

**Fishery Management Report No. 06-69**

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**2004 Chignik Management Area Annual Management Report**

by

**Kenneth A. Bouwens**

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**Mark A. Stichert**

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December 2006

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries





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REPORT**

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Division of Sport Fish, Research and Technical Services  
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## ABSTRACT

This report summarizes the 2004 commercial Pacific herring *Clupea pallasii* and Pacific salmon *Oncorhynchus sp.* fisheries within the Chignik Management Area (CMA; Area L). The CMA encompasses all coastal waters and inland drainages of the northwest Gulf of Alaska between Kilokak Rocks and Kupreanof Point. While there was no 2004 commercial herring fishery in the CMA, all five species of Pacific salmon were commercially harvested: Chinook *O. tshawytscha*, sockeye *O. nerka*, coho *O. kisutch*, pink *O. gorbuscha*, and chum *O. keta* salmon. In 2004, the Chinook salmon escapement of 7,840 to the Chignik River was well above average, exceeding the escapement goal range of 1,300 to 2,700 Chinook salmon. The 2004 Chignik River early-run sockeye salmon escapement of 363,800 met the early-run escapement goal range of 350,000 to 400,000 fish. The late-run sockeye escapement of 214,459 also met the late-run escapement goal range of 200,000 to 250,000 fish. A total of 87 Chignik CFEC permit holders chose to join the cooperative fleet in 2004, while 13 permit holders fished competitively. The majority of the fishing effort in the 2004 season was by the cooperative fleet. The majority of the CMA salmon harvest occurred in the Chignik Bay District. The 2004 total (including ADF&G test fishery harvests and those sockeye salmon retained as home pack) CMA sockeye salmon harvest of 704,652 fish was less than half the recent 5-, 10-, and 20-year average harvests. The cooperative fleet harvested a total of 605,288 sockeye salmon, or 86.6% (allocation = 87.0%) of the CMA sockeye salmon harvest. The competitive fleet harvested a total of 93,445 sockeye salmon, or 13.4% (allocation = 13.0%) of the CMA sockeye salmon harvest.

Key words: Chignik, salmon, Alaska Board of Fisheries, 2004 commercial fisheries management, harvest statistics, escapement statistics, Chignik cooperative salmon fishery.

## INTRODUCTION

The Alaska Department of Fish and Game (ADF&G) manages all Pacific herring *Clupea pallasii* and commercial salmon *Oncorhynchus sp.* fisheries within the Chignik Management Area (CMA; Area L). Five species of Pacific salmon are commercially harvested in the CMA: Chinook *Oncorhynchus tshawytscha*, sockeye *O. nerka*, coho *O. kisutch*, pink *O. gorbuscha*, and chum *O. keta* salmon. ADF&G manages the salmon fisheries within the CMA to achieve established escapement goals while allowing the harvest of surplus production.

The CMA encompasses all coastal waters and inland drainages of the northwest Gulf of Alaska between Kilokak Rocks and Kupreanof Point (Figure 1). The CMA is divided into five fishing districts: Eastern, Central, Chignik Bay, Western, and Perryville districts. These districts are further broken down into sections and statistical reporting areas (Figure 2). Commercial salmon fishing within the CMA is the economic mainstay for five villages: Chignik Bay (Anchorage Bay), Chignik Lagoon, Chignik Lake, Perryville, and Ivanof Bay (Figure 1). The shore-based processing facilities are located near the village of Chignik Bay.

This report provides a summary of the 2004 commercial herring and salmon fishing activity, harvests, and escapements in the CMA. The current Westward Region electronic fish ticket and escapement databases contain historical data from 1970 to the present, and are updated as required. Most tables in this report have been verified against these databases and, therefore, the data published in this report supersede data previously published. The salmon harvest estimates reported in this document were summarized from the Westward Region fish ticket database on October 9, 2006.

## NOVEMBER 2003 ALASKA BOARD OF FISHERIES MEETING

The Alaska Board of Fisheries (BOF) met in November 2003 to review the Chignik Cooperative Purse Seine Salmon Fishery Management Plan. At that meeting, a summary of the second season under the cooperative salmon fishery system (Pappas and Clark 2003) as well as a summary of

the monitoring project conducted by ADF&G to assess the impacts of the fixed-leads operated by the cooperative fleet were presented to the BOF (Clark and Bouwens 2003).

Five proposals addressing the Chignik cooperative fishery were also reviewed by the BOF. Three of these proposals requested the removal of the allocation between the cooperative and competitive fleets. One proposal requested the BOF repeal the commissioner's permit that authorized the use of fixed leads within the CMA, and another asked to modify the allocations between the fleets. These proposals either failed or no action was taken on them by the BOF.

The Chignik Seafood Producer's Alliance (CSPA) submitted several proposals to modify gear and fish ticket requirements to increase their efficiency. However, the BOF did not make any changes concerning gear types or reporting requirements in regulation. Instead, the BOF delegated the authority to ADF&G to draft Commissioner's permits to resolve these issues adequately.

The Village of Chignik Lake additionally petitioned the BOF to increase the total August escapement objectives from 50,000 to 75,000 sockeye salmon to allow for more subsistence fishing opportunities on late-season sockeye salmon. This petition was denied based on biological information presented by ADF&G that indicated additional escapement to the Chignik watershed would have a negative impact on the overall Chignik River watershed sockeye salmon production.

## **COMMERCIAL HERRING**

### **HERRING MANAGEMENT OVERVIEW**

Herring may be harvested in the CMA from April 15 through June 30 (sac roe season) and from August 15 through February 28 (food and bait season), although specific commercial herring fishing periods and areas are allowed only by emergency order (5 AAC 27.560). Herring may be taken only by purse seines not more than 1,000 meshes in depth and 100 fathoms in length (5 AAC 27.575, 2004).

There are several distinct fishing grounds within the CMA where herring are managed as separate stocks (Table 1). Each individual area is managed on a maximum exploitation rate of 20%, given that a threshold biomass is available for harvest. Threshold biomass levels are determined prior to the fishing season after aerial survey estimates are conducted and potential effort levels are determined.

### **Historical Data**

Commercial herring harvests were not recorded in the CMA until 1980 (Nicholson et al. 1980). In years that harvests occurred, herring harvests ranged from a minimum of six tons in 1996 to 587 tons in 1980 (Table 2). The last commercial herring harvest in the CMA occurred in 1996 (Table 2; Bouwens and Poetter 2006). Recently there has been no interest in herring fishing in the CMA due to poor market conditions and low herring biomass. The CMA herring biomass has not been systematically surveyed by ADF&G since 1996.

### **2004 Herring Fishery**

There were no 2004 herring fishery in the CMA; no guideline harvest levels were set due to the lack of industry interest.

# COMMERCIAL SALMON

## OVERVIEW OF MANAGEMENT PLANS

The 2004 Chignik commercial salmon fishery was managed based on two management plans: the Chignik Salmon Management Plan, 5 AAC 15.357, and the Chignik Area Cooperative Purse Seine Salmon Fishery Management Plan, 5 AAC 15.359. Sockeye salmon bound for the Chignik watershed were also allocated under two additional management plans: the Cape Igvak Salmon Management Plan 5 AAC 18.360 in the Kodiak Management Area (Area K), and the Southeastern District Mainland (SEDM) Salmon Management Plan 5 AAC 09.360 in the Alaska Peninsula Management Area (Area M).

### **Chignik Salmon Management Plan**

The Chignik Salmon Management Plan (5 AAC 15.357) was originally adopted in 1999. The goal of this plan was to allow traditional salmon fisheries in the CMA while achieving the biological escapement goals (BEGs) for both early-run (Black Lake), and late-run (Chignik lake) Chignik River watershed sockeye salmon. Purse seines and hand purse seines were the only legal commercial salmon fishing gear within the CMA. Legal seine gear ranged from 100 to 125 fathoms in length in the Chignik Bay District and from 100 to 225 fathoms in length in all other districts. Leads up to 75 fathoms in length were allowed. The management plan was organized into districts or groups of districts: the Chignik Bay and Central districts, the Eastern District, and the Western and Perryville districts.

### **Chignik Area Cooperative Purse Seine Salmon Fishery Management Plan**

The Chignik Area Cooperative Purse Seine Salmon Fishery Management Plan, (5 AAC 15.359, 2004) was adopted in the spring of 2002, and amended in the falls of 2002 and 2003. The purpose of this management plan was to establish the criteria and management measures for the cooperative salmon fishery in the CMA.

### **Conditions Required to Form a Cooperative**

At least 51 Chignik Area Commercial Fisheries Entry Commission (CFEC) permit holders must have applied, together, to the commissioner of ADF&G by March 1 of every year to fish as a cooperative. Other Chignik CFEC permit holders were given until March 15 of each year to join this cooperative group. Those who elected to join the cooperative after the March 1 deadline were, by regulation, given the same terms as those who applied prior to March 1. All CFEC permit holders that elected to join the coop were only allowed to participate in the Chignik cooperative fishery, and were not allowed to participate in any other salmon fishery statewide from June 1 to August 31.

### **Allocation Criteria**

In 2002, the BOF determined that an allocation between the cooperative and competitive fleets was necessary for the cooperative fishery to achieve their goals of reducing overhead expenses associated with commercial fishing and increasing product quality. The BOF originally set the criteria to calculate the allocation based on the number of CFEC permit holders that joined the cooperative (Bouwens and Poetter 2006). However, these criteria were modified in 2003 by the BOF such that Chignik Area CFEC permit holders were allocated by fleet, a percentage of the annual Chignik Area commercial sockeye salmon harvestable surplus, using the following three criteria:

- 1) If participation in the cooperative is less than 80 percent of the registered Chignik Area CFEC purse seine permit holders, the allocation to the annual cooperative fishery will be nine-tenths of one percent of the harvestable surplus for each participant in the cooperative,
- 2) If participation in the cooperative is 80 percent but less than 85 percent of the registered Chignik Area CFEC purse seine permit holders, the allocation to the annual cooperative fishery will be ninety-five hundredths of one percent of the harvestable surplus for each participant in the cooperative, and
- 3) If participation in the cooperative is 85 percent or more of the registered Chignik Area CFEC purse seine permit holders, the allocation to the annual cooperative fishery will be one prorated share of the harvestable surplus for each participant in the cooperative.

### **Management of Allocation**

The Chignik Area Cooperative Purse Seine Fishery Management Plan gave ADF&G the mandate of managing the fishery so that the two fleets (cooperative and competitive) achieved their sockeye salmon harvest allocation as closely as possible. It was noted, however, that the allocation was secondary in importance to achieving escapement and overall harvest objectives.

Generally, the early sockeye salmon run builds quickly. Thus, the cooperative management plan removed the escapement and lagoon build-up criteria used in the past for opening the initial fishery in the Chignik Bay and Central Districts because there was concern that the harvesting power of the smaller fleets might not be able to stop a large run. Instead, the commercial fishery was opened after June 1 (after achieving interim escapement objectives) with the goal of preventing a large escapement and build-up of salmon in the lagoon early in the season.

Another management tool that resulted from the cooperative fishery management plan was the ability of ADF&G to impose harvest limits. Because the cooperative fleet acted as one stakeholder, the department could impose limits on that fleet to ensure escapement needs were being met while allowing harvest of excess sockeye salmon. This allowed for harvests in times that, under a competitive fishery scenario, the fishery would have been closed.

### **Review of Management Plan**

In 2004, the BOF recognized there was potential for conflict and unforeseen problems upon implementation of the cooperative management plan. Therefore, the BOF decided to accept and consider proposals regarding the Chignik Area Cooperative Purse Seine Fishery Management Plan at its first fall meeting of each year.

### **Commissioner's Permits**

ADF&G was given authority by the BOF to draft Commissioner's permits regarding gear modification and catch reporting requirements not addressed in regulation. This action gave ADF&G and stakeholders time and flexibility to resolve these issues adequately. In total, four Commissioner's permits and two amendments were issued in 2004 (Appendices A1 to A6).

One Commissioner's permit allowed the cooperative fleet to use fixed-leads in the Pillar Rock area located upstream from the traditional upper closed-water markers in Chignik Lagoon (Appendix A2; Figure 3). The leads acted to concentrated returning sockeye salmon and allowed the cooperative fleet to increase their harvesting efficiency at a relatively low cost. ADF&G also used the provisions of this permit to better manage the fishery. For example, the cooperative fleet was required to use the leads to increase harvest (offset the limited harvest capacity of the fleet)

when sockeye salmon escapements exceeded interim objectives. Conversely, ADF&G required the cooperative fleet to either tie the leads up to the cork lines, or to remove the leads from the water entirely when escapements were below interim objectives. This permit was amended during the 2004 season to allow the cooperative fleet to use the leads differently than originally planned (Appendix A3 and A4).

The second Commissioner's permit allowed the cooperative fleet to record multiple daily deliveries from one catcher vessel to one tender on a single fish ticket (Appendix A5). To increase product quality, fish caught by the cooperative fleet were either brailled directly, or pumped alive from the catcher boat's seine onto a tender. Thus, the harvesting and tendering practices of the cooperative fleet precluded the efficient use of the normal fish ticket procedures because fish were not held on board the catcher vessels. This permit eliminated the need to generate separate fish tickets for every catcher vessel set. However, the permit had provisions governing the estimation of the amount, weight, and species composition of the harvest. Because the catch from several catcher boats were mixed on one tender, the processor was required to generate an accurate account of the harvest in each tender load, and assign the number, weight, and species composition of the catch back to the individual catcher boats within three days of the actual harvest. This information was generally available to ADF&G the next morning and the differences between the catch estimates, as generated by the tenders and the processors, were minor and deemed acceptable for inseason management purposes.

The third Commissioner's permit allow the cooperative fleet and the processors to hold live fish in net pens for up to three days pending processing (Appendix A6). Holding live fish was a key component in the cooperative's strategy to increase product quality.

The final Commissioner's permit allowed the cooperative fleet to use 225 fathom seines within certain portions of the Chignik Bay District (Appendix A1). This was also an attempt to increase the efficiency of the cooperative fleet.

### **Cape Igvak Salmon Management Plan**

The 2004 CMA salmon fishery was also influenced by the Cape Igvak Salmon Management Plan (5 AAC 18.360, 2004). The Cape Igvak Section is the westernmost component of the Kodiak Management Area (Area K), located directly to the east of the CMA (Figure 1). If the harvestable surplus of sockeye salmon in the CMA is above or expected to be above certain thresholds (5 AAC 18.360 (a-c)), then 15% of the total Chignik sockeye salmon harvest (including sockeye salmon caught at Cape Igvak and within certain portions of SEDM) is allocated to Area K fishermen. Based on this management plan, 90% of the sockeye salmon harvested within the Cape Igvak Section are considered to be Chignik-bound. This management plan is in effect from the beginning of the fishing season through July 25. After July 25, there are no allocative ties between the CMA and Area K.

### **Southeastern District Mainland Salmon Management Plan**

Some of the sockeye salmon harvested by Area M fishermen under the Southeastern District Mainland (SEDM) Salmon Management Plan (5 AAC 09.360, 2004) are also allocatively considered Chignik-bound. The SEDM is composed of a group of sections on the eastern end of Area M, located directly southwest of the CMA (Figure 1). The allocation is calculated similarly to the Cape Igvak plan; if the harvestable surplus of sockeye salmon in the CMA is expected to exceed certain thresholds (5 AAC 09.360 (a-g)), then 6% of the total Chignik sockeye salmon

harvest (including sockeye salmon caught at Cape Igvak and sockeye salmon caught within certain portions of the SEDM during specific times) is allocated to SEDM fishermen. Based on this management plan, 80% of the sockeye salmon harvested within certain SEDM sections during specific times are considered to be Chignik-bound. This management plan is in effect from June 1 through July 25. After July 25, there are no allocative ties between the CMA and Area M.

## **2004 SALMON MANAGEMENT**

The Chignik salmon fishery was managed under Emergency Order (EO) authority, utilizing 30 EOs in 2004 (Appendix B1). Limnology data suggested that the forage base for sockeye salmon has been depressed in Chignik Lake from 2000 through 2003 (Bouwens and Finkle 2003a,b; Finkle 2005; Finkle and Bouwens 2001). ADF&G recommended targeting the lower bound of the escapement goals in 2004 to relieve grazing pressure on the zooplankton in Chignik Lake in hopes of improving juvenile sockeye salmon production (Table 3; Appendix C1).

A total of 87 Chignik CFEC permit holders chose to join the cooperative fleet in 2004, while 13 permit holders chose to fish competitively. The cooperative fleet shared 87.0% of the harvestable surplus of sockeye salmon while 13.0% was allocated to the competitive fleet (Table 4). The first commercial fishing period began on June 4, and the last commercial fishing period ended on August 19. Commercial salmon fishing was allowed during at least portions of 60 days during June through August 2004 (Figure 4). The cooperative and competitive fleets were typically provided separate fishing periods to harvest their allocations.

NorQuest Seafoods Inc., Alaska Catch LLC, and Island Fish Co. LLC, purchased salmon caught in the CMA in 2004. NorQuest was a shore-based processor located near the City of Chignik Bay, and Alaska Catch operated a floating processor in Anchorage Bay. Island Fish Co. was a shore-based processor located in the City of Kodiak.

The Chignik Area Salmon Management Task Force (CHASM) was established at the BOFs direction to provide a mechanism for ADF&G to discuss management options with the stakeholders without contacting the entire fleet. The group was composed of fishermen from both fleets, the processors, and ADF&G. A CHASM meeting was held on June 2, to discuss the 2004 CMA commercial salmon fishery. Notes from this meeting are located in Appendix D1.

### **Cooperative Fleet**

The majority of the 2004 fishing effort was by the cooperative fleet. The cooperative fleet began commercial salmon fishing on June 4 and ended for the season on August 19 (Figure 4). The CMA was open to commercial salmon fishing by the cooperative fleet for at least portions of 55 days in 2004.

The cooperative fleet was placed on harvest limits on 24 separate days over the season. The limits for the cooperative fleet ranged from a low of 3,000 sockeye salmon to a high of 20,000 sockeye salmon per day (Table 5). Some days the actual harvest was substantially over or under the limit, but overall the cooperative harvest was 1.7% less than the sum of the harvest limits (Table 5).

The cooperative fleet employed the fixed-leads for approximately 38 days in 2004 (Figure 5). Generally, the leads were attached to the shore and installed perpendicular to the flow of the stream for about half of their length. An anchor was set at the point near mid-channel, and the

remainder of the net was stretched downstream parallel to the shore, and then hooked back upstream to form a “J” shape. At or near high tide, a seine vessel made a “round haul” downstream of the leads to harvest the fish that had accumulated behind the leads.

A portion of the salmon harvested by the cooperative fleet in 2004 was delivered alive to the processors. The fish were either brailed or transferred alive with a fish pump from the seine into the tanks of a tender vessel. These tenders were equipped with oxygenation units to maintain water quality in the tanks. The fish were then delivered alive to the holding pens located at the processor in Chignik Bay.

When dead salmon were to be delivered to the processor (traditional delivery method), the salmon were brailed directly from the seines of the catcher boats into tenders equipped with refrigerated seawater (RSW) holds. This eliminated two handling steps in the delivery process; one from the seine to the hold of the catcher boat and a second from the hold of the catcher boat to the hold of a tender.

### **Competitive Fleet**

A total of 13 Chignik CFEC permit holders were eligible to fish competitively in 2004. Commercial salmon fishing began for the competitive fleet on June 18 and ended for the season on August 19. The CMA was open to commercial salmon fishing for the competitive fleet for at least portions of 9 days in 2004 (Figure 4).

### **Chignik Bay and Central Districts Commercial Salmon Fishery**

The entire 2004 CMA commercial salmon fishery occurred in the Chignik Bay and Central districts. More specifically, all commercial salmon harvest took place within the single statistical area that encompasses Chignik Lagoon (Figure 2) except one delivery. Therefore, the majority of the management of the Chignik salmon fishery will be described under this section.

The commercial salmon fishery began on June 4. The Chignik Lagoon markers were placed at Humes Point during the first 24 hours of this fishing period, after which they were moved to Pillar Rock. Generally, the Humes Point markers were used during the first 24 hours of a commercial fishing period after an extended closure to allow the salmon above these markers to escape the fishery. Sockeye salmon occasionally spent a considerable amount of time in Chignik Lagoon, which degraded the quality of the fish caught in the upper lagoon. Using the Humes Point markers allowed these poor quality fish to escape the fishery. The Humes Point markers were also used on several occasions to increase escapement, especially when it was suspected that fish were holding in the lagoon. This also allowed ADF&G to assess the magnitude of ‘new fish’ entering the lagoon by concentrating the effort in the lower lagoon.

The Chignik Bay and Central Districts were open to commercial salmon fishing through June 23. The cooperative fleet fished for the majority of this period, although there was one 24-hour commercial fishing period for the competitive fleet beginning June 18 and ending June 19. The Chignik Lagoon markers were placed at Mensis Point (Figure 3) during this period. On a few occasions the cooperative fleet, at ADF&G’s request, shifted their effort below the Humes Point markers (Figure 3) or they lifted the lead lines of one or both leads to increase escapement. However, the commercial fishing effort matched the magnitude of the run, and additional management actions were not required until June 16, when a relatively generous harvest limit (15,000 sockeye salmon) was imposed on the cooperative fleet. The cooperative fleet fishery was closed and subsequently opened for the competitive fleet for 24 hours on June 18 and 19. The

fishery was reopened for the cooperative fleet after this period. Limits were imposed on the cooperative fleet on June 20 and 21, after which the commercial salmon fishery for both fleets closed beginning June 23 (Table 5).

The commercial salmon fishery again reopened to the competitive fleet for 24 hours on June 25 and June 26. The Chignik Lagoon markers were at Humes Point during this period. The markers were moved to Pillar Rock and the commercial fishery reopened for the cooperative fleet on June 26 through July 4. The lagoon markers were briefly moved to Humes Point on June 29 and June 30, after which the markers were moved back to Pillar Rock, reducing the closed waters. Harvest limits were imposed on June 27 and 30, and again on July 1. The Chignik Lagoon markers were moved to Mensis Point and the commercial fishery was opened for the competitive fleet for 24 hours beginning 11:59 PM on July 4 (Figures 3 and 4).

Commercial salmon fishing reopened to the cooperative fleet on July 6 and remained open through July 15. Harvest limits were imposed for most of this period (Table 5). The Chignik Lagoon markers were moved to Mensis Point and commercial salmon fishing was again opened to the competitive fleet for 24 hours on July 16 and 17. This was the last 2004 competitive commercial salmon fishing period in the Chignik Bay and Central Districts (Figures 3 and 4).

Commercial salmon fishing continued for the cooperative fleet on July 19 through July 24. The lagoon markers were at Humes Point during the first 24 hours, after which they were moved to Pillar Rock. Harvest limits were imposed every day during this period (Table 5; Figures 3 and 4).

The fishery was closed to obtain escapement from July 24 to July 27, then reopened to the cooperative fleet through July 29. Like earlier in the season after a closure, the markers were set at Humes Point and then moved to Pillar Rock after 24 hours. Harvest limits were in effect during this entire period. Commercial fishing began again for the cooperative fleet on July 31. Due to low sockeye salmon escapements during late July and early August, the cooperative fleet reduced their effort to match escapement requirements and reduce costs. During this period, the fishery was managed conservatively by announcing 24-hour extensions in fishing time when daily escapement thresholds were met. This commercial fishing period ended on August 2, after escapements fell below these interim objective thresholds. The fishery was opened to the cooperative fleet on August 5 when escapement levels increased and remained open until August 8. The cooperative fleet voluntarily reduced their effort due to the overall low abundance of salmon in the lagoon. Therefore, with the exception of August 2, harvest limits were not necessary in August. There were no subsequent commercial salmon fishing periods in the Chignik Bay and Central Districts in 2004 (Table 5; Figures 3 and 4).

### **Eastern District Commercial Salmon Fishery**

By regulation (5 AAC 15.357(c), 2004), the Eastern District opened concurrently with the Chignik Bay and Central Districts in June. The Eastern District was also opened concurrently with the Chignik Bay and Central Districts through the end of July. There was no commercial salmon fishing effort in the Eastern District in 2004.

There was some interest by local processors to open the Eastern District to target dark chum salmon. On two occasions (approximately July 31 and August 10), a harvestable surplus of chum salmon was observed in two separate bays. However, the processors were not interested in purchasing dark chum salmon on either of these occasions.

## **Western and Perryville Districts Commercial Salmon Fishery**

The Western and Perryville districts are closed to commercial salmon fishing by regulation in June (5 AAC 15.357(d), 2004). Beginning approximately July 6, these districts can be opened on a commercial test fishery basis targeting migrating pink and chum salmon. Once these fish begin entering local streams, management of these stocks shifts to an escapement-based strategy. On July 23 ADF&G was notified that a buyer from outside the CMA was interested in purchasing bright pink and chum salmon. CHASM members from both fleets were notified of this potential commercial test fishery and reminded that all sockeye salmon caught in this fishery would count toward their allocation. Both fleets chose not to participate in this fishery and the Western and Perryville districts were not opened.

On August 17 aerial survey information indicated a harvestable surplus of dark chum salmon within Ivanof Bay (Figure 2). A local processor indicated interest in purchasing these salmon and a commercial salmon fishery was announced for both fleets within Ivanof Bay for 12 hours on August 19. However, there was no participation in this fishery.

## **ESCAPEMENT AND HARVEST DATA**

### **Stock Separation Techniques**

Two distinct sockeye salmon runs (an early and late run) enter the Chignik River system and temporally overlap during late June and early July. Prior to 2004, scale pattern analysis (SPA) was used to differentiate stock composition during this time, and the fishery was managed based on the results of this analysis. The SPA program was discontinued prior to the 2004 season due to funding limitations. However, it found, on average, the number of early-run sockeye salmon that passed the Chignik weir after July 4 was approximately equal to the number of late-run sockeye salmon that passed the weir prior to July 4 (Appendix E1).

### **Escapement Information**

All salmon and Dolly Varden *Salvelinus malma* escapements to the Chignik River were enumerated through the use of a weir. There were two gates in the weir, which were generally always open to allow for unrestricted passage. Underwater video equipment was used to count the fish passing through the gates in the weir. At night, lights allowed fish to be counted. Video recordings of the escapement were made 24 hours a day and archived. The numbers of fish passing the weir, by species, were counted for the first 10 minutes of each hour, then multiplied by six to obtain hourly escapement estimates. Hourly estimates were then summed to provide an estimate of daily fish passage.

The majority of the Chignik River Chinook, sockeye, pink, and chum salmon escapements were counted through the weir. The first count of the 2004 season was on May 30, and the last full count of the season was on September 4 after which the weir was removed. A post-weir sockeye salmon escapement estimate was produced using time series analysis and the results were reported grouping the data into periods from September 5 to 15 and from September 16 to 30. The coho salmon run was still building when the weir was removed, and therefore the coho salmon counts were considered incomplete and it was not possible to estimate the post-weir coho salmon escapement. Therefore, there are no coho salmon escapement goals established for the CMA (Nelson and Lloyd 2001).

Aerial surveys were flown on the spawning grounds of the Chignik watershed to assess sockeye salmon spawning escapement levels and distribution. Escapements to other CMA streams were also estimated via aerial survey. Surveys were flown at regular intervals, and total escapement was estimated using the area-under-the-curve (AUC) methods of Johnson and Barrett (1988). All aerial survey data were documented in the Westward Region Stream Survey Database.

### **Chinook Salmon**

The Chinook salmon run began entering the Chignik River in early-June, peaked in mid-July, and was over by late-August (Table 6; Figure 6). The 2004 Chignik River Chinook salmon escapement of 7,840 was almost double the most recent 5-, 10-, and 20-year averages (Table 7) and substantially exceeded the Chignik River Chinook BEG range of 1,300 to 2,700 fish (Figure 7; Nelson and Lloyd 2001). The Chignik River is the only stream with substantial Chinook salmon production within the CMA.

### **Sockeye Salmon**

The Chignik River sockeye salmon early run typically peaks in late June while the late run peaks in July (Figure 8). The 2004 total estimated escapement for Chignik River sockeye salmon was 578,259 fish (Tables 8 and 9), which was well below recent 5-, 10-, and 20- year escapement averages (Table 10). The early-run was estimated at 363,800 sockeye salmon, which achieved the early-run BEG range of 350,000 to 400,000 fish (Table 9). The late-run was estimated at 214,459 sockeye salmon, which achieved the late-run sockeye salmon BEG range of 200,000 to 250,000 fish (Table 9). Each run was below recent 5-, 10-, and 20- year averages (Table 10).

Peak aerial survey counts of spawning sockeye salmon in the Chignik River watershed were lower than the recent 5-, 10-, and 20-year averages (Tables 11 and 12). However, aerial surveys of these streams were not flown as often or as thoroughly as in some other years, and the actual peaks may not have been documented.

Sockeye salmon escapements were documented, via aerial survey, in low numbers (generally less than 5,000 fish) in several other CMA streams. Due to small run sizes and limited effort, escapement goals for these streams have not been established (Nelson and Lloyd 2001).

### **Coho Salmon**

Coho salmon enter CMA drainages in mid-August and continue through November. The 2004 Chignik River coho salmon escapement estimate through September 4 (weir removed September 5) was 18,810 (Table 6), which was over three times larger than the most recent 5-year average escapement (Table 7). Coho salmon escapements were monitored, via aerial survey, in low numbers (generally less than 5,000 fish) in several other CMA streams.

Due to late season run timing and limited directed effort, escapement goals for coho salmon have not been established in the CMA (Nelson and Lloyd 2001).

### **Pink Salmon**

Pink salmon enter the Chignik River in July and August. The 2004 Chignik River pink salmon escapement was 2,243 salmon (Table 6), which was slightly less than the recent 10-year average escapement (Table 7).

Escapements into other CMA streams were monitored via aerial survey and summed for each district. Escapement totals were then compared to the district Sustainable Escapement Goals

(SEGs) to evaluate 2004 pink salmon run strength (Nelson and Lloyd 2001). The SEGs for all CMA districts were exceeded in 2004 (Table 13). The overall combined escapement of approximately 1.11 million pink salmon exceeded the sum of the combined district SEGs (779,500; Table 13).

### **Chum Salmon**

A limited number of chum salmon return to the Chignik River, mainly in August (Table 6). The 2004 Chignik River chum salmon escapement was 276 fish, which was above the recent 5-year average escapement (Table 7).

Escapements into other CMA streams were monitored via aerial survey and summed for each district. Escapement totals were then compared to the district Sustainable Escapement Goals (SEGs) to evaluate 2004 chum salmon run strength (Nelson and Lloyd 2001). Despite limited commercial fishing effort on these stocks, only the Eastern District SEG was met (Table 14). However, the overall combined escapement of approximately 350,000 chum salmon exceeded the sum of the district SEGs (206,700; Table 14).

### **Harvest Information**

The 2004 commercial salmon harvest was organized into four categories. The first category included fish that were commercially harvested but retained for personal consumption (home pack). The second category included salmon that were harvested and sold as part of ADF&G test fishery program. The third category included sockeye salmon commercially harvested by the cooperative and competitive fleets within the CMA. The final category included sockeye salmon commercially harvested under the Cape Igvak and SEDM management plans. For allocative purposes, the BOF has determined that specific portions of these harvests were considered bound for the Chignik River.

Salmon harvested under subsistence regulations or ADF&G Chignik test fishery were not included in any of the current harvest allocations. Home pack fish were included in the within-CMA sockeye salmon allocation scheme (cooperative versus competitive fleet), but not in the Cape Igvak and SEDM allocations.

### **Chinook Salmon**

A total of 2,520 Chinook salmon were harvested in 2004, which was about half of the 20-year average Chinook salmon harvest (Table 15). Four of these salmon were harvested as part of ADF&G test fishery program, and 179 were retained as home pack (Table 16). All of the CMA Chinook salmon harvest in 2004 took place in the Chignik Bay District (Table 17). Most Chinook salmon were harvested from late-June through mid-July in 2004 (Table 18).

### **Sockeye Salmon**

A total of 704,652 sockeye salmon were harvested in the CMA during 2004, which was less than half the 20-year average sockeye salmon harvest (Table 15). ADF&G's test fishery program harvested 5,919 of these salmon and an additional 1,690 fish were retained as home pack (Table 19). The vast majority of the CMA sockeye salmon harvest in 2004 came from the Chignik Bay District (Table 20). Most sockeye salmon were harvested during June and July in 2004 (Table 21).

An additional 215,788 sockeye salmon considered Chignik-bound were harvested as part of the SEDM and Cape Igvak fisheries during 2004 (Table 19). The Chignik-bound component of the

SEDM harvest was 55,123 fish and totaled 6.1% of the total Chignik-bound harvest (allocation 6.0%; Table 22). The Chignik-bound portion of the Cape Igvak harvest was 160,665 fish and totaled 17.9% of the total Chignik-bound harvest (allocation 15.0%; Table 22).

The cooperative fleet was allocated 87.0% and the competitive fleet was allocated 13.0% of the within-CMA sockeye salmon harvest (Table 4). The cooperative fleet harvested a total (including home pack) of 605,288 sockeye salmon, or 2,610 fish under their allocation of the CMA sockeye salmon harvest (Table 23; Appendix F1). The competitive fleet harvested a total (including home pack) of 93,445 sockeye salmon, or 2,610 fish over their allocation of the CMA sockeye salmon harvest (Table 23; Appendix F2).

Both Chignik River sockeye salmon runs were below average in 2004 (Table 24; Figures 9 and 10). The early run was over forecasted by approximately 13%, while the late run was over forecasted by approximately 62% (Table 25). For both runs combined, the 2004 forecast was less accurate than the recent 10-year average forecast accuracy (Table 25).

### **Coho Salmon**

Due to the limited fishing time in August and September, very few coho salmon were harvested in 2004. A total of 37 coho salmon were harvested, which was considerably less than the prior 20-year average harvest (Tables 15 and 26). All coho salmon were sold to processors by fishermen (Table 26). All coho salmon were harvested in the Chignik Bay District in late-July and August (Tables 27 and 28).

### **Pink Salmon**

Due to limited directed effort for pink salmon, the 2004 pink salmon harvest was negligible. A total of 2,308 pink salmon were harvested in 2004, which was significantly below the 5-, 10-, and 20-year average harvests (Tables 15 and 29). All pink salmon were sold to processors by fishermen (Table 29). The majority of the pink salmon harvest occurred in the Chignik Bay District between mid-July and mid-August (Tables 30 and 31).

### **Chum Salmon**

There was no directed chum salmon market in 2004. A total of 505 chum salmon were harvested in 2004, which was well below the average CMA chum salmon harvest (Tables 15 and 32). All of chum salmon were sold to processors by fishermen (Table 32). Almost all of these salmon were caught in the Chignik Bay District and were harvested between mid-July and mid-August (Tables 33 and 34).

### **Economic Value**

The exvessel value of the 2004 CMA salmon harvest was about \$3.6 million, or approximately \$36,000 per permit holder, which was a decrease from 2003 (Table 35). The vast majority of the revenue was from the sale of sockeye salmon.

### **CHIGNIK LAGOON TEST FISHERIES**

ADF&G conducts test fisheries in Chignik Lagoon for multiple purposes: 1) early-season test fisheries are used to determine build-up of salmon prior to the first commercial fishery, 2) collect sockeye salmon scale samples to determine age composition, and 3) generate revenue to pay for the vessels chartered to conduct the test fisheries. Mid- to late-season department test fisheries are conducted to 1) collect sockeye salmon scale samples during fishery closures, 2) generate

revenue to conduct the test fisheries, and 3) offset operational costs associated with the scale sampling program.

ADF&G conducted two test fisheries in 2004. The first test fishery occurred on June 23, when 3,069 sockeye salmon and 4 Chinook salmon were harvested. This fishery was conducted after the commercial fishery was closed for a short period to obtain sockeye salmon escapement in the Chignik River. Results of this test fishery indicated that substantial numbers of sockeye salmon were not holding in Chignik Lagoon. The second test fishery occurred on June 27 when a total of 2,850 sockeye salmon were harvested.

## **CHIGNIK AREA SUBSISTENCE SALMON FISHERIES**

Recently, due to the management and harvest strategies of the cooperative fishery, large pulses of salmon did not build in Chignik Lagoon or pass through the weir. Thus, early season subsistence fishing opportunities were limited by the slow movement of fish. Consequently, several subsistence users reported they had a difficult time harvesting enough salmon to meet their needs.

In response to these concerns, ADF&G worked to provide additional subsistence opportunities in 2004. By regulation (5 AAC 01.475, 2004), the Chignik River is closed to subsistence salmon fishing. However, in 2004 ADF&G allowed, through EO, subsistence users to fish for salmon within the Chignik River (excluding the area 100 yards immediately upstream and downstream of the Chignik River weir) through June 30. This action provided additional harvest opportunities on sockeye salmon while protecting spawning Chignik River Chinook salmon.

Also by regulation (5 AAC 01.485), commercial fishing license holders may not subsistence fish for salmon in the CMA beginning 48 hours before the first commercial salmon fishing period through September 30. This regulation was additionally relaxed via provisions of the 2004 subsistence fishing permit to allow fishermen to harvest subsistence fish during the commercial fishing season.

There have also been ongoing discussions about the difficulty of obtaining subsistence fish very late in the season from Chignik Lake. In 2002 and 2004 the United States Fish and Wildlife Service (USFWS) implanted radio transmitters in sockeye salmon passing the Chignik weir in August and early-September to determine when sockeye salmon harvested in this late-season subsistence fishery passed the Chignik weir. The results of these studies are described in Anderson (2005). No other actions have been taken at this time.

In 2004, ADF&G issued 104 subsistence fishing permits in the CMA. Based on the 57 permits returned ADF&G Division of Subsistence, the estimated subsistence harvest was 10,347 salmon. This harvest was below the recent 5-, 10-, and 20-year harvest averages (Table 36). Sockeye salmon comprised the vast majority of the 2004 subsistence harvest.

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## **TABLES AND FIGURES**

**Table 1.**–List of Chignik Management Area herring management units.

Area	Stat. Area(s)
Chignik Lagoon and Bay	271-10 to 272-40
Kujulik	272-50
Big River	272-60 to 272-70
Cape Kumlik	272-62 to 272-64
Yantarni	272-72 to 272-80
Chiginagak	272-90
Agripina	272-92 to 272-96
Mitrofanina	273-70 to 273-74
Dorner Bay	273-82 to 273-84
Castle Cape	273-90 to 273-94
Perryville	275-60
Humpback Bay	275-50
Ivanof Bay	275-40

**Table 2.**—Chignik Management Area commercial herring harvest, 1980 through 2004.

<u>Year</u>	<u>Harvest (tons)</u>
1980	587
1981	441
1982	190
1983	88
1984	66
1985	0
1986	11
1987	75
1988	59
1989	66
1990	0
1991	0
1992	0
1993	0
1994	0
1995	77
1996	6
1997	0
1998	0
1999	0
2000	0
2001	0
2002	0
2003	0
2004	0

**Table 3.**—Chignik River sockeye salmon interim escapement objectives, 2004.

Date	Escapement		Date	Escapement	
	Lower	Upper		Lower	Upper
June 2	500	- 1,000	August 3	3,000	- 5,000
June 4	2,000	- 3,000	August 6	5,000	- 10,000
June 6	5,000	- 7,000	August 9	10,000	- 15,000
June 8	10,000	- 14,000	August 12	15,000	- 20,000
June 10	20,000	- 25,000	August 15	20,000	- 25,000
June 12	30,000	- 40,000	August 18	25,000	- 30,000
June 14	50,000	- 70,000	August 21	30,000	- 35,000
June 16	75,000	- 110,000	August 24	36,000	- 40,000
June 18	125,000	- 160,000	August 27	43,000	- 45,000
June 20	175,000	- 220,000	August 31	50,000	- 50,000
June 22	225,000	- 275,000			
June 25	275,000	- 325,000	September 3	3,000	- 4,000
June 28	300,000	- 350,000	September 5	6,000	- 8,000
July 1	325,000	- 375,000	September 7	10,000	- 12,000
July 4	350,000	- 400,000 <sup>a</sup>	September 9	14,000	- 16,000
			September 11	18,000	- 20,000
July 6	5,000	- 10,000	September 13	22,000	- 23,000
July 8	15,000	- 20,000	September 15	25,000	- 25,000
July 10	30,000	- 40,000			
July 12	45,000	- 60,000			
July 14	56,000	- 75,000			
July 16	67,000	- 90,000			
July 19	86,000	- 115,000			
July 21	101,000	- 135,000			
July 23	120,000	- 160,000			
July 26	135,000	- 180,000			
July 29	146,000	- 195,000			
July 31	150,000	- 200,000			
<b><u>Escapement Objectives</u></b>					
<b>Through July 4:</b>				<b>350,000</b>	<b>- 400,000</b>
<b>July 5 to August 31:</b>				<b>200,000</b>	<b>- 250,000</b>
<b>Sept. 1 to Sept. 15:</b>				<b>25,000</b>	

<sup>a</sup> July 4 is historically the date on which the cumulative inseason escapement most closely approximated the early-run escapement as estimated by post-season scale pattern analysis.

**Table 4.**—Chignik Management Area fleet membership and allocations, by year, 2002 through 2004.

Year	Number of CFEC permit holders			Allocation (Percent)	
	Cooperative	Competitive	Total	Cooperative	Competitive
2002	77	22	99	69.3	30.7
2003	77	24	101	69.3	30.7
2004	87	13	100	87.0	13.0

**Table 5.**—Daily cooperative fleet sockeye salmon harvest limits, actual catch, difference, and percent difference, 2004.

Day	Limit	Actual Catch	Difference	% Difference
6/16	15,000	14,111	-889	-5.9
6/20	10,000	17,599	7,599	76.0
6/21	10,000	10,004	4	0.0
6/27	20,000	24,342	4,342	21.7
6/30	10,000	4,989	-5,011	-50.1
7/1	10,000	9,693	-307	-3.1
7/8	10,000	9,032	-968	-9.7
7/9	10,000	8,837	-1,163	-11.6
7/10	15,000	15,089	89	0.6
7/11	15,000	13,645	-1,355	-9.0
7/12	5,000	4,373	-627	-12.5
7/13	5,000	6,583	1,583	31.7
7/14	3,000	2,781	-219	-7.3
7/15	3,000	3,110	110	3.7
7/19	5,000	2,439	-2,561	-51.2
7/20	5,000	7,111	2,111	42.2
7/21	5,000	5,034	34	0.7
7/22	5,000	4,123	-877	-17.5
7/23	3,000	3,123	123	4.1
7/24	3,000	3,010	10	0.3
7/27	3,000	0	-3,000	-100.0
7/28	5,000	4,328	-672	-13.4
7/29	3,000	2,800	-200	-6.7
8/2	3,000	1,737	-1,263	-42.1
<b>Total</b>	<b>181,000</b>	<b>177,893</b>	<b>-3,107</b>	<b>-1.7</b>

**Table 6.**—Daily estimated Chignik River Chinook, coho, pink, and chum salmon and Dolly Varden escapement, 2004.

Date	Chinook		Coho		Pink		Chum		Dolly Varden	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
5/30	0	0	0	0	0	0	0	0	0	0
5/31	0	0	0	0	0	0	0	0	0	0
6/1	0	0	0	0	0	0	0	0	12	12
6/2	0	0	0	0	0	0	0	0	0	12
6/3	0	0	0	0	0	0	0	0	0	12
6/4	0	0	0	0	0	0	0	0	12	24
6/5	0	0	0	0	0	0	0	0	6	30
6/6	0	0	0	0	0	0	0	0	6	36
6/7	0	0	0	0	0	0	0	0	0	36
6/8	0	0	0	0	0	0	0	0	12	48
6/9	0	0	0	0	0	0	0	0	0	48
6/10	0	0	0	0	0	0	0	0	0	48
6/11	0	0	0	0	0	0	0	0	0	48
6/12	0	0	0	0	0	0	0	0	12	60
6/13	0	0	0	0	0	0	0	0	0	60
6/14	0	0	0	0	0	0	0	0	0	60
6/15	0	0	0	0	0	0	0	0	6	66
6/16	0	0	0	0	0	0	0	0	24	90
6/17	6	6	0	0	0	0	6	6	25	115
6/18	12	18	0	0	0	0	0	6	60	175
6/19	0	18	0	0	0	0	0	6	210	385
6/20	6	24	0	0	0	0	0	6	102	487
6/21	24	48	0	0	0	0	0	6	180	667
6/22	0	48	0	0	0	0	0	6	90	757
6/23	18	66	0	0	0	0	0	6	144	901
6/24	48	114	0	0	0	0	0	6	273	1,174
6/25	96	210	0	0	0	0	0	6	486	1,660
6/26	102	312	0	0	0	0	0	6	312	1,972
6/27	36	348	0	0	0	0	0	6	108	2,080
6/28	138	486	0	0	0	0	0	6	192	2,272
6/29	168	654	0	0	0	0	0	6	150	2,422
6/30	126	780	0	0	0	0	0	6	552	2,974
7/1	146	926	0	0	0	0	0	6	648	3,622
7/2	138	1,064	0	0	0	0	0	6	468	4,090
7/3	90	1,154	0	0	0	0	0	6	732	4,822
7/4	141	1,295	0	0	0	0	6	12	270	5,092
7/5	331	1,626	0	0	0	0	0	12	732	5,824
7/6	156	1,782	0	0	0	0	0	12	594	6,418
7/7	91	1,873	0	0	6	6	0	12	406	6,824
7/8	199	2,072	0	0	0	6	6	18	642	7,466
7/9	181	2,253	0	0	0	6	0	18	738	8,204
7/10	145	2,398	0	0	0	6	0	18	600	8,804
7/11	300	2,698	0	0	0	6	0	18	960	9,764
7/12	246	2,944	0	0	0	6	0	18	348	10,112
7/13	379	3,323	0	0	0	6	0	18	270	10,382
7/14	409	3,732	0	0	0	6	0	18	588	10,970
7/15	288	4,020	0	0	0	6	0	18	1,068	12,038
7/16	223	4,243	0	0	0	6	0	18	774	12,812
7/17	309	4,552	0	0	6	12	1	19	1,305	14,117
7/18	433	4,985	0	0	0	12	24	43	606	14,723

-continued-

**Table 6.**–Page 2 of 2.

Date	Chinook		Coho		Pink		Chum		Dolly Varden	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
7/19	271	5,256	0	0	0	12	6	49	642	15,365
7/20	222	5,478	0	0	0	12	18	67	672	16,037
7/21	243	5,721	0	0	12	24	9	76	468	16,505
7/22	122	5,843	0	0	0	24	6	82	324	16,829
7/23	185	6,028	0	0	0	24	6	88	188	17,017
7/24	103	6,131	0	0	0	24	6	94	150	17,167
7/25	180	6,311	0	0	0	24	0	94	60	17,227
7/26	177	6,488	0	0	72	96	12	106	168	17,395
7/27	144	6,632	0	0	12	108	12	118	174	17,569
7/28	96	6,728	0	0	66	174	0	118	366	17,935
7/29	96	6,824	0	0	24	198	6	124	186	18,121
7/30	132	6,956	0	0	42	240	24	148	264	18,385
7/31	120	7,076	0	0	18	258	0	148	216	18,601
8/1	24	7,100	6	6	60	318	54	202	60	18,661
8/2	73	7,173	0	6	78	396	12	214	162	18,823
8/3	79	7,252	6	12	12	408	6	220	78	18,901
8/4	72	7,324	6	18	83	491	0	220	48	18,949
8/5	48	7,372	0	18	96	587	0	220	96	19,045
8/6	18	7,390	6	24	108	695	18	238	30	19,075
8/7	37	7,427	0	24	78	773	12	250	127	19,202
8/8	18	7,445	0	24	60	833	0	250	84	19,286
8/9	1	7,446	0	24	30	863	0	250	24	19,310
8/10	11	7,457	0	24	1	864	0	250	0	19,310
8/11	32	7,489	0	24	395	1,259	6	256	133	19,443
8/12	42	7,531	1	25	192	1,451	0	256	162	19,605
8/13	48	7,579	0	25	144	1,595	6	262	120	19,725
8/14	48	7,627	0	25	253	1,848	7	269	126	19,851
8/15	30	7,657	12	37	108	1,956	0	269	66	19,917
8/16	18	7,675	12	49	121	2,077	1	270	114	20,031
8/17	6	7,681	0	49	24	2,101	0	270	18	20,049
8/18	3	7,684	3	52	1	2,102	2	272	0	20,049
8/19	5	7,689	2	54	0	2,102	0	272	0	20,049
8/20	59	7,748	3	57	45	2,147	0	272	6	20,055
8/21	18	7,766	3	60	30	2,177	0	272	12	20,067
8/22	72	7,838	18	78	36	2,213	0	272	0	20,067
8/23	1	7,839	3	81	6	2,219	0	272	0	20,067
8/24	1	7,840	484	565	0	2,219	0	272	0	20,067
8/25	0	7,840	1,324	1,889	24	2,243	0	272	18	20,085
8/26	0	7,840	635	2,524	0	2,243	0	272	0	20,085
8/27	0	7,840	965	3,489	0	2,243	0	272	0	20,085
8/28	0	7,840	873	4,362	0	2,243	1	273	0	20,085
8/29	0	7,840	1,491	5,853	0	2,243	2	275	0	20,085
8/30	0	7,840	1,224	7,077	0	2,243	0	275	0	20,085
8/31	0	7,840	1,429	8,506	0	2,243	0	275	0	20,085
9/1	0	7,840	1,133	9,639	0	2,243	0	275	0	20,085
9/2	0	7,840	1,721	11,360	0	2,243	1	276	1	20,086
9/3	0	7,840	3,084	14,444	0	2,243	0	276	0	20,086
9/4	0	7,840	4,366	18,810	0	2,243	0	276	0	20,086
<b>Totals</b>	<b>7,840</b>		<b>18,810</b>		<b>2,243</b>		<b>276</b>		<b>20,086</b>	

**Table 7.**—Estimated Chignik River Chinook, coho, pink, and chum salmon and Dolly Varden escapement, 1970 through 2004.

Year	Escapement <sup>a</sup>				
	Chinook <sup>b</sup>	Coho <sup>c</sup>	Pink <sup>c</sup>	Chum <sup>c</sup>	Dolly Varden <sup>c</sup>
1970	2,500	ND	ND	ND	ND
1971	2,000	ND	ND	ND	ND
1972	1,500	ND	ND	ND	ND
1973	822	ND	ND	ND	ND
1974	672	ND	ND	ND	ND
1975	877	ND	ND	ND	ND
1976	700	ND	ND	ND	ND
1977	798	ND	ND	ND	ND
1978	1,197	ND	ND	ND	ND
1979	1,050	ND	ND	ND	ND
1980	876	ND	ND	ND	ND
1981	1,603	ND	ND	ND	ND
1982	2,412	ND	ND	ND	ND
1983	1,943	ND	ND	ND	ND
1984	5,806	ND	ND	ND	ND
1985	3,144	ND	ND	ND	ND
1986	3,612	ND	ND	ND	ND
1987	2,624	ND	ND	ND	ND
1988	4,868	ND	ND	ND	ND
1989	3,316	ND	ND	ND	ND
1990	4,364	ND	ND	ND	ND
1991	4,531	ND	ND	ND	ND
1992	3,806	ND	ND	ND	ND
1993	1,946	ND	ND	ND	ND
1994	2,963	ND	ND	ND	ND
1995	4,288	ND	ND	ND	ND
1996	3,488	16,843	6,030	136	54,726
1997	3,824	10,810	4,880	483	26,657
1998	3,075	14,124	11,490	156	15,235
1999	3,728	2,414	2,524	48	15,025
2000	4,285	7,062	4,284	48	ND
2001	3,028	103	1,464	66	6,416
2002	3,541	9,262	3,417	67	8,179
2003	6,412	7,635	1,897	68	36,397
2004	7,840	18,810	2,243	276	20,086
Averages					
1984-03	3,832	-	-	-	-
1994-03	3,863	-	-	-	-
1999-03	4,199	5,295	2,717	59	16,504

<sup>a</sup> A video monitoring system was installed at the Chignik weir in 1994.

<sup>b</sup> No escapement adjustments are made for Chinook salmon that spawn below the weir, or those removed by the sport fishery. Only large fish enumerated for escapement estimates from 1970 to 1993.

<sup>c</sup> No reliable escapement estimates were generated for pink, chum, or coho salmon or Dolly Varden from 1970 to 1996. No post-weir estimates are reported here for these species.

**Table 8.**—Estimated Chignik River sockeye salmon escapement, by day and management objective period, 2004.

Early Run			Late Run								
Through July 4			July 5-July 31			August			September 1-15		
Date	Daily	Total	Date	Daily	Total	Date	Daily	Total	Date	Daily	Total
5/30	798	798	7/5	5,939	5,939	8/1	1,959	1,959	9/1	1,253	1,253
5/31	1,751	2,549	7/6	3,471	9,410	8/2	1,307	3,266	9/2	1,604	2,857
6/1	1,156	3,705	7/7	1,867	11,277	8/3	1,417	4,683	9/3	1,203	4,060
6/2	1,242	4,947	7/8	5,602	16,879	8/4	2,658	7,341	9/4 <sup>a</sup>	1,274	5,334
6/3	1,631	6,578	7/9	8,893	25,772	8/5	2,169	9,510	9/5-9/15 estimate	8,466	13,800
6/4	4,694	11,272	7/10	6,974	32,746	8/6	1,934	11,444	9/16-9/30 estimate	4,603	18,403
6/5	8,945	20,217	7/11	4,735	37,481	8/7	1,251	12,695			
6/6	3,621	23,838	7/12	2,970	40,451	8/8	705	13,400			
6/7	4,224	28,062	7/13	4,121	44,572	8/9	512	13,912			
6/8	4,678	32,740	7/14	8,223	52,795	8/10	248	14,160	<b>7/5 through 9/15 total:</b>		<b>209,856</b>
6/9	4,078	36,818	7/15	12,569	65,364	8/11	3,956	18,116			
6/10	6,574	43,392	7/16	6,983	72,347	8/12	2,127	20,243	<b>7/5 through 9/30 total:</b>		<b>214,459</b>
6/11	4,806	48,198	7/17	6,796	79,143	8/13	1,638	21,881			
6/12	7,421	55,619	7/18	4,788	83,931	8/14	1,757	23,638			
6/13	4,541	60,160	7/19	7,837	91,768	8/15	2,034	25,672	<b>Season total through 9/15:</b>		<b>573,656</b>
6/14	2,972	63,132	7/20	6,604	98,372	8/16	1,415	27,087			
6/15	2,657	65,789	7/21	5,063	103,435	8/17	618	27,705	<b>Season total through 9/30:</b>		<b>578,259</b>
6/16	14,035	79,824	7/22	5,901	109,336	8/18	203	27,908			
6/17	19,828	99,652	7/23	4,547	113,883	8/19	477	28,385			
6/18	18,416	118,068	7/24	5,544	119,427	8/20	1,683	30,068			
6/19	23,056	141,124	7/25	7,920	127,347	8/21	1,800	31,868			
6/20	10,813	151,937	7/26	7,338	134,685	8/22	901	32,769			
6/21	13,939	165,876	7/27	5,511	140,196	8/23	383	33,152			
6/22	24,059	189,935	7/28	3,514	143,710	8/24	739	33,891			
6/23	34,723	224,658	7/29	3,055	146,765	8/25	1,401	35,292			
6/24	24,071	248,729	7/30	4,278	151,043	8/26	656	35,948			
6/25	35,283	284,012	7/31	3,224	154,267	8/27	647	36,595			
6/26	11,292	295,304	<b>July 5 to 31 total:</b>		<b>154,267</b>	8/28	920	37,515			
6/27	3,229	298,533	<b>Late run total</b>			8/29	1,432	38,947			
6/28	3,705	302,238	<b>through 7/31 :</b>		<b>154,267</b>	8/30	1,685	40,632			
6/29	7,208	309,446	<b>Season total through</b>			8/31	1,157	41,789			
6/30	11,415	320,861	<b>7/31:</b>		<b>518,067</b>	<b>August total:</b>		<b>41,789</b>			
7/1	15,412	336,273				<b>Late run total</b>					
7/2	17,734	354,007				<b>through 8/31 :</b>		<b>196,056</b>			
7/3	6,959	360,966				<b>Season total through</b>					
7/4	2,834	363,800				<b>8/31:</b>		<b>559,856</b>			
<b>Early run total:</b>		<b>363,800</b>									

<sup>a</sup> The weir was removed after the completion of the 9/4 count.

**Table 9.**—Estimated early and late run sockeye salmon escapements and estimated 50/50 dates to the Chignik River, based on inseason and postseason run apportionment models, 1986 through 2004.

Year	Inseason	Postseason		50/50 Date	Total Escapement
	50/50 Date	Early Run	Late Run		
1986	ND	566,088	207,231	7/15	773,319
1987	ND	589,291	214,452	7/26	803,743
1988 <sup>a</sup>	7/5	420,577	255,180	6/29	675,757
1989 <sup>a</sup>	7/7	384,004	557,171	8/2	941,175
1990 <sup>a</sup>	7/9	434,543	335,867	6/26	770,410
1991 <sup>a</sup>	7/15	657,511	382,587	6/24	1,040,098
1992 <sup>a</sup>	7/15	360,681	405,922	7/15	766,603
1993	7/4	364,261	333,116	7/5	697,377
1994	7/15	769,462	197,447	7/28	966,909
1995	7/5	366,163	373,757	7/8	739,920
1996	7/14	464,461	284,676	7/20	749,137
1997	7/6	396,667	378,951	7/9	775,618
1998	7/8	410,659	290,379	7/5	701,038
1999	7/10	457,429	258,537	7/9	715,966
2000	7/14	536,141	269,084	7/14	805,225
2001	7/16	744,013	392,905	7/6	1,136,918
2002	7/15	380,701	343,616	7/8	724,317
2003	7/5	350,004	334,119	7/4	684,123
2004 <sup>b</sup>	ND	363,800	214,459	ND	578,259

<sup>a</sup> Average Time of Entry (ATOE) curves were used for inseason management.

<sup>b</sup> The SPA project was discontinued prior to the 2004 season.

**Table 10.**—Total Chignik River sockeye salmon escapement, based on postseason analysis, by run, 1970 through 2004.

Year	Early Run	Late Run	Total
1970	536,257	119,952	656,209
1971	671,668	232,501	904,169
1972	326,320	231,270	557,590
1973	533,047	249,144	782,191
1974	351,701	326,245	677,946
1975	308,914	268,734	577,648
1976	551,254	279,509	830,763
1977	482,247	251,753	734,000
1978	458,660	223,887	682,547
1979	385,694	352,122	737,816
1980	311,332	352,729	664,061
1981	438,540	392,909	831,449
1982	616,117	221,601	837,718
1983	426,177	409,458	835,635
1984	597,712	267,862	865,574
1985	376,576	369,262	745,838
1986	566,088	207,231	773,319
1987	589,291	214,452	803,743
1988	420,577	255,180	675,757
1989	384,004	557,171	941,175
1990	434,543	335,867	770,410
1991	672,871	367,227	1,040,098
1992	360,681	405,922	766,603
1993	364,261	333,116	697,377
1994	769,462	197,447	966,909
1995	366,163	373,757	739,920
1996	464,461	284,676	749,137
1997	396,667	378,951	775,618
1998	410,659	290,469	701,128
1999	457,429	258,537	715,966
2000	536,141	269,084	805,225
2001	744,013	392,905	1,136,918
2002	380,701	343,616	724,317
2003	350,004	334,119	684,123
2004	363,800	214,459	578,259
Averages			
1984-03	482,115	321,843	803,958
1994-03	487,570	312,356	799,926
1999-03	493,658	319,652	813,310

**Table 11.**—Peak sockeye salmon aerial survey escapement counts for the Black Lake tributaries, 1960 through 2004.

Year	Fan Creek	Milk Creek	Boulevard Creek	Alec River	Conglomerate Creek	Broad Creek	Total
1960	38,500	8,000	40,000	30,000	3,000	30,000	149,500
1961	27,000	5,000	28,700	25,000	800	17,000	103,500
1962	18,000	7,000	13,000	60,000	200	15,000	113,200
1963	39,000	ND	36,000	85,000	1,000	61,000	222,000
1964	19,500	3,050	23,850	17,900	9,300	9,500	83,100
1967	20,000	1,000	9,000	156,000	10,000	10,000	206,000
1968	32,000	2,400	20,000	60,000	2,000	4,100	120,500
1969	103,000	2,100	33,000	50,000	4,000	5,000	197,100
1970	146,000	9,000	55,500	198,000	5,000	ND	413,500
1971	105,000	14,000	85,000	158,000	0	ND	362,000
1972	18,000	3,500	19,000	74,000	400	ND	114,900
1973	115,000	4,000	76,000	74,000	5,000	ND	274,000
1974	90,000	5,000	50,000	93,000	5,000	ND	243,000
1975	40,000	4,500	25,000	87,000	0	ND	156,500
1976	78,000	8,900	100,000	119,000	2,000	ND	307,900
1977	88,000	20,000	127,000	133,000	1,000	ND	369,000
1978	114,000	3,300	74,000	83,300	500	ND	275,100
1979	37,000	11,800	32,000	105,100	400	26,100	212,400
1980	127,000	16,000	75,000	70,500	1,500	68,000	358,000
1981	93,000	4,700	59,000	76,500	20,000	27,000	280,200
1982	50,000	5,500	60,000	43,000	20,000	32,000	210,500
1983	ND	ND	ND	ND	ND	ND	-
1984	50,000	22,200	70,000	30,500	31,000	36,000	239,700
1985	28,000	5,500	36,000	65,000	5,500	17,000	157,000
1986	60,000	15,300	47,000	76,000	39,000	27,000	264,300
1987	52,000	12,200	133,000	88,400	45,900	32,500	364,000
1988	54,000	71,000	83,700	106,500	2,300	26,500	344,000
1989	19,300	21,000	64,000	133,000	1,000	7,500	245,800
1990	32,600	7,400	35,900	49,800	2,200	18,000	145,900
1991	14,600	19,500	48,000	ND	2,000	13,000	97,100
1992	ND	ND	ND	392,000	ND	ND	392,000
1993	40,900	12,600	97,600	8,000	77,000	18,200	254,300
1994	70,000	25,000	125,000	350,000	20,000	51,000	641,000
1995	23,000	10,000	60,000	200,000	40,000	60,000	393,000
1996	40,000	24,000	51,000	100,000	50,000	45,000	310,000
1997	60,000	5,000	48,000	166,000	8,000	20,000	307,000
1998	90,000	14,000	100,000	50,000	9,000	62,000	325,000
1999	70,000	8,100	50,000	226,000	1,000	22,000	377,100
2000	41,000	29,000	126,000	210,000	26,000	93,000	525,000
2001	77,000	19,000	265,000	207,000	4,000	89,000	661,000
2002	43,000	ND	20,000	21,000	11,000	7,000	102,000
2003	17,600	400	2,500	188,000	ND	1,000	209,500
2004	4,290	1,490	15,560	137,700	200	ND	159,240
Averages							
1984-03	44,365	16,984	73,913	140,245	19,742	33,984	317,735
1994-03	53,160	14,944	84,750	171,800	18,778	45,000	385,060
1999-03	49,720	14,125	92,700	170,400	10,500	42,400	374,920

**Table 12.**—Chignik Lake and Black River peak sockeye salmon aerial survey escapement estimates, 1960 through 2004.

Year	Black River				Chignik Lake			Total
	Bearskin Creek	West Fork	Chiaktuak Creek	Total	Clark River	Home Creek	Hatchery Beach	
1960	11,600	23,000	19,000	53,600	ND	ND	ND	-
1961	2,500	17,100	20,700	40,300	ND	ND	ND	-
1962	3,000	13,000	24,000	40,000	ND	ND	ND	-
1963	900	5,000	9,000	14,900	ND	ND	ND	-
1964	500	4,500	7,000	12,000	ND	ND	ND	-
1967	10,000	25,000	31,000	66,000	ND	ND	ND	-
1968	1,200	10,500	10,000	21,700	ND	ND	ND	-
1969	50	800	1,500	2,350	ND	ND	ND	-
1970	450	4,000	4,000	8,450	ND	ND	ND	-
1971	3,500	5,500	47,000	56,000	ND	ND	ND	-
1972	1,400	4,300	23,000	28,700	ND	ND	ND	-
1973	13	4,100	1,500	5,613	ND	ND	ND	-
1974	450	8,000	7,000	15,450	ND	ND	ND	-
1975	65	2,500	2,500	5,065	ND	ND	ND	-
1976	2,650	23,700	7,700	34,050	ND	ND	ND	-
1977	200	13,600	6,900	20,700	ND	ND	ND	-
1978	410	9,600	8,500	18,510	ND	ND	ND	-
1979	918	7,610	29,000	37,528	ND	ND	ND	-
1980	3,600	33,000	40,400	77,000	ND	ND	ND	-
1981	950	1,500	18,700	21,150	ND	ND	ND	-
1982	1,066	10,791	5,000	16,857	ND	ND	ND	-
1983	ND	ND	6,000	6,000	ND	ND	ND	-
1984	ND	ND	ND	8,200	ND	ND	ND	-
1985	350	450	1,200	2,000	ND	ND	ND	-
1986	ND	ND	8,300	8,300	ND	ND	ND	-
1987	ND	ND	1,000	1,000	ND	ND	ND	-
1988	ND	ND	4,600	4,600	ND	ND	ND	-
1989	ND	ND	2,100	2,100	ND	ND	ND	-
1990	300	0	50	350	ND	ND	ND	-
1991	ND	ND	ND	ND	ND	ND	ND	-
1992	ND	ND	ND	ND	ND	ND	ND	-
1993	ND	ND	16,000	16,000	ND	ND	ND	-
1994	5,000	ND	31,000	36,000	18,000	9,200	ND	27,200
1995	7,100	18,000	31,000	56,100	13,000	6,000	150,000	169,000
1996	1,800	22,000	22,000	45,800	13,000	5,500	70,000	88,500
1997	9,000	9,000	23,500	41,500	25,000	8,000	35,000	68,000
1998	4,700	71,000	27,500	103,200	21,000	6,000	62,000	89,000
1999	8,300	17,500	13,000	38,800	8,500	1,620	15,000	25,120
2000	2,600	3,700	10,600	16,900	18,000	19,700	2,000	39,700
2001	ND	ND	9,500	9,500	23,000	11,000	25,000	59,000
2002	ND	15,000	2,300	17,300	ND	ND	ND	-
2003	ND	ND	2,000	2,000	ND	ND	ND	-
2004	100	600	750	1,450	2,500	2,000	ND	4,500
<b>Averages</b>								
1984-03	4,350	17,406	12,097	22,758	17,438	8,378	51,286	70,690
1994-03	5,500	22,314	17,240	36,710	17,438	8,378	51,286	70,690
1999-03	5,450	12,067	7,480	9,430	16,500	10,773	14,000	41,273

**Table 13.**—Estimated pink salmon escapement in the Chignik Management Area, by district and year, 1970 through 2004.

Year <sup>a</sup>	District					Total <sup>b</sup>
	Chignik Bay <sup>b</sup>	Central <sup>b</sup>	Eastern <sup>b</sup>	Western <sup>b</sup>	Perryville <sup>b</sup>	
1970	43,600	60,700	201,700	202,000	72,600	580,600
1971	5,500	74,800	23,000	268,800	45,000	417,100
1972	5,800	3,100	15,900	8,600	7,800	41,200
1973	2,200	50,200	12,800	62,400	31,500	159,100
1974	4,000	9,800	76,200	77,400	60,200	227,600
1975	1,200	26,400	23,500	141,700	45,300	238,100
1976	12,300	66,000	228,800	114,200	89,300	510,600
1977	3,000	199,900	76,000	355,500	115,400	749,800
1978	10,700	101,200	309,300	333,400	157,500	912,100
1979	1,200	297,000	194,300	185,000	181,300	858,800
1980	3,000	99,400	425,500	139,500	74,800	742,200
1981	1,400	76,500	154,700	249,300	116,000	597,900
1982	2,400	26,100	301,500	45,900	13,400	389,300
1983	1,000	11,000	46,300	36,000	64,500	158,800
1984	123,200	94,000	486,500	188,000	109,800	1,001,500
1985	ND	7,400	212,100	67,500	235,200	522,200
1986	ND	121,900	580,700	43,800	180,500	926,900
1987	ND	65,700	215,600	38,300	65,700	385,300
1988	22,400	216,400	1,005,400	232,400	181,300	1,657,900
1989	13,500	215,000	881,000	57,900	267,400	1,434,800
1990	6,000	131,900	811,400	44,300	88,400	1,082,000
1991	12,200	201,100	125,000	96,800	343,500	778,600
1992	55,800	223,800	1,318,100	38,800	190,400	1,826,900
1993	2,000	160,900	524,700	45,800	448,400	1,181,800
1994	75,800	178,900	863,300	111,600	153,900	1,383,500
1995	180,500	715,500	1,399,300	554,700	582,100	3,432,100
1996	43,100	237,100	1,059,600	220,800	395,700	1,956,300
1997	59,400	594,600	1,287,700	306,300	221,500	2,469,500
1998	24,400	210,900	1,273,200	150,400	222,800	1,881,700
1999	37,300	374,300	615,100	137,900	179,700	1,344,300
2000	27,400	146,100	810,700	130,100	98,700	1,213,000
2001	19,700	460,400	1,470,200	263,000	150,200	2,363,500
2002	16,917	85,755	777,710	85,501	62,170	1,028,053
2003	143,897	576,510	1,408,060	117,650	99,500	2,345,617
2004	27,300	257,000	601,900	94,340	134,320	1,114,860
District SEG	6,500	119,500	488,000	61,500	104,000	779,500
Averages						
1984-03	50,795	250,908	856,269	146,578	213,844	1,510,774
1994-03	62,841	358,007	1,096,487	207,795	216,627	1,941,757
1999-03	49,043	328,613	1,016,354	146,830	118,054	1,658,894

<sup>a</sup> From 1984 to 2003 aerial survey escapement estimates were computed by area-under-the-curve methods using a 15.0 day average stream life (Johnson and Barrett 1988). Starting 2004, estimates were computed using peak counts (Witteveen et al. 2005).

<sup>b</sup> All estimates were via aerial survey, with the exception of Chignik River which was included in the Chignik Bay District estimate.

**Table 14.**—Estimated chum salmon escapement in the Chignik Management Area, by district and year, 1970 through 2004.

Year <sup>a</sup>	District					Total <sup>b</sup>
	Chignik Bay <sup>b</sup>	Central <sup>b</sup>	Eastern <sup>b</sup>	Western <sup>b</sup>	Perryville <sup>b</sup>	
1970	21,000	23,400	126,000	49,700	13,000	233,100
1971	7,100	29,100	219,200	184,100	30,000	469,500
1972	3,300	14,200	107,400	59,000	11,500	195,400
1973	700	12,200	59,100	35,600	9,300	116,900
1974	2,100	18,100	76,300	39,400	12,500	148,400
1975	2,100	18,800	41,300	43,400	20,500	126,100
1976	2,400	17,800	122,300	55,000	8,900	206,400
1977	2,000	9,300	54,500	70,400	15,400	151,600
1978	2,100	13,800	55,800	27,300	5,300	104,300
1979	1,600	44,800	79,500	42,500	12,800	181,200
1980	300	34,200	107,000	56,500	29,100	227,100
1981	500	26,100	126,000	70,300	19,300	242,200
1982	1,400	49,400	145,400	35,400	23,600	255,200
1983	100	17,000	50,200	20,100	8,200	95,600
1984	300	35,400	214,700	73,800	46,000	370,200
1985	0	9,600	4,900	34,600	12,900	62,000
1986	0	31,000	8,500	5,300	7,700	52,500
1987	100	17,500	38,300	19,700	9,800	85,400
1988	15,300	55,800	221,900	27,400	41,400	361,800
1989	4,200	34,700	74,300	7,400	15,900	136,500
1990	1,500	28,000	139,700	28,800	55,800	253,800
1991	0	18,000	70,400	38,100	343,200	469,700
1992	100	173,100	306,900	53,300	40,300	573,700
1993	300	39,400	135,200	14,000	66,800	255,700
1994	1,500	102,600	129,200	23,000	126,000	382,300
1995	10,300	44,500	112,800	45,700	134,600	347,900
1996	16,400	45,100	130,500	44,500	132,000	368,500
1997	18,500	65,700	290,000	60,500	152,800	587,500
1998	4,500	32,000	97,700	30,600	214,500	379,300
1999	2,300	32,400	167,100	16,300	117,300	335,400
2000	100	22,700	216,000	12,700	51,900	303,400
2001	4,100	36,500	406,900	35,500	67,800	550,800
2002	67	11,615	174,850	17,082	32,020	235,634
2003	899	43,191	152,854	39,050	64,331	300,325
2004	376	30,310	277,240	3,100	38,492	349,518
District SEG	2,000	39,500	93,700	12,500	59,000	206,700
Averages						
1984-03	4,023	43,940	154,635	31,367	86,653	320,618
1994-03	5,867	43,631	187,790	32,493	109,325	379,106
1999-03	1,493	29,281	223,541	24,126	66,670	345,112

<sup>a</sup> From 1984 to 2003 aerial survey escapement estimates were computed by area-under-the-curve methods using a 15.0 day average stream life (Johnson and Barrett 1988). Starting 2004, estimates were computed using peak counts (Witteveen et al. 2005).

<sup>b</sup> All estimates were via aerial survey, with the exception of Chignik River which was included in the Chignik Bay District estimate.

**Table 15.**—Total commercial salmon harvests, including home pack and ADF&G test fishery harvests, from the Chignik Management Area by species and year, 1970 through 2004.

Year	Permits Making		Chignik Management Area Harvest					Total
	Deliveries	Landings	Chinook	Sockeye	Coho	Pink	Chum	
1970	80	2,343	1,226	1,325,734	15,348	1,157,172	437,252	2,936,732
1971	77	2,383	2,010	1,016,136	14,557	612,290	353,952	1,998,945
1972	80	1,626	464	378,218	19,615	72,161	78,298	548,756
1973	80	2,187	525	870,354	22,322	25,472	8,717	927,390
1974	94	2,286	255	662,905	12,245	69,515	34,312	779,232
1975	86	1,844	549	399,593	53,283	66,165	25,161	544,751
1976	77	2,407	2,290	1,163,728	35,167	395,287	81,403	1,677,875
1977	88	2,426	710	1,972,207	17,430	604,806	110,452	2,705,605
1978	95	3,005	1,603	1,576,283	20,212	985,114	120,889	2,704,101
1979	103	3,009	1,253	1,049,691	99,129	1,905,198	188,907	3,244,178
1980	104	3,134	2,344	859,966	119,573	1,093,184	252,521	2,327,588
1981	105	4,222	2,694	1,839,469	78,805	1,162,613	580,332	3,663,913
1982	103	3,606	5,236	1,521,686	300,273	873,384	390,096	3,090,675
1983	102	4,357	5,488	1,824,175	61,927	321,178	159,412	2,372,180
1984	100	3,927	4,318	2,660,619	110,128	444,804	63,303	3,283,172
1985	107	3,392	1,887	921,502	191,162	160,128	22,805	1,297,484
1986	102	4,178	3,037	1,645,834	116,633	647,125	176,640	2,589,269
1987	104	3,856	2,651	1,898,838	150,414	246,775	127,261	2,425,939
1988	102	3,895	7,296	795,841	370,420	2,997,159	267,775	4,438,491
1989	101	3,183	3,542	1,159,287	68,233	27,712	1,624	1,260,398
1990	102	5,405	9,901	2,093,650	130,131	550,008	270,004	3,053,694
1991	103	3,856	3,157	1,895,665	165,625	1,169,248	261,096	3,494,791
1992	102	4,172	10,832	1,277,449	310,943	1,554,073	222,134	3,375,431
1993	103	4,241	19,515	1,697,351	229,459	1,648,377	122,360	3,717,062
1994	100	3,707	3,919	1,618,973	237,204	431,063	227,276	2,518,435
1995	101	5,113	5,493	1,724,045	281,518	2,057,998	380,954	4,450,008
1996	101	4,565	3,145	1,958,393	193,246	189,068	120,891	2,464,743
1997	100	3,394	3,120	770,347	90,908	844,431	155,905	1,864,711
1998	86	3,348	4,503	1,054,439	129,539	776,988	128,996	2,094,465
1999	91	4,382	3,507	3,116,527	89,610	1,698,651	140,597	5,048,892
2000	100	3,268	2,612	1,775,225	123,222	428,064	120,957	2,450,080
2001	93	2,906	2,939	1,511,587	131,448	1,281,767	199,003	3,126,744
2002	42	2,432	1,521	1,050,553	49,372	66,050	54,559	1,222,055
2003	44	2,073	3,068	1,100,297	103,896	502,638	64,044	1,773,943
2004	33	1,346	2,520	704,652	37	2,380	505	711,473
Averages								
1984-03	95	3,793	5,021	1,597,647	158,811	859,205	156,552	2,777,237
1994-03	86	3,519	3,383	1,568,039	142,996	827,672	159,318	2,701,408
1999-03	74	3,012	2,729	1,710,838	99,510	795,434	115,832	2,724,343

**Table 16.**—Annual Chignik Management Area Chinook salmon harvest, 1970 through 2004.

Year	Testfish		Commercial Catch		Home Pack		Total	
	Number	Pounds	Number	Pounds	Number	Pounds <sup>a</sup>	Number	Pounds
1970	ND	ND	1,226	28,507	ND	ND	1,226	28,507
1971	ND	ND	2,010	25,887	ND	ND	2,010	25,887
1972	ND	ND	464	8,091	ND	ND	464	8,091
1973	ND	ND	525	17,001	ND	ND	525	17,001
1974	ND	ND	255	5,997	ND	ND	255	5,997
1975	ND	ND	549	14,108	ND	ND	549	14,108
1976	ND	ND	2,290	29,229	ND	ND	2,290	29,229
1977	ND	ND	710	21,176	ND	ND	710	21,176
1978	ND	ND	1,603	42,439	ND	ND	1,603	42,439
1979	ND	ND	1,253	18,998	ND	ND	1,253	18,998
1980	ND	ND	2,344	32,255	ND	ND	2,344	32,255
1981	ND	ND	2,694	50,832	ND	ND	2,694	50,832
1982	ND	ND	5,236	59,753	ND	ND	5,236	59,753
1983	ND	ND	5,488	96,159	ND	ND	5,488	96,159
1984	ND	ND	4,318	99,567	ND	ND	4,318	99,567
1985	10	249	1,877	44,625	ND	ND	1,887	44,874
1986	ND	ND	3,037	66,772	ND	ND	3,037	66,772
1987	0	0	2,651	49,482	ND	ND	2,651	49,482
1988	0	0	7,296	128,880	ND	ND	7,296	128,880
1989	0	0	3,542	76,698	ND	ND	3,542	76,698
1990	0	0	9,901	134,265	ND	ND	9,901	134,265
1991	3	37	3,154	66,666	ND	ND	3,157	66,703
1992	2	8	10,830	138,082	ND	ND	10,832	138,090
1993	14	65	19,501	234,188	ND	ND	19,515	234,253
1994	16	245	3,903	71,620	ND	ND	3,919	71,865
1995	0	0	5,261	111,187	232	4,903	5,493	116,090
1996	0	0	3,105	62,603	40	806	3,145	63,409
1997	7	149	3,025	47,075	88	1,369	3,120	48,593
1998	21	450	4,374	66,080	108	1,632	4,503	68,162
1999	0	0	3,296	56,706	211	3,630	3,507	60,336
2000	0	0	2,592	34,757	20	268	2,612	35,025
2001	4	120	2,845	39,252	90	1,242	2,939	40,614
2002	3	25	1,441	13,725	77	733	1,521	14,483
2003	2	13	2,757	39,716	309	4,451	3,068	43,722
2004	4	57	2,337	43,652	179	3,343	2,520	47,020
Averages								
1984-03	5	76	4,962	79,910	131	2,115	5,021	80,859
1994-03	5	100	3,260	54,272	131	2,115	3,383	56,230
1999-03	2	32	2,586	36,831	141	2,065	2,729	38,836

<sup>a</sup> Weights of home pack fish are not reported on fish tickets; therefore, they were calculated from the average weight of the commercial harvest.

**Table 17.**—Chignik Management Area Chinook salmon harvest (including home pack and ADF&G test fishery catches), by district and year, 1970 through 2004.

Year	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
1970	867	5	55	230	69	1,226
1971	656	23	134	266	931	2,010
1972	226	0	24	72	142	464
1973	520	0	5	0	0	525
1974	200	27	0	28	0	255
1975	542	7	0	0	0	549
1976	2,135	15	3	60	77	2,290
1977	692	12	0	1	5	710
1978	1,386	49	19	130	19	1,603
1979	856	101	6	181	109	1,253
1980	929	148	169	739	359	2,344
1981	2,006	302	188	99	99	2,694
1982	3,269	41	38	1,354	534	5,236
1983	3,560	161	260	1,390	117	5,488
1984	3,696	63	72	487	0	4,318
1985	1,809	50	7	21	0	1,887
1986	2,592	58	14	350	23	3,037
1987	1,931	60	6	512	142	2,651
1988	4,331	1,094	190	1,216	465	7,296
1989	3,532	9	1	0	0	3,542
1990	3,719	2,175	175	3,190	642	9,901
1991	1,996	775	165	197	24	3,157
1992	3,181	2,010	181	4,300	1,160	10,832
1993	5,240	6,865	2,568	3,113	1,729	19,515
1994	1,808	1,303	43	452	313	3,919
1995	3,219	845	108	897	424	5,493
1996	1,590	1,022	263	162	108	3,145
1997	1,384	1,609	60	60	7	3,120
1998	1,805	1,798	79	567	254	4,503
1999	2,270	852	147	216	22	3,507
2000	598	530	53	1,421	10	2,612
2001	1,235	770	302	627	5	2,939
2002	920	17	0	584	0	1,521
2003	2,834	189	0	45	0	3,068
2004	2,520	0	0	0	0	2,520
Averages						
1984-03	2,536	1,060	224	943	259	5,021
1994-03	1,766	894	106	503	114	3,383
1999-03	1,571	472	100	579	7	2,729

**Table 18.**—Chignik Management Area Chinook salmon harvest (including home pack and ADF&G test fishery catches), by district and day, 2004.

Date	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
6/4	0	0	0	Closed	Closed	0
6/5	0	0	0	Closed	Closed	0
6/6	0	0	0	Closed	Closed	0
6/7	0	0	0	Closed	Closed	0
6/8	1	0	0	Closed	Closed	1
6/9	0	0	0	Closed	Closed	0
6/10	0	0	0	Closed	Closed	0
6/11	6	0	0	Closed	Closed	6
6/12	4	0	0	Closed	Closed	4
6/13	5	0	0	Closed	Closed	5
6/14	5	0	0	Closed	Closed	5
6/15	11	0	0	Closed	Closed	11
6/16	10	0	0	Closed	Closed	10
6/17	5	0	0	Closed	Closed	5
6/18	1	0	0	Closed	Closed	1
6/19	14	0	0	Closed	Closed	14
6/20	21	0	0	Closed	Closed	21
6/21	11	0	0	Closed	Closed	11
6/22	0	0	0	Closed	Closed	0
6/23	4	0	0	Closed	Closed	4
6/24	Closed	Closed	Closed	Closed	Closed	Closed
6/25	86	0	0	Closed	Closed	86
6/26	139	0	0	Closed	Closed	139
6/27	72	0	0	Closed	Closed	72
6/28	52	0	0	Closed	Closed	52
6/29	26	0	0	Closed	Closed	26
6/30	14	0	0	Closed	Closed	14
7/1	38	0	0	Closed	Closed	38
7/2	91	0	0	Closed	Closed	91
7/3	111	0	0	Closed	Closed	111
7/4	167	0	0	Closed	Closed	167
7/5	103	0	0	Closed	Closed	103
7/6	146	0	0	Closed	Closed	146
7/7	78	0	0	Closed	Closed	78
7/8	223	0	0	Closed	Closed	223
7/9	179	0	0	Closed	Closed	179
7/10	248	0	0	Closed	Closed	248
7/11	169	0	0	Closed	Closed	169
7/12	13	0	0	Closed	Closed	13
7/13	12	0	0	Closed	Closed	12
7/14	1	0	0	Closed	Closed	1
7/15	14	0	0	Closed	Closed	14
7/16	17	0	0	Closed	Closed	17
7/17	62	0	0	Closed	Closed	62
7/18	Closed	Closed	Closed	Closed	Closed	Closed

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**Table 18.**—Page 2 of 2.

Date	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
7/19	8	0	0	Closed	Closed	8
7/20	72	0	0	Closed	Closed	72
7/21	44	0	0	Closed	Closed	44
7/22	46	0	0	Closed	Closed	46
7/23	16	0	0	Closed	Closed	16
7/24	18	0	0	Closed	Closed	18
7/25	Closed	Closed	Closed	Closed	Closed	Closed
7/26	Closed	Closed	Closed	Closed	Closed	Closed
7/27	0	0	0	Closed	Closed	0
7/28	16	0	0	Closed	Closed	16
7/29	9	0	0	Closed	Closed	9
7/30	Closed	Closed	Closed	Closed	Closed	Closed
7/31	35	0	0	Closed	Closed	35
8/1	38	0	Closed	Closed	Closed	38
8/2	27	0	Closed	Closed	Closed	27
8/3	Closed	Closed	Closed	Closed	Closed	Closed
8/4	Closed	Closed	Closed	Closed	Closed	Closed
8/5	4	0	Closed	Closed	Closed	4
8/6	21	0	Closed	Closed	Closed	21
8/7	4	0	Closed	Closed	Closed	4
8/8	3	0	Closed	Closed	Closed	3
8/9	Closed	Closed	Closed	Closed	Closed	Closed
8/10	Closed	Closed	Closed	Closed	Closed	Closed
8/11	Closed	Closed	Closed	Closed	Closed	Closed
8/12	Closed	Closed	Closed	Closed	Closed	Closed
8/13	Closed	Closed	Closed	Closed	Closed	Closed
8/14	Closed	Closed	Closed	Closed	Closed	Closed
8/15	Closed	Closed	Closed	Closed	Closed	Closed
8/16	Closed	Closed	Closed	Closed	Closed	Closed
8/17	Closed	Closed	Closed	Closed	Closed	Closed
8/18	Closed	Closed	Closed	Closed	Closed	Closed
8/19	Closed	Closed	Closed	Closed	0	0
8/20	Closed	Closed	Closed	Closed	Closed	Closed
<b>Total</b>	<b>2,520</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,520</b>

**Table 19.**—Annual Chignik Management Area sockeye salmon harvest, 1970 through 2004.

Year	Testfish		Commercial Catch		Home Pack		Total CMA Harvest		Cape Igvak <sup>a</sup>		SEDM <sup>b</sup>		Total Chignik-Bound	
	Number	Pounds	Number	Pounds	Number	Pounds <sup>c</sup>	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1970	ND	ND	1,325,734	9,210,127	ND	ND	1,325,734	9,210,127	ND	ND	ND	ND	1,325,734	9,210,127
1971	ND	ND	1,016,136	7,534,367	ND	ND	1,016,136	7,534,367	ND	ND	ND	ND	1,016,136	7,534,367
1972	ND	ND	378,218	2,863,742	ND	ND	378,218	2,863,742	ND	ND	ND	ND	378,218	2,863,742
1973	ND	ND	870,354	7,023,294	ND	ND	870,354	7,023,294	ND	ND	ND	ND	870,354	7,023,294
1974	ND	ND	662,905	4,756,653	ND	ND	662,905	4,756,653	ND	ND	ND	ND	662,905	4,756,653
1975	ND	ND	399,593	2,773,725	ND	ND	399,593	2,773,725	ND	ND	ND	ND	399,593	2,773,725
1976	ND	ND	1,163,728	8,562,989	ND	ND	1,163,728	8,562,989	ND	ND	ND	ND	1,163,728	8,562,989
1977	ND	ND	1,972,207	17,247,659	ND	ND	1,972,207	17,247,659	ND	ND	ND	ND	1,972,207	17,247,659
1978	ND	ND	1,576,283	12,451,982	ND	ND	1,576,283	12,451,982	225,078	1,583,809	ND	ND	1,801,361	14,035,791
1979	ND	ND	1,049,691	7,862,600	ND	ND	1,049,691	7,862,600	13,950	96,507	ND	ND	1,063,641	7,959,107
1980	ND	ND	859,966	5,795,098	ND	ND	859,966	5,795,098	32	147	63,724	442,601	923,722	6,237,846
1981	ND	ND	1,839,469	13,486,031	ND	ND	1,839,469	13,486,031	282,727	1,876,246	122,198	888,410	2,244,394	16,250,687
1982	ND	ND	1,521,686	11,340,439	ND	ND	1,521,686	11,340,439	166,756	1,162,053	62,789	463,729	1,751,231	12,966,221
1983	ND	ND	1,824,175	11,926,829	ND	ND	1,824,175	11,926,829	318,048	1,926,770	227,392	1,631,668	2,369,615	15,485,267
1984	ND	ND	2,660,619	18,536,287	ND	ND	2,660,619	18,536,287	449,372	2,820,646	423,292	3,053,430	3,533,283	24,410,363
1985	4,875	30,480	916,627	5,415,817	ND	ND	921,502	5,446,297	123,627	637,207	51,421	337,919	1,096,550	6,421,423
1986	ND	ND	1,645,834	11,254,860	ND	ND	1,645,834	11,254,860	188,017	1,153,092	118,006	841,446	1,951,857	13,249,398
1987	679	4,637	1,898,159	13,997,077	ND	ND	1,898,838	14,001,714	321,506	2,146,841	146,886	1,121,094	2,367,230	17,269,649
1988	3,425	24,287	792,416	5,690,165	ND	ND	795,841	5,714,452	10,520	63,641	19,320	140,708	825,681	5,918,801
1989	6,433	46,532	1,152,854	7,922,748	ND	ND	1,159,287	7,969,280	0	0	4,485	32,262	1,163,772	8,001,542
1990	5,522	33,915	2,088,128	13,775,854	ND	ND	2,093,650	13,809,769	107,706	665,309	117,065	783,670	2,318,421	15,258,748
1991	8,106	54,892	1,887,559	12,889,560	ND	ND	1,895,665	12,944,452	324,195	1,886,494	152,714	1,037,726	2,372,574	15,868,672
1992	12,423	80,326	1,265,026	8,292,576	ND	ND	1,277,449	8,372,902	150,434	896,108	93,845	608,765	1,521,728	9,877,775
1993	5,444	34,231	1,691,907	10,228,401	ND	ND	1,697,351	10,262,632	300,055	1,639,082	128,608	847,879	2,126,014	12,749,593
1994	9,139	54,433	1,609,834	10,091,402	ND	ND	1,618,973	10,145,835	250,230	1,423,150	142,350	934,493	2,011,553	12,503,478
1995	9,023	57,674	1,715,022	11,464,647	0	0	1,724,045	11,522,321	169,530	899,572	89,086	547,563	1,982,661	12,969,456
1996	4,317	36,511	1,954,036	14,866,234	40	304	1,958,393	14,903,049	308,327	1,954,430	127,201	884,305	2,393,921	17,741,784
1997	11,299	77,874	758,384	4,782,715	664	4,187	770,347	4,864,776	0	0	0	0	770,347	4,864,776
1998	12,374	66,040	1,041,798	6,372,010	267	1,633	1,054,439	6,439,683	8,813	39,133	66,893	408,902	1,130,145	6,887,718
1999	5,994	42,216	3,110,507	20,527,837	26	172	3,116,527	20,570,225	456,039	2,469,213	173,621	1,086,186	3,746,187	24,125,624
2000	11,604	88,790	1,763,621	13,577,434	0	0	1,775,225	13,666,224	271,344	1,703,875	103,419	737,462	2,149,988	16,107,561

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**Table 19.**—Page 2 of 2.

Year	Testfish		Commercial Catch		Home Pack		Total CMA Harvest		Cape Igvak <sup>a</sup>		SEDM <sup>b</sup>		Total Chignik-bound	
	Number	Pounds	Number	Pounds	Number	Pounds <sup>c</sup>	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
2001 <sup>d</sup>	14,011	98,197	1,497,359	10,972,234	217	1,590	1,511,587	11,072,021	215,214	1,287,154	51,141	368,970	1,777,942	12,728,145
2002	9,101	61,656	1,040,081	7,176,261	1,371	9,460	1,050,553	7,247,377	136,488	727,894	63,026	502,353	1,250,067	8,477,624
2003	5,582	36,334	1,092,304	7,137,591	2,411	15,755	1,100,297	7,189,680	121,887	599,342	70,044	466,153	1,292,228	8,255,175
2004	5,919	38,317	697,043	4,460,437	1,690	10,998	704,652	4,509,752	160,665	781,265	55,123	355,703	920,440	5,291,017
Averages														
1984-03	7,742	51,613	1,590,774	10,804,692	-	-	1,597,647	10,850,508	201,493	1,187,569	112,848	779,664	1,911,989	12,817,742
1994-03	9,244	61,973	1,558,295	10,696,837	555	3,678	1,568,039	10,762,119	193,787	1,110,376	88,678	593,639	1,850,504	12,466,134
1999-03	9,258	65,439	1,700,774	11,878,271	805	5,395	1,710,838	11,949,105	240,194	1,357,496	92,250	632,225	2,043,282	13,938,826

<sup>a</sup> The Cape Igvak allocation began in 1978. From 1978 to 2002, 80% of the Cape Igvak sockeye salmon harvest was considered Chignik River-bound. Beginning in 2002, that percentage was changed to 90%.

<sup>b</sup> Beginning in 1980, 80% of the SEDM harvest in specific areas during specific times was considered Chignik River-bound.

<sup>c</sup> Weights of home pack fish are not reported on fish tickets; therefore, the weights were calculated from the average weight of the commercial harvest for that year.

<sup>d</sup> Due to a strike by Alaska Peninsula fishermen, forgone harvest of 27,896 sockeye salmon was added to the SEDM catch for management purposes; this forgone harvest is not included in this table.

**Table 20.**—Total annual Chignik Management Area sockeye salmon harvest (including home pack and ADF&G test fishery catches), by district, 1970 through 2004.

Year	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
1970	1,122,993	10,252	187,210	3,751	1,528	1,325,734
1971	885,632	41,958	81,155	6,403	988	1,016,136
1972	354,912	2,429	15,985	4,734	158	378,218
1973	845,079	8,039	17,234	2	0	870,354
1974	539,196	120,412	199	3,098	0	662,905
1975	387,128	12,448	0	17	0	399,593
1976	1,112,533	48,327	1,254	425	1,189	1,163,728
1977	1,851,733	119,484	0	909	81	1,972,207
1978	1,474,673	89,826	7,161	4,482	141	1,576,283
1979	909,056	104,892	12,558	20,319	2,866	1,049,691
1980	708,828	74,628	60,947	9,227	6,336	859,966
1981	1,355,524	426,159	36,618	14,751	6,417	1,839,469
1982	1,413,806	66,278	10,209	30,279	1,114	1,521,686
1983	1,597,059	123,590	73,824	25,246	4,456	1,824,175
1984	1,942,822	517,653	184,495	15,470	179	2,660,619
1985	811,956	77,314	18,720	13,175	337	921,502
1986	1,389,172	182,884	6,424	44,362	22,992	1,645,834
1987	1,559,757	255,118	14,498	56,524	12,941	1,898,838
1988	529,540	124,103	25,699	93,070	23,429	795,841
1989	1,156,782	2,473	32	0	0	1,159,287
1990	1,400,069	566,601	51,443	53,192	22,345	2,093,650
1991	1,487,421	315,570	59,751	19,766	13,157	1,895,665
1992	792,889	332,860	12,327	30,004	109,369	1,277,449
1993	762,730	557,020	186,364	54,051	137,186	1,697,351
1994	908,042	573,484	20,041	64,325	53,081	1,618,973
1995	1,083,707	415,436	48,842	79,874	96,186	1,724,045
1996	1,003,683	743,658	145,668	47,529	17,855	1,958,393
1997	407,427	295,084	20,650	44,768	2,418	770,347
1998	622,005	286,643	30,555	87,940	27,296	1,054,439
1999	2,356,146	612,589	79,717	57,859	10,216	3,116,527
2000	1,327,249	358,985	71,572	15,034	2,385	1,775,225
2001	1,082,291	382,172	28,377	17,673	1,074	1,511,587
2002	993,756	44,368	2,835	9,425	169	1,050,553
2003	1,000,247	64,440	1,701	29,069	4,840	1,100,297
2004	704,471	181	0	0	0	704,652
Averages						
1984-03	1,153,083	325,335	51,597	40,874	26,758	1,597,647
1994-03	1,078,455	377,686	44,996	45,350	21,552	1,568,039
1999-03	1,351,938	292,511	36,840	25,812	3,737	1,710,838

**Table 21.**—Chignik Management Area sockeye salmon harvest (including home pack and ADF&G test fishery catches), by district and day, 2004.

Date	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
4-Jun	3,204	0	0	Closed	Closed	3,204
5-Jun	5,237	0	0	Closed	Closed	5,237
6-Jun	5,169	0	0	Closed	Closed	5,169
7-Jun	8,817	0	0	Closed	Closed	8,817
8-Jun	11,572	0	0	Closed	Closed	11,572
9-Jun	16,520	0	0	Closed	Closed	16,520
10-Jun	18,105	0	0	Closed	Closed	18,105
11-Jun	29,552	0	0	Closed	Closed	29,552
12-Jun	21,728	0	0	Closed	Closed	21,728
13-Jun	26,454	0	0	Closed	Closed	26,454
14-Jun	24,049	0	0	Closed	Closed	24,049
15-Jun	25,736	0	0	Closed	Closed	25,736
16-Jun	14,111	0	0	Closed	Closed	14,111
17-Jun	47,138	0	0	Closed	Closed	47,138
18-Jun	22,848	0	0	Closed	Closed	22,848
19-Jun	43,671	0	0	Closed	Closed	43,671
20-Jun	17,599	0	0	Closed	Closed	17,599
21-Jun	10,004	0	0	Closed	Closed	10,004
22-Jun	0	0	0	Closed	Closed	0
23-Jun	3,069	0	0	Closed	Closed	3,069
24-Jun	Closed	Closed	Closed	Closed	Closed	Closed
25-Jun	18,949	0	0	Closed	Closed	18,949
26-Jun	34,004	0	0	Closed	Closed	34,004
27-Jun	27,192	0	0	Closed	Closed	27,192
28-Jun	23,632	0	0	Closed	Closed	23,632
29-Jun	17,183	0	0	Closed	Closed	17,183
30-Jun	4,989	0	0	Closed	Closed	4,989
1-Jul	9,693	0	0	Closed	Closed	9,693
2-Jul	21,831	0	0	Closed	Closed	21,831
3-Jul	17,941	0	0	Closed	Closed	17,941
4-Jul	16,990	0	0	Closed	Closed	16,990
5-Jul	10,470	0	0	Closed	Closed	10,470
6-Jul	20,881	181	0	Closed	Closed	21,062
7-Jul	11,774	0	0	Closed	Closed	11,774
8-Jul	9,032	0	0	Closed	Closed	9,032
9-Jul	8,837	0	0	Closed	Closed	8,837
10-Jul	15,089	0	0	Closed	Closed	15,089
11-Jul	13,645	0	0	Closed	Closed	13,645
12-Jul	4,373	0	0	Closed	Closed	4,373
13-Jul	6,583	0	0	Closed	Closed	6,583
14-Jul	2,781	0	0	Closed	Closed	2,781
15-Jul	3,110	0	0	Closed	Closed	3,110
16-Jul	2,527	0	0	Closed	Closed	2,527
17-Jul	6,652	0	0	Closed	Closed	6,652
18-Jul	Closed	Closed	Closed	Closed	Closed	Closed

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**Table 21.**–Page 2 of 2.

Date	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
19-Jul	2,439	0	0	Closed	Closed	2,439
20-Jul	7,111	0	0	Closed	Closed	7,111
21-Jul	5,034	0	0	Closed	Closed	5,034
22-Jul	4,123	0	0	Closed	Closed	4,123
23-Jul	3,123	0	0	Closed	Closed	3,123
24-Jul	3,010	0	0	Closed	Closed	3,010
25-Jul	Closed	Closed	Closed	Closed	Closed	Closed
26-Jul	Closed	Closed	Closed	Closed	Closed	Closed
27-Jul	0	0	0	Closed	Closed	0
28-Jul	4,328	0	0	Closed	Closed	4,328
29-Jul	2,800	0	0	Closed	Closed	2,800
30-Jul	Closed	Closed	Closed	Closed	Closed	Closed
31-Jul	3,009	0	0	Closed	Closed	3,009
1-Aug	1,441	0	Closed	Closed	Closed	1,441
2-Aug	1,737	0	Closed	Closed	Closed	1,737
3-Aug	Closed	Closed	Closed	Closed	Closed	Closed
4-Aug	Closed	Closed	Closed	Closed	Closed	Closed
5-Aug	836	0	Closed	Closed	Closed	836
6-Aug	1,306	0	Closed	Closed	Closed	1,306
7-Aug	1,009	0	Closed	Closed	Closed	1,009
8-Aug	424	0	Closed	Closed	Closed	424
9-Aug	Closed	Closed	Closed	Closed	Closed	Closed
10-Aug	Closed	Closed	Closed	Closed	Closed	Closed
11-Aug	Closed	Closed	Closed	Closed	Closed	Closed
12-Aug	Closed	Closed	Closed	Closed	Closed	Closed
13-Aug	Closed	Closed	Closed	Closed	Closed	Closed
14-Aug	Closed	Closed	Closed	Closed	Closed	Closed
15-Aug	Closed	Closed	Closed	Closed	Closed	Closed
16-Aug	Closed	Closed	Closed	Closed	Closed	Closed
17-Aug	Closed	Closed	Closed	Closed	Closed	Closed
18-Aug	Closed	Closed	Closed	Closed	Closed	Closed
19-Aug	Closed	Closed	Closed	Closed	0	0
20-Aug	Closed	Closed	Closed	Closed	Closed	Closed
<b>Total</b>	<b>704,471</b>	<b>181</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>704,652</b>

**Table 22.**—Harvest of sockeye salmon considered by regulation to be Chignik-bound in the Chignik, Cape Igvak, and Southeastern District Mainland commercial salmon fisheries from June 1 to July 25, 1978 through 2004.

Year	Chignik <sup>a</sup>		Cape Igvak <sup>a</sup>		Southeastern District Mainland <sup>a</sup>		Total
	Catch <sup>b</sup>	Percent	Catch <sup>b</sup>	Percent	Catch <sup>c</sup>	Percent	
1978	1,454,389	86.6	225,078	13.4	ND	ND	1,679,467
1979	794,504	98.3	13,950	1.7	ND	ND	808,454
1980	670,001	91.3	32	0.0	63,724	8.7	733,757
1981	1,606,300	79.9	282,727	14.1	122,198	6.1	2,011,225
1982	1,250,768	84.5	166,756	11.3	62,789	4.2	1,480,313
1983	1,450,832	72.7	318,048	15.9	227,392	11.4	1,996,272
1984	2,474,405	73.9	449,372	13.4	423,292	12.6	3,347,069
1985	690,698	79.8	123,627	14.3	51,421	5.9	865,746
1986	1,456,729	82.6	188,017	10.7	118,006	6.7	1,762,752
1987	1,659,236	78.0	321,506	15.1	146,886	6.9	2,127,628
1988	675,487	95.8	10,520	1.5	19,320	2.7	705,327
1989	496,044	99.1	0	0.0	4,485	0.9	500,529
1990	1,205,575	84.3	107,706	7.5	117,065	8.2	1,430,346
1991 <sup>d</sup>	1,962,583	80.5	324,195	13.3	152,714	6.3	2,439,492
1992	1,054,309	81.2	150,434	11.6	93,845	7.2	1,298,588
1993	1,495,098	77.7	300,055	15.6	128,608	6.7	1,923,761
1994 <sup>e</sup>	1,632,435	80.6	250,230	12.4	142,350	7.0	2,025,015
1995	1,024,785	79.8	169,530	13.2	89,086	6.9	1,283,401
1996	1,710,249	79.7	308,327	14.4	127,201	5.9	2,145,777
1997	443,892	100.0	0	0.0	0	0.0	443,892
1998 <sup>f</sup>	786,466	91.2	8,813	1.0	66,893	7.8	862,172
1999	2,326,811	78.7	456,039	15.4	173,621	5.9	2,956,471
2000	1,509,652	80.1	271,344	14.4	103,419	5.5	1,884,415
2001 <sup>g</sup>	1,134,991	79.4	215,214	15.1	79,037	5.5	1,429,242
2002	849,980	81.0	136,488	13.0	63,026	6.0	1,049,494
2003	855,179	81.7	121,887	11.6	70,044	6.7	1,047,110
2004	681,120	75.9	160,665	17.9	55,123	6.1	896,908
Averages							
1984-03	1,280,735	82.8	201,493	10.9	114,177	6.3	1,596,405
1994-03	1,227,444	83.2	193,787	11.1	91,468	5.7	1,512,699
1999-03	1,335,323	80.2	240,194	13.9	97,829	5.9	1,673,346

<sup>a</sup> Through 2001, the Cape Igvak and Southeastern District Mainland figures represent 80% of the total sockeye salmon catch for those areas through July 25, based on the regulations in effect during those years. In 2002 the BOF increased the percentage of sockeye salmon harvest considered Chignik bound from 80% to 90% in the Cape Igvak fishery. The figures reported in this table are the portion of the catches considered Chignik-bound. These figures do not include Chignik test fishery harvests or fish retained for home pack as they are not included in the allocation scheme.

<sup>b</sup> Beginning in 1978 the Cape Igvak Salmon Management Plan allocated up to 15% of the total catch of Chignik-bound sockeye salmon to the Cape Igvak fishery.

<sup>c</sup> Beginning in 1985 the Southeastern District Mainland was allowed an allocation of 6.2% of the total harvest of Chignik bound sockeye salmon through July 25. Certain areas (which changed frequently) were excluded from the allocation and managed for local (Orzinski Lake) stocks (see regulations from the individual years). After July 25 the entire Southeast District Mainland was managed based on local stock abundance. The allocation level changed to 6.0% beginning in 1988. Beginning in 1992, the allocation of Chignik bound sockeye to the Southeastern District Mainland fishery was increased to 7.0%. Prior to the 1996 season, the BOF decreased the allocation from 7.0% to 6.0%.

<sup>d</sup> Includes a forgone harvest of 278,305 sockeye salmon during a Chignik area strike (June 23 to July 4).

<sup>e</sup> Includes a forgone harvest of 208,921 sockeye salmon during a Chignik area strike (June 2 to June 25).

<sup>f</sup> Includes a forgone harvest of 52,131 sockeye salmon during a Chignik area strike (June 16 to June 29).

<sup>g</sup> Includes a forgone harvest of 389,887 sockeye salmon in Chignik during a Chignik area strike (June 16 to 29), and foregone harvest of 27,896 sockeye salmon in the SEDM during a strike on the South Peninsula (June 14 to July 2).

**Table 23.**—Chignik Management Area sockeye salmon allocations and actual harvests (including fish retained as home pack but not test fishery harvests), 2002 through 2004.

Year	Fleet	Percentage			Number of Sockeye Salmon		
		Allocation	Actual	Difference	Allocation	Actual	Difference
2002	Cooperative	69.3	69.3	-0.03	721,726	721,428	-298
	Competitive	30.7	30.7	0.03	319,726	320,024	298
	Total	100.0	100.0		1,041,452	1,041,452	
2003	Cooperative	69.3	69.5	0.15	758,637	760,331	1,694
	Competitive	30.7	30.5	-0.15	336,078	334,384	-1,694
	Total	100.0	100.0		1,094,715	1,094,715	
2004	Cooperative	87.0	86.6	-0.37	607,898	605,288	-2,610
	Competitive	13.0	13.4	0.37	90,835	93,445	2,610
	Total	100.0	100.0		698,733	698,733	

**Table 24.**—Chignik sockeye salmon escapement, total catch considered Chignik-bound, and total run, 1970 through 2004.

Year	Early Run			Late Run			Total Run <sup>abc</sup>		
	Esc.	Catch	Run	Esc.	Catch	Run	Esc.	Catch	Run
1970	536,257	1,566,065	2,102,322	119,952	262,244	382,196	656,209	1,828,309	2,484,518
1971	671,668	555,832	1,227,500	232,501	709,190	941,691	904,169	1,265,022	2,169,191
1972	326,320	43,220	369,540	231,270	386,615	617,885	557,590	429,835	987,425
1973	533,047	610,488	1,143,535	249,144	355,195	604,339	782,191	965,683	1,747,874
1974	351,701	204,722	556,423	326,245	648,283	974,528	677,946	853,005	1,530,951
1975	308,914	7,873	316,787	268,734	417,560	686,294	577,648	425,433	1,003,081
1976	551,254	599,341	1,150,595	279,509	727,043	1,006,552	830,763	1,326,384	2,157,147
1977	482,247	534,198	1,016,445	251,753	1,602,363	1,854,116	734,000	2,136,561	2,870,561
1978	458,660	940,188	1,398,848	223,887	885,173	1,109,060	682,547	1,825,361	2,507,908
1979	385,694	186,537	572,231	352,122	933,788	1,285,910	737,816	1,120,325	1,858,141
1980	311,332	73,742	385,074	352,729	849,980	1,202,709	664,061	923,722	1,587,783
1981	438,540	800,364	1,238,904	392,909	1,444,030	1,836,939	831,449	2,244,394	3,075,843
1982	616,117	1,324,396	1,940,513	221,601	426,835	648,436	837,718	1,751,231	2,588,949
1983	426,177	1,128,246	1,554,423	409,458	1,241,369	1,650,827	835,635	2,369,615	3,205,250
1984	597,712	2,919,984	3,517,696	267,862	613,299	881,161	865,574	3,533,283	4,398,857
1985	376,576	654,431	1,031,007	369,262	442,119	811,381	745,838	1,096,550	1,842,388
1986	566,088	1,364,295	1,930,383	207,231	587,562	794,793	773,319	1,951,857	2,725,176
1987	589,291	1,947,088	2,536,379	214,452	420,142	634,594	803,743	2,367,230	3,170,973
1988	420,577	271,377	691,954	255,180	554,304	809,484	675,757	825,681	1,501,438
1989	384,004	234,237	618,241	557,171	929,535	1,486,706	941,175	1,163,772	2,104,947
1990	434,543	582,520	1,017,063	335,867	1,735,901	2,071,768	770,410	2,318,421	3,088,831
1991	657,511	1,711,549	2,384,420	328,587	661,025	1,028,252	1,040,098	2,372,574	3,412,672
1992	360,681	744,417	1,105,098	405,922	777,311	1,183,233	766,603	1,521,728	2,288,331
1993	364,261	926,892	1,291,153	333,116	1,199,122	1,532,238	697,377	2,126,014	2,823,391
1994	769,462	1,595,176	2,364,638	197,447	416,377	613,824	966,909	2,011,553	2,978,462
1995	366,163	666,799	1,032,962	373,757	1,315,862	1,689,619	739,920	1,982,661	2,722,581
1996	464,461	1,688,264	2,152,725	284,676	705,657	990,333	749,137	2,393,921	3,143,058
1997	396,667	234,824	631,491	378,951	535,523	914,474	775,618	770,347	1,545,965
1998	410,659	313,158	723,817	290,469	816,987	1,107,456	701,128	1,130,145	1,831,273
1999	457,429	2,022,272	2,479,701	258,537	1,723,915	1,982,452	715,966	3,746,187	4,462,153
2000	536,141	1,574,391	2,110,532	269,084	575,597	844,681	805,225	2,149,988	2,955,213
2001	744,013	563,539	1,307,552	392,905	1,214,403	1,607,308	1,136,918	1,777,942	2,914,860
2002	380,701	684,728	1,065,428	343,616	565,339	908,955	724,317	1,250,067	1,974,383
2003	350,004	640,084	990,088	334,119	652,144	986,263	684,123	1,292,228	1,976,351
2004	363,800	727,975	1,091,775	214,459	192,465	406,924	578,259	920,440	1,498,700
Averages									
1984-03	478,720	1,069,918	1,549,369	326,746	842,071	1,168,086	805,466	1,911,989	2,717,455
1994-03	487,570	998,324	1,485,893	312,356	852,180	1,164,537	799,926	1,850,504	2,650,430
1999-03	493,658	1,097,003	1,590,660	319,652	946,280	1,265,932	813,310	2,043,282	2,856,592

<sup>a</sup> Includes Cape Igvak and SEDM harvests considered Chignik-bound as defined in regulation. However, portions of the harvests from Cape Igvak and SEDM from 1970 to 1979 were not considered Chignik-bound by regulation, but were included in this table for comparison purposes.

<sup>b</sup> Does not include subsistence-caught fish.

<sup>c</sup> Includes catches from the Chignik Lagoon test fishery and fish retained for home pack.

**Table 25.**—Chignik sockeye salmon forecasts and actual runs, by run and year, 1993 through 2004.

Year	Early Run (millions)			Late Run (millions)			Total Run (millions)		
	Forecast	Actual	% Error	Forecast	Actual	% Error	Forecast	Actual	% Error
1993	1.60	1.29	19	0.95	1.53	-61	2.55	2.82	-11
1994	1.80	2.36	-31	1.30	0.61	53	3.10	2.98	4
1995	1.90	1.03	46	0.90	1.69	-88	2.80	2.72	3
1996	1.40	2.15	-54	1.60	0.99	38	3.00	3.14	-5
1997	1.00	0.63	37	1.60	0.91	43	2.60	1.55	41
1998	0.90	0.72	20	1.10	1.11	-1	2.00	1.83	8
1999	1.05	2.48	-136	1.29	1.98	-54	2.34	4.46	-91
2000	3.90	2.11	46	1.09	0.84	23	4.99	2.96	41
2001	1.00	1.31	-31	0.91	1.61	-77	1.91	2.91	-53
2002	1.03	1.07	-4	1.09	0.91	17	2.12	1.98	7
2003	1.64	0.99	40	1.19	0.99	17	2.83	1.98	30
2004	1.26	1.09	13	1.08	0.41	62	2.34	1.50	36
Averages									
1994 to 2003	1.56	1.49	-7	1.21	1.16	-3	2.77	2.65	-1
1999 to 2003	1.72	1.59	-17	1.11	1.27	-15	2.84	2.86	-13

**Table 26.**—Chignik Management Area coho salmon harvest, by year, 1970 through 2004.

Year	Testfish		Commercial Catch		Home Pack		Total	
	Number	Pounds	Number	Pounds	Number	Pounds <sup>a</sup>	Number	Pounds
1970	ND	ND	15,348	103,879	ND	ND	15,348	103,879
1971	ND	ND	14,557	96,832	ND	ND	14,557	96,832
1972	ND	ND	19,615	138,345	ND	ND	19,615	138,345
1973	ND	ND	22,322	172,190	ND	ND	22,322	172,190
1974	ND	ND	12,245	97,037	ND	ND	12,245	97,037
1975	ND	ND	53,283	467,912	ND	ND	53,283	467,912
1976	ND	ND	35,167	294,954	ND	ND	35,167	294,954
1977	ND	ND	17,430	156,418	ND	ND	17,430	156,418
1978	ND	ND	20,212	158,270	ND	ND	20,212	158,270
1979	ND	ND	99,129	725,035	ND	ND	99,129	725,035
1980	ND	ND	119,573	771,392	ND	ND	119,573	771,392
1981	ND	ND	78,805	602,603	ND	ND	78,805	602,603
1982	ND	ND	300,273	2,373,268	ND	ND	300,273	2,373,268
1983	ND	ND	61,927	488,203	ND	ND	61,927	488,203
1984	ND	ND	110,128	949,965	ND	ND	110,128	949,965
1985	0	0	191,162	1,709,637	ND	ND	191,162	1,709,637
1986	ND	ND	116,633	867,195	ND	ND	116,633	867,195
1987	0	0	150,414	1,189,803	ND	ND	150,414	1,189,803
1988	0	0	370,420	2,889,427	ND	ND	370,420	2,889,427
1989	0	0	68,233	559,140	ND	ND	68,233	559,140
1990	0	0	130,131	933,745	ND	ND	130,131	933,745
1991	42	253	165,583	1,182,704	ND	ND	165,625	1,182,957
1992	1	8	310,942	2,362,683	ND	ND	310,943	2,362,691
1993	356	2,024	229,103	1,459,220	ND	ND	229,459	1,461,244
1994	103	506	237,101	1,996,320	ND	ND	237,204	1,996,826
1995	0	0	280,605	2,062,086	913	6,709	281,518	2,068,795
1996	0	0	193,226	1,485,947	20	154	193,246	1,486,101
1997	0	0	90,908	756,509	0	0	90,908	756,509
1998	0	0	129,512	1,045,823	27	218	129,539	1,046,041
1999	0	0	89,410	617,320	200	1,381	89,610	618,701
2000	0	0	123,222	943,536	0	0	123,222	943,536
2001	0	0	131,441	1,012,153	7	54	131,448	1,012,207
2002	0	0	49,208	360,781	164	1,202	49,372	361,983
2003	44	287	103,778	857,097	74	611	103,896	857,995
2004	0	0	37	283	0	0	37	283
Averages								
1984-03	30	171	158,718	1,225,204	-	-	158,811	1,225,843
1994-03	15	79	142,841	1,113,757	156	1,148	142,996	1,114,869
1999-03	9	57	99,412	758,177	89	650	99,510	758,884

<sup>a</sup> Weights of home pack fish are not reported on fish tickets; therefore, the weights were calculated from the average weight of the commercial harvest for that year.

**Table 27.**—Chignik Management Area coho salmon harvest (including home pack and ADF&G test fishery catches), by district and year, 1970 through 2004.

Year	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
1970	4,578	62	399	9,745	564	15,348
1971	10,928	62	301	2,297	969	14,557
1972	17,692	2	160	1,579	182	19,615
1973	22,304	6	12	0	0	22,322
1974	11,056	414	0	775	0	12,245
1975	52,407	260	0	0	616	53,283
1976	34,426	173	109	32	427	35,167
1977	16,810	189	7	378	46	17,430
1978	14,467	24	21	3,848	1,852	20,212
1979	52,966	3,556	3,869	31,300	7,438	99,129
1980	49,784	7,167	13,872	34,631	14,119	119,573
1981	35,578	8,693	6,222	22,047	6,265	78,805
1982	132,262	6,564	31,476	122,707	7,264	300,273
1983	29,519	330	441	27,173	4,464	61,927
1984	72,722	1,705	403	33,263	2,035	110,128
1985	156,553	7,111	3,203	23,357	938	191,162
1986	60,197	3,027	1,033	33,726	18,650	116,633
1987	77,333	3,806	7	58,688	10,580	150,414
1988	94,292	21,628	6,167	207,086	41,247	370,420
1989	68,231	2	0	0	0	68,233
1990	61,260	27,659	32	23,422	17,758	130,131
1991	56,574	9,294	1,187	57,373	41,197	165,625
1992	80,946	19,612	4,260	140,560	65,565	310,943
1993	48,808	36,421	4,240	84,056	55,934	229,459
1994	70,541	19,794	176	110,476	36,217	237,204
1995	54,646	46,975	458	88,116	91,323	281,518
1996	45,361	35,440	33	91,587	20,825	193,246
1997	32,847	45,878	1,801	9,139	1,243	90,908
1998	23,070	32,743	1,227	55,359	17,140	129,539
1999	23,144	24,308	3,095	36,405	2,658	89,610
2000	11,620	37,943	2,555	69,599	1,505	123,222
2001	10,007	31,062	2,303	86,580	1,496	131,448
2002	8,461	4,442	0	36,283	186	49,372
2003	37,800	7,632	0	55,225	3,239	103,896
2004	37	0	0	0	0	37
Averages						
1984-03	53,521	19,848	1,553	63,213	20,676	158,811
1994-03	31,750	28,622	1,165	63,877	17,583	142,996
1999-03	18,206	21,077	1,591	56,818	1,817	99,510

**Table 28.**—Chignik Management Area coho salmon harvest (including home pack and ADF&G test fishery catches), by district and day, 2004.

Date	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
6/4	0	0	0	Closed	Closed	0
6/5	0	0	0	Closed	Closed	0
6/6	0	0	0	Closed	Closed	0
6/7	0	0	0	Closed	Closed	0
6/8	0	0	0	Closed	Closed	0
6/9	0	0	0	Closed	Closed	0
6/10	0	0	0	Closed	Closed	0
6/11	0	0	0	Closed	Closed	0
6/12	0	0	0	Closed	Closed	0
6/13	0	0	0	Closed	Closed	0
6/14	0	0	0	Closed	Closed	0
6/15	0	0	0	Closed	Closed	0
6/16	0	0	0	Closed	Closed	0
6/17	0	0	0	Closed	Closed	0
6/18	0	0	0	Closed	Closed	0
6/19	0	0	0	Closed	Closed	0
6/20	0	0	0	Closed	Closed	0
6/21	0	0	0	Closed	Closed	0
6/22	0	0	0	Closed	Closed	0
6/23	0	0	0	Closed	Closed	0
6/24	Closed	Closed	Closed	Closed	Closed	Closed
6/25	1	0	0	Closed	Closed	1
6/26	0	0	0	Closed	Closed	0
6/27	0	0	0	Closed	Closed	0
6/28	0	0	0	Closed	Closed	0
6/29	0	0	0	Closed	Closed	0
6/30	0	0	0	Closed	Closed	0
7/1	0	0	0	Closed	Closed	0
7/2	0	0	0	Closed	Closed	0
7/3	0	0	0	Closed	Closed	0
7/4	0	0	0	Closed	Closed	0
7/5	0	0	0	Closed	Closed	0
7/6	1	0	0	Closed	Closed	1
7/7	0	0	0	Closed	Closed	0
7/8	0	0	0	Closed	Closed	0
7/9	0	0	0	Closed	Closed	0
7/10	0	0	0	Closed	Closed	0
7/11	0	0	0	Closed	Closed	0
7/12	0	0	0	Closed	Closed	0
7/13	0	0	0	Closed	Closed	0
7/14	0	0	0	Closed	Closed	0
7/15	0	0	0	Closed	Closed	0
7/16	1	0	0	Closed	Closed	1
7/17	0	0	0	Closed	Closed	0
7/18	Closed	Closed	Closed	Closed	Closed	Closed

-continued-

**Table 28.**—Page 2 of 2.

Date	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
7/19	0	0	0	Closed	Closed	0
7/20	0	0	0	Closed	Closed	0
7/21	0	0	0	Closed	Closed	0
7/22	0	0	0	Closed	Closed	0
7/23	0	0	0	Closed	Closed	0
7/24	0	0	0	Closed	Closed	0
7/25	Closed	Closed	Closed	Closed	Closed	Closed
7/26	Closed	Closed	Closed	Closed	Closed	Closed
7/27	0	0	0	Closed	Closed	0
7/28	24	0	0	Closed	Closed	24
7/29	0	0	0	Closed	Closed	0
7/30	Closed	Closed	Closed	Closed	Closed	Closed
7/31	5	0	0	Closed	Closed	5
8/1	1	0	Closed	Closed	Closed	1
8/2	2	0	Closed	Closed	Closed	2
8/3	Closed	Closed	Closed	Closed	Closed	Closed
8/4	Closed	Closed	Closed	Closed	Closed	Closed
8/5	0	0	Closed	Closed	Closed	0
8/6	1	0	Closed	Closed	Closed	1
8/7	1	0	Closed	Closed	Closed	1
8/8	0	0	Closed	Closed	Closed	0
8/9	Closed	Closed	Closed	Closed	Closed	Closed
8/10	Closed	Closed	Closed	Closed	Closed	Closed
8/11	Closed	Closed	Closed	Closed	Closed	Closed
8/12	Closed	Closed	Closed	Closed	Closed	Closed
8/13	Closed	Closed	Closed	Closed	Closed	Closed
8/14	Closed	Closed	Closed	Closed	Closed	Closed
8/15	Closed	Closed	Closed	Closed	Closed	Closed
8/16	Closed	Closed	Closed	Closed	Closed	Closed
8/17	Closed	Closed	Closed	Closed	Closed	Closed
8/18	Closed	Closed	Closed	Closed	Closed	Closed
8/19	Closed	Closed	Closed	Closed	0	0
8/20	Closed	Closed	Closed	Closed	Closed	Closed
<b>Totals</b>	<b>37</b>	<b>0</b>	<b>0</b>	<b>Closed</b>	<b>0</b>	<b>37</b>

**Table 29.**—Chignik Management Area pink salmon harvest, by year, 1970 through 2004.

Year	Testfish		Commercial Catch		Home Pack		Total	
	Number	Pounds	Number	Pounds	Number	Pounds <sup>a</sup>	Number	Pounds
1970	ND	ND	1,157,172	4,104,927	ND	ND	1,157,172	4,104,927
1971	ND	ND	612,290	2,291,832	ND	ND	612,290	2,291,832
1972	ND	ND	72,161	278,778	ND	ND	72,161	278,778
1973	ND	ND	25,444	104,457	ND	ND	25,444	104,457
1974	ND	ND	69,515	290,712	ND	ND	69,515	290,712
1975	ND	ND	66,165	260,631	ND	ND	66,165	260,631
1976	ND	ND	395,287	1,749,923	ND	ND	395,287	1,749,923
1977	ND	ND	604,806	2,435,862	ND	ND	604,806	2,435,862
1978	ND	ND	985,114	3,454,877	ND	ND	985,114	3,454,877
1979	ND	ND	1,905,198	7,154,954	ND	ND	1,905,198	7,154,954
1980	ND	ND	1,093,184	3,635,145	ND	ND	1,093,184	3,635,145
1981	ND	ND	1,162,613	4,479,368	ND	ND	1,162,613	4,479,368
1982	ND	ND	873,384	2,916,671	ND	ND	873,384	2,916,671
1983	ND	ND	321,178	1,200,888	ND	ND	321,178	1,200,888
1984	ND	ND	444,804	1,651,249	ND	ND	444,804	1,651,249
1985	0	0	160,128	643,731	ND	ND	160,128	643,731
1986	ND	ND	647,125	2,374,311	ND	ND	647,125	2,374,311
1987	0	0	246,775	899,560	ND	ND	246,775	899,560
1988	0	0	2,997,159	10,723,505	ND	ND	2,997,159	10,723,505
1989	0	0	27,712	94,269	ND	ND	27,712	94,269
1990	0	0	550,008	1,675,644	ND	ND	550,008	1,675,644
1991	2,660	9,237	1,166,588	3,348,394	ND	ND	1,169,248	3,357,631
1992	114	536	1,553,959	5,798,623	ND	ND	1,554,073	5,799,159
1993	1,826	5,539	1,646,551	5,308,258	ND	ND	1,648,377	5,313,797
1994	14	55	431,049	1,494,604	ND	ND	431,063	1,494,659
1995	0	0	2,057,998	7,350,386	0	0	2,057,998	7,350,386
1996	0	0	183,806	536,218	5,262	15,351	189,068	551,569
1997	0	0	844,431	2,784,333	0	0	844,431	2,784,333
1998	0	0	776,988	2,586,026	0	0	776,988	2,586,026
1999	0	0	1,698,651	4,845,435	0	0	1,698,651	4,845,435
2000	0	0	428,064	1,183,004	0	0	428,064	1,183,004
2001	0	0	1,281,760	4,077,814	7	22	1,281,767	4,077,836
2002	66	276	65,984	206,385	0	0	66,050	206,661
2003	570	2,167	501,661	1,951,928	407	1,584	502,638	1,955,679
2004	0	0	2,380	7,589	0	0	2,380	7,589
Averages								
1984-03	292	989	858,685	2,892,122	-	-	859,205	2,893,778
1994-03	65	250	827,039	2,701,613	631	1,884	827,672	2,703,559
1999-03	127	489	795,224	2,452,913	83	321	795,434	2,453,723

<sup>a</sup> Weights of home pack fish are not reported on fish tickets; therefore, they were calculated from the average weight of the commercial harvest.

**Table 30.**—Chignik Management Area pink salmon harvest (including home pack and ADF&G test fishery catches), by district and year, 1970 through 2004.

Year	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
1970	46,297	27,919	268,857	442,684	371,415	1,157,172
1971	65,281	20,518	28,959	285,447	212,085	612,290
1972	31,606	766	12,928	14,880	11,981	72,161
1973	22,674	293	2,477	28	0	25,472
1974	33,484	22,084	568	13,379	0	69,515
1975	27,377	31,342	0	7,446	0	66,165
1976	108,827	16,583	28,828	135,803	105,246	395,287
1977	60,932	120,018	239	379,038	44,579	604,806
1978	137,074	61,224	86,778	419,280	280,758	985,114
1979	312,406	284,414	292,364	744,613	271,401	1,905,198
1980	180,912	108,682	472,510	216,460	114,620	1,093,184
1981	121,380	210,023	173,293	433,605	224,312	1,162,613
1982	82,973	80,606	89,074	602,408	18,323	873,384
1983	27,284	7,861	7,817	164,338	113,878	321,178
1984	165,178	47,250	57,715	173,820	841	444,804
1985	14,429	16,087	6,570	80,577	42,465	160,128
1986	191,264	44,127	49,635	200,793	161,306	647,125
1987	13,887	7,769	2,079	187,701	35,339	246,775
1988	119,794	318,370	1,006,366	1,141,382	411,247	2,997,159
1989	27,691	21	0	0	0	27,712
1990	94,528	233,677	40,574	135,810	45,419	550,008
1991	76,163	173,967	27,979	419,264	471,875	1,169,248
1992	178,105	205,750	183,119	628,900	358,199	1,554,073
1993	55,909	205,037	52,755	685,605	649,071	1,648,377
1994	59,425	99,149	12,952	174,641	84,896	431,063
1995	106,939	469,745	8,572	791,718	681,024	2,057,998
1996	1,804	20,717	7,201	100,871	58,475	189,068
1997	39,461	603,575	72,347	118,003	11,045	844,431
1998	26,054	233,732	66,725	343,187	107,290	776,988
1999	59,001	664,208	40,571	771,411	163,460	1,698,651
2000	28,067	271,417	10,500	106,147	11,933	428,064
2001	75,142	641,438	97,438	424,537	43,212	1,281,767
2002	10,253	17,580	0	36,918	1,299	66,050
2003	56,042	88,736	267	326,239	31,354	502,638
2004	2,378	2	0	0	0	2,380
Averages						
1984-03	67,925	208,105	83,390	333,898	165,887	859,205
1994-03	46,219	311,030	31,657	319,367	119,399	827,672
1999-03	45,701	336,676	29,755	333,050	50,252	795,434

**Table 31.**—Chignik Management Area pink salmon harvest (including home pack and ADF&G test fishery catches), by district and day, 2004.

Date	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
6/4	0	0	0	Closed	Closed	0
6/5	0	0	0	Closed	Closed	0
6/6	0	0	0	Closed	Closed	0
6/7	0	0	0	Closed	Closed	0
6/8	0	0	0	Closed	Closed	0
6/9	0	0	0	Closed	Closed	0
6/10	0	0	0	Closed	Closed	0
6/11	0	0	0	Closed	Closed	0
6/12	0	0	0	Closed	Closed	0
6/13	0	0	0	Closed	Closed	0
6/14	0	0	0	Closed	Closed	0
6/15	0	0	0	Closed	Closed	0
6/16	0	0	0	Closed	Closed	0
6/17	0	0	0	Closed	Closed	0
6/18	0	0	0	Closed	Closed	0
6/19	0	0	0	Closed	Closed	0
6/20	0	0	0	Closed	Closed	0
6/21	0	0	0	Closed	Closed	0
6/22	0	0	0	Closed	Closed	0
6/23	0	0	0	Closed	Closed	0
6/24	Closed	Closed	Closed	Closed	Closed	Closed
6/25	2	0	0	Closed	Closed	2
6/26	0	0	0	Closed	Closed	0
6/27	0	0	0	Closed	Closed	0
6/28	1	0	0	Closed	Closed	1
6/29	0	0	0	Closed	Closed	0
6/30	0	0	0	Closed	Closed	0
7/1	0	0	0	Closed	Closed	0
7/2	0	0	0	Closed	Closed	0
7/3	0	0	0	Closed	Closed	0
7/4	0	0	0	Closed	Closed	0
7/5	10	0	0	Closed	Closed	10
7/6	2	2	0	Closed	Closed	4
7/7	0	0	0	Closed	Closed	0
7/8	0	0	0	Closed	Closed	0
7/9	0	0	0	Closed	Closed	0
7/10	0	0	0	Closed	Closed	0
7/11	11	0	0	Closed	Closed	11
7/12	9	0	0	Closed	Closed	9
7/13	0	0	0	Closed	Closed	0
7/14	0	0	0	Closed	Closed	0
7/15	0	0	0	Closed	Closed	0
7/16	86	0	0	Closed	Closed	86
7/17	37	0	0	Closed	Closed	37
7/18	Closed	Closed	Closed	Closed	Closed	Closed

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**Table 31.**—Page 2 of 2.

Date	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
7/19	0	0	0	Closed	Closed	0
7/20	114	0	0	Closed	Closed	114
7/21	78	0	0	Closed	Closed	78
7/22	100	0	0	Closed	Closed	100
7/23	79	0	0	Closed	Closed	79
7/24	73	0	0	Closed	Closed	73
7/25	Closed	Closed	Closed	Closed	Closed	Closed
7/26	Closed	Closed	Closed	Closed	Closed	Closed
7/27	0	0	0	Closed	Closed	0
7/28	370	0	0	Closed	Closed	370
7/29	211	0	0	Closed	Closed	211
7/30	Closed	Closed	Closed	Closed	Closed	Closed
7/31	262	0	0	Closed	Closed	262
8/1	225	0	0	Closed	Closed	225
8/2	179	0	0	Closed	Closed	179
8/3	Closed	Closed	Closed	Closed	Closed	Closed
8/4	Closed	Closed	Closed	Closed	Closed	Closed
8/5	106	0	0	Closed	Closed	106
8/6	165	0	0	Closed	Closed	165
8/7	210	0	0	Closed	Closed	210
8/8	48	0	0	Closed	Closed	48
8/9	Closed	Closed	Closed	Closed	Closed	Closed
8/10	Closed	Closed	Closed	Closed	Closed	Closed
8/11	Closed	Closed	Closed	Closed	Closed	Closed
8/12	Closed	Closed	Closed	Closed	Closed	Closed
8/13	Closed	Closed	Closed	Closed	Closed	Closed
8/14	Closed	Closed	Closed	Closed	Closed	Closed
8/15	Closed	Closed	Closed	Closed	Closed	Closed
8/16	Closed	Closed	Closed	Closed	Closed	Closed
8/17	Closed	Closed	Closed	Closed	Closed	Closed
8/18	Closed	Closed	Closed	Closed	Closed	Closed
8/19	Closed	Closed	Closed	Closed	0	0
8/20	Closed	Closed	Closed	Closed	Closed	Closed
<b>Totals</b>	<b>2,378</b>	<b>2</b>	<b>0</b>	<b>Closed</b>	<b>0</b>	<b>2,380</b>

**Table 32.**—Annual Chignik Management Area chum salmon harvest, 1970 through 2004.

Year	Testfish		Commercial Catch		Home Pack		Total	
	Number	Pounds	Number	Pounds	Number	Pounds <sup>a</sup>	Number	Pounds
1970	ND	ND	437,252	3,004,113	ND	ND	437,252	3,004,113
1971	ND	ND	353,952	2,420,446	ND	ND	353,952	2,420,446
1972	ND	ND	78,298	603,726	ND	ND	78,298	603,726
1973	ND	ND	8,701	67,812	ND	ND	8,701	67,812
1974	ND	ND	34,312	246,288	ND	ND	34,312	246,288
1975	ND	ND	25,161	176,046	ND	ND	25,161	176,046
1976	ND	ND	81,403	678,545	ND	ND	81,403	678,545
1977	ND	ND	110,452	937,365	ND	ND	110,452	937,365
1978	ND	ND	120,889	984,141	ND	ND	120,889	984,141
1979	ND	ND	188,907	1,378,938	ND	ND	188,907	1,378,938
1980	ND	ND	252,521	1,765,287	ND	ND	252,521	1,765,287
1981	ND	ND	580,332	4,502,632	ND	ND	580,332	4,502,632
1982	ND	ND	390,096	3,231,403	ND	ND	390,096	3,231,403
1983	ND	ND	159,412	1,205,266	ND	ND	159,412	1,205,266
1984	ND	ND	63,303	485,967	ND	ND	63,303	485,967
1985	0	0	22,805	145,276	ND	ND	22,805	145,276
1986	ND	ND	176,640	1,304,418	ND	ND	176,640	1,304,418
1987	0	0	127,261	943,941	ND	ND	127,261	943,941
1988	0	0	267,775	2,196,377	ND	ND	267,775	2,196,377
1989	0	0	1,624	11,888	ND	ND	1,624	11,888
1990	0	0	270,004	1,757,019	ND	ND	270,004	1,757,019
1991	607	4,260	260,489	1,671,939	ND	ND	261,096	1,676,199
1992	16	140	222,118	1,592,186	ND	ND	222,134	1,592,326
1993	57	300	122,303	735,747	ND	ND	122,360	736,047
1994	521	3,437	226,755	1,627,574	ND	ND	227,276	1,631,011
1995	0	0	380,949	2,814,987	5	37	380,949	2,815,024
1996	0	0	99,791	779,840	21,100	164,891	120,891	944,731
1997	0	0	155,905	1,196,999	0	0	155,905	1,196,999
1998	0	0	128,841	917,648	155	1,104	128,996	918,752
1999	0	0	140,594	1,064,433	3	0	140,597	1,064,433
2000	0	0	120,957	1,033,665	0	0	120,957	1,033,665
2001	0	0	198,874	1,609,533	129	1,044	199,003	1,610,577
2002	46	334	54,513	406,382	0	0	54,559	406,716
2003	137	1,394	63,907	447,921	0	0	64,044	449,315
2004	0	0	505	3,803	0	0	505	3,803
Averages								
1984-03	77	548	155,468	1,140,429	-	-	156,552	1,148,855
1994-03	70	517	157,109	1,189,898	2,377	18,564	159,318	1,207,122
1999-03	37	346	115,769	912,387	26	209	115,832	912,941

<sup>a</sup> Weights of home pack fish are not reported on fish tickets; therefore, they were calculated from the average weight of the commercial harvest.

**Table 33.**—Chignik Management Area chum salmon harvest (including home pack and ADF&G test fishery catches), by district and year, 1970 through 2004.

Year	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
1970	1,660	28,628	241,108	139,551	26,305	437,252
1971	19,449	13,723	102,344	177,534	40,902	353,952
1972	18,178	1,566	27,723	18,535	12,296	78,298
1973	7,254	229	1,218	16	0	8,717
1974	17,317	13,516	255	3,224	0	34,312
1975	21,137	3,225	0	799	0	25,161
1976	19,237	3,358	10,020	33,051	15,737	81,403
1977	8,621	8,888	1,507	88,027	3,409	110,452
1978	15,020	10,317	17,451	45,991	32,110	120,889
1979	32,176	11,427	36,090	82,326	26,888	188,907
1980	19,944	38,902	56,805	91,868	45,002	252,521
1981	38,061	160,730	108,668	221,579	51,294	580,332
1982	16,034	33,669	64,513	253,299	22,581	390,096
1983	16,747	9,815	8,250	101,959	22,641	159,412
1984	8,173	8,150	21,134	25,364	482	63,303
1985	4,905	5,242	864	10,704	1,090	22,805
1986	18,167	29,502	17,880	74,070	37,021	176,640
1987	5,163	9,437	8,890	86,898	16,873	127,261
1988	7,013	39,316	77,511	102,730	41,205	267,775
1989	1,587	34	3	0	0	1,624
1990	11,460	113,741	27,463	91,603	25,737	270,004
1991	17,545	51,429	4,925	98,603	88,594	261,096
1992	12,711	45,569	61,209	65,466	37,179	222,134
1993	8,116	43,306	21,157	25,045	24,736	122,360
1994	25,250	69,552	4,333	94,116	34,025	227,276
1995	14,588	107,066	8,074	158,273	92,953	380,954
1996	782	46,993	19,837	36,303	16,976	120,891
1997	20,978	104,259	11,397	16,280	2,991	155,905
1998	7,352	43,191	5,180	41,425	31,848	128,996
1999	12,150	75,495	11,332	37,089	4,531	140,597
2000	8,389	66,904	8,045	34,823	2,796	120,957
2001	11,534	84,132	50,911	37,466	14,960	199,003
2002	3,949	9,643	513	40,337	117	54,559
2003	10,891	11,304	50	39,883	1,916	64,044
2004	499	6	0	0	0	505
Averages						
1984-03	10,831	46,385	17,569	58,021	23,746	156,552
1994-03	11,586	61,854	11,967	53,600	20,311	159,318
1999-03	9,383	49,496	14,170	37,920	4,864	115,832

**Table 34.**—Chignik Management Area chum salmon harvest (including home pack and ADF&G test fishery catches), by district and day, 2004.

Date	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
6/1	0	0	0	Closed	Closed	0
6/2	0	0	0	Closed	Closed	0
6/3	0	0	0	Closed	Closed	0
6/4	0	0	0	Closed	Closed	0
6/5	0	0	0	Closed	Closed	0
6/6	0	0	0	Closed	Closed	0
6/7	0	0	0	Closed	Closed	0
6/8	0	0	0	Closed	Closed	0
6/9	0	0	0	Closed	Closed	0
6/10	0	0	0	Closed	Closed	0
6/11	0	0	0	Closed	Closed	0
6/12	0	0	0	Closed	Closed	0
6/13	0	0	0	Closed	Closed	0
6/14	0	0	0	Closed	Closed	0
6/15	0	0	0	Closed	Closed	0
6/16	0	0	0	Closed	Closed	0
6/17	0	0	0	Closed	Closed	0
6/18	0	0	0	Closed	Closed	0
6/19	0	0	0	Closed	Closed	0
6/20	0	0	0	Closed	Closed	0
6/21	0	0	0	Closed	Closed	0
6/22	0	0	0	Closed	Closed	0
6/23	0	0	0	Closed	Closed	0
6/24	Closed	Closed	Closed	Closed	Closed	Closed
6/25	4	0	0	Closed	Closed	4
6/26	2	0	0	Closed	Closed	2
6/27	0	0	0	Closed	Closed	0
6/28	0	0	0	Closed	Closed	0
6/29	0	0	0	Closed	Closed	0
6/30	0	0	0	Closed	Closed	0
7/1	1	0	0	Closed	Closed	1
7/2	0	0	0	Closed	Closed	0
7/3	0	0	0	Closed	Closed	0
7/4	0	0	0	Closed	Closed	0
7/5	3	0	0	Closed	Closed	3
7/6	0	6	0	Closed	Closed	6
7/7	1	0	0	Closed	Closed	1
7/8	0	0	0	Closed	Closed	0
7/9	5	0	0	Closed	Closed	5
7/10	4	0	0	Closed	Closed	4
7/11	2	0	0	Closed	Closed	2
7/12	3	0	0	Closed	Closed	3
7/13	11	0	0	Closed	Closed	11
7/14	11	0	0	Closed	Closed	11
7/15	2	0	0	Closed	Closed	2
7/16	10	0	0	Closed	Closed	10
7/17	31	0	0	Closed	Closed	31
7/18	Closed	Closed	Closed	Closed	Closed	Closed

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**Table 34.**—Page 2 of 2.

Date	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
7/19	5	0	0	Closed	Closed	5
7/20	36	0	0	Closed	Closed	36
7/21	43	0	0	Closed	Closed	43
7/22	15	0	0	Closed	Closed	15
7/23	14	0	0	Closed	Closed	14
7/24	7	0	0	Closed	Closed	7
7/25	Closed	Closed	Closed	Closed	Closed	Closed
7/26	Closed	Closed	Closed	Closed	Closed	Closed
7/27	0	0	0	Closed	Closed	0
7/28	103	0	0	Closed	Closed	103
7/29	46	0	0	Closed	Closed	46
7/30	Closed	Closed	Closed	Closed	Closed	Closed
7/31	15	0	0	Closed	Closed	15
8/1	35	0	Closed	Closed	Closed	35
8/2	47	0	Closed	Closed	Closed	47
8/3	Closed	Closed	Closed	Closed	Closed	Closed
8/4	Closed	Closed	Closed	Closed	Closed	Closed
8/5	16	0	Closed	Closed	Closed	16
8/6	25	0	Closed	Closed	Closed	25
8/7	2	0	Closed	Closed	Closed	2
8/8	0	0	Closed	Closed	Closed	0
8/9	Closed	Closed	Closed	Closed	Closed	Closed
8/10	Closed	Closed	Closed	Closed	Closed	Closed
8/11	Closed	Closed	Closed	Closed	Closed	Closed
8/12	Closed	Closed	Closed	Closed	Closed	Closed
8/13	Closed	Closed	Closed	Closed	Closed	Closed
8/14	Closed	Closed	Closed	Closed	Closed	Closed
8/15	Closed	Closed	Closed	Closed	Closed	Closed
8/16	Closed	Closed	Closed	Closed	Closed	Closed
8/17	Closed	Closed	Closed	Closed	Closed	Closed
8/18	Closed	Closed	Closed	Closed	Closed	Closed
8/19	0	0	0	Closed	0	0
8/20	Closed	Closed	Closed	Closed	Closed	Closed
<b>Totals</b>	<b>499</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>505</b>

**Table 35.**—Value of the commercial salmon harvest, by species, and average value per active permit, in dollars, in the Chignik Management Area, 1970 through 2004.

Year	Chinook		Sockeye		Coho		Pink		Chum		Total Value	Number of Permits <sup>a</sup>	Value Per Permit
	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average			
1970	6,129	77	2,190,272	27,378	18,397	230	635,673	7,946	376,025	4,700	3,226,496	80	40,331
1971	6,472	84	2,034,279	26,419	23,240	302	366,693	4,762	326,760	4,244	2,757,444	77	35,811
1972	2,028	25	825,498	10,319	35,699	446	48,401	605	87,759	1,097	999,385	80	12,492
1973	5,255	67	3,030,057	38,355	73,663	932	20,610	261	10,180	129	3,139,765	79	39,744
1974	2,941	31	3,618,781	38,498	31,933	340	64,069	682	51,125	544	3,768,849	94	40,094
1975	6,561	76	1,384,271	16,096	213,539	2,483	104,115	1,211	61,704	717	1,770,190	86	20,584
1976	13,800	179	4,751,000	61,701	138,000	1,792	568,300	7,381	183,600	2,384	5,654,700	77	73,438
1977	18,828	214	14,553,720	165,383	104,819	1,191	920,881	10,465	368,066	4,183	15,966,314	88	181,435
1978	56,700	597	15,653,500	164,774	116,400	1,225	1,131,500	11,911	404,500	4,258	17,362,600	95	182,764
1979	32,050	311	11,345,503	110,151	710,192	6,895	2,622,269	25,459	126,866	1,232	14,836,880	103	144,047
1980	67,657	651	5,532,290	53,195	520,655	5,006	1,477,060	14,203	1,061,963	10,211	8,659,625	104	83,266
1981	75,231	716	17,262,119	164,401	439,900	4,190	1,881,334	17,917	2,431,421	23,156	22,090,005	105	210,381
1982	75,276	731	13,038,510	126,587	1,782,027	17,301	578,184	5,613	1,356,597	13,171	16,830,594	103	163,404
1983	96,159	943	10,728,088	105,177	219,650	2,153	240,171	2,355	421,713	4,134	11,705,781	102	114,763
1984	114,502	1,145	20,402,076	204,021	759,972	7,600	330,916	3,309	146,024	1,460	21,753,490	100	217,535
1985	67,088	633	7,997,834	75,451	1,471,418	13,881	140,076	1,321	59,475	561	8,735,891	106	82,414
1986	84,800	831	16,882,290	165,513	667,740	6,546	356,147	3,492	456,546	4,476	18,447,523	102	180,858
1987	72,739	706	24,783,033	240,612	1,035,129	10,050	269,868	2,620	339,819	3,299	26,500,588	103	257,287
1988	286,740	2,839	14,350,354	142,083	4,153,424	41,123	6,771,266	67,042	2,189,293	21,676	27,751,077	101	274,763
1989	78,999	790	13,047,378	130,474	436,892	4,369	32,994	330	4,745	47	13,601,008	100	136,010
1990	185,256	1,834	22,509,923	222,871	700,309	6,934	502,693	4,977	878,510	8,698	24,776,691	101	245,314
1991	50,027	490	11,002,784	107,870	650,626	6,379	402,916	3,950	502,860	4,930	12,609,213	102	123,620
1992	193,326	1,914	12,552,025	124,277	1,323,107	13,100	811,882	8,038	414,005	4,099	15,294,345	101	151,429
1993	175,690	1,722	8,210,106	80,491	730,622	7,163	637,666	6,252	184,012	1,804	9,938,096	102	97,432
1994	38,096	385	10,046,245	101,477	1,094,415	11,055	226,504	2,288	430,888	4,352	11,836,148	99	119,557
1995	60,174	602	11,969,210	119,692	834,337	8,343	977,811	9,778	634,780	6,348	14,476,312	100	144,763
1996	25,041	250	12,640,560	126,406	447,228	4,472	24,827	248	32,279	323	13,169,935	100	131,699
1997	20,642	211	4,860,589	49,598	453,905	4,632	348,042	3,551	239,400	2,443	5,922,577	98	60,434
1998	31,934	376	6,631,192	78,014	397,413	4,675	310,323	3,651	137,647	1,619	7,508,509	85	88,335
1999	27,212	302	21,132,550	234,806	170,931	1,899	578,861	6,432	118,547	1,317	22,028,101	90	244,757

-continued-

**Table 35.**—Page 2 of 2.

Year	Chinook		Sockeye		Coho		Pink		Chum		Total Value	Number of Permits <sup>a</sup>	Value Per Permit
	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average			
2000	16,336	165	11,812,368	119,317	283,061	2,859	106,470	1,075	93,030	940	12,311,264	99	124,356
2001	12,205	133	7,419,339	80,645	263,160	2,860	366,714	3,986	209,239	2,274	8,270,657	92	89,898
2002	3,516	36	4,564,214	46,103	36,078	364	10,333	104	40,671	411	4,654,812	99	47,018
2003	20,212	202	5,283,962	52,840	173,625	1,736	182,100	1,821	71,140	711	5,731,039	100	57,310
2004 <sup>a</sup>	26,191	262	3,568,350	35,684	59	1	835	8	647	6	3,596,082	100	35,961
Averages													
1984-03	79,081	786	12,325,053	124,178	776,335	7,724	648,980	6,506	362,125	3,615	14,143,955	99	142,360
1994-03	25,537	266	9,636,023	100,890	415,415	4,290	313,199	3,294	200,762	2,074	10,590,935	96	110,813
1999-03	15,896	168	10,042,487	106,742	185,371	1,944	248,896	2,684	106,525	1,131	10,599,175	96	112,668

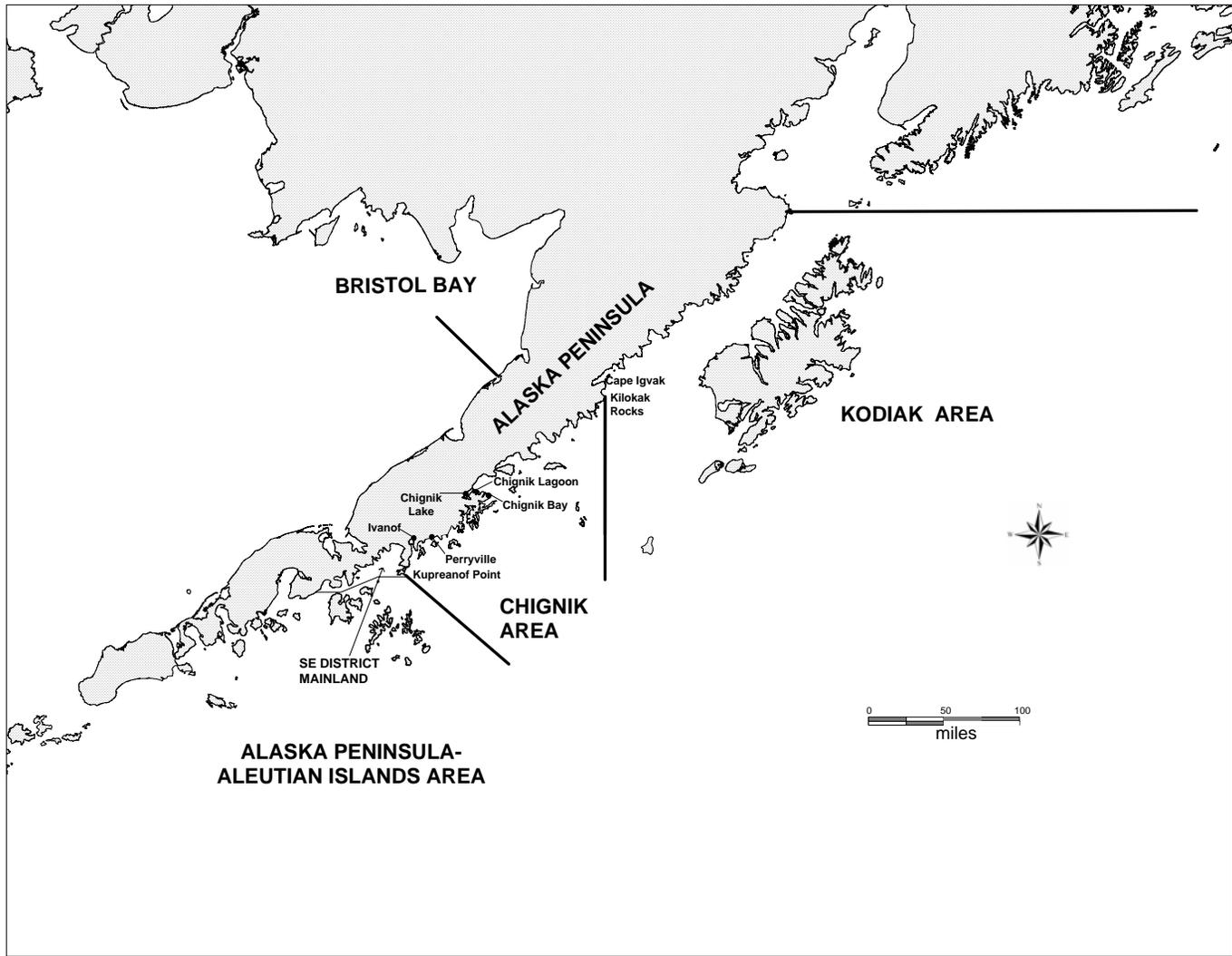
<sup>a</sup> Includes the number of commercial permits that received income from the harvest. These figures do not include ADF&G test fishery harvests.

<sup>b</sup> The 2004 average exvessel values per pound were: Chinook- \$0.60, sockeye- \$0.80, coho- \$0.21, pink- \$0.11, chum- \$0.17.

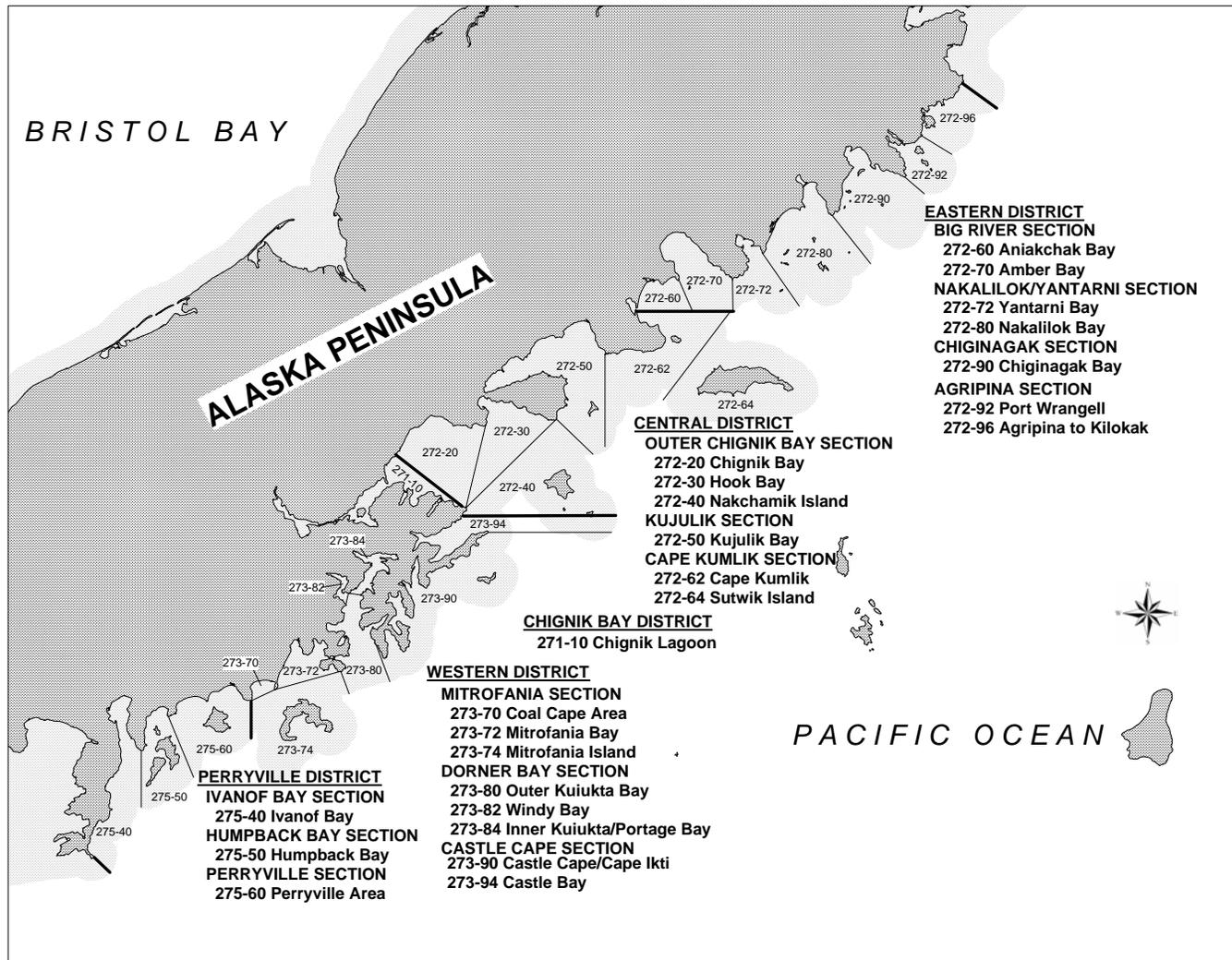
**Table 36.**—Number of subsistence permits issued and returned and estimated subsistence salmon harvest, by species and year, 1980 through 2004.

Year	Permits		Estimated Salmon Harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1980	82	37	6	12,475	32	169	478	13,160
1981	29	7	0	2,049	0	0	0	2,049
1982	59	15	3	8,532	12	0	2	8,549
1983	32	21	0	3,078	1,319	850	1,250	6,497
1984	77	64	23	8,747	464	204	330	9,768
1985	59	48	1	7,177	50	25	26	7,279
1986	74	38	4	10,347	205	77	98	10,731
1987	2	1	0	400	0	0	0	400
1988	80	34	9	9,073	1,455	142	54	10,733
1989	68	23	24	7,551	384	147	81	8,187
1990	72	23	103	8,099	210	115	470	8,997
1991	95	58	42	11,483	13	81	275	11,894
1992	98	19	55	8,648	709	145	305	9,862
1993	201	141	122	14,710	3,765	642	1,265	20,504
1994	219	122	165	13,978	4,055	382	1,720	20,300
1995	111	95	98	9,563	1,191	150	723	11,725
1996	119	104	48	7,357	2,126	355	2,204	12,090
1997	126	103	28	13,442	2,678	840	2,035	19,023
1998	104	72	91	7,750	1,390	186	1,007	10,424
1999	106	88	243	9,040	1,679	136	1,191	12,289
2000	130	112	163	9,561	1,802	517	1,185	13,228
2001	135	122	171	8,633	1,859	213	2,787	13,663
2002	120	86	74	10,092	1,401	23	390	11,980
2003	146	127	267	10,989	2,256	286	1,597	15,395
2004	104	57	88	7,029	1,981	1,047	202	10,347
Averages								
1984-03	104	71	82	9,034	1,381	263	904	11,665
1994-03	132	103	135	10,041	2,044	309	1,484	14,012
1999-03	127	107	184	9,663	1,799	235	1,430	13,311

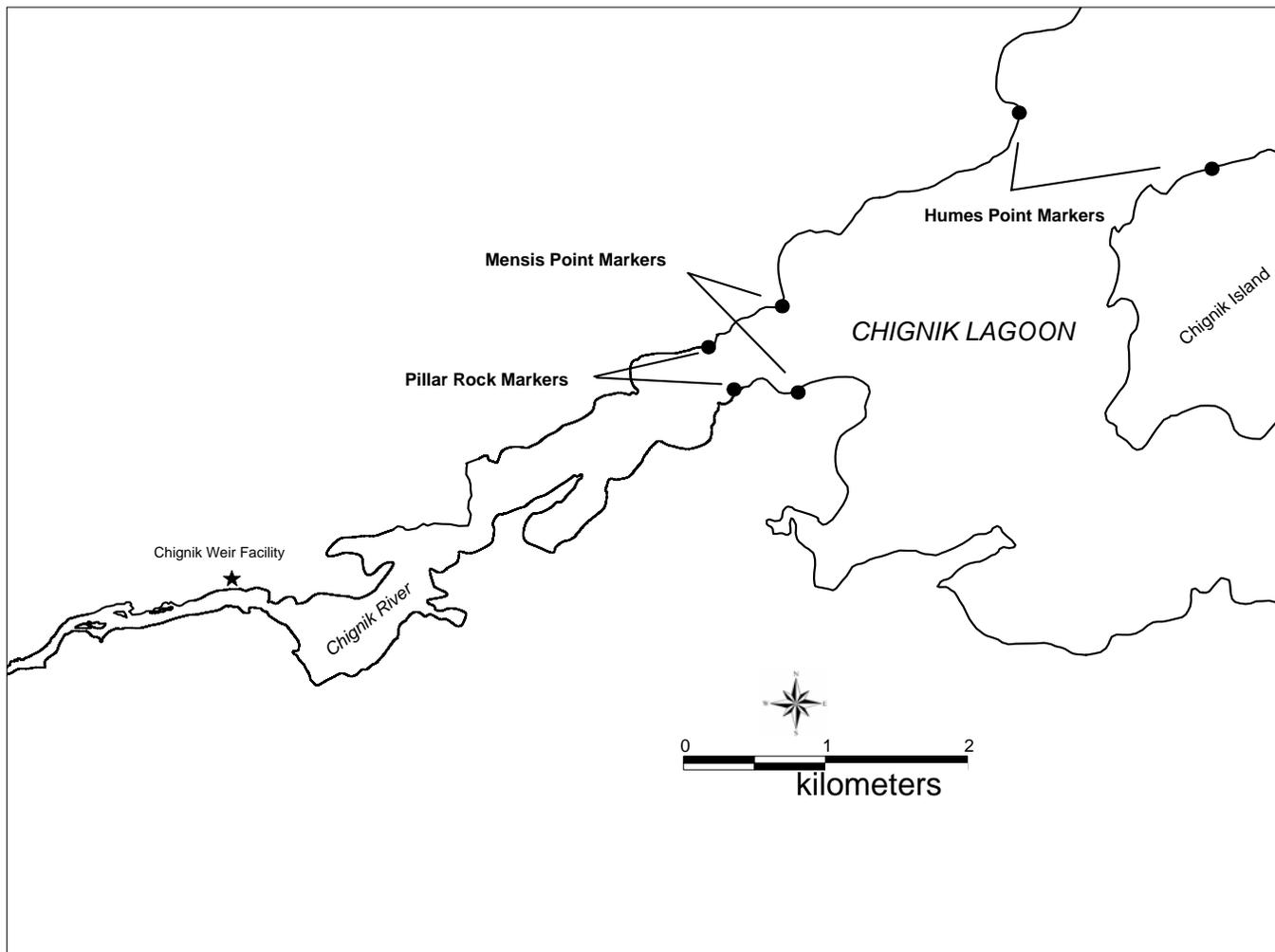
Source: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database.



**Figure 1.**—Map of the Alaska Peninsula illustrating the relative locations of the Chignik, Kodiak, and Alaska Peninsula and Aleutian Islands Management Areas.



**Figure 2.**—Map of the Chignik Management Area illustrating district and section boundaries and statistical areas.



**Figure 3.**—Map of upper Chignik Lagoon showing the location of the Pillar Rock, Mensis Point, and Humes Point marker locations.

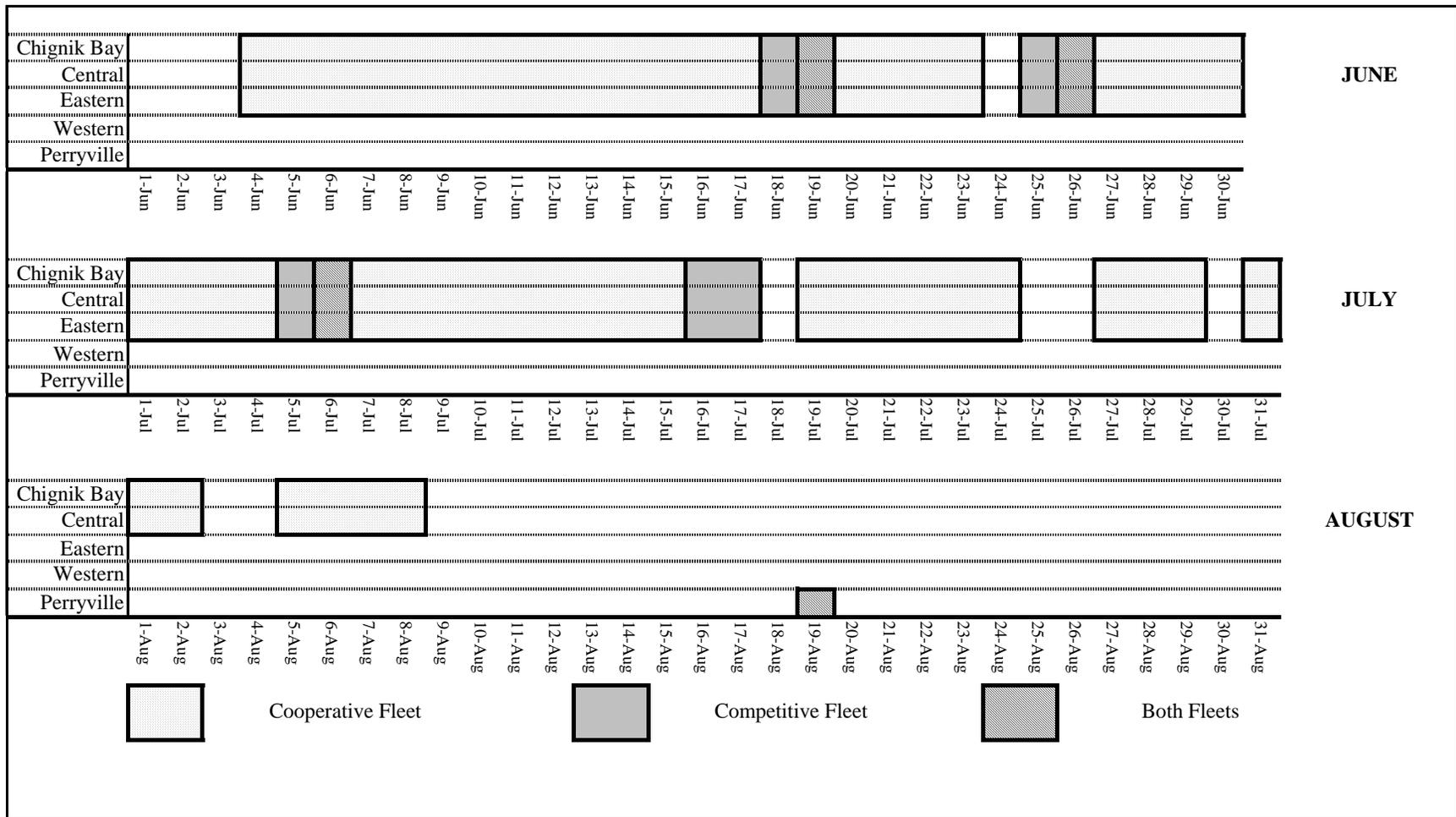
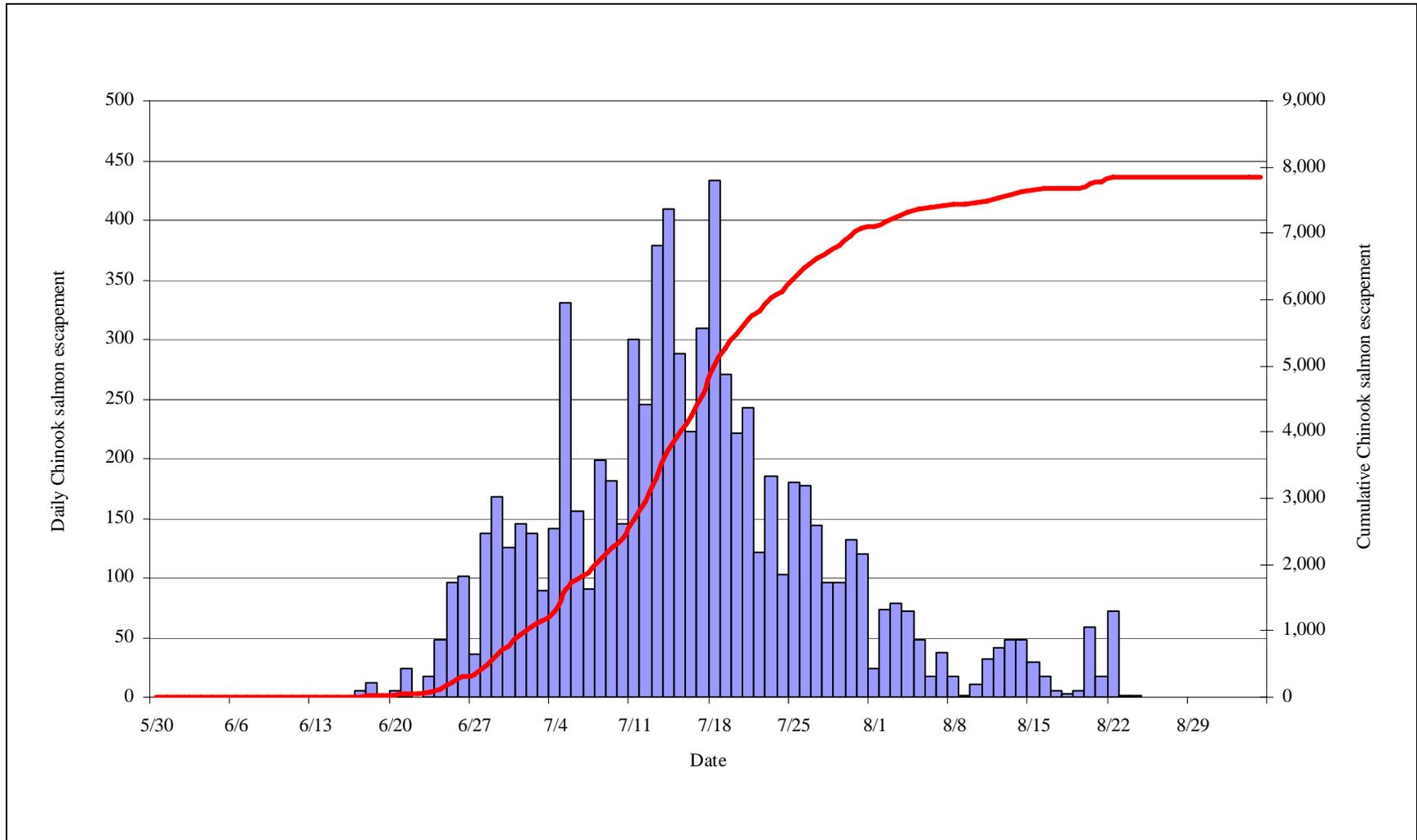
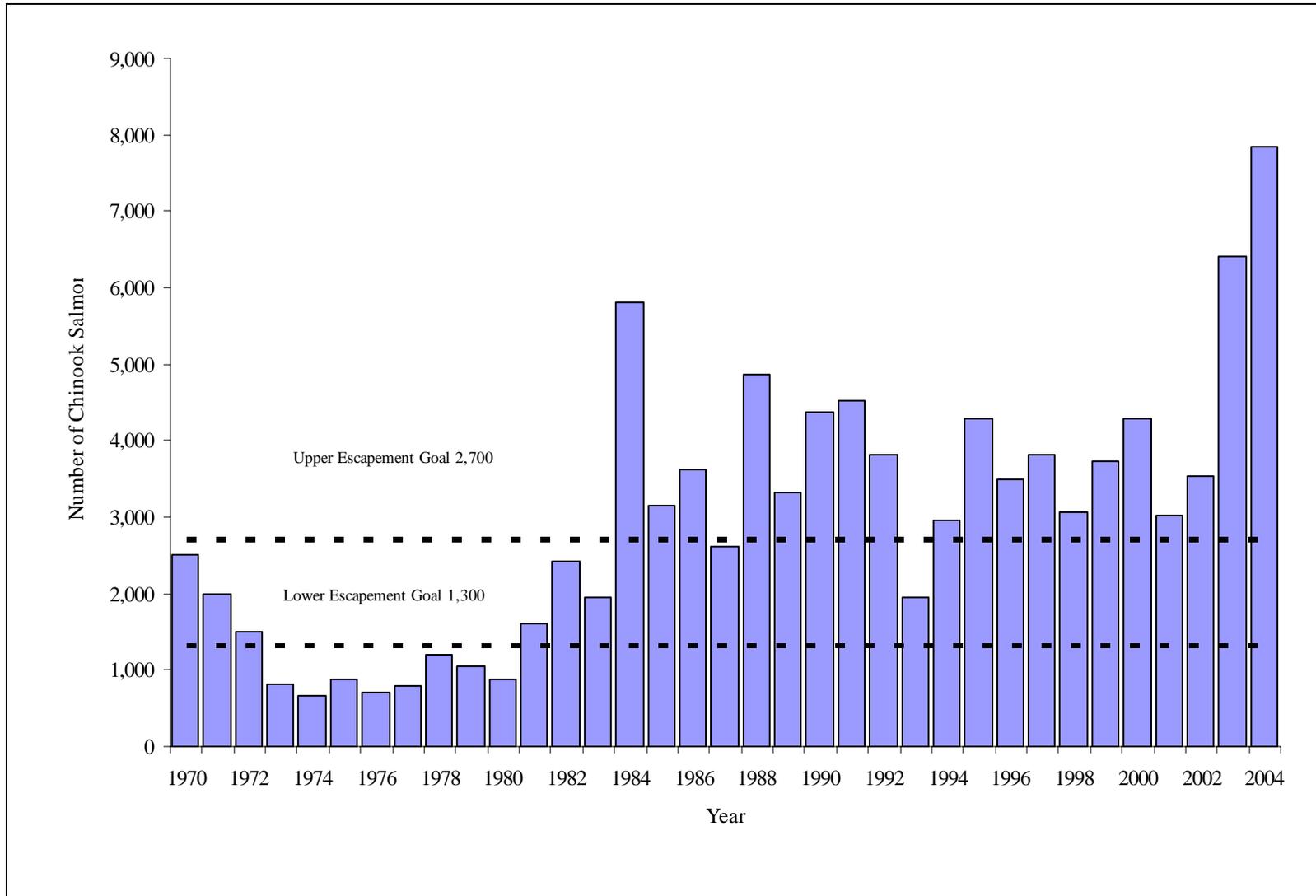


Figure 4.—Representation of days open to commercial salmon fishing, by district and fleet, by month, 2004.

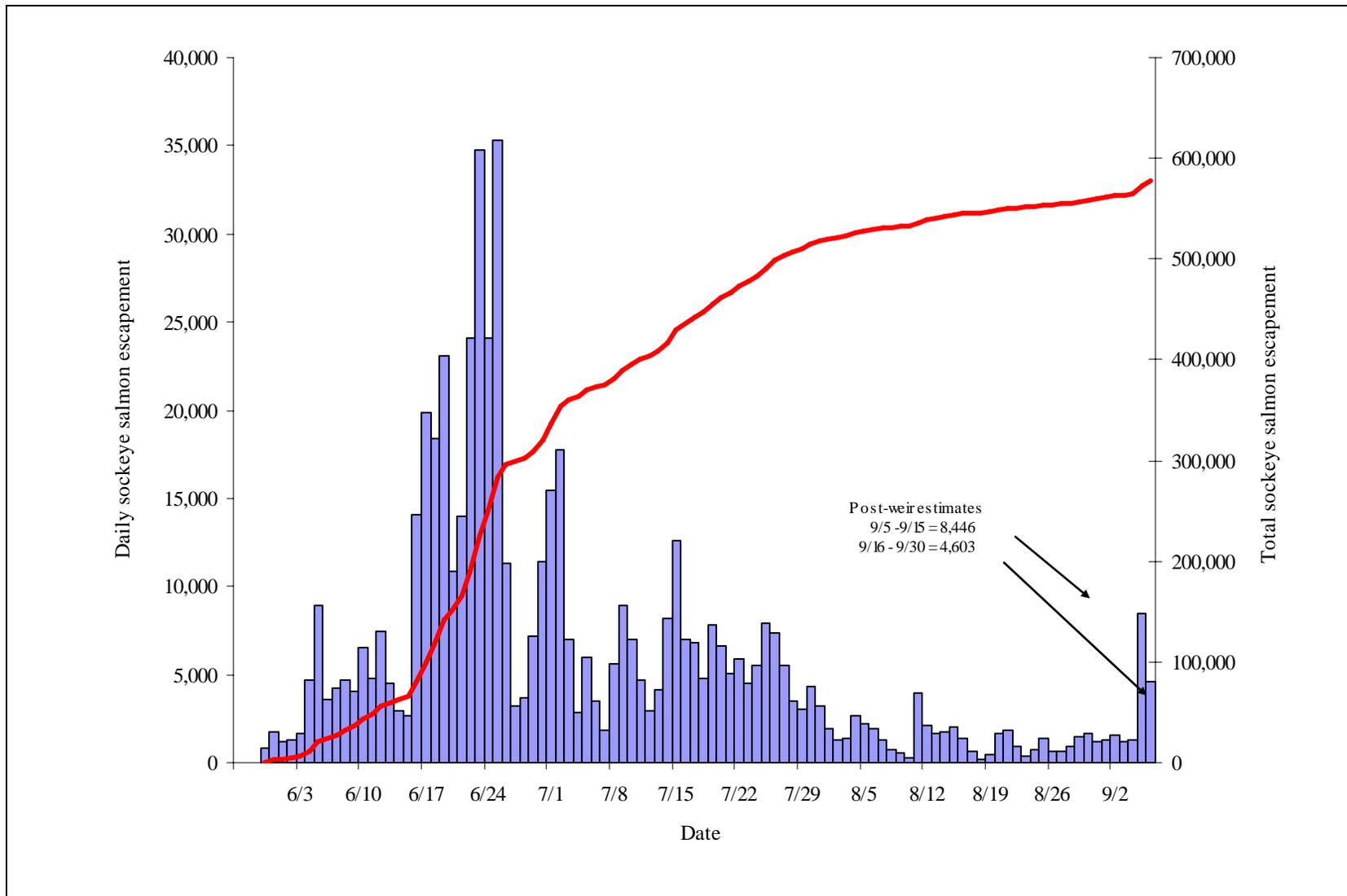




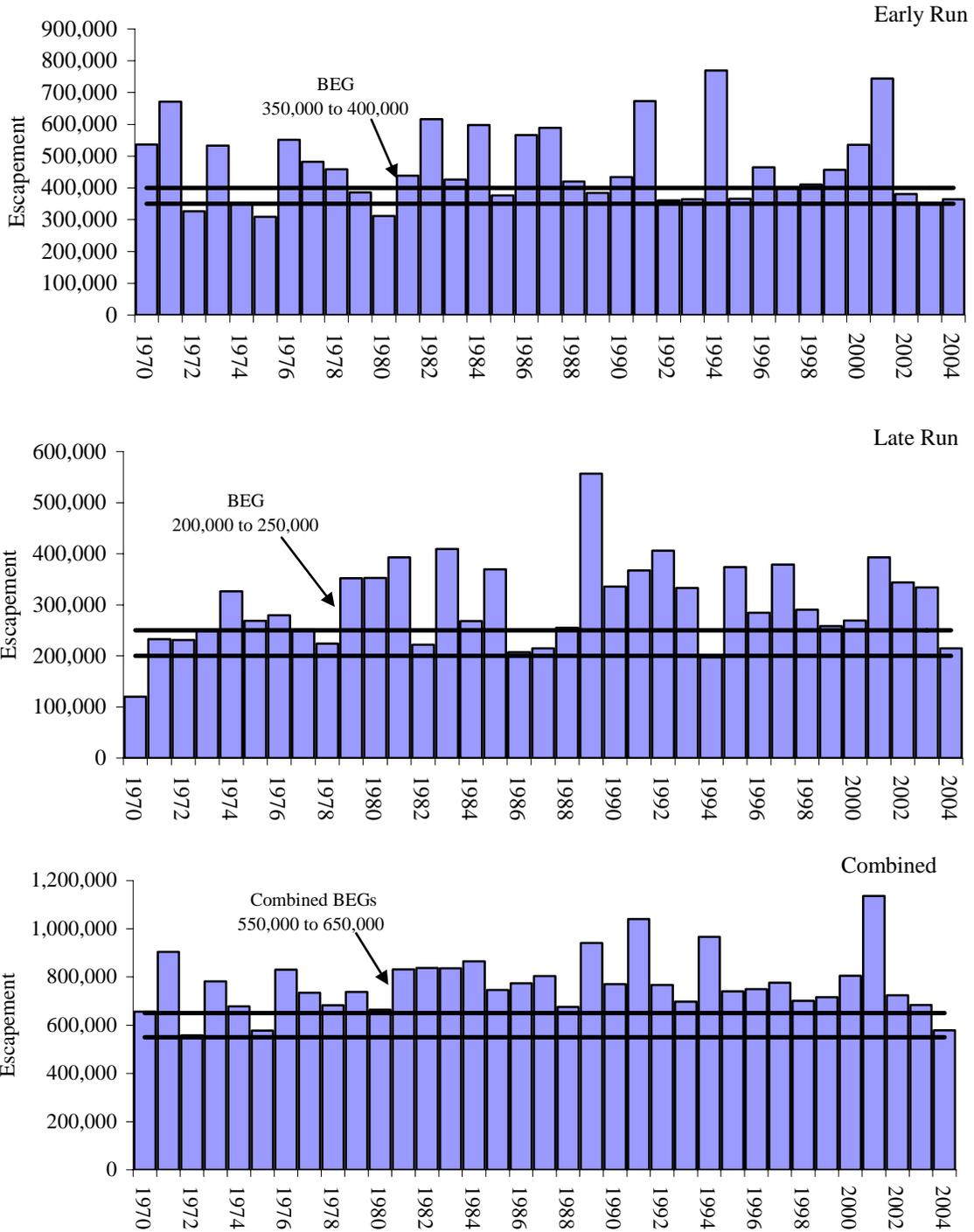
**Figure 6.**—Chignik River estimated daily (bars) and cumulative (line) Chinook salmon escapement, 2004.



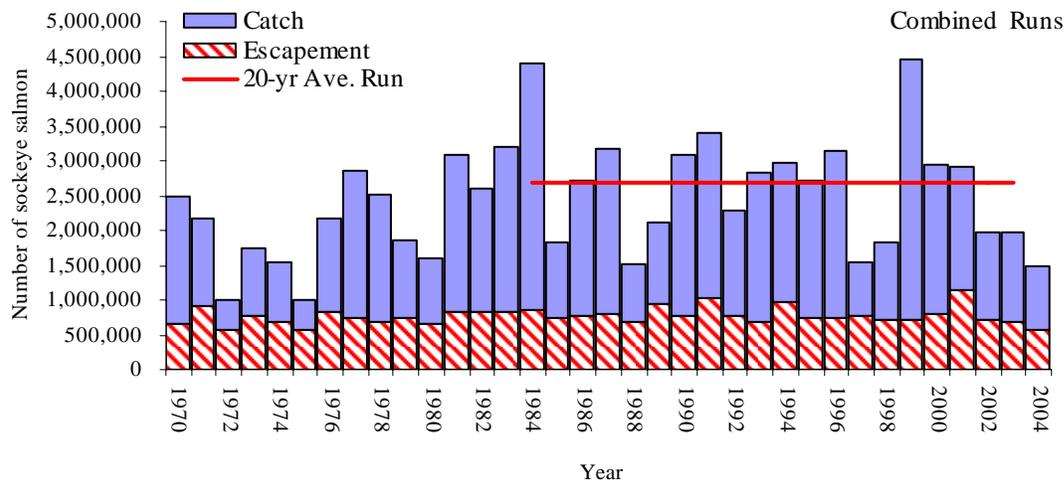
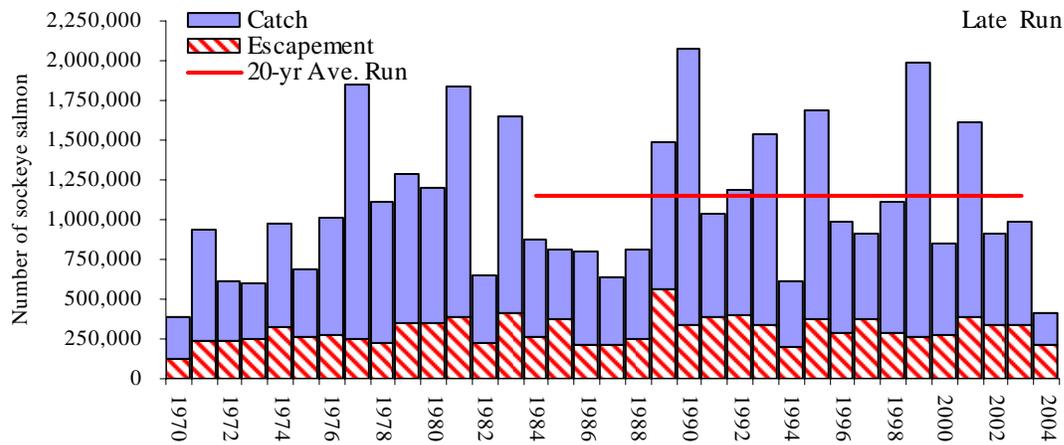
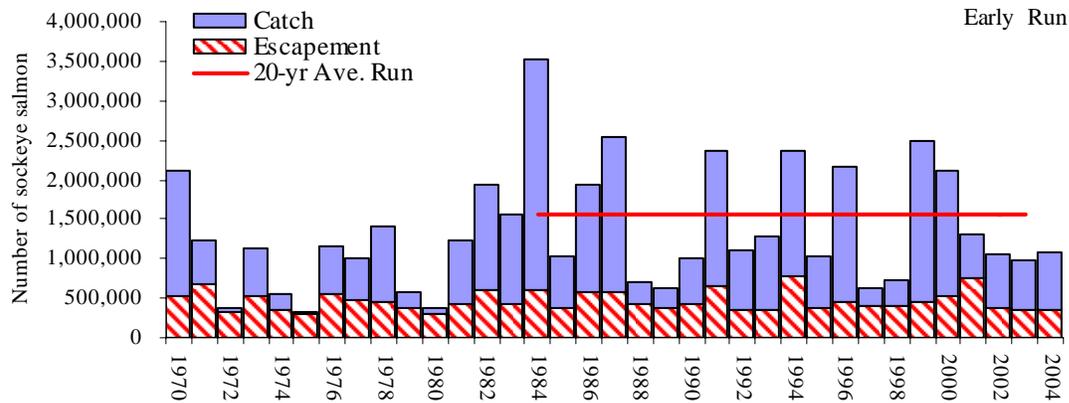
**Figure 7.**—Chignik River Chinook salmon escapement by year, 1970 through 2004, as compared to the 2004 escapement goal.



**Figure 8.**—Chignik River sockeye salmon daily (bars) and cumulative (line) escapement, 2004.



**Figure 9.**—Chignik River sockeye salmon early, late, and combined run escapements 1970 through 2004, compared to 2004 BEGs.



**Figure 10.**—Total sockeye salmon catch considered Chignik-bound by regulation including CMA commercial catch, home pack, ADF&G test fishery harvest, and Cape Igvak and SEDM allocations, by year and run, 1970 through 2004.



**APPENDIX A. 2004 CHIGNIK COMMISSIONER'S PERMITS**

**Appendix A1.**–2004 Chignik Management Area Cooperative Salmon Purse Seine Specifications  
Commissioner’s permit.

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STATE OF ALASKA



**FRANK MURKOWSKI, GOVERNOR**

**DEPARTMENT OF FISH AND GAME  
DIVISION OF COMMERCIAL  
FISHERIES**

211 Mission Road  
Kodiak, AK 99615  
PHONE: (907) 486-1825  
FAX: (907) 486-1841  
Or  
Chignik Weir  
PO 40 Chignik Lake, AK 99548  
PHONE: (907) 845-2243  
FAX: (907) 845-2235

**2004 CHIGNIK MANAGEMENT AREA COMMISSIONER’S PERMIT  
COOPERATIVE SALMON PURSE SEINE SPECIFICATIONS**

NAME: Chignik Seafood Producers Alliance (CSPA) ADF&G # 2004-5

OPERATOR: Axel Kopun, President CSPA

ADDRESS: Summer: P.O. Box 30 Winter: PO Box 773173  
Chignik Bay, AK 99564 Eagle River, AK 99577  
phone: (907) 749-2204 phone: (907) 622-6226

In addition to current Chignik Management Area salmon commercial fishing regulations, participants agree to the following conditions for seine specifications and operations:

- 1) Permit is valid from 8:00 A.M. June 1, 2004 to NOON September 30, 2004.
- 2) 5 AAC 15.359 (c) allows, through a commissioner’s permit, for the CSPA to operate purse seines and hand purse seines in the Chignik Bay District: a) east of a line in Chignik Lagoon from 56° 20.528’ N. lat., 158° 32.176’ W. long. and 56° 19.365’ N. lat., 158° 30.851’ W.long., seines may not be less than 50 fathoms or more than 225 fathoms in length, and b) west of a line in Chignik Lagoon from 56° 20.528’ N. lat., 158° 32.176’ W. long. and 56° 19.365’ N. lat., 158° 30.851’ W.long., seines may not be less than 50 fathoms or more than 125 fathoms in length, except c) in the Mensis Point to Pillar Rock reach of the Chignik River: west of a line from Mensis Point at 56° 16.90’ N.lat., 158° 38.51’ W.long. to a point on the opposite shore of the Chignik River at 56° 16.56’ N.lat., 158° 38.40’ W.long. and east of a line from Pillar Rock (north shore) at 56° 16.74’ N.lat., 158° 39.01’ W.long and to a point on the opposite shore of the Chignik River (Pillar Rock south shore) at 56° 16.57’ N.lat., 158° 38.84’ W.long. seines may not be less than 50 fathoms or more than 175 fathoms.

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- 3) No seine may be less than three fathoms stretch measure in depth nor more than 375 meshes in depth, including meshes used as chafing gear. The depth shall be determined by using a stretch measure of the web from the cork line to the bottom of the net, including any lines that hang below the lead line.
  - 4) Seine mesh may not be more than four and one-half inches stretch measure, except the first 25 meshes above the lead line may not be more than seven inches stretch measure.
  - 5) In the Mensis Point to Pillar Rock reach of the Chignik River: west of a line from Mensis Point at 56° 16.90' N.lat., 158° 38.51' W.long. to a point on the opposite shore of the Chignik River at 56° 16.56' N.lat., 158° 38.40' W.long. and east of a line from Pillar Rock (north shore) at 56° 16.74' N.lat., 158° 39.01' W.long and to a point on the opposite shore of the Chignik River (Pillar Rock south shore) at 56° 16.57' N.lat., 158° 38.84' W.long., the aggregate length of seine (up to 175 fathoms) and lead (up to 125 fathoms) may not be more than 300 fathoms.
  - 6) When a purse seine or hand purse seine is in the water for the purpose of taking fish, the seine shall be attached to the licensed vessel operating the gear. Only the licensed vessel and any accompanying skiffs associated with the licensed vessel may be attached to the seine.
  - 7) A purse seine and a hand purse seine are considered to have ceased fishing when the bunt end of the seine is attached to the purse seine vessel and the tow end of the seine is attached to the vessel or moving through the power block.
  - 8) An ADF&G observer may sample and measure all catch and bycatch from the harvesting vessel's seine. The vessel operator and crew must exercise patience and slow the pace of fishing, if required, to accommodate the accurate collection of all data required from the ADF&G observer.
  - 9) Where concurrent cooperative and competitive fishery openings occur in the Chignik Bay District, then seine regulations for all Chignik purse seine permit holders will revert to 5 AAC 15.332 (in the Chignik Bay District, purse seine and hand purse seines may not be less than 100 fathoms or more than 125 fathoms in length) except for the Mensis Point to Pillar Rock reach of the Chignik River where the cooperative fishery seines may not be less than 50 fathoms or more than 175 fathoms.
  - 10) Provisions in item #9, above, will not apply in "Jacks Bay" (all waters of Chignik Bay District east of 158° 15.360 W.long., south of 56°20.00' N. lat., and west of 158° 10.00 W.long), when "Jacks Bay" is also opened in conjunction with fishery openings in the Western and Perryville Districts.
  - 11) At all times within "Jacks Bay" (all waters of Chignik Bay District east of 158° 15.360 W.long., south of 56°20.00' N. lat., and west of 158° 10.00 W.long), purse seine and hand purse seines may not be less than 100 fathoms or more than 125 fathoms in length).
  - 12) Vessels must adhere to all commercial fishing and landing requirements.
  - 13) The Chignik Seafood Processors Alliance is responsible for the actions of contractors, agents, or other persons who perform work to accomplish the goals of this permit and the cooperative fishery management plan, 5 AAC 15.359. The permittee shall notify ADF&G, Division of Commercial Fisheries, and obtain written approval in the form of a permit amendment before beginning any activity that significantly deviates from the approved plan and permits. Any action taken by the permittee or an agent of the permittee that increases the permit overall scope or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of ADF&G. Therefore, it is recommended that ADF&G, Division of Commercial Fisheries, be consulted immediately when a deviation from the approved permit is being considered.
  - 14) This permit does not relieve the Chignik Seafood Processors Alliance, their contractors, agents, or other persons who perform their work from the responsibility for securing other permits: state, federal, or local.
  - 15) This permit may be modified or voided by the ADF&G at any time.
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**Appendix A1.**–Page 3 of 3.

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I \_\_\_\_\_, for the Board of Directors of the Chignik Seafood Producers Alliance, hereby authorize the release of confidential fish ticket harvest information that results from my participation in the 2004 Chignik Management Area salmon fishery. I understand this information will be used for reporting of stock condition on Chignik Management Area salmon and any effects the lead may have on the salmon stocks and habitat in Chignik Lagoon. I also agree to abide by all permit terms stated above.

\_\_\_\_\_  
CHIGNIK SEAFOOD PRODUCERS ALLIANCE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
ADF&G REPRESENTATIVE

\_\_\_\_\_  
DATE

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# STATE OF ALASKA

## DEPARTMENT OF FISH AND GAME DIVISION OF COMMERCIAL FISHERIES



**FRANK MURKOWSKI, GOVERNOR**

211 Mission Road

**Kodiak, AK 99615**

PHONE: (907) 486-1825

FAX: (907) 486-1841

Or

Chignik Weir

PO 40 Chignik Lake, AK 99548

PHONE: (907) 845-2243

FAX: (907) 845-2235

### 2004 CHIGNIK MANAGEMENT AREA COMMISSIONER'S PERMIT COOPERATIVE SALMON FIXED LEADS

NAME: Chignik Seafood Producers Alliance (CSPA)      ADF&G # 2004-4

OPERATOR: Axel Kopun, President CSPA

ADDRESS: Summer: P.O. Box 30      Winter: PO Box 773173  
Chignik Bay, AK 99564      Eagle River, AK 99577  
phone: (907) 749-2204      phone: (907) 622-6226

In addition to current Chignik Management Area salmon commercial fishing regulations, participants agree to the following conditions:

- 1) Permit is valid from 8:00 A.M. June 1, to NOON October 1, 2004.
- 2) 5 AAC 15.359 (c) allows, through a commissioner's permit, for CSPA to operate two fixed leads in the Chignik Management Area located in Chignik Lagoon.
- 3) One lead may be attached to the beach at approximately the high tide mark at approximately 56° 16.74' N. lat., 158° 39.01' W. long. A second lead may be attached to the beach at approximately the high tide mark at approximately 56° 16.57' N. lat., 158° 38.84' W. long. These locations are upstream of the regulatory water boundary at Hume Point (5 AAC 15.350 (1)(A)), near the closed waters boundary location known as Pillar Rock.
- 4) Each lead may be up to 125 fathoms in length and no more than 100 meshes in depth.
- 5) Each lead shall be made of seine webbing, with meshes no greater than 4 inches stretch measure.

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- 6) Each lead must have a corkline and a leadline and be anchored at both ends and at appropriate intervals along the leadline to hold position in essentially a straight line.
- 7) A distance of at least 100 feet of open space must always be provided for at mid channel between the two leads, except that purse seines, either attached or not attached to the leads, may have less than 100 feet of open space between them and the leads within the Mensis Point to Pillar Rock reach of the Chignik River, provided that access for vessel traffic within the Chignik River is maintained.
- 8) Each lead corkline must have operating white lights at night every ten fathoms along the entire length of the corkline, and have appropriate operating port (red) and starboard (green) lights on the seaward end of the leads to mark the navigable channel between the leads.
- 9) The ADF&G may verbally request the removal of the leads at any time; upon the removal request by ADF&G, the operator must completely remove the leads from the water within two hours.
- 10) Leads shall be completely removed from the water prior to the closure of each cooperative fishing period and may be installed, in the water, at the beginning of each cooperative fishing period.
- 11) One end of a harvesting vessel's seine may be attached to the seaward end of the lead for the purpose of harvesting salmon.
- 12) The aggregate length of the lead and purse seine may not be more than 300 fathoms.
- 13) When a purse seine is attached to a lead, the purse seine vessel, the purse seine, and the lead may at any time go dry, provided that access for vessel traffic within the Chignik River is maintained.
- 14) When a purse seine is attached to a lead, the vessel is not required to keep its engine running and the vessel may be anchored, provided that access for vessel traffic within the Chignik River is maintained.
- 15) At night when a purse seine is attached to a lead, the vessel must display an appropriate red mast light to indicate fishing or a white light to indicate anchoring and there must be at least two white lights placed along the purse seine between the purse seine vessel and the lead.
- 16) In the Chignik Management Area, a vessel may have a purse seine or hand purse seine aboard as described in 5 AAC 15.332 and a total of two fixed leads aboard as they are described in this permit.
- 17) When the ADF&G restricts the salmon catch of the cooperative by imposing a daily harvest limit, the cooperative may fully deploy the leads at 12:01 AM of the harvest limit day. When the ADF&G daily harvest limit has been harvest, the cooperative must minimize impediments to fish migrations by tying the lead leadline to the corkline.
- 18) An ADF&G observer may sample and measure all catch and bycatch of the leads and the harvesting vessel's seine. The vessel operator and crew must exercise patience and slow the pace of fishing, if required, to accommodate the accurate collection of all data required from the ADF&G observer.
- 19) Participants will notify ADF&G in Chignik prior to commencement of lead operation and at the conclusion of lead operation.
- 20) The Chignik Seafood Producers Alliance will provide ADF&G a logbook for each lead specifying, on a daily basis, the time each lead is fishing, repairs, alterations, maintenance (cleaning), and other data as requested by ADF&G.
- 21) Vessels must adhere to all commercial fishing and landing requirements.

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- 22) The Chignik Seafood Processors Alliance is responsible for the actions of contractors, agents, or other persons who perform work to accomplish the goals of this permit and the cooperative fishery management plan, 5 AAC 15.359. The permittee shall notify ADF&G, Division of Commercial Fisheries, and obtain written approval in the form of a permit amendment before beginning any activity that significantly deviates from the approved plan and permits. Any action taken by the permittee or an agent of the permittee that increases the permit overall scope or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of ADF&G. Therefore, it is recommended that ADF&G, Division of Commercial Fisheries, be consulted immediately when a deviation from the approved permit is being considered.
- 23) This permit does not relieve the Chignik Seafood Processors Alliance, their contractors, agents, or other persons who perform their work from the responsibility for securing other permits: state, federal, or local.
- 24) This permit may be modified or voided by the ADF&G at any time.

I \_\_\_\_\_, for the Board of Directors of the Chignik Seafood Producers Alliance, hereby authorize the release of confidential fish ticket harvest information that results from my participation in the 2004 Chignik Management Area salmon fishery. I understand this information will be used for reporting of stock condition on Chignik Management Area salmon and any effects the lead may have on the salmon stocks and habitat in Chignik Lagoon. I also agree to abide by all permit terms stated above.

\_\_\_\_\_  
CHIGNIK SEAFOOD PRODUCERS ALLIANCE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
ADF&G REPRESENTATIVE

\_\_\_\_\_  
DATE

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I \_\_\_\_\_, for the Board of Directors of the Chignik Seafood Producers Alliance, hereby agree to abide by all permit terms stated above.

\_\_\_\_\_  
CHIGNIK SEAFOOD PRODUCERS ALLIANCE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
ADF&G REPRESENTATIVE

\_\_\_\_\_  
DATE

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lat., 158°38.51' W. long. and approximately 56°16.56' N. lat., 158°38.40' W. long., known as Mensis Point. The area between Mensis Point and Pillar Rock markers shall be known as the “Pillar Rock Harvest Area”.

- 4) (a) The lead attached to the Mensis Point shoreline may be up to 225 fathoms in length and no more than 100 meshes in depth. A purse seine may not be attached to this lead.  
(b) The lead attached to the Pillar Rock shoreline may be up to 125 fathoms in length and may be no more than 100 meshes in depth. A purse seine may be attached to this lead.
- 6) **Each lead must have a corkline and a leadline and may be anchored at appropriate intervals for the purpose of holding its position.**
- 7) **A distance of at least 100 feet of open space must always be provided for between the leads in the main channel of the river as measured at the upstream-most corners of the leads. There may be less than 100 feet of open space between the leads and purse seine gear provided that access for vessel traffic is maintained.**
- 11) **Repealed.**
- 13) **When a purse seine or vessel is attached to the Pillar Rock lead or a vessel is attached to the Mensis Point lead, the purse seine vessel, the purse seine, and the lead may at any time go dry, provided that access for vessel traffic within the Chignik River is maintained.**
- 14) **When a purse seine or vessel is attached to a lead, the vessel is not required to keep its engine running and the vessel may be anchored, provided that access for vessel traffic within the Chignik River is maintained.**
- 25) **When the leads are deployed in any manner a cooperative CFEC permit holder must be present at all times within the Pillar Rock Harvest Area.**

I \_\_\_\_\_, for the Board of Directors of the Chignik Seafood Producers Alliance, hereby agree to abide by all permit terms stated above.

\_\_\_\_\_  
CHIGNIK SEAFOOD PRODUCERS ALLIANCE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
ADF&G REPRESENTATIVE

\_\_\_\_\_  
DATE

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**Appendix A5.**–2004 Chignik Management Area Cooperative Salmon Fishery Harvest Reporting Requirements Commissioner’s Permit.

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STATE OF ALASKA

**DEPARTMENT OF FISH AND GAME  
DIVISION OF COMMERCIAL  
FISHERIES**



**FRANK MURKOWSKI, GOVERNOR**

211 Mission Road  
Kodiak, AK 99615  
PHONE: (907) 486-1825  
FAX: (907) 486-1841

Or

Chignik Weir  
PO 40 Chignik Lake, AK 99548  
PHONE: (907) 845-2243  
FAX: (907) 845-2235

**2004 CHIGNIK MANAGEMENT AREA COMMISSIONER’S PERMIT  
COOPERATIVE SALMON FISHERY HARVEST REPORTING REQUIREMENTS**

NAME: Chignik Seafood Producers Alliance (CSPA) ADF&G # 2004-2B

OPERATOR: Axel Kopun, President CSPA

ADDRESS: Summer: P.O. Box 30 Winter: PO Box 773173  
Chignik Bay, AK 99564 Eagle River, AK 99577  
phone (907) 749-2204 phone (907) 622-6226

NAME: \_\_\_\_\_

PROCESSOR: \_\_\_\_\_

ADDRESS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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**Appendix A5.**–Page 2 of 2.

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In addition to current Chignik Management Area salmon commercial fishing regulations, participants agree to the following conditions:

- 1) Permit is valid from 8:00 A.M. June 1, to NOON September 30, 2004.
- 2) Notwithstanding 5 AAC 15.355 Reporting requirements (a) and (b) and AS 16.10.270 Purchase of fish by the pound, tendermen may record multiple sets by a single CFEC permit holder on a single fish ticket (5 AAC 15.359 (c)); one fish ticket per CFEC permit holder harvesting salmon per day per tender per processor.
- 3) The number and pounds of salmon by species by day, and by delivery (set), will be estimated by the tenderman, to the best of the tenderman’s ability and entered on the fish ticket (e.g., Fish Ticket Series T). During the first delivery, the tenderman will also record on the fish ticket, the processor code. In the case of a tender delivery to multiple processors, a separate fish ticket will be required that indicates the approximate number and pounds of salmon by species delivered to each processor. Also during the first delivery the CFEC permit holder must sign the fish ticket. The time of delivery and initials of the CFEC permit holder must also be on the fish ticket, adjacent to the estimated number of fish and pounds by species. During any subsequent deliveries by the same CFEC permit holder, the number of fish and pounds by species may be estimated and the CFEC permit holder will initial next to any estimates and provide the time of delivery.
- 4) The number of sets per vessel and the number and pounds of salmon by species by day must be estimated, on-the-grounds; the actual harvest by species by day will be corrected upon processing. The actual values must be provided to the Chignik ADF&G within 3 days of the salmon being caught.
- 5) XXXXX will notify the Chignik ADF&G of their daily commercial salmon purchases and any personal use harvest estimates prior to 10:00 AM. The estimate will include, by statistical area: the number of purse seine vessels making at least one delivery and the name of each tender that delivered the prior day and the name of each tender with salmon aboard (i.e. tied to dock or in-route but not yet offloaded).
- 6) The Chignik Seafoods Producers Alliance (CSPA) will notify Chignik ADF&G if CSPA intends to sale salmon to any processor other than XXXXX. Notification must be received by Chignik ADF&G in a timely enough manner to issue a separate commissioner’s permit and obtain required signatures.
- 7) Catcher, tender, and processing vessels must adhere to all other commercial fishing and landing requirements.
- 8) This permit may be modified or voided by the ADF&G at any time.

I \_\_\_\_\_, for the Board of Directors of the Chignik Seafood Producers Alliance, hereby authorize the release of confidential fish ticket harvest information that results from my participation in the 2004 Chignik Management Area salmon fishery. I understand this information will be used for reporting of stock condition on Chignik Management Area salmon. I also agree to abide by all permit terms stated above.

_____	_____
CHIGNIK SEAFOOD PRODUCERS ALLIANCE	DATE
_____	_____
PROCESSOR	DATE
_____	_____
ADF&G REPRESENTATIVE	DATE

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# STATE OF ALASKA

## DEPARTMENT OF FISH AND GAME DIVISION OF COMMERCIAL FISHERIES



**FRANK MURKOWSKI, GOVERNOR**

211 Mission Road

Kodiak, AK 99615

PHONE: (907) 486-1825

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Or

Chignik Weir

PO 40 Chignik Lake, AK 99548

PHONE: (907) 845-2243

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### 2004 CHIGNIK MANAGEMENT AREA COMMISSIONER'S PERMIT COOPERATIVE SALMON NET PEN REQUIREMENTS

NAME: Chignik Seafood Producers Alliance (CSPA)

ADF&G # 2004-6

OPERATOR: Axel Kopun, President

ADDRESS: Summer: P.O. Box 30

Winter: PO Box 773173

Chignik, AK 99564

Eagle River, AK

phone (907) 749-2204

phone (907) 622-6226

In addition to current Chignik Management Area salmon commercial fishing regulations, participants agree to the following conditions:

- 1) Permit is valid from 8:00 A.M. June 1, to NOON October 1, 2004.
- 2) 5 AAC 15.359 (c) allows, through a commissioner's permit, for the Chignik Seafood Producers Alliance (CSPA) to operate net pens to hold live, commercially captured salmon; thus net pens will only be allowed in Chignik Lagoon under provisions of this permit. Fishing and tendering vessels (i.e., vessels that operate under their own power, that have a licensed skipper aboard, and with fish holds that are not directly open to the sea) may contain live fish, for up to three days after their capture, without the need of a commissioner's permit.
- 3) The CSPA will notify the Chignik ADF&G when fish pens are deployed in Chignik Lagoon and when they contain fish, except for fish pens that are attached to the Norquest Seafoods Inc., facilities or a mooring owned by Norquest Seafoods Inc., in Anchorage Bay (56° 18'N.lat., 158° 24'W. long), Chignik as permitted under permit ADF&G # 2004-3. CSPA will provide Chignik ADF&G a daily estimate of the number and pounds of salmon, by species, in each fish pen.

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- 4) This permit allows the use of fish pens for holding live salmon for up to three days after being captured in the Chignik District commercial salmon fishery. The net pens may be operated and moored in Chignik Lagoon. Towing pens that contain live salmon caught in the Chignik District, within the Chignik District is allowed.
- 5) A total of up to two fish pens will be allowed within Chignik Lagoon in the Chignik Bay District. Individual fish pens may be up to 40 feet in length, 40 feet in width, and 100 meshes deep. The fish pen mesh size may be no greater than four inches. Lights, decks, fences, and other structural supports may be attached to the fish pens. The fish pens may be attached to each other.
- 6) An ADF&G observer may sample and measure all catch and bycatch contained in the fish pens. The fish pen operator and crew must exercise patience and slow the pace of processing, if required, to accommodate the accurate collection of all data required from the ADF&G observer.
- 7) Catcher, tender, and processing vessels must adhere to all other commercial fishing and landing requirements.
- 8) Fish pens must not interfere with the open fishery as defined in 5 AAC 15.359 (h)(2) or with subsistence fishermen.
- 9) The Chignik Seafood Processors Alliance is responsible for the actions of contractors, agents, or other persons who perform work to accomplish the goals of this permit. The permittee shall notify ADF&G, Division of Commercial Fisheries, and obtain written approval in the form of a permit amendment before beginning any activity that significantly deviates from the approved plan and permits. Any action taken by the permittee or an agent of the permittee that increases the permit overall scope or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this permit will be deemed a significant deviation from the approved permit. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of ADF&G. Therefore, it is recommended that ADF&G, Division of Commercial Fisheries, be consulted immediately when a deviation from the approved permit is being considered.
- 10) This permit does not relieve the Chignik Seafood Processors Alliance their contractors, agents, or other persons who perform their work from the responsibility for securing other permits: state, federal, or local.
- 11) All fish in a fish pen are considered harvested for all catch reporting and allocative concerns.
- 12) This permit may be modified or voided by the ADF&G at any time.

I \_\_\_\_\_, for the Board of Directors of the Chignik Seafood Producers Alliance, hereby authorize the release of confidential fish ticket harvest information that results from my participation in the 2004 Chignik Management Area salmon fishery. I understand this information will be used for reporting of stock condition on Chignik Management Area salmon. I also agree to abide by all permit terms stated above.

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CHIGNIK SEAFOOD PRODUCERS ALLIANCE

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DATE

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ADF&G REPRESENTATIVE

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DATE

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**APPENDIX B. 2004 CHIGNIK SALMON EMERGENCY ORDERS**

**Appendix B1.**–Summary of the 2004 Chignik Management Area Emergency Orders.

E.O. Number	Issued	Effective	Action taken
4-FS-L-01-04	3:00 PM 4/26/2004	12:01 AM 4/27/2004	<u>Opens</u> the that portion of the Chignik River located between a marker 100 yards upstream of the Cignik weir to the outlet of Chignik Lake to subsistence fishing through 11:59 PM June 30.
4-FS-L-02-04	2:00 PM 6/2/2004	6:00 AM 6/4/2004	<u>Opens</u> the Chignik Bay, Central, and Eastern districts for 48 hours from 6:00 AM Friday, June 4 until 6:00 AM Sunday, June 6 for the cooperative fleet. <u>Closed Waters</u> Effective 6:00 AM June 4, the closed waters of upper Chignik Lagoon include those waters west of Humes Point. Effective 6:00 AM Saturday, June 5 the closed waters of upper Chignik Lagoon will be reduced to include only those waters west of Pillar Rock.
4-FS-L-03-04	5:00 PM 6/5/2004	6:00 AM 6/6/2004	<u>Extends</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay, Central, and Eastern districts for 98 hours from 6:00 AM Sunday, June 6 until 8:00 AM Thursday, June 10.
4-FS-L-04-04	11:00AM 6/9/2004	8:00 AM 6/10/2004	<u>Extends</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay, Central, and Eastern districts for 98 hours from 8:00 AM Thursday, June 10 until 1:00 PM Monday, June 14.
4-FS-L-05-04	12:00 NOON 6/13/2004	1:00 PM 6/14/2004	<u>Extends</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay, Central, and Eastern districts for 74 hours from 1:00 PM Monday, June 14 until 3:00 PM Thursday, June 17.
4-FS-L-06-04	2:30 PM 6/15/2004	3:00 PM 6/17/2004	<u>Extends</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay, Central, and Eastern districts for 9 hours from 3:00 PM Thursday, June 17 until 11:59 PM Thursday, June 17.
4-FS-L-07-04	7:00 PM 6/17/2004	5:00 AM 6/18/2004	<u>Opens</u> the Chignik Bay, Central, and Eastern districts for 24 hours from 5:00 AM Friday, June 18 until 5:00 AM Saturday, June 19 for the competitive fleet. <u>Closed Waters</u> Effective 5:00 AM June 18, the closed waters of upper Chignik Lagoon include those waters west of Mensis Point.
4-FS-L-08-04	5:00 PM 6/18/2004	6:00 AM 6/19/2004	<u>Opens</u> the Chignik Bay, Central, and Eastern districts for 97 hours from 6:00 AM Saturday, June 19 until 7:00 AM Wednesday, June 23 for the cooperative fleet.  <u>Closed Waters</u> Effective 6:00 AM June 19, the closed waters of upper Chignik Lagoon include those waters west of Pillar Rock.

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**Appendix B1.**–Page 2 of 4.

E.O. Number	Issued	Effective	Action taken
4-FS-L-09-04	4:00 PM 6/24/2004	9:00 AM 6/25/2004	<u>Opens</u> the Chignik Bay, Central, and Eastern districts for 24 hours from 9:00 AM Friday, June 25 until 9:00 AM Saturday, June 26 for the competitive fleet. <u>Closed Waters</u> Effective 9:00 AM June 25, the closed waters of upper Chignik Lagoon include those waters west of Humes Point. <u>Opens</u> the Chignik Bay, Central, and Eastern districts for 48 hours from 10:00 AM Saturday, June 26 until 10:00 AM Monday, June 28 for the cooperative fleet. <u>Closed Waters</u> Effective 10:00 AM June 26, the closed waters of upper Chignik Lagoon include those waters west of Pillar Rock.
4-FS-L-10-04	4:00 PM 6/27/2004	10:00 AM 6/28/2004	<u>Extends</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay, Central, and Eastern districts for 101 hours from 10:00 AM Monday, June 28 until 3:00 PM Friday, July 2.
4-FS-L-11-04	11:30 AM 6/29/2004	2:00 PM 6/29/2004	<u>Closed Waters</u> Effective 2:00 PM June 29, the closed waters of upper Chignik Lagoon include those waters west of Humes Point.
4-FS-L-12-04	9:00 PM 6/29/2004	6:00 AM 6/30/2004	<u>Closed Waters</u> Effective 9:00 AM June 30, the closed waters of upper Chignik Lagoon include those waters west of Pillar Rock.
4-FS-L-13-04	4:00 PM 7/1/2004	3:00 PM 7/2/2004	<u>Extends</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay, Central, and Eastern districts for 57 hours from 3:00 PM Friday, July 2 until 6:00 AM Tuesday, July 6. <u>Opens</u> the Chignik Bay, Central, and Eastern districts for 24 hours from 6:00 AM Monday, July 5 until 6:00 AM Tuesday, July 6 for the competitive fleet. <u>Closed Waters</u> Effective 6:00 AM Monday July 5, the closed waters of upper Chignik Lagoon include those waters west of Mensis Point.
4-FS-L-14-04	1:00 PM 7/4/2004	7:00 AM 7/6/2004	<u>Opens</u> the Chignik Bay, Central, and Eastern districts for 64 hours from 7:00 AM Tuesday, July 6 until 11:59 PM Thursday, July 8 for the cooperative fleet.  <u>Closed Waters</u> Effective 7:00 AM July 6, the closed waters of upper Chignik Lagoon include those waters west of Pillar Rock.
4-FS-L-15-04	1:00 PM 7/8/2004	11:59 PM 7/8/2004	<u>Extends</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay, Central, and Eastern districts for 48 hours from 11:59 PM Thursday, July 8 until 11:59 PM Saturday, July 10.

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**Appendix B1.**–Page 3 of 4.

E.O. Number	Issued	Effective	Action taken
4-FS-L-16-04	10:30 AM 7/10/2004	11:59 PM 7/10/2004	<u>Extends</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay, Central, and Eastern districts for 72 hours from 11:59 PM Saturday, July 10 until 11:59 PM Tuesday, July 13.
4-FS-L-17-04	9:00 PM 7/12/2004	11:59 PM 7/13/2004	<u>Extends</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay, Central, and Eastern districts for 48 hours from 11:59 PM Tuesday, July 13 until 11:59 PM Thursday, July 15.
4-FS-L-18-04	9:45 AM 7/14/2004	3:00 PM 7/16/2004	<u>Opens</u> the Chignik Bay, Central, and Eastern districts for 24 hours from 3:00 PM Friday, July 16 until 3:00 PM Saturday, July 17 for the competitive fleet. <u>Closed Waters</u> Effective 3:00 PM July 16, the closed waters of upper Chignik Lagoon include those waters west of Mensis Point.
4-FS-L-19-04	7:00 PM 7/16/2004	6:00 AM 7/19/2004	<u>Opens</u> the Chignik Bay, Central, and Eastern districts for 48 hours from 6:00 AM Monday, July 19 until 6:00 AM Wednesday, July 21 for the cooperative fleet. <u>Closed Waters</u> Effective 6:00 AM July 19, the closed waters of upper Chignik Lagoon include those waters west of Humes Point.  <u>Closed Waters</u> Effective 6:00 AM July 20, the closed waters of upper Chignik Lagoon include those waters west of Pillar Rock.
4-FS-L-20-04	7:30 PM 7/20/2004	6:00 AM 7/21/2004	<u>Extends</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay, Central, and Eastern districts for 66 hours from 6:00 AM Wednesday, July 21 until 11:59 PM Friday, July 23.
4-FS-L-21-04	11:00 AM 7/23/2004	11:59 PM 7/23/2004	<u>Extends</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay, Central, and Eastern districts for 72 hours from 11:59 PM Friday, July 23 until 11:59 PM Monday, July 26.
4-FS-L-22-04	3:00 PM 7/24/2004	11:59 PM 7/24/2004	<u>Closes</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay, Central, and Eastern districts at 11:59 PM Saturday, July 24.
4-FS-L-23-04	12:45 PM 7/26/2004	12:00 NOON 7/27/2004	<u>Opens</u> the Chignik Bay, Central, and Eastern districts for 48 hours from 12:00 NOON Tuesday, July 27 until 11:59 PM Thursday, July 29 for the cooperative fleet. <u>Closed Waters</u> Effective 12:00 NOON July 27, the closed waters of upper Chignik Lagoon include those waters west of Humes Point. <u>Closed Waters</u> Effective 12:00 NOON July 28, the closed waters of upper Chignik Lagoon include those waters west of Pillar Rock.

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**Appendix B1.**–Page 4 of 4.

E.O. Number	Issued	Effective	Action taken
4-FS-L-24-04	5:00 PM 7/30/2004	6:00 AM 7/31/2004	<u>Opens</u> the Chignik Bay and Central districts for 42 hours from 6:00 AM Saturday, July 31 until 11:59 PM Sunday, August 1 for the cooperative fleet.
4-FS-L-25-04	7:00 PM 8/1/2004	11:59 PM 8/1/2004	<u>Extends</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay and Central districts for 24 hours from 11:59 PM Sunday, August 1 until 11:59 PM Monday, August 2.
4-FS-L-26-04	3:00 PM 8/4/2004	11:59 PM 8/4/2004	<u>Opens</u> the Chignik Bay and Central districts for 24 hours from 11:59 PM Wednesday, August 4, until 11:59 PM Thursday, August 5 for the cooperative fleet.
4-FS-L-27-04	5:30 PM 8/5/2004	11:59 PM 8/5/2004	<u>Extends</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay and Central districts for 24 hours from 11:59 PM Thursday, August 5 until 11:59 PM Friday, August 6.
4-FS-L-28-04	7:00 PM 8/6/2004	11:59 PM 8/6/2004	<u>Extends</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay and Central districts for 24 hours from 11:59 PM Friday, August 6 until 11:59 PM Saturday, August 7.
4-FS-L-29-04	9:00 PM 8/7/2004	11:59 PM 8/7/2004	<u>Extends</u> the current commercial salmon fishing period for the cooperative fleet in the Chignik Bay and Central districts for 24 hours from 11:59 PM Saturday, August 7 until 11:59 PM Sunday, August 8.
4-FS-L-30-04	7:00 PM 8/17/2004	6:00 AM 8/19/2004	<u>Opens</u> a portion of the Perryville District for 12 hours from 6:00 AM to 6:00 PM Thursday, August 19 for both fleets.
			<u>Closed Waters</u> Effective 6:00 AM Thursday, August 19, the closed waters of the Ivanof Bay Section will consist of that portion of Ivanof Bay east of a line extending due north from the west Road Island marker (55° 50.95' N lat. 159° 31.02' W. long; the northern most tip of the gravel spit just west of Road Island) and north of a line extending due east from the west Road Island marker, bisecting Road Island. With the exception of the Ivanof River, which will be open to the stream terminus, closed waters will also consist of all waters within 500 yards of each stream terminus within the open waters, as measured at mean high tide.



**APPENDIX C. MEMORANDUM RECOMMENDING TARGETING  
THE LOWER BOUNDS OF THE CHIGNIK SOCKEYE SALMON  
ESCAPEMENT GOALS DURING THE 2004 SEASON.**

**Appendix C1.**–Memorandum recommending targeting the lower bounds of the Chignik sockeye salmon escapement goals during the 2004 season.

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## ALASKA DEPARTMENT OF FISH AND GAME

### *DIVISION OF COMMERCIAL FISHERIES*

## MEMORANDUM

**TO:** Patti Nelson  
Regional Finfish Research Supervisor  
Division of Commercial Fisheries  
Region IV – Kodiak  
and  
Jim McCullough  
Regional Finfish Management Supervisor  
Division of Commercial Fisheries  
Region IV – Kodiak

**DATE:** June 4, 2004

**PHONE:** (907) 486-1805  
**FAX:** (907) 486-1841

**THRU:** Mark Witteveen  
Finfish Research Biologist  
Division of Commercial Fisheries  
Region IV – Kodiak

**FROM:** Heather Finkle  
Finfish Research Biologist  
Division of Commercial Fisheries  
Region IV - Kodiak

**SUBJECT:** Chignik River Watershed  
Biological Escapement  
Goal Recommendation

The purpose of this memorandum is to discuss the current escapement goals to the Chignik River watershed in terms of the health of the sockeye salmon rearing habitat in Chignik and Black Lakes. This discussion is based on preliminary data from the Chignik Lakes Ecological Assessment Project and the Chignik Smolt Enumeration Project.

Total sockeye salmon escapements have been in excess of the current cumulative biological escapement goals (BEGs) for all of the past 12 years (1992 – 2003; Table 1). The escapements of the Black Lake (early) runs have been closer to the established BEGs [Black Lake BEG: 350,000-400,000; Chignik Lake (late run) BEG: 225,000-275,000] than the Chignik Lake escapements. In 2002 and 2003, the lower end of the BEG was targeted for both early and late runs. In 2002, regardless of this effort, the total escapement to the late run exceeded the upper end of the BEG (250,000) by almost 100,000 sockeye salmon. However, in 2003 the Black Lake escapement was near the lower end of the BEG although the Chignik Lake escapement exceeded the upper end of the BEG. The cumulative sockeye salmon escapement to the Chignik River watershed in 2003 was the lowest that it has been since 1992.

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Table 1. Sockeye salmon escapements in the Chignik River watershed from 1992 to 2003.

BEG	Black Lake Escapement	Chignik Lake Escapement	Total Escapement
Year	350,000 - 400,000	225,000 - 275,000	575,000 - 675,000
1992	360,681	403,755	764,436
1993	364,263	333,114	697,377
1994	769,464	197,445	966,909
1995	366,163	373,757	739,920
1996	464,750	284,387	749,137
1997	396,668	378,950	775,618
1998	410,659	290,469	701,128
1999	457,425	258,541	715,966
2000	519,661	285,614	805,275
2001	744,013	392,905	1,136,918
2002	380,701	344,519	725,220
2003	350,004	334,119	684,123

Zooplankton are the forage base for juvenile sockeye salmon, and a high abundance of juvenile sockeye salmon, resulting from high escapement levels, can negatively impact the juvenile sockeye salmon food supply. The zooplankton community is a complex dynamic web of different species that are susceptible to different pressures. The abundance, species composition, and even size of the zooplankton can change via either bottom-up pressures such as nutrient limitations and phytoplankton species composition or from top-down pressures from extensive grazing (Kerfoot 1987; Kyle 1996). Preliminary limnology data collected in 2000 through 2003 indicated several lines of evidence suggesting that the forage base has been overgrazed in both Black and Chignik Lakes (Finkle and Bouwens 2001; Bouwens and Finkle 2003). In the Chignik River watershed, top-down pressures appear to be regulating the zooplankton population as evidenced by:

- 1) Zooplankton species composition: High grazing pressure on zooplankton can cause a shift in zooplankton abundance and species composition to fewer and less nutritional species of sockeye salmon forage (Kerfoot 1987; Koenings and Burkett 1987). This seems to have occurred in both Black and Chignik Lakes in 2000 through 2003 compared to data taken in 1991 (Kyle 1992). From 2000 to 2003, *Bosmina* and *Cyclops* predominated the zooplankton species composition in both lakes. Both of the dominant species are inefficient grazers on phytoplankton, and are poor transmitters of energy and nutrients through the food web. Although juvenile sockeye salmon do prey upon *Bosmina* and *Cyclops*, they are not preferred sockeye salmon forage. *Daphnia* are the preferred species, which were nearly absent in both lakes from 2000 through 2002. However, *Daphnia* were more abundant in Chignik Lake in 1991 and 2003, which both followed years when total escapements for each run were closer to their BEGs. Although the dominant zooplankton species composition still varied in 2003, the increase in *Daphnia* abundance may also suggest that top-down pressures on the preferred juvenile sockeye salmon forage, and thus the zooplankton community, were less. Further, rotifers, a type of smaller zooplankton unavailable as juvenile sockeye salmon forage, have been very abundant in recent years. Rotifers, it should be noted, make energy and nutrients unavailable for sockeye salmon because they are not a prey item.

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- 2) Zooplankton size: The size of individual zooplankton (especially *Bosmina*) can change in response to high grazing pressure. The mean size of the *Bosmina* in both lakes was very small and below the elective feeding size threshold of sockeye salmon in 2000 through 2003. The zooplankton were generally larger, by species, in 1991 (Kyle 1992).
- 3) Zooplankton Biomass: The average 2000 through 2003 weighted mean zooplankton biomass (regardless of species or size) in Chignik Lake was about 214 mg/m<sup>2</sup>. In 2001, the weighted mean biomass in Chignik Lake was very low at about 85 mg/m<sup>2</sup>. In 2003, zooplankton biomass was 229 mg/m<sup>2</sup>. For comparison, the weighted mean biomass of Chignik Lake in 1991 was 916 mg/m<sup>2</sup>. Edmundson and Mazumder (2001) suggested that juvenile sockeye salmon are starving when zooplankton biomass levels approach about 100 mg/m<sup>2</sup> and that they are fully satiated at levels above 1,000 mg/m<sup>2</sup>.
- 4) Phytoplankton abundance: Phytoplankton is the forage of zooplankton. Chlorophyll *a* is used as an indicator of phytoplankton production as it is a necessary component of phytoplankton respiration. High chlorophyll-*a* levels and nutrient data indicate that the Chignik watershed is not limited by nutrient abundance. Chlorophyll-*a* levels were extremely high in both lakes from 2000 to 2002. This is an indicator of a zooplankton community that is unable to transfer the energy and nutrients from the phytoplankton to sockeye salmon, indicating a bottleneck through top-down limitation of zooplankton production (Bouwens and Finkle 2003). Therefore, based on chlorophyll-*a* levels, the primary production of the system was high, but it was not transferred up the food web to juvenile sockeye salmon. In 2003, chlorophyll-*a* levels were lower and comparable to other Alaska Peninsula lakes, which suggests that phytoplankton was more efficiently consumed by zooplankton. This also suggests that zooplankton were more abundant in 2003 because the zooplankton abundance was great enough to reduce chlorophyll-*a* levels.
- 5) Stomach content analysis: Preliminary juvenile sockeye salmon stomach content analysis from 2001 and 2002 suggested that prey items other than zooplankton have been a major portion of the diet of rearing sockeye salmon in the Chignik River watershed. These alternative prey included insects and amphipods. These prey were less important in 2002 (when there was a higher zooplankton abundance and biomass) than in 2001, indicating that they might be chosen secondarily if zooplankton are not available. Stomach content data were not collected in 2003.
- 6) Juvenile sockeye salmon catch data: Juvenile sockeye salmon were sampled in Black Lake, Black River, Chignik Lake, Chignik River, and Chignik Lagoon in 2000 through 2003. The data are not yet fully analyzed, but preliminary analysis indicated that the majority of the young-of-the-year-juvenile sockeye salmon emigrated from Black Lake to Chignik Lake during July and August of each year. This is consistent with findings of studies over 30 years ago by Parr (1972) and Narver (1966) and more recent work by Ruggerone (1994). Therefore, it appears that Chignik Lake is an important rearing area for both stocks. We were unable to derive juvenile sockeye salmon abundance estimates; thus, catch rates were used as an indicator of relative abundance. During years when juvenile sockeye salmon catch rates in Chignik Lake were high (especially 2001) zooplankton biomass was low. Further, the catch rates of juvenile sockeye salmon in Chignik River and Chignik Lagoon were higher than in Chignik Lake in 2001. This suggests that the juvenile sockeye salmon were forced to utilize alternative habitats when the zooplankton population was overtaxed.

Data from the Chignik smolt project (Bouwens and Newland 2003; Newland and Bouwens *in press*) also indicate that the number of juvenile sockeye salmon rearing in the freshwater ecosystem may have been too high. About 6.75 million smolt emigrated in 2003 compared to an average of about 20 million smolt per year from 1997 through 2002. The proportion of age 2. smolt in the emigration has dropped over the last few years. The smolt that would have emigrated in 2003 as age 2. smolt experienced very poor feeding conditions in Chignik Lake in 2001 and 2002. This is evidenced by the lack of an age 3. component from 2002 and 2003 sample catches. The freshwater survival of juvenile sockeye salmon may have been low in recent years because of low food availability due to overgrazing.

Given the information from the Chignik Lakes Ecological Assessment and the Chignik Smolt Enumeration Project, it is recommended that the low ends of the BEGs for both runs to the Chignik River watershed be targeted by management staff in 2004. The goal of reducing the number of sockeye salmon fry in both lakes was implemented in 2002 and 2003 to relieve the top-down pressure on the zooplankton population and subsequently this recommendation is expected to increase the overall ecological health of the system in terms of sockeye salmon production. The effects of the targeted lower escapement goal ranges in 2003 will not be reflected in the Chignik Lakes Ecological Assessment data until the young-of-the-year sockeye salmon have reared in the watershed. Thus, continued targeting of the lower ends of the Black and Chignik Lakes BEGs is recommended

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CC: Lloyd  
Bouwens  
Clark  
Newland

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**APPENDIX D. SUMMARY OF THE 2004 CHASM MEETING**

**Appendix D1.**—Summary of the 2004 CHASM meeting.

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CHignik Area Salmon Management Task Force (CHASM)

June 2, 2004 Chignik Bay Community Hall, 2:30 PM

Executive Summary

1. Co-Chairman Chuck McCallum called the meeting to order at 2:50 PM
2. Attending the meeting as task force members where:

Co-Chairman Chuck McCallum, Co-Chairman Jim McCullough (ADF&G) substituting for Area Manager Ken Bouwens, Ernie Carlson (Competitive fleet), Jamie Ross (Coop fleet), Axel Kopun (Coop fleet by teleconference), Virginia Aleck (Subsistence fisher by teleconference), Ron Soule (Processors). Also attending were: Kevin Clark (ADF&G), Eric Newland (ADF&G), Denby Lloyd (ADF&G), Jim Long (Trident), Eugene Carlson, Glenn Suydam (Captain G), Andrew Gilbert, Beau Hartmon (Captain G), Clement Shangin (Miss Clementine), Marvin Yagie (Maxine), Bernard Skonberg (Carma Lee), Ernie Carlson (Desperado), Gabe McKilly (Dorothy M), Dean Anderson (Patti Ann,) Wallace Hinderer (Raechel Louise), Less Nunn, John Rantz (Equator), Rachael Hinderer (Illusion), Craig Astor (Miss Peggy), Dean Fasnacht (Norquest).

3. CHASM Purpose Statement:

Chuck McCallum read the CHASM purpose statement: "The Chignik Area Salmon Management (CHASM) task force serves as a forum for cooperative fleet, competitive fleet, processors, local subsistence users, and ADF&G to discuss and exchange ideas on potential salmon harvest and management strategies both prior to and during the salmon season. Recommendations and comments through CHASM will be evaluated by ADF&G and implemented when possible, subject to sound fisheries management principles, budget considerations, and BOF regulations and policies." Chuck McCallum encouraged task force members and the public to try to get beyond coop vs. competitive thinking and to consider problems in terms of management needs and solutions to problems. CHASM is a creation of the department and there are times when management action can respond in several ways. Knowing fishermen's opinions on different options is valuable to the department and can be very important to fishermen.

4. CHASM membership:

There have been significant changes in the fishing fleets and in the processor sector that require a change in the CHASM membership. Dean Anderson and Jason Alexander no longer represent the competitive fleet because they are no longer members of the competitive fleet. Ernie Carlson has been the alternate for the competitive fleet and agreed to serve as a CHASM task force member. Ernie Carlson suggested that the second competitive CHASM task force member should be from the lagoon and named John Jones and Laura Stepanof as possible candidates. Unfortunately, neither person was able to attend and attendance by lagoon residents was low, due to poor weather conditions. The meeting was conducted with one competitive task force member and comments were taken from other competitive fishers in attendance. Ron Soule and Jim Long agreed that Ron would serve as the single CHASM member for the processing sector.

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5. 2004 management update – Jim McCullough ADF&G
  - 5.1. Jim McCullough reported on a department memorandum, “Chignik River In-Season Run Apportionment.” Due to budget cuts, ADF&G will not be utilizing in-season scale pattern analysis (SPA) for separating the two runs this year. Jim explained the new method for managing the two overlapping runs and the adjustments to the interim escapement objectives. The escapement goals have not changed but the dates for achieving interim escapement objectives will change slightly from previous years. The date that the early run is expected to attain the 350,000 – 400,000 goal will be though July 4, instead of June 30 as with pervious interim escapement objectives. The July 4 date was chosen because on that date the number of late run fish counted through the weir before July 4 should equal the number of early run fish that pass through the weir after July 4. The memorandum covered the weaknesses of the SPA method and discussed and the strengths, and weaknesses, of the new method.
  - 5.2. Jim reported on a department report entitled: “Chignik Management Area Commercial Salmon Fishery Management Plan, 2004.” This report covered the 2004 forecast, the use of the longer seines by the cooperative fleet, chum, pink, and coho issues, etc. Jim indicated that zooplankton populations in Black and Chignik Lakes are
  - 5.3. showing some improvement, although, the populations still need more time to recover. Therefore, the department will again be targeting the lower end of the escapement goals this year.
  - 5.4. Eric Newland (ADF&G) gave a brief update on the 2004 smolt outmigration. There have been no large outmigrations to date but smolt outmigration counts are ahead of last years poor showing. Approximately eight million smolt are estimated to have outmigrated. Normally, the largest outmigrations have already past by this date, although in the past, there may be a large outmigration in the next couple weeks.
6. Additional issues addressed at this CHASM meeting.
  - 6.1. Jim McCullough stated that the department was currently planning on the coop fishing first on June 4. The department was open to alternatives, but there was no consensus for any other management action.
  - 6.2. Jim McCullough suggested that, weather permitting, there would be a test fishery on June 3. The purpose would be to estimate the number of fish in the lagoon and to give the processor an opportunity to tune up their machines.
  - 6.3. Jim McCullough stated that the information he had was that the processors had little interest in outside pink and chum salmon and that there would probably be no Westward and Perryville openings this season because of weak markets. Ron Soule indicated that under the right circumstances that Norquest might be interested in terminal harvest openings in bays targeting ikura grade watermarked chum salmon. Ron indicated that while it was unlikely that they would be interested in bright pink and chum salmon, he didn’t want to rule out the possibility. Similar comments were made regarding coho salmon in the out side districts. The department indicated that if a market developed then they would be willing to work with fishers and processors to allow for appropriate fishing periods. The department’s concern was avoiding fishing periods where wanton waste may be an issue.

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6.4. The competitive fishers have a 13% allocation of the sockeye salmon commercial harvest, which is considerably less than last year. Small fleets for both coop and competitive fishermen poses some potential management problems. Some of the issues discussed were:

6.4.1. Competitive fishers suggested compressing their season into as short a time period as possible. This would enable them to save on insurance and help attract and keep crews. It was suggested that the department not start the competitive fleet until the run was gaining strength; give them at least 48 hour notice for their initial fishing period; and then allow them to fish until they had attained their approximate allocation for the entire season.

6.4.2. Axel Kopun pointed out that the uncertainty of achieving the correct allocation would be too great. Dean Anderson offered a compromise: achieving the competitive fleet allocation by compressing the fishing periods to within one month (e.g. June 15 – July 15). This seemed to be taken as a more feasible alternative. It was envisioned that the cooperative fleet could catch up to their allocation before the end of the season. This might allow for late season opportunities for competitive fishers for those that wanted to take advantage of late season fishing.

6.4.3. When it was suggested that over escapement and quality problems could result if the competitive fleet could not keep up during a long opening, considering the limited tender service, then several potential solutions were advanced:

6.4.3.1. For example, if fishing became heavy then it might be best if the competitive fleet had short openings (e.g. 12 to 24 hours) with coop openings in between. This should give time for the competitive fleet to handle their fish in a quality manner and deliver a better quality product.

6.4.3.2. It was also suggested that the coop could deploy the leads at Pillar Rock while the competitive fleet was fishing. Thus the coop could act as a backstop for the competitive fleet. Several problems about having the coop fleet fishing the leads during a competitive fleet fishing period were pointed out.

6.4.3.2.1. The processors indicated that they do not want the two fleets fishing at full strength at the same time because they want to be able to separate the fish in their plant, by fleet, which would be difficult if they were taking fish from both fleets at the same time. When it was pointed out that the two fleets did fish together late last year, Ron Soule responded that that was easy because there were so few fish – “now we are talking about doing it when there are a lot of fish.” Ron Soule also said that if both fleets were needed to stop the fish then there were probably too many fish to process without putting the fleet on limits. Axel Kopun indicated that he believed the competitive fleet could handle the fish for the most part and that, if the coop operated the leads at the same time, a manageable number of fish could be harvested by the coop. The department seemed willing to try and accommodate processor concerns, although the department made it clear that if over escapement became a problem, then having both fleets fishing at the same time in similar or different areas was definitely a management option.

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6.4.3.2.2. Another potential problem with both fleets fishing concurrently: Some fishers could be displaced from traditional fishing areas and become disadvantaged in comparison to other competitive fishers who had different fishing patterns. The department said that they wanted to avoid this problem as much as possible while assuring that over escapement was controlled and the allocations achieved.

6.4.4. Chuck McCallum stated that it appeared that the beginnings of a possible alternative harvest strategy for the competitive fleet seemed to be taking form but that it was unlikely that a full blown plan would come out of the meeting. Competitive fishers were encouraged to continue to work with and through their CHASM Task Force members to try to come to a consensus on an alternative approach that still acknowledged the departments need to be subject to “sound fisheries management principles, budget considerations, and BOF regulations and policies.” Jim McCullough agreed that the department would continue to take input throughout the season from CHASM task force members and would look forward to working with them in trying to find a harvest strategy that the competitive fleet preferred.

7. Jim McCullough gave a brief overview of the Board of Fisheries Proposals for the upcoming year.
  8. There were brief discussions concerning the possible commercial fishing periods in the Cape Igvak and Southeastern District Mainland.
  9. The Meeting Adjourned at approximately 5:15 PM.
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## **APPENDIX E. INSEASON RUN APPORTIONMENT METHODS**



ALASKA DEPARTMENT OF FISH AND GAME

*DIVISION OF COMMERCIAL FISHERIES*

MEMORANDUM

TO: Denby S. Lloyd  
Regional Supervisor  
Division of Commercial Fisheries  
Region IV - Kodiak

DATE: May 17, 2004

PHONE: (907) 486-1855  
FAX: (907) 486-1841

THRU: Patricia Nelson  
Regional Finfish Research Supervisor  
and  
Jim McCullough  
Regional Finfish Management Supervisor  
Division of Commercial Fisheries  
Region IV – Kodiak

SUBJECT: Chignik River  
inseason run  
apportionment

FROM: Mark Witteveen  
Regional Finfish Research Biologists  
Division of Commercial Fisheries  
Region IV – Kodiak

**INTRODUCTION**

Commercial fisheries management of the sockeye salmon returning to the Chignik watershed is complicated by two distinctly timed runs. The “early” run that returns to Black Lake and its tributaries begins in late May, peaks during late June, and continues through July. The “late” run that returns to Chignik Lake and its tributaries begins in late June and continues through September and October. To properly manage the commercial fishery, the escapements to both runs must be regulated so that their respective escapement goals are met. The difficulty in regulating the fishery lies in separating the two runs and estimating the escapements to each system during the overlap period (late June and early July), when both runs are present.

Since 1983, scale pattern analysis (SPA) models have been used to differentiate the runs inseason through the development of time-of-entry curves to aid in management decisions. The SPA models are based on studies by Conrad (1983 and 1984). The models are based on differences in measurements of the freshwater scale growth characteristics of each run. The models establish a set of criteria by which the measurements scale growth from a fish of unknown origin are classified as being more similar to the scale measurements from the early run

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or the late run fish (Witteveen and Botz 2003). The SPA models are developed inseason for management of the fishery and are refined postseason when more accurate scale measurements become available.

Because the SPA model is developed inseason and measures the proportion of Chignik and Black Lake fish present, a significant amount of Chignik Lake (late run) fish must be present to evaluate whether the model is performing correctly. Thus, samples must be taken well into the overlap period between the runs (late June through early July) before the model can be relied upon for management decisions. Prior to the model being finalized, all escapement through the weir is assigned to Black Lake (Pappas 2003). When the model is finalized, the estimated cumulative escapements to Black Lake and Chignik Lake are recalculated based on the stock contribution estimates generated from the model coupled with a logistic run timing curve. Decisions to open or close the commercial fishery are then based on those escapement estimates.

One of the problems with the process is that the delay in finalizing the model, until approximately the first week in July, results in a time period during early July when the department is unsure of the proportions of each run and management decisions must often be made with little information.

Management emphasis shifts from the Black Lake run to the Chignik Lake run after the date, according to the SPA model, the proportion Black Lake fish in the run is equal to the proportion of Chignik Lake fish. This date is often referred to as the 50/50 date since it is when Black Lake sockeye salmon compose 50% of the daily run and Chignik Lake sockeye salmon compose 50% of the run (Figure 1; Point A). Since the Black and Chignik Lake runs are different in size and timing, the 50/50 date is often not the same as the halfway point of the overlap between the two runs.

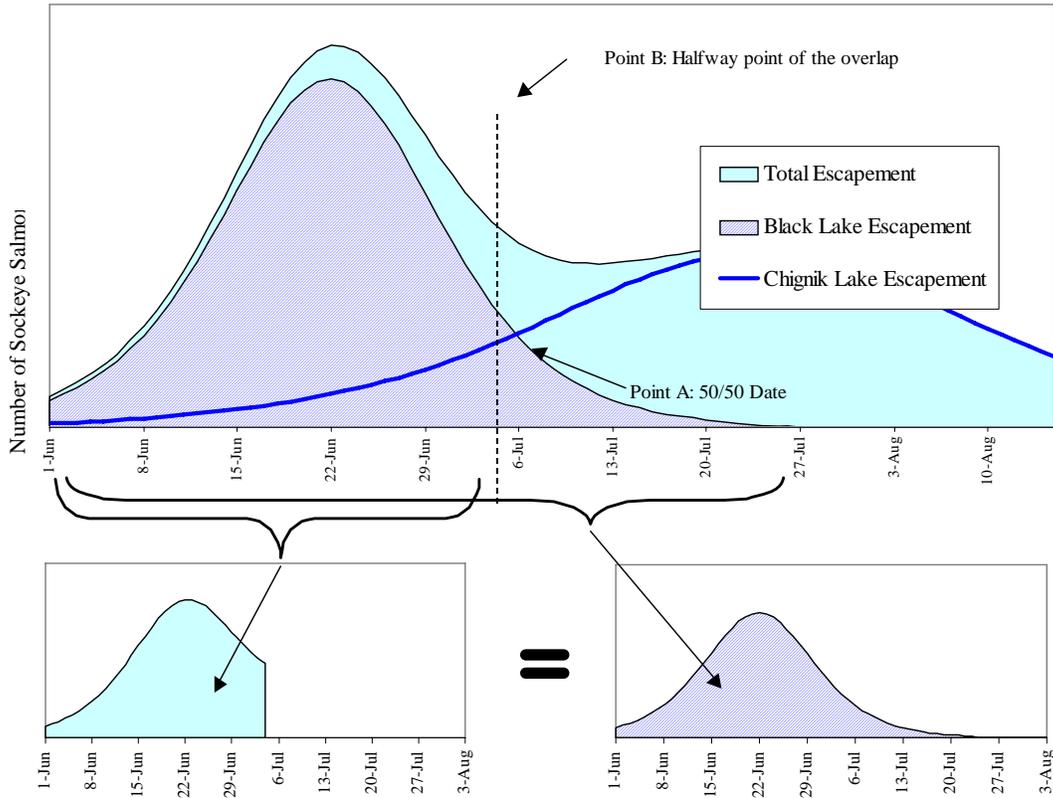


Figure 1. Total escapement, Black Lake escapement and Chignik Lake escapement and a visual representation of how total escapement through a fixed date approximates total Black Lake escapement.

The halfway point of the overlap between the runs is the date at which the number of Chignik Lake sockeye salmon that have escaped is equal to the number of Black Lake fish that will escape (Figure 1; Point B). Since those two escapements are equal, they balance each other out and therefore, the total escapement on that date is an approximation of the total Black Lake escapement. For example, if the commercial fishery manager regulated the fishery so that a cumulative count of 350,000 sockeye salmon occurred on the date that is the halfway point of the overlap (Figure 1; Point B; July 4 for explanation purposes), postseason SPA would estimate that many fish that had escaped up to July 4 were actually destined for the Chignik Lake late run. Since July 4 is the halfway point of the overlap in this example however, SPA would also estimate that the number of Black Lake early run fish that escape after July 4 would be equal to the number of Chignik Lake fish that escaped before July 4. The two estimates would essentially balance each other out and the result would be a postseason escapement estimate of 350,000 Black Lake fish.

The termination of the Chignik SPA project, due to budget cuts, has necessitated an evaluation of alternative methods that could be used inseason to estimate the Black and Chignik Lakes runs. This memorandum presents the estimated error associated with the SPA postseason estimates

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generated in 2003. In addition, several alternative inseason run separation methods are presented and subsequent run estimates are compared to the estimates generated by postseason SPA. Finally we present a recommendation, based on our evaluation of the method we believe to be the best alternative to SPA

## METHODS

### **Postseason SPA**

Postseason SPA has been conducted annually to assign the Chignik weir escapement and CMA harvest to the early or late run. Since scale samples from the entire season can be used in the postseason SPA, it is inherently more accurate than the inseason SPA and currently provides the best known estimates to separate the Chignik and Black Lake runs.

### Postseason SPA Error

Estimating the error around the SPA generated estimates is essential for providing a meaningful comparison to the alternative run separation methods currently being investigated. Typically, the overall error associated with SPA is not calculated due to the difficulty in estimating the multiple sources of the error from aging, sampling, and the discriminant analysis calculations. Further error is associated with the smoothing curve function applied to the SPA results. In an effort to get some idea of the variability surrounding the postseason SPA estimates, the error associated with the discriminant analysis calculations and the smoothing curves were estimated for 2003. The 2003 postseason SPA estimates were selected because the discriminant analyses had high resubstitution accuracies and the smoothing curves fit the data well. As a result, the relative error associated with the 2003 model likely represent a “best case” scenario for the relative error associated with the postseason SPA estimates, to use for comparison purposes.

The most current method used to estimate daily escapement to Black and Chignik Lakes postseason included fitting the results from the age 1.3 and age 2.3 SPA discriminant analysis models to two separate logistic curves to provide a daily estimate of stock composition for those age classes. The discriminant analysis software output provides a point estimate as well as the 90% upper and lower confidence bounds for each sample. The logistic function was used to fit a curve to the upper confidence bounds from each age 1.3 sample to provide a daily estimate of the upper error bound associated with the discriminant analysis. The upper bound was further expanded by estimating a 90% upper confidence bound for the logistic function fit to the discriminant analysis upper bounds thereby providing a daily estimate of the upper 90% confidence bound accounting for error associated with the discriminant analysis and then fitting of the data to the logistic curve. This procedure was repeated for the lower bound for age 1.3 samples and to the upper and lower bounds for age 2.3 samples. The upper and lower bounds for each curve and age class were integrated into the daily escapement and daily age composition estimates to estimate a daily upper and lower bound for the escapement attributed to Black Lake and Chignik Lake as described in Witteveen and Botz (2003). The daily escapements were then summed to provide an overall upper and lower escapement bound for each run.

### **Inseason Estimates**

Several approaches were explored to develop a viable alternative inseason method of separating the runs, and each approach was compared to the escapements to each run estimated from the postseason SPA time of entry curves, under the assumption that these are the most accurate estimates. Reliable age composition estimates were available for 1986 through 2003, so those

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years were used for most comparisons. The inseason SPA method was also included in the analyses to provide a point of comparison to the current inseason methodology. Each method's deviation from the postseason SPA estimates was measured for accuracy using an average difference between the estimate provided by the method being measured and the postseason SPA estimate (1986 through 2003). Each method was also measured for precision using a squared average difference between the estimate provided by the method being measured and the postseason SPA estimate (1986 through 2003). For the purposes of this study, accuracy is considered a measure of the deviation from the actual value (estimated by postseason SPA) and can be used to evaluate if a method is biased to over or underestimate the actual estimate. An average difference closer to zero would indicate higher accuracy and a positive value would indicate a tendency to overestimate, while a negative value would indicate a tendency to underestimate. Precision, in this case, is a measure of consistency and a lower average squared difference would indicate higher precision.

#### Inseason SPA

The inseason SPA time of entry curve has historically been used inseason each year to estimate Black Lake and Chignik Lake escapement from 1983 through 2003; however, these data were only available for 1988 through 2003. The methods used to determine these estimates are summarized in Witteveen and Botz (2003). In general, SPA models, coupled with a smoothing curve provide a daily proportion of fish that are bound for the Black Lake and Chignik Lake runs. Typically, the Chignik Lake run is assumed to compose 100% of the escapement beginning on August 1 for inseason analysis. Examining the daily proportion throughout the summer results in a time of entry curve which can be applied to daily escapement or catch estimates to determine the total run to each stock (Figure 2).

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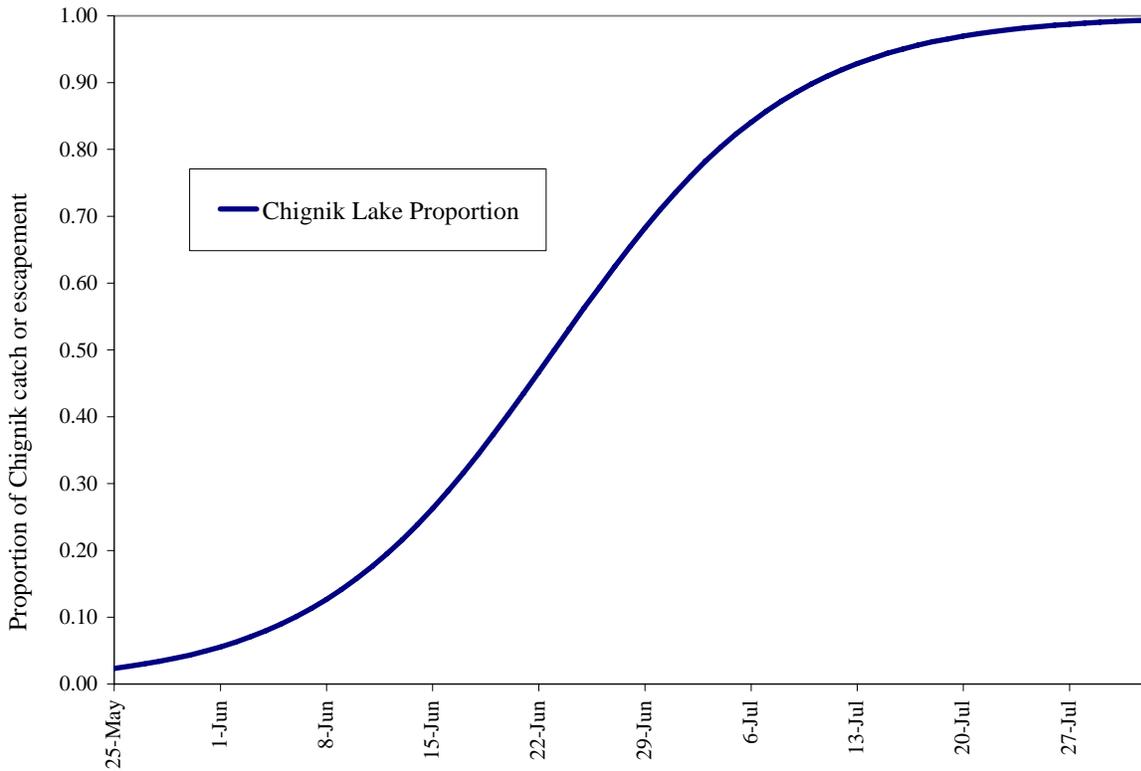


Figure 2. A typical Chignik watershed run timing curve for the Chignik Lake stock.

The total escapement estimated using the inseason SPA time of entry curve was compared with the total escapement estimate from the postseason SPA time of entry curve to evaluate how accurate the current inseason method is for comparison to alternative inseason methods.

#### Average SPA

The average SPA time of entry proportion curve was derived by examining a given day and averaging the proportion of the Chignik Lake escapement from the same day from all postseason SPA time of entry curves available (1983 through 2003; Figure 3). This procedure was repeated for each day from May 25 through the end of the season to arrive at an overall time of entry curve that represented an average of the previous SPA curves. The average SPA time of entry proportion curve was then applied to the daily escapement for each season (1986 through 2003) to estimate the Black Lake and Chignik Lake escapement estimates in each year. Those escapement estimates were then compared with the escapement estimates derived from the postseason SPA estimates that were made each year. The purpose of the comparison was to evaluate the accuracy and precision of using the same average SPA time of entry proportion curve to estimate the proportion of Chignik fish by day for all years.

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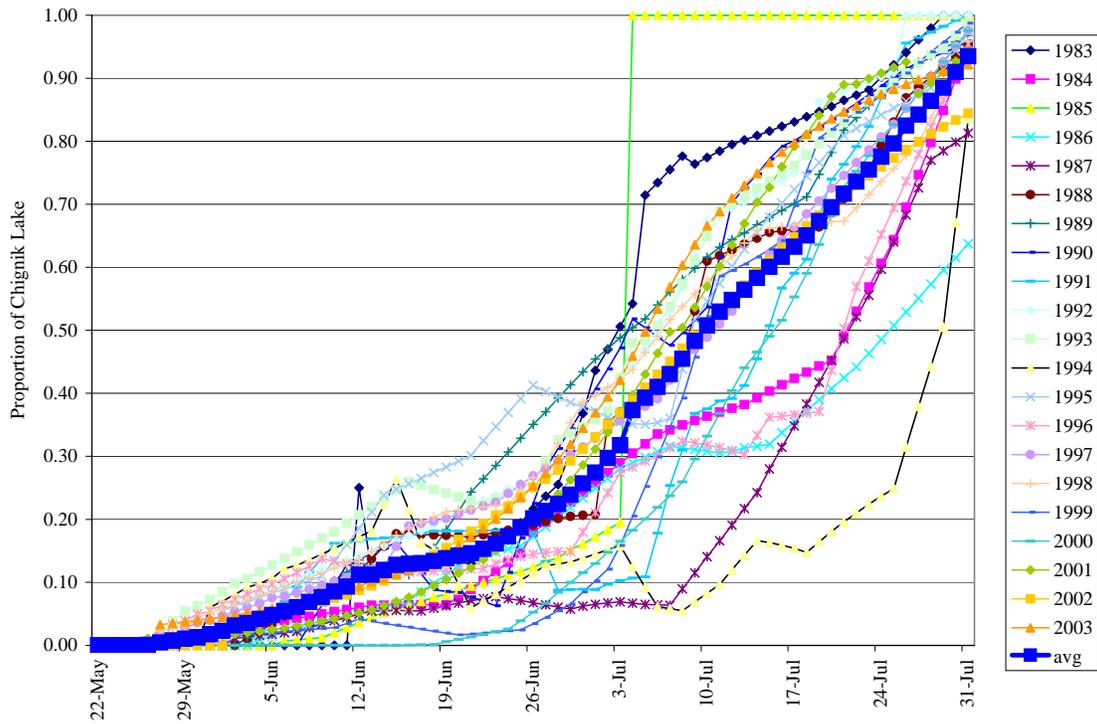


Figure 3. The run timing curves for postseason SPA, 1983-2003 with the average run timing curve depicted.

Logistic curves

The run timing curves, developed using postseason SPA (1986 through 2003) were examined and two groupings, based on observed differences in timing, were gleaned from the curves. One set of years (1988, 1989, 1990, 1992, 1993, 1995, 1997, 1998, 2001, 2002, and 2003) seemed to have an earlier run timing while a second group (1987, 1991, 1996, 1999, 2000) seemed to have a later run timing. Two logistic model curves were then fit to represent the two groups. The 1986 and 1994 data were excluded because the age composition estimates did not appear to be reliable and the SPA model did not appear to work well during these years. The daily proportions estimated by the curves were then applied to the daily escapement from the appropriate years to estimate Black Lake and Chignik Lake escapement for each year, 1987 through 2003, excluding 1994. The proportion of Chignik Lake fish by day and year was given equal weight; therefore, the resultant curves were not biased by years with larger sample sizes or larger run sizes. Average air temperature in Cold Bay and age composition trends seemed to be good predictors of which of the two curves should be applied in a given year.

Age transition

The age transition date is the date at which the dominance in age composition switches from age 1.3 fish (generally Black Lake run) to age 2.3 fish (generally Chignik Lake run; Figure 4).

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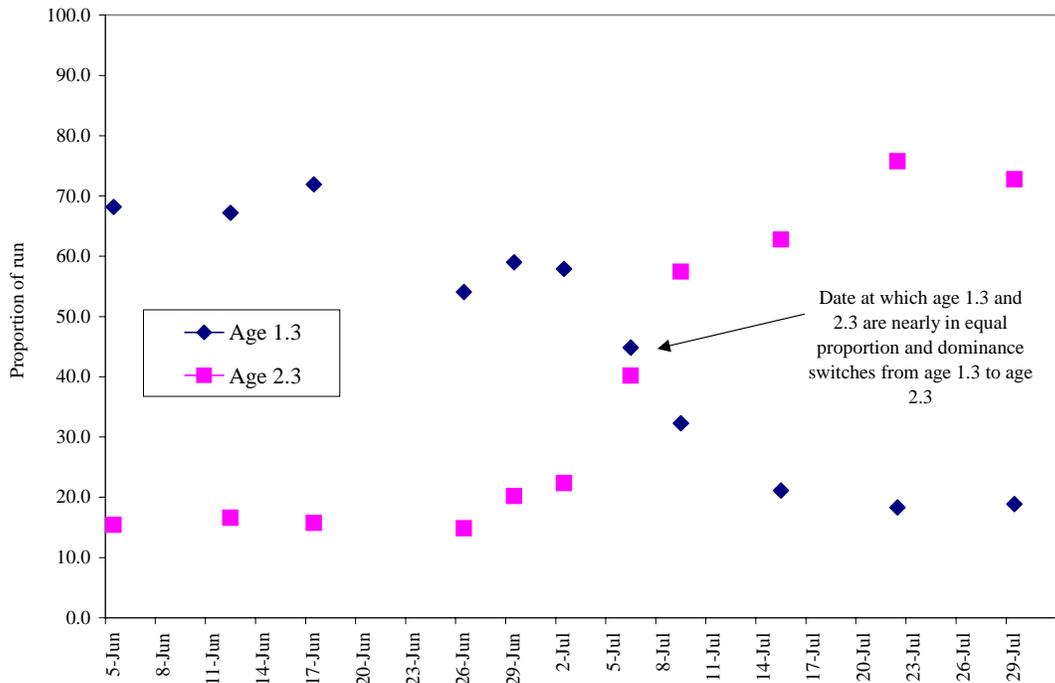


Figure 4. The estimated age composition of Chignik Lagoon age 1.3 and 2.3 fish by day throughout the 2003 season (as an example) with the age transition date depicted.

To estimate the early and late-run escapements, the age transition date was considered to be the date at which the Chignik Lake run becomes dominant. All escapement prior to that date was considered Black Lake and all escapement after that date was considered Chignik Lake for all years, 1986 through 2003. The resultant escapement estimates for each stock in each year were compared with the postseason SPA escapement estimates for each year to determine the accuracy and precision of this method.

Total escapement through a fixed date

To provide an unweighted estimate of the fixed date at which total escapement most closely approximates the postseason SPA analysis of Black Lake escapement (Figure 1; Point B), the daily escapement was examined. The date on which the total cumulative escapement was closest to the postseason SPA Black Lake escapement estimate was determined for each year, 1986 through 2003 (Figure 1). Those dates were then averaged across the years to estimate the best fixed date at which total escapement is closest to the postseason estimate of Black Lake escapement. Postseason SPA analysis would clearly allocate some of the escapement prior to that fixed date to the Chignik Lake run and some of the escapement after that date to the Black Lake run, but the date was selected so that those allocations would be as similar as possible and cancel each other out.

For the purposes of this analysis escapement through a date is considered to be the total escapement counted through the Chignik Weir for that day through 11:59 PM.

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## RESULTS

### Postseason SPA

#### SPA Error

The error associated with the 2003 inseason SPA escapement estimates is considered a minimum estimate of the error, based on the relatively high accuracy of the 2003 SPA models and the fact that aging and sampling error were not included. The 90% confidence interval surrounding the Black Lake escapement estimate of 350,004 ranged from 284,903 to 418,317. The 90% confidence interval surrounding the Chignik Lake escapement estimate of 334,119 ranged from 265,806 to 399,220 (Figure 5).

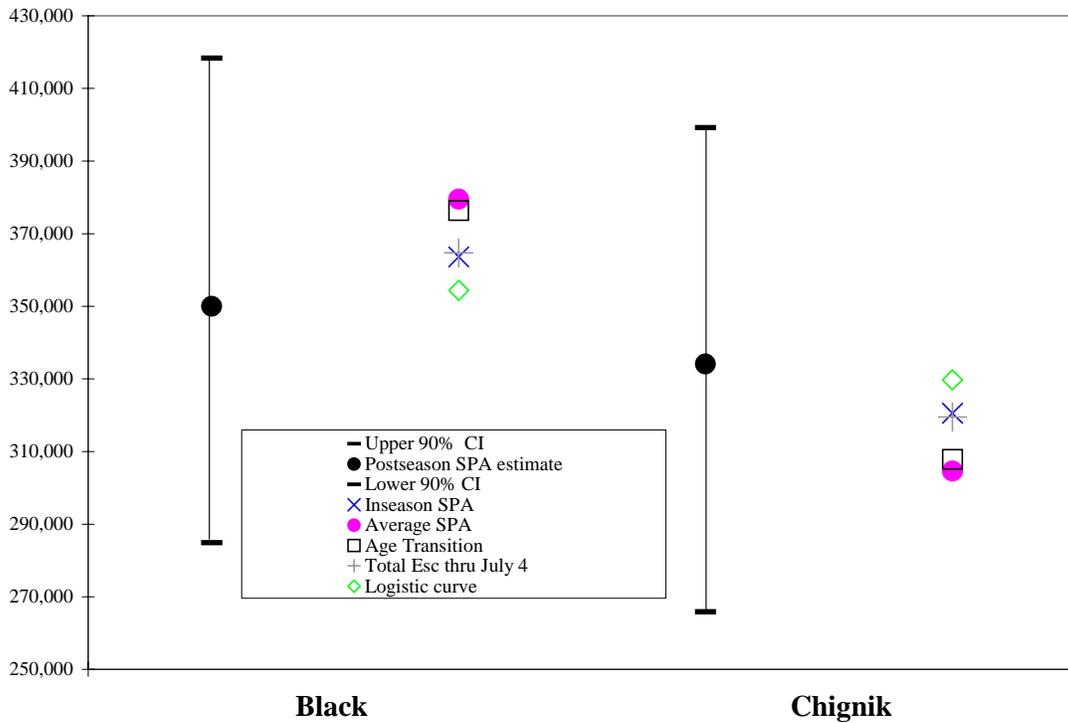


Figure 5. The 90% confidence intervals surrounding the postseason SPA estimates of escapement for Black Lake and Chignik Lake during 2003 compared to estimates from potential alternative inseason methods of run separation and the inseason SPA previously utilized.

There was significant variability surrounding the postseason SPA escapement estimates. It is likely that other seasons' estimates had significantly larger ranges around them due to less accurate model performance in those years.

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**Inseason Estimates**

Escapement estimates using each method were compared to the postseason SPA estimate because, by year, they are assumed to be the most accurate estimates currently available, with which to evaluate the results. Only the Black Lake escapements were used to evaluate the estimates because management actions are based on estimates of escapement to Black Lake during the first portion of the season. The results of any Black Lake estimate would be directly inverse to those of the Chignik Lake estimate and evaluating the Chignik Lake estimate separately would be redundant.

Inseason SPA

The inseason SPA estimate had a moderate bias towards overestimating the Black Lake escapement, as measured by the average difference between the inseason SPA estimate and the postseason SPA estimate (Table 1). The inseason SPA estimates were among the most precise estimates as measured by the average squared difference.

Table 1. Results from the inseason SPA Black Lake escapement estimates compared to the postseason SPA and the average difference and average squared difference of the estimates.

Year	Postseason SPA	Inseason SPA	Inseason SPA Difference
1986	566,088		
1987	589,291		
1988	420,577	421,823	1,246
1989	384,004	417,437	33,433
1990	434,543	470,998	36,455
1991	657,511	722,138	64,627
1992	360,681	488,504	127,823
1993	364,261	398,582	34,321
1994	769,462	682,459	-87,003
1995	366,163	405,664	39,501
1996	464,749	419,185	-45,564
1997	396,667	438,491	41,824
1998	410,658	393,731	-16,927
1999	457,425	394,536	-62,889
2000	536,141	512,649	-23,492
2001	744,013	826,653	82,640
2002	380,701	383,360	2,659
2003	350,004	363,596	13,592
Average Difference			15,140
Average squared Difference			2.72.E+09

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Average SPA

The average SPA estimates were reasonably accurate with a slight bias to underestimate the Black Lake escapement as compared to postseason SPA estimates (Table 2). This tendency to overestimate however, was weighted significantly by a few years in which the average SPA method greatly overestimated the Black Lake escapement. The average SPA method was reasonably precise.

Table 2. Results from the average SPA Black Lake escapement estimates compared to the postseason SPA and the average difference and average squared difference of the estimates.

Year	Postseason SPA	Average SPA	Average SPA Difference
1986	566,088	474,699	-91,389
1987	589,291	472,386	-116,905
1988	420,577	440,380	19,803
1989	384,004	446,335	62,331
1990	434,543	458,543	24,000
1991	657,511	640,460	-17,051
1992	360,681	431,545	70,864
1993	364,261	426,598	62,337
1994	769,462	637,186	-132,276
1995	366,163	432,239	66,076
1996	464,749	423,474	-41,275
1997	396,667	425,380	28,713
1998	410,658	442,287	31,629
1999	457,425	412,901	-44,524
2000	536,141	472,911	-63,230
2001	744,013	758,015	14,002
2002	380,701	385,111	4,410
2003	350,004	379,511	29,507
Average Difference			-5,165
Average squared Difference			3.81.E+09

Logistic Curves

The first of the two logistic models (referred to as the early curve) represents the majority of the years included in these analyses (Figure 6). It has a gradual incline with 50% Chignik Lake bound sockeye passing the weir on around July 6.

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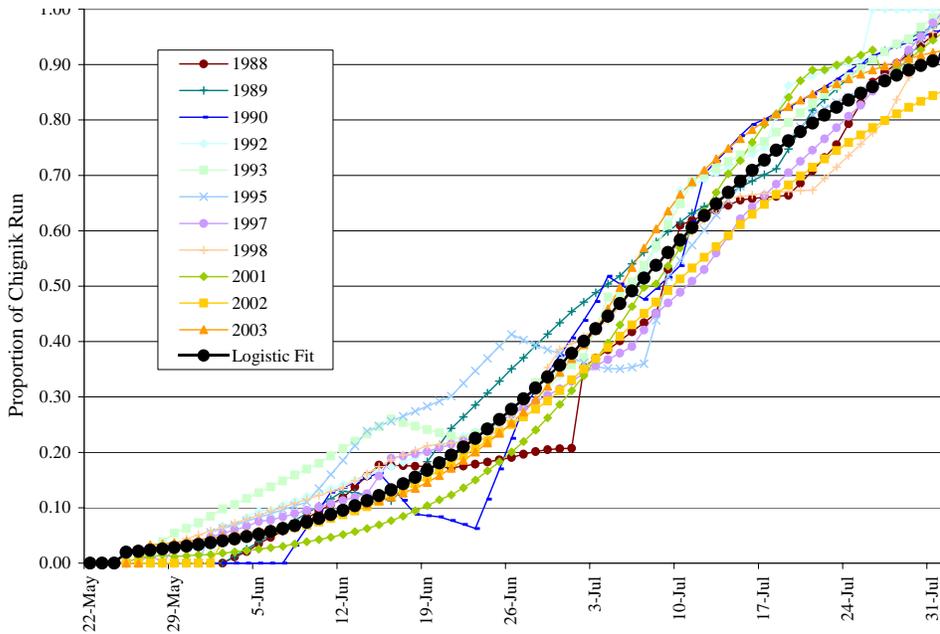


Figure 6. The daily proportion of the Chignik Lake run estimated by postseason SPA and the “early” logistic fit curve.

The second logistic model (referred to as the late curve) is represented by fewer years (Figure 7). It indicates a slower build-up of sockeye salmon bound for Chignik Lake, with a 50% proportion on July 15.

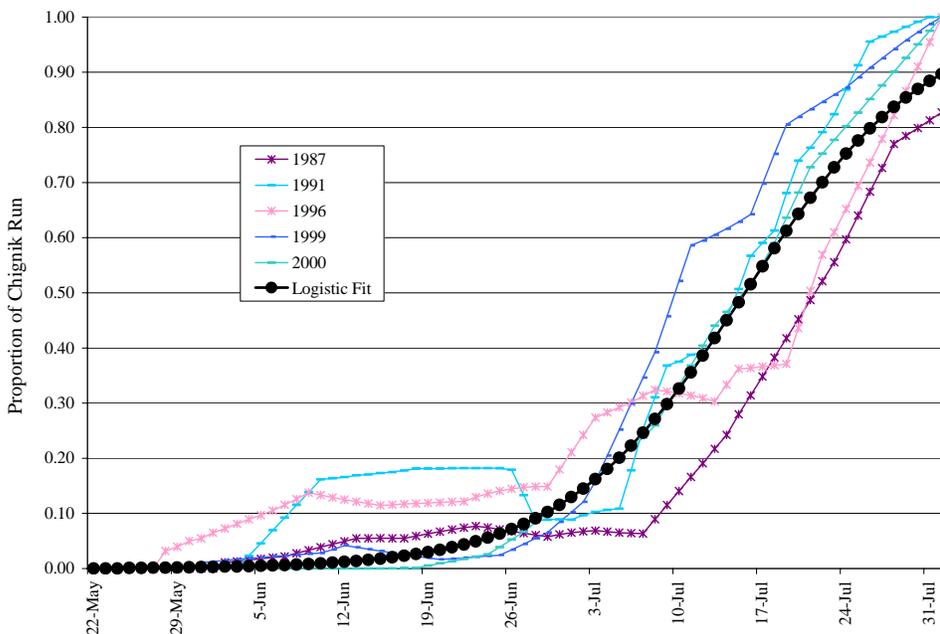


Figure 7. The daily proportion of the Chignik Lake run estimated by postseason SPA and the “late” logistic fit curve.

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These two curves were used in combination across the years examined. The early curve was applied to years in which the run timing of Chignik Lake run was early and the late curve was applied in years that the Chignik Lake run was late. The combination of curves resulted in a relatively low accuracy with a tendency to overestimate the Black Lake escapement (Table 3). The logistic curves method had the highest precision of all of the estimates based on the average squared difference.

Table 3. Results from the logistic curves Black Lake escapement estimates compared to the postseason SPA and the average difference and average squared difference of the estimates.

Year	Postseason SPA	Logistic Curves	Logistic Curves Difference
1986	566,088		
1987	589,291	547,566	-41,725
1988	420,577	409,183	-11,394
1989	384,004	416,999	32,995
1990	434,543	424,868	-9,675
1991	657,511	743,339	85,828
1992	360,681	393,755	33,074
1993	364,261	407,558	43,297
1994	769,462		
1995	366,163	398,076	31,913
1996	464,749	487,287	22,538
1997	396,667	394,581	-2,086
1998	410,658	506,618	95,960
1999	457,425	480,051	22,626
2000	536,141	557,399	21,258
2001	744,013	705,249	-38,764
2002	380,701	356,987	-23,714
2003	350,004	354,389	4,385
Average Difference			16,657
Average squared Difference			1.51.E+09

It is unclear what physical or biological parameters trigger the differences in run timing; however, there is a reasonable correlation between May air temperatures (as measured in Cold Bay Alaska) and the timing of the late Chignik Lake run. The later curve is also positively correlated with a later transition of dominance between the age 1.3 and age 2.3 sockeye salmon. A combination of these two characteristics may be used to determine which curve would be more appropriate prior to and during a given season.

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Age Transition

The estimate based on the age transition date tended, on average, to overestimate the Black Lake escapement when compared to postseason SPA estimates and was the least precise of all of the estimation methods (Table 4).

Table 5. Results from the age transition Black Lake escapement estimates compared to the postseason SPA and the average difference and average squared difference of the estimates.

Year	Postseason SPA	Age Transition	Age Transition Difference
1986	566,088	444,501	-121,587
1987	589,291	547,564	-41,727
1988	420,577	379,416	-41,161
1989	384,004	414,339	30,335
1990	434,543	404,630	-29,913
1991	657,511	712,626	55,115
1992	360,681	510,457	149,776
1993	364,261	370,109	5,848
1994	769,462	670,816	-98,646
1995	366,163	445,933	79,770
1996	464,749	432,333	-32,416
1997	396,667	467,591	70,924
1998	410,658	474,842	64,184
1999	457,425	434,956	-22,469
2000	536,141	570,093	33,952
2001	744,013	1,034,191	290,178
2002	380,701	392,378	11,677
2003	350,004	376,304	26,300
Average Difference			23,897
Average squared Difference			8.81.E+09

Total escapement though a fixed date

The unweighted average of the dates at which total escapement approximated the postseason Black Lake escapement estimate was July 4. The estimate was slightly biased to underestimate the Black Lake escapement, due in a large part to a few years that greatly underestimated the escapement. The precision was lower than three of the other five methods (Table 6).

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Table 6. Results from the total escapement through a fixed date Black Lake escapement estimates compared to the postseason SPA and the average difference and average squared difference the estimates.

Year	Postseason SPA	Escapement thru July 4	Escapement thru July 4 Difference
1986	566,088	444,501	-121,587
1987	589,291	441,911	-147,380
1988	420,577	451,611	31,034
1989	384,004	425,295	41,291
1990	434,543	406,820	-27,723
1991	657,511	678,305	20,794
1992	360,681	396,024	35,343
1993	364,261	403,982	39,721
1994	769,462	666,706	-102,756
1995	366,163	449,896	83,733
1996	464,749	420,488	-44,261
1997	396,667	420,252	23,585
1998	410,658	481,619	70,961
1999	457,425	420,170	-37,255
2000	536,141	407,941	-128,200
2001	744,013	850,348	106,335
2002	380,701	392,378	11,677
2003	350,004	364,665	14,661
Average Difference			-7,224
Average squared Difference			5.70E+09

## DISCUSSION

The estimates from each method evaluated in this analysis fell well within the confidence bounds of the 2003 postseason estimate (Figure 5) and would likely fall within these bounds in all years. Therefore, all of these estimation methods would be relatively accurate, given the error in any estimate using SPA or any other established method.

The inseason SPA estimation method, which the method selected from this review would replace, was among the most accurate and precise of the estimates (Tables 1 and 7). The advantage of the inseason SPA method was that it tended to respond more favorably to unusual run timing or significant differential magnitude between the runs. What the inseason SPA lacked in overall precision and accuracy, it made up for in responsiveness to interannual changes.

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Table 7. A comparison using average difference and average squared difference of all of the inseason estimation methods of Black Lake escapement with the postseason SPA method.

	Inseason SPA	Average SPA	Logistic Curves	Age Transition	Escapement thru July 4
Average Difference	15,140	-5,165	16,657	23,897	-7,224
Average squared Difference	2.72.E+09	3.81.E+09	1.51.E+09	8.81.E+09	5.70E+09

The most significant problem with using the SPA model inseason was the management delay associated with the model development. Since the Chignik Lake run had to be present in a significant proportion to determine if the SPA model was working, there was no information about the proportion of the two runs in the escapement prior to the first week in July. The fishery was generally managed so that 400,000 fish escaped by June 30. Since the halfway point of the overlap period is usually after June 30 (averaged to be on July 4 as revealed by this analysis), there were usually additional fish that were allocated to the early run at the time that the inseason SPA model was released. This typically resulted in escapements to Black Lake that exceeded the established goal. When the inseason SPA model was finally released, the late run was increasing in magnitude and the fishery was usually managed based on the Chignik Lake escapement. Since the inseason SPA model allocated many fish during June to the late run, the Chignik Lake escapement was often ahead of the interim escapement objectives. The fishery frequently had to be aggressively managed to get the escapement back on to the interim objective schedule.

Since there was little success from this analysis in developing an accurate and precise new method that uses inseason data, the remaining goal was to determine which estimation method would work well in the majority of situations.

The age transition estimation method is founded on sound reasoning, but the interannual variability of age compositions of each run and the variable run timing between runs render this estimation method tenuous inseason (Table 5).

The logistic curves estimation method (Tables 3 and 7; Figures 6 and 7) and the average SPA time of entry curves (Tables 2 and 7; Figure 3) appear to provide the best estimate, relative to the postseason SPA estimate. While the logistic curve distribution and the average SPA time of entry curves approximate the postseason estimate as far as the total escapement by run, the distribution of the estimate is a significant change from the distribution of the current interim escapement objective schedule. The result would be a new interim escapement objective schedule that would include early-run escapement objectives that would have to be achieved through late July and late-run escapement objective that would have to be achieved in early June. This drastic change would be difficult for management staff to implement, and while it might work well in theory, the actual application of such a change could produce unforeseen results. The ramifications of selecting the inappropriate logistic curve in a given year, despite the

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seemingly reliable indicators of temperature and age composition, could exacerbate the inaccuracy of the estimate compared to a more static apportionment method.

The analysis of the date at which the total escapement most closely approximates the postseason apportionment of the Black Lake escapement indicated that July 4 is the most appropriate date on average. This estimate is calculated using an average of the best date during each year from 1986 through 2003 and is not a weighted estimate based upon size of annual escapements. Thus, years of large escapements do not overshadow years of small escapements in derivation of the appropriate date. Therefore, assuming that there are no major shifts in run timing, this date would continue to provide a reasonable estimation of the early-run escapement. So, one could expect the total escapement on July 4 in any given year to reasonably approximate the total Black Lake escapement.

Managing the fishery with a fixed date to differentiate the early run has many benefits. Management based on this strategy eliminates the management delay and period of uncertainty that was commonly encountered while the inseason SPA model was being developed. Since the fishery was actively managed to achieve the management objectives before the inseason SPA model was developed each year, the Black Lake escapement was usually achieved by June 30. This analysis has revealed that the more appropriate date to separate the runs is July 4, so in the past, additional fish were usually estimated to have escaped into Black Lake, thereby exceeding the escapement goal.

As estimated by postseason SPA, the Black Lake escapement has exceeded the upper end of the escapement goal in 11 of the last 15 years. By managing the Black Lake escapement through July 4, (rather than through June 30 prior to establishment of the inseason SPA model) it will be less likely that postseason calculations will estimate that additional fish escaped into Black Lake and escapement into Black Lake should be closer to the escapement goal and fish surplus to the goals can be harvested.

It is difficult to estimate what the effects would have been in past years using the fixed-date management strategy. By examining total escapement through June 30, the benchmark by which the early-run fishery is managed before the inseason SPA is developed annually, the impacts of a fixed-date management strategy can be approximated. The additional escapement that occurred after June 30, through July 4 would be harvested under the fixed-date scenario (Table 8).

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Table 8. Total escapement through June 30, July 4, and increased potential early-run harvests resulting from a fixed escapement date management strategy.

	Total Escapement Through June 30	Total Escapement Through July 4	Additional Early-run Harvest Potential
1986	374,585	444,501	69,916
1987	433,397	441,911	8,514
1988	426,351	451,611	25,260
1989	405,652	425,295	19,643
1990	401,011	406,820	5,809
1991	612,098	678,305	66,207
1992	384,135	396,024	11,889
1993	388,986	403,982	14,996
1994	661,463	666,706	5,243
1995	378,954	449,896	70,942
1996	399,850	420,488	20,638
1997	391,952	420,252	28,300
1998	474,842	481,619	6,777
1999	397,217	420,170	22,953
2000	395,931	407,941	12,010
2001	717,534	850,348	132,814
2002	357,586	392,378	34,792
2003	353,265	364,665	11,400

To investigate whether more or less fishing time would have been directed on the early or late run in each year under the new fixed-date fishing strategy, the cumulative escapement on specific dates in each year were examined. To evaluate if more fishing days would have been permitted on the early run, the total cumulative escapement on July 4 was examined (Table 9). If the escapement was above the upper end escapement goal (400,000), more fishing would likely have occurred. The exception would be for the 2003 season during which the department targeted 350,000 fish and any fish in excess to 350,000 that had escaped by June 30 would indicate potential additional fishing time. During 1986 through 2003, more fishing time would have been allowed directed on the early run in 16 of the 18 years.

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Table 9. Actual total cumulative escapements on July 4 and July 5 through July 10 during 1986 through 2003.

	Total Escapement Through July 4	Escapement from July 5 through July 10
1986	444,501	119,331
1987	441,911	92,759
1988	451,611	25,585
1989	425,295	38,419
1990	406,820	93,383
1991	678,305	27,565
1992	396,024	16,854
1993	403,982	88,230
1994	666,706	15,492
1995	449,896	9,455
1996	420,488	24,237
1997	420,252	28,153
1998	481,619	6,379
1999	420,170	14,786
2000	407,941	56,358
2001	850,348	13,357
2002	392,378	21,059
2003	364,665	40,954

A similar investigation of the late run was also undertaken. The total escapement from July 5 through July 10, which would be the first interim escapement objective for the late run, was examined (Table 9). If the escapement during this time period was less than the July 10 sockeye salmon interim objective of 40,000 fish, less fishing time would have been permitted. During the 18 year period (1986 through 2003) less fishing time during that period would have been permitted in 12 of the last 18 seasons.

Under the new scenario, the management strategy would shift to target the late-run escapement objectives beginning on July 5. The late-run interim escapement objective schedule would remain unchanged. The net result of the change in management would be decreased escapement (and increased harvest) during the later portion of June when there are likely to be more early-run fish in the fishery, and increased escapement (and decreased harvest) during early July when there is likely a larger proportion of late-run fish in the fishery.

The result of this strategy is essentially a modification of the time period during which fish are harvested. Since the same early-run and late-run goals are targeted, the total escapement to both runs remains unchanged and as a result, the total harvest remains unchanged under perfectly precise management (management in which escapement objectives are exactly achieved). In reality however, since overescapement has often occurred due to inseason versus postseason

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apportionments, less efficient fishing openings, weather, et cetera, the fixed-date management strategy will likely result in overall additional harvest as a direct result of decreased overescapement.

### RECOMMENDATIONS

Based on this analysis, for ease of management, and to minimize the impacts of the potential problems associated with a method based on environmental variables (Cold Bay air temperature), the best strategy is to establish a fixed date up to which all fish are considered Black Lake escapement and after which all fish are considered Chignik Lake escapement. Statistically, this method, as well as all of the other methods, fall well within the confidence bounds of our best estimate for 2003 and likely would in all years.

This management change should reduce the chronic overescapement of the Black Lake stock, which is often due, in part, to differences between inseason and postseason run apportionment. Additionally, increased escapement during early July should allow additional Chignik Lake fish to escape early in the run during the time that the strength of Chignik Lake run cannot be measured.

While this method is not likely as accurate as inseason SPA, nor will it be reactive to year to year changes, we believe that July 4 represents the best date to use to separate the Black Lake and Chignik Lake escapements and recommend that the fishery be managed as such during the 2004 season. The postseason method of separating the runs without SPA has not yet been established; however, the selection of this date will be further evaluated postseason, when the postseason run separation is performed.

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**APPENDIX F. COMMERCIAL SALMON FISHERY CATCH AND  
EFFORT, BY DAY, BY FLEET**

**Appendix F1.**—Cooperative fleet commercial salmon fishing effort and catch (including home pack but not including ADF&G test fishery harvest), by day in the Chignik Management Area, 2004.

Date	Effort		Chinook		Sockeye		Coho		Pink		Chum		Total	
	Permits	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
6/4	7	8	0	0	3,204	21,007	0	0	0	0	0	0	3,204	21,007
6/5	7	9	0	0	5,237	34,059	0	0	0	0	0	0	5,237	34,059
6/6	11	17	0	0	5,169	32,194	0	0	0	0	0	0	5,169	32,194
6/7	13	19	0	0	8,817	56,185	0	0	0	0	0	0	8,817	56,185
6/8	17	25	1	15	11,572	73,872	0	0	0	0	0	0	11,573	73,887
6/9	17	20	0	0	16,520	108,814	0	0	0	0	0	0	16,520	108,814
6/10	18	32	0	0	18,105	116,276	0	0	0	0	0	0	18,105	116,276
6/11	18	39	6	89	29,552	196,741	0	0	0	0	0	0	29,558	196,830
6/12	17	36	4	128	21,728	139,601	0	0	0	0	0	0	21,732	139,729
6/13	18	48	5	152	26,454	170,641	0	0	0	0	0	0	26,459	170,793
6/14	17	38	5	85	24,049	154,418	0	0	0	0	0	0	24,054	154,503
6/15	17	28	11	164	25,736	172,708	0	0	0	0	0	0	25,747	172,872
6/16	14	25	10	119	14,111	89,166	0	0	0	0	0	0	14,121	89,285
6/17	18	50	5	89	47,138	293,335	0	0	0	0	0	0	47,143	293,424
6/18	Fishery open for the competitive fleet only													
6/19	17	44	11	211	29,841	188,226	0	0	0	0	0	0	29,852	188,437
6/20	19	28	21	289	17,599	110,353	0	0	0	0	0	0	17,620	110,642
6/21	14	22	11	104	10,004	64,010	0	0	0	0	0	0	10,015	64,114
6/22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/24	Fishery closed													
6/25	Fishery open for the competitive fleet only													
6/26	20	51	117	2,856	20,462	125,528	0	0	0	0	1	7	20,580	128,391
6/27	20	47	72	1,195	24,342	149,948	0	0	0	0	0	0	24,414	151,143
6/28	19	53	52	924	23,632	142,292	0	0	1	6	0	0	23,685	143,222
6/29	18	44	26	514	17,183	111,461	0	0	0	0	0	0	17,209	111,975
6/30	11	11	14	263	4,989	31,238	0	0	0	0	0	0	5,003	31,501

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Date	Effort		Chinook		Sockeye		Coho		Pink		Chum		Total	
	Permits	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
7/1	15	21	38	779	9,693	61,355	0	0	0	0	1	6	9,732	62,140
7/2	17	42	91	1,915	21,831	138,509	0	0	0	0	0	0	21,922	140,424
7/3	17	40	111	2,273	17,941	113,352	0	0	0	0	0	0	18,052	115,625
7/4	18	42	167	2,823	16,990	107,944	0	0	0	0	0	0	17,157	110,767
7/5	Fishery open for the competitive fleet only													
7/6	19	39	133	3,077	16,435	102,226	0	0	0	0	0	0	16,568	105,303
7/7	14	35	78	1,903	11,774	75,327	0	0	0	0	1	8	11,853	77,238
7/8	16	29	223	3,199	9,032	56,384	0	0	0	0	0	0	9,255	59,583
7/9	14	21	179	2,878	8,837	55,250	0	0	0	0	5	32	9,021	58,160
7/10	15	35	248	4,265	15,089	95,920	0	0	0	0	4	31	15,341	100,216
7/11	15	44	169	3,422	13,645	85,916	0	0	11	28	2	13	13,827	89,379
7/12	10	10	13	339	4,373	28,718	0	0	9	39	3	29	4,398	29,125
7/13	15	21	12	126	6,583	42,595	0	0	0	0	11	103	6,606	42,824
7/14	5	8	1	2	2,781	18,075	0	0	0	0	11	95	2,793	18,172
7/15	7	8	14	300	3,110	20,119	0	0	0	0	2	12	3,126	20,431
7/16	Fishery open for the competitive fleet only													
7/17	Fishery open for the competitive fleet only													
7/18	Fishery closed													
7/19	11	12	8	192	2,439	16,204	0	0	0	0	5	33	2,452	16,429
7/20	13	20	72	1,138	7,111	48,597	0	0	114	512	36	294	7,333	50,541
7/21	8	11	44	826	5,034	34,604	0	0	78	283	43	393	5,199	36,106
7/22	10	17	46	792	4,123	27,689	0	0	100	315	15	98	4,284	28,894
7/23	6	8	16	227	3,123	20,023	0	0	79	241	14	106	3,232	20,597
7/24	9	10	18	337	3,010	19,939	0	0	73	235	7	44	3,108	20,555
7/25	Fishery closed													
7/26	Fishery closed													
7/27	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/28	9	20	16	266	4,328	26,613	24	196	370	1,107	103	733	4,841	28,915
7/29	10	10	9	207	2,800	17,933	0	0	211	642	46	325	3,066	19,107
7/30	Fishery closed													
7/31	13	20	35	619	3,009	19,272	5	39	262	843	15	120	3,326	20,893

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Date	Effort		Chinook		Sockeye		Coho		Pink		Chum		Total	
	Permits	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
8/1	8	10	38	676	1,441	9,218	1	7	225	738	35	274	1,740	10,913
8/2	6	8	27	456	1,737	11,123	2	10	179	535	47	332	1,992	12,456
8/3	Fishery closed												0	0
8/4	Fishery closed												0	0
8/5	4	6	4	55	836	5,350	0	0	106	320	16	115	962	5,840
8/6	3	3	21	305	1,306	8,369	1	5	165	501	25	179	1,518	9,359
8/7	4	4	4	34	1,009	6,300	1	5	210	629	2	11	1,226	6,979
8/8	2	2	3	41	424	2,672	0	0	48	143	0	0	475	2,856
8/9	Fishery closed													
8/10	Fishery closed													
8/11	Fishery closed													
8/12	Fishery closed													
8/13	Fishery closed													
8/14	Fishery closed													
8/15	Fishery closed													
8/16	Fishery closed													
8/17	Fishery closed													
8/18	Fishery closed													
8/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/20	Fishery closed													
<b>Total</b>	<b>20</b>	<b>1,250</b>	<b>2,209</b>	<b>40,669</b>	<b>605,288</b>	<b>3,857,669</b>	<b>34</b>	<b>262</b>	<b>2,241</b>	<b>7,117</b>	<b>450</b>	<b>3,393</b>	<b>610,222</b>	<b>3,909,110</b>

**Appendix F2.**—Competitive fleet commercial salmon fishing effort and catch (including home pack but not including ADF&G test fishery harvest), by day in the Chignik Management Area, 2004.

Date	Effort		Chinook		Sockeye		Coho		Pink		Chum		Total	
	Permits	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
6/4	Fishery open to the cooperative fleet only													
6/5	Fishery open to the cooperative fleet only													
6/6	Fishery open to the cooperative fleet only													
6/7	Fishery open to the cooperative fleet only													
6/8	Fishery open to the cooperative fleet only													
6/9	Fishery open to the cooperative fleet only													
6/10	Fishery open to the cooperative fleet only													
6/11	Fishery open to the cooperative fleet only													
6/12	Fishery open to the cooperative fleet only													
6/13	Fishery open to the cooperative fleet only													
6/14	Fishery open to the cooperative fleet only													
6/15	Fishery open to the cooperative fleet only													
6/16	Fishery open to the cooperative fleet only													
6/17	Fishery open to the cooperative fleet only													
6/18	10	13	1	7	22,848	147,970	0	0	0	0	0	0	22,849	147,977
6/19	8	9	3	21	13,830	89,409	0	0	0	0	0	0	13,833	89,430
6/20	Fishery open to the cooperative fleet only													
6/21	Fishery open to the cooperative fleet only													
6/22	Fishery open to the cooperative fleet only													
6/23	Fishery open to the cooperative fleet only													
6/24	Fishery closed													
6/25	10	13	86	1,822	18,949	126,052	1	7	2	6	4	28	19,042	127,915
6/26	12	12	22	308	13,542	89,756	0	0	0	0	1	8	13,565	90,072
6/27	Fishery open to the cooperative fleet only													
6/28	Fishery open to the cooperative fleet only													
6/29	Fishery open to the cooperative fleet only													
6/30	Fishery open to the cooperative fleet only													

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Date	Effort		Chinook		Sockeye		Coho		Pink		Chum		Total	
	Permits	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
7/1	Fishery open to the cooperative fleet only													
7/2	Fishery open to the cooperative fleet only													
7/3	Fishery open to the cooperative fleet only													
7/4	Fishery open to the cooperative fleet only													
7/5	10	10	103	2,187	10,470	68,424	0	0	10	27	3	20	10,586	70,658
7/6	11	11	13	222	4,627	30,484	1	7	4	9	6	38	4,651	30,760
7/7	Fishery open to the cooperative fleet only													
7/8	Fishery open to the cooperative fleet only													
7/9	Fishery open to the cooperative fleet only													
7/10	Fishery open to the cooperative fleet only													
7/11	Fishery open to the cooperative fleet only													
7/12	Fishery open to the cooperative fleet only													
7/13	Fishery open to the cooperative fleet only													
7/14	Fishery open to the cooperative fleet only													
7/15	Fishery open to the cooperative fleet only													
7/16	7	7	17	316	2,527	16,781	1	7	86	305	10	60	2,641	17,469
7/17	12	15	62	1,411	6,652	44,890	0	0	37	125	31	256	6,782	46,682
7/18	Fishery closed													
7/19	Fishery open to the cooperative fleet only													
7/20	Fishery open to the cooperative fleet only													
7/21	Fishery open to the cooperative fleet only													
7/22	Fishery open to the cooperative fleet only													
7/23	Fishery open to the cooperative fleet only													
7/24	Fishery open to the cooperative fleet only													
7/25	Fishery closed													
7/26	Fishery closed													
7/27	Fishery open to the cooperative fleet only													
7/28	Fishery open to the cooperative fleet only													
7/29	Fishery open to the cooperative fleet only													
7/30	Fishery closed													
7/31	Fishery open to the cooperative fleet only													

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Date	Effort		Chinook		Sockeye		Coho		Pink		Chum		Total	
	Permits	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
8/1	Fishery open to the cooperative fleet only													
8/2	Fishery open to the cooperative fleet only													
8/3	Fishery closed													
8/4	Fishery closed													
8/5	Fishery open to the cooperative fleet only													
8/6	Fishery open to the cooperative fleet only													
8/7	Fishery open to the cooperative fleet only													
8/8	Fishery open to the cooperative fleet only													
8/9	Fishery closed													
8/10	Fishery closed													
8/11	Fishery closed													
8/12	Fishery closed													
8/13	Fishery closed													
8/14	Fishery closed													
8/15	Fishery closed													
8/16	Fishery closed													
8/17	Fishery closed													
8/18	Fishery closed													
8/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/20	Fishery closed													
<b>Total</b>	12	90	307	6,294	93,445	613,766	3	21	139	472	55	410	93,949	620,963