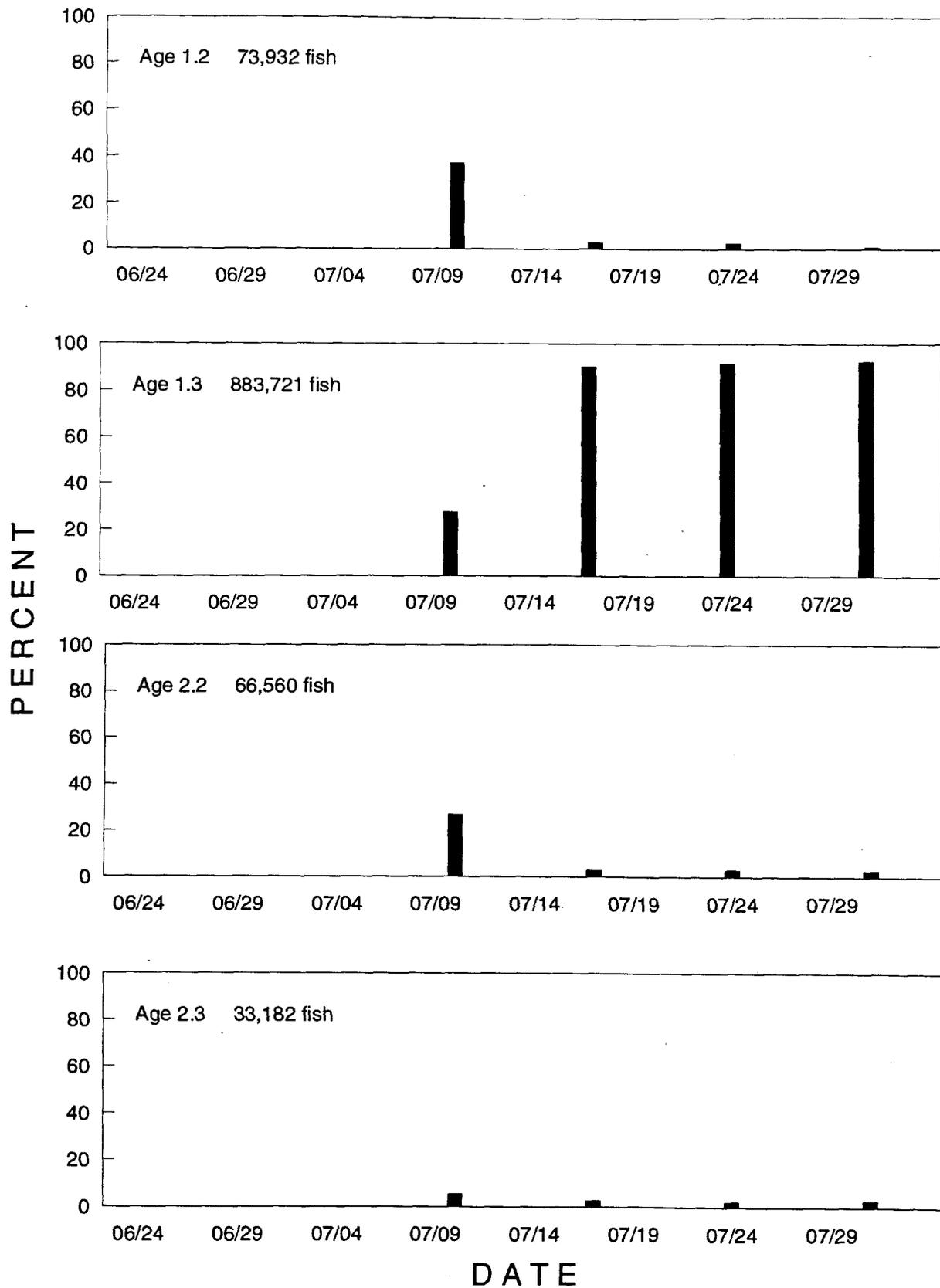


Figure 7. Major age-class composition trends of sockeye salmon in the Central District Salamatof Beach set gillnet fishery, Upper Cook Inlet, Alaska, in 1992.

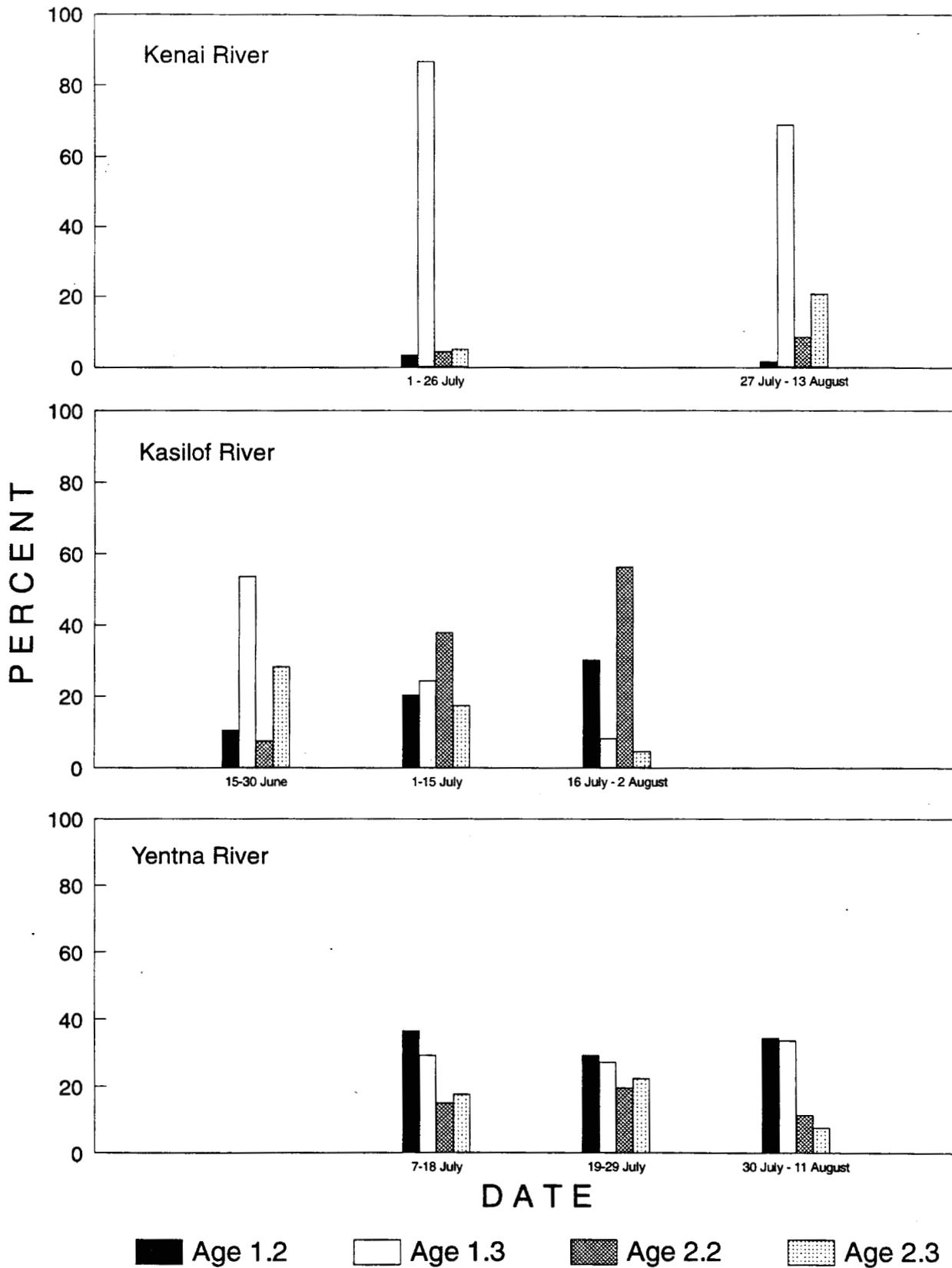


Figure 8. Age-class composition trends of sockeye salmon in escapements of the Kenai, Kasilof, and Yentna Rivers, Upper Cook Inlet, Alaska, in 1992.

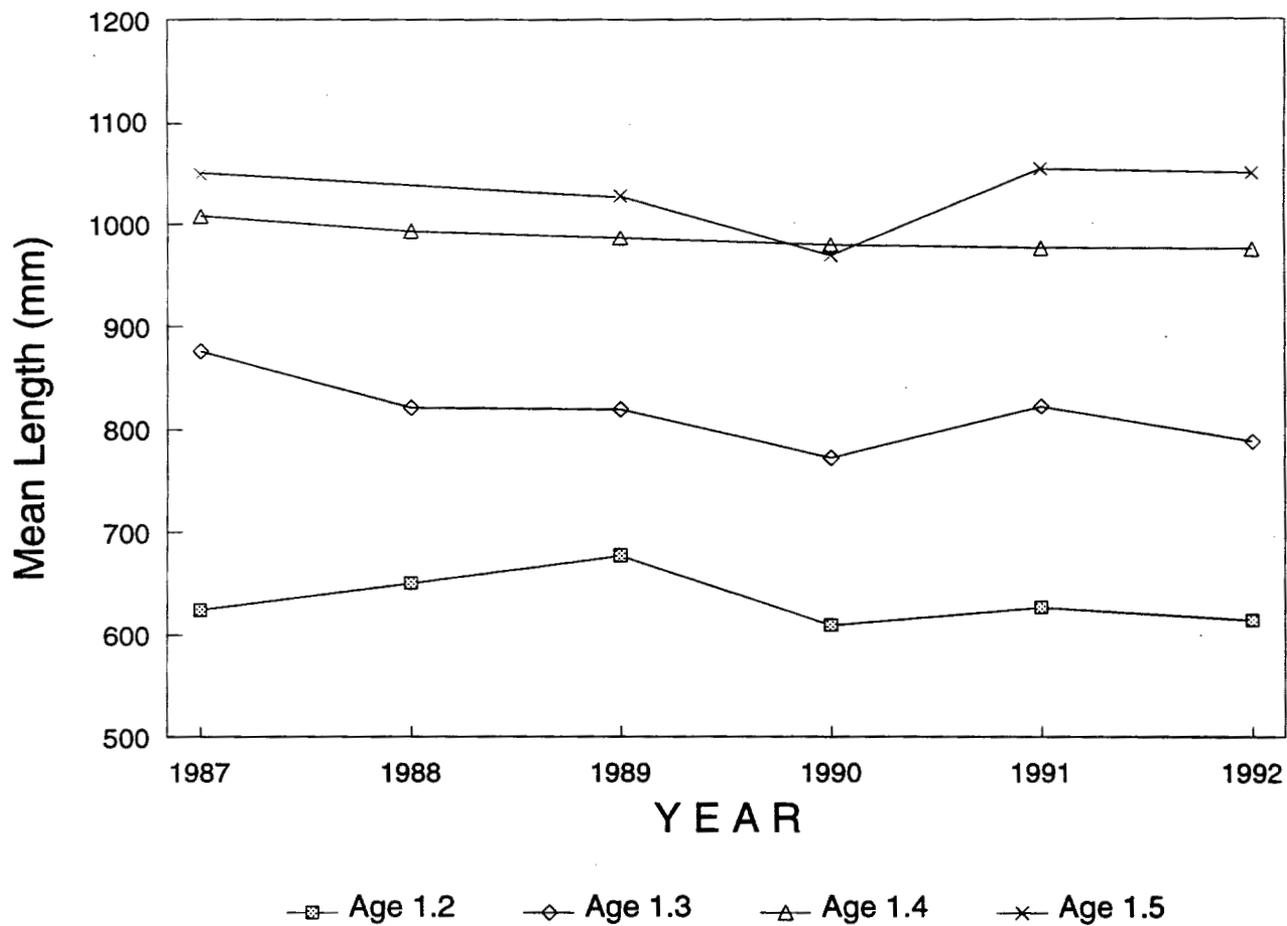


Figure 9. Trends in mean length for the principal ages of chinook salmon in the Upper Subdistrict commercial harvest, Upper Cook Inlet, Alaska, 1987-1992.

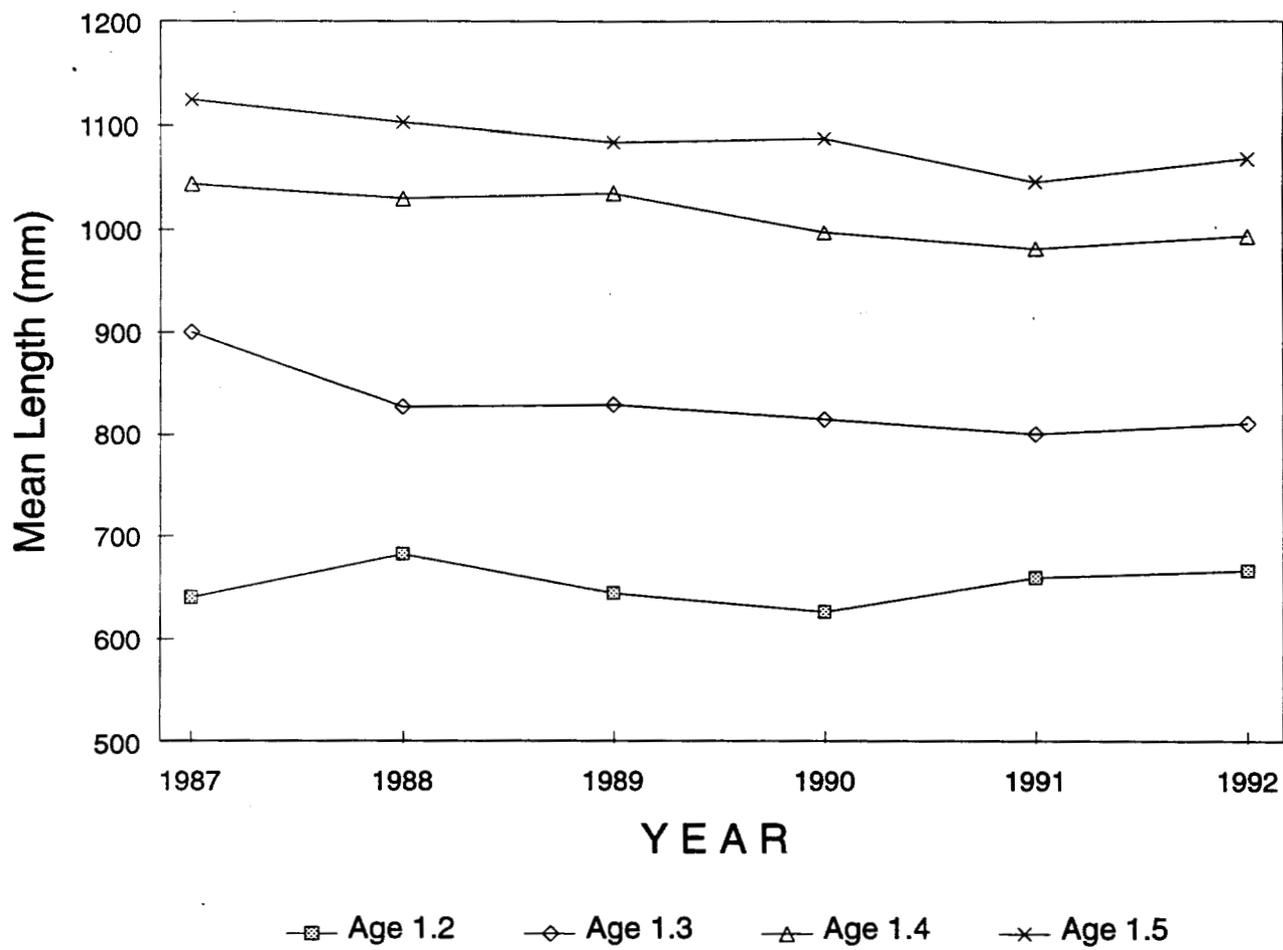


Figure 10. Trends in mean length for the principal ages of chinook salmon in the Kenai River late-run escapement, Upper Cook Inlet, Alaska, 1987-1992.

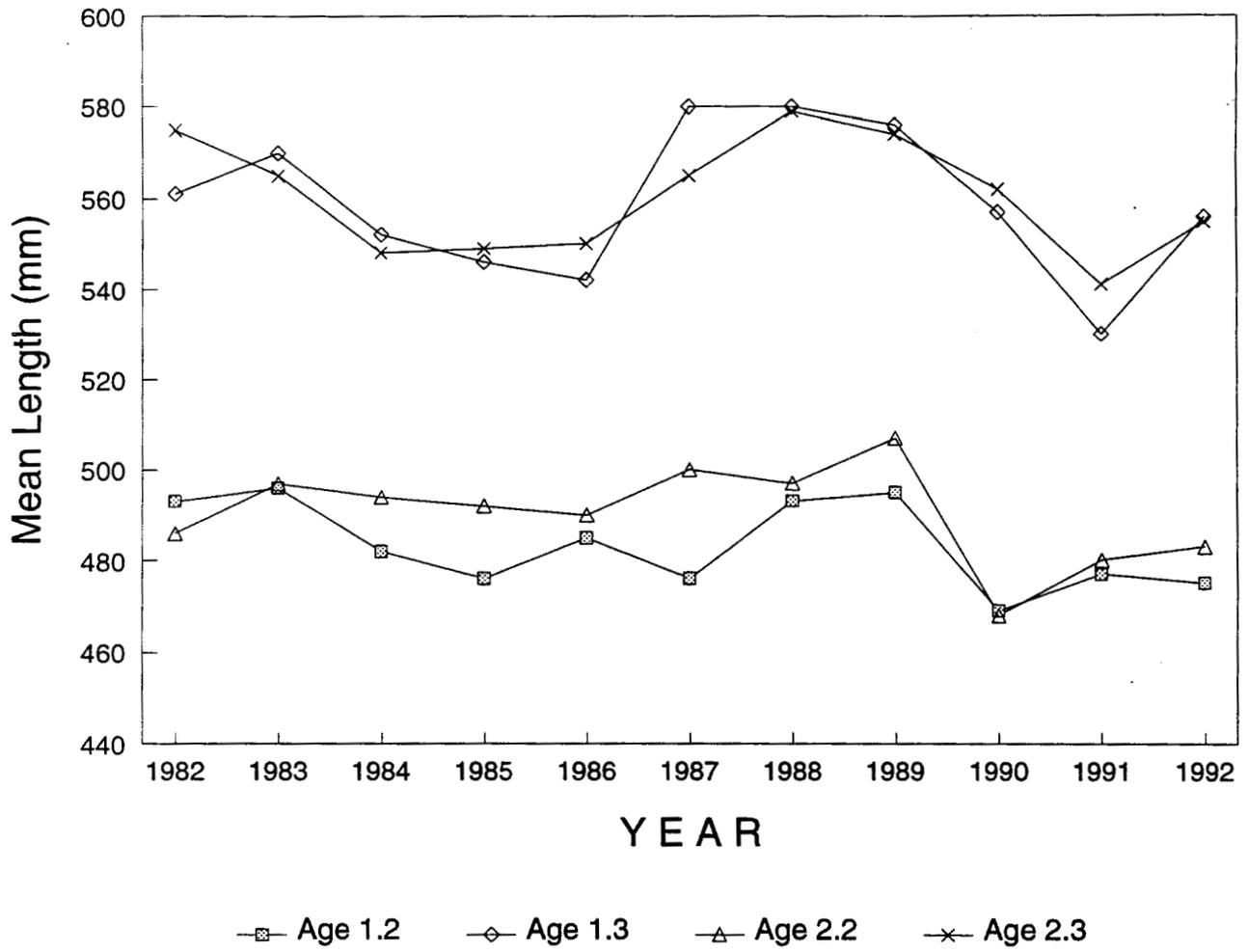


Figure 11. Trends in mean length for the principal ages of sockeye salmon in the Cohoe/Ninilchik Beach commercial harvest, Upper Cook Inlet, Alaska, 1982–1992.

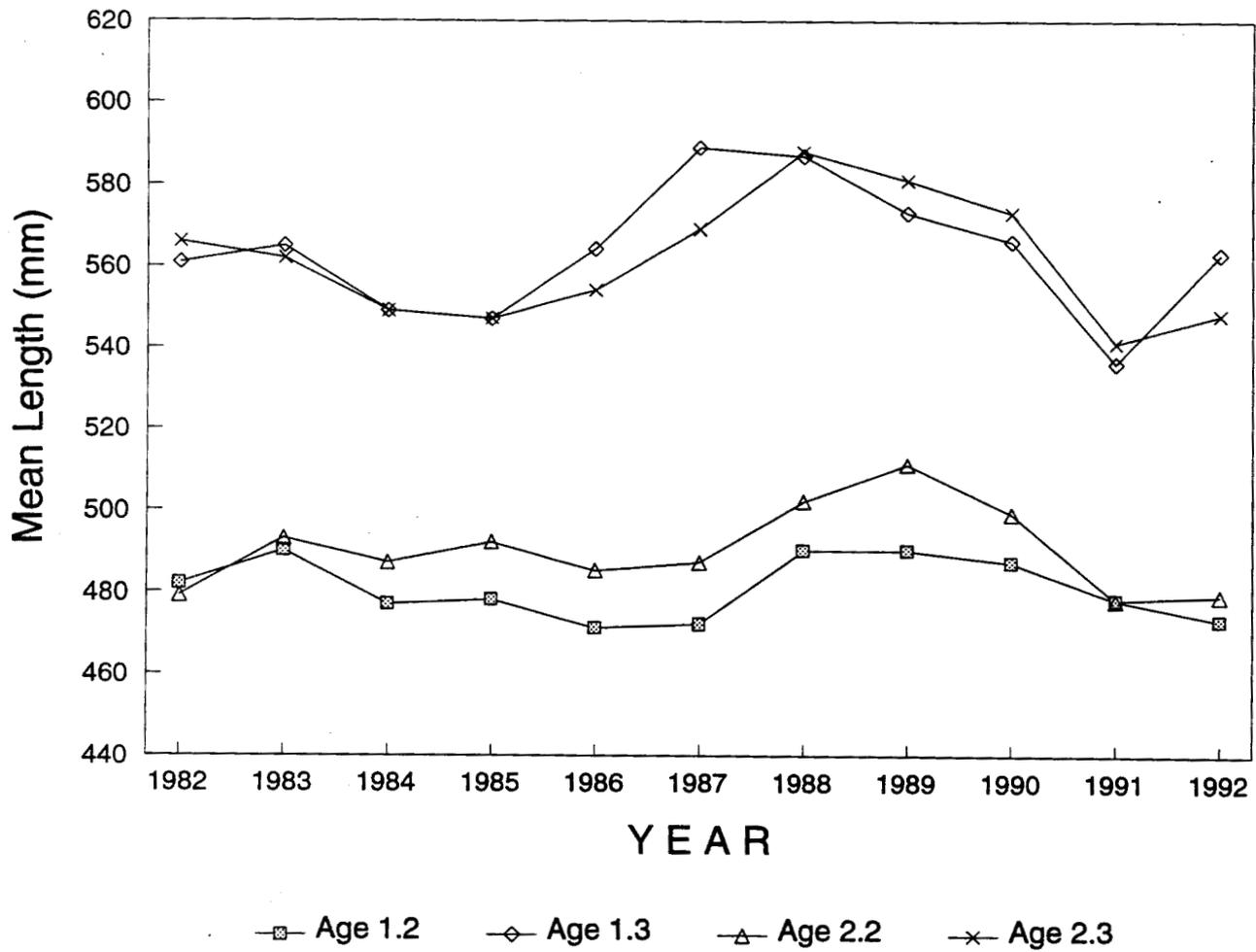


Figure 12. Trends in mean length for the principal ages of sockeye salmon in the Kalifonsky Beach commercial harvest, Upper Cook Inlet, Alaska, 1982-1992.

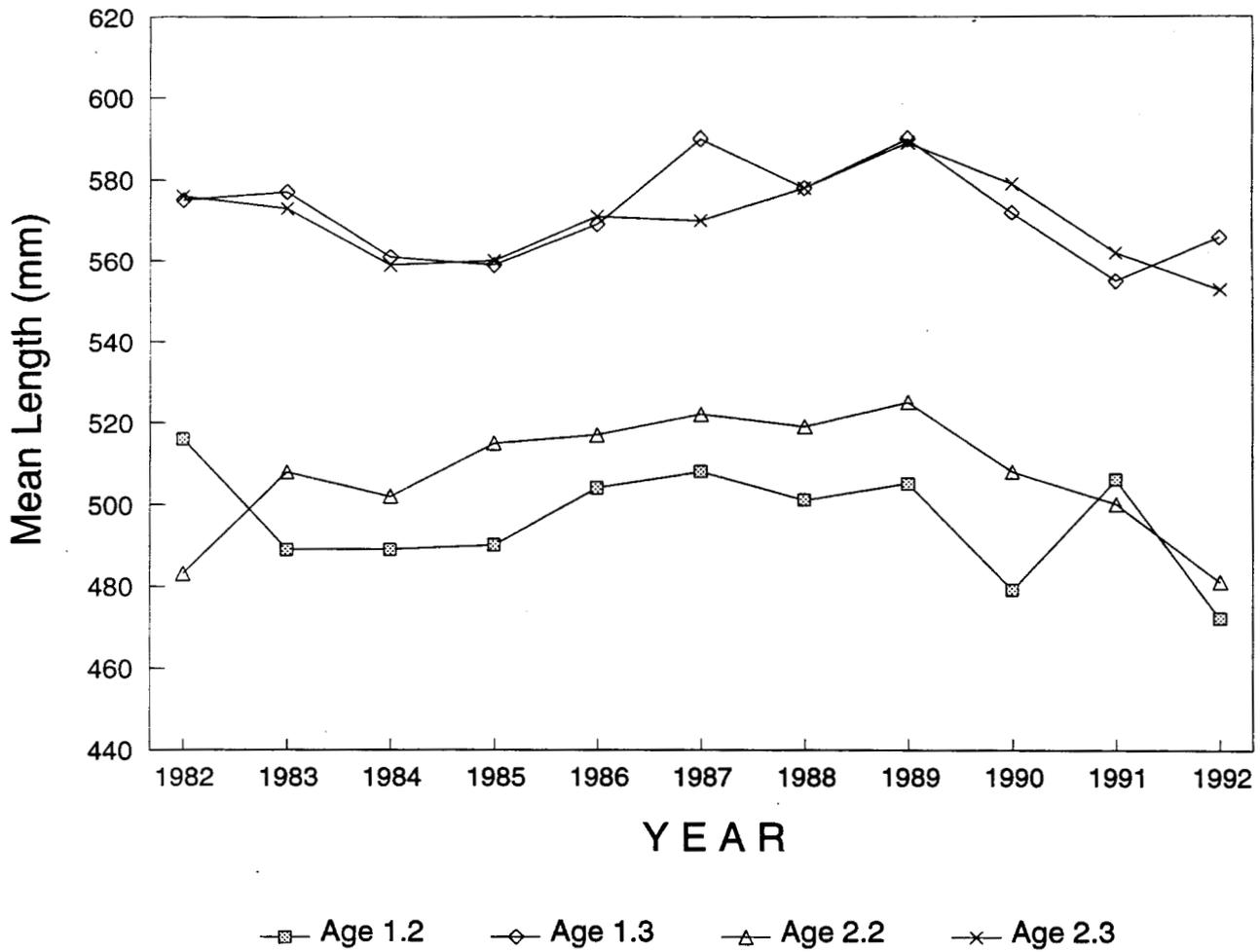


Figure 13. Trends in mean length for the principal ages of sockeye salmon in the Salmatof Beach commercial harvest, Upper Cook Inlet, Alaska, 1982–1992.

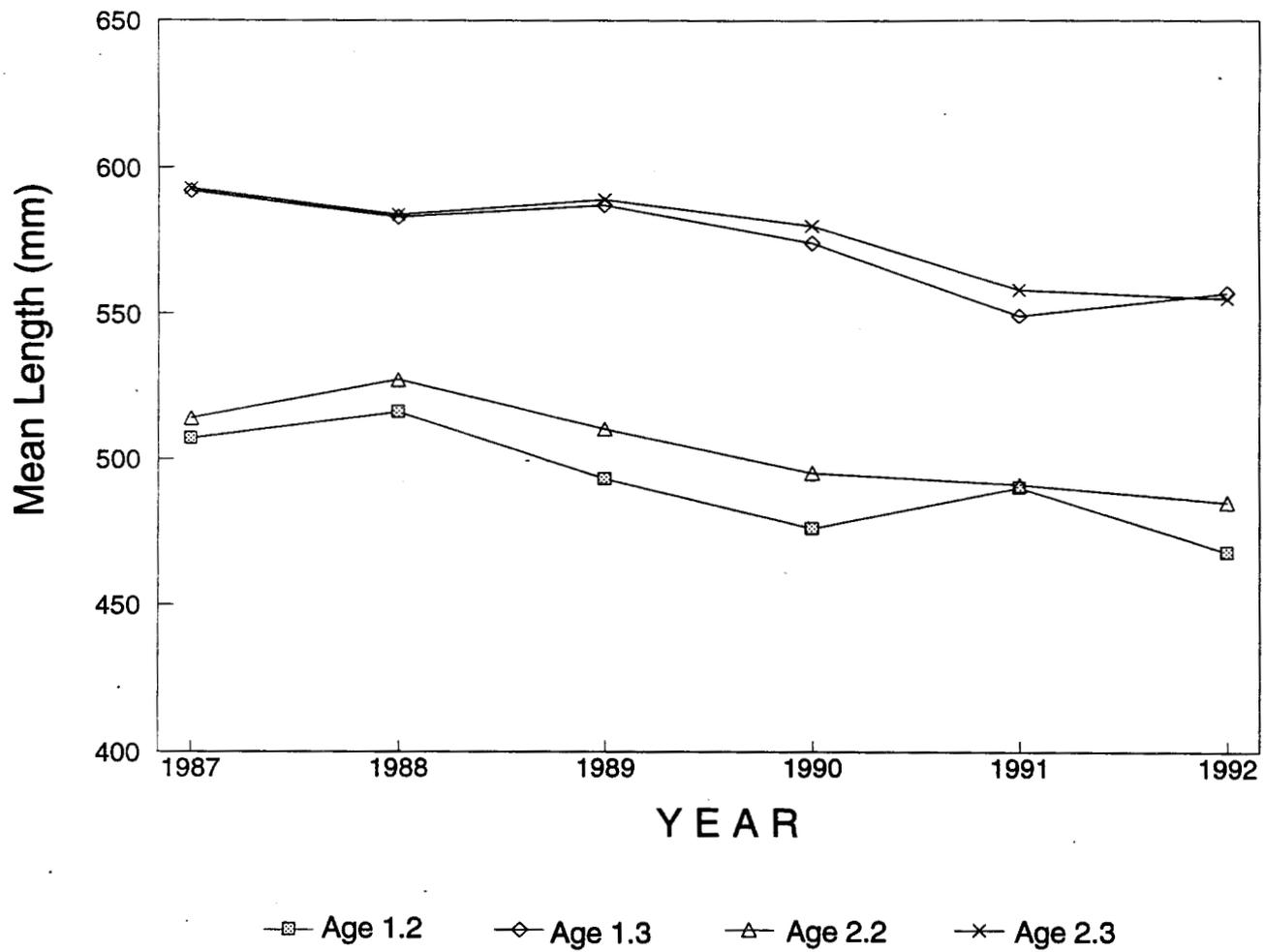


Figure 14. Trends in mean length for the principal ages of sockeye salmon in the Kenai River escapement, Upper Cook Inlet, Alaska, 1987-1992.

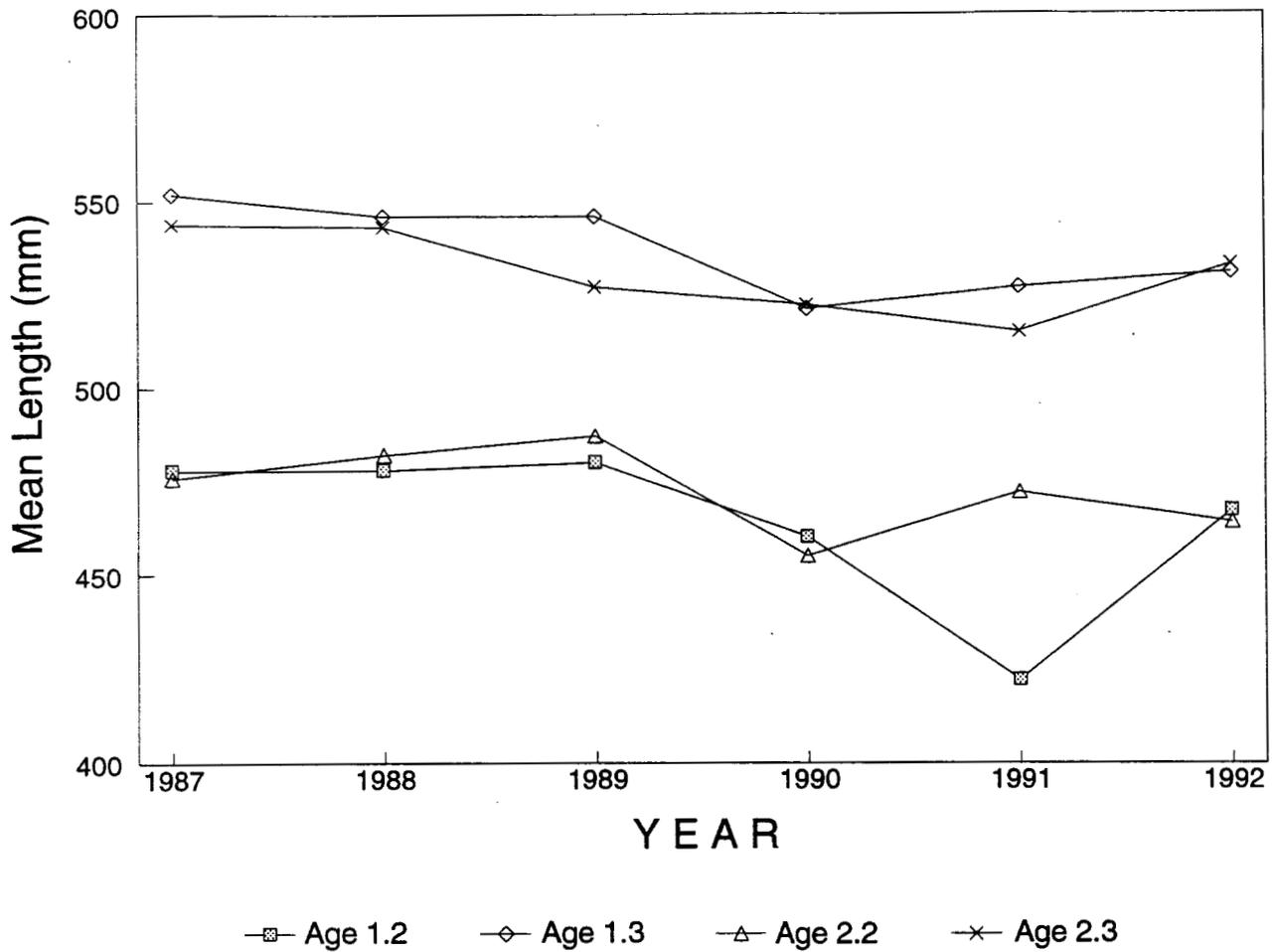


Figure 15. Trends in mean length for the principal ages of sockeye salmon in the Kasilof River escape- ment, Upper Cook Inlet, Alaska, 1987-1992.

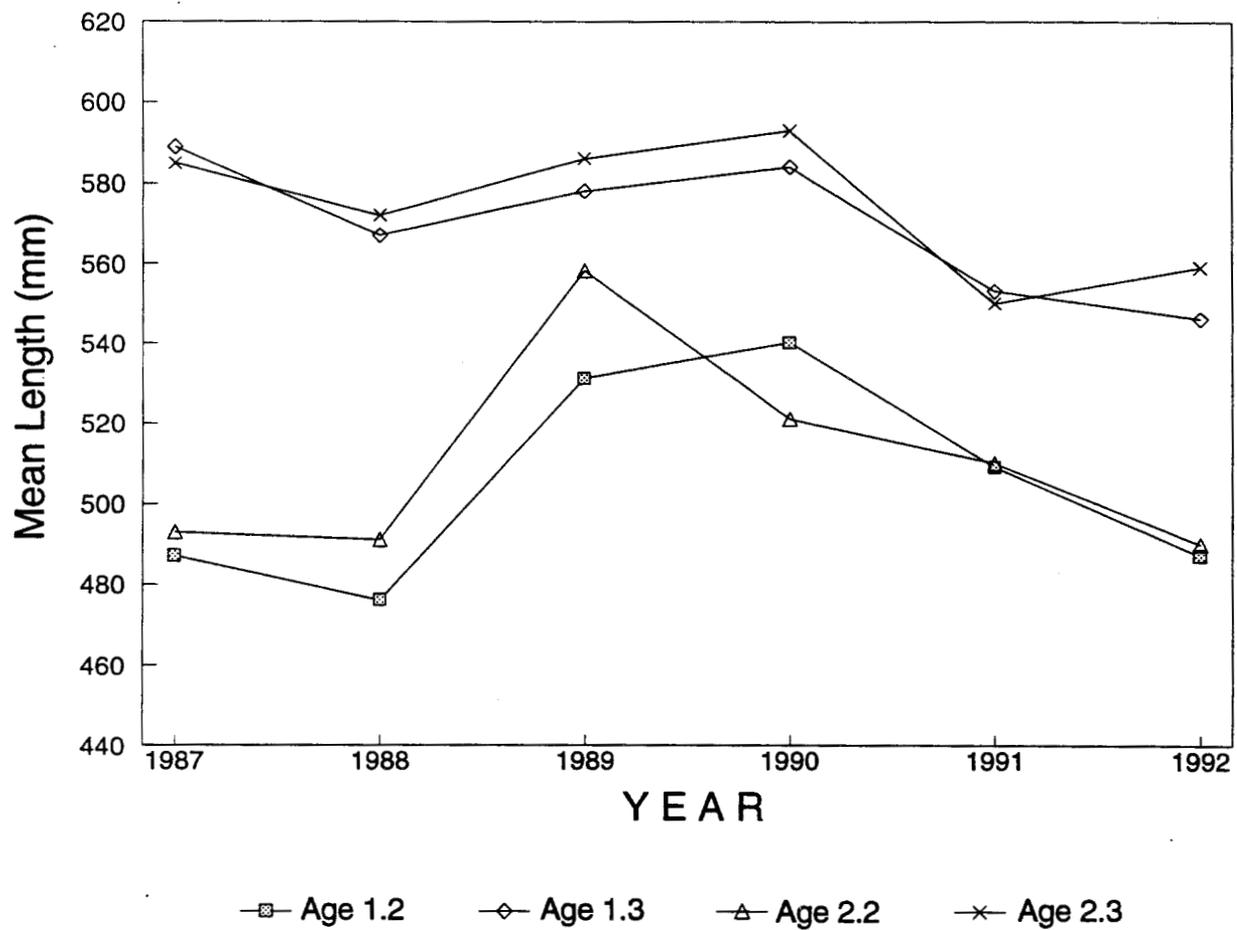


Figure 16. Trends in mean length for the principal ages of sockeye salmon in the Crescent River escapement, Upper Cook Inlet, Alaska, 1987-1992.

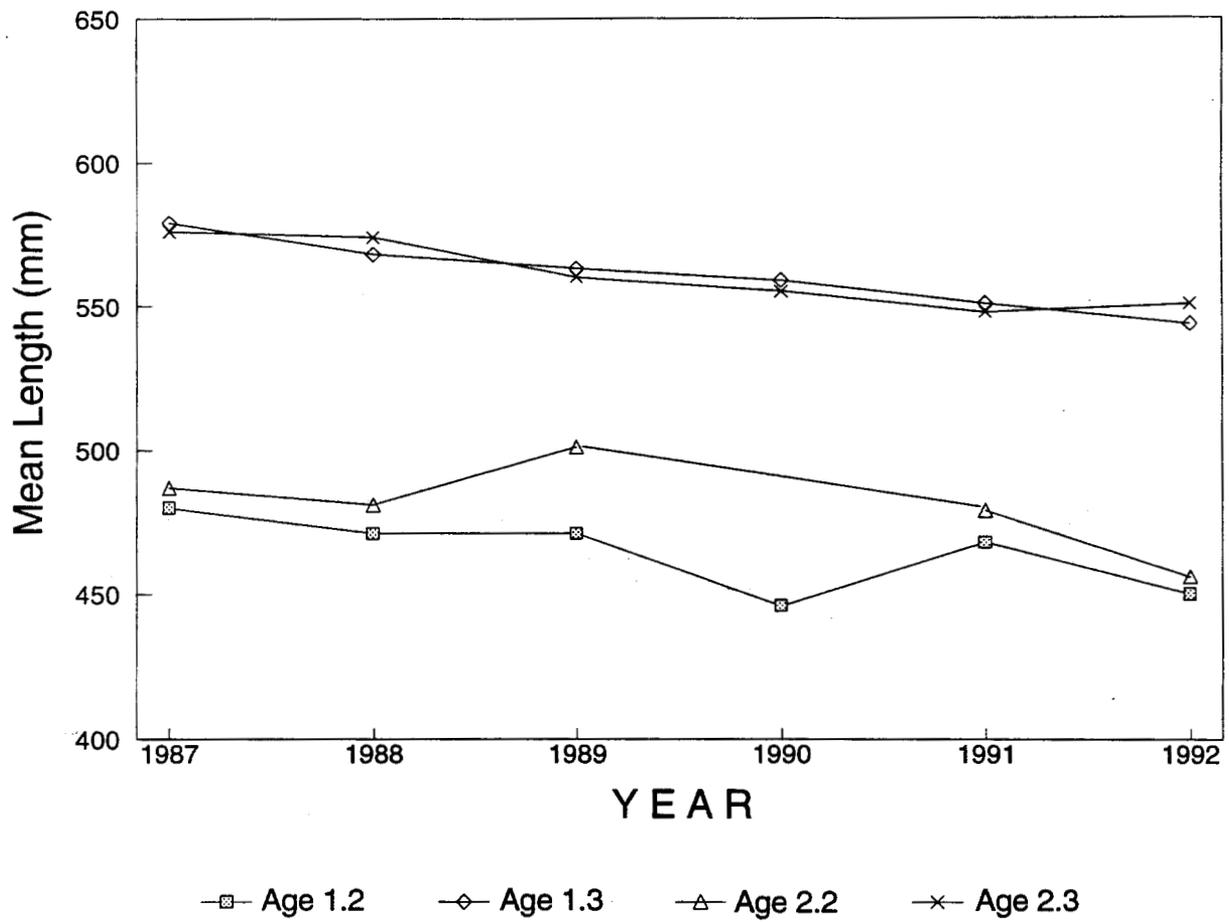


Figure 17. Trends in mean length for the principal ages of sockeye salmon in the Yentna River escapement, Upper Cook Inlet, Alaska, 1987-1992.

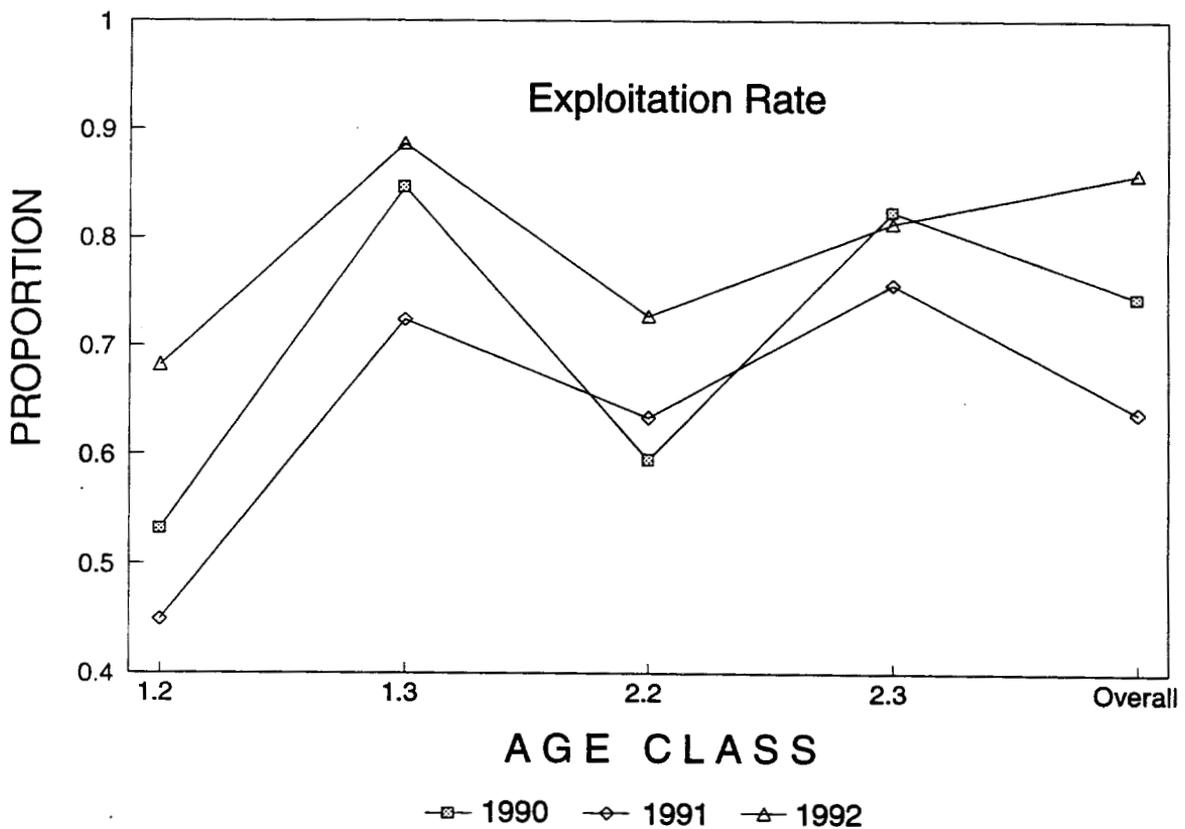
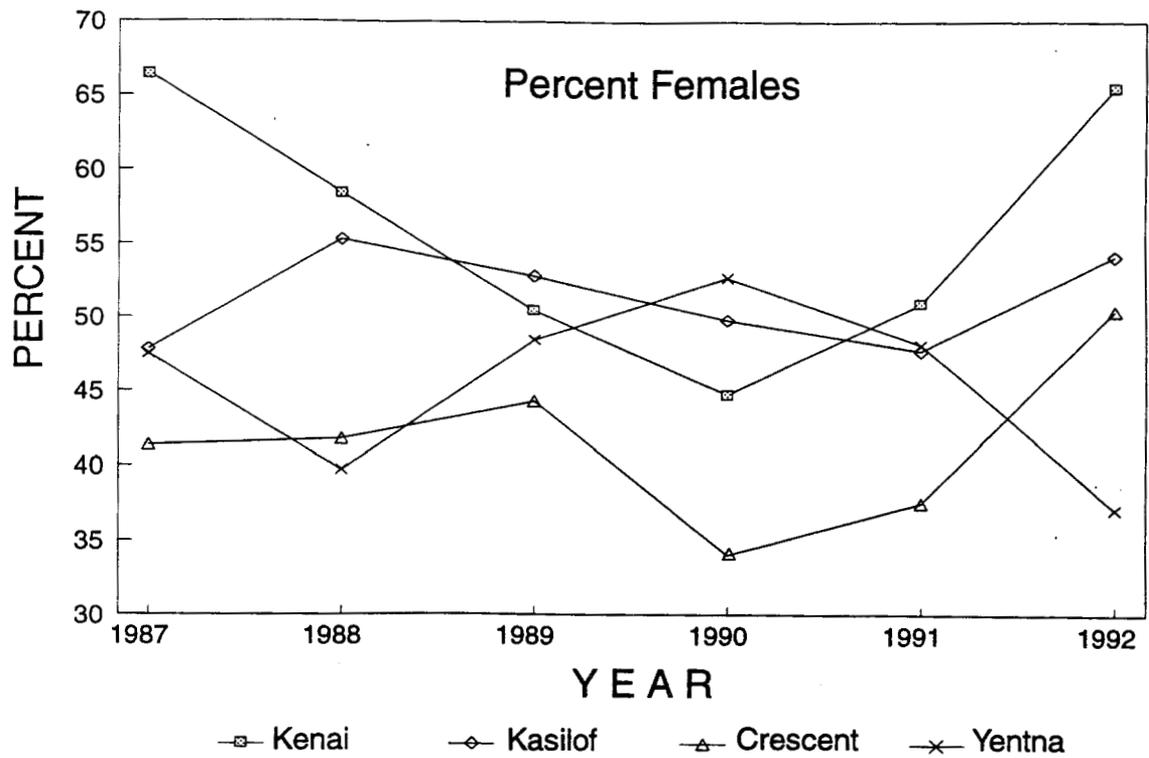


Figure 18. Female contributions to major river escapements, 1987–1992, and exploitation rates for the principal ages of all sockeye salmon commercial harvests combined, 1990–1992, Upper Cook Inlet, Alaska.

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